

Results of Directional Survey

API number:	30-025-39890		
OGRID:		Operator:	MACK ENERGY CORP
		Property:	STATE GS-16 # 2H

surface	ULSTR:	P	16	T	17S	R	34E
				760	FSL	860	FEL

BH Loc	ULSTR:	N	16	T	17S	R	34E
11075	MD	8966.5	TVD	700	FSL	3281	FEL

1999 RWL

Top Perf/OH	ULSTR:	P	16	T	17S	R	34E
4743	MD	4742.6	TVD	748	FSL	841	FEL

Bot Perf/OH	ULSTR:	N	16	T	17S	R	34E
4832	MD	4831.6	TVD	747	FSL	842	FEL

	MD	N/S	E/W	VD
	4623	-10.83	19.80	4622.6
TOP PERFS/OH	4743	-12.37	18.63	4742.59
	4813	-13.27	17.94	4812.58
	4813	-13.27	17.94	4812.58
BOT PERFS/OH	4832	-13.45	17.82	4831.58
	5003	-15.09	16.73	5002.57

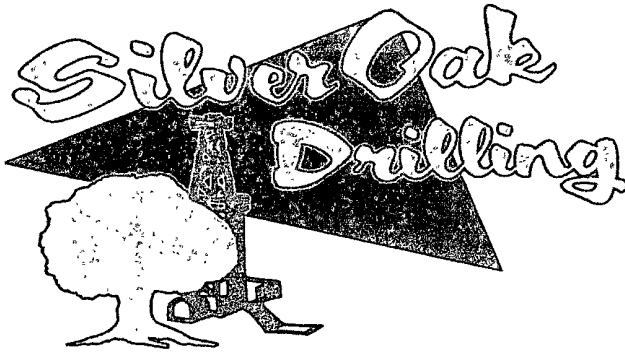
NEXT TO LAST	11018	-61.78	-2363.90	8962.40
LAST READING	11075	-60.12	-2420.73	8966.46
TD	11075	-60.12	-2420.73	8966.46

Surface Location	760	FS	860	FE
Projected BHL	700	FS	3281	FE
Location of				
Top Perfs/OH	748	FS	841	FE
Bottom Perfs/OH	747	FS	842	FE

SUMMARY of Subsurface Locations

Surface Location	P-16-17S-34E	760	FS	860	FE	Vert. Depth
Top Perfs/OH	P-16-17S-34E	748	FS	841	FE	4742.59
Bottom Perfs/OH	M-16-17S-34E	747	FS	842	FE	4831.58
Projected TD	M-16-17S-34E	700	FS	3281	FE	8966.46

NOV 08 2011



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OCT 28 2011

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PO Box 1370
Artesia, NM 88211-1370
(505) 748-1288

July 5, 2011

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

RE: State GS 16 #2
760' FSL & 860' FEL
Sec. 16, T19S, R34E
Lea County, New Mexico

Dear Sir,

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

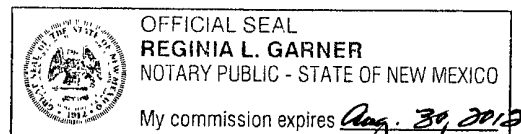
Very truly yours,

A handwritten signature in dark ink, appearing to read "Eddie C. LaRue".

Eddie C. LaRue
Operations Manager

State of New Mexico }
County of Eddy }

The foregoing was acknowledged before me this 5th day of July, 2011.

A handwritten signature in dark ink, appearing to read "Regina L. Garner".
Notary Public

Pason DataHub Deviation Survey
Well Dossier 3189239 - STATE GS-16 # 2

#	Date	Depth	Deviation	Direction	TVD	Horiz
	6/6/2011	119	0.20	0.00	0.00	0
	6/6/2011	225	0.20	0.00	0.00	0
	6/6/2011	379	0.80	0.00	0.00	0
	6/6/2011	532	0.80	0.00	0.00	0
	6/6/2011	749	0.30	0.00	0.00	0
	6/7/2011	969	0.40	0.00	0.00	0
	6/7/2011	1191	0.10	0.00	0.00	0
	6/7/2011	1412	0.40	0.00	0.00	0
	6/8/2011	1524	0.40	0.00	0.00	0
	6/9/2011	1717	0.30	168.00	0.00	0
	6/9/2011	1876	0.30	130.00	0.00	0
	6/9/2011	2099	0.80	0.00	0.00	0
	6/10/2011	2289	0.81	93.70	0.00	0
	6/10/2011	2511	0.80	79.70	0.00	0
	6/10/2011	2733	1.70	63.70	0.00	0
	6/10/2011	2955	1.20	60.00	0.00	0
	6/10/2011	3176	0.80	60.00	0.00	0
	6/11/2011	3366	0.40	114.00	0.00	0
	6/11/2011	3619	0.20	110.00	0.00	0
	6/11/2011	3840	0.50	167.00	0.00	0
	6/11/2011	4059	0.40	220.00	0.00	0
	6/11/2011	4281	0.80	233.00	0.00	0
	6/12/2011	4502	1.20	226.00	0.00	0
	6/12/2011	4723	1.10	212.00	0.00	0
	6/13/2011	4944	0.50	230.00	0.00	0
	6/13/2011	5166	0.10	195.70	0.00	0
	6/13/2011	5387	0.70	195.00	0.00	0
	6/13/2011	5607	0.30	206.00	0.00	0
	6/14/2011	5829	0.50	135.00	0.00	0
	6/15/2011	5998	0.26	180.88	0.00	0
	6/15/2011	6093	0.26	155.35	6092.53	0
	6/15/2011	6187	0.44	178.77	6186.53	0
	6/15/2011	6282	0.53	173.06	6281.53	0
	6/15/2011	6377	0.62	164.36	0.00	0
	6/15/2011	6473	0.70	149.42	17.61	0
	6/15/2011	6567	0.79	155.13	0.00	0
	6/16/2011	6758	4.31	188.88	0.00	0
	6/16/2011	6763	2.29	182.82	0.00	0
	6/16/2011	6853	5.63	191.17	0.00	0
	6/16/2011	6948	5.63	190.81	0.00	0
	6/16/2011	7043	5.63	191.96	0.00	0
	6/16/2011	7139	5.63	192.13	0.00	0
	6/16/2011	7234	5.63	192.57	0.00	0
	6/17/2011	7324	5.54	192.48	0.00	0
	6/17/2011	7424	0.00	0.00	0.00	0
	6/17/2011	7519	3.25	185.89	0.00	0
	6/17/2011	7614	2.29	201.27	0.00	0
	6/17/2011	7708	0.88	198.02	0.00	0
	6/17/2011	7803	0.05	345.33	7798.90	0
	6/18/2011	7897	0.53	10.37	0.00	0

Well Dossier 3189239 - STATE GS-16 # 2

#	Date	Depth	Deviation	Direction	TVD	Horiz
6/18/2011		7992	0.53	19.60	0.00	0
6/18/2011		8086	0.62	19.87	8081.90	0
6/18/2011		8181	0.79	31.29	8176.88	0
6/18/2011		8212	0.79	30.85	8207.88	0
6/19/2011		8222	0.70	29.98	8217.88	0
6/19/2011		8254	0.88	41.58	8249.88	0
6/19/2011		8286	0.53	17.36	8281.88	0
6/19/2011		8317	1.76	272.63	8312.87	0
6/19/2011		8349	4.40	262.70	8344.82	0
6/19/2011		8381	7.30	259.25	8376.65	0
6/19/2011		8412	9.85	259.11	8407.30	0
6/19/2011		8444	12.85	261.14	8438.65	0
6/20/2011		8476	15.74	263.29	8469.70	0
6/20/2011		8507	18.73	265.12	8499.32	0
6/20/2011		8539	21.98	265.64	8529.31	0
6/20/2011		8602	28.14	266.08	8586.37	0
6/20/2011		8633	31.39	265.90	8613.27	0
6/20/2011		8696	37.72	266.59	8665.15	0
6/20/2011		8728	40.98	267.29	8689.89	0
6/24/2011		8876	57.77	265.08	0.00	0
6/24/2011		8891	60.94	262.92	0.00	0
6/24/2011		8940	63.05	265.72	0.00	0
6/24/2011		8972	64.89	267.21	0.00	0
6/24/2011		9036	68.59	270.15	8857.46	0
6/24/2011		9068	71.40	270.81	8868.40	0
6/24/2011		9100	74.04	271.15	8877.91	0
6/24/2011		9132	76.33	271.33	8886.09	0
6/24/2011		9164	78.71	271.85	8893.03	516.05
6/24/2011		9196	81.07	272.08	8898.68	547.51
6/24/2011		9228	83.89	272.46	8902.86	8.89
6/24/2011		9260	86.26	273.14	8905.61	0.70
6/24/2011		9292	87.58	273.45	8907.33	4.34
6/25/2011		9324	87.85	273.27	8908.56	0
6/25/2011		9356	89.78	274.32	0.00	0
6/26/2011		9371	91.51	274.73	0.00	0
6/26/2011		9444	90.34	275.22	8907.50	0
6/26/2011		9476	89.55	275.10	8907.53	0
6/26/2011		9508	89.33	276.48	8907.84	0
6/26/2011		9541	89.16	276.53	8908.27	0
6/26/2011		9573	88.54	275.54	8908.92	0
6/26/2011		9605	88.38	276.17	8909.78	0
6/26/2011		9638	87.98	275.60	8910.82	0
6/27/2011		9670	87.08	273.89	8912.21	0
6/27/2011		9702	87.36	273.36	8913.16	0
6/27/2011		9734	88.37	272.97	8914.94	0
6/27/2011		9767	89.94	273.10	8915.29	0
6/27/2011		9799	89.44	272.07	8915.38	0
6/27/2011		9831	89.38	271.05	0.00	0
6/27/2011		9864	88.71	270.43	8916.26	0
6/27/2011		9928	89.10	271.33	8917.22	0
6/27/2011		9961	88.21	272.20	8917.99	0

Well Dossier 3189239 - STATE GS-16 # 2

#	Date	Depth	Deviation	Direction	TVD	Horiz
6/27/2011	9993	86.97	272.25	8919.43	0	
6/27/2011	10025	85.40	271.74	8921.56	0	
6/27/2011	10058	85.29	271.76	8924.24	0	
6/28/2011	10090	86.19	271.14	8926.11	0	
6/28/2011	10123	87.76	270.89	0.00	0	
6/28/2011	10155	87.53	270.64	0.00	0	
6/28/2011	10187	87.82	262.20	8931.25	0	
6/28/2011	10220	87.42	268.67	0.00	0	
6/28/2011	10252	88.15	268.92	8933.86	0	
6/28/2011	10284	89.61	268.77	8934.49	0	
6/28/2011	10317	89.50	268.97	8934.74	0	
6/28/2011	10348	89.16	268.83	8935.00	0	
6/28/2011	10380	88.99	268.75	8935.62	0	
6/28/2011	10412	0.00	0.00	0.00	0	
6/28/2011	10444	88.15	270.14	8936.85	0	
6/28/2011	10476	86.53	270.73	8938.34	0	
6/28/2011	10505	86.30	271.05	8940.34	0	
6/28/2011	10540	86.42	270.58	8942.37	0	
6/28/2011	10572	86.92	271.10	8944.23	0	
6/28/2011	10604	87.20	270.96	8945.93	0	
6/29/2011	10668	87.93	271.71	8948.52	0	
6/29/2011	10700	88.32	272.05	8949.56	0	
6/29/2011	10732	88.94	2782.40	8950.33	0	
7/1/2011	10828	89.50	272.20	8950.45	0	
7/1/2011	10860	88.38	272.30	8951.04	0	
7/1/2011	10892	86.92	272.24	8952.36	0	
7/1/2011	10924	85.12	272.39	8954.58	0	
7/1/2011	10956	85.01	272.74	8957.33	0	
7/1/2011	10988	85.18	272.45	8960.07	0	
7/1/2011	11018	85.91	271.67	8962.40	0	

EOF



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A Schlumberger Company

DIRECTIONAL SURVEY REPORT

MACK ENERGY

STATE GS-16 #2

LEA COUNTY, NEW MEXICO

PREPARED BY: FRANCISCO SINISTERRA

SCANNED

Pathfinder

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



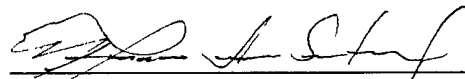
DIRECTIONAL SURVEY COMPANY REPORT:

1. NAME OF SURVEYING COMPANY: PATHFINDER ENERGY SERVICES
2. NAME OF PERSON(S) PERFORMING SURVEY:
A) RAFAEL DONARUMMA
3. POSITION OF SAID PERSON(S): (A-F) SURVEYORS (FIELD ENGINEERS)
4. DATE(S) ON WHICH SURVEY WAS PERFORMED: 06-14-11 TO 07-01-11
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
STATE GS-16 #2
LEA COUNTY, NM
RIG: SILVER OAK 12

9. SURVEY CERTIFIED FROM: 1769 TO 11018 FEET MEASURED DEPTH.

THIS IS TO VERIFY THAT ATTACHED DOCUMENTS SHOWING THE WELL TO BE
DISPLACED AT 2421.47 FEET ON A BEARING OF 268.58 DEGREES FROM THE
CENTER OF THE ROTARY TABLE AT A PROJECTED BIT DEPTH OF 11075 FEET,
ARE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE.


FRANCISCO SINISTERRA
M/LWD SERVICE COORDINATOR

SCANNED

PathFinder Energy Services, Inc.

BHL Report

Page 01/01
Tie-in Date: 06/14/2011
Date Completed: 07/01/2011

MACK ENERGY CORPORATION
STATE GS-16#2
LEA COUNTY, NEW MEXICO
Rig:SILVER OAK #12
PathFinder Office Supervisor: FRANCISCO SINISTERRA
PathFinder Field Engineers:R.DONARUMMA
S.BIFFLE
D.BROWN

Survey Horiz. Reference:WELLHEAD
Ref Coordinates: LAT:32.49.46.4317 N LON:103.33.33.7514 W
GRID Reference:NAD27 new mexico east Transverse Mercator
Ref GRID Coord: X: 737740.7000 Y: 666377.2000
North Aligned To:GRID NORTH
Total Magnetic Correction: 7.21° EAST TO GRID
Vertical Section Plane: 269.41
Survey Vert. Reference: 18.00' Kelly Bushing To Ground
Altitude:4066.00' Ground To MSL

Measured Depth	11075.00	(feet)
Inclination	85.91	(deg)
Azimuth	271.67	(deg)
True Vertical Depth	8966.46	(feet)
Vertical Section	2421.22	(feet)
Survey X cord	735319.95	(feet)
Survey Y cord	666317.05	(feet)
Survey Lat	32.82944753 N	(deg)
Survey Lon	103.56725687 W	(deg)
Rectangular Corr. N/S	60.12 S	(feet)
Rectangular Corr. E/W	2420.73 W	(feet)
Closure Distance	2421.47	(feet)
Direction of Closure	268.58	(deg)
Dogleg Severity	0.00	(deg/100ft)

SCANNED

PathFinder Energy Services, Inc.

Survey Report

Page 01/06

Tie-in Date: 06/14/2011

Date Completed: 07/01/2011

MACK ENERGY CORPORATION

STATE GS-16#2

LEA COUNTY, NM

Rig:SILVER OAK #12

PathFinder Office Supervisor: FRANCISCO SINISTERRA

PathFinder Field Engineers: R.DONARUMMA

S.BIFFLE

D.BROWN

Survey Calculations by RX4 using Minimum Curvature

Survey Horiz. Reference:WELLHEAD

Ref Coordinates: LAT:32.49.46.4317 N LON:103.33.33.7514 W

GRID Reference:NAD27 new mexico east Transverse Mercator

Ref GRID Coord: X: 737740.7000 Y: 666377.2000

North Aligned To:GRID NORTH

Total Magnetic Correction: 7.21° EAST TO GRID

Vertical Section Plane: 269.41

Survey Vert. Reference: 18.00' Kelly Bushing To Ground

Altitude:4066.00' Ground To MSL

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)
0.00	0.00	0.00	0.00	0.00	0.04	0.30 N	0.04 W	0.31@	352.46	0.00
THE FOLLOWING ARE SCIENTIFIC DRILLING GYROSCOPIC SURVEYS										
100.00	0.56	301.81	100.00	100.00	0.45	0.56 N	0.46 W	0.72@	320.99	0.56
200.00	0.50	299.37	200.00	100.00	1.24	1.03 N	1.25 W	1.62@	309.57	0.06
300.00	0.37	309.80	299.99	100.00	1.86	1.45 N	1.88 W	2.38@	307.74	0.15
400.00	0.38	309.12	399.99	100.00	2.37	1.87 N	2.38 W	3.03@	308.11	0.01
500.00	0.19	318.13	499.99	100.00	2.73	2.20 N	2.75 W	3.53@	308.67	0.19
600.00	0.24	339.31	599.99	100.00	2.91	2.52 N	2.94 W	3.87@	310.66	0.09
700.00	0.09	176.86	699.99	100.00	2.98	2.64 N	3.01 W	4.00@	311.28	0.33
800.00	0.01	109.48	799.99	100.00	2.97	2.56 N	2.99 W	3.94@	310.51	0.09
900.00	0.09	176.86	899.99	100.00	2.96	2.48 N	2.98 W	3.88@	309.72	0.09
1000.00	0.05	194.04	999.99	100.00	2.96	2.36 N	2.99 W	3.81@	308.26	0.05
1100.00	0.11	175.96	1099.99	100.00	2.97	2.22 N	2.99 W	3.72@	306.56	0.06
1200.00	0.20	155.02	1199.99	100.00	2.89	1.96 N	2.91 W	3.51@	304.01	0.10
1300.00	0.20	140.56	1299.99	100.00	2.71	1.67 N	2.73 W	3.20@	301.51	0.05
1400.00	0.44	129.50	1399.99	100.00	2.31	1.29 N	2.32 W	2.66@	299.13	0.25
1500.00	0.43	130.39	1499.98	100.00	1.73	0.81 N	1.74 W	1.92@	294.86	0.01
** TIED INTO SCIENTIFIC DRILLING GYROSCOPIC SURVEY @1600'MD										
1600.00	0.68	151.62	1599.98	100.00	1.17	0.04 N	1.17 W	1.17@	271.96	0.32
THE FOLLOWING ARE PATHFINDER MWD SURVEYS										
1769.00	0.62	145.64	1768.97	169.00	0.19	1.60 S	0.18 W	1.61@	186.33	0.05
1960.00	0.62	149.15	1959.96	191.00	-0.90	3.34 S	0.94 E	3.47@	164.34	0.02
2150.00	0.53	108.11	2149.95	190.00	-2.25	4.49 S	2.30 E	5.05@	152.91	0.22
2340.00	1.06	90.53	2339.93	190.00	-4.84	4.78 S	4.89 E	6.84@	134.36	0.30
2531.00	1.06	91.50	2530.90	191.00	-8.37	4.85 S	8.42 E	9.72@	119.91	0.01
2721.00	1.67	67.94	2720.84	190.00	-12.71	3.85 S	12.75 E	13.32@	106.81	0.43

SCANNED

PathFinder Energy Services, Inc.

Survey Report

MACK ENERGY CORPORATION
STATE GS-16#2
LEA COUNTY, NM
RIG:SILVER OAK #12

Page 02/06

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)
2912.00	1.41	63.72	2911.78	191.00	-17.41	1.77 S	17.43 E	17.52@	95.78	0.15
3108.00	1.06	68.82	3107.73	196.00	-21.28	0.04 S	21.29 E	21.29@	90.12	0.19
3299.00	0.53	79.28	3298.71	191.00	-23.81	0.76 N	23.80 E	23.81@	88.17	0.29
3488.00	0.35	108.81	3487.71	189.00	-25.21	0.74 N	25.21 E	25.22@	88.33	0.15
3678.00	0.26	149.68	3677.70	190.00	-25.97	0.18 N	25.97 E	25.97@	89.61	0.12
3866.00	0.62	185.89	3865.70	188.00	-26.07	1.20 S	26.08 E	26.11@	92.64	0.23
4055.00	0.70	209.45	4054.68	189.00	-25.38	3.23 S	25.41 E	25.62@	97.23	0.15
4245.00	0.97	219.03	4244.66	190.00	-23.77	5.49 S	23.83 E	24.45@	102.96	0.16
4434.00	1.06	215.34	4433.63	189.00	-21.72	8.15 S	21.81 E	23.28@	110.50	0.06
4623.00	0.97	218.68	4622.60	189.00	-19.69	10.83 S	19.80 E	22.57@	118.68	0.06
4813.00	0.88	215.69	4812.58	190.00	-17.80	13.27 S	17.94 E	22.32@	126.49	0.05
5003.00	0.44	210.06	5002.57	190.00	-16.57	15.09 S	16.73 E	22.52@	132.05	0.23
5193.00	0.53	190.81	5192.56	190.00	-16.02	16.58 S	16.20 E	23.18@	135.67	0.10
5383.00	0.62	182.11	5382.55	190.00	-15.80	18.47 S	15.99 E	24.43@	139.11	0.07
5572.00	0.35	160.32	5571.54	189.00	-15.94	20.04 S	16.15 E	25.73@	141.13	0.17
5762.00	0.44	153.99	5761.54	190.00	-16.45	21.24 S	16.66 E	27.00@	141.88	0.05
5906.00	0.35	155.13	5905.54	144.00	-16.86	22.13 S	17.09 E	27.97@	142.32	0.06
5998.00	0.26	180.88	5997.54	92.00	-16.97	22.60 S	17.21 E	28.40@	142.71	0.18
6093.00	0.26	183.34	6092.53	95.00	-16.95	23.03 S	17.19 E	28.74@	143.26	0.01
6187.00	0.44	178.77	6186.53	94.00	-16.94	23.60 S	17.19 E	29.20@	143.94	0.19
6282.00	0.53	173.06	6281.53	95.00	-17.00	24.40 S	17.25 E	29.88@	144.75	0.11
6377.00	0.62	164.36	6376.52	95.00	-17.18	25.33 S	17.44 E	30.76@	145.46	0.13
6473.00	0.70	149.42	6472.52	96.00	-17.61	26.34 S	17.88 E	31.83@	145.83	0.20
6567.00	0.79	155.13	6566.51	94.00	-18.16	27.42 S	18.44 E	33.05@	146.08	0.12
6663.00	2.29	182.82	6662.47	96.00	-18.32	29.94 S	18.63 E	35.26@	148.11	1.70
6758.00	4.31	188.88	6757.31	95.00	-17.62	35.36 S	17.98 E	39.67@	153.05	2.16
6853.00	5.63	191.17	6851.95	95.00	-16.08	43.46 S	16.53 E	46.50@	159.18	1.40
6948.00	5.63	190.81	6946.49	95.00	-14.21	52.61 S	14.75 E	54.64@	164.34	0.04
7043.00	5.63	191.96	7041.04	95.00	-12.28	61.75 S	12.91 E	63.08@	168.19	0.12
7139.00	5.63	192.13	7136.57	96.00	-10.21	70.96 S	10.95 E	71.80@	171.23	0.02

SCANNED

PathFinder Energy Services, Inc.

Survey Report

MACK ENERGY CORPORATION
STATE GS-16#2
LEA COUNTY, NM
RIG:SILVER OAK #12

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Measured Depth (ft)	Incl (deg)	Drift Dir. (deg)	TVD (ft)	Course Length (ft)	Vertical Section (ft)	TOTAL Rectangular (ft)	Offsets (ft)	Closure Dist (ft)	Dir (deg)	DLS (dg/100ft)
7234.00	5.63	192.57	7231.11	95.00	-8.13	80.06 S	8.95 E	80.56@	173.62	0.05
7329.00	5.54	192.48	7325.66	95.00	-6.03	89.09 S	6.95 E	89.36@	175.54	0.10
7424.00	4.66	190.02	7420.29	95.00	-4.28	97.36 S	5.29 E	97.51@	176.89	0.95
7519.00	3.25	185.89	7515.06	95.00	-3.27	103.84 S	4.34 E	103.93@	177.61	1.51
7619.00	2.29	201.27	7614.94	100.00	-2.20	108.52 S	3.32 E	108.57@	178.25	1.21
7708.00	0.88	198.02	7703.91	89.00	-1.32	110.83 S	2.47 E	110.86@	178.73	1.59
7803.00	0.53	345.33	7798.90	95.00	-0.98	111.10 S	2.13 E	111.12@	178.90	1.43
7897.00	0.53	10.37	7892.90	94.00	-0.96	110.25 S	2.10 E	110.27@	178.91	0.24
7992.00	0.53	19.60	7987.89	95.00	-1.20	109.41 S	2.32 E	109.43@	178.78	0.09
8086.00	0.62	19.87	8081.89	94.00	-1.52	108.52 S	2.64 E	108.55@	178.61	0.10
8181.00	0.79	31.29	8176.88	95.00	-2.05	107.47 S	3.16 E	107.52@	178.32	0.23
8212.00	0.79	30.85	8207.88	31.00	-2.27	107.11 S	3.38 E	107.16@	178.19	0.02
8222.00	0.70	29.98	8217.88	10.00	-2.34	107.00 S	3.44 E	107.05@	178.16	0.91
8254.00	0.88	41.58	8249.87	32.00	-2.61	106.64 S	3.70 E	106.71@	178.01	0.75
8286.00	0.53	17.36	8281.87	32.00	-2.82	106.32 S	3.91 E	106.39@	177.89	1.41
8317.00	1.76	272.63	8312.87	31.00	-2.38	106.16 S	3.48 E	106.22@	178.12	6.33
8349.00	4.40	262.74	8344.82	32.00	-0.67	106.29 S	1.77 E	106.31@	179.05	8.38
8381.00	7.30	259.25	8376.65	32.00	2.55	106.83 S	1.45 W	106.84@	180.78	9.13
8412.00	9.85	259.16	8407.30	31.00	7.09	107.69 S	5.99 W	107.86@	183.18	8.23
8444.00	12.57	261.14	8438.69	32.00	13.24	108.74 S	12.12 W	109.42@	186.36	8.58
8476.00	15.74	263.29	8469.71	32.00	21.00	109.79 S	19.87 W	111.57@	190.26	10.04
8507.00	18.73	265.12	8499.32	31.00	30.15	110.70 S	29.01 W	114.44@	194.68	9.80
8539.00	21.98	265.64	8529.31	32.00	41.25	111.60 S	40.10 W	118.58@	199.77	10.17
8570.00	24.97	266.14	8557.74	31.00	53.57	112.48 S	52.42 W	124.09@	204.99	9.67
8602.00	28.14	266.08	8586.37	32.00	67.85	113.45 S	66.69 W	131.60@	210.45	9.91
8633.00	31.39	265.90	8613.27	31.00	83.21	114.53 S	82.04 W	140.88@	215.61	10.49
8665.00	34.56	266.06	8640.11	32.00	100.60	115.74 S	99.41 W	152.57@	220.66	9.91
8696.00	37.72	266.59	8665.15	31.00	118.85	116.91 S	117.65 W	165.86@	225.18	10.24
8728.00	40.98	267.29	8689.89	32.00	139.12	117.99 S	137.91 W	181.50@	229.45	10.28
8844.00	53.46	265.54	8768.52	116.00	223.96	123.44 S	222.70 W	254.62@	241.00	10.82

SCANNED

PathFinder Energy Services, Inc.

Survey Report

MACK ENERGY CORPORATION
STATE GS-16#2
LEA COUNTY, NM
RIG:SILVER OAK #12

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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)
8876.00	57.77	265.08	8786.59	32.00	250.29	125.60 S	249.01 W	278.90@	243.23	13.52
8908.00	60.94	264.92	8802.90	32.00	277.74	128.00 S	276.44 W	304.63@	245.15	9.92
8940.00	63.05	265.72	8817.92	32.00	305.92	130.30 S	304.59 W	331.29@	246.84	6.95
8972.00	64.90	267.21	8831.96	32.00	334.63	132.07 S	333.29 W	358.51@	248.38	7.14
9004.00	66.30	269.63	8845.18	32.00	363.77	132.87 S	362.42 W	386.01@	249.87	8.16
9036.00	68.59	270.15	8857.46	32.00	393.32	132.93 S	391.97 W	413.90@	251.27	7.31
9068.00	71.40	270.81	8868.40	32.00	423.38	132.67 S	422.03 W	442.40@	252.55	8.99
9100.00	74.04	271.15	8877.91	32.00	453.92	132.15 S	452.58 W	471.48@	253.72	8.31
9132.00	76.33	271.33	8886.09	32.00	484.84	131.48 S	483.51 W	501.07@	254.79	7.18
9164.00	78.61	271.85	8893.03	32.00	516.05	130.61 S	514.73 W	531.05@	255.76	7.30
9196.00	81.07	272.08	8898.68	32.00	547.51	129.53 S	546.21 W	561.36@	256.66	7.72
9228.00	83.89	272.46	8902.86	32.00	579.20	128.28 S	577.91 W	591.97@	257.49	8.89
9260.00	86.26	273.14	8905.61	32.00	611.02	126.72 S	609.75 W	622.78@	258.26	7.70
9292.00	87.58	273.45	8907.33	32.00	642.90	124.88 S	641.65 W	653.69@	258.99	4.24
9324.00	87.85	273.27	8908.61	32.00	674.80	123.01 S	673.57 W	684.71@	259.65	1.01
9356.00	89.78	274.32	8909.27	32.00	706.70	120.89 S	705.49 W	715.77@	260.28	6.87
9379.00	91.51	274.73	8909.01	23.00	729.60	119.08 S	728.42 W	738.08@	260.72	7.73
9412.00	91.57	274.85	8908.12	33.00	762.45	116.32 S	761.29 W	770.12@	261.31	0.41
9444.00	90.34	275.22	8907.59	32.00	794.29	113.51 S	793.16 W	801.24@	261.86	4.01
9476.00	89.55	275.10	8907.62	32.00	826.12	110.63 S	825.03 W	832.41@	262.36	2.50
9508.00	89.33	276.48	8907.93	32.00	857.92	107.41 S	856.86 W	863.57@	262.86	4.37
9541.00	89.16	276.53	8908.37	33.00	890.67	103.67 S	889.65 W	895.67@	263.35	0.54
9573.00	88.54	275.54	8909.01	32.00	922.45	100.30 S	921.46 W	926.91@	263.79	3.65
9605.00	88.38	276.17	8909.87	32.00	954.23	97.04 S	953.29 W	958.21@	264.19	2.03
9638.00	87.98	275.60	8910.92	33.00	987.01	93.66 S	986.09 W	990.53@	264.57	2.11
9670.00	87.08	273.89	8912.30	32.00	1018.84	91.01 S	1017.95 W	1022.01@	264.89	6.03
9702.00	87.36	273.56	8913.85	32.00	1050.71	88.94 S	1049.85 W	1053.61@	265.16	1.35
9734.00	88.77	272.97	8914.93	32.00	1082.62	87.12 S	1081.78 W	1085.28@	265.40	4.78
9767.00	89.94	273.10	8915.30	33.00	1115.55	85.37 S	1114.73 W	1117.99@	265.62	3.57
9799.00	89.44	272.07	8915.47	32.00	1147.50	83.93 S	1146.70 W	1149.76@	265.81	3.58

SCANNED

PathFinder Energy Services, Inc.

Survey Report

MACK ENERGY CORPORATION
STATE GS-16#2
LEA COUNTY, NM
RIG:SILVER OAK #12

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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)
9831.00	89.38	271.05	8915.80	32.00	1179.47	83.06 S	1178.68 W	1181.60@	265.97	3.19
9864.00	88.71	270.43	8916.35	33.00	1212.46	82.63 S	1211.67 W	1214.49@	266.10	2.77
9896.00	89.38	270.70	8916.89	32.00	1244.45	82.31 S	1243.67 W	1246.39@	266.21	2.26
9928.00	89.10	271.33	8917.31	32.00	1276.43	81.75 S	1275.66 W	1278.28@	266.33	2.15
9961.00	88.21	272.20	8918.08	33.00	1309.40	80.73 S	1308.63 W	1311.12@	266.47	3.77
9993.00	86.97	272.25	8919.43	32.00	1341.33	79.49 S	1340.58 W	1342.94@	266.61	3.88
10025.00	85.40	271.74	8921.56	32.00	1373.22	78.38 S	1372.49 W	1374.73@	266.73	5.16
10058.00	85.29	271.76	8924.24	33.00	1406.09	77.37 S	1405.37 W	1407.49@	266.85	0.34
10090.00	86.19	271.14	8926.62	32.00	1437.98	76.57 S	1437.27 W	1439.30@	266.95	3.41
10123.00	87.26	270.89	8928.50	33.00	1470.91	75.98 S	1470.21 W	1472.17@	267.04	3.33
10155.00	87.53	270.64	8929.95	32.00	1502.87	75.56 S	1502.17 W	1504.07@	267.12	1.15
10187.00	87.82	269.20	8931.25	32.00	1534.84	75.60 S	1534.14 W	1536.01@	267.18	4.59
10220.00	87.42	268.67	8932.62	33.00	1567.81	76.21 S	1567.11 W	1568.96@	267.22	2.01
10252.00	88.15	268.92	8933.86	32.00	1599.78	76.89 S	1599.08 W	1600.93@	267.25	2.41
10284.00	89.61	268.77	8934.49	32.00	1631.78	77.53 S	1631.06 W	1632.91@	267.28	4.59
10317.00	89.50	268.97	8934.74	33.00	1664.77	78.18 S	1664.06 W	1665.89@	267.31	0.69
10348.00	89.16	268.83	8935.10	31.00	1695.77	78.78 S	1695.05 W	1696.88@	267.34	1.19
10380.00	88.99	268.74	8935.62	32.00	1727.76	79.46 S	1727.04 W	1728.86@	267.37	0.60
10412.00	89.22	269.46	8936.12	32.00	1759.76	79.96 S	1759.03 W	1760.85@	267.40	2.36
10444.00	88.15	270.14	8936.85	32.00	1791.75	80.07 S	1791.02 W	1792.81@	267.44	3.96
10476.00	86.53	270.73	8938.34	32.00	1823.71	79.83 S	1822.98 W	1824.73@	267.49	5.39
10508.00	86.30	271.05	8940.34	32.00	1855.64	79.33 S	1854.92 W	1856.61@	267.55	1.23
10540.00	86.42	270.58	8942.37	32.00	1887.56	78.88 S	1886.85 W	1888.50@	267.61	1.51
10572.00	86.92	271.10	8944.23	32.00	1919.50	78.41 S	1918.79 W	1920.39@	267.66	2.25
10604.00	87.20	270.96	8945.87	32.00	1951.44	77.83 S	1950.74 W	1952.30@	267.72	0.98
10636.00	87.70	271.57	8947.30	32.00	1983.39	77.13 S	1982.70 W	1984.20@	267.77	2.46
10668.00	87.93	271.71	8948.52	32.00	2015.35	76.21 S	2014.67 W	2016.11@	267.83	0.84
10700.00	88.32	272.05	8949.56	32.00	2047.30	75.16 S	2046.63 W	2048.01@	267.90	1.62
10732.00	88.94	272.20	8950.33	32.00	2079.25	73.98 S	2078.60 W	2079.92@	267.96	1.99
10764.00	90.11	272.82	8950.59	32.00	2111.21	72.58 S	2110.57 W	2111.82@	268.03	4.14

SCANNED

PathFinder Energy Services, Inc.

Survey Report

MACK ENERGY CORPORATION
STATE GS-16#2
LEA COUNTY, NM
RIG: SILVER OAK #12

Page 06/06

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)
10796.00	90.45	272.93	8950.44	32.00	2143.15	70.97 S	2142.53 W	2143.70@	268.10	1.12
10828.00	89.50	272.20	8950.45	32.00	2175.10	69.54 S	2174.50 W	2175.61@	268.17	3.74
10860.00	88.38	272.30	8951.04	32.00	2207.05	68.28 S	2206.47 W	2207.52@	268.23	3.51
10892.00	86.92	272.24	8952.36	32.00	2238.98	67.02 S	2238.41 W	2239.42@	268.29	4.57
10924.00	85.12	272.39	8954.58	32.00	2270.87	65.73 S	2270.31 W	2271.26@	268.34	5.64
10956.00	85.01	272.74	8957.33	32.00	2302.70	64.30 S	2302.16 W	2303.06@	268.40	1.14
10988.00	85.18	272.45	8960.07	32.00	2334.53	62.86 S	2334.01 W	2334.85@	268.46	1.05
11018.00	85.91	271.67	8962.40	30.00	2364.41	61.78 S	2363.90 W	2364.70@	268.50	3.56
STRAIGHT LINE PROJECTION TO BIT @ 11075'MD										
11075.00	85.91	271.67	8966.46	57.00	2421.22	60.12 S	2420.73 W	2421.47@	268.58	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.:	State GS-16	#2	
WELL LOCATION:	Lea County, New Mexico		
COUNTY / STATE / COUNTRY:	Lea	NM	USA
RIG:	Silver Oak 12		
API WELL No:	30-025-39890		
JOB No:	700002765-WT-WT		
P.O. / AFE No.	388.002		
DIRECTIONAL COMPANY:	Pathfinder Energy Services		

WELL SITE INFORMATION

TOTAL MAGNETIC CORRECTION (TMC):			
On Wall Plat:	7.27	LWD Calculated:	7.21
Agreed Upon:		7.21	
X =	737740.700000	Feet	Y = 666377.200000
		Feet	
SITE LATITUDE:	N 32.829564	SITE LONGITUDE:	W 103.559375
GRID SYSTEM:	TRUE ☐ UTM ☒ LAMBERT ☐	ZONE:	New Mexico East
PROPOSED DRIFT DIRECTION:	269.41		
KELLY BUSHING ELEVATION:	18'		
ALTITUDE:	4084	Feet	WATER DEPTH:
		Feet	

TIE-IN SURVEY

MEASURED DEPTH:	1600		
DRIFT ANGLE:	0.68		
DRIFT DIRECTION:	151.62		
TRUE VERTICAL DEPTH:	1599.98		
VERTICAL SECTION:	1.17		
RECTANGULAR COORDINATE (N / S) :	0.04		
RECTANGULAR COORDINATE (E / W) :	-1.17		
CLOSURE DISTANCE / DIRECTION:	1.17	271.94	
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:	TOTAL DEPTH:	12596.7
KICKOFF ANGLE:	0	MAX ANGLE: 89.66

PES Engineers: D.Brown
R Donarumma

**Signature of both field engineers required if applicable

Directional Driller: S.Brandt

DATE: 14-Jun-2011

SCANNED



Scientific Drilling

Gyroscopic Survey Report
for
MACK ENERGY

Well Location	LEA COUNTY, NEW MEXICO
Well Name	STATE GS 16 #2
Rig Name	SILVER OAK #12
Survey Date	6/14/2011
Latitude	32.83 deg
North Reference	Grid North
Grid Correction	-0.42 deg
Depth Reference	RKB
Calculation Method	Minimum Curvature
Section (VS) Ref	0.00N (ft), 0.00E (ft), 269.41Azim (deg)
Definitive Survey	FINAL SURVEY
Operator	LEO GARZA

Comments

ZERO REFERENCE IS AT K.B. OF 17.5'.



Scientific Drilling

Survey Report

Well Name: STATE GS 16 #2

Survey: FINAL SURVEY

Survey Date: 6/14/2011

MD ft	Inc deg	Azim deg	TVD ft	VS ft	Northing ft	Easting ft	DLS deg/100ft	Closure Distance ft	Closure Angle deg
0.0	0.00	0.00	0.00	0.00	0.00	0.00	Invalid	0.00	0.00
100.0	0.56	301.81	100.00	0.41	0.26	-0.41	0.56	0.49	301.81
200.0	0.50	299.37	199.99	1.20	0.73	-1.21	0.06	1.41	301.05
300.0	0.37	309.80	299.99	1.83	1.15	-1.84	0.15	2.17	302.02
400.0	0.38	309.12	399.99	2.34	1.57	-2.35	0.01	2.83	303.75
500.0	0.19	318.13	499.99	2.70	1.91	-2.72	0.20	3.32	305.00
600.0	0.24	339.31	599.99	2.88	2.22	-2.91	0.09	3.66	307.40
700.0	0.09	348.26	699.99	2.97	2.49	-2.99	0.15	3.89	309.75
800.0	0.01	109.48	799.99	2.97	2.56	-3.00	0.10	3.95	310.50
900.0	0.09	176.86	899.99	2.96	2.48	-2.99	0.09	3.88	309.71
1000.0	0.05	194.04	999.99	2.97	2.36	-2.99	0.05	3.81	308.29
1100.0	0.11	175.96	1099.99	2.97	2.22	-2.99	0.07	3.73	306.60
1200.0	0.20	155.02	1199.99	2.89	1.96	-2.91	0.11	3.51	303.99
1300.0	0.20	140.56	1299.99	2.71	1.67	-2.73	0.05	3.20	301.46
1400.0	0.44	129.50	1399.98	2.31	1.29	-2.32	0.25	2.66	299.09
1500.0	0.43	130.39	1499.98	1.73	0.80	-1.74	0.01	1.92	294.82
1600.0	0.68	151.62	1599.98	1.17	0.04	-1.17	0.32	1.17	271.94

PathFinder Energy Services, Inc. Magnetic & Grid Calculations

MACK ENERGY
STATE GS-16 #2
LEA COUNTY, NEW MEXICO
Rig:SILVER OAK 12

Wed Jun 08 15:16:09 2011

Coordinates

Latitude: 32.829564 N (32 deg. 49 min. 46.4317 sec.)
Longitude: 103.559375 W (-103 deg. 33 min. 33.7514 sec.)
Elevation: 4084.00 feet.
Calculation Date: Jun/08/2011

Magnetic Calculations

Model: IGRF2010
Dip Angle: 60.7497 degrees
Total Magnetic Field: 0.48980 gauss
Magnetic Declination: 7.627089 degrees
Horizontal Intensity: 0.239329 gauss
To Convert a Magnetic Dir. to a TRUE North Dir. Add 7.627089 Degr

Transverse Mercator Grid Calculations NAD27

Grid System: Transverse Mercator: new mexico east
Ellipsoid: Clarke 1866
X: 737740.7000 feet
Y: 666377.2000 feet
True to Grid: (convergence) -0.419613 degrees
Magnetic to Grid: 7.207476 degrees
To Convert a Magnetic Dir. to a GRID dir. Add 7.207476 Degr.

SCANNED

PathFinder Energy Services, Inc.

Magnetic & Grid Calculations

MACK ENERGY CORPORATION
STATE CS-16#7
LEA COUNTY, NEW MEXICO
Rig: SILVER OAK #12

Fri Jul 01 22:27:59 2011

Coordinates

Latitude: 32.829564 N (32 deg. 49 min. 46.4317 sec.)
Longitude: 103.559375 W (-103 deg. 33 min. 33.7514 sec.)
Elevation: 4084.00 feet
Calculation Date: Jun/14/2011

Magnetic Calculations

Model: IGRF2010
Dip Angle: 60.7492 degrees
Total Magnetic Field: 0.49009 gauss
Magnetic Declination: 7.627152 degrees
Horizontal Intensity: 0.239475 gauss
To Convert a Magnetic Dir. to a TRUE North Dir. Add 7.627152 Degr

Transverse Mercator Grid Calculations NAD27

Grid System: Transverse Mercator: new mexico east
Ellipsoid: Clarke 1866
X: 737740.7000 feet
Y: 666377.2000 feet
True to Grid: (convergence) -0.419613 degrees
Magnetic to Grid: 7.207539 degrees
To Convert a Magnetic Dir. to a GRID dir. Add 7.207539 Degr.

SCANNED

HOBBS OCD

DISTRICT I
1625 N. FRENCH DR., HOBBS, NM 88240

NOV 03 2011

State of New Mexico
Energy, Minerals and Natural Resources Department

Form C-102

DISTRICT II
1301 W. GRAND AVENUE, ARTIST, NM 88210

RECEIVED

OIL CONSERVATION DIVISION
1220 SOUTH ST. FRANCIS DR.
Santa Fe, New Mexico 87505Revised October 12, 2005
Submit to Appropriate District Office
State Lease - 4 Copies
Fee Lease - 3 CopiesDISTRICT III
1000 Rio Brazos Rd., Aztec, NM 87410DISTRICT IV
1220 S. ST. FRANCIS DR., SANTA FE, NM 87505

WELL LOCATION AND ACREAGE DEDICATION PLAT

☐ AMENDED REPORT

API Number 30-025-39890	Pool Code 61760	Pool Name Vacuum; Abo North
Property Code 6212	Property Name STATE GS 16	Well Number 2H
OGRID No 013837	Operator Name MACK ENERGY CORPORATION	Elevation 4066'

Surface Location									
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
P	16	17-S	34-E		760	SOUTH	860	EAST	LEA

Bottom Hole Location If Different From Surface

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
P	16	17-S	34-E		660	SOUTH	860	EAST	LEA
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
N	16	17-S	34-E		700	SOUTH	1999	WEST	LEA
Dedicated Acres 1.20		Joint or Infill	Consolidation Code	Order No					

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED
OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

GEODETTIC COORDINATES NAD 27 NME SURFACE LOCATION Y=666377.2 N X=737740.7 E LAI = 32 829564' N LONG. = 103.559375' W BOTTOM HOLE LOCATION #1 Y=666277.2 N X=737741.6 E BOTTOM HOLE LOCATION #2 Y=666236.3 N X=733797.1 E		OPERATOR CERTIFICATION I hereby certify that the information herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division. <i>Deana Weaver</i> 11/1/11 Signature Date Deana Weaver Printed Name
		SURVEYOR CERTIFICATION I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief. SEPTEMBER 24 2010 Date Surveyed Signature & Seal of Professional Surveyor 12641 Certificate No. GARY EIDSON 12641 RONALD EIDSON 3239