

30-005-29082

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E-21-155-31E

MAR 25 2010

1675FWL & 330FWL

HOBBSOCD

DIRECTIONAL SURVEY REPORT

MACK ENERGY CORPORATION

TOM STATE #2

CHAVES COUNTY, NM

SUR: E-21-15s-31e, 1675/N & 330/W
BHL: H-21-15s-31e, 1664/N & 4948/W
API # 30-005-29082

PREPARED BY: MARK TRAHAN



PATHFINDER

December 3, 2009

MACK ENERGY CORPORATION

Mr. Matt Brewer
11352 Lovington Hwy
Box 960
Artesia, NM 88211-1288

RE: MACK ENERGY CORPORATION
TOM STATE #2
CHAVES COUNTY, NM
RIG: SILVER OAK #7
API Well No.: 30-005-29082
PES Job No.: 101008956-WT-WT

Dear Mr. Brewer:

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 Directional Survey Report

1 – Email PDF to:

charless@mackenergycorp.com

leel@mackenergycorp.com

donaldarcher@mackenergycorp.com

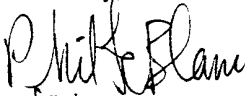
jimkrogman@mackenergycorp.com

kevingarrett@mackenergycorp.com

mbrewer@mackenergycorp.com

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 (337) 233-3982.

Sincerely,



for:
Mark Trahan
M/LWD Service Coordinator
PathFinder Energy Services

MT:II




DIRECTIONAL SURVEY COMPANY REPORT:

1. NAME OF SURVEYING COMPANY: PATHFINDER ENERGY SERVICES
2. NAME OF PERSON(S) PERFORMING SURVEY:
A) JEFF HULL
B) DEAN NELSON
3. POSITION OF SAID PERSON(S): (A-B) SURVEYORS (FIELD ENGINEERS)
4. DATE(S) ON WHICH SURVEY WAS PERFORMED: 09/23/09 TO 11/07/09
5. STATE IN WHICH SURVEY WAS PERFORMED: NEW MEXICO
6. LOCATION OF WELL: CHAVES COUNTY
7. TYPE OF SURVEY(S) PERFORMED: MWD
8. COMPLETE IDENTIFICATION OF WELL:

MACK ENERGY CORPORATION
TOM STATE #2
CHAVES COUNTY, NM
RIG: SILVER OAK #7
API Well No.: 30-005-29082

9. SURVEY(S) CERTIFIED FROM: 2,983 TO 13,175 FEET MEASURED DEPTH.

THIS IS TO VERIFY THAT ATTACHED DOCUMENTS SHOWING THE WELL TO BE DISPLACED AT 4,618.33 FEET ON A BEARING OF 89.87 DEGREES FROM THE CENTER OF THE ROTARY TABLE AT A PROJECTED BIT DEPTH OF 13,175 FEET, ARE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE.


for:

MARK TRAHAN
M/LWD SERVICE COORDINATOR

PathFinder Energy Services, Inc.

BHL Report

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Page 01/01

Tie-in Date: 09/22/2009

Date Completed: 11/07/2009

MACK ENERGY CORPORATION
TOM STATE #2
CHAVES COUNTY, NM
Rig: SILVER OAK #7
PathFinder Office Supervisor: FRANCISCO SINISTERRA
PathFinder Field Engineers: J. HULL
D. NELSON

Survey Horiz. Reference: WELLHEAD
Ref Coordinates: LAT: 33.014040 N LON: 103.5018348 W
GRID Reference: NAD27 new mexico east Transverse Mercator
Ref GRID Coord: X: 653129.4372 Y: 729295.2394
North Aligned To: GRID NORTH
Total Magnetic Correction: 7.69° EAST TO GRID
Vertical Section Plane: 89.74
Survey Vert. Reference: 18.00' Kelly Bushing To Ground
Altitude: 4423.00' Ground To MSL

Measured Depth	13175.00	(feet)
Inclination	89.61	(deg)
Azimuth	92.74	(deg)
True Vertical Depth	8831.39	(feet)
Vertical Section	4618.32	(feet)
Survey X cord	657747.73	(feet)
Survey Y cord	729305.80	(feet)
Survey Lat	33.00386784 N	(deg)
Survey Lon	103.81877901 W	(deg)
Rectangular Corr. N/S	10.50 N	(feet)
Rectangular Corr. E/W	4618.32 E	(feet)
Closure Distance	4618.33	(feet)
Direction of Closure	89.87	(deg)
Dogleg Severity	0.00	(deg/100ft)

PathFinder Energy Services, Inc.

Survey Report

MACK ENERGY CORPORATION
TOM STATE #2
CHAVES COUNTY, NM
Rig: SILVER OAK #7
PathFinder Office Supervisor: FRANCISCO SINISTERRA
PathFinder Field Engineers: J. HULL
D. NELSON

Survey Horiz. Reference: WELLHEAD
Ref Coordinates: LAT: 33.0.14.0400 N LON: 103.50.1.8348 W
Reference: NAD27 new mexico east Transverse Mercator
Ref GRID Coord: X: 653129.4372 Y: 729295.2394
North Aligned To: GRID NORTH
Total Magnetic Correction: 7.69° EAST TO GRID
Vertical Section Plane: 89.74
Survey Vert. Reference: 18.00' Kelly Bushing To Ground
Altitude: 4423.00' Ground To MSL

Survey Calculations by RX5 V6.01B using Minimum Curvature

Measured Depth (ft)	Incl (deg)	Drift Dir. (deg)	TVD (ft)	Course Length (ft)	Vertical Section (ft)	TOTAL Rectangular Offsets		Survey Latitude (deg)	Survey Longitude (deg)	Closure		DLS (dg/100ft)
						(ft)	(ft)			(ft)	(deg)	
THE FOLLOWING ARE TELEDRIFT MWD SURVEYS.												
126.00	0.00	110.10	126.00	0.00	0.08	0.02 N	0.08 E	33.00390023 N	103.83384279 W	0.09@	74.46	0.00
157.00	0.10	58.10	157.00	31.00	0.11	0.04 N	0.11 E	33.00390027 N	103.83384272 W	0.11@	70.63	0.32
344.00	0.10	51.10	344.00	187.00	0.37	0.23 N	0.37 E	33.00390079 N	103.83384185 W	0.44@	58.74	0.01
500.00	0.00	196.10	500.00	156.00	0.48	0.31 N	0.48 E	33.00390102 N	103.83384150 W	0.57@	56.93	0.06
649.00	0.70	42.10	648.99	149.00	1.09	0.99 N	1.09 E	33.00390287 N	103.83383950 W	1.47@	47.81	0.47
805.00	0.60	48.10	804.98	156.00	2.35	2.24 N	2.34 E	33.00390629 N	103.83383541 W	3.24@	46.21	0.08
960.00	0.40	134.10	959.98	155.00	3.34	2.41 N	3.33 E	33.00390674 N	103.83383217 W	4.11@	54.15	0.45
1116.00	0.20	195.10	1115.98	156.00	3.66	1.76 N	3.65 E	33.00390497 N	103.83383114 W	4.05@	64.21	0.22
1303.00	0.20	200.10	1302.98	187.00	3.46	1.14 N	3.45 E	33.00390326 N	103.83383179 W	3.64@	71.70	0.01
1332.00	0.20	61.10	1331.97	29.00	3.48	1.12 N	3.48 E	33.00390320 N	103.83383170 W	3.65@	72.17	1.29
1512.00	0.00	16.10	1511.97	180.00	3.76	1.27 N	3.75 E	33.00390361 N	103.83383080 W	3.96@	71.30	0.11
1668.00	0.40	215.10	1667.97	156.00	3.44	0.83 N	3.44 E	33.00390239 N	103.83383183 W	3.54@	76.51	0.26
1823.00	1.00	131.10	1822.96	155.00	4.15	0.51 S	4.15 E	33.00389872 N	103.83382954 W	4.18@	96.96	0.67
1982.00	1.30	130.10	1981.93	159.00	6.56	2.58 S	6.57 E	33.00389299 N	103.83382166 W	7.06@	111.43	0.19
2073.00	1.60	108.10	2072.90	91.00	8.55	3.64 S	8.57 E	33.00389005 N	103.83381517 W	9.31@	113.01	0.69
2168.00	2.30	103.10	2167.85	95.00	11.67	4.48 S	11.69 E	33.00388769 N	103.83380501 W	12.52@	110.99	0.76
2207.00	2.40	107.10	2206.81	39.00	13.21	4.90 S	13.23 E	33.00388652 N	103.83379999 W	14.11@	110.33	0.49
2218.00	2.40	112.10	2217.81	11.00	13.64	5.06 S	13.66 E	33.00388609 N	103.83379857 W	14.57@	110.31	1.90
2422.00	1.90	100.10	2421.66	204.00	20.92	7.26 S	20.95 E	33.00387995 N	103.83377484 W	22.17@	109.10	0.33
2484.00	1.40	113.10	2483.64	62.00	22.62	7.73 S	22.66 E	33.00387862 N	103.83376927 W	23.94@	108.84	1.00
2541.00	1.20	102.10	2540.62	57.00	23.85	8.13 S	23.88 E	33.00387751 N	103.83376529 W	25.23@	108.80	0.56
2604.00	1.10	119.10	2603.61	63.00	25.02	8.56 S	25.06 E	33.00387630 N	103.83376147 W	26.48@	108.87	0.56
2703.00	1.10	122.10	2702.59	99.00	26.65	9.53 S	26.69 E	33.00387362 N	103.83375615 W	28.34@	109.65	0.06

PathFinder Energy Services, Inc.

Survey Report

MACK ENERGY CORPORATION
 TOM STATE #2
 CHAVES COUNTY, NM
 RIG: SILVER OAK #7

Measured Depth (ft)	Incl (deg)	Drift Dir. (deg)	TVD (ft)	Course Length (ft)	Vertical Section (ft)	TOTAL		Survey Latitude (deg)	Survey Longitude (deg)	Closure		DLS (dg/100ft)
						Rectangular (ft)	Offsets (ft)			Dist (ft)	Dir (deg)	
2789.00	0.80	110.10	2788.58	86.00	27.91	10.18 S	27.96 E	33.00387183 N	103.83375204 W	29.75@	110.00	0.42
2889.00	0.40	107.10	2888.57	100.00	28.90	10.52 S	28.95 E	33.00387088 N	103.83374882 W	30.80@	109.97	0.40
** TIED INTO TELEDRIFT MWD SURVEY AT 2983'MD.												
2983.00	0.60	152.00	2982.57	94.00	29.44	11.05 S	29.49 E	33.00386941 N	103.83374705 W	31.49@	110.54	0.45
THE FOLLOWING ARE PATHFINDER MWD SURVEYS.												
3157.00	0.70	162.89	3156.56	174.00	30.17	12.87 S	30.23 E	33.00386440 N	103.83374466 W	32.86@	113.06	0.09
3344.00	0.44	185.53	3343.55	187.00	30.43	14.68 S	30.50 E	33.00385943 N	103.83374382 W	33.85@	115.70	0.18
3530.00	0.26	190.85	3529.55	186.00	30.28	15.80 S	30.35 E	33.00385634 N	103.83374432 W	34.22@	117.50	0.10
3716.00	0.09	306.18	3715.55	186.00	30.08	16.13 S	30.15 E	33.00385544 N	103.83374497 W	34.20@	118.15	0.17
3903.00	0.18	346.08	3902.55	187.00	29.89	15.76 S	29.96 E	33.00385646 N	103.83374558 W	33.85@	117.74	0.07
4090.00	0.26	1.04	4089.54	187.00	29.83	15.05 S	29.90 E	33.00385842 N	103.83374577 W	33.47@	116.72	0.05
4276.00	0.35	356.23	4275.54	186.00	29.81	14.06 S	29.87 E	33.00386113 N	103.83374586 W	33.01@	115.21	0.05
4470.00	0.26	350.56	4469.54	194.00	29.70	13.03 S	29.76 E	33.00386395 N	103.83374620 W	32.49@	113.65	0.05
4657.00	0.26	282.51	4656.54	187.00	29.22	12.52 S	29.27 E	33.00386536 N	103.83374777 W	31.84@	113.16	0.16
4844.00	0.18	3.66	4843.54	187.00	28.82	12.14 S	28.88 E	33.00386643 N	103.83374906 W	31.33@	112.80	0.16
5031.00	0.35	285.57	5030.53	187.00	28.29	11.69 S	28.35 E	33.00386766 N	103.83375078 W	30.66@	112.42	0.19
5218.00	0.53	278.00	5217.53	187.00	26.89	11.42 S	26.94 E	33.00386843 N	103.83375537 W	29.26@	112.97	0.10
5404.00	0.62	300.91	5403.52	186.00	25.18	10.78 S	25.23 E	33.00387020 N	103.83376095 W	27.43@	113.14	0.13
5591.00	1.23	323.02	5590.49	187.00	23.11	8.66 S	23.15 E	33.00387607 N	103.83376769 W	24.72@	110.51	0.37
5778.00	1.41	333.60	5777.45	187.00	20.90	5.00 S	20.92 E	33.00388617 N	103.83377491 W	21.51@	103.43	0.16
5952.00	1.23	315.57	5951.40	174.00	18.65	1.74 S	18.66 E	33.00389513 N	103.83378223 W	18.74@	95.34	0.26
6046.00	1.14	317.75	6045.38	94.00	17.32	0.33 S	17.33 E	33.00389903 N	103.83378656 W	17.33@	91.10	0.11
6139.00	0.35	141.41	6138.37	93.00	16.88	0.13 N	16.88 E	33.00390031 N	103.83378800 W	16.88@	89.55	1.60
6233.00	0.26	151.92	6232.37	94.00	17.16	0.28 S	17.16 E	33.00389917 N	103.83378710 W	17.16@	90.94	0.11
6326.00	0.26	187.81	6325.37	93.00	17.23	0.68 S	17.23 E	33.00389808 N	103.83378687 W	17.24@	92.25	0.17
6419.00	0.35	203.69	6418.37	93.00	17.08	1.15 S	17.09 E	33.00389680 N	103.83378735 W	17.13@	93.84	0.13
6513.00	0.88	157.12	6512.37	94.00	17.24	2.07 S	17.25 E	33.00389424 N	103.83378682 W	17.38@	96.85	0.73

PathFinder Energy Services, Inc.

Survey Report

MACK ENERGY CORPORATION
 TOM STATE #2
 CHAVES COUNTY, NM
 RIG:SILVER OAK #7

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)
6606.00	0.88	158.92	6605.36	93.00	17.77	3.40 S	17.79 E	33.00389060 N	103.83378510 W	18.11@	100.81	0.03
6699.00	0.44	278.40	6698.35	93.00	17.67	4.01 S	17.69 E	33.00388891 N	103.83378542 W	18.14@	102.78	1.25
6792.00	0.53	282.89	6791.35	93.00	16.90	3.86 S	16.92 E	33.00388933 N	103.83378794 W	17.36@	102.86	0.10
6886.00	0.53	303.85	6885.34	94.00	16.12	3.52 S	16.13 E	33.00389027 N	103.83379049 W	16.52@	102.32	0.20
6979.00	0.62	299.84	6978.34	93.00	15.33	3.03 S	15.34 E	33.00389163 N	103.83379308 W	15.64@	101.19	0.11
7072.00	0.53	300.86	7071.33	93.00	14.52	2.56 S	14.54 E	33.00389293 N	103.83379570 W	14.76@	100.00	0.10
7166.00	0.44	274.10	7165.33	94.00	13.79	2.32 S	13.80 E	33.00389362 N	103.83379808 W	13.99@	99.52	0.26
7228.00	0.53	275.62	7227.33	62.00	13.27	2.27 S	13.28 E	33.00389376 N	103.83379979 W	13.47@	99.70	0.15
7415.00	0.44	306.34	7414.32	187.00	11.83	1.76 S	11.84 E	33.00389518 N	103.83380448 W	11.97@	98.45	0.14
7508.00	0.35	292.41	7507.32	93.00	11.28	1.44 S	11.29 E	33.00389606 N	103.83380626 W	11.38@	97.27	0.14
7601.00	0.35	256.59	7600.32	93.00	10.74	1.40 S	10.75 E	33.00389619 N	103.83380802 W	10.84@	97.41	0.23
7694.00	0.18	218.55	7693.32	93.00	10.38	1.58 S	10.38 E	33.00389570 N	103.83380922 W	10.50@	98.64	0.25
7788.00	0.44	268.41	7787.32	94.00	9.92	1.70 S	9.93 E	33.00389536 N	103.83381070 W	10.08@	99.73	0.37
7881.00	0.44	273.55	7880.31	93.00	9.21	1.69 S	9.22 E	33.00389540 N	103.83381303 W	9.37@	100.40	0.04
7975.00	0.35	256.36	7974.31	94.00	8.57	1.74 S	8.58 E	33.00389528 N	103.83381511 W	8.75@	101.44	0.16
8068.00	0.35	283.48	8067.31	93.00	8.02	1.74 S	8.03 E	33.00389529 N	103.83381692 W	8.21@	102.21	0.18
8162.00	0.35	308.42	8161.31	94.00	7.51	1.49 S	7.52 E	33.00389597 N	103.83381856 W	7.67@	101.22	0.16
8223.00	0.35	80.63	8222.31	61.00	7.55	1.35 S	7.56 E	33.00389637 N	103.83381843 W	7.68@	100.09	1.05
INTERPOLATED SURVEY @ 8234'MD, DEPART ORIGINAL WELLBORE.												
8234.00	0.24	58.53	8233.31	11.00	7.61	1.33 S	7.61 E	33.00389642 N	103.83381826 W	7.73@	99.90	1.42
8254.00	2.90	81.95	8253.30	20.00	8.14	1.24 S	8.15 E	33.00389667 N	103.83381651 W	8.24@	98.62	13.41
8285.00	6.07	81.41	8284.20	31.00	10.54	0.88 S	10.55 E	33.00389761 N	103.83380868 W	10.58@	94.77	10.23
8317.00	9.85	83.82	8315.89	32.00	14.94	0.33 S	14.94 E	33.00389906 N	103.83379433 W	14.95@	91.28	11.86
8348.00	12.75	86.47	8346.28	31.00	20.99	0.16 N	20.99 E	33.00390034 N	103.83377459 W	20.99@	89.56	9.50
8379.00	15.65	90.67	8376.33	31.00	28.59	0.32 N	28.59 E	33.00390069 N	103.83374980 W	28.59@	89.35	9.92
8410.00	16.09	89.92	8406.15	31.00	37.07	0.28 N	37.07 E	33.00390046 N	103.83372215 W	37.07@	89.56	1.57
8441.00	18.03	89.75	8435.79	31.00	46.16	0.31 N	46.16 E	33.00390041 N	103.83369249 W	46.16@	89.62	6.26

PathFinder Energy Services, Inc.

Survey Report

MACK ENERGY CORPORATION
 TOM STATE #2
 CHAVES COUNTY, NM
 RIG: SILVER OAK #7

Measured Depth (ft)	Incl (deg)	Drift Dir. (deg)	TVD (ft)	Course Length (ft)	Vertical Section (ft)	TOTAL Rectangular Offsets		Survey Latitude (deg)	Survey Longitude (deg)	Closure Dist Dir		DLS (dg/100ft)
						(ft)	(ft)			(ft)	(deg)	
8472.00	22.16	90.74	8464.89	31.00	56.81	0.25 N	56.81 E	33.00390013 N	103.83365776 W	56.81@	89.74	13.37
8504.00	26.47	91.67	8494.05	32.00	69.98	0.03 S	69.98 E	33.00389917 N	103.83361481 W	69.98@	90.03	13.52
8535.00	29.90	94.08	8521.37	31.00	84.59	0.78 S	84.60 E	33.00389691 N	103.83356714 W	84.60@	90.53	11.66
8566.00	32.01	92.99	8547.95	31.00	100.50	1.76 S	100.51 E	33.00389401 N	103.83351525 W	100.53@	91.00	7.04
8597.00	34.12	92.67	8573.93	31.00	117.39	2.60 S	117.40 E	33.00389150 N	103.83346017 W	117.43@	91.27	6.83
8628.00	37.64	92.34	8599.04	31.00	135.54	3.39 S	135.55 E	33.00388909 N	103.83340098 W	135.59@	91.43	11.37
8659.00	41.68	92.96	8622.90	31.00	155.29	4.31 S	155.31 E	33.00388631 N	103.83333654 W	155.37@	91.59	13.09
8691.00	45.37	92.07	8646.10	32.00	177.30	5.27 S	177.32 E	33.00388338 N	103.83326476 W	177.40@	91.70	11.69
8722.00	48.54	92.60	8667.26	31.00	199.93	6.19 S	199.96 E	33.00388054 N	103.83319095 W	200.05@	91.77	10.30
8753.00	51.27	92.70	8687.22	31.00	223.61	7.29 S	223.64 E	33.00387721 N	103.83311371 W	223.76@	91.87	8.81
8784.00	54.96	92.33	8705.83	31.00	248.37	8.38 S	248.41 E	33.00387390 N	103.83303294 W	248.55@	91.93	11.94
8815.00	58.92	91.32	8722.73	31.00	274.33	9.20 S	274.37 E	33.00387130 N	103.83294827 W	274.53@	91.92	13.06
8846.00	62.96	89.95	8737.79	31.00	301.42	9.49 S	301.46 E	33.00387014 N	103.83285991 W	301.61@	91.80	13.59
8877.00	65.69	89.79	8751.22	31.00	329.35	9.43 S	329.40 E	33.00386995 N	103.83276879 W	329.53@	91.64	8.82
8908.00	68.24	89.91	8763.35	31.00	357.88	9.35 S	357.92 E	33.00386978 N	103.83267574 W	358.05@	91.50	8.23
8940.00	71.84	88.75	8774.27	32.00	387.95	9.00 S	387.99 E	33.00387037 N	103.83257766 W	388.10@	91.33	11.75
8954.00	73.61	88.08	8778.43	14.00	401.31	8.63 S	401.36 E	33.00387121 N	103.83253406 W	401.45@	91.23	13.44
8988.00	78.05	85.83	8786.75	34.00	434.23	6.87 S	434.27 E	33.00387561 N	103.83242670 W	434.32@	90.91	14.55
9019.00	82.36	85.65	8792.02	31.00	464.70	4.60 S	464.72 E	33.00388145 N	103.83232732 W	464.74@	90.57	13.92
9050.00	85.41	86.59	8795.32	31.00	495.45	2.52 S	495.47 E	33.00388677 N	103.83222699 W	495.48@	90.29	10.29
9082.00	88.04	86.59	8797.15	32.00	527.35	0.62 S	527.36 E	33.00389158 N	103.83212295 W	527.36@	90.07	8.22
9113.00	88.55	86.67	8798.07	31.00	558.29	1.20 N	558.29 E	33.00389618 N	103.83202203 W	558.29@	89.88	1.67
9144.00	88.55	86.55	8798.86	31.00	589.24	3.04 N	589.23 E	33.00390081 N	103.83192109 W	589.24@	89.70	0.39
9175.00	88.88	87.09	8799.55	31.00	620.19	4.76 N	620.17 E	33.00390513 N	103.83182013 W	620.19@	89.56	2.04
9206.00	88.88	87.36	8800.16	31.00	651.15	6.26 N	651.13 E	33.00390885 N	103.83171913 W	651.16@	89.45	0.87
9237.00	88.49	87.26	8800.87	31.00	682.12	7.71 N	682.09 E	33.00391244 N	103.83161813 W	682.13@	89.35	1.30
9268.00	88.15	87.37	8801.78	31.00	713.07	9.16 N	713.04 E	33.00391602 N	103.83151715 W	713.10@	89.26	1.15

PathFinder Energy Services, Inc.

Survey Report

MACK ENERGY CORPORATION
 TOM STATE #2
 CHAVES COUNTY, NM
 RIG:SILVER OAK #7

Measured Depth (ft)	Incl (deg)	Drift Dir. (deg)	TVD (ft)	Course Length (ft)	Vertical Section (ft)	TOTAL Rectangular Offsets		Survey Latitude (deg)	Survey Longitude (deg)	Closure Dist Dir		DLS (dg/100ft)
						(ft)	(ft)			(ft)	(deg)	
9300.00	88.26	86.85	8802.78	32.00	745.02	10.78 N	744.98 E	33.00392004 N	103.83141293 W	745.06@	89.17	1.66
9331.00	89.05	87.24	8803.51	31.00	775.98	12.37 N	775.93 E	33.00392402 N	103.83131195 W	776.03@	89.09	2.84
9362.00	89.05	88.83	8804.02	31.00	806.96	13.44 N	806.91 E	33.00392654 N	103.83121090 W	807.02@	89.05	5.13
9393.00	89.16	88.99	8804.51	31.00	837.96	14.03 N	837.90 E	33.00392775 N	103.83110981 W	838.02@	89.04	0.63
9424.00	89.50	89.47	8804.87	31.00	868.95	14.44 N	868.90 E	33.00392849 N	103.83100870 W	869.02@	89.05	1.90
9455.00	89.66	89.89	8805.10	31.00	899.95	14.62 N	899.89 E	33.00392856 N	103.83090759 W	900.01@	89.07	1.45
9486.00	89.61	90.26	8805.30	31.00	930.95	14.57 N	930.89 E	33.00392804 N	103.83080648 W	931.01@	89.10	1.20
9518.00	89.50	89.69	8805.54	32.00	962.95	14.59 N	962.89 E	33.00392766 N	103.83070210 W	963.00@	89.13	1.81
9549.00	89.38	89.78	8805.85	31.00	993.95	14.73 N	993.89 E	33.00392765 N	103.83060099 W	994.00@	89.15	0.48
9580.00	89.55	89.64	8806.14	31.00	1024.95	14.89 N	1024.89 E	33.00392767 N	103.83049988 W	1025.00@	89.17	0.71
9611.00	89.50	89.64	8806.39	31.00	1055.94	15.08 N	1055.89 E	33.00392780 N	103.83039877 W	1056.00@	89.18	0.16
9642.00	90.17	90.53	8806.48	31.00	1086.94	15.04 N	1086.89 E	33.00392726 N	103.83029765 W	1086.99@	89.21	3.59
9673.00	90.22	91.13	8806.38	31.00	1117.94	14.59 N	1117.88 E	33.00392562 N	103.83019656 W	1117.98@	89.25	1.94
9705.00	90.11	91.16	8806.29	32.00	1149.93	13.95 N	1149.88 E	33.00392344 N	103.83009221 W	1149.96@	89.30	0.36
9736.00	89.66	91.26	8806.35	31.00	1180.92	13.29 N	1180.87 E	33.00392124 N	103.82999113 W	1180.94@	89.35	1.49
9767.00	89.44	90.95	8806.59	31.00	1211.91	12.70 N	1211.86 E	33.00391919 N	103.82989005 W	1211.93@	89.40	1.23
9798.00	89.55	90.89	8806.86	31.00	1242.90	12.20 N	1242.86 E	33.00391741 N	103.82978896 W	1242.92@	89.44	0.40
9829.00	90.06	91.37	8806.97	31.00	1273.89	11.59 N	1273.85 E	33.00391532 N	103.82968787 W	1273.90@	89.48	2.26
9860.00	90.39	91.49	8806.85	31.00	1304.88	10.81 N	1304.84 E	33.00391279 N	103.82958680 W	1304.89@	89.53	1.13
9891.00	90.17	91.94	8806.70	31.00	1335.86	9.89 N	1335.83 E	33.00390983 N	103.82948575 W	1335.86@	89.58	1.62
9922.00	90.11	91.98	8806.62	31.00	1366.83	8.83 N	1366.81 E	33.00390651 N	103.82938471 W	1366.84@	89.63	0.23
9953.00	89.89	91.93	8806.62	31.00	1397.81	7.77 N	1397.79 E	33.00390319 N	103.82928367 W	1397.81@	89.68	0.73
9984.00	90.84	92.02	8806.42	31.00	1428.79	6.70 N	1428.77 E	33.00389985 N	103.82918263 W	1428.79@	89.73	3.08
10015.00	91.57	91.62	8805.77	31.00	1459.76	5.72 N	1459.75 E	33.00389674 N	103.82908161 W	1459.76@	89.78	2.69
10046.00	91.23	92.62	8805.01	31.00	1490.72	4.57 N	1490.72 E	33.00389318 N	103.82898061 W	1490.72@	89.82	3.41
10078.00	91.40	92.32	8804.28	32.00	1522.68	3.19 N	1522.68 E	33.00388897 N	103.82887638 W	1522.68@	89.88	1.08
10109.00	91.79	92.55	8803.42	31.00	1553.63	1.87 N	1553.64 E	33.00388494 N	103.82877542 W	1553.64@	89.93	1.46

PathFinder Energy Services, Inc.

Survey Report

MACK ENERGY CORPORATION
 TOM STATE #2
 CHAVES COUNTY, NM
 RIG: SILVER OAK #7

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)
10140.00	91.23	92.30	8802.60	31.00	1584.59	0.56 N	1584.60 E	33.00388093 N	103.82867445 W	1584.60@	89.98	1.98
10171.00	90.90	92.10	8802.02	31.00	1615.55	0.63 S	1615.57 E	33.00387725 N	103.82857345 W	1615.57@	90.02	1.25
10202.00	89.89	91.25	8801.81	31.00	1646.53	1.53 S	1646.56 E	33.00387435 N	103.82847239 W	1646.56@	90.05	4.26
10233.00	88.83	90.88	8802.16	31.00	1677.52	2.11 S	1677.55 E	33.00387236 N	103.82837131 W	1677.55@	90.07	3.62
10265.00	88.37	90.46	8802.94	32.00	1709.51	2.48 S	1709.54 E	33.00387091 N	103.82826698 W	1709.54@	90.08	1.95
10296.00	88.15	91.02	8803.88	31.00	1740.49	2.88 S	1740.52 E	33.00386940 N	103.82816593 W	1740.52@	90.09	1.94
10327.00	88.15	91.02	8804.88	31.00	1771.47	3.44 S	1771.50 E	33.00386747 N	103.82806489 W	1771.50@	90.11	0.00
10358.00	87.99	91.21	8805.92	31.00	1802.44	4.04 S	1802.48 E	33.00386541 N	103.82796386 W	1802.48@	90.13	0.80
10389.00	89.10	90.79	8806.71	31.00	1833.42	4.58 S	1833.46 E	33.00386351 N	103.82786281 W	1833.47@	90.14	3.83
10420.00	89.61	90.92	8807.06	31.00	1864.41	5.04 S	1864.45 E	33.00386183 N	103.82776172 W	1864.46@	90.15	1.70
10451.00	89.50	91.43	8807.30	31.00	1895.40	5.68 S	1895.45 E	33.00385967 N	103.82766063 W	1895.46@	90.17	1.68
10482.00	89.72	91.27	8807.51	31.00	1926.39	6.41 S	1926.44 E	33.00385726 N	103.82755956 W	1926.45@	90.19	0.88
10514.00	89.66	90.96	8807.68	32.00	1958.38	7.03 S	1958.43 E	33.00385512 N	103.82745522 W	1958.44@	90.21	0.99
10545.00	89.50	91.17	8807.91	31.00	1989.37	7.61 S	1989.43 E	33.00385313 N	103.82735413 W	1989.44@	90.22	0.85
10576.00	89.38	91.26	8808.21	31.00	2020.36	8.26 S	2020.42 E	33.00385091 N	103.82725305 W	2020.43@	90.23	0.48
10607.00	89.44	89.96	8808.53	31.00	2051.35	8.59 S	2051.41 E	33.00384959 N	103.82715196 W	2051.43@	90.24	4.20
10638.00	89.33	89.70	8808.87	31.00	2082.35	8.50 S	2082.41 E	33.00384944 N	103.82705085 W	2082.43@	90.23	0.91
10669.00	89.33	89.54	8809.23	31.00	2113.35	8.30 S	2113.41 E	33.00384959 N	103.82694974 W	2113.42@	90.22	0.52
10700.00	89.22	89.89	8809.62	31.00	2144.35	8.14 S	2144.40 E	33.00384961 N	103.82684863 W	2144.42@	90.22	1.18
10731.00	89.10	89.77	8810.08	31.00	2175.34	8.05 S	2175.40 E	33.00384945 N	103.82674752 W	2175.42@	90.21	0.55
10763.00	88.99	89.75	8810.61	32.00	2207.34	7.92 S	2207.40 E	33.00384939 N	103.82664316 W	2207.41@	90.21	0.35
10794.00	88.99	89.66	8811.16	31.00	2238.33	7.76 S	2238.39 E	33.00384942 N	103.82654206 W	2238.41@	90.20	0.29
10825.00	89.83	89.72	8811.48	31.00	2269.33	7.59 S	2269.39 E	33.00384947 N	103.82644095 W	2269.40@	90.19	2.72
10856.00	90.45	89.31	8811.40	31.00	2300.33	7.33 S	2300.39 E	33.00384978 N	103.82633984 W	2300.40@	90.18	2.40
10887.00	90.28	89.89	8811.20	31.00	2331.33	7.11 S	2331.39 E	33.00384997 N	103.82623872 W	2331.40@	90.17	1.95
10919.00	90.11	90.07	8811.09	32.00	2363.33	7.10 S	2363.39 E	33.00384957 N	103.82613435 W	2363.40@	90.17	0.77
10950.00	90.17	90.21	8811.02	31.00	2394.33	7.17 S	2394.39 E	33.00384895 N	103.82603323 W	2394.40@	90.17	0.49

PathFinder Energy Services, Inc.

Survey Report

MACK ENERGY CORPORATION
TOM STATE #2
CHAVES COUNTY, NM
RIG:SILVER OAK #7

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)
10981.00	90.67	89.83	8810.79	31.00	2425.33	7.18 S	2425.39 E	33.00384851 N	103.82593212 W	2425.40@	90.17	2.03
11012.00	90.17	89.61	8810.56	31.00	2456.33	7.03 S	2456.38 E	33.00384852 N	103.82583101 W	2456.39@	90.16	1.76
11043.00	90.00	88.96	8810.52	31.00	2487.33	6.65 S	2487.38 E	33.00384917 N	103.82572990 W	2487.39@	90.15	2.17
11074.00	90.22	89.76	8810.46	31.00	2518.32	6.30 S	2518.38 E	33.00384971 N	103.82562879 W	2518.39@	90.14	2.68
11105.00	89.33	89.57	8810.58	31.00	2549.32	6.12 S	2549.38 E	33.00384980 N	103.82552767 W	2549.39@	90.14	2.94
11150.00	88.77	89.81	8811.33	45.00	2594.32	5.88 S	2594.37 E	33.00384987 N	103.82538091 W	2594.38@	90.13	1.35
11181.00	88.77	89.91	8811.99	31.00	2625.31	5.80 S	2625.36 E	33.00384967 N	103.82527982 W	2625.37@	90.13	0.32
11211.00	88.71	90.02	8812.65	30.00	2655.30	5.78 S	2655.36 E	33.00384932 N	103.82518199 W	2655.36@	90.12	0.42
11242.00	88.55	90.31	8813.39	31.00	2686.29	5.87 S	2686.35 E	33.00384866 N	103.82508091 W	2686.35@	90.13	1.07
11274.00	89.10	89.07	8814.05	32.00	2718.29	5.70 S	2718.34 E	33.00384871 N	103.82497655 W	2718.35@	90.12	4.24
11305.00	89.78	88.09	8814.35	31.00	2749.28	4.93 S	2749.33 E	33.00385041 N	103.82487546 W	2749.33@	90.10	3.85
11336.00	88.99	87.97	8814.68	31.00	2780.26	3.86 S	2780.31 E	33.00385293 N	103.82477440 W	2780.31@	90.08	2.58
11367.00	88.60	87.35	8815.34	31.00	2811.23	2.60 S	2811.27 E	33.00385600 N	103.82467337 W	2811.28@	90.05	2.36
11398.00	88.77	87.67	8816.05	31.00	2842.20	1.25 S	2842.24 E	33.00385929 N	103.82457236 W	2842.24@	90.03	1.17
11429.00	88.71	87.62	8816.73	31.00	2873.17	0.02 N	2873.20 E	33.00386237 N	103.82447133 W	2873.20@	90.00	0.25
11460.00	88.54	87.86	8817.47	31.00	2904.15	1.24 N	2904.17 E	33.00386532 N	103.82437030 W	2904.17@	89.98	0.95
11491.00	88.38	87.57	8818.31	31.00	2935.12	2.48 N	2935.13 E	33.00386831 N	103.82426929 W	2935.14@	89.95	1.07
11523.00	88.10	87.83	8819.29	32.00	2967.08	3.76 N	2967.09 E	33.00387141 N	103.82416502 W	2967.10@	89.93	1.19
11554.00	87.76	87.74	8820.41	31.00	2998.04	4.96 N	2998.05 E	33.00387429 N	103.82406403 W	2998.05@	89.91	1.14
11585.00	87.54	87.51	8821.68	31.00	3028.99	6.24 N	3029.00 E	33.00387740 N	103.82396307 W	3029.00@	89.88	1.03
11616.00	88.21	87.76	8822.83	31.00	3059.95	7.52 N	3059.95 E	33.00388051 N	103.82386209 W	3059.96@	89.86	2.31
11647.00	89.16	88.49	8823.54	31.00	3090.93	8.54 N	3090.92 E	33.00388288 N	103.82376104 W	3090.94@	89.84	3.86
11678.00	89.05	88.66	8824.02	31.00	3121.92	9.31 N	3121.91 E	33.00388459 N	103.82365996 W	3121.92@	89.83	0.65
11710.00	88.88	88.63	8824.60	32.00	3153.91	10.06 N	3153.90 E	33.00388624 N	103.82355562 W	3153.91@	89.82	0.54
11741.00	88.82	88.62	8825.22	31.00	3184.90	10.81 N	3184.88 E	33.00388787 N	103.82345454 W	3184.90@	89.81	0.20
11772.00	89.05	88.71	8825.80	31.00	3215.89	11.53 N	3215.87 E	33.00388944 N	103.82335346 W	3215.89@	89.79	0.80
11803.00	88.94	88.76	8826.34	31.00	3246.88	12.21 N	3246.86 E	33.00389091 N	103.82325237 W	3246.88@	89.78	0.39

PathFinder Energy Services, Inc.

Survey Report

MACK ENERGY CORPORATION
TOM STATE #2
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RIG:SILVER OAK #7

Measured Depth (ft)	Incl (deg)	Drift Dir. (deg)	TVD (ft)	Course Length (ft)	Vertical Section (ft)	TOTAL Rectangular Offsets		Survey Latitude (deg)	Survey Longitude (deg)	Closure		DLS (dg/100ft)
						(ft)	(ft)			(ft)	(deg)	
11834.00	88.83	88.63	8826.95	31.00	3277.87	12.92 N	3277.84 E	33.00389244 N	103.82315129 W	3277.87@	89.77	0.55
11865.00	89.33	89.73	8827.45	31.00	3308.86	13.36 N	3308.83 E	33.00389324 N	103.82305019 W	3308.86@	89.77	3.90
11896.00	89.38	90.10	8827.79	31.00	3339.86	13.41 N	3339.83 E	33.00389296 N	103.82294908 W	3339.86@	89.77	1.20
11927.00	89.16	89.89	8828.19	31.00	3370.86	13.41 N	3370.83 E	33.00389255 N	103.82284798 W	3370.86@	89.77	0.98
11958.00	88.88	89.94	8828.72	31.00	3401.85	13.46 N	3401.82 E	33.00389226 N	103.82274688 W	3401.85@	89.77	0.92
11989.00	88.71	89.78	8829.37	31.00	3432.84	13.53 N	3432.82 E	33.00389206 N	103.82264579 W	3432.84@	89.77	0.75
12020.00	88.55	89.83	8830.11	31.00	3463.83	13.64 N	3463.81 E	33.00389193 N	103.82254470 W	3463.84@	89.77	0.54
12052.00	89.22	89.82	8830.74	32.00	3495.83	13.74 N	3495.80 E	33.00389178 N	103.82244034 W	3495.83@	89.77	2.09
12083.00	89.16	89.76	8831.17	31.00	3526.83	13.85 N	3526.80 E	33.00389167 N	103.82233923 W	3526.83@	89.77	0.27
12114.00	88.99	89.63	8831.67	31.00	3557.82	14.01 N	3557.79 E	33.00389171 N	103.82223813 W	3557.82@	89.77	0.69
12145.00	89.83	89.40	8831.99	31.00	3588.82	14.28 N	3588.79 E	33.00389202 N	103.82213702 W	3588.82@	89.77	2.81
12176.00	90.06	88.88	8832.02	31.00	3619.82	14.74 N	3619.79 E	33.00389289 N	103.82203591 W	3619.82@	89.77	1.83
12207.00	89.78	88.92	8832.07	31.00	3650.81	15.34 N	3650.78 E	33.00389411 N	103.82193481 W	3650.81@	89.76	0.91
12238.00	90.11	88.63	8832.10	31.00	3681.81	16.00 N	3681.77 E	33.00389551 N	103.82183371 W	3681.81@	89.75	1.42
12270.00	90.50	88.54	8831.93	32.00	3713.80	16.79 N	3713.76 E	33.00389726 N	103.82172935 W	3713.80@	89.74	1.25
12301.00	90.50	88.66	8831.65	31.00	3744.79	17.55 N	3744.75 E	33.00389893 N	103.82162826 W	3744.79@	89.73	0.39
12332.00	90.28	88.35	8831.44	31.00	3775.79	18.36 N	3775.74 E	33.00390073 N	103.82152717 W	3775.79@	89.72	1.23
12363.00	90.28	88.47	8831.29	31.00	3806.78	19.22 N	3806.73 E	33.00390268 N	103.82142608 W	3806.78@	89.71	0.39
12394.00	90.22	88.44	8831.16	31.00	3837.77	20.05 N	3837.72 E	33.00390457 N	103.82132499 W	3837.77@	89.70	0.22
12425.00	90.11	88.18	8831.07	31.00	3868.76	20.97 N	3868.70 E	33.00390667 N	103.82122390 W	3868.76@	89.69	0.91
12457.00	90.06	88.05	8831.02	32.00	3900.75	22.02 N	3900.69 E	33.00390913 N	103.82111957 W	3900.75@	89.68	0.43
12488.00	89.78	88.04	8831.06	31.00	3931.73	23.08 N	3931.67 E	33.00391162 N	103.82101849 W	3931.74@	89.66	0.90
12519.00	89.66	87.80	8831.22	31.00	3962.72	24.20 N	3962.65 E	33.00391430 N	103.82091743 W	3962.72@	89.65	0.87
12550.00	89.72	88.75	8831.38	31.00	3993.71	25.14 N	3993.63 E	33.00391645 N	103.82081635 W	3993.71@	89.64	3.07
12581.00	89.66	89.35	8831.55	31.00	4024.70	25.65 N	4024.63 E	33.00391745 N	103.82071524 W	4024.71@	89.63	1.95
12612.00	89.50	89.30	8831.78	31.00	4055.70	26.01 N	4055.63 E	33.00391804 N	103.82061413 W	4055.71@	89.63	0.54
12644.00	89.44	89.30	8832.07	32.00	4087.70	26.41 N	4087.62 E	33.00391868 N	103.82050976 W	4087.71@	89.63	0.19

PathFinder Energy Services, Inc.

Survey Report

MACK ENERGY CORPORATION
TOM STATE #2
CHAVES COUNTY, NM
RIG:SILVER OAK #7

Page 09/09

Measured Depth (ft)	Incl (deg)	Drift Dir. (deg)	TVD (ft)	Course Length (ft)	Vertical Section (ft)	TOTAL Rectangular Offsets		Survey Latitude (deg)	Survey Longitude (deg)	Closure Dist Dir		DLS (dg/100ft)
						(ft)	(ft)			(ft)	(deg)	
12675.00	89.94	90.12	8832.24	31.00	4118.70	26.56 N	4118.62 E	33.00391870 N	103.82040864 W	4118.71@	89.63	3.10
12706.00	90.00	90.97	8832.26	31.00	4149.70	26.27 N	4149.62 E	33.00391747 N	103.82030754 W	4149.70@	89.64	2.75
12737.00	90.00	90.99	8832.26	31.00	4180.69	25.74 N	4180.61 E	33.00391560 N	103.82020645 W	4180.69@	89.65	0.06
12768.00	89.94	91.19	8832.27	31.00	4211.68	25.15 N	4211.61 E	33.00391356 N	103.82010536 W	4211.68@	89.66	0.67
12799.00	89.94	91.32	8832.31	31.00	4242.67	24.47 N	4242.60 E	33.00391128 N	103.82000428 W	4242.67@	89.67	0.42
12830.00	89.89	91.43	8832.35	31.00	4273.66	23.72 N	4273.59 E	33.00390882 N	103.81990321 W	4273.66@	89.68	0.39
12861.00	89.94	91.45	8832.40	31.00	4304.64	22.95 N	4304.58 E	33.00390626 N	103.81980214 W	4304.64@	89.69	0.17
12892.00	90.11	91.49	8832.39	31.00	4335.63	22.15 N	4335.57 E	33.00390366 N	103.81970107 W	4335.63@	89.71	0.56
12923.00	90.39	91.81	8832.25	31.00	4366.61	21.26 N	4366.56 E	33.00390079 N	103.81960001 W	4366.61@	89.72	1.37
12954.00	90.62	91.87	8831.98	31.00	4397.59	20.26 N	4397.54 E	33.00389764 N	103.81949897 W	4397.59@	89.74	0.77
12985.00	90.67	92.12	8831.63	31.00	4428.56	19.18 N	4428.52 E	33.00389426 N	103.81939794 W	4428.56@	89.75	0.82
13017.00	90.45	92.30	8831.32	32.00	4460.53	17.95 N	4460.50 E	33.00389044 N	103.81929366 W	4460.53@	89.77	0.89
13048.00	90.34	92.84	8831.10	31.00	4491.49	16.56 N	4491.46 E	33.00388620 N	103.81919268 W	4491.49@	89.79	1.78
13079.00	90.17	92.69	8830.96	31.00	4522.45	15.06 N	4522.43 E	33.00388167 N	103.81909170 W	4522.45@	89.81	0.73
13110.00	89.83	92.71	8830.96	31.00	4553.41	13.60 N	4553.39 E	33.00387725 N	103.81899072 W	4553.41@	89.83	1.10
13117.00	89.61	92.74	8831.00	7.00	4560.40	13.27 N	4560.39 E	33.00387624 N	103.81896792 W	4560.40@	89.83	3.17
STRAIGHT LINE PROJECTION TO BIT AT 13175'MD.												
13175.00	89.61	92.74	8831.39	58.00	4618.32	10.50 N	4618.32 E	33.00386784 N	103.81877901 W	4618.33@	89.87	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.