



DIRECTIONAL SURVEY REPORT

MACK ENERGY CORPORATION

COWBOYS FEDERAL COM #1

EDDY COUNTY, NM

PREPARED BY: PHIL LEBLANC

me



3329 West Pinhook Road • Lafayette, LA 70508 • Phone: 337-233-3982 or 800-377-3982 • Fax: 337-234-2988

May 13, 2009

MACK ENERGY CORPORATION

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

RE: MACK ENERGY CORPORATION
COWBOYS FEDERAL COM #1
EDDY COUNTY, NM
RIG: SILVER OAK #7
API Well No.: 30-015-36526
PES Job No.: 101008383-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

sli423@sutlog.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,

A handwritten signature in black ink, appearing to read "Phil LeBlanc".

Phil LeBlanc
M/LWD Service Coordinator
PathFinder Energy Services

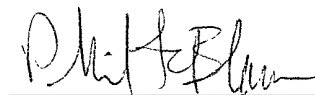
PL:ll

DIRECTIONAL SURVEY COMPANY REPORT:

1. NAME OF SURVEYING COMPANY: PATHFINDER ENERGY SERVICES
2. NAME OF PERSON(S) PERFORMING SURVEY:
A) JOHN OVERTON
B) DEAN NELSON
3. POSITION OF SAID PERSON(S): (A-B) SURVEYORS (FIELD ENGINEERS)
4. DATE(S) ON WHICH SURVEY WAS PERFORMED: 03/29/09 TO 04/22/09
5. STATE IN WHICH SURVEY WAS PERFORMED: EDDY COUNTY
6. LOCATION OF WELL: NEW MEXICO
7. TYPE OF SURVEY(S) PERFORMED: MWD
8. COMPLETE IDENTIFICATION OF WELL:

MACK ENERGY CORPORATION
COWBOYS FEDERAL COM #1
EDDY COUNTY, NM
RIG: SILVER OAK #7
API Well No.: 30-015-36526
9. SURVEY(S) CERTIFIED FROM: 4,884 TO 11,434 FEET MEASURED DEPTH.

THIS IS TO VERIFY THAT ATTACHED DOCUMENTS SHOWING THE WELL TO BE DISPLACED AT 4,613.65 FEET ON A BEARING OF 269.81 DEGREES FROM THE CENTER OF THE ROTARY TABLE AT A PROJECTED BIT DEPTH OF 11,434 FEET, ARE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE.



PHIL LEBLANC
M/LWD SERVICE COORDINATOR

PathFinder Energy Services, Inc.

BHL Report

Page 01/01
Tie-in Date: 03/29/2009
Date Completed: 04/21/2009

Mack Energy Corporation
Cowboys Federal Com #1
Eddy COUNTY, New Mexico
Rig: Silver Oak 7
PathFinder Office Supervisor: Phil LeBlanc
PathFinder Field Engineers: John Overton
Dean Nelson

Survey Horiz. Reference: WELLHEAD
Ref Coordinates: LAT: 32.55.40.2414 N LON: 104.5.20.4753 W
GRID Reference: NAD27 new mexico east Transverse Mercator
Ref GRID Coord: X: 574963.1000 Y: 701348.7000
North Aligned To: GRID NORTH
Total Magnetic Correction: 8.00° EAST TO GRID
Vertical Section Plane: 269.98
Survey Vert. Reference: 19.00' Kelly Bushing To Ground
Altitude: 3671.00' Ground To MSL

Measured Depth	11434.00	(feet)
Inclination	90.00	(deg)
Azimuth	270.50	(deg)
True Vertical Depth	7026.76	(feet)
Vertical Section	4613.63	(feet)
Survey X cord	570349.48	(feet)
Survey Y cord	701333.64	(feet)
Survey Lat	32.92783191 N	(deg)
Survey Lon	104.10405718 W	(deg)
Rectangular Corr. N/S	15.06 S	(feet)
Rectangular Corr. E/W	4613.62 W	(feet)
Closure Distance	4613.65	(feet)
Direction of Closure	269.81	(deg)
Dogleg Severity	0.00	(deg/100ft)

PathFinder Energy Services, Inc.

Survey Report

Page 01/08

Tie-in Date: 03/29/2009

Date Completed: 04/21/2009

Mack Energy Corporation
Cowboys Federal Com #1
Eddy COUNTY, New Mexico
Rig: Silver Oak 7
PathFinder Office Supervisor: Phil LeBlanc
PathFinder Field Engineers: John Overton
Dean Nelson

Survey Horiz. Reference: WELLHEAD
Ref Coordinates: LAT: 32.55.40.2414 N LON: 104.5.20.4753 W
Reference: NAD27 new mexico east Transverse Mercator
Ref GRID Coord: X: 574963.1000 Y: 701348.7000
North Aligned To: GRID NORTH
Total Magnetic Correction: 8.00° EAST TO GRID
Vertical Section Plane: 269.98
Survey Vert. Reference: 19.00' Kelly Bushing To Ground
Altitude: 3671.00' Ground To MSL

Survey Calculations by RX5 V5.11i using Minimum Curvature

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)
THE FOLLOWING ARE TELEDRIFT MWD SURVEYS.												
526.00	0.80	55.00	525.99	0.00	-3.01	2.11 N	3.01 E	32.92785061 N	104.08901109 W	3.67@	54.95	0.00
955.00	0.70	100.00	954.95	429.00	-8.04	3.37 N	8.04 E	32.92785404 N	104.08899468 W	8.72@	67.25	0.14
1266.00	0.60	108.00	1265.93	311.00	-11.46	2.54 N	11.46 E	32.92785173 N	104.08898354 W	11.74@	77.51	0.04
1572.00	0.90	82.00	1571.91	306.00	-15.37	2.38 N	15.36 E	32.92785127 N	104.08897082 W	15.55@	81.20	0.15
1882.00	0.30	149.00	1881.89	310.00	-18.19	2.02 N	18.19 E	32.92785027 N	104.08896160 W	18.31@	83.66	0.27
2200.00	0.50	28.00	2199.89	318.00	-19.27	2.53 N	19.27 E	32.92785167 N	104.08895808 W	19.44@	82.51	0.22
2511.00	0.20	240.00	2510.88	311.00	-19.44	3.46 N	19.44 E	32.92785421 N	104.08895753 W	19.75@	79.91	0.22
2823.00	0.60	300.00	2822.88	312.00	-17.56	4.00 N	17.55 E	32.92785572 N	104.08896367 W	18.01@	77.15	0.17
3129.00	0.70	270.00	3128.86	306.00	-14.30	4.81 N	14.30 E	32.92785794 N	104.08897428 W	15.08@	71.42	0.12
3449.00	0.20	272.00	3448.85	320.00	-11.79	4.83 N	11.78 E	32.92785801 N	104.08898247 W	12.73@	67.73	0.16
3764.00	0.60	309.00	3763.84	315.00	-9.96	5.88 N	9.95 E	32.92786093 N	104.08898843 W	11.56@	59.42	0.14
4100.00	0.50	275.00	4099.83	336.00	-7.13	7.12 N	7.13 E	32.92786434 N	104.08899763 W	10.07@	45.03	0.10
4293.00	0.30	292.00	4292.82	193.00	-5.82	7.38 N	5.82 E	32.92786507 N	104.08900189 W	9.40@	38.25	0.12
4473.00	1.00	330.00	4472.81	180.00	-4.60	8.92 N	4.60 E	32.92786931 N	104.08900586 W	10.03@	27.27	0.44
4697.00	1.00	319.00	4696.77	224.00	-2.34	12.08 N	2.34 E	32.92787803 N	104.08901321 W	12.31@	10.94	0.09
TIED INTO TELEDRIFT MWD SURVEY AT 4884' MD.												
4884.00	0.40	328.00	4883.76	187.00	-0.92	13.87 N	0.92 E	32.92788294 N	104.08901781 W	13.90@	3.79	0.33
THE FOLLOWING ARE PATHFINDER MWD SURVEYS.												
4956.00	0.97	335.48	4955.75	72.00	-0.54	14.64 N	0.53 E	32.92788506 N	104.08901906 W	14.65@	2.09	0.80
5049.00	0.88	85.08	5048.75	93.00	-0.92	15.42 N	0.92 E	32.92788719 N	104.08901780 W	15.44@	3.41	1.63
5143.00	1.32	104.33	5142.73	94.00	-2.69	15.21 N	2.69 E	32.92788661 N	104.08901204 W	15.44@	10.02	0.60
5236.00	1.67	131.49	5235.70	93.00	-4.74	14.05 N	4.74 E	32.92788340 N	104.08900536 W	14.82@	18.65	0.84
5329.00	1.76	134.21	5328.66	93.00	-6.78	12.15 N	6.78 E	32.92787819 N	104.08899873 W	13.92@	29.15	0.13

PathFinder Energy Services, Inc.

Survey Report

Mack Energy Corporation
Cowboys Federal Com #1
Eddy COUNTY, New Mexico
RIG:Silver Oak 7

Page 02/08

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)
5423.00	1.58	127.27	5422.62	94.00	-8.85	10.36 N	8.84 E	32.92787325 N	104.08899201 W	13.62@	40.49	0.29
5516.00	1.49	133.16	5515.58	93.00	-10.75	8.76 N	10.75 E	32.92786883 N	104.08898582 W	13.86@	50.82	0.20
5610.00	1.32	129.90	5609.56	94.00	-12.47	7.23 N	12.47 E	32.92786461 N	104.08898022 W	14.41@	59.90	0.20
5703.00	1.41	126.92	5702.53	93.00	-14.21	5.85 N	14.21 E	32.92786082 N	104.08897457 W	15.36@	67.61	0.12
5797.00	1.41	123.40	5796.50	94.00	-16.10	4.52 N	16.10 E	32.92785715 N	104.08896842 W	16.72@	74.31	0.09
5890.00	1.41	124.45	5889.47	93.00	-18.00	3.24 N	17.99 E	32.92785363 N	104.08896224 W	18.28@	79.78	0.03
5983.00	1.58	119.88	5982.44	93.00	-20.05	1.96 N	20.05 E	32.92785008 N	104.08895555 W	20.15@	84.42	0.22
6077.00	1.49	118.92	6076.41	94.00	-22.24	0.72 N	22.24 E	32.92784667 N	104.08894841 W	22.25@	88.14	0.10
6170.00	0.35	126.13	6169.39	93.00	-23.53	0.03 S	23.53 E	32.92784459 N	104.08894422 W	23.53@	90.07	1.23
6263.00	0.79	248.65	6262.39	93.00	-23.16	0.43 S	23.16 E	32.92784349 N	104.08894542 W	23.17@	91.07	1.10
6357.00	2.37	265.69	6356.35	94.00	-20.62	0.81 S	20.62 E	32.92784246 N	104.08895371 W	20.64@	92.26	1.74
6450.00	2.46	266.66	6449.27	93.00	-16.71	1.07 S	16.71 E	32.92784177 N	104.08896646 W	16.75@	93.68	0.11
DEPART PILOT HOLE AT 6495' MD.												
6514.00	5.54	258.07	6513.11	64.00	-12.32	1.79 S	12.32 E	32.92783982 N	104.08898078 W	12.45@	98.28	4.89
6545.00	9.76	256.72	6543.83	31.00	-8.29	2.71 S	8.29 E	32.92783733 N	104.08899390 W	8.72@	108.07	13.62
6576.00	13.37	259.57	6574.19	31.00	-2.21	3.96 S	2.21 E	32.92783393 N	104.08901374 W	4.53@	150.84	11.79
6607.00	17.41	260.01	6604.07	31.00	5.89	5.41 S	5.89 W	32.92782998 N	104.08904014 W	8.00@	227.40	13.04
6638.00	20.22	266.26	6633.42	31.00	15.81	6.57 S	15.80 W	32.92782687 N	104.08907246 W	17.11@	247.43	11.14
6669.00	23.39	268.28	6662.20	31.00	27.30	7.10 S	27.30 W	32.92782548 N	104.08910995 W	28.21@	255.42	10.51
6700.00	25.85	268.31	6690.38	31.00	40.21	7.49 S	40.21 W	32.92782451 N	104.08915202 W	40.90@	259.45	7.94
6732.00	27.70	269.03	6718.94	32.00	54.62	7.82 S	54.62 W	32.92782369 N	104.08919898 W	55.18@	261.85	5.87
6763.00	27.61	268.72	6746.40	31.00	69.01	8.10 S	69.01 W	32.92782300 N	104.08924587 W	69.48@	263.31	0.55
6794.00	27.35	269.26	6773.90	31.00	83.31	8.35 S	83.31 W	32.92782240 N	104.08929249 W	83.73@	264.27	1.16
6825.00	29.19	273.48	6801.21	31.00	97.98	7.99 S	97.98 W	32.92782350 N	104.08934029 W	98.30@	265.34	8.76
6856.00	32.62	273.55	6827.80	31.00	113.87	7.01 S	113.87 W	32.92782629 N	104.08939207 W	114.08@	266.48	11.07
6887.00	35.96	273.85	6853.41	31.00	131.30	5.88 S	131.29 W	32.92782950 N	104.08944885 W	131.42@	267.44	10.79
6918.00	39.31	273.41	6877.96	31.00	150.18	4.68 S	150.18 W	32.92783291 N	104.08951040 W	150.26@	268.21	10.84

PathFinder Energy Services, Inc.

Survey Report

Mack Energy Corporation
Cowboys Federal Com #1
Eddy COUNTY, New Mexico
RIG: Silver Oak 7

Page 03/08

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)
3950.00	42.91	272.40	6902.06	32.00	171.19	3.63 S	171.19 W	32.92783595 N	104.08957886 W	171.23@	268.79	11.44
3981.00	46.96	270.87	6924.01	31.00	193.07	3.01 S	193.07 W	32.92783778 N	104.08965017 W	193.10@	269.11	13.52
4012.00	51.00	269.18	6944.35	31.00	216.46	3.01 S	216.46 W	32.92783793 N	104.08972638 W	216.48@	269.20	13.67
4043.00	54.87	267.95	6963.03	31.00	241.18	3.64 S	241.18 W	32.92783636 N	104.08980696 W	241.21@	269.14	12.88
4074.00	59.18	267.45	6979.90	31.00	267.16	4.68 S	267.16 W	32.92783365 N	104.08989163 W	267.20@	269.00	13.97
4105.00	62.96	267.05	6994.89	31.00	294.25	5.99 S	294.25 W	32.92783024 N	104.08997995 W	294.31@	268.83	12.25
4136.00	67.01	267.59	7008.00	31.00	322.31	7.30 S	322.31 W	32.92782682 N	104.09007139 W	322.39@	268.70	13.16
4167.00	70.70	268.39	7019.18	31.00	351.20	8.31 S	351.20 W	32.92782422 N	104.09016555 W	351.30@	268.64	12.14
4199.00	74.92	268.63	7028.63	32.00	381.75	9.10 S	381.75 W	32.92782223 N	104.09026513 W	381.86@	268.63	13.21
4230.00	78.26	267.99	7035.82	31.00	411.89	9.99 S	411.89 W	32.92781997 N	104.09036336 W	412.01@	268.61	10.96
4261.00	81.34	268.43	7041.31	31.00	442.38	10.95 S	442.38 W	32.92781755 N	104.09046274 W	442.52@	268.58	10.03
4292.00	83.62	269.00	7045.37	31.00	473.11	11.63 S	473.10 W	32.92781585 N	104.09056288 W	473.25@	268.59	7.58
4323.00	85.91	270.67	7048.20	31.00	503.97	11.72 S	503.97 W	32.92781580 N	104.09066348 W	504.11@	268.67	9.13
4366.00	88.10	270.74	7050.44	43.00	546.91	11.19 S	546.91 W	32.92781753 N	104.09080340 W	547.02@	268.83	5.10
4397.00	90.45	270.72	7050.83	31.00	577.90	10.80 S	577.90 W	32.92781881 N	104.09090441 W	578.00@	268.93	7.58
4428.00	90.84	270.94	7050.49	31.00	608.90	10.35 S	608.89 W	32.92782024 N	104.09100542 W	608.98@	269.03	1.44
4459.00	89.61	271.32	7050.36	31.00	639.89	9.74 S	639.89 W	32.92782212 N	104.09110642 W	639.96@	269.13	4.15
4490.00	89.16	271.37	7050.70	31.00	670.88	9.01 S	670.88 W	32.92782431 N	104.09120741 W	670.94@	269.23	1.46
4522.00	89.61	271.47	7051.04	32.00	702.87	8.22 S	702.86 W	32.92782669 N	104.09131166 W	702.91@	269.33	1.44
4553.00	89.61	271.60	7051.25	31.00	733.85	7.39 S	733.85 W	32.92782917 N	104.09141265 W	733.89@	269.42	0.42
4584.00	89.83	271.64	7051.40	31.00	764.84	6.51 S	764.84 W	32.92783178 N	104.09151363 W	764.87@	269.51	0.72
4615.00	90.00	271.67	7051.45	31.00	795.83	5.62 S	795.83 W	32.92783443 N	104.09161461 W	795.85@	269.60	0.56
4646.00	90.00	271.69	7051.45	31.00	826.81	4.71 S	826.81 W	32.92783712 N	104.09171559 W	826.83@	269.67	0.06
4677.00	90.11	271.99	7051.42	31.00	857.80	3.71 S	857.80 W	32.92784006 N	104.09181657 W	857.80@	269.75	1.03
4708.00	90.95	271.86	7051.13	31.00	888.78	2.67 S	888.78 W	32.92784311 N	104.09191753 W	888.78@	269.83	2.74
4740.00	91.23	271.91	7050.52	32.00	920.76	1.62 S	920.76 W	32.92784621 N	104.09202174 W	920.76@	269.90	0.89
4771.00	91.17	271.80	7049.87	31.00	951.73	0.62 S	951.73 W	32.92784916 N	104.09212268 W	951.73@	269.96	0.41

PathFinder Energy Services, Inc.

Survey Report

Mack Energy Corporation
Cowboys Federal Com #1
Eddy COUNTY, New Mexico
RIG:Silver Oak 7

Page 04/08

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)
7802.00	91.23	270.58	7049.22	31.00	982.72	0.03 N	982.72 W	32.92785112 N	104.09222366 W	982.72@	270.00	3.94
7833.00	91.06	269.93	7048.61	31.00	1013.71	0.17 N	1013.71 W	32.92785170 N	104.09232467 W	1013.71@	270.01	2.17
7864.00	90.90	269.76	7048.07	31.00	1044.71	0.08 N	1044.71 W	32.92785166 N	104.09242569 W	1044.71@	270.00	0.75
7895.00	90.90	269.74	7047.59	31.00	1075.70	0.05 S	1075.70 W	32.92785148 N	104.09252671 W	1075.70@	270.00	0.06
7927.00	91.23	270.11	7046.99	32.00	1107.70	0.09 S	1107.70 W	32.92785157 N	104.09263098 W	1107.70@	270.00	1.55
7958.00	90.45	270.13	7046.54	31.00	1138.69	0.03 S	1138.69 W	32.92785194 N	104.09273200 W	1138.69@	270.00	2.52
7989.00	89.66	270.54	7046.51	31.00	1169.69	0.15 N	1169.69 W	32.92785264 N	104.09283303 W	1169.69@	270.01	2.87
8020.00	89.89	270.81	7046.63	31.00	1200.69	0.52 N	1200.69 W	32.92785383 N	104.09293405 W	1200.69@	270.02	1.14
8051.00	89.83	270.65	7046.71	31.00	1231.69	0.91 N	1231.69 W	32.92785511 N	104.09303507 W	1231.69@	270.04	0.55
8082.00	89.94	270.51	7046.77	31.00	1262.69	1.23 N	1262.69 W	32.92785617 N	104.09313609 W	1262.69@	270.06	0.57
8114.00	90.06	270.50	7046.77	32.00	1294.68	1.51 N	1294.68 W	32.92785715 N	104.09324038 W	1294.69@	270.07	0.38
8145.00	90.22	271.25	7046.69	31.00	1325.68	1.98 N	1325.68 W	32.92785864 N	104.09334139 W	1325.68@	270.09	2.47
8176.00	89.83	270.82	7046.68	31.00	1356.67	2.54 N	1356.67 W	32.92786037 N	104.09344240 W	1356.68@	270.11	1.87
8207.00	89.66	270.59	7046.82	31.00	1387.67	2.92 N	1387.67 W	32.92786162 N	104.09354342 W	1387.68@	270.12	0.92
8238.00	89.89	270.92	7046.94	31.00	1418.67	3.33 N	1418.67 W	32.92786293 N	104.09364444 W	1418.67@	270.13	1.30
8269.00	90.17	271.29	7046.92	31.00	1449.66	3.93 N	1449.66 W	32.92786477 N	104.09374545 W	1449.67@	270.16	1.50
8300.00	90.28	271.52	7046.80	31.00	1480.65	4.69 N	1480.65 W	32.92786705 N	104.09384644 W	1480.66@	270.18	0.82
8331.00	90.39	271.81	7046.62	31.00	1511.64	5.59 N	1511.64 W	32.92786972 N	104.09394742 W	1511.65@	270.21	1.00
8362.00	90.34	270.99	7046.42	31.00	1542.63	6.35 N	1542.63 W	32.92787200 N	104.09404842 W	1542.64@	270.24	2.65
8393.00	89.72	269.30	7046.41	31.00	1573.63	6.42 N	1573.63 W	32.92787241 N	104.09414944 W	1573.64@	270.23	5.81
8424.00	89.38	268.86	7046.65	31.00	1604.62	5.93 N	1604.62 W	32.92787123 N	104.09425046 W	1604.64@	270.21	1.79
8456.00	89.55	268.98	7046.95	32.00	1636.61	5.32 N	1636.62 W	32.92786977 N	104.09435473 W	1636.63@	270.19	0.65
8487.00	90.22	268.70	7047.01	31.00	1667.61	4.70 N	1667.61 W	32.92786824 N	104.09445575 W	1667.62@	270.16	2.34
8518.00	90.56	268.78	7046.80	31.00	1698.60	4.01 N	1698.60 W	32.92786656 N	104.09455676 W	1698.61@	270.14	1.13
8549.00	90.78	268.95	7046.44	31.00	1729.59	3.40 N	1729.59 W	32.92786507 N	104.09465777 W	1729.60@	270.11	0.90
8580.00	90.95	269.53	7045.97	31.00	1760.59	2.99 N	1760.59 W	32.92786413 N	104.09475878 W	1760.59@	270.10	1.95
8611.00	90.84	269.54	7045.48	31.00	1791.58	2.74 N	1791.58 W	32.92786363 N	104.09485980 W	1791.58@	270.09	0.36

PathFinder Energy Services, Inc.

Survey Report

Mack Energy Corporation
Cowboys Federal Com #1
Eddy COUNTY, New Mexico
RIG:Silver Oak 7

Page 05/08

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)
8642.00	91.01	269.15	7044.98	31.00	1822.58	2.38 N	1822.58 W	32.92786285 N	104.09496081 W	1822.58@	270.07	1.37
8674.00	90.06	269.17	7044.69	32.00	1854.57	1.91 N	1854.57 W	32.92786176 N	104.09506509 W	1854.57@	270.06	2.97
8705.00	89.72	268.94	7044.75	31.00	1885.57	1.40 N	1885.57 W	32.92786055 N	104.09516611 W	1885.57@	270.04	1.32
8736.00	89.78	269.42	7044.88	31.00	1916.56	0.96 N	1916.56 W	32.92785952 N	104.09526713 W	1916.56@	270.03	1.56
8767.00	89.89	269.34	7044.97	31.00	1947.56	0.62 N	1947.56 W	32.92785879 N	104.09536816 W	1947.56@	270.02	0.44
8798.00	89.94	269.43	7045.02	31.00	1978.56	0.31 N	1978.56 W	32.92785810 N	104.09546919 W	1978.56@	270.01	0.48
8830.00	90.06	269.57	7045.02	32.00	2010.56	0.04 N	2010.56 W	32.92785757 N	104.09557348 W	2010.56@	270.00	0.47
8861.00	90.34	269.69	7044.91	31.00	2041.56	0.16 S	2041.56 W	32.92785722 N	104.09567451 W	2041.56@	270.00	0.98
8892.00	89.16	269.32	7045.04	31.00	2072.56	0.43 S	2072.56 W	32.92785667 N	104.09577553 W	2072.56@	269.99	3.99
8923.00	88.89	269.06	7045.57	31.00	2103.55	0.87 S	2103.55 W	32.92785566 N	104.09587655 W	2103.55@	269.98	1.21
8954.00	88.94	269.10	7046.16	31.00	2134.54	1.36 S	2134.54 W	32.92785448 N	104.09597755 W	2134.54@	269.96	0.21
8985.00	89.05	269.04	7046.70	31.00	2165.53	1.87 S	2165.53 W	32.92785329 N	104.09607855 W	2165.53@	269.95	0.40
9016.00	89.16	268.87	7047.19	31.00	2196.52	2.43 S	2196.52 W	32.92785193 N	104.09617956 W	2196.52@	269.94	0.65
9048.00	89.22	269.49	7047.64	32.00	2228.51	2.89 S	2228.51 W	32.92785087 N	104.09628383 W	2228.52@	269.93	1.95
9079.00	89.44	269.84	7048.00	31.00	2259.51	3.07 S	2259.51 W	32.92785056 N	104.09638486 W	2259.51@	269.92	1.33
9110.00	89.83	269.61	7048.20	31.00	2290.51	3.22 S	2290.51 W	32.92785034 N	104.09648589 W	2290.51@	269.92	1.46
9141.00	89.83	269.73	7048.29	31.00	2321.51	3.40 S	2321.51 W	32.92785005 N	104.09658692 W	2321.51@	269.92	0.39
9172.00	89.94	270.27	7048.35	31.00	2352.51	3.40 S	2352.51 W	32.92785024 N	104.09668795 W	2352.51@	269.92	1.78
9203.00	90.00	269.92	7048.37	31.00	2383.51	3.35 S	2383.51 W	32.92785057 N	104.09678898 W	2383.51@	269.92	1.15
9234.00	89.94	270.41	7048.38	31.00	2414.51	3.26 S	2414.51 W	32.92785101 N	104.09689001 W	2414.51@	269.92	1.59
9266.00	90.06	270.40	7048.38	32.00	2446.51	3.03 S	2446.51 W	32.92785182 N	104.09699430 W	2446.51@	269.93	0.38
9296.00	90.06	270.25	7048.35	30.00	2476.51	2.86 S	2476.51 W	32.92785248 N	104.09709207 W	2476.51@	269.93	0.50
9327.00	89.94	270.28	7048.35	31.00	2507.51	2.72 S	2507.51 W	32.92785306 N	104.09719309 W	2507.51@	269.94	0.40
9359.00	91.34	270.22	7048.00	32.00	2539.51	2.58 S	2539.50 W	32.92785364 N	104.09729737 W	2539.51@	269.94	4.38
9386.00	91.79	270.40	7047.26	27.00	2566.49	2.43 S	2566.49 W	32.92785421 N	104.09738533 W	2566.49@	269.95	1.80
9421.00	91.85	270.27	7046.15	35.00	2601.48	2.23 S	2601.48 W	32.92785499 N	104.09749934 W	2601.48@	269.95	0.41
9452.00	91.96	270.64	7045.12	31.00	2632.46	1.98 S	2632.46 W	32.92785585 N	104.09760031 W	2632.46@	269.96	1.25

PathFinder Energy Services, Inc.

Survey Report

Mack Energy Corporation
Cowboys Federal Com #1
Eddy COUNTY, New Mexico
RIG: Silver Oak 7

Page 06/08

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)
9483.00	92.24	270.62	7043.98	31.00	2663.44	1.64 S	2663.43 W	32.92785698 N	104.09770127 W	2663.44@	269.96	0.91
9514.00	91.01	270.32	7043.10	31.00	2694.42	1.39 S	2694.42 W	32.92785787 N	104.09780225 W	2694.42@	269.97	4.08
9546.00	90.50	269.76	7042.68	32.00	2726.42	1.37 S	2726.42 W	32.92785813 N	104.09790653 W	2726.42@	269.97	2.37
9577.00	90.45	269.88	7042.42	31.00	2757.42	1.46 S	2757.42 W	32.92785805 N	104.09800756 W	2757.42@	269.97	0.42
9608.00	90.45	270.29	7042.18	31.00	2788.42	1.42 S	2788.41 W	32.92785837 N	104.09810858 W	2788.42@	269.97	1.32
9639.00	91.23	270.25	7041.72	31.00	2819.41	1.27 S	2819.41 W	32.92785896 N	104.09820960 W	2819.41@	269.97	2.52
9670.00	91.51	271.57	7040.98	31.00	2850.40	0.78 S	2850.40 W	32.92786050 N	104.09831059 W	2850.40@	269.98	4.35
9701.00	92.40	271.26	7039.93	31.00	2881.37	0.01 S	2881.37 W	32.92786279 N	104.09841152 W	2881.37@	270.00	3.04
9733.00	92.85	271.27	7038.46	32.00	2913.33	0.69 N	2913.33 W	32.92786493 N	104.09851567 W	2913.33@	270.01	1.41
9764.00	93.08	271.21	7036.86	31.00	2944.28	1.36 N	2944.28 W	32.92786696 N	104.09861654 W	2944.28@	270.03	0.77
9795.00	93.19	270.76	7035.16	31.00	2975.23	1.89 N	2975.23 W	32.92786861 N	104.09871740 W	2975.23@	270.04	1.49
9826.00	92.57	270.13	7033.60	31.00	3006.19	2.14 N	3006.19 W	32.92786946 N	104.09881830 W	3006.19@	270.04	2.85
9857.00	92.29	269.62	7032.29	31.00	3037.16	2.07 N	3037.16 W	32.92786947 N	104.09891924 W	3037.16@	270.04	1.88
9888.00	92.18	269.55	7031.08	31.00	3068.13	1.84 N	3068.14 W	32.92786904 N	104.09902019 W	3068.14@	270.03	0.42
9919.00	92.13	269.47	7029.91	31.00	3099.11	1.58 N	3099.11 W	32.92786850 N	104.09912115 W	3099.11@	270.03	0.30
9950.00	92.02	269.75	7028.79	31.00	3130.09	1.37 N	3130.09 W	32.92786811 N	104.09922212 W	3130.09@	270.03	0.97
9981.00	92.01	269.65	7027.70	31.00	3161.07	1.21 N	3161.07 W	32.92786785 N	104.09932308 W	3161.07@	270.02	0.32
1012.00	90.62	269.16	7026.99	31.00	3192.06	0.88 N	3192.06 W	32.92786716 N	104.09942408 W	3192.06@	270.02	4.75
1044.00	90.00	269.07	7026.82	32.00	3224.06	0.39 N	3224.06 W	32.92786599 N	104.09952336 W	3224.06@	270.01	1.96
1075.00	90.28	268.62	7026.74	31.00	3255.05	0.24 S	3255.05 W	32.92786447 N	104.09962938 W	3255.05@	270.00	1.71
1106.00	90.28	268.76	7026.59	31.00	3286.04	0.94 S	3286.04 W	32.92786271 N	104.09973039 W	3286.04@	269.98	0.45
1137.00	89.44	268.40	7026.67	31.00	3317.03	1.71 S	3317.03 W	32.92786078 N	104.09983139 W	3317.03@	269.97	2.95
1168.00	89.05	268.91	7027.07	31.00	3348.02	2.44 S	3348.02 W	32.92785897 N	104.09993239 W	3348.02@	269.96	2.07
1199.00	89.16	268.37	7027.56	31.00	3379.01	3.18 S	3379.01 W	32.92785714 N	104.10003339 W	3379.01@	269.95	1.78
1230.00	88.88	268.57	7028.09	31.00	3409.99	4.00 S	3409.99 W	32.92785505 N	104.10013437 W	3409.99@	269.93	1.11
1262.00	88.71	268.64	7028.76	32.00	3441.98	4.78 S	3441.98 W	32.92785311 N	104.10023862 W	3441.98@	269.92	0.57
1293.00	88.66	268.53	7029.47	31.00	3472.96	5.55 S	3472.96 W	32.92785119 N	104.10033959 W	3472.96@	269.91	0.39

PathFinder Energy Services, Inc.

Survey Report

Mack Energy Corporation
Cowboys Federal Com #1
Eddy COUNTY, New Mexico
RIG: Silver Oak 7

Page 07/08

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)
0325.00	88.43	268.01	7030.29	32.00	3504.94	6.51 S	3504.93 W	32.92784873 N	104.10044381 W	3504.94@	269.89	1.78
0356.00	88.38	267.80	7031.15	31.00	3535.90	7.65 S	3535.90 W	32.92784580 N	104.10054474 W	3535.91@	269.88	0.70
0387.00	89.55	268.27	7031.71	31.00	3566.88	8.71 S	3566.88 W	32.92784307 N	104.10064570 W	3566.89@	269.86	4.07
0418.00	89.78	268.18	7031.89	31.00	3597.86	9.67 S	3597.86 W	32.92784062 N	104.10074669 W	3597.87@	269.85	0.80
0449.00	89.55	268.19	7032.07	31.00	3628.85	10.65 S	3628.84 W	32.92783811 N	104.10084768 W	3628.86@	269.83	0.74
0480.00	90.73	268.33	7032.00	31.00	3659.83	11.59 S	3659.83 W	32.92783571 N	104.10094867 W	3659.85@	269.82	3.83
0512.00	91.01	268.38	7031.51	32.00	3691.82	12.51 S	3691.81 W	32.92783338 N	104.10105291 W	3691.83@	269.81	0.89
0543.00	90.95	268.70	7030.98	31.00	3722.80	13.30 S	3722.80 W	32.92783140 N	104.10115390 W	3722.82@	269.80	1.05
0574.00	90.90	268.56	7030.48	31.00	3753.79	14.04 S	3753.79 W	32.92782955 N	104.10125489 W	3753.81@	269.79	0.48
0605.00	90.89	268.24	7029.99	31.00	3784.77	14.91 S	3784.77 W	32.92782736 N	104.10135588 W	3784.80@	269.77	1.03
0636.00	90.73	267.39	7029.56	31.00	3815.75	16.09 S	3815.74 W	32.92782429 N	104.10145684 W	3815.78@	269.76	2.79
0667.00	90.67	267.11	7029.18	31.00	3846.71	17.58 S	3846.71 W	32.92782039 N	104.10155775 W	3846.75@	269.74	0.92
0698.00	89.89	268.01	7029.03	31.00	3877.68	18.90 S	3877.68 W	32.92781695 N	104.10165870 W	3877.72@	269.72	3.84
0730.00	89.78	269.88	7029.12	32.00	3909.68	19.49 S	3909.67 W	32.92781553 N	104.10176297 W	3909.72@	269.71	5.85
0761.00	89.83	269.71	7029.22	31.00	3940.68	19.60 S	3940.67 W	32.92781541 N	104.10186400 W	3940.72@	269.72	0.57
0792.00	89.94	269.47	7029.29	31.00	3971.68	19.82 S	3971.67 W	32.92781499 N	104.10196503 W	3971.72@	269.71	0.85
0823.00	89.61	270.06	7029.41	31.00	4002.67	19.94 S	4002.67 W	32.92781482 N	104.10206606 W	4002.72@	269.71	2.18
0854.00	89.61	270.54	7029.62	31.00	4033.67	19.78 S	4033.67 W	32.92781546 N	104.10216709 W	4033.71@	269.72	1.55
0885.00	89.66	270.40	7029.82	31.00	4064.67	19.53 S	4064.66 W	32.92781634 N	104.10226811 W	4064.71@	269.72	0.48
0917.00	89.55	270.29	7030.04	32.00	4096.67	19.34 S	4096.66 W	32.92781707 N	104.10237240 W	4096.71@	269.73	0.49
0948.00	89.94	270.39	7030.17	31.00	4127.67	19.15 S	4127.66 W	32.92781776 N	104.10247343 W	4127.71@	269.73	1.30
0979.00	90.28	270.42	7030.12	31.00	4158.67	18.93 S	4158.66 W	32.92781855 N	104.10257445 W	4158.70@	269.74	1.10
1011.00	90.84	270.57	7029.80	32.00	4190.67	18.66 S	4190.66 W	32.92781950 N	104.10267873 W	4190.70@	269.74	1.31
1041.00	91.12	270.14	7029.29	30.00	4220.66	18.47 S	4220.65 W	32.92782019 N	104.10277649 W	4220.69@	269.75	1.71
1073.00	91.12	270.29	7028.66	32.00	4252.65	18.35 S	4252.65 W	32.92782071 N	104.10288075 W	4252.69@	269.75	0.47
1104.00	90.56	270.54	7028.21	31.00	4283.65	18.13 S	4283.64 W	32.92782152 N	104.10298177 W	4283.68@	269.76	1.98
1135.00	90.39	270.72	7027.95	31.00	4314.65	17.78 S	4314.64 W	32.92782264 N	104.10308279 W	4314.68@	269.76	0.80

PathFinder Energy Services, Inc.

Survey Report

Mack Energy Corporation
Cowboys Federal Com #1
Eddy COUNTY, New Mexico
RIG: Silver Oak 7

Page 08/08

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)
1166.00	90.45	270.46	7027.73	31.00	4345.64	17.47 S	4345.64 W	32.92782370 N	104.10318381 W	4345.67@	269.77	0.86
1197.00	90.39	270.61	7027.50	31.00	4376.64	17.18 S	4376.63 W	32.92782468 N	104.10328483 W	4376.67@	269.78	0.52
1228.00	90.28	270.78	7027.32	31.00	4407.64	16.80 S	4407.63 W	32.92782590 N	104.10338585 W	4407.66@	269.78	0.65
1259.00	90.34	270.37	7027.15	31.00	4438.64	16.49 S	4438.63 W	32.92782694 N	104.10348688 W	4438.66@	269.79	1.34
1290.00	90.28	270.67	7026.98	31.00	4469.63	16.21 S	4469.63 W	32.92782790 N	104.10358790 W	4469.66@	269.79	0.99
1321.00	90.22	270.58	7026.85	31.00	4500.63	15.87 S	4500.63 W	32.92782902 N	104.10368892 W	4500.65@	269.80	0.35
1352.00	90.06	270.10	7026.77	31.00	4531.63	15.69 S	4531.63 W	32.92782971 N	104.10378995 W	4531.65@	269.80	1.63
1379.00	90.00	270.50	7026.76	27.00	4558.63	15.54 S	4558.63 W	32.92783026 N	104.10387794 W	4558.65@	269.80	1.50
STRAIGHT LINE PROJECTION TO BIT AT 11434' MD.												
1434.00	90.00	270.50	7026.76	55.00	4613.63	15.06 S	4613.62 W	32.92783191 N	104.10405718 W	4613.65@	269.81	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.