

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

OCD-ARTESIA

FORM APPROVED
OMB NO 1004-0137
Expires July 31, 2010

WELL COMPLETION OR RECOMPLETION REPORT AND LOG

1a Type of Well ☒ Oil Well ☐ Gas Well ☐ Dry ☐ Other
b Type of Completion ☐ New Well ☐ Work Over ☐ Deepen ☐ Plug Back ☐ Diff Resrv,
Other _____2 Name of Operator
Mack Energy Corporation3 Address
P.O. Box 960 Artesia, NM 882103a Phone No (include area code)
(575) 748-1288

4 Location of Well (Report location clearly and in accordance with Federal requirements)*

At surface 2310 FNL & 330 FWL

JAN 26 2009

At top prod interval reported below 2276 FNL & 910 FWL

At total depth 2150 FNL & 1527 FEL

14 Date Spudded
10/10/200815 Date T D Reached
11/6/200816 Date Completed 12/15/08
☐ D&A ☒ Ready to Prod5. Lease Serial No
NMNM-117550

6 If Indian, Allottee or Tribe Name

7 Unit or CA Agreement Name and No

8 Lease Name and Well No.
Santa Claus State Com #19 API Well No
30-015-3625710 Field and Pool or Exploratory
Crow Flats; Wolfcamp

11 Sec, T, R, M, on Block

Sec.15 T16S R28E

12 County or Parish 13 State

Eddy NM

17 Elevations (DF, RKB, RT, GR)*
3577'18 Total Depth MD
TVD 9,700' MD. 6,565' TVD19. Plug Back T D.. MD
TVD 9,700' MD. 6,565' TVD20. Depth Bridge Plug Set MD
TVD

21. Type Electric & Other Mechanical Logs Run (Submit copy of each)

Gamma Ray, Neutron, Density, Lateralog, Spectral Gamma Ray

22. Was well cored? ☒ No ☐ Yes (Submit analysis)
Was DST run? ☒ No ☐ Yes (Submit report)
Directional Survey? ☐ No ☒ Yes (Submit copy)

23 Casing and Liner Record (Report all strings set in well)

Hole Size	Size/Grade	Wt (#/ft)	Top (MD)	Bottom (MD)	Stage Cementer Depth	No of Sks & Type of Cement	Slurry Vol (BBL)	Cement Top*	Amount Pulled
17 1/2	13 3/8, H-40	48	0	321	321	370sx Class C		0	None
12 1/4	9 5/8, J-55	36	0	1813	1813	605sx Class C		0	None
8 3/4	7, HCP-110	29	0	6822	6822	1000sx Poz		0	None
6 1/8	4 1/2, HCP-110	11.6	0	9640					

24 Tubing Record

Size	Depth Set (MD)	Packer Depth (MD)	Size	Depth Set (MD)	Packer Depth (MD)	Size	Depth Set (MD)	Packer Depth (MD)
2 7/8	5835							

25 Producing Intervals

Formation	Top	Bottom	Perforated Interval	Size	No Holes	Perf Status
A) Crow Flats; Wolfcamp	7021	9056	Strata Port 7021			
B)			Strata Port 7643			
C)			Strata Port 7949			
D)			Strata Port 8535, Strata Port 9056			

27 Acid, Fracture, Treatment, Cement Squeeze, etc

Depth Interval Amount and Type of Material
7021-9056 See 3160-5 for details

28 Production Interval A

Date First Produced	Test Date	Hours Tested	Test Production	Oil BBL	Gas MCF	Water BBL	Oil Gravity Corr API	Gas Gravity	Production Method
12/17/08	12/29/08	24	→	391	547	75			Pumping
Choke Size	Tbg Press Flwg SI	Csg Press	24 Hr Rate	Oil BBL	Gas MCF	Water BBL	Gas/Oil Ratio	Well Status	
			→	391	547	75	1398	Producing	

28a Production Interval B

Date First Produced	Test Date	Hours Tested	Test Production	Oil BBL	Gas MCF	Water BBL	Oil Gravity Corr API	Gas Gravity	Production Method
			→						
Choke Size	Tbg Press Flwg SI	Csg Press	24 Hr Rate	Oil BBL	Gas MCF	Water BBL	Gas/Oil Ratio	Well Status	
			→						

*(See instructions and spaces for additional data on page 2)

Accepted for record - NMOCD

ACCEPTED FOR RECORD

JAN 22 2009

JERRY FANT
PETROLEUM GEOLOGIST

28b Production - Interval C

Date First Produced	Test Date	Hours Tested	Test Production	Oil BBL	Gas MCF	Water BBL	Oil Gravity Corr API	Gas Gravity	Production Method
			→						
Choke Size	Tbg Press Flwg SI	Csg Press	24 Hr Rate	Oil BBL	Gas MCF	Water BBL	Gas/Oil Ratio	Well Status	
			→						

28c Production - Interval D

Date First Produced	Test Date	Hours Tested	Test Production	Oil BBL	Gas MCF	Water BBL	Oil Gravity Corr API	Gas Gravity	Production Method
			→						
Choke Size	Tbg Press Flwg SI	Csg Press	24 Hr Rate	Oil BBL	Gas MCF	Water BBL	Gas/Oil Ratio	Well Status	
			→						

29 Disposition of Gas (Sold used for fuel vented etc)

Sold

30 Summary of Porous Zones (Include Aquifers)

Show all important zones of porosity and contents thereof. Cored intervals and all drill-stem tests, including depth interval tested, cushion used, time tool open, flowing and shut-in pressures and recoveries.

31 Formation (Log) Markers

Formation	Top	Bottom	Descriptions, Contents, etc	Name	Top
					Meas Depth
Crow Flat; Wolfcamp	7021'	9056'		Yates	344'
				Seven Rivers	550'
				Queen	1068'
				Grayburg	1470'
				San Andres	1831'
				Glorietta	3328'
				Tubb	4571'
				Abo	5346'
				Wolfcamp	6512'

32 Additional remarks (include plugging procedure)

33 Indicate which items have been attached by placing a check in the appropriate boxes

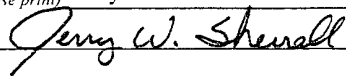
- ☒ Electrical/Mechanical Logs (1 full set req'd)
 ☐ Geologic Report
 ☒ DST Report
 ☒ Directional Survey
- ☐ Sundry Notice for plugging and cement verification
 ☐ Core Analysis
 ☐ Other

34 I hereby certify that the foregoing and attached information is complete as determined from all available records (see attached instruction)*

Name (please print) Jerry W. Sherrell

Title Production Clerk

Signature

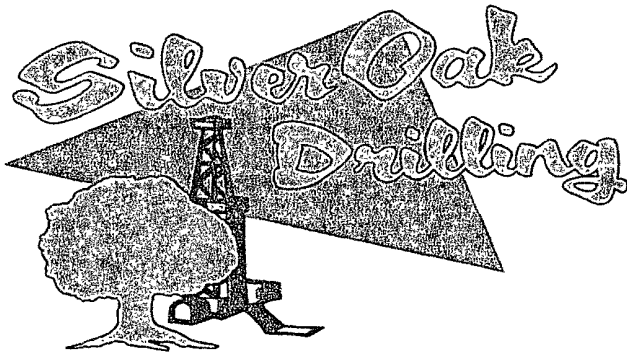


Date 12/30/08

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for my person knowingly and willfully to make to my department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction

(Continued on page 3)

(Form 3160-4, page 2)



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

November 17, 2008

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

RE: Santa Claus St. Com #1
2310' FNL & 330' FWL
Sec. 15, T16S, R28E
Eddy County, New Mexico

Dear Sir,

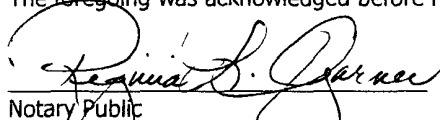
The attached is the Deviation Survey for the above captioned well.

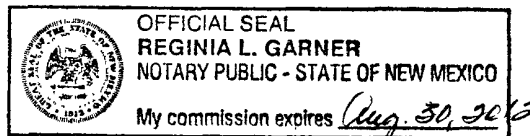
Very truly yours,


Eddie C. LaRue
Operations Manager

State of New Mexico }
County of Eddy }

The foregoing was acknowledged before me this 17th day of November, 2008.


Notary Public



Date	Depth	Dev	Dir	TVD	Date	Depth	Dev	Dir	TVD
10/09/2008	131.00	0.20	70.20	0.00	10/23/2008	6247.00	26.29	87.50	6235.41
10/11/2008	447.00	0.70	27.20	0.00	10/23/2008	6278.00	28.93	88.20	6262.87
10/11/2008	539.00	1.20	13.20	0.00	10/23/2008	6309.00	33.15	88.55	6989.43
10/11/2008	627.00	1.10	9.20	0.00	10/23/2008	6340.00	37.02	88.90	6314.79
10/11/2008	723.00	0.50	344.20	0.00	10/23/2008	6371.00	39.83	90.13	6339.07
10/11/2008	810.00	0.80	347.20	0.00	10/23/2008	6434.00	45.02	88.55	6385.98
10/11/2008	910.00	0.80	25.20	0.00	10/23/2008	6465.00	49.86	86.62	6406.95
10/11/2008	1004.00	1.00	14.20	0.00	10/23/2008	6496.00	53.64	85.91	6426.14
10/11/2008	1096.00	0.50	333.20	0.00	10/23/2008	6527.00	57.77	86.33	6443.60
10/12/2008	1190.00	0.20	179.20	0.00	10/24/2008	6558.00	62.70	87.16	6458.00
10/12/2008	1377.00	0.50	319.50	0.00	10/24/2008	6589.00	67.27	87.78	6472.09
10/12/2008	1470.00	0.50	355.20	0.00	10/24/2008	6620.00	70.00	87.84	6483.38
10/12/2008	1563.00	0.30	280.20	0.00	10/24/2008	6651.00	72.90	88.25	6493.24
10/12/2008	1657.00	0.10	105.20	0.00	10/24/2008	6682.00	76.24	0.00	6501.49
10/13/2008	1750.00	0.50	331.20	0.00	10/24/2008	6745.00	82.04	90.27	6513.14
10/15/2008	1894.00	0.60	43.20	0.00	10/24/2008	6775.00	84.24	90.68	6516.72
10/15/2008	1981.00	0.80	347.20	0.00	10/28/2008	6860.00	88.02	90.66	6522.46
10/15/2008	2076.00	0.90	18.20	0.00	10/28/2008	6891.00	88.29	91.34	6523.46
10/16/2008	2174.00	0.70	29.20	0.00	10/29/2008	6933.00	89.66	89.98	6524.00
10/16/2008	2268.00	0.70	2.20	0.00	10/29/2008	6964.00	89.89	89.92	6524.12
10/16/2008	2361.00	0.40	243.20	0.00	10/29/2008	6996.00	89.66	88.94	6524.25
10/16/2008	2487.00	0.60	61.20	0.00	10/29/2008	7027.00	89.44	88.71	6524.49
10/16/2008	2580.00	0.50	336.20	0.00	10/30/2008	7058.00	89.27	88.80	6524.84
10/16/2008	2699.00	0.70	30.20	0.00	10/30/2008	7089.00	89.66	89.23	6525.00
10/16/2008	2791.00	0.70	23.20	0.00	10/30/2008	7120.00	89.61	89.02	6525.33
10/16/2008	2893.00	0.40	284.20	0.00	10/30/2008	7151.00	89.66	88.14	6525.53
10/16/2008	2978.00	0.90	25.20	0.00	10/30/2008	7182.00	90.00	87.82	6525.62
10/17/2008	3071.00	0.50	54.20	0.00	10/30/2008	7213.00	90.22	86.39	6525.56
10/17/2008	3165.00	1.00	37.20	0.00	10/30/2008	7243.00	90.39	86.06	6525.40
10/17/2008	3260.00	0.70	311.20	0.00	10/30/2008	7277.00	89.78	85.52	6525.35
10/17/2008	3352.00	0.20	113.20	0.00	10/30/2008	7309.00	89.50	85.32	6525.35
10/17/2008	3451.00	0.20	173.20	0.00	10/30/2008	7340.00	88.88	84.98	6525.99
10/17/2008	3544.00	0.30	140.20	0.00	10/30/2008	7372.00	88.83	85.07	6525.63
10/17/2008	3637.00	0.60	7.20	0.00	10/31/2008	7404.00	87.54	85.95	6527.64
10/17/2008	3755.00	0.90	349.20	0.00	10/31/2008	7436.00	87.59	85.74	6529.00
10/17/2008	3819.00	0.70	274.20	0.00	10/31/2008	7468.00	87.65	85.69	6530.33
10/17/2008	3915.00	0.70	320.20	0.00	10/31/2008	7531.00	88.77	86.41	6530.00
10/19/2008	4004.00	0.70	327.08	0.00	10/31/2008	7563.00	89.22	87.24	6533.32
10/19/2008	4098.00	0.97	342.00	0.00	10/31/2008	7595.00	89.16	87.36	6533.77
10/19/2008	4191.00	0.97	327.17	0.00	10/31/2008	7627.00	88.99	87.20	6534.11
10/19/2008	4565.00	0.70	207.38	0.00	10/31/2008	7659.00	88.66	87.19	6534.94
10/19/2008	4659.00	0.62	136.45	0.00	10/31/2008	7722.00	90.50	88.82	6535.77
10/19/2008	4752.00	1.23	130.12	0.00	10/31/2008	7754.00	91.01	89.39	6535.34
10/19/2008	4845.00	0.70	143.75	0.00	10/31/2008	7786.00	90.90	89.41	6534.81
10/20/2008	4939.00	0.70	134.43	0.00	10/31/2008	7818.00	91.01	89.31	6534.28
10/20/2008	5032.00	0.97	148.84	0.00	11/01/2008	7870.00	90.73	89.26	6533.00
10/20/2008	5126.00	0.97	146.73	0.00	11/01/2008	7882.00	90.56	88.94	6533.00
10/20/2008	5406.00	1.41	103.32	5405.66	11/01/2008	7914.00	90.28	88.26	6533.42
10/21/2008	5500.00	1.49	111.75	0.00	11/01/2008	8009.00	88.83	85.43	6534.40
10/21/2008	5593.00	1.76	92.94	0.00	11/01/2008	8073.00	89.38	87.15	6535.63
10/21/2008	5686.00	1.49	91.71	5685.56	11/01/2008	8041.00	88.99	85.92	6535.17
10/21/2008	5873.00	1.85	93.30	5872.49	11/01/2008	8105.00	89.38	86.80	6535.80
10/22/2008	5998.00	1.85	91.45	5997.43	11/01/2008	8137.00	89.50	86.39	6536.29
10/22/2008	6029.00	2.11	88.02	6028.41	11/01/2008	8169.00	89.44	86.61	6536.58
10/22/2008	6060.00	5.01	84.16	6059.35	11/01/2008	8201.00	89.22	86.61	6536.96
10/22/2008	6091.00	10.20	82.22	6090.06	11/01/2008	8233.00	88.71	86.35	6537.53
10/22/2008	6122.00	16.36	83.19	6120.22	11/01/2008	8264.00	88.83	86.68	6538.20
10/22/2008	6185.00	23.39	87.58	6179.28	11/01/2008	8328.00	88.94	87.03	6589.48
10/23/2008	6216.00	25.41	88.20	6207.51	11/02/2008	8328.00	88.82	86.88	6539.45

Date	Depth	Dev	Dir	TVD
11/02/2008	8360.00	88.21	86.10	6540.10
11/02/2008	8392.00	88.10	86.17	6541.13
11/02/2008	8424.00	88.21	86.07	6542.16
11/02/2008	8487.00	88.21	86.54	6544.00
11/02/2008	8519.00	88.38	86.61	6545.05
11/02/2008	8551.00	88.49	87.11	6545.93
11/02/2008	8615.00	88.66	87.28	6547.57
11/02/2008	8647.00	88.94	87.86	6548.34
11/02/2008	8679.00	89.05	88.20	6548.80
11/02/2008	8711.00	89.66	88.22	6549.16
11/02/2008	8743.00	89.61	88.32	6549.36
11/02/2008	8774.00	88.99	87.97	6549.74
11/02/2008	8806.00	88.99	87.78	6550.30
11/03/2008	8870.00	88.94	87.63	6551.41
11/03/2008	8934.00	89.61	87.71	6552.00
11/03/2008	8965.00	89.78	87.77	6552.35
11/03/2008	8997.00	89.94	88.06	6552.44
11/03/2008	9029.00	90.28	88.15	6552.00
11/03/2008	9060.00	90.45	88.11	6552.18
11/03/2008	9124.00	90.67	88.18	6551.61
11/03/2008	9188.00	90.45	87.81	6550.83
11/03/2008	9092.00	90.45	88.15	6551.93
11/03/2008	9156.00	90.84	88.11	6551.19
11/03/2008	9220.00	90.50	87.27	6550.57
11/03/2008	9252.00	90.62	87.31	6550.25
11/03/2008	9284.00	90.90	87.13	6549.83
11/04/2008	9316.00	89.66	86.57	6549.67
11/04/2008	9347.00	98.55	86.53	6549.89
11/04/2008	9379.00	88.32	86.92	6550.48
11/04/2008	9411.00	86.98	87.51	6551.79
11/04/2008	9443.00	86.92	87.60	6553.49
11/04/2008	9507.00	86.98	87.85	6556.89
11/04/2008	9475.00	86.97	87.86	6555.20
11/04/2008	9539.00	87.14	88.13	6558.53
11/04/2008	9571.00	87.26	87.94	6560.09
11/04/2008	9625.00	81.01	88.07	0.00
# EOF				



DIRECTIONAL SURVEY REPORT

MACK ENERGY CORPORATION

SANTA CLAUS STATE COM #1

EDDY COUNTY, NM

PREPARED BY: PHIL LEBLANC

December 18, 2008

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

RE: MACK ENERGY CORPORATION
SANTA CLAUS STATE COM #1
EDDY COUNTY, NM
RIG: SILVER OAK #7
API Well No.: 30-015-36257
PES Job No.: 101007949-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,



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) MAGID IBRAHIM
B) ROLANDO SUAREZ
C) JOHN OVERTON
3. POSITION OF SAID PERSON(S): (A-C) SURVEYORS (FIELD ENGINEERS)
4. DATE(S) ON WHICH SURVEY WAS PERFORMED: 10/18/08 TO 11/04/08
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
SANTA CLAUS STATE COM #1
EDDY COUNTY, NM
RIG: SILVER OAK #7
API Well No.: 30-015-36257
9. SURVEY(S) CERTIFIED FROM: 3,915 TO 9,700 FEET MEASURED DEPTH.

THIS IS TO VERIFY THAT ATTACHED DOCUMENTS SHOWING THE WELL TO BE DISPLACED AT 3,426.32 FEET ON A BEARING OF 87.33 DEGREES FROM THE CENTER OF THE ROTARY TABLE AT A PROJECTED BIT DEPTH OF 9,700 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: 10/18/2008
Date Completed: 11/04/2008

Mack Energy Corporation
Santa Claus State Com #1
Eddy COUNTY, New Mexico
Rig: Silver Oak #7
PathFinder Office Supervisor: Francisco Sinnisteria
PathFinder Field Engineers: Magid Ibrahim
Rolando Suarez
John Overton

Survey Horiz. Reference: WELLHEAD
Ref Coordinates: LAT: 32.55.25.9152 N LON: 104.10.14.8023 W
GRID Reference: NAD27 new mexico east Transverse Mercator
Ref GRID Coord: X: 549879.4000 Y: 699852.5000
North Aligned To: GRID NORTH
Total Magnetic Correction: 8.13° EAST TO GRID
Vertical Section Plane: 87.22
Survey Vert. Reference: 19.00' Kelly Bushing To Ground
Altitude: 3577.00' Ground To MSL

Measured Depth	9700.00	(feet)
Inclination	88.10	(deg)
Azimuth	88.07	(deg)
True Vertical Depth	6564.92	(feet)
Vertical Section	3426.31	(feet)
Survey X cord	553301.99	(feet)
Survey Y cord	700012.39	(feet)
Survey Lat	32.92428982 N	(deg)
Survey Lon	104.15962354 W	(deg)
Rectangular Corr. N/S	159.89 N	(feet)
Rectangular Corr. E/W	3422.59 E	(feet)
Closure Distance	3426.32	(feet)
Direction of Closure	87.33	(deg)
Dogleg Severity	0.00	(deg/100ft)

PathFinder Energy Services, Inc.

Survey Report

Page 01/07
Tie-in Date: 10/18/2008
Date Completed: 11/04/2008

Mack Energy Corporation
Santa Claus State Com #1
Eddy COUNTY, New Mexico
Rig: Silver Oak #7
PathFinder Office Supervisor: Francisco Sinnisteria
PathFinder Field Engineers: Magid Ibrahim
Rolando Suarez
John Overton
Survey Calculations by RX5 V6.01 using Minimum Curvature

Survey Horiz. Reference: WELLHEAD
Ref Coordinates: LAT: 32.55.25.9152 N LON: 104.10.14.8023 W
Reference: NAD27 new mexico east Transverse Mercator
Ref GRID Coord: X: 549879.4000 Y: 699852.5000
North Aligned To: GRID NORTH
Total Magnetic Correction: 8.13° EAST TO GRID
Vertical Section Plane: 87.22
Survey Vert. Reference: 19.00' Kelly Bushing To Ground
Altitude: 3577.00' Ground To MSL

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)	
THE FOLLOWING ARE TELEDRIFT SURVEYS.												
131.00	0.20	0.70	131.00	0.00	0.71	0.28 S	0.72 E	32.92386455 N	104.17077607 W	0.78@	111.51	0.00
447.00	0.70	27.00	446.99	316.00	1.70	1.99 N	1.60 E	32.92387079 N	104.17077318 W	2.55@	38.93	0.17
539.00	1.20	13.00	538.98	92.00	2.24	3.43 N	2.08 E	32.92387474 N	104.17077164 W	4.01@	31.22	0.60
627.00	1.10	9.00	626.96	88.00	2.66	5.16 N	2.42 E	32.92387950 N	104.17077052 W	5.70@	25.10	0.14
723.00	0.50	344.00	722.95	96.00	2.76	6.47 N	2.44 E	32.92388311 N	104.17077042 W	6.92@	20.70	0.71
810.00	0.80	344.00	809.94	87.00	2.53	7.42 N	2.17 E	32.92388572 N	104.17077130 W	7.73@	16.32	0.34
910.00	0.80	25.00	909.93	100.00	2.70	8.72 N	2.28 E	32.92388930 N	104.17077096 W	9.02@	14.62	0.56
1004.00	1.00	14.00	1003.92	94.00	3.24	10.11 N	2.75 E	32.92389312 N	104.17076941 W	10.48@	15.22	0.28
1076.00	0.50	333.00	1075.92	72.00	3.29	11.00 N	2.76 E	32.92389557 N	104.17076937 W	11.34@	14.08	0.98
1190.00	0.20	179.00	1189.92	114.00	3.08	11.25 N	2.54 E	32.92389624 N	104.17077009 W	11.53@	12.72	0.60
1377.00	0.50	319.00	1376.91	187.00	2.57	11.54 N	2.01 E	32.92389704 N	104.17077182 W	11.71@	9.88	0.36
1470.00	0.50	355.00	1469.91	93.00	2.30	12.25 N	1.71 E	32.92389899 N	104.17077280 W	12.37@	7.93	0.33
1563.00	0.30	280.00	1562.91	93.00	2.05	12.69 N	1.43 E	32.92390022 N	104.17077369 W	12.78@	6.43	0.55
1657.00	0.10	105.00	1656.91	94.00	1.88	12.72 N	1.27 E	32.92390028 N	104.17077422 W	12.78@	5.70	0.42
1750.00	0.50	331.00	1749.91	93.00	1.78	13.05 N	1.15 E	32.92390120 N	104.17077461 W	13.10@	5.04	0.62
1894.00	0.60	43.00	1893.90	144.00	2.04	14.15 N	1.36 E	32.92390422 N	104.17077392 W	14.22@	5.49	0.45
1981.00	0.80	347.00	1980.90	87.00	2.26	15.08 N	1.53 E	32.92390677 N	104.17077335 W	15.15@	5.81	0.78
2076.00	0.90	18.00	2075.89	95.00	2.41	16.43 N	1.62 E	32.92391049 N	104.17077308 W	16.51@	5.61	0.49
2174.00	0.70	27.00	2173.88	98.00	2.98	17.70 N	2.12 E	32.92391397 N	104.17077141 W	17.82@	6.85	0.24
2268.00	0.87	2.00	2267.87	94.00	3.33	18.92 N	2.41 E	32.92391733 N	104.17077047 W	19.07@	7.26	0.40
2361.00	0.40	243.00	2360.86	93.00	3.09	19.48 N	2.15 E	32.92391887 N	104.17077133 W	19.60@	6.29	1.20
2487.00	0.60	61.00	2486.86	126.00	3.28	19.60 N	2.33 E	32.92391920 N	104.17077073 W	19.74@	6.78	0.79
2580.00	0.50	336.00	2579.86	93.00	3.57	20.21 N	2.59 E	32.92392087 N	104.17076987 W	20.37@	7.31	0.80

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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)	Survey Latitude (deg)	Survey Longitude (deg)	Closure Dist Dir (ft) (deg)	DLS (dg/100ft)
2699.00	0.70	30.00	2698.85	119.00	3.77	21.31 N 2.74 E	32.92392390 N	104.17076937 W	21.49@ 7.34	0.48
2791.00	0.70	23.00	2790.85	92.00	4.32	22.32 N 3.24 E	32.92392666 N	104.17076774 W	22.55@ 8.27	0.09
2893.00	0.40	284.00	2892.84	102.00	4.25	22.97 N 3.14 E	32.92392847 N	104.17076807 W	23.19@ 7.79	0.84
2978.00	0.90	25.00	2977.84	85.00	4.28	23.65 N 3.14 E	32.92393033 N	104.17076808 W	23.86@ 7.56	1.24
3071.00	0.50	57.00	3070.83	93.00	4.97	24.53 N 3.79 E	32.92393276 N	104.17076596 W	24.82@ 8.77	0.59
3165.00	0.70	311.00	3164.83	94.00	4.91	25.13 N 3.70 E	32.92393441 N	104.17076625 W	25.41@ 8.37	1.03
3260.00	0.70	311.00	3259.82	95.00	4.07	25.90 N 2.82 E	32.92393650 N	104.17076910 W	26.05@ 6.22	0.00
3352.00	0.20	113.00	3351.82	92.00	3.81	26.20 N 2.54 E	32.92393734 N	104.17077000 W	26.33@ 5.55	0.97
3452.00	0.20	173.00	3451.82	100.00	3.98	25.96 N 2.73 E	32.92393668 N	104.17076941 W	26.10@ 5.99	0.20
3544.00	0.30	170.00	3543.82	92.00	4.02	25.56 N 2.79 E	32.92393559 N	104.17076921 W	25.72@ 6.22	0.11
3637.00	0.60	7.00	3636.82	93.00	4.14	25.81 N 2.89 E	32.92393626 N	104.17076888 W	25.97@ 6.39	0.96
3755.00	0.90	349.00	3754.81	118.00	4.11	27.33 N 2.79 E	32.92394044 N	104.17076920 W	27.47@ 5.82	0.32
3819.00	0.70	274.00	3818.80	64.00	3.65	27.85 N 2.30 E	32.92394188 N	104.17077078 W	27.95@ 4.72	1.54
** TIED INTO TELEDRIFT SURVEYS AT 3915' MD.										
3915.00	0.70	30.00	3914.80	96.00	3.39	28.40 N 2.01 E	32.92394339 N	104.17077173 W	28.47@ 4.05	1.24
THE FOLLOWING ARE PATHFINDER MWD SURVEYS.										
3955.00	0.79	335.61	3954.80	40.00	3.42	28.86 N 2.02 E	32.92394466 N	104.17077170 W	28.93@ 4.00	1.71
4004.00	0.70	327.08	4003.79	49.00	3.14	29.42 N 1.72 E	32.92394620 N	104.17077268 W	29.47@ 3.34	0.29
4098.00	0.97	342.20	4097.78	94.00	2.65	30.66 N 1.16 E	32.92394961 N	104.17077449 W	30.68@ 2.17	0.37
4191.00	0.97	327.17	4190.77	93.00	2.05	32.07 N 0.49 E	32.92395349 N	104.17077665 W	32.08@ 0.88	0.27
4285.00	0.53	182.33	4284.77	94.00	1.61	32.31 N 0.04 E	32.92395413 N	104.17077812 W	32.31@ 0.08	1.53
4378.00	0.70	206.06	4377.76	93.00	1.30	31.37 N 0.22 W	32.92395155 N	104.17077899 W	31.37@ 359.59	0.32
4472.00	0.35	213.97	4471.76	94.00	0.85	30.61 N 0.64 W	32.92394948 N	104.17078034 W	30.62@ 358.81	0.38
4565.00	0.70	207.38	4564.75	93.00	0.39	29.87 N 1.06 W	32.92394745 N	104.17078171 W	29.89@ 357.98	0.38
4659.00	0.62	136.45	4658.75	94.00	0.44	28.99 N 0.97 W	32.92394503 N	104.17078143 W	29.01@ 358.09	0.82
4752.00	1.23	130.12	4751.74	93.00	1.50	27.99 N 0.14 E	32.92394226 N	104.17077782 W	27.99@ 0.29	0.66
4845.00	0.70	143.75	4844.72	93.00	2.54	26.88 N 1.24 E	32.92393923 N	104.17077425 W	26.91@ 2.64	0.62
4939.00	0.70	134.43	4938.72	94.00	3.25	26.02 N 1.99 E	32.92393684 N	104.17077181 W	26.10@ 4.37	0.12

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5032.00	0.97	148.84	5031.71	93.00	4.01	24.95 N	2.80 E	32.92393390 N	104.17076916 W	25.11@	6.41	0.36
5126.00	0.97	146.73	5125.69	94.00	4.79	23.60 N	3.65 E	32.92393019 N	104.17076641 W	23.88@	8.79	0.04
5220.00	0.53	135.13	5219.68	94.00	5.49	22.63 N	4.39 E	32.92392751 N	104.17076399 W	23.05@	10.99	0.49
5313.00	0.70	110.70	5312.68	93.00	6.30	22.12 N	5.23 E	32.92392612 N	104.17076127 W	22.73@	13.30	0.33
5406.00	1.41	103.32	5405.66	93.00	7.92	21.66 N	6.87 E	32.92392484 N	104.17075591 W	22.72@	17.61	0.78
5500.00	1.49	111.75	5499.63	94.00	10.14	20.94 N	9.13 E	32.92392285 N	104.17074855 W	22.85@	23.57	0.24
5593.00	1.76	92.94	5592.60	93.00	12.66	20.42 N	11.68 E	32.92392141 N	104.17074024 W	23.52@	29.78	0.64
5686.00	1.49	91.71	5685.56	93.00	15.29	20.31 N	14.32 E	32.92392110 N	104.17073166 W	24.85@	35.19	0.29
5780.00	1.41	107.18	5779.53	94.00	17.59	19.93 N	16.65 E	32.92392005 N	104.17072408 W	25.97@	39.87	0.42
5873.00	1.85	93.30	5872.49	93.00	20.16	19.51 N	19.24 E	32.92391887 N	104.17071563 W	27.40@	44.60	0.63
5929.00	1.67	90.31	5928.46	56.00	21.87	19.45 N	20.96 E	32.92391871 N	104.17071003 W	28.59@	47.13	0.36
5998.00	1.85	91.45	5997.43	69.00	23.99	19.42 N	23.07 E	32.92391860 N	104.17070313 W	30.16@	49.92	0.27
6029.00	2.11	88.02	6028.41	31.00	25.06	19.42 N	24.14 E	32.92391862 N	104.17069964 W	30.99@	51.18	0.92
6060.00	5.01	84.16	6059.35	31.00	26.98	19.58 N	26.06 E	32.92391904 N	104.17069339 W	32.60@	53.08	9.38
6091.00	10.20	82.22	6090.07	31.00	31.07	20.09 N	30.13 E	32.92392043 N	104.17068013 W	36.21@	56.31	16.76
6122.00	16.36	83.19	6120.22	31.00	38.17	20.98 N	37.19 E	32.92392284 N	104.17065711 W	42.70@	60.57	19.88
6154.00	20.75	86.70	6150.55	32.00	48.34	21.84 N	47.33 E	32.92392517 N	104.17062406 W	52.13@	65.23	14.15
6185.00	23.39	87.58	6179.28	31.00	59.98	22.42 N	58.96 E	32.92392670 N	104.17058615 W	63.08@	69.18	8.58
6216.00	25.41	88.20	6207.51	31.00	72.79	22.89 N	71.76 E	32.92392794 N	104.17054444 W	75.32@	72.31	6.57
6247.00	26.29	87.50	6235.41	31.00	86.30	23.39 N	85.27 E	32.92392928 N	104.17050042 W	88.42@	74.66	3.00
6278.00	28.93	88.20	6262.87	31.00	100.67	23.93 N	99.62 E	32.92393069 N	104.17045364 W	102.46@	76.49	8.58
6309.00	33.15	88.55	6289.43	31.00	116.64	24.38 N	115.60 E	32.92393186 N	104.17040157 W	118.14@	78.09	13.63
6340.00	37.02	88.90	6314.79	31.00	134.45	24.77 N	133.41 E	32.92393286 N	104.17034353 W	135.69@	79.48	12.50
6371.00	39.83	90.13	6339.08	31.00	153.70	24.93 N	152.67 E	32.92393321 N	104.17028075 W	154.69@	80.73	9.39
6402.00	41.24	89.87	6362.64	31.00	173.82	24.93 N	172.82 E	32.92393313 N	104.17021509 W	174.61@	81.79	4.58
6434.00	45.02	88.55	6385.99	32.00	195.68	25.24 N	194.69 E	32.92393389 N	104.17014382 W	196.32@	82.61	12.14
6465.00	49.86	86.62	6406.95	31.00	218.51	26.22 N	217.49 E	32.92393648 N	104.17006950 W	219.07@	83.13	16.27

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6496.00	53.64	85.91	6426.14	31.00	242.84	27.81 N	241.78 E	32.92394074 N	104.16999033 W	243.37@	83.44	12.33
6527.00	57.77	86.33	6443.60	31.00	268.44	29.54 N	267.33 E	32.92394539 N	104.16990707 W	268.95@	83.69	13.37
6558.00	62.70	87.16	6458.99	31.00	295.35	31.06 N	294.18 E	32.92394946 N	104.16981953 W	295.82@	83.97	16.07
6589.00	67.27	87.78	6472.09	31.00	323.43	32.30 N	322.24 E	32.92395274 N	104.16972809 W	323.86@	84.28	14.85
6620.00	70.00	87.84	6483.38	31.00	352.29	33.40 N	351.09 E	32.92395565 N	104.16963408 W	352.67@	84.57	8.81
6651.00	72.90	88.25	6493.24	31.00	381.68	34.40 N	380.46 E	32.92395828 N	104.16953836 W	382.01@	84.83	9.44
6682.00	76.24	88.96	6501.49	31.00	411.55	35.13 N	410.33 E	32.92396014 N	104.16944101 W	411.83@	85.11	11.00
6713.00	79.49	89.39	6508.01	31.00	441.83	35.56 N	440.63 E	32.92396121 N	104.16934226 W	442.06@	85.39	10.57
6745.00	82.04	90.27	6513.14	32.00	473.38	35.66 N	472.21 E	32.92396133 N	104.16923934 W	473.55@	85.68	8.42
6775.00	84.24	90.68	6516.72	30.00	503.12	35.41 N	501.99 E	32.92396052 N	104.16914228 W	503.24@	85.97	7.46
6860.00	88.02	90.66	6522.46	85.00	587.75	34.42 N	586.78 E	32.92395744 N	104.16886598 W	587.78@	86.64	4.45
6891.00	88.29	91.34	6523.46	31.00	618.67	33.88 N	617.75 E	32.92395582 N	104.16876502 W	618.68@	86.86	2.36
6922.00	89.87	90.32	6523.96	31.00	649.60	33.43 N	648.75 E	32.92395445 N	104.16866402 W	649.61@	87.05	6.07
6933.00	89.66	89.98	6524.00	11.00	660.59	33.40 N	659.75 E	32.92395432 N	104.16862817 W	660.59@	87.10	3.63
6964.00	89.89	89.92	6524.12	31.00	691.55	33.43 N	690.75 E	32.92395426 N	104.16852715 W	691.55@	87.23	0.77
6996.00	89.66	88.94	6524.25	32.00	723.53	33.74 N	722.74 E	32.92395500 N	104.16842287 W	723.53@	87.33	3.15
7027.00	89.44	88.71	6524.49	31.00	754.52	34.38 N	753.74 E	32.92395662 N	104.16832186 W	754.52@	87.39	1.03
7058.00	89.27	88.80	6524.84	31.00	785.50	35.05 N	784.73 E	32.92395833 N	104.16822086 W	785.51@	87.44	0.62
7089.00	89.66	89.23	6525.13	31.00	816.49	35.59 N	815.72 E	32.92395967 N	104.16811985 W	816.50@	87.50	1.87
7120.00	89.61	89.02	6525.33	31.00	847.47	36.06 N	846.72 E	32.92396083 N	104.16801883 W	847.48@	87.56	0.70
7151.00	89.66	88.14	6525.53	31.00	878.46	36.83 N	877.71 E	32.92396281 N	104.16791784 W	878.48@	87.60	2.84
7182.00	90.00	87.82	6525.62	31.00	909.46	37.92 N	908.69 E	32.92396568 N	104.16781687 W	909.48@	87.61	1.51
7213.00	90.22	86.39	6525.56	31.00	940.46	39.49 N	939.65 E	32.92396985 N	104.16771596 W	940.48@	87.59	4.67
7243.00	90.39	86.06	6525.40	30.00	970.45	41.46 N	969.58 E	32.92397515 N	104.16761840 W	970.47@	87.55	1.24
7277.00	89.78	85.52	6525.35	34.00	1004.44	43.96 N	1003.49 E	32.92398186 N	104.16750788 W	1004.45@	87.49	2.40
7309.00	89.50	85.32	6525.55	32.00	1036.42	46.51 N	1035.39 E	32.92398875 N	104.16740392 W	1036.43@	87.43	1.08
7340.00	88.88	84.98	6525.99	31.00	1067.40	49.13 N	1066.27 E	32.92399582 N	104.16730325 W	1067.40@	87.36	2.28

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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)		Survey Latitude (deg)	Survey Longitude (deg)	Closure Dist Dir (ft) (deg)		DLS (dg/100ft)
7372.00	88.83	85.07	6526.63	32.00	1099.37	51.91 N	1098.14 E	32.92400331 N	104.16719936 W	1099.37@	87.29	0.32
7404.00	87.54	85.95	6527.64	32.00	1131.34	54.41 N	1130.03 E	32.92401005 N	104.16709544 W	1131.34@	87.24	4.88
7436.00	87.59	85.74	6529.00	32.00	1163.30	56.73 N	1161.92 E	32.92401628 N	104.16699151 W	1163.30@	87.20	0.67
7468.00	87.65	85.69	6530.33	32.00	1195.26	59.12 N	1193.80 E	32.92402271 N	104.16688759 W	1195.26@	87.16	0.24
7500.00	87.70	85.68	6531.63	32.00	1227.22	61.52 N	1225.68 E	32.92402918 N	104.16678367 W	1227.23@	87.13	0.16
7531.00	88.77	86.41	6532.58	31.00	1258.20	63.66 N	1256.59 E	32.92403492 N	104.16668292 W	1258.20@	87.10	4.18
7563.00	89.22	87.24	6533.14	32.00	1290.20	65.43 N	1288.54 E	32.92403965 N	104.16657881 W	1290.20@	87.09	2.95
7595.00	89.16	87.36	6533.60	32.00	1322.19	66.94 N	1320.50 E	32.92404366 N	104.16647464 W	1322.20@	87.10	0.42
7627.00	88.99	87.20	6534.11	32.00	1354.19	68.46 N	1352.46 E	32.92404769 N	104.16637048 W	1354.19@	87.10	0.73
7659.00	88.66	87.19	6534.77	32.00	1386.18	70.02 N	1384.41 E	32.92405186 N	104.16626633 W	1386.18@	87.10	1.03
7691.00	88.94	87.67	6535.44	32.00	1418.17	71.46 N	1416.38 E	32.92405566 N	104.16616216 W	1418.18@	87.11	1.74
7722.00	90.50	88.82	6535.59	31.00	1449.17	72.41 N	1447.36 E	32.92405813 N	104.16606118 W	1449.17@	87.14	6.25
7754.00	91.01	89.39	6535.17	32.00	1481.15	72.91 N	1479.35 E	32.92405937 N	104.16595692 W	1481.15@	87.18	2.39
7786.00	90.90	89.41	6534.63	32.00	1513.12	73.24 N	1511.35 E	32.92406015 N	104.16585265 W	1513.12@	87.23	0.35
7818.00	91.01	89.31	6534.10	32.00	1545.09	73.60 N	1543.34 E	32.92406099 N	104.16574838 W	1545.09@	87.27	0.46
7850.00	90.73	89.26	6533.62	32.00	1577.07	74.00 N	1575.33 E	32.92406195 N	104.16564411 W	1577.07@	87.31	0.89
7882.00	90.56	88.94	6533.26	32.00	1609.05	74.50 N	1607.33 E	32.92406319 N	104.16553984 W	1609.05@	87.35	1.13
7914.00	90.28	88.26	6533.02	32.00	1641.04	75.28 N	1639.32 E	32.92406520 N	104.16543559 W	1641.04@	87.37	2.30
7945.00	89.11	86.48	6533.19	31.00	1672.04	76.71 N	1670.28 E	32.92406898 N	104.16533466 W	1672.04@	87.37	6.87
7977.00	88.88	85.45	6533.75	32.00	1704.02	78.96 N	1702.20 E	32.92407502 N	104.16523064 W	1704.03@	87.34	3.30
8009.00	88.83	85.43	6534.39	32.00	1736.00	81.50 N	1734.09 E	32.92408187 N	104.16512669 W	1736.00@	87.31	0.17
8041.00	88.99	85.92	6535.00	32.00	1767.98	83.91 N	1765.99 E	32.92408837 N	104.16502271 W	1767.98@	87.28	1.61
8073.00	89.38	87.15	6535.45	32.00	1799.98	85.85 N	1797.93 E	32.92409354 N	104.16491862 W	1799.98@	87.27	4.03
8105.00	89.38	86.80	6535.80	32.00	1831.98	87.54 N	1829.88 E	32.92409804 N	104.16481447 W	1831.98@	87.26	1.09
8137.00	89.50	86.39	6536.11	32.00	1863.97	89.44 N	1861.83 E	32.92410313 N	104.16471037 W	1863.97@	87.25	1.33
8169.00	89.44	86.61	6536.41	32.00	1895.97	91.39 N	1893.76 E	32.92410836 N	104.16460627 W	1895.97@	87.24	0.71
8201.00	89.22	86.61	6536.78	32.00	1927.96	93.28 N	1925.71 E	32.92411342 N	104.16450216 W	1927.96@	87.23	0.69

PathFinder Energy Services, Inc.

Survey Report

Mack Energy Corporation
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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)		Survey Latitude (deg)	Survey Longitude (deg)	Closure Dist Dir (ft) (deg)		DLS (dg/100ft)
8233.00	88.71	86.35	6537.36	32.00	1959.96	95.25 N	1957.64 E	32.92411867 N	104.16439808 W	1959.96@	87.21	1.79
8264.00	88.83	86.68	6538.02	31.00	1990.95	97.13 N	1988.58 E	32.92412372 N	104.16429725 W	1990.95@	87.20	1.13
8296.00	88.94	87.03	6538.65	32.00	2022.94	98.89 N	2020.52 E	32.92412840 N	104.16419313 W	2022.94@	87.20	1.15
8328.00	88.82	86.88	6539.27	32.00	2054.93	100.59 N	2052.47 E	32.92413293 N	104.16408901 W	2054.93@	87.19	0.60
8360.00	88.21	86.10	6540.10	32.00	2086.92	102.54 N	2084.40 E	32.92413817 N	104.16398494 W	2086.92@	87.18	3.09
8392.00	88.10	86.17	6541.13	32.00	2118.90	104.70 N	2116.31 E	32.92414396 N	104.16388093 W	2118.90@	87.17	0.41
8424.00	88.21	86.07	6542.16	32.00	2150.87	106.86 N	2148.22 E	32.92414977 N	104.16377693 W	2150.88@	87.15	0.46
8456.00	88.26	86.56	6543.15	32.00	2182.86	108.92 N	2180.14 E	32.92415527 N	104.16367290 W	2182.86@	87.14	1.54
8487.00	88.21	86.54	6544.10	31.00	2213.84	110.78 N	2211.07 E	32.92416026 N	104.16357209 W	2213.84@	87.13	0.17
8519.00	88.38	86.61	6545.05	32.00	2245.82	112.69 N	2243.00 E	32.92416537 N	104.16346803 W	2245.83@	87.12	0.57
8551.00	88.49	87.11	6545.93	32.00	2277.81	114.45 N	2274.94 E	32.92417005 N	104.16336393 W	2277.81@	87.12	1.60
8583.00	88.49	87.05	6546.77	32.00	2309.80	116.08 N	2306.88 E	32.92417439 N	104.16325980 W	2309.80@	87.12	0.19
8615.00	88.66	87.28	6547.57	32.00	2341.79	117.66 N	2338.83 E	32.92417859 N	104.16315567 W	2341.79@	87.12	0.89
8647.00	88.94	87.86	6548.24	32.00	2373.78	119.02 N	2370.80 E	32.92418218 N	104.16305149 W	2373.78@	87.13	2.01
8679.00	89.05	88.20	6548.80	32.00	2405.77	120.12 N	2402.77 E	32.92418506 N	104.16294728 W	2405.77@	87.14	1.12
8711.00	89.66	88.22	6549.16	32.00	2437.77	121.11 N	2434.76 E	32.92418767 N	104.16284304 W	2437.77@	87.15	1.91
8743.00	89.61	88.32	6549.36	32.00	2469.76	122.08 N	2466.74 E	32.92419018 N	104.16273880 W	2469.76@	87.17	0.35
8774.00	88.99	87.97	6549.74	31.00	2500.75	123.08 N	2497.72 E	32.92419280 N	104.16263783 W	2500.75@	87.18	2.30
8806.00	88.99	87.78	6550.30	32.00	2532.75	124.27 N	2529.70 E	32.92419592 N	104.16253362 W	2532.75@	87.19	0.59
8838.00	89.05	87.88	6550.85	32.00	2564.74	125.48 N	2561.67 E	32.92419911 N	104.16242942 W	2564.74@	87.20	0.36
8870.00	88.94	87.63	6551.41	32.00	2596.73	126.74 N	2593.64 E	32.92420241 N	104.16232522 W	2596.73@	87.20	0.85
8902.00	89.33	87.75	6551.90	32.00	2628.73	128.02 N	2625.61 E	32.92420581 N	104.16222103 W	2628.73@	87.21	1.27
8934.00	89.61	87.71	6552.19	32.00	2660.73	129.29 N	2657.58 E	32.92420915 N	104.16211682 W	2660.73@	87.21	0.88
8965.00	89.78	87.77	6552.36	31.00	2691.72	130.51 N	2688.56 E	32.92421237 N	104.16201586 W	2691.72@	87.22	0.58
8997.00	89.94	88.06	6552.44	32.00	2723.72	131.68 N	2720.54 E	32.92421543 N	104.16191164 W	2723.72@	87.23	1.04
9029.00	90.28	88.15	6552.37	32.00	2755.72	132.74 N	2752.52 E	32.92421820 N	104.16180741 W	2755.72@	87.24	1.10
9060.00	90.45	88.11	6552.18	31.00	2786.71	133.75 N	2783.50 E	32.92422084 N	104.16170643 W	2786.71@	87.25	0.56

PathFinder Energy Services, Inc.

Survey Report

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Eddy COUNTY, New Mexico
RIG: Silver Oak #7

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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)		Survey Latitude (deg)	Survey Longitude (deg)	Closure Dist Dir (ft) (deg)		DLS (dg/100ft)
9092.00	90.45	88.15	6551.93	32.00	2818.71	134.79 N	2815.48 E	32.92422356 N	104.16160219 W	2818.71@	87.26	0.13
9124.00	90.67	88.18	6551.61	32.00	2850.70	135.82 N	2847.47 E	32.92422624 N	104.16149796 W	2850.70@	87.27	0.69
9156.00	90.84	88.11	6551.19	32.00	2882.70	136.85 N	2879.45 E	32.92422894 N	104.16139373 W	2882.70@	87.28	0.57
9188.00	90.45	87.81	6550.83	32.00	2914.69	137.99 N	2911.42 E	32.92423193 N	104.16128951 W	2914.69@	87.29	1.54
9220.00	90.50	87.27	6550.57	32.00	2946.69	139.37 N	2943.39 E	32.92423556 N	104.16118532 W	2946.69@	87.29	1.69
9252.00	90.62	87.31	6550.25	32.00	2978.69	140.88 N	2975.36 E	32.92423958 N	104.16108115 W	2978.69@	87.29	0.39
9284.00	90.90	87.13	6549.83	32.00	3010.68	142.43 N	3007.32 E	32.92424370 N	104.16097698 W	3010.69@	87.29	1.04
9316.00	89.66	86.57	6549.67	32.00	3042.68	144.19 N	3039.27 E	32.92424839 N	104.16087285 W	3042.68@	87.28	4.25
9347.00	89.55	86.53	6549.89	31.00	3073.68	146.05 N	3070.21 E	32.92425338 N	104.16077200 W	3073.68@	87.28	0.38
9379.00	88.32	86.92	6550.48	32.00	3105.67	147.88 N	3102.15 E	32.92425826 N	104.16066789 W	3105.67@	87.27	4.03
9411.00	86.98	87.51	6551.79	32.00	3137.64	149.44 N	3134.08 E	32.92426238 N	104.16056381 W	3137.65@	87.27	4.58
9443.00	86.92	87.60	6553.50	32.00	3169.60	150.80 N	3166.01 E	32.92426599 N	104.16045976 W	3169.60@	87.27	0.34
9475.00	86.97	87.86	6555.20	32.00	3201.55	152.06 N	3197.94 E	32.92426932 N	104.16035569 W	3201.55@	87.28	0.83
9507.00	86.98	87.85	6556.89	32.00	3233.51	153.26 N	3229.87 E	32.92427246 N	104.16025162 W	3233.51@	87.28	0.04
9539.00	87.14	88.13	6558.53	32.00	3265.46	154.38 N	3261.81 E	32.92427540 N	104.16014753 W	3265.46@	87.29	1.01
9571.00	87.26	87.94	6560.09	32.00	3297.42	155.48 N	3293.75 E	32.92427827 N	104.16004342 W	3297.42@	87.30	0.70
9603.00	87.43	87.99	6561.58	32.00	3329.38	156.61 N	3325.70 E	32.92428124 N	104.15993931 W	3329.39@	87.30	0.55
9625.00	88.10	88.07	6562.43	22.00	3351.36	157.37 N	3347.67 E	32.92428322 N	104.15986770 W	3351.37@	87.31	3.07
STRAIGHT LINE PROJECTION TO BIT DEPTH AT 9700' MD.												
9700.00	88.10	88.07	6564.92	75.00	3426.31	159.89 N	3422.59 E	32.92428982 N	104.15962354 W	3426.32@	87.33	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.