



An Operating Unit of Smith International, Inc.

30-015-37190

DIRECTIONAL SURVEY REPORT

YATES PETROLEUM
LLAMA ALL FEDERAL COM #10H
EDDY COUNTY, NEW MEXICO



PREPARED BY: FRANCISCO SINISTERRA

Pathfinder

6213 W Interstate 20
Midland, Texas 79706
Tel 432 687 1647
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DIRECTIONAL SURVEY COMPANY REPORT:

1. NAME OF SURVEYING COMPANY: PATHFINDER ENERGY SERVICES
2. NAME OF PERSON(S) PERFORMING SURVEY:
A) JAY FULTON
3. POSITION OF SAID PERSON(S): (A-F) SURVEYORS (FIELD ENGINEERS)
4. DATE(S) ON WHICH SURVEY WAS PERFORMED: 01-16-11 TO 02-06-11
5. STATE IN WHICH SURVEY WAS PERFORMED: NEW MEXICO
6. LOCATION OF WELL: EDDY COUNTY, NM
7. TYPE OF SURVEY(S) PERFORMED: MWD
8. COMPLETE IDENTIFICATION OF WELL:

YATES PETROLEUM
LLAMA ALL FEDERAL COM #10H
EDDY COUNTY, NM
RIG: PATRIOT 5
9. SURVEY CERTIFIED FROM: 599 TO 14646 FEET MEASURED DEPTH.

THIS IS TO VERIFY THAT ATTACHED DOCUMENTS SHOWING THE WELL TO BE DISPLACED AT 7235.64 FEET ON A BEARING OF 359.91 DEGREES FROM THE CENTER OF THE ROTARY TABLE AT A PROJECTED BIT DEPTH OF 14720 FEET, ARE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE.


FRANCISCO SINISTERRA
MWD COORDINATOR

PathFinder Energy Services, Inc.

BHL Report

Page 01/01
Tie-in Date: 01/16/2011
Date Completed: 02/07/2011

YATES PETROLEUM CORPORATION
LLAMA "ALL" FEDERAL COM #10H
EDDY COUNTY, NEW MEXICO
Rig: PATRIOT 5
PathFinder Office Supervisor: FRANCISCO SINISTERRA
PathFinder Field Engineers: JAY FULTON
KOLEY THURMAN

Survey Horiz. Reference: WELLHEAD
Ref Coordinates: LAT: 32.23.58.9471 N LON: 103.49.8.9670 W
GRID Reference: NAD83 new mexico east Transverse Mercator
Ref GRID Coord: X: 700031.4560 Y: 509526.5090
North Aligned To: GRID NORTH
Total Magnetic Correction: 7.49° EAST TO GRID
Vertical Section Plane: 359.82
Survey Vert. Reference: 26.50' Rotary Table To Ground
Altitude: 3271.00' Ground To MSL

Measured Depth	14720.00	(feet)
Inclination	91.28	(deg)
Azimuth	0.86	(deg)
True Vertical Depth	7678.57	(feet)
Vertical Section	7235.63	(feet)
Survey X cord	509515.01	(feet)
Survey Y cord	707267.06	(feet)
Survey Lat	32.94424489 N	(deg)
Survey Lon	104.43706761 W	(deg)
Rectangular Corr. N/S	7235.63 N	(feet)
Rectangular Corr. E/W	11.48 W	(feet)
Closure Distance	7235.64	(feet)
Direction of Closure	359.91	(deg)
Dogleg Severity	0.00	(deg/100ft)

PathFinder Energy Services, Inc.

Survey Report

YATES PETROLEUM CORPORATION

LLAMA "ALL" FEDERAL COM #10H

EDDY COUNTY, NEW MEXICO

Rig: PATRIOT 5

PathFinder Office Supervisor: FRANCISCO SINISTERRA

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Survey Horiz. Reference: WELLHEAD

Ref Coordinates: LAT: 32.23.58.9471 N LON: 103.49.8.9670 W

GRID Reference: NAD83 new mexico east Transverse Mercator

Ref GRID Coord: X: 700031.4560 Y: 509526.5090

North Aligned To: GRID NORTH

Total Magnetic Correction: 7.49° EAST TO GRID

Vertical Section Plane: 359.82

Survey Vert. Reference: 26.50' Rotary Table To Ground

Altitude: 3271.00' Ground To MSL

Survey Calculations by RX5 V6.03C using Minimum Curvature

Measured Depth (ft)	Incl (deg)	Drift Dir. (deg)	TVD (ft)	Course Length (ft)	Vertical Section (ft)	TOTAL Rectangular Offsets (ft) (ft)		Closure Dist Dir (ft) (deg)		DLS (dg/100ft)
THE FOLLOWING IS A MULTI-SHOT GYROSCOPIC SURVEY.										
200.00	0.25	284.58	200.00	0.00	0.11	0.11 N	0.43 W	0.44@	284.18	0.00
TIE-IN TO MULTI-SHOT GYROSCOPIC SURVEY @ 400' MD.										
400.00	0.25	238.60	400.00	0.00	-0.01	0.01 S	1.22 W	1.22@	269.53	0.00
THE FOLLOWING ARE PATHFINDER MWD SURVEYS.										
599.00	0.70	260.23	598.99	199.00	-0.43	0.44 S	2.79 W	2.82@	260.98	0.24
725.00	0.88	226.33	724.98	126.00	-1.23	1.24 S	4.25 W	4.42@	253.71	0.39
851.00	1.14	134.85	850.97	126.00	-2.78	2.79 S	4.06 W	4.93@	235.46	1.16
945.00	1.06	19.98	944.96	94.00	-2.63	2.64 S	3.10 W	4.07@	229.61	1.97
1039.00	0.18	287.86	1038.95	94.00	-1.76	1.77 S	2.94 W	3.43@	238.92	1.15
1133.00	0.53	220.90	1132.95	94.00	-2.05	2.06 S	3.37 W	3.95@	238.58	0.52
1228.00	0.62	235.89	1227.95	95.00	-2.66	2.68 S	4.08 W	4.88@	236.73	0.18
1322.00	0.62	168.59	1321.94	94.00	-3.45	3.46 S	4.40 W	5.60@	231.82	0.73
1416.00	0.79	163.43	1415.94	94.00	-4.57	4.58 S	4.11 W	6.16@	221.94	0.19
1510.00	0.88	150.12	1509.93	94.00	-5.82	5.83 S	3.57 W	6.83@	211.50	0.23
1604.00	1.06	152.24	1603.91	94.00	-7.21	7.22 S	2.81 W	7.75@	201.23	0.20
1792.00	0.97	112.56	1791.89	188.00	-9.37	9.37 S	0.53 W	9.39@	183.22	0.37
1886.00	1.32	113.09	1885.87	94.00	-10.11	10.10 S	1.20 E	10.17@	173.20	0.37
1980.00	1.32	67.07	1979.84	94.00	-10.11	10.10 S	3.20 E	10.60@	162.44	1.10
2074.00	1.76	68.28	2073.81	94.00	-9.17	9.15 S	5.54 E	10.69@	148.82	0.47
2168.00	0.62	35.87	2167.79	94.00	-8.22	8.20 S	7.17 E	10.90@	138.82	1.36
2262.00	0.62	32.27	2261.78	94.00	-7.38	7.36 S	7.74 E	10.68@	133.54	0.04
2356.00	0.79	51.02	2355.78	94.00	-6.55	6.52 S	8.52 E	10.73@	127.44	0.30
2450.00	1.06	17.72	2449.76	94.00	-5.32	5.29 S	9.29 E	10.69@	119.65	0.63
2544.00	0.79	358.49	2543.75	94.00	-3.84	3.81 S	9.54 E	10.27@	111.78	0.43
2639.00	0.97	16.86	2638.74	95.00	-2.42	2.39 S	9.75 E	10.04@	103.75	0.35

PathFinder Energy Services, Inc.

Survey Report

YATES PETROLEUM CORPORATION
LLAMA "ALL" FEDERAL COM #10H
EDDY COUNTY, NEW MEXICO
RIG:PATRIOT 5

Page 02/06

Measured Depth (ft)	Incl (deg)	Drift Dir. (deg)	TVD (ft)	Course Length (ft)	Vertical Section (ft)	TOTAL Rectangular Offsets (ft) (ft)		Closure Dist Dir (ft) (deg)		DLS (dg/100ft)
2733.00	0.97	354.11	2732.73	94.00	-0.86	0.83 S	9.90 E	9.94@	94.81	0.41
2827.00	0.44	12.23	2826.72	94.00	0.28	0.31 N	9.90 E	9.90@	88.20	0.60
2921.00	0.26	349.73	2920.72	94.00	0.84	0.87 N	9.93 E	9.97@	84.97	0.24
3015.00	0.35	324.02	3014.72	94.00	1.29	1.32 N	9.73 E	9.82@	82.30	0.17
3110.00	0.97	126.66	3109.71	95.00	1.04	1.07 N	10.20 E	10.26@	84.01	1.38
3204.00	1.58	137.44	3203.69	94.00	-0.40	0.36 S	11.72 E	11.72@	91.76	0.70
3298.00	0.35	166.78	3297.68	94.00	-1.63	1.59 S	12.66 E	12.76@	97.17	1.37
3392.00	0.70	149.35	3391.67	94.00	-2.41	2.37 S	13.02 E	13.23@	100.30	0.41
3486.00	1.58	134.12	3485.65	94.00	-3.81	3.76 S	14.24 E	14.73@	104.80	0.98
3580.00	1.41	83.41	3579.62	94.00	-4.58	4.53 S	16.32 E	16.94@	105.52	1.37
3674.00	1.32	26.91	3673.60	94.00	-3.49	3.43 S	17.96 E	18.28@	100.83	1.38
3768.00	1.32	309.45	3767.58	94.00	-1.84	1.78 S	17.61 E	17.70@	95.77	1.76
3862.00	1.23	311.93	3861.56	94.00	-0.47	0.42 S	16.03 E	16.03@	91.50	0.11
4047.00	1.23	303.81	4046.52	185.00	1.97	2.01 N	12.90 E	13.05@	81.13	0.09
4141.00	1.23	299.51	4140.50	94.00	3.04	3.07 N	11.18 E	11.60@	74.64	0.10
4330.00	1.06	307.55	4329.46	189.00	5.11	5.14 N	8.03 E	9.53@	57.40	0.12
4519.00	0.97	346.76	4518.43	189.00	7.74	7.76 N	6.28 E	9.98@	38.98	0.36
4707.00	0.88	325.34	4706.41	188.00	10.48	10.50 N	5.09 E	11.67@	25.89	0.19
4895.00	0.88	326.37	4894.38	188.00	12.87	12.88 N	3.47 E	13.34@	15.08	0.01
5084.00	0.97	341.56	5083.36	189.00	15.60	15.61 N	2.16 E	15.76@	7.89	0.14
5177.00	0.88	339.57	5176.35	93.00	17.02	17.03 N	1.66 E	17.11@	5.58	0.10
5271.00	2.02	300.16	5270.32	94.00	18.54	18.54 N	0.02 W	18.54@	359.94	1.54
5365.00	2.99	267.50	5364.23	94.00	19.27	19.26 N	3.90 W	19.65@	348.55	1.80
5459.00	2.99	267.34	5458.10	94.00	19.07	19.04 N	8.80 W	20.98@	335.19	0.01
5553.00	1.93	237.91	5552.02	94.00	18.13	18.09 N	12.59 W	22.04@	325.16	1.72
5647.00	1.76	208.90	5645.97	94.00	16.03	15.98 N	14.63 W	21.67@	317.53	1.00
5741.00	0.70	193.35	5739.95	94.00	14.21	14.16 N	15.46 W	20.96@	312.49	1.17
5835.00	1.49	125.72	5833.93	94.00	12.93	12.89 N	14.60 W	19.47@	311.43	1.47

PathFinder Energy Services, Inc.

Survey Report

YATES PETROLEUM CORPORATION
LLAMA "ALL" FEDERAL COM #10H
EDDY COUNTY, NEW MEXICO
RIG: PATRIOT 5

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Measured Depth (ft)	Incl (deg)	Drift Dir. (deg)	TVD (ft)	Course Length (ft)	Vertical Section (ft)	TOTAL Rectangular Offsets (ft) (ft)		Closure Dist Dir (ft) (deg)	DLS (dg/100ft)
5929.00	1.49	128.08	5927.90	94.00	11.46	11.42 N	12.65 W	17.04@ 312.08	0.06
6023.00	1.58	122.51	6021.87	94.00	10.00	9.97 N	10.59 W	14.54@ 313.27	0.19
6117.00	1.41	132.13	6115.84	94.00	8.52	8.50 N	8.64 W	12.12@ 314.52	0.32
6212.00	1.41	141.90	6210.81	95.00	6.81	6.79 N	7.05 W	9.79@ 313.93	0.25
6306.00	1.41	148.82	6304.78	94.00	4.91	4.89 N	5.74 W	7.54@ 310.45	0.18
6400.00	1.23	154.15	6398.76	94.00	3.01	3.00 N	4.70 W	5.57@ 302.51	0.23
6495.00	0.97	168.79	6493.74	95.00	1.30	1.29 N	4.10 W	4.30@ 287.46	0.40
6587.00	0.79	183.59	6585.73	92.00	-0.09	0.11 S	3.99 W	3.99@ 268.46	0.31
6681.00	0.88	182.13	6679.72	94.00	-1.46	1.48 S	4.06 W	4.32@ 250.01	0.10
6776.00	1.41	154.68	6774.70	95.00	-3.25	3.26 S	3.58 W	4.84@ 227.69	0.79
6870.00	1.14	168.91	6868.68	94.00	-5.21	5.22 S	2.91 W	5.98@ 209.11	0.44
6964.00	1.32	173.22	6962.65	94.00	-7.21	7.22 S	2.60 W	7.67@ 199.82	0.21
7059.00	1.32	167.37	7057.63	95.00	-9.36	9.37 S	2.23 W	9.63@ 193.40	0.14
7153.00	1.49	164.83	7151.60	94.00	-11.60	11.61 S	1.68 W	11.73@ 188.22	0.19
7188.00	1.23	162.13	7186.59	35.00	-12.40	12.40 S	1.44 W	12.49@ 186.63	0.76
7219.00	1.76	3.25	7217.59	31.00	-12.24	12.25 S	1.31 W	12.32@ 186.12	9.49
7250.00	7.12	358.90	7248.48	31.00	-9.84	9.85 S	1.32 W	9.94@ 187.65	17.31
7281.00	12.57	358.62	7279.01	31.00	-4.55	4.55 S	1.44 W	4.77@ 197.57	17.58
7313.00	16.97	359.73	7309.95	32.00	3.61	3.60 N	1.55 W	3.92@ 336.78	13.78
7344.00	20.66	0.03	7339.29	31.00	13.61	13.60 N	1.56 W	13.69@ 353.44	11.91
7375.00	24.45	0.58	7367.91	31.00	25.49	25.49 N	1.50 W	25.53@ 356.64	12.24
7406.00	27.96	0.10	7395.72	31.00	39.18	39.18 N	1.42 W	39.20@ 357.92	11.34
7438.00	30.78	0.87	7423.61	32.00	54.87	54.87 N	1.28 W	54.88@ 358.66	8.89
7469.00	33.94	0.48	7449.79	31.00	71.46	71.46 N	1.09 W	71.47@ 359.13	10.22
7500.00	37.64	0.48	7474.93	31.00	89.58	89.58 N	0.94 W	89.59@ 359.40	11.93
7532.00	40.98	1.53	7499.69	32.00	109.85	109.85 N	0.58 W	109.85@ 359.70	10.64
7563.00	43.00	2.01	7522.73	31.00	130.57	130.58 N	0.07 E	130.58@ 0.03	6.60
7595.00	45.20	0.50	7545.71	32.00	152.83	152.84 N	0.55 E	152.84@ 0.21	7.62

PathFinder Energy Services, Inc.

Survey Report

YATES PETROLEUM CORPORATION
LLAMA "ALL" FEDERAL COM #10H
EDDY COUNTY, NEW MEXICO
RIG: PATRIOT 5

Page 04/06

Measured Depth (ft)	Incl (deg)	Drift Dir. (deg)	TVD (ft)	Course Length (ft)	Vertical Section (ft)	TOTAL Rectangular Offsets (ft) (ft)		Closure Dist Dir (ft) (deg)		DLS (dg/100ft)
7626.00	48.36	0.40	7566.93	31.00	175.42	175.42 N	0.73 E	175.43@	0.24	10.20
7657.00	53.20	0.03	7586.53	31.00	199.43	199.43 N	0.81 E	199.43@	0.23	15.64
7689.00	57.60	359.62	7604.69	32.00	225.76	225.77 N	0.73 E	225.77@	0.19	13.79
7720.00	60.06	359.73	7620.74	31.00	252.29	252.29 N	0.58 E	252.29@	0.13	7.94
7752.00	63.58	358.97	7635.85	32.00	280.49	280.49 N	0.26 E	280.49@	0.05	11.20
7783.00	66.92	358.83	7648.82	31.00	308.63	308.63 N	0.28 W	308.63@	359.95	10.78
7814.00	70.26	359.13	7660.14	31.00	337.49	337.49 N	0.80 W	337.49@	359.86	10.81
7845.00	73.69	358.49	7669.73	31.00	366.96	366.95 N	1.41 W	366.96@	359.78	11.24
7876.00	76.24	359.56	7677.77	31.00	396.89	396.88 N	1.92 W	396.89@	359.72	8.88
7908.00	78.17	1.00	7684.86	32.00	428.09	428.09 N	1.76 W	428.09@	359.76	7.46
7939.00	80.72	3.34	7690.54	31.00	458.53	458.54 N	0.61 W	458.54@	359.92	11.08
7981.00	84.77	5.17	7695.84	42.00	500.06	500.07 N	2.49 E	500.08@	0.28	10.57
8033.00	89.43	4.73	7698.47	52.00	551.77	551.80 N	6.97 E	551.84@	0.72	9.00
8128.00	91.63	0.09	7697.59	95.00	646.64	646.68 N	10.96 E	646.77@	0.97	5.41
8222.00	90.66	357.75	7695.71	94.00	740.60	740.64 N	9.19 E	740.69@	0.71	2.69
8315.00	90.75	357.37	7694.57	93.00	833.52	833.54 N	5.23 E	833.56@	0.36	0.42
8410.00	88.55	357.14	7695.15	95.00	928.42	928.43 N	0.68 E	928.43@	0.04	2.33
8504.00	88.37	356.38	7697.67	94.00	1022.25	1022.24 N	4.63 W	1022.25@	359.74	0.83
8598.00	86.70	359.56	7701.72	94.00	1116.10	1116.08 N	7.96 W	1116.11@	359.59	3.82
8692.00	88.81	0.19	7705.40	94.00	1210.02	1210.00 N	8.16 W	1210.03@	359.61	2.34
8786.00	88.72	0.60	7707.43	94.00	1304.00	1303.98 N	7.52 W	1304.00@	359.67	0.45
8881.00	88.81	0.23	7709.47	95.00	1398.97	1398.95 N	6.83 W	1398.97@	359.72	0.40
8975.00	88.64	0.57	7711.56	94.00	1492.94	1492.93 N	6.17 W	1492.94@	359.76	0.41
9069.00	89.87	0.34	7712.79	94.00	1586.93	1586.92 N	5.43 W	1586.93@	359.80	1.33
9163.00	89.87	0.05	7713.00	94.00	1680.92	1680.91 N	5.11 W	1680.92@	359.83	0.31
9256.00	90.57	0.25	7712.64	93.00	1773.92	1773.91 N	4.86 W	1773.92@	359.84	0.78
9350.00	90.13	358.29	7712.07	94.00	1867.91	1867.90 N	6.06 W	1867.91@	359.81	2.14
9444.00	88.37	359.60	7713.30	94.00	1961.88	1961.87 N	7.79 W	1961.89@	359.77	2.33

PathFinder Energy Services, Inc.

Survey Report

YATES PETROLEUM CORPORATION
LLAMA "ALL" FEDERAL COM #10H
EDDY COUNTY, NEW MEXICO
RIG: PATRIOT 5

Page 05/06

Measured Depth (ft)	Incl (deg)	Drift Dir. (deg)	TVD (ft)	Course Length (ft)	Vertical Section (ft)	TOTAL Rectangular Offsets (ft) (ft)		Closure Dist Dir (ft) (deg)		DLS (dg/100ft)
9537.00	89.16	0.50	7715.30	93.00	2054.86	2054.85 N	7.71 W	2054.86@	359.79	1.29
9631.00	89.25	0.66	7716.61	94.00	2148.84	2148.83 N	6.76 W	2148.84@	359.82	0.20
9725.00	89.87	1.39	7717.33	94.00	2242.82	2242.81 N	5.08 W	2242.82@	359.87	1.02
9819.00	89.52	0.30	7717.83	94.00	2336.80	2336.80 N	3.69 W	2336.80@	359.91	1.22
9913.00	89.34	359.91	7718.77	94.00	2430.79	2430.80 N	3.52 W	2430.80@	359.92	0.46
10007.00	89.60	0.17	7719.64	94.00	2524.79	2524.79 N	3.45 W	2524.79@	359.92	0.39
10102.00	90.31	359.55	7719.71	95.00	2619.79	2619.79 N	3.68 W	2619.79@	359.92	0.99
10223.00	91.01	359.23	7718.32	121.00	2740.78	2740.77 N	4.97 W	2740.78@	359.90	0.64
10317.00	90.48	358.33	7717.09	94.00	2834.75	2834.74 N	6.97 W	2834.75@	359.86	1.11
10412.00	90.57	358.53	7716.22	95.00	2929.72	2929.70 N	9.58 W	2929.72@	359.81	0.23
10506.00	90.66	357.46	7715.21	94.00	3023.66	3023.64 N	12.86 W	3023.67@	359.76	1.14
10600.00	92.51	359.37	7712.61	94.00	3117.59	3117.56 N	15.46 W	3117.60@	359.72	2.83
10694.00	91.98	359.35	7708.93	94.00	3211.52	3211.48 N	16.51 W	3211.52@	359.71	0.56
10789.00	91.89	359.70	7705.72	95.00	3306.46	3306.42 N	17.30 W	3306.47@	359.70	0.38
10883.00	90.13	0.61	7704.07	94.00	3400.44	3400.40 N	17.05 W	3400.45@	359.71	2.11
10977.00	90.13	0.45	7703.85	94.00	3494.43	3494.40 N	16.18 W	3494.44@	359.73	0.17
11072.00	87.58	0.21	7705.75	95.00	3589.40	3589.37 N	15.63 W	3589.40@	359.75	2.70
11166.00	88.81	0.74	7708.71	94.00	3683.35	3683.32 N	14.85 W	3683.35@	359.77	1.43
11260.00	90.40	1.81	7709.36	94.00	3777.31	3777.29 N	12.76 W	3777.31@	359.81	2.04
11354.00	90.48	2.43	7708.64	94.00	3871.23	3871.22 N	9.28 W	3871.23@	359.86	0.67
11448.00	89.08	1.28	7709.00	94.00	3965.17	3965.17 N	6.24 W	3965.17@	359.91	1.93
11542.00	90.84	0.71	7709.07	94.00	4059.14	4059.15 N	4.61 W	4059.15@	359.93	1.97
11637.00	90.66	0.78	7707.82	95.00	4154.12	4154.13 N	3.37 W	4154.13@	359.95	0.20
11731.00	88.20	358.92	7708.76	94.00	4248.11	4248.12 N	3.62 W	4248.12@	359.95	3.28
11825.00	88.99	359.49	7711.06	94.00	4342.07	4342.08 N	4.92 W	4342.08@	359.94	1.04
11919.00	88.81	0.45	7712.87	94.00	4436.05	4436.06 N	4.97 W	4436.06@	359.94	1.04
12013.00	88.43	357.54	7715.13	94.00	4530.01	4530.01 N	6.62 W	4530.01@	359.92	3.12
12107.00	89.78	357.29	7716.60	94.00	4623.91	4623.90 N	10.86 W	4623.91@	359.87	1.46

PathFinder Energy Services, Inc.

Survey Report

YATES PETROLEUM CORPORATION
LLAMA "ALL" FEDERAL COM #10H
EDDY COUNTY, NEW MEXICO
RIG: PATRIOT 5

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Measured Depth (ft)	Incl (deg)	Drift Dir. (deg)	TVD (ft)	Course Length (ft)	Vertical Section (ft)	TOTAL		Closure		DLS (dg/100ft)
						Rectangular Offsets (ft)	Offsets (ft)	Dist (ft)	Dir (deg)	
12201.00	90.22	355.97	7716.60	94.00	4717.76	4717.73 N	16.38 W	4717.76@	359.80	1.48
12295.00	89.69	357.39	7716.67	94.00	4811.62	4811.57 N	21.83 W	4811.62@	359.74	1.61
12391.00	91.71	358.00	7715.50	96.00	4907.54	4907.48 N	25.69 W	4907.55@	359.70	2.20
12485.00	92.15	358.26	7712.33	94.00	5001.44	5001.38 N	28.75 W	5001.46@	359.67	0.54
12579.00	91.71	358.09	7709.17	94.00	5095.35	5095.28 N	31.74 W	5095.38@	359.64	0.50
12673.00	91.89	359.49	7706.22	94.00	5189.29	5189.21 N	33.73 W	5189.32@	359.63	1.50
12767.00	91.54	0.46	7703.40	94.00	5283.24	5283.16 N	33.77 W	5283.27@	359.63	1.10
12862.00	89.60	0.11	7702.46	95.00	5378.23	5378.15 N	33.30 W	5378.26@	359.65	2.07
12956.00	89.16	359.84	7703.47	94.00	5472.23	5472.15 N	33.34 W	5472.25@	359.65	0.55
13050.00	89.34	359.93	7704.70	94.00	5566.22	5566.14 N	33.53 W	5566.24@	359.65	0.21
13143.00	90.31	0.11	7704.99	93.00	5659.22	5659.14 N	33.49 W	5659.24@	359.66	1.06
13237.00	90.13	359.32	7704.63	94.00	5753.21	5753.13 N	33.96 W	5753.24@	359.66	0.86
13331.00	90.92	0.99	7703.77	94.00	5847.20	5847.13 N	33.71 W	5847.22@	359.67	1.96
13426.00	91.10	1.51	7702.09	95.00	5942.16	5942.09 N	31.64 W	5942.17@	359.69	0.58
13520.00	90.84	1.34	7700.50	94.00	6036.11	6036.05 N	29.30 W	6036.12@	359.72	0.33
13615.00	91.01	0.90	7698.97	95.00	6131.07	6131.02 N	27.44 W	6131.08@	359.74	0.50
13709.00	91.63	0.11	7696.80	94.00	6225.04	6224.99 N	26.61 W	6225.04@	359.76	1.07
13803.00	92.24	0.46	7693.63	94.00	6318.98	6318.93 N	26.15 W	6318.98@	359.76	0.75
13897.00	91.28	1.43	7690.74	94.00	6412.92	6412.87 N	24.60 W	6412.92@	359.78	1.45
13991.00	91.45	1.87	7688.50	94.00	6506.84	6506.80 N	21.89 W	6506.84@	359.81	0.50
14084.00	89.87	0.72	7687.43	93.00	6599.80	6599.77 N	19.79 W	6599.80@	359.83	2.10
14177.00	90.31	0.64	7687.28	93.00	6692.79	6692.76 N	18.69 W	6692.79@	359.84	0.48
14271.00	90.75	0.37	7686.42	94.00	6786.78	6786.76 N	17.86 W	6786.78@	359.85	0.55
14364.00	90.57	1.09	7685.34	93.00	6879.76	6879.74 N	16.67 W	6879.76@	359.86	0.80
14458.00	90.66	0.94	7684.33	94.00	6973.73	6973.72 N	15.01 W	6973.74@	359.88	0.19
14553.00	91.54	0.57	7682.51	95.00	7068.70	7068.69 N	13.76 W	7068.71@	359.89	1.00
14646.00	91.28	0.86	7680.22	93.00	7161.66	7161.66 N	12.60 W	7161.67@	359.90	0.42
STRAIGHT LINE PROJECTION TO BIT @ 14720' MD.										
14720.00	91.28	0.86	7678.57	74.00	7235.63	7235.63 N	11.48 W	7235.64@	359.91	0.00



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TIE-IN SURVEY INFORMATION SHEET**CLIENT INFORMATION**

CLIENT:	YATES PETROLEUM CORPORATION		
LEASE / WELL No.:	LLAMA ALL FEDERAL COM	10H	
WELL LOCATION:	EDDY COUNTY		
COUNTY / STATE / COUNTRY:	EDDY	NM	USA
RIG:	PATRIOT 5		
API WELL No:	30-015-37190		
JOB No:	700001395 WT-WT		
P.O. / AFE No.	10-134-0		
DIRECTIONAL COMPANY:	PATHFINDER ENERGY		

WELL SITE INFORMATION

TOTAL MAGNETIC CORRECTION (TMC):			
On Wall Plat:	7.49	LWD Calculated:	7.49
		Agreed Upon:	7.49
X =	700031.456000	Feet	Y = 509526.509000
			Feet
SITE LATITUDE:	32.399708	SITE LONGITUDE:	103.819157
GRID SYSTEM:	TRUE ☐ UTM ☒ LAMBERT ☐	ZONE:	NEW MEXICO EAST
PROPOSED DRIFT DIRECTION:	359.82		
KELLY BUSHING ELEVATION:	26.5		
ALTITUDE:	3271	Feet	WATER DEPTH:
			Feet

TIE-IN SURVEY

MEASURED DEPTH:	0		
DRIFT ANGLE:	0		
DRIFT DIRECTION:	0		
TRUE VERTICAL DEPTH:	0		
VERTICAL SECTION:	0		
RECTANGULAR COORDINATE (N / S) :	0		
RECTANGULAR COORDINATE (E / W) :	0		
CLOSURE DISTANCE / DIRECTION:			
SURVEY CALCULATION METHOD:	AA ☐	MC ☒	RC ☐ BT ☐
SOURCE OF TIE-IN DATA (COMPANY):			
COPY OF TIE-IN SURVEY REPORT	☐ YES ☐ NO		

WELL PLAN

KICKOFF DEPTH:	528	TOTAL DEPTH:	
KICKOFF ANGLE:	0	MAX ANGLE:	0

PES Engineers: JAY FULTON

KOLEY THURMAN

**Signature of both field engineers required if applicable

Directional Driller: IRBY LEJEUNE

DATE: 16-Jan-2011

PathFinder Energy Services, Inc.

Magnetic & Grid Calculations

Field
Calculation

YATES PETROLEUM CORPERATION
LLAMA "ALL" FEDERAL COM #10H
EDDY COUNTY
Rig: PATRIOT 5

Sun Jan 16 13:43:50 2011

Coordinates

Latitude: 32.399708 N (32 deg. 23 min. 58.9471 sec.)
Longitude: 103.819157 W (-103 deg. 49 min. 8.9670 sec.)
Elevation: 3297.50 feet.
Calculation Date: Jan/16/2011

Magnetic Calculations

Model: IGRF2010
Dip Angle: 60.3174 degrees
Total Magnetic Field: 0.48737 gauss
Magnetic Declination: 7.763279 degrees
Horizontal Intensity: 0.241344 gauss
To Convert a Magnetic Dir. to a TRUE North Dir. Add 7.763279 Degr

Transverse Mercator Grid Calculations NAD83

Grid System: Transverse Mercator: new mexico east
Ellipsoid: GRS80
X: 700031.4560 feet
Y: 509526.5090 feet
True to Grid: (convergence) -0.275512 degrees
Magnetic to Grid: 7.487767 degrees
To Convert a Magnetic Dir. to a GRID dir. Add 7.487767 Degr.

PathFinder Energy Services, Inc.

Magnetic & Grid Calculations

YATES PETROLEUM CORPORATION
LLAMA "ALL" FEDERAL COM #10H
LIVINGSTON RIDGE; DELAWARE
Rig: PATRIOT 5

Sat Feb 05 03:17:55 2011

Coordinates

Latitude: 32.399708 N (32 deg. 23 min. 58.9471 sec.)
Longitude: 103.819157 W (-103 deg. 49 min. 8.9670 sec.)
Elevation: 3297.50 feet.
Calculation Date: Jan/16/2011

Magnetic Calculations

Model: IGRF2010
Dip Angle: 60.3173 degrees
Total Magnetic Field: 0.48762 gauss
Magnetic Declination: 7.764960 degrees
Horizontal Intensity: 0.241467 gauss
To Convert a Magnetic Dir. to a TRUE North Dir. Add 7.764960 Degs

Transverse Mercator Grid Calculations NAD83

Grid System: Transverse Mercator: new mexico east
Ellipsoid: GRS80
X: 700031.4560 feet
Y: 509526.5090 feet
True to Grid: (convergence) -0.275512 degrees
Magnetic to Grid: 7.489447 degrees
To Convert a Magnetic Dir. to a GRID dir. Add 7.489447 Degs.



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PathFinder Energy Services, Inc. Magnetic & Grid Calculations

YATES PETROLEUM
LLAMA "A/L" FEDERAL COM #10H
EDDY COUNTY, NEW MEXICO
Rig: PATRIOT #5

Thu Jan 13 16:38:01 2011

Coordinates

Latitude: 32.399708 N (32 deg. 23 min. 58.9471 sec.)
Longitude: 103.819157 W (-103 deg. 49 min. 8.9670 sec.)
Elevation: 3297.50 feet.
Calculation Date: Jan/13/2011

Magnetic Calculations

Model: IGRF2010
Dip Angle: 60.3176 degrees
Total Magnetic Field: 0.48738 gauss
Magnetic Declination: 7.764285 degrees
Horizontal Intensity: 0.241347 gauss
To Convert a Magnetic Dir. to a TRUE North Dir. Add 7.764285 Degr

Transverse Mercator Grid Calculations NAD83

Grid System: Transverse Mercator: new mexico east
Ellipsoid: GRS80
X: 700031.4560 feet
Y: 509526.5090 feet
True to Grid: (convergence) -0.275512 degrees
Magnetic to Grid: 7.488772 degrees
To Convert a Magnetic Dir. to a GRID dir. Add 7.488772 Degr.