



DIRECTIONAL SURVEY REPORT

30-015-35108

YATES PETROLEUM

KNOLL AOK FED #2H

EDDY COUNTY, NEW MEXICO

PREPARED BY: CODY MEBANE

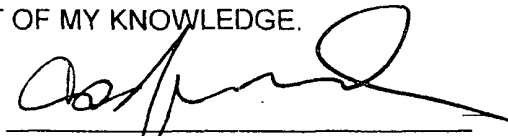
Pathfinder Energy Services, Inc.
6213 W. County Road 112 • Midland, TX • 79706
(432)681-6000

DIRECTIONAL SURVEY COMPANY REPORT:

1. NAME OF SURVEYING COMPANY: PATHFINDER ENERGY SERVICES
2. NAME OF PERSON(S) PERFORMING SURVEY:
A) JEFF FAULKNER
3. POSITION OF SAID PERSON(S): (A-F) SURVEYORS (FIELD ENGINEERS)
4. DATE(S) ON WHICH SURVEY WAS PERFORMED: 5/25/08 TO 6/12/08
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
KNOLL AOK FED #2H
EDDY COUNTY, NM
RIG: SILVER OAK #9
9. SURVEY CERTIFIED FROM: 7421 TO 11785 FEET MEASURED DEPTH.

THIS IS TO VERIFY THAT ATTACHED DOCUMENTS SHOWING THE WELL TO BE DISPLACED AT 3785.60 FEET ON A BEARING OF 265.14 DEGREES FROM THE CENTER OF THE ROTARY TABLE AT A PROJECTED BIT DEPTH OF 11861 FEET, ARE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE.



CODY MEBANE
M/LWD SERVICE COORDINATOR

PathFinder Energy Services, Inc.

BHL Report

Page 01/01
Tie-in Date: 05/25/2008
Date Completed: 06/11/2008

YATES PETROLEUM CORPORATION
KNOLL AOK FEDERAL #2H
EDDY COUNTY, NM
Rig:SILVER OAK #9
PathFinder Office Supervisor: FRANCISCO SINISTERRA
PathFinder Field Engineers:J. FAULKNER
J. PATTERSON

Survey Horiz. Reference:WELLHEAD
Ref Coordinates: LAT:32.15.11.1103 N LON:103.57.55.5771 W
GRID Reference:NAD83 new mexico east Transverse Mercator
Ref GRID Coord: X: 655066.6000 Y: 456000.9000
North Aligned To:GRID NORTH
Total Magnetic Correction: 7.92° EAST TO GRID
Vertical Section Plane: 265.87
Survey Vert. Reference: 30.00' Kelly Bushing To Ground
Altitude:3053.00' Ground To MSL

Measured Depth	11861.00	(feet)
Inclination	92.42	(deg)
Azimuth	269.74	(deg)
True Vertical Depth	7910.73	(feet)
Vertical Section	3875.29	(feet)
Survey X cord	651204.89	(feet)
Survey Y cord	455672.84	(feet)
Survey Lat	32.25222017 N	(deg)
Survey Lon	103.97793341 W	(deg)
Rectangular Corr. N/S	328.04 S	(feet)
Rectangular Corr. E/W	3861.69 W	(feet)
Closure Distance	3875.60	(feet)
Direction of Closure	265.14	(deg)
Dogleg Severity	0.00	(deg/100ft)

PathFinder Energy Services, Inc.

Survey Report

YATES PETROLEUM CORPORATION

KNOLL AOK FEDERAL #2H

EDDY COUNTY, NM

Rig: SILVER OAK #9

PathFinder Office Supervisor: FRANCISCO SINISTERRA

PathFinder Field Engineers: J. FAULKNER

J. PATTERSON

Survey Horiz. Reference: WELLHEAD

Ref Coordinates: LAT: 32.15.11.1103 N LON: 103.57.55.5771 W

Reference: NAD83 new mexico east Transverse Mercator

Ref GRID Coord: X: 655066.6000 Y: 456000.9000

North Aligned To: GRID NORTH

Total Magnetic Correction: 7.92° EAST TO GRID

Vertical Section Plane: 265.87

Survey Vert. Reference: 30.00' Kelly Bushing To Ground

Altitude: 3053.00' Ground To MSL

Survey Calculations by RX4 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 (ft)	Dir (deg)	Build Rate (dg/100ft)	DLS (dg/100ft)
TIE IN SURVEY PROVIDED BY SCIENTIFIC AT 7400' MD.											
7400.00	0.65	200.32	7390.54	0.00	-177.46	233.06 S	194.75 E	303.72@	140.12	0.00	0.00
THE FOLLOWING ARE PATHFINDER MWD SURVEYS.											
7421.00	0.53	214.20	7411.54	21.00	-177.35	233.25 S	194.65 E	303.80@	140.15	-0.57	0.89
7452.00	0.79	225.71	7442.54	31.00	-177.10	233.52 S	194.42 E	303.86@	140.22	0.84	0.94
7483.00	1.06	213.62	7473.53	31.00	-176.76	233.91 S	194.11 E	303.96@	140.31	0.87	1.07
7514.00	2.73	238.93	7504.51	31.00	-175.92	234.53 S	193.32 E	303.93@	140.50	5.39	5.90
7545.00	6.07	245.45	7535.42	31.00	-173.73	235.59 S	191.19 E	303.41@	140.94	10.77	10.88
7576.00	9.50	242.60	7566.13	31.00	-169.84	237.45 S	187.43 E	302.51@	141.71	11.07	11.13
7606.00	12.66	243.71	7595.57	30.00	-164.52	240.04 S	182.28 E	301.41@	142.79	10.53	10.56
7637.00	15.56	250.06	7625.63	31.00	-157.37	242.97 S	175.33 E	299.62@	144.19	9.36	10.59
7668.00	18.64	252.26	7655.26	31.00	-148.56	245.90 S	166.70 E	297.07@	145.87	9.94	10.15
7699.00	21.54	254.46	7684.37	31.00	-138.16	248.93 S	156.49 E	294.04@	147.84	9.36	9.67
7730.00	23.30	255.36	7713.02	31.00	-126.55	252.01 S	145.08 E	290.78@	150.07	5.68	5.78
7761.00	24.45	252.03	7741.37	31.00	-114.29	255.53 S	133.04 E	288.10@	152.50	3.71	5.71
7792.00	26.73	254.45	7769.33	31.00	-101.23	259.38 S	120.22 E	285.89@	155.13	7.36	8.09
7822.00	29.37	256.42	7795.80	30.00	-87.36	262.92 S	106.57 E	283.70@	157.94	8.80	9.33
7853.00	32.71	255.90	7822.36	31.00	-71.60	266.75 S	91.05 E	281.86@	161.15	10.77	10.81
7884.00	38.34	255.46	7847.58	31.00	-53.88	271.21 S	73.61 E	281.02@	164.82	18.16	18.18
7915.00	44.58	256.55	7870.80	31.00	-33.67	276.15 S	53.70 E	281.33@	169.00	20.13	20.26
7946.00	50.56	256.60	7891.71	31.00	-11.10	281.46 S	31.45 E	283.22@	173.62	19.29	19.29
7978.00	57.16	258.54	7910.57	32.00	14.46	287.01 S	6.23 E	287.07@	178.76	20.62	21.20
8010.00	63.40	260.74	7926.43	32.00	42.07	291.98 S	21.10 W	292.74@	184.13	19.50	20.39
8042.00	69.91	262.23	7939.10	32.00	71.35	296.32 S	50.14 W	300.53@	189.60	20.34	20.79
8074.00	74.57	262.06	7948.86	32.00	101.75	300.49 S	80.32 W	311.04@	194.96	14.56	14.57
8106.00	78.08	262.36	7956.42	32.00	132.78	304.70 S	111.12 W	324.33@	200.04	10.97	11.01
8137.00	81.43	262.89	7961.94	31.00	163.23	308.61 S	141.37 W	339.45@	204.61	10.81	10.94

PathFinder Energy Services, Inc.

Survey Report

YATES PETROLEUM CORPORATION
KNOLL AOK FEDERAL #2H
EDDY COUNTY, NM
RIG:SILVER OAK #9

Page 02/04

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)		Build Rate (dg/100ft)	DLS (dg/100ft)
8168.00	85.03	262.70	7965.59	31.00	193.96	312.47 S	171.90 W	356.64@	208.82	11.61	11.63
8200.00	88.72	262.81	7967.34	32.00	225.86	316.50 S	203.60 W	376.33@	212.75	11.53	11.54
8231.00	90.13	264.48	7967.65	31.00	256.84	319.93 S	234.40 W	396.61@	216.23	4.55	7.05
8264.00	89.96	264.93	7967.62	33.00	289.83	322.98 S	267.26 W	419.22@	219.61	-0.52	1.46
8296.00	90.22	264.94	7967.57	32.00	321.82	325.80 S	299.14 W	442.30@	222.56	0.81	0.81
8359.00	93.03	267.79	7965.78	63.00	384.78	329.80 S	361.97 W	489.68@	227.66	4.46	6.35
8423.00	93.56	269.76	7962.10	64.00	448.59	331.16 S	425.85 W	539.46@	232.13	0.83	3.18
8486.00	94.00	270.03	7957.95	63.00	511.30	331.28 S	488.71 W	590.41@	235.87	0.70	0.82
8550.00	94.53	270.54	7953.19	64.00	574.93	330.96 S	552.53 W	644.07@	239.08	0.83	1.15
8613.00	94.53	270.18	7948.22	63.00	637.54	330.57 S	615.33 W	698.51@	241.75	0.00	0.57
8645.00	93.74	268.83	7945.91	32.00	669.40	330.84 S	647.25 W	726.90@	242.93	-2.47	4.88
8677.00	92.59	269.06	7944.14	32.00	701.30	331.43 S	679.19 W	755.74@	243.99	-3.59	3.67
8740.00	90.48	268.75	7942.45	63.00	764.18	332.63 S	742.16 W	813.29@	245.86	-3.35	3.38
8772.00	90.22	269.00	7942.26	32.00	796.14	333.26 S	774.15 W	842.83@	246.71	-0.81	1.13
8804.00	90.22	268.50	7942.14	32.00	828.10	333.96 S	806.14 W	872.58@	247.50	0.00	1.56
8836.00	90.13	268.54	7942.04	32.00	860.07	334.79 S	838.13 W	902.52@	248.23	-0.28	0.31
8867.00	90.31	268.35	7941.92	31.00	891.03	335.63 S	869.12 W	931.67@	248.88	0.58	0.84
8899.00	90.13	268.98	7941.80	32.00	923.00	336.37 S	901.11 W	961.85@	249.53	-0.56	2.05
8962.00	88.64	268.13	7942.47	63.00	985.92	337.96 S	964.08 W	1021.60@	250.68	-2.36	2.72
9026.00	89.08	268.18	7943.75	64.00	1049.86	340.02 S	1028.04 W	1082.81@	251.70	0.69	0.69
9089.00	89.25	269.02	7944.66	63.00	1112.78	341.56 S	1091.01 W	1143.23@	252.62	0.27	1.36
9153.00	89.60	268.91	7945.31	64.00	1176.68	342.72 S	1155.00 W	1204.77@	253.47	0.55	0.57
9216.00	90.57	268.86	7945.21	63.00	1239.59	343.94 S	1217.98 W	1265.62@	254.23	1.54	1.54
9280.00	91.19	268.43	7944.23	64.00	1303.51	345.46 S	1281.96 W	1327.69@	254.92	0.97	1.18
9343.00	92.51	268.48	7942.20	63.00	1366.41	347.15 S	1344.90 W	1388.98@	255.53	2.10	2.10
9375.00	91.63	269.30	7941.04	32.00	1398.35	347.77 S	1376.87 W	1420.12@	255.82	-2.75	3.76
9407.00	91.89	269.35	7940.06	32.00	1430.27	348.15 S	1408.86 W	1451.24@	256.12	0.81	0.83
9438.00	91.45	269.38	7939.15	31.00	1461.20	348.49 S	1439.84 W	1481.42@	256.39	-1.42	1.42
9470.00	90.84	270.15	7938.51	32.00	1493.12	348.63 S	1471.83 W	1512.56@	256.67	-1.91	3.07

PathFinder Energy Services, Inc.

Survey Report

YATES PETROLEUM CORPORATION
KNOLL AOK FEDERAL #2H
EDDY COUNTY, NM
RIG: SILVER OAK #9

Page 03/04

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)		Build Rate (dg/100ft)	DLS (dg/100ft)
9502.00	90.31	269.87	7938.19	32.00	1525.03	348.62 S	1503.83 W	1543.71@	256.95	-1.66	1.87
9533.00	90.66	269.65	7937.93	31.00	1555.96	348.75 S	1534.83 W	1573.96@	257.20	1.13	1.33
9565.00	91.10	269.63	7937.44	32.00	1587.89	348.95 S	1566.83 W	1605.21@	257.44	1.37	1.38
9597.00	89.87	269.91	7937.17	32.00	1619.81	349.08 S	1598.82 W	1636.49@	257.68	-3.84	3.94
9660.00	88.55	270.43	7938.04	63.00	1682.63	348.89 S	1661.82 W	1698.05@	258.14	-2.10	2.25
9724.00	89.52	270.45	7939.12	64.00	1746.42	348.40 S	1725.81 W	1760.62@	258.59	1.52	1.52
9787.00	90.84	270.08	7938.92	63.00	1809.23	348.11 S	1788.80 W	1822.36@	258.99	2.10	2.18
9850.00	89.87	269.91	7938.53	63.00	1872.06	348.12 S	1851.80 W	1884.24@	259.35	-1.54	1.56
9914.00	89.34	270.06	7938.97	64.00	1935.90	348.13 S	1915.80 W	1947.17@	259.70	-0.83	0.86
9977.00	89.60	269.86	7939.55	63.00	1998.73	348.18 S	1978.80 W	2009.19@	260.02	0.41	0.52
10041.00	89.96	269.61	7939.80	64.00	2062.59	348.47 S	2042.80 W	2072.30@	260.32	0.56	0.68
10104.00	89.87	270.70	7939.89	63.00	2125.41	348.30 S	2105.79 W	2134.40@	260.61	-0.14	1.74
10168.00	92.95	271.38	7938.31	64.00	2189.12	347.14 S	2169.76 W	2197.35@	260.91	4.81	4.93
10199.00	93.03	270.76	7936.70	31.00	2219.95	346.56 S	2200.71 W	2227.83@	261.05	0.26	2.01
10231.00	93.30	270.92	7934.93	32.00	2251.78	346.09 S	2232.66 W	2259.32@	261.19	0.84	0.98
10263.00	93.74	271.21	7932.97	32.00	2283.59	345.50 S	2264.59 W	2290.79@	261.33	1.37	1.65
10294.00	94.88	271.57	7930.64	31.00	2314.36	344.75 S	2295.49 W	2321.24@	261.46	3.68	3.86
10326.00	94.79	271.25	7927.94	32.00	2346.10	343.97 S	2327.37 W	2352.65@	261.59	-0.28	1.04
10358.00	94.00	270.81	7925.49	32.00	2377.87	343.39 S	2359.27 W	2384.13@	261.72	-2.47	2.82
10389.00	92.51	270.70	7923.73	31.00	2408.71	342.98 S	2390.22 W	2414.70@	261.83	-4.81	4.82
10421.00	92.42	271.93	7922.35	32.00	2440.54	342.25 S	2422.18 W	2446.24@	261.96	-0.28	3.85
10453.00	91.63	271.04	7921.22	32.00	2472.36	341.42 S	2454.15 W	2477.78@	262.08	-2.47	3.72
10485.00	91.19	271.28	7920.43	32.00	2504.22	340.77 S	2486.13 W	2509.38@	262.20	-1.37	1.57
10517.00	89.52	271.04	7920.23	32.00	2536.08	340.13 S	2518.12 W	2540.99@	262.31	-5.22	5.27
10548.00	89.25	270.73	7920.57	31.00	2566.96	339.65 S	2549.12 W	2571.64@	262.41	-0.87	1.33
10580.00	89.34	270.84	7920.96	32.00	2598.84	339.21 S	2581.11 W	2603.30@	262.51	0.28	0.44
10612.00	89.25	270.78	7921.35	32.00	2630.72	338.76 S	2613.10 W	2634.97@	262.61	-0.28	0.34
10643.00	89.08	270.70	7921.81	31.00	2661.60	338.36 S	2644.10 W	2665.66@	262.71	-0.55	0.61
10675.00	88.81	270.66	7922.40	32.00	2693.48	337.98 S	2676.09 W	2697.35@	262.80	-0.84	0.85

PathFinder Energy Services, Inc.

Survey Report

YATES PETROLEUM CORPORATION
KNOLL AOK FEDERAL #2H
EDDY COUNTY, NM
RIG: SILVER OAK #9

Page 04/04

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)		Build Rate (dg/100ft)	DLS (dg/100ft)
10707.00	88.99	270.72	7923.01	32.00	2725.36	337.59 S	2708.08 W	2729.04@	262.89	0.56	0.59
10739.00	89.69	270.94	7923.38	32.00	2757.24	337.13 S	2740.08 W	2760.74@	262.99	2.19	2.29
10770.00	89.78	270.78	7923.52	31.00	2788.12	336.66 S	2771.07 W	2791.45@	263.07	0.29	0.59
10802.00	90.22	270.85	7923.52	32.00	2820.00	336.21 S	2803.07 W	2823.16@	263.16	1.37	1.39
10865.00	90.13	270.94	7923.33	63.00	2882.76	335.22 S	2866.06 W	2885.60@	263.33	-0.14	0.20
10929.00	89.16	270.94	7923.73	64.00	2946.51	334.17 S	2930.05 W	2949.05@	263.49	-1.52	1.52
10992.00	90.13	271.43	7924.12	63.00	3009.24	332.87 S	2993.04 W	3011.49@	263.65	1.54	1.73
11056.00	89.52	271.05	7924.31	64.00	3072.95	331.49 S	3057.02 W	3074.94@	263.81	-0.95	1.12
11119.00	89.60	271.12	7924.80	63.00	3135.69	330.29 S	3120.01 W	3137.44@	263.96	0.13	0.17
11182.00	90.04	270.72	7924.99	63.00	3198.45	329.28 S	3183.00 W	3199.99@	264.09	0.70	0.94
11246.00	89.69	270.64	7925.14	64.00	3262.22	328.52 S	3246.99 W	3263.57@	264.22	-0.55	0.56
11309.00	89.69	270.77	7925.49	63.00	3325.00	327.75 S	3309.99 W	3326.17@	264.35	0.00	0.21
11372.00	90.13	270.59	7925.58	63.00	3387.77	327.00 S	3372.98 W	3388.80@	264.46	0.70	0.75
11436.00	90.13	270.43	7925.44	64.00	3451.56	326.43 S	3436.98 W	3452.45@	264.57	0.00	0.25
11499.00	91.19	270.05	7924.71	63.00	3514.38	326.17 S	3499.97 W	3515.14@	264.68	1.68	1.79
11562.00	91.89	269.61	7923.02	63.00	3577.20	326.35 S	3562.95 W	3577.87@	264.77	1.11	1.31
11626.00	92.42	269.78	7920.61	64.00	3641.01	326.69 S	3626.90 W	3641.59@	264.85	0.83	0.87
11689.00	92.59	269.57	7917.86	63.00	3703.82	327.05 S	3689.84 W	3704.31@	264.93	0.27	0.43
11753.00	92.15	269.60	7915.21	64.00	3767.63	327.51 S	3753.79 W	3768.05@	265.01	-0.69	0.69
11785.00	92.42	269.74	7913.94	32.00	3799.53	327.70 S	3785.76 W	3799.92@	265.05	0.84	0.95
STRAIGHT LINE PROJECTION TO BIT @ 11861' MD.											
11861.00	92.42	269.74	7910.73	76.00	3875.29	328.04 S	3861.69 W	3875.60@	265.14	0.00	0.00



TIE-IN SURVEY INFORMATION SHEET

CLIENT INFORMATION

CLIENT:	YATES PETROLEUM		
LEASE / WELL No.:	KNOLL AOK FEDERAL #2H	NM-85891	
WELL LOCATION:	WILDCAT BONE SPRING		
COUNTY / STATE / COUNTRY:	EDDY COUNTY	NM	USA
RIG:	SILVER OAK #9		
API WELL No:	30-015-35108		
JOB No:	1001007424 WT-WT		
P.O. / AFE No.			
DIRECTIONAL COMPANY:	PATHFINDER ENERGY SERVICES		

WELL SITE INFORMATION

MAGNETIC DECLINATION:			
On Wall Plat:	8.14	LWD Calculated:	8.124604
		Agreed Upon:	
X =	655066.600000	Feet	Y = 456000.900000
			Feet
SITE LATITUDE:	32.253086 N	SITE LONGITUDE:	103.965438 W
GRID SYSTEM:	TRUE ☐ UTM ☒	LAMBERT ☐	ZONE: NEW MEXICO EAST
PROPOSED DRIFT DIRECTION:	268.97		
KELLY BUSHING ELEVATION:	30		
ALTITUDE:	3053	Feet	WATER DEPTH: N/A
			Feet

TIE-IN SURVEY

MEASURED DEPTH:	7400		
DRIFT ANGLE:	0.65		
DRIFT DIRECTION:	200.32		
TRUE VERTICAL DEPTH:	7390.54		
VERTICAL SECTION:	265.87		
RECTANGULAR COORDINATE (N / S) :	-233.06		
RECTANGULAR COORDINATE (E / W) :	194.75		
CLOSURE DISTANCE / DIRECTION:	303.72	140.12	
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:	7494.04	TOTAL DEPTH:	12436.57
KICKOFF ANGLE:	0.65	MAX ANGLE:	90.68

PES Engineers: _____

**Signature of both field engineers required if applicable

Directional Driller: _____

DATE: 25-May-2008