



JUN - 1 2009

DIRECTIONAL SURVEY REPORT

YATES PETROLEUM CORPORATION

KNOLL AOK FEDERAL #3H

EDDY COUNTY, NEW MEXICO

PREPARED BY: FRANCISCO SINISTERRA

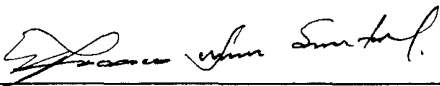
Pathfinder Energy Services, Inc.
6213 W. County Road 112 • Midland, TX • 79706
(432)681-6000

DIRECTIONAL SURVEY COMPANY REPORT

- 1 NAME OF SURVEYING COMPANY: PATHFINDER ENERGY SERVICES
2. NAME OF PERSON(S) PERFORMING SURVEY:
A) RAFAEL DONARUMMA
3. POSITION OF SAID PERSON(S): (A-F) SURVEYORS (FIELD ENGINEERS)
- 4 DATE(S) ON WHICH SURVEY WAS PERFORMED: 02/24/09 TO 03/08/09
- 5 STATE IN WHICH SURVEY WAS PERFORMED: NEW MEXICO
- 6 LOCATION OF WELL EDDY COUNTY
- 7 TYPE OF SURVEY(S) PERFORMED: MWD
- 8 COMPLETE IDENTIFICATION OF WELL:

YATES PETROLEUM CORPORATION
KNOLL AOK FEDERAL #3H
EDDY COUNTY, NM
RIG: PATRIOT #6
9. SURVEY CERTIFIED FROM: 7,461 TO 12,153 FEET MEASURED DEPTH.

THIS IS TO VERIFY THAT ATTACHED DOCUMENTS SHOWING THE WELL TO BE DISPLACED AT 4,450.19 FEET ON A BEARING OF 271.12 DEGREES FROM THE CENTER OF THE ROTARY TABLE AT A PROJECTED BIT DEPTH OF 12,230 FEET, ARE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE



FRANCISCO SINISTERRA
M/LWD SERVICE COORDINATOR

PathFinder Energy Services, Inc.

BHL Report

Page 01/01
Tie-in Date: 02/23/2009
Date Completed: 03/08/2009

YATES PETROLEUM CORPORATION
KNOLL AOK FEDERAL #3H
EDDY COUNTY, NM
Rig: PATRIOT #6
PathFinder Office Supervisor: F. SINISTERRA
PathFinder Field Engineers: R. DONARUMMA
J. ALCOCER

Survey Horiz. Reference: WELLHEAD
Ref Coordinates: LAT: 32.14.51.5267 N LON: 103.57.55.4139 W
GRID Reference: NAD83 new mexico east Transverse Mercator
Ref GRID Coord: X: 655087.4000 Y: 454022.0000
North Aligned To: GRID NORTH
Total Magnetic Correction: 7.84° EAST TO GRID
Vertical Section Plane: 271.29
Survey Vert. Reference: 18.50' Kelly Bushing To Ground
Altitude: 3075.00' Ground To MSL

Measured Depth	12230.00	(feet)
Inclination	92.59	(deg)
Azimuth	270.17	(deg)
True Vertical Depth	7858.17	(feet)
Vertical Section	4450.17	(feet)
Survey X cord	650638.04	(feet)
Survey Y cord	454108.95	(feet)
Survey Lat	32.24792641 N	(deg)
Survey Lon	103.97978369 W	(deg)
Rectangular Corr. N/S	86.96 N	(feet)
Rectangular Corr. E/W	4449.34 W	(feet)
Closure Distance	4450.19	(feet)
Direction of Closure	271.12	(deg)
Dogleg Severity	0.00	(deg/100ft)

PathFinder Energy Services, Inc.

Survey Report

YATES PETROLEUM CORPORATION
KNOLL AOK FEDERAL #3H
EDDY COUNTY, NM
Rig: PATRIOT #6
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Page 01/04
Tie-in Date: 02/23/2009
Date Completed: 03/08/2009

Survey Horiz. Reference: WELLHEAD
Ref Coordinates: LAT: 32.14.51.5267 N LON: 103.57.55.4139 W
Reference: NAD83 new mexico east Transverse Mercator
Ref GRID Coord: X: 655087.4000 Y: 454022.0000
North Aligned To: GRID NORTH
Total Magnetic Correction: 7.84° EAST TO GRID
Vertical Section Plane: 271.29
Survey Vert. Reference: 18.50' Kelly Bushing To Ground
Altitude: 3075.00' 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 Dir (ft) (deg)	DLS (dg/100ft)
TIE IN PROVIDED BY SCIENTIFIC DRILLING CONTROLS @ 7435' MD.								
7435.00	2.21	213.31	7432.36	0.00	-5.36	140.86 S 2.19 E	140.88@ 179.11	0.00
THE FOLLOWING ARE PATHFINDER MWD SURVEYS.								
7461.00	3.61	250.18	7458.33	26.00	-4.33	141.56 S 1.14 E	141.56@ 179.54	8.73
7493.00	7.21	287.01	7490.19	32.00	-1.46	141.31 S 1.73 W	141.32@ 180.70	15.09
7525.00	11.78	295.19	7521.74	32.00	3.47	139.33 S 6.60 W	139.49@ 182.71	14.86
7556.00	16.18	296.95	7551.82	31.00	10.26	136.03 S 13.32 W	136.68@ 185.59	14.26
7588.00	20.14	298.81	7582.22	32.00	19.16	131.35 S 22.13 W	133.20@ 189.56	12.51
7620.00	23.30	300.73	7611.94	32.00	29.56	125.46 S 32.40 W	129.57@ 194.48	10.12
7652.00	26.03	302.73	7641.02	32.00	41.07	118.43 S 43.75 W	126.25@ 200.27	8.92
7683.00	29.37	300.84	7668.46	31.00	53.49	110.85 S 56.00 W	124.19@ 206.80	11.14
7715.00	31.83	298.69	7696.01	32.00	67.81	102.77 S 70.14 W	124.43@ 214.31	8.41
7747.00	33.50	295.49	7722.95	32.00	83.36	94.92 S 85.52 W	127.76@ 222.02	7.51
7779.00	35.96	292.20	7749.25	32.00	100.19	87.57 S 102.19 W	134.58@ 229.41	9.66
7810.00	39.13	291.34	7773.82	31.00	117.89	80.57 S 119.73 W	144.32@ 236.06	10.36
7842.00	42.47	290.25	7798.04	32.00	137.60	73.15 S 139.28 W	157.32@ 242.29	10.67
7874.00	46.17	289.63	7820.93	32.00	158.78	65.53 S 160.29 W	173.17@ 247.76	11.64
7905.00	50.65	289.19	7841.51	31.00	180.81	57.83 S 182.16 W	191.12@ 252.39	14.49
7937.00	54.87	289.52	7860.87	32.00	205.02	49.39 S 206.19 W	212.02@ 256.53	13.21
7969.00	59.27	289.87	7878.26	32.00	230.50	40.34 S 231.47 W	234.96@ 260.11	13.78
8001.00	64.19	291.20	7893.41	32.00	257.10	30.45 S 257.85 W	259.64@ 263.27	15.80
8032.00	69.91	293.91	7905.49	31.00	283.68	19.49 S 284.19 W	284.86@ 266.08	20.13
8064.00	73.95	296.81	7915.42	32.00	311.44	6.46 S 311.67 W	311.74@ 268.81	15.28
8097.00	76.59	297.22	7923.81	33.00	340.19	8.04 N 340.10 W	340.19@ 271.35	8.09

PathFinder Energy Services, Inc.

Survey Report

YATES PETROLEUM CORPORATION
KNOLL AOK FEDERAL #3H
EDDY COUNTY, NM
RIG:PATRIOT #6

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)		DLS (dg/100ft)
8128.00	79.23	296.30	7930.30	31.00	367.56	21.68 N	367.16 W	367.80@	273.38	9.00
8160.00	80.20	293.99	7936.02	32.00	396.35	35.06 N	395.66 W	397.21@	275.06	7.72
8192.00	80.37	292.08	7941.42	32.00	425.65	47.40 N	424.69 W	427.32@	276.37	5.91
8223.00	80.90	289.93	7946.46	31.00	454.44	58.36 N	453.24 W	456.98@	277.34	7.05
8255.00	81.60	287.64	7951.33	32.00	484.60	68.55 N	483.18 W	488.02@	278.07	7.40
8286.00	82.92	285.67	7955.51	31.00	514.22	77.35 N	512.61 W	518.41@	278.58	7.60
8318.00	83.62	283.32	7959.26	32.00	545.16	85.30 N	543.37 W	550.03@	278.92	7.61
8350.00	85.91	281.19	7962.18	32.00	576.44	92.07 N	574.51 W	581.84@	279.10	9.75
8382.00	87.05	278.65	7964.14	32.00	608.01	97.57 N	605.97 W	613.77@	279.15	8.69
8413.00	88.29	276.65	7965.40	31.00	638.79	101.69 N	636.67 W	644.74@	279.07	7.59
8445.00	88.37	274.38	7966.34	32.00	670.69	104.76 N	668.50 W	676.66@	278.91	7.10
8477.00	87.58	271.78	7967.47	32.00	702.65	106.48 N	700.43 W	708.48@	278.64	8.49
8508.00	87.76	270.05	7968.73	31.00	733.62	106.98 N	731.40 W	739.18@	278.32	5.61
8540.00	87.58	269.79	7970.03	32.00	765.59	106.93 N	763.38 W	770.83@	277.97	0.99
8550.00	87.93	270.01	7970.42	10.00	775.58	106.91 N	773.37 W	780.72@	277.87	4.13
8582.00	89.96	269.45	7971.01	32.00	807.56	106.76 N	805.36 W	812.41@	277.55	6.58
8613.00	91.89	269.07	7970.51	31.00	838.54	106.36 N	836.35 W	843.09@	277.25	6.34
8708.00	94.79	268.78	7964.97	95.00	933.28	104.58 N	931.16 W	937.02@	276.41	3.07
8803.00	92.95	269.47	7958.56	95.00	1027.99	103.14 N	1025.93 W	1031.10@	275.74	2.07
8898.00	91.89	270.34	7954.55	95.00	1122.88	102.98 N	1120.84 W	1125.57@	275.25	1.44
8994.00	89.96	270.29	7953.00	96.00	1218.85	103.51 N	1216.83 W	1221.22@	274.86	2.01
9089.00	87.67	270.76	7954.97	95.00	1313.81	104.38 N	1311.80 W	1315.94@	274.55	2.46
9184.00	87.67	270.56	7958.83	95.00	1408.73	105.47 N	1406.71 W	1410.66@	274.29	0.21
9279.00	88.72	270.20	7961.82	95.00	1503.67	106.10 N	1501.66 W	1505.40@	274.04	1.17
9374.00	91.01	269.50	7962.04	95.00	1598.63	105.85 N	1596.65 W	1600.16@	273.79	2.52
9469.00	91.28	268.81	7960.15	95.00	1693.54	104.45 N	1691.62 W	1694.84@	273.53	0.78
9563.00	91.28	268.80	7958.05	94.00	1787.43	102.49 N	1785.58 W	1788.52@	273.29	0.01

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Survey Report

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KNOLL AOK FEDERAL #3H
EDDY COUNTY, NM
RIG:PATRIOT #6

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)		DLS (dg/100ft)
9658.00	93.39	270.73	7954.18	95.00	1882.31	102.10 N	1880.49 W	1883.26@	273.11	3.01
9753.00	91.54	269.99	7950.09	95.00	1977.21	102.70 N	1975.39 W	1978.06@	272.98	2.10
9848.00	93.47	269.22	7945.94	95.00	2072.07	102.04 N	2070.30 W	2072.81@	272.82	2.19
9944.00	94.70	268.49	7939.10	96.00	2167.74	100.13 N	2166.03 W	2168.34@	272.65	1.49
10038.00	95.94	268.46	7930.38	94.00	2261.22	97.64 N	2259.59 W	2261.70@	272.47	1.32
10070.00	94.53	268.42	7927.46	32.00	2293.04	96.77 N	2291.44 W	2293.49@	272.42	4.41
10165.00	94.44	268.56	7920.03	95.00	2387.64	94.28 N	2386.12 W	2387.98@	272.26	0.17
10260.00	94.62	268.50	7912.53	95.00	2482.23	91.85 N	2480.79 W	2482.49@	272.12	0.20
10355.00	94.09	269.09	7905.32	95.00	2576.87	89.85 N	2575.50 W	2577.06@	272.00	0.83
10451.00	92.33	269.42	7899.94	96.00	2672.65	88.61 N	2671.33 W	2672.80@	271.90	1.87
10546.00	89.96	267.14	7898.04	95.00	2767.49	85.76 N	2766.26 W	2767.59@	271.78	3.46
10639.00	91.01	266.60	7897.26	93.00	2860.21	80.68 N	2859.12 W	2860.25@	271.62	1.27
10735.00	91.28	268.03	7895.34	96.00	2955.95	76.18 N	2954.99 W	2955.97@	271.48	1.52
10830.00	91.28	270.40	7893.22	95.00	3050.86	74.88 N	3049.95 W	3050.87@	271.41	2.49
10925.00	91.10	270.43	7891.24	95.00	3145.83	75.57 N	3144.93 W	3145.83@	271.38	0.19
11020.00	91.54	270.51	7889.05	95.00	3240.80	76.35 N	3239.90 W	3240.80@	271.35	0.47
11115.00	92.15	271.61	7886.00	95.00	3335.74	78.11 N	3334.83 W	3335.74@	271.34	1.32
11210.00	92.15	271.85	7882.43	95.00	3430.67	80.97 N	3429.72 W	3430.67@	271.35	0.25
11305.00	90.66	270.67	7880.10	95.00	3525.64	83.06 N	3524.66 W	3525.64@	271.35	2.00
11400.00	91.10	270.21	7878.64	95.00	3620.62	83.79 N	3619.65 W	3620.62@	271.33	0.67
11496.00	91.45	269.65	7876.51	96.00	3716.57	83.67 N	3715.62 W	3716.57@	271.29	0.69
11591.00	91.01	270.48	7874.47	95.00	3811.52	83.78 N	3810.60 W	3811.52@	271.26	0.99
11686.00	91.36	270.68	7872.50	95.00	3906.49	84.74 N	3905.58 W	3906.50@	271.24	0.42
11781.00	91.89	270.54	7869.81	95.00	4001.45	85.75 N	4000.53 W	4001.45@	271.23	0.58
11876.00	90.40	270.19	7867.91	95.00	4096.41	86.36 N	4095.51 W	4096.42@	271.21	1.61
11971.00	90.84	270.16	7866.88	95.00	4191.39	86.65 N	4190.50 W	4191.40@	271.18	0.46
12067.00	91.63	269.89	7864.81	96.00	4287.34	86.69 N	4286.48 W	4287.36@	271.16	0.87

PathFinder Energy Services, Inc.

Survey Report

YATES PETROLEUM CORPORATION
KNOLL AOK FEDERAL #3H
EDDY COUNTY, NM
RIG: PATRIOT #6

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)		DLS (dg/100ft)
12153.00	92.59	270.17	7861.65	86.00	4373.26	86.73 N	4372.42 W	4373.28@	271.14	1.16
STRAIGHT LINE PROJECTION TO BIT @ 12230' MD.										
12230.00	92.59	270.17	7858.17	77.00	4450.17	86.96 N	4449.34 W	4450.19@	271.12	0.00

PATHFINDER

ENERGY SERVICES

TIE-IN SURVEY INFORMATION SHEET

CLIENT INFORMATION

CLIENT:	YATES PETROLEUM CO.		
LEASE / WELL No.:	YATES KNOLL AOK FED	#3H	
WELL LOCATION:	EDDY COUNTY		
COUNTY / STATE / COUNTRY:	EDDY	NM	USA
RIG:	PATRIOT 6		
API WELL No:	30-015-35907		
JOB No:	101008299-WT-WT		
P.O. / AFE No.			
DIRECTIONAL COMPANY:	PATHFINDER		

WELL SITE INFORMATION

TOTAL MAGNETIC CORRECTION (TMC):			
On Wall Plat.	7.84	LWD Calculated:	7.835
		Agreed Upon:	7.84
X =	655087 400000	Feet	Y = 454022.000000
			Feet
SITE LATITUDE:	32.247646 N	SITE LONGITUDE:	103.965393 W
GRID SYSTEM:	TRUE ☐ UTM ☒ LAMBERT ☐	ZONE:	NEW MEXICO EAST
PROPOSED DRIFT DIRECTION:	271.29		
KELLY BUSHING ELEVATION:			
ALTITUDE:	3075	Feet	WATER DEPTH:
			Feet

TIE-IN SURVEY

MEASURED DEPTH:	7435		
DRIFT ANGLE:	2.21		
DRIFT DIRECTION:	213.31		
TRUE VERTICAL DEPTH:	7432.36		
VERTICAL SECTION:	-5.37		
RECTANGULAR COORDINATE (N / S) :	-140.86		
RECTANGULAR COORDINATE (E / W) :	2.19		
CLOSURE DISTANCE / DIRECTION:	140.88	179.11°	
SURVEY CALCULATION METHOD:	AA ☐	MC ☒	RC ☐ BT ☐
SOURCE OF TIE-IN DATA (COMPANY):	SCIENTIFIC GYRO		
COPY OF TIE-IN SURVEY REPORT	☒ YES ☐ NO		

WELL PLAN

KICKOFF DEPTH:	7535	TOTAL DEPTH:	12235
KICKOFF ANGLE:	2.21	MAX ANGLE:	95.94

PES Engineers:

R. DONARUMMA

J. ALCOCER

**Signature of both field engineers required if applicable

Directional Driller:

P. A. / J. LUJAN

DATE: 23-Feb-2009

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PathFinder Energy Services, Inc.

Magnetic & Grid Calculations

YATESPETROLEUM
KNOLL AOK FEDERAL #3H
EDDY COUNTY, NEW MEXICO
Rig: PATRIOT 6

Sun Feb 22 16:58:40 2009

Coordinates

Latitude: 32.247646 N (32 deg. 14 min. 51.5267 sec.)
Longitude: 103.965393 W (-103 deg. 57 min. 55.4139 sec.)
Elevation: 3075.00 feet.
Calculation Date: Feb/22/2009

Magnetic Calculations

Model: IGRF2005
Dip Angle: 60.2110 degrees
Total Magnetic Field: 0.48870 gauss
Magnetic Declination: 8.033221 degrees
Horizontal Intensity: 0.242792 gauss
To Convert a Magnetic Dir. to a TRUE North Dir. Add 8.033221 Degr.

Transverse Mercator Grid Calculations NAD83

Grid System: Transverse Mercator: new mexico east
Ellipsoid: GRS80
X: 655087.4000 feet
Y: 454022.0000 feet
True to Grid: (convergence) -0.196328 degrees
Magnetic to Grid: 7.836893 degrees
To Convert a Magnetic Dir. to a GRID dir. Add 7.836893 Degr.

PathFinder Energy Services, Inc.

Magnetic & Grid Calculations

YATES PETROLEUM CO.
YATES KNOLL AOK FED#3H
EDDY CNTY, NEW MEXICO
Rig: PATRIOT #6

*Field
Copy*

Mon Feb 23 14:08:32 2009

Coordinates

Latitude: 32.247646 N (32 deg. 14 min. 51.5267 sec.)
Longitude: 103.965393 W (-103 deg. 57 min. 55.4139 sec.)
Elevation: 3075.00 feet.
Calculation Date: Feb/23/2009

Magnetic Calculations

Model: IGRF2005
Dip Angle: 60.2110 degrees
Total Magnetic Field: 0.48847 gauss
Magnetic Declination: 8.031351 degrees
Horizontal Intensity: 0.242676 gauss
To Convert a Magnetic Dir. to a TRUE North Dir. Add 8.031351 Degr

Transverse Mercator Grid Calculations NAD83

Grid System: Transverse Mercator: new mexico east
Ellipsoid: GRS80
X: 655087.4000 feet
Y: 454022.0000 feet
True to Grid: (convergence) -0.196328 degrees
Magnetic to Grid: 7.835024 degrees
To Convert a Magnetic Dir. to a GRID dir. Add 7.835024 Degr.

DISTRICT I
1625 N. French Dr., Hobbs, NM 88240

DISTRICT II
1301 W. Grand Avenue, Artesia, NM 88210

DISTRICT III
1000 Rio Brazos Rd., Aztec, NM 87410

DISTRICT IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy, Minerals and Natural Resources Department

OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, New Mexico 87505

Form C-102
Revised October 12, 2006

Submit to Appropriate District Office
State Lease - 4 Copies
Fee Lease - 3 Copies

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number	Pool Code	Pool Name Wildcat Bone Spring
Property Code	Property Name KNOLL "AOK" FEDERAL	Well Number 3H
OGRID No. 025575	Operator Name YATES PETROLEUM CORP.	Elevation 3058'

Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
H	3	24 S	29 E		2310	NORTH	480	EAST	EDDY

Bottom Hole Location If Different From Surface

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
E	3	24 S	29 E		2210	NORTH	330	WEST	EDDY

Dedicated Acres 320	Joint or Infill	Consolidation Code	Order No.
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NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED
OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

PROJECT AREA 2210' 330' PRODUCING AREA 330' BOTTOM HOLE LOCATION Lat - N32°14'52.7" Long - W103°58'47.7" SPC- N.: 454123.11 E.: 650598.06 (NAD-83) SURFACE LOCATION Lat - N32°14'51.5" Long - W103°57'55.4" SPC- N.: 454022.0 E.: 655087.4 (NAD-83) 480' 4' 3063' 3055' 3058' 3050' Producing Area Project Area	OPERATOR CERTIFICATION I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division. <i>Cy Cowan</i> 1/16/08 Signature Date Cy Cowan, Regulatory Agent Printed Name SURVEYOR CERTIFICATION I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief. APRIL 27 2006 Date Surveyed <i>Gary L. Jones</i> Signature of Professional Surveyor W.O. #3 Certificate No. Gary L. Jones 7977 BASIN SURVEYS
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