



An Operating Unit of Smith International, Inc.

30-015-37511

DIRECTIONAL SURVEY REPORT

YATES PETROLEUM

MARTHA "AIK" FEDERAL #13H - SHC

EDDY COUNTY, NEW MEXICO

PREPARED BY: FRANCISCO SINISTERRA

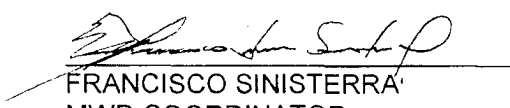


DIRECTIONAL SURVEY COMPANY REPORT:

1. NAME OF SURVEYING COMPANY: PATHFINDER ENERGY SERVICES
2. NAME OF PERSON(S) PERFORMING SURVEY:
A) JOSH SNEED
3. POSITION OF SAID PERSON(S): (A-F) SURVEYORS (FIELD ENGINEERS)
4. DATE(S) ON WHICH SURVEY WAS PERFORMED: 08-29-10 TO 09-04-10
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
MARTHA "AIK" FEDERAL #13H - SHC
EDDY COUNTY, NM
RIG: LATSHAW #10
9. SURVEY CERTIFIED FROM: 867 TO 4265 FEET MEASURED DEPTH.

THIS IS TO VERIFY THAT ATTACHED DOCUMENTS SHOWING THE WELL TO BE
DISPLACED AT 61.38 FEET ON A BEARING OF 71.03 DEGREES FROM THE
CENTER OF THE ROTARY TABLE AT A PROJECTED BIT DEPTH OF 4325 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: 08/31/2010
Date Completed: 09/04/2010

YATES PETROLEUM
MARTHA "AIK" FEDERAL #13H - SHC
EDDY COUNTY, NM
Rig:Latshaw 3
PathFinder Office Supervisor: FRANCISCO SINISTERRA
PathFinder Field Engineers:JOSHUA SNEED
LOREN FLEMING

Survey Horiz. Reference:WELLHEAD
Ref Coordinates: LAT:32.24.31.1423 N LON:103.44.26.3140 W
GRID Reference:NAD27 new mexico east Transverse Mercator
Ref GRID Coord: X: 682912.8000 Y: 512888.5000
North Aligned To:GRID NORTH
Total Magnetic Correction: 7.46° EAST TO GRID
Vertical Section Plane: 268.00
Survey Vert. Reference: 22.00' Rotary Table To Ground
Altitude:3549.00' Ground To MSL

Measured Depth	4325.00	(feet)
Inclination	1.23	(deg)
Azimuth	180.66	(deg)
True Vertical Depth	4323.51	(feet)
Vertical Section	-58.71	(feet)
Survey X cord	682970.85	(feet)
Survey Y cord	512908.45	(feet)
Survey Lat	32.40870459 N	(deg)
Survey Lon	103.74045433 W	(deg)
Rectangular Corr. N/S	19.95 N	(feet)
Rectangular Corr. E/W	58.05 E	(feet)
Closure Distance	61.38	(feet)
Direction of Closure	71.03	(deg)
Dogleg Severity	0.00	(deg/100ft)

PathFinder Energy Services, Inc.

Survey Report

YATES PETROLEUM
MARTHA "AIK" FEDERAL #13H - SHC
EDDY COUNTY, NM
Rig: Latshaw 3
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PathFinder Field Engineers: JOSHUA SNEED
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Survey Vert. Reference: 22.00' Rotary Table To Ground
Altitude: 3549.00' Ground To MSL

Survey Calculations by RX5 V6.03A using Minimum Curvature

Measured Depth (ft)	Incl (deg)	Drift Dir. (deg)	TVD (ft)	Course Length (ft)	Vertical Section (ft)	Rectangular Offsets (ft)	TOTAL (ft)	Closure Dist Dir (ft) (deg)	DLS (dg/100ft)
TIE IN ASSUMING VERTICAL DEPTH @ 767' MD.									
767.00	0.00	0.00	767.00	0.00	-0.00	0.00	0.00	0.00@ 0.00	0.00
867.00	1.58	40.20	866.99	100.00	-0.93	1.05 N	0.89 E	1.38@ 40.20	1.58
930.00	1.58	40.30	929.96	63.00	-2.09	2.38 N	2.01 E	3.12@ 40.23	0.01
1024.00	1.85	32.46	1023.92	94.00	-3.82	4.65 N	3.66 E	5.92@ 38.26	0.38
1119.00	1.85	8.44	1118.87	95.00	-4.97	7.46 N	4.71 E	8.82@ 32.29	0.81
1213.00	1.49	346.56	1212.83	94.00	-5.00	10.15 N	4.65 E	11.16@ 24.63	0.77
1308.00	1.67	337.70	1307.80	95.00	-4.28	12.63 N	3.84 E	13.20@ 16.91	0.32
1403.00	0.88	20.90	1402.78	95.00	-4.08	14.59 N	3.57 E	15.02@ 13.76	1.25
1497.00	0.70	353.09	1496.77	94.00	-4.31	15.84 N	3.76 E	16.28@ 13.37	0.45
1592.00	0.97	352.44	1591.76	95.00	-4.19	17.21 N	3.59 E	17.58@ 11.77	0.28
1686.00	0.97	343.52	1685.74	94.00	-3.91	18.76 N	3.26 E	19.04@ 9.85	0.16
1781.00	1.23	7.06	1780.73	95.00	-3.87	20.54 N	3.15 E	20.79@ 8.73	0.54
1875.00	1.32	359.20	1874.70	94.00	-4.05	22.63 N	3.26 E	22.86@ 8.20	0.21
1970.00	1.58	22.50	1969.67	95.00	-4.62	24.93 N	3.75 E	25.21@ 8.55	0.67
2064.00	1.58	45.07	2063.64	94.00	-6.10	27.05 N	5.16 E	27.53@ 10.81	0.66
2159.00	1.23	65.62	2158.61	95.00	-8.00	28.39 N	7.02 E	29.25@ 13.88	0.64
2253.00	2.29	45.41	2252.57	94.00	-10.32	30.13 N	9.27 E	31.52@ 17.11	1.29
2348.00	2.81	56.15	2347.47	95.00	-13.70	32.76 N	12.56 E	35.08@ 20.98	0.74
2443.00	2.11	55.41	2442.38	95.00	-17.15	35.05 N	15.93 E	38.50@ 24.45	0.74
2537.00	1.23	72.27	2536.34	94.00	-19.58	36.33 N	18.32 E	40.69@ 26.76	1.06
2632.00	0.70	88.67	2631.33	95.00	-21.14	36.66 N	19.87 E	41.70@ 28.46	0.62
2726.00	0.79	97.97	2725.32	94.00	-22.35	36.58 N	21.09 E	42.22@ 29.96	0.16
2821.00	1.58	102.12	2820.30	95.00	-24.27	36.22 N	23.02 E	42.91@ 32.44	0.84
2916.00	1.49	91.82	2915.27	95.00	-26.77	35.90 N	25.53 E	44.05@ 35.42	0.31

THE FOLLOWING ARE PATHFINDER MWD SURVEYS:

PathFinder Energy Services, Inc.

Survey Report

YATES PETROLEUM
 MARTHA "AIK" FEDERAL #13H - SHC
 EDDY COUNTY, NM
 RIG:Latshaw 3

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Measured Depth (ft)	Incl (deg)	Drift Dir. (deg)	TVD (ft)	Course Length (ft)	Vertical Section (ft)	TOTAL Rectangular Offsets (ft)	Closure Dist Dir (ft) (deg)	DLS (dg/100ft)
3010.00	1.49	57.70	3009.24	94.00	-29.04	36.52 N	45.89@ 37.27	0.93
3105.00	1.85	75.69	3104.20	95.00	-31.61	37.56 N	48.26@ 38.91	0.67
3200.00	2.99	93.79	3199.11	95.00	-35.57	37.77 N	51.00@ 42.22	1.43
3294.00	1.76	95.17	3293.03	94.00	-39.44	37.48 N	53.49@ 45.51	1.31
3389.00	0.35	153.15	3388.01	95.00	-41.01	37.09 N	54.36@ 46.98	1.69
3483.00	0.79	214.36	3482.01	94.00	-40.75	36.30 N	53.65@ 47.42	0.74
3578.00	0.62	202.16	3577.00	95.00	-40.15	35.28 N	52.55@ 47.82	0.24
3673.00	1.76	112.27	3671.98	95.00	-41.27	34.25 N	52.74@ 49.50	1.96
3767.00	2.81	111.09	3765.91	94.00	-44.70	32.88 N	54.59@ 52.97	1.12
3862.00	2.73	118.14	3860.80	95.00	-48.80	30.97 N	56.92@ 57.03	0.37
3956.00	2.29	125.65	3954.71	94.00	-52.23	28.82 N	58.80@ 60.65	0.58
4051.00	2.20	132.04	4049.63	95.00	-55.04	26.49 N	60.28@ 63.93	0.28
4146.00	2.02	136.95	4144.57	95.00	-57.45	24.05 N	61.54@ 67.00	0.27
4265.00	1.23	180.66	4263.53	119.00	-58.77	21.24 N	61.82@ 69.91	1.19
4325.00	1.23	180.66	4323.51	60.00	-58.71	19.95 N	61.38@ 71.03	0.00

STRAIGHT LINE PROJECTION TO BIT @ 4325' MD



TIE-IN SURVEY INFORMATION SHEET

CLIENT INFORMATION

CLIENT:	YATES PETROLEUM		
LEASE / WELL No.:	MARTHA "AIK" FEDERAL	#13H	
WELL LOCATION:	EDDY COUNTY, NEW MEXICO		
COUNTY / STATE / COUNTRY:	EDDY	NM	USA
RIG:	LATSHAW #3		
API WELL No:	30-015-37511		
JOB No:	700000051-WT-WT		
P.O. / AFE No.			
DIRECTIONAL COMPANY:	PATHFINDER ENERGY		

WELL SITE INFORMATION

TOTAL MAGNETIC CORRECTION (TMC):			
On Wall Plat:	7.46°	LWD Calculated:	7.46°
		Agreed Upon:	7.46°
X =	682912.800000	Feet	Y = 512888.500000
			Feet
SITE LATITUDE:	32° 24' 31.1423"	SITE LONGITUDE:	103° 44' 26.3140"
GRID SYSTEM:	TRUE ☐ UTM ☒ LAMBERT ☐ ZONE: LIVINGSTON RDGE DELAWARE		
PROPOSED DRIFT DIRECTION:	268.00°		
KELLY BUSHING ELEVATION:	22		
ALTITUDE:	3549	Feet	WATER DEPTH: N/A
			Feet

TIE-IN SURVEY

MEASURED DEPTH:	767		
DRIFT ANGLE:	0		
DRIFT DIRECTION:	0		
TRUE VERTICAL DEPTH:	767		
VERTICAL SECTION:	0		
RECTANGULAR COORDINATE (N / S) :	0		
RECTANGULAR COORDINATE (E / W) :	0		
CLOSURE DISTANCE / DIRECTION:	0	0	
SURVEY CALCULATION METHOD:	AA ☐	MC ☒	RC ☐ BT ☐
SOURCE OF TIE-IN DATA (COMPANY):	N/A		
COPY OF TIE-IN SURVEY REPORT	☐ YES ☒ NO		

WELL PLAN

KICKOFF DEPTH:	850	TOTAL DEPTH:	
KICKOFF ANGLE:	0	MAX ANGLE:	

PES Engineers: JOSH SNEED, BRYANT BLAKEMORE
LOREN FLEMING

**Signature of both field engineers required if applicable

Directional Driller: TANDY, VERNON

DATE: 29-Aug-2010

PathFinder Energy Services, Inc.

Magnetic & Grid Calculations

YATES PETROLEUM
MARTHA "AIK" FEDERAL #13H
EDDY COUNTY, NEW MEXICO
Rig: LATSHAW #3

Fri Aug 20 10:50:31 2010

Coordinates

Latitude: 32.408651 N (32 deg. 24 min. 31.1423 sec.)
Longitude: 103.740643 W (-103 deg. 44 min. 26.3140 sec.)
Elevation: 3571.00 feet.
Calculation Date: Aug/20/2010

Magnetic Calculations

Model: IGRF2010
Dip Angle: 60.3495 degrees
Total Magnetic Field: 0.48790 gauss
Magnetic Declination: 7.777719 degrees
Horizontal Intensity: 0.241369 gauss
To Convert a Magnetic Dir. to a TRUE North Dir. Add 7.777719 Degr

Transverse Mercator Grid Calculations NAD27

Grid System: Transverse Mercator: new mexico east
Ellipsoid: Clarke 1866
X: 682912.8000 feet
Y: 512888.5000 feet
True to Grid: (convergence) -0.317663 degrees
Magnetic to Grid: 7.460056 degrees

To Convert a Magnetic Dir. to a GRID dir. Add 7.460056 Degr.

PathFinder Energy Services, Inc.

Magnetic & Grid Calculations

YATES PETROLEUM
MARTHA "AIK" FEDERAL #13H
LIVINGTON RIDGE DELAWARE
Rig: Latshaw 3

Wed Sep 01 18:30:36 2010

Coordinates

Latitude: 32.408651 N (32 deg. 24 min. 31.1423 sec.)
Longitude: 103.740643 W (-103 deg. 44 min. 26.3140 sec.)
Elevation: 3571.00 feet.
Calculation Date: Aug/20/2010

Magnetic Calculations

Model: IGRF2010
Dip Angle: 60.3495 degrees
Total Magnetic Field: 0.48790 gauss
Magnetic Declination: 7.777719 degrees
Horizontal Intensity: 0.241369 gauss

To Convert a Magnetic Dir. to a TRUE North Dir. Add 7.777719 Degr

Field Calculations

Transverse Mercator Grid Calculations NAD27

Grid System: Transverse Mercator: new mexico east
Ellipsoid: Clarke 1866
X: 682912.8000 feet
Y: 512888.5000 feet
True to Grid: (convergence) -0.317663 degrees
Magnetic to Grid: 7.460056 degrees

To Convert a Magnetic Dir. to a GRID dir. Add 7.460056 Degr.