

PATHFINDER

An Operating Unit of Smith International, Inc.

30-015-37786

DIRECTIONAL SURVEY REPORT

RECEIVED

FEB 24 2011

NMOCD ARTESIA

YATES PETROLEUM

CHEVRON "BOT" #5H

EDDY COUNTY, NEW MEXICO

PREPARED BY: FRANCISCO SINISTERRA

Pathfinder Energy Services, Inc.
6213 W. Interstate 20 • 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) SAM BIFFLE
3. POSITION OF SAID PERSON(S): (A-F) SURVEYORS (FIELD ENGINEERS)
4. DATE(S) ON WHICH SURVEY WAS PERFORMED: 05-27-10 TO 06-02-10
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
CHEVRON "BOT" #5H
EDDY COUNTY, NM
RIG: PATRIOT 5

9. SURVEY CERTIFIED FROM: 661 TO 7900 FEET MEASURED DEPTH.

THIS IS TO VERIFY THAT ATTACHED DOCUMENTS SHOWING THE WELL TO BE DISPLACED AT 23.67 FEET ON A BEARING OF 188.85 DEGREES FROM THE CENTER OF THE ROTARY TABLE AT A PROJECTED BIT DEPTH OF 7950 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: 05/27/2010
Date Completed: 06/02/2010

YATES PETROLEUM
CHEVRON "BOT" #5H
EDDY COUNTY, NEW MEXICO
Rig: PATRIOT 5
PathFinder Office Supervisor: FRANCISCO SINISTERRA
PathFinder Field Engineers: SAM BIFFLE

Survey Horiz. Reference: WELLHEAD
Ref Coordinates: LAT: 32.14.45.0661 N LON: 104.0.19.9620 W
GRID Reference: NAD83 new mexico east Transverse Mercator
Ref GRID Coord: X: 642676.1460 Y: 453328.9280
North Aligned To: GRID NORTH
Total Magnetic Correction: 7.74° EAST TO GRID
Vertical Section Plane: 6.39
Survey Vert. Reference: 27.00' Rotary Table To Ground
Altitude: 2952.00' Ground To MSL

Measured Depth	7950.00	(feet)
Inclination	2.28	(deg)
Azimuth	212.61	(deg)
True Vertical Depth	7948.58	(feet)
Vertical Section	-23.65	(feet)
Survey X cord	642672.50	(feet)
Survey Y cord	453305.54	(feet)
Survey Lat	32.24578741 N	(deg)
Survey Lon	104.00555701 W	(deg)
Rectangular Corr. N/S	23.39 S	(feet)
Rectangular Corr. E/W	3.64 W	(feet)
Closure Distance	23.67	(feet)
Direction of Closure	188.85	(deg)
Dogleg Severity	0.00	(deg/100ft)

PathFinder Energy Services, Inc.

Survey Report

YATES PETROLEUM
CHEVRON "BOT" #5H
EDDY COUNTY, NEW MEXICO
Rig: PATRIOT 5
PathFinder Office Supervisor: FRANCISCO SINISTERRA
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Vertical Section Plane: 6.39
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Altitude: 2952.00' 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 INTO SURFACE.									
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00@ 0.00	0.00
THE FOLLOWING ARE MS ENERGY SERVICES GYRO SURVEYS.									
200.00	0.25	83.07	200.00	200.00	0.10	0.05 N	0.43 E	0.44@ 83.07	0.13
400.00	0.25	74.29	400.00	200.00	0.37	0.22 N	1.29 E	1.31@ 80.15	0.02
600.00	0.50	50.72	599.99	200.00	1.15	0.89 N	2.38 E	2.54@ 69.42	0.14
THE FOLLOWING ARE PATHFINDER MWD SURVEYS.									
661.00	0.18	319.88	660.99	61.00	1.41	1.14 N	2.53 E	2.77@ 65.79	0.87
849.00	1.32	265.30	848.97	188.00	1.20	1.18 N	0.18 E	1.20@ 8.52	0.65
943.00	1.85	268.46	942.94	94.00	0.78	1.05 N	2.42 W	2.64@ 293.56	0.57
1037.00	0.79	284.42	1036.91	94.00	0.66	1.18 N	4.56 W	4.71@ 284.45	1.18
1226.00	0.62	52.24	1225.90	189.00	1.55	2.13 N	5.02 W	5.45@ 292.97	0.67
1414.00	1.14	2.93	1413.88	188.00	4.13	4.62 N	4.12 W	6.19@ 318.28	0.46
1508.00	1.14	6.06	1507.87	94.00	6.00	6.48 N	3.97 W	7.60@ 328.51	0.07
1602.00	0.88	4.73	1601.85	94.00	7.65	8.13 N	3.81 W	8.98@ 334.88	0.28
1696.00	0.97	356.58	1695.84	94.00	9.16	9.64 N	3.80 W	10.36@ 338.49	0.17
1885.00	0.97	359.65	1884.81	189.00	12.33	12.84 N	3.90 W	13.42@ 343.08	0.03
1979.00	0.88	346.46	1978.80	94.00	13.79	14.34 N	4.08 W	14.91@ 344.12	0.24
2073.00	0.62	78.63	2072.79	94.00	14.63	15.14 N	3.75 W	15.60@ 346.09	1.16
2167.00	1.06	106.37	2166.78	94.00	14.63	14.99 N	2.42 W	15.19@ 350.85	0.63
2261.00	0.97	118.70	2260.77	94.00	14.18	14.37 N	0.88 W	14.39@ 356.48	0.25
2355.00	1.67	107.52	2354.74	94.00	13.61	13.57 N	1.12 E	13.62@ 4.72	0.79
2450.00	2.46	109.34	2449.68	95.00	12.89	12.48 N	4.36 E	13.22@ 19.27	0.83
2544.00	1.85	142.69	2543.62	94.00	11.34	10.61 N	7.19 E	12.81@ 34.12	1.45
2638.00	2.11	169.18	2637.56	94.00	8.59	7.70 N	8.43 E	11.42@ 47.60	1.00
2717.00	1.85	178.79	2716.52	79.00	5.94	5.00 N	8.73 E	10.06@ 60.22	0.53

PathFinder Energy Services, Inc. Survey Report

YATES PETROLEUM
CHEVRON "BOT" #5H
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)	Closure Dist Dir (ft) (deg)	DLS (dg/100ft)
2914.00	1.41	186.14	2913.44	197.00	0.36	0.59 S	8.56@ 93.97	0.25
3008.00	1.58	182.62	3007.41	94.00	-2.09	3.04 S	8.89@ 109.97	0.21
3102.00	0.79	169.28	3101.38	94.00	-4.00	4.97 S	9.77@ 120.55	0.89
3290.00	0.79	154.38	3289.37	188.00	-6.34	7.41 S	11.83@ 128.79	0.11
3478.00	0.18	242.06	3477.36	188.00	-7.60	8.72 S	12.91@ 132.48	0.43
3666.00	0.26	248.63	3665.36	188.00	-7.97	9.01 S	12.64@ 135.48	0.05
3855.00	0.35	239.11	3854.36	189.00	-8.52	9.46 S	12.37@ 139.91	0.05
4044.00	0.26	253.67	4043.35	189.00	-9.03	9.88 S	12.14@ 144.46	0.06
4231.00	0.35	258.77	4230.35	187.00	-9.37	10.11 S	11.80@ 148.93	0.05
4420.00	0.26	257.28	4419.35	189.00	-9.69	10.32 S	11.51@ 153.67	0.05
4608.00	0.18	237.87	4607.35	188.00	-10.01	10.57 S	11.46@ 157.21	0.06
4797.00	0.35	207.91	4796.35	189.00	-10.73	11.24 S	11.90@ 160.77	0.11
4985.00	0.53	186.29	4984.34	188.00	-12.14	12.61 S	13.10@ 164.25	0.13
5173.00	0.88	180.26	5172.33	188.00	-14.44	14.92 S	15.31@ 166.96	0.19
5362.00	0.35	267.07	5361.32	189.00	-15.98	16.40 S	16.65@ 170.07	0.49
5550.00	0.44	223.83	5549.31	188.00	-16.64	16.95 S	17.04@ 173.95	0.16
5738.00	0.62	47.59	5737.31	188.00	-16.45	16.78 S	16.91@ 173.04	0.56
5926.00	0.70	93.82	5925.30	188.00	-15.63	16.17 S	16.65@ 166.29	0.28
6114.00	0.79	108.59	6113.28	188.00	-15.86	16.66 S	17.82@ 159.23	0.11
6302.00	0.70	36.80	6301.27	188.00	-15.14	16.16 S	18.13@ 152.99	0.47
6491.00	0.26	77.18	6490.26	189.00	-14.00	15.14 S	17.79@ 148.31	0.28
6679.00	2.20	355.94	6678.22	188.00	-10.31	11.44 S	14.88@ 140.28	1.16
6868.00	1.58	9.12	6867.11	189.00	-4.14	5.25 S	11.00@ 118.52	0.40
7056.00	0.70	36.64	7055.07	188.00	-0.56	1.77 S	10.90@ 99.35	0.54
7245.00	0.88	218.32	7244.07	189.00	-0.80	1.98 S	10.73@ 100.65	0.84
7432.00	1.93	216.20	7431.01	187.00	-4.75	5.65 S	9.63@ 125.93	0.56
7620.00	2.55	209.41	7618.87	188.00	-11.34	11.85 S	12.47@ 161.90	0.36
7808.00	2.37	216.01	7806.69	188.00	-18.57	18.64 S	18.64@ 181.43	0.18

PathFinder Energy Services, Inc.

Survey Report

YATES PETROLEUM
CHEVRON "BOT" #5H
EDDY COUNTY, NEW MEXICO
RIG:PATRIOT 5

Page 03/03

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)
7900.00	2.28	212.61	7898.62	92.00	-21.87	21.72 S 2.57 W	21.87@ 186.75	0.18
STRAIGHT LINE PROJECTION TO BIT @ 7950' MD.								
7950.00	2.28	212.61	7948.58	50.00	-23.65	23.39 S 3.64 W	23.67@ 188.85	0.00

PATHFINDER

ENERGY SERVICES

TIE-IN SURVEY INFORMATION SHEET

CLIENT INFORMATION

CLIENT:	YATES PETROLEUM		
LEASE / WELL No.:	CHEVRON "BOT" #5H	ORIGINAL WELLBORE	
WELL LOCATION:	EDDY COUNTY, NEW MEXICO		
COUNTY / STATE / COUNTRY:	EDDY	NEW MEXICO	USA
RIG:	PATRIOT 5		
API WELL No:	30-015-37786		
JOB No:	101010537 WT-WT		
P.O. / AFE No.	10-126-0		
DIRECTIONAL COMPANY:	PATHFINDER ENERGY SERVICES		

WELL SITE INFORMATION

TOTAL MAGNETIC CORRECTION (TMC):			
On Wall Plat:	7.74	LWD Calculated:	7.738
		Agreed Upon:	7.74
X =	642676.146000	Feet	Y = 453328.928000
			Feet
SITE LATITUDE:	32.245852 N	SITE LONGITUDE:	104.005545 W
GRID SYSTEM:	TRUE ☐ UTM ☐ LAMBERT ☒	ZONE:	NEW MEXICO EAST
PROPOSED DRIFT DIRECTION:	6.39		
KELLY BUSHING ELEVATION:	27		
ALTITUDE:	2978.5	Feet	WATER DEPTH:
			Feet

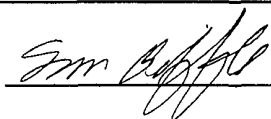
TIE-IN SURVEY

MEASURED DEPTH:	0		
DRIFT ANGLE:	0		
DRIFT DIRECTION:	0		
TRUE VERTICAL DEPTH:	6.39		
VERTICAL SECTION:	0		
RECTANGULAR COORDINATE (N / S) :	0		
RECTANGULAR COORDINATE (E / W) :			
CLOSURE DISTANCE / DIRECTION:	0	0	
SURVEY CALCULATION METHOD:	AA ☐	MC ☐	RC ☐ BT ☐
SOURCE OF TIE-IN DATA (COMPANY):	SURFACE		
COPY OF TIE-IN SURVEY REPORT	☐ YES ☐ NO		

WELL PLAN

KICKOFF DEPTH:	7160	TOTAL DEPTH:	12772
KICKOFF ANGLE:	0	MAX ANGLE:	90

PES Engineers:



**Signature of both field engineers required if applicable

Directional Driller:

DATE:

PathFinder Energy Services, Inc.

Magnetic & Grid Calculations

YATES PETROLEUM
CHEVRON "BOT" #5H
EDDY COUNTY, NEW MEXICO
Rig:PATRIOT 5

Wed May 26 10:11:29 2010

Coordinates

Latitude: 32.245852 N (32 deg. 14 min. 45.0661 sec.)
Longitude: 104.005545 W (-104 deg. 0 min. 19.9620 sec.)
Elevation: 2978.50 feet.
Calculation Date: May/26/2010

Magnetic Calculations

Model: IGRF2010
Dip Angle: 60.1566 degrees
Total Magnetic Field: 0.48689 gauss
Magnetic Declination: 7.914110 degrees
Horizontal Intensity: 0.242293 gauss
To Convert a Magnetic Dir. to a TRUE North Dir. Add 7.914110 Degs

Transverse Mercator Grid Calculations NAD83

Grid System: Transverse Mercator: new mexico east
Ellipsoid: GRS80
X: 642676.1460 feet
Y: 453328.9280 feet
True to Grid: (convergence) -0.174894 degrees
Magnetic to Grid: 7.739216 degrees
To Convert a Magnetic Dir. to a GRID dir. Add 7.739216 Degs.

PathFinder Energy Services, Inc.

Magnetic & Grid Calculations

YATES PETROLEUM CORPORATION
CHEVRON "BOT" #5H-ST01
BONE SPRINGS
Rig: PATRIOT 5

Sat Jun 12 09:08:32 2010

Coordinates

Latitude: 32.245852 N (32 deg. 14 min. 45.0661 sec.)
Longitude: 104.005545 W (-104 deg. 0 min. 19.9620 sec.)
Elevation: 2979.00 feet.
Calculation Date: May/27/2010

Magnetic Calculations

Model: IGRF2010
Dip Angle: 60.1565 degrees
Total Magnetic Field: 0.48689 gauss
Magnetic Declination: 7.913778 degrees
Horizontal Intensity: 0.242292 gauss

To Convert a Magnetic Dir. to a TRUE North Dir. Add 7.913778 Degr

Transverse Mercator Grid Calculations NAD83

Grid System: Transverse Mercator: new mexico east
Ellipsoid: GRS80
X: 642676.1460 feet
Y: 453328.9280 feet
True to Grid: (convergence) -0.174894 degrees
Magnetic to Grid: 7.738884 degrees

To Convert a Magnetic Dir. to a GRID dir. Add 7.738884 Degr.