



An Operating Unit of Smith International, Inc.

30-015-38082

DIRECTIONAL SURVEY REPORT

YATES PETROLEUM
CASSIOPEIA BQD STATE COM #1H - SHC
EDDY COUNTY, NEW MEXICO



PREPARED BY: FRANCISCO SINISTERRA

Pathfinder

6213 W. Interstate 20
Midland, Texas. 79706
Tel. 432.687.1647
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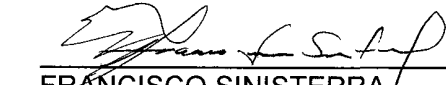


DIRECTIONAL SURVEY COMPANY REPORT:

1. NAME OF SURVEYING COMPANY: PATHFINDER ENERGY SERVICES
2. NAME OF PERSON(S) PERFORMING SURVEY:
A) BRYANT BLAKEMORE
3. POSITION OF SAID PERSON(S): (A-F) SURVEYORS (FIELD ENGINEERS)
4. DATE(S) ON WHICH SURVEY WAS PERFORMED: 11-28-10 TO 11-30-10
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
CASSIOPEIA BQD STATE COM #1H - SHC
EDDY COUNTY, NM
RIG: PATRIOT 5
9. SURVEY CERTIFIED FROM: 475 TO 2807 FEET MEASURED DEPTH.

THIS IS TO VERIFY THAT ATTACHED DOCUMENTS SHOWING THE WELL TO BE
DISPLACED AT 3.93 FEET ON A BEARING OF 141.48 DEGREES FROM THE
CENTER OF THE ROTARY TABLE AT A PROJECTED BIT DEPTH OF 2880.00 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: 11/28/2010
Date Completed: 11/30/2010

YATES PETROLEUM
CASSIOPEIA BQD STATE COM #1H
EDDY COUNTY, NEW MEXICO
Rig: PATRIOT #5
PathFinder Office Supervisor: FRANCISCO SINISTERRA
PathFinder Field Engineers: BRYANT BLAKEMORE
MIKE SAKAS

Survey Horiz. Reference: WELLHEAD
Ref Coordinates: LAT: 32.1.11.6832 N LON: 104.8.31.2984 W
GRID Reference: NAD83 new mexico east Transverse Mercator
Ref GRID Coord: X: 600627.3080 Y: 371035.3750
North Aligned To: GRID NORTH
Total Magnetic Correction: 7.79° EAST TO GRID
Vertical Section Plane: 359.81
Survey Vert. Reference: 26.50' Rotary Table To Ground
Altitude: 3095.00' Ground To MSL

Measured Depth	2880.00	(feet)
Inclination	1.23	(deg)
Azimuth	295.71	(deg)
True Vertical Depth	2879.67	(feet)
Vertical Section	-3.08	(feet)
Survey X cord	600629.75	(feet)
Survey Y cord	371032.30	(feet)
Survey Lat	32.01990354 N	(deg)
Survey Lon	104.14201945 W	(deg)
Rectangular Corr. N/S	3.07 S	(feet)
Rectangular Corr. E/W	2.45 E	(feet)
Closure Distance	3.93	(feet)
Direction of Closure	141.48	(deg)
Dogleg Severity	0.00	(deg/100ft)

PathFinder Energy Services, Inc.

Survey Report

YATES PETROLEUM
CASSIOPEIA BQD STATE COM #1H
EDDY COUNTY, NEW MEXICO
Rig: PATRIOT #5
PathFinder Office Supervisor: FRANCISCO SINISTERRA
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Total Magnetic Correction: 7.79° EAST TO GRID
Vertical Section Plane: 359.81
Survey Vert. Reference: 26.50' Rotary Table To Ground
Altitude: 3095.00' 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)
ASSUMING VERTICAL WELLBORE TO 404' MD.										
404.00	0.00	0.00	404.00	0.00	0.00	0.00	0.00	0.00@	0.00	0.00
THE FOLLOWING ARE PATHFINDER MWD SURVEYS.										
475.00	0.53	128.98	475.00	71.00	-0.21	0.21 S	0.26 E	0.33@	128.98	0.75
566.00	1.06	125.73	565.99	91.00	-0.97	0.96 S	1.27 E	1.59@	127.26	0.59
665.00	0.97	110.51	664.97	99.00	-1.80	1.79 S	2.79 E	3.32@	122.66	0.29
760.00	0.88	108.40	759.96	95.00	-2.32	2.30 S	4.24 E	4.82@	118.52	0.10
854.00	0.62	108.00	853.95	94.00	-2.71	2.69 S	5.41 E	6.04@	116.43	0.28
948.00	0.26	226.12	947.95	94.00	-3.01	2.99 S	5.74 E	6.47@	117.55	0.83
1043.00	0.79	242.90	1042.95	95.00	-3.46	3.44 S	5.00 E	6.07@	124.54	0.57
1137.00	1.32	227.18	1136.93	94.00	-4.48	4.47 S	3.63 E	5.76@	140.95	0.64
1231.00	0.70	122.23	1230.92	94.00	-5.53	5.51 S	3.32 E	6.44@	148.95	1.75
1325.00	0.79	144.32	1324.91	94.00	-6.36	6.35 S	4.18 E	7.60@	146.61	0.32
1420.00	1.14	126.37	1419.90	95.00	-7.46	7.44 S	5.33 E	9.15@	144.40	0.48
1513.00	0.26	63.98	1512.89	93.00	-7.92	7.90 S	6.26 E	10.08@	141.58	1.12
1607.00	1.06	98.08	1606.89	94.00	-7.95	7.92 S	7.31 E	10.78@	137.29	0.91
1701.00	0.35	110.59	1700.88	94.00	-8.18	8.15 S	8.44 E	11.73@	133.98	0.77
1796.00	0.44	88.39	1795.88	95.00	-8.27	8.24 S	9.08 E	12.26@	132.22	0.19
1890.00	1.32	94.51	1889.87	94.00	-8.35	8.31 S	10.52 E	13.41@	128.32	0.94
1984.00	1.67	89.35	1983.83	94.00	-8.43	8.38 S	12.97 E	15.44@	122.88	0.40
2078.00	0.62	76.55	2077.81	94.00	-8.30	8.25 S	14.83 E	16.97@	119.08	1.14
2172.00	0.26	296.51	2171.81	94.00	-8.09	8.04 S	15.14 E	17.14@	117.96	0.89
2267.00	0.97	288.23	2266.81	95.00	-7.74	7.69 S	14.18 E	16.13@	118.47	0.75
2361.00	1.14	286.89	2360.79	94.00	-7.21	7.17 S	12.53 E	14.44@	119.77	0.18
2456.00	1.06	284.57	2455.77	95.00	-6.71	6.67 S	10.78 E	12.67@	121.77	0.10
2644.00	1.32	295.22	2643.73	188.00	-5.34	5.31 S	7.13 E	8.89@	126.68	0.18

PathFinder Energy Services, Inc.

Survey Report

YATES PETROLEUM
CASSIOPEIA BQD STATE COM #1H
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		Closure Dist Dir (ft) (deg)		DLS (dg/100ft)
2807.00	1.23	295.71	2806.69	163.00	-3.77	3.75 S	3.86 E	5.38@	134.21	0.06
STRAIGHT LINE PROJECTION TO BIT @ 2880' MD.										
2880.00	1.23	295.71	2879.67	73.00	-3.08	3.07 S	2.45 E	3.93@	141.48	0.00



A Schlumberger Company

TIE-IN SURVEY INFORMATION SHEET

CLIENT INFORMATION

CLIENT:	YATES PETROLEUM CORPORATION		
LEASE / WELL No.:	CASSIOPEIA BQD STATE COM	#1H	
WELL LOCATION:	EDDY COUNTY, NEW MEXICO		
COUNTY / STATE / COUNTRY:	EDDY	NM	USA
RIG:	PATRIOT #5		
API WELL No:	30-015-38082		
JOB No:	700000937 WT-WT		
P.O. / AFE No.			
DIRECTIONAL COMPANY:	PATHFINDER		

WELL SITE INFORMATION

TOTAL MAGNETIC CORRECTION (TMC):			
On Wall Plat:	7.81	LWD Calculated:	7.795443
Agreed Upon:		7.8	
X =	600627.308000	Feet	Y = 371035.375000
Feet			
SITE LATITUDE:	32.019912 N	SITE LONGITUDE:	104.142027 W
GRID SYSTEM:	TRUE ☐ UTM ☒ LAMBERT ☐	ZONE:	new mexico east
PROPOSED DRIFT DIRECTION:	359.81		
KELLY BUSHING ELEVATION:	26.50'		
ALTITUDE:	3095	Feet	WATER DEPTH:
			n/a
			Feet

TIE-IN SURVEY

MEASURED DEPTH:	404		
DRIFT ANGLE:	0		
DRIFT DIRECTION:	0		
TRUE VERTICAL DEPTH:	404		
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):			
COPY OF TIE-IN SURVEY REPORT	☐ YES		☒ NO

WELL PLAN

KICKOFF DEPTH:	5952.5	TOTAL DEPTH:	11412.02
KICKOFF ANGLE:	0	MAX ANGLE:	90.36

PES Engineers:

Bryant Blakemore

**Signature of both field engineers required if applicable

Michael Sakas

Directional Driller: Irby LeJeune

DATE: 28-Nov-2010

PathFinder Energy Services, Inc.

Magnetic & Grid Calculations

YATES PETROLEUM
CASSIOPEIA BQD STATE COM #1H
EDDY COUNTY, NEW MEXICO
Rig: PATRIOT 5

Tue Nov 23 13:43:35 2010

Coordinates

Latitude: 32.019912 N (32 deg. 1 min. 11.6832 sec.)
Longitude: 104.142027 W (-104 deg. 8 min. 31.2984 sec.)
Elevation: 3121.50 feet.
Calculation Date: Nov/23/2010

Magnetic Calculations

Model: IGRF2010
Dip Angle: 59.9094 degrees
Total Magnetic Field: 0.48486 gauss
Magnetic Declination: 7.896877 degrees
Horizontal Intensity: 0.243094 gauss
To Convert a Magnetic Dir. to a TRUE North Dir. Add 7.896877 Degr.

Transverse Mercator Grid Calculations NAD83

Grid System: Transverse Mercator: new mexico east
Ellipsoid: GRS80
X: 600627.3080 feet
Y: 371035.3750 feet
True to Grid: (convergence) -0.101433 degrees
Magnetic to Grid: 7.795443 degrees
To Convert a Magnetic Dir. to a GRID dir. Add 7.795443 Degr.

PathFinder Energy Services, Inc.

Magnetic & Grid Calculations

YATES PETROLEUM CORPORATION
CASSIOPEIA BQD STATE COM #1H
EDDY COUNTY, NEW MEXICO
Rig: PATRIOT #5

Sun Nov 28 22:05:54 2010

Coordinates

Latitude: 32.019912 N (32 deg. 1 min. 11.6832 sec.)
Longitude: 104.142027 W (-104 deg. 8 min. 31.2984 sec.)
Elevation: 3121.50 feet.
Calculation Date: Nov/28/2010

Magnetic Calculations

Model: IGRF2010
Dip Angle: 59.9091 degrees
Total Magnetic Field: 0.48485 gauss
Magnetic Declination: 7.895223 degrees
Horizontal Intensity: 0.243089 gauss

To Convert a Magnetic Dir. to a TRUE North Dir. Add 7.895223 Degs

Transverse Mercator Grid Calculations NAD83

Grid System: Transverse Mercator: new mexico east
Ellipsoid: GRS80
X: 600627.3080 feet
Y: 371035.3750 feet
True to Grid: (convergence) -0.101433 degrees
Magnetic to Grid: 7.793789 degrees

To Convert a Magnetic Dir. to a GRID dir. Add 7.793789 Degs.