



A Schlumberger Company

DIRECTIONAL SURVEY REPORT

YATES PETROLEUM

SHOCKER SWD #1

EDDY COUNTY, NEW MEXICO

PREPARED BY: STEVE BIBB

Pathfinder

6213 WCR 112
Midland, Texas 79706
Tel (432)687-1647
Fax (432)687-1544



DIRECTIONAL SURVEY COMPANY REPORT:

1. NAME OF SURVEYING COMPANY: PATHFINDER ENERGY SERVICES
2. NAME OF PERSON(S) PERFORMING SURVEY:
A) GEORGE SAKAS
3. POSITION OF SAID PERSON(S): (A-F) SURVEYORS (FIELD ENGINEERS)
4. DATE(S) ON WHICH SURVEY WAS PERFORMED: 12-12-11 TO 12-16-11
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
SHOCKER SWD #1
EDDY COUNTY, NM
RIG: PATRIOT 5
9. SURVEY CERTIFIED FROM: 441 TO 2745 FEET MEASURED DEPTH.

THIS IS TO VERIFY THAT ATTACHED DOCUMENTS SHOWING THE WELL TO BE DISPLACED AT 21.87 FEET ON A BEARING OF 194.7 DEGREES FROM THE CENTER OF THE ROTARY TABLE AT A PROJECTED BIT DEPTH OF 2818 FEET, ARE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE.

A handwritten signature in black ink, appearing to read "Steve Bibb", written over a horizontal line.

STEVE BIBB
MWD COORDINATOR

PathFinder Energy Services, Inc.

BHL Report

Page 01/01
Tie-in Date: 12/10/2011
Date Completed: 12/16/2011

Yates Petroleum
Shocker SWD #1
EDDY COUNTY, NM
Rig:Patriot 5
PathFinder Office Supervisor: Steve Bibb
PathFinder Field Engineers:J. Easley
G. Sakas

Survey Horiz. Reference:WELLHEAD
Ref Coordinates: LAT:32.5.26.0462 N LON:104.0.2.0949 W
GRID Reference:NAD27 new mexico east Transverse Mercator
Ref GRID Coord: X: 603049.9000 Y: 396831.4000
North Aligned To:GRID NORTH
Total Magnetic Correction: 7.54° EAST TO GRID
Vertical Section Plane: 0.00
Survey Vert. Reference: 26.50' Rotary Table To Ground
Altitude:2990.00' Ground To MSL

Measured Depth	2818.00	(feet)
Inclination	0.88	(deg)
Azimuth	173.23	(deg)
True Vertical Depth	2817.85	(feet)
Vertical Section	-21.15	(feet)
Survey X cord	603044.35	(feet)
Survey Y cord	396810.25	(feet)
Survey Lat	32.09051029 N	(deg)
Survey Lon	104.00060006 W	(deg)
Rectangular Corr. N/S	21.15 S	(feet)
Rectangular Corr. E/W	5.55 W	(feet)
Closure Distance	21.87	(feet)
Direction of Closure	194.70	(deg)
Dogleg Severity	0.00	(deg/100ft)

PathFinder Energy Services, Inc.

Survey Report

Yates Petroleum
Shocker SWD #1
EDDY COUNTY, NM
Rig: Patriot 5
PathFinder Office Supervisor: Steve Bibb
PathFinder Field Engineers: J. Easley
G. Sakas

Survey Horiz. Reference: WELLHEAD
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GRID Reference: NAD27 new mexico east Transverse Mercator
Ref GRID Coord: X: 603049.9000 Y: 396831.4000
North Aligned To: GRID NORTH
Total Magnetic Correction: 7.54° EAST TO GRID
Vertical Section Plane: 0.00
Survey Vert. Reference: 26.50' Rotary Table To Ground
Altitude: 2990.00' Ground To MSL

Survey Calculations by PathCalc v2.00 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 ASSUMING VERTICAL DEPTH @ 341' MD.										
341.00	0.00	0.00	341.00	0.00	0.00	0.00	0.00	0.00@	0.00	0.00
THE FOLLOWING ARE PATHFINDER MWD SURVEYS.										
441.00	0.26	124.92	441.00	100.00	-0.13	0.13 S	0.19 E	0.23@	124.92	0.26
531.00	0.44	141.32	531.00	90.00	-0.52	0.52 S	0.57 E	0.77@	132.21	0.23
622.00	0.44	150.22	622.00	91.00	-1.09	1.09 S	0.96 E	1.46@	138.66	0.08
712.00	0.53	153.46	711.99	90.00	-1.76	1.76 S	1.32 E	2.20@	143.23	0.10
802.00	0.53	153.77	801.99	90.00	-2.51	2.51 S	1.69 E	3.03@	146.07	0.00
900.00	0.62	156.86	899.98	98.00	-3.40	3.40 S	2.10 E	4.00@	148.36	0.10
994.00	0.53	155.75	993.98	94.00	-4.27	4.27 S	2.48 E	4.94@	149.89	0.10
1089.00	0.53	159.04	1088.97	95.00	-5.08	5.08 S	2.81 E	5.81@	151.02	0.03
1184.00	0.44	166.69	1183.97	95.00	-5.85	5.85 S	3.05 E	6.60@	152.41	0.12
1278.00	0.44	166.76	1277.97	94.00	-6.55	6.55 S	3.22 E	7.30@	153.81	0.00
1372.00	0.44	183.18	1371.97	94.00	-7.26	7.26 S	3.28 E	7.97@	155.66	0.13
1467.00	0.44	184.10	1466.96	95.00	-7.99	7.99 S	3.24 E	8.62@	157.94	0.01
1561.00	0.53	215.19	1560.96	94.00	-8.70	8.70 S	2.96 E	9.19@	161.21	0.29
1656.00	0.62	219.10	1655.95	95.00	-9.46	9.46 S	2.38 E	9.76@	165.86	0.10
1750.00	0.62	227.68	1749.95	94.00	-10.20	10.20 S	1.69 E	10.34@	170.61	0.10
1844.00	0.62	230.23	1843.94	94.00	-10.87	10.87 S	0.92 E	10.90@	175.16	0.03
1938.00	0.62	240.71	1937.94	94.00	-11.44	11.44 S	0.09 E	11.44@	179.57	0.12
2033.00	0.97	231.38	2032.93	95.00	-12.19	12.19 S	0.99 W	12.23@	184.65	0.39
2127.00	0.88	230.45	2126.92	94.00	-13.15	13.15 S	2.17 W	13.33@	189.37	0.10
2189.00	0.79	225.92	2188.91	62.00	-13.75	13.75 S	2.84 W	14.04@	191.69	0.18
2252.00	0.79	221.98	2251.90	63.00	-14.37	14.37 S	3.45 W	14.78@	193.48	0.09
2315.00	0.70	231.34	2314.90	63.00	-14.94	14.94 S	4.04 W	15.47@	195.12	0.24
2378.00	0.70	218.64	2377.89	63.00	-15.48	15.48 S	4.58 W	16.14@	196.48	0.25

PathFinder Energy Services, Inc.

Survey Report

Yates Petroleum
Shocker SWD #1
EDDY COUNTY, NM
RIG:Patriot 5

Page 02/02

Measured Depth (ft)	Incl (deg)	Drift Dir. (deg)	TVD (ft)	Course Length (ft)	Vertical Section (ft)	TOTAL Rectangular Offsets		Closure Dist Dir		DLS
						(ft)	(ft)	(ft)	(deg)	(dg/100ft)
2441.00	0.53	208.62	2440.89	63.00	-16.04	16.04 S	4.96 W	16.78@	197.18	0.32
2504.00	0.79	202.80	2503.89	63.00	-16.69	16.69 S	5.27 W	17.50@	197.51	0.43
2567.00	0.79	204.61	2566.88	63.00	-17.49	17.49 S	5.62 W	18.37@	197.80	0.04
2630.00	0.88	177.55	2629.87	63.00	-18.37	18.37 S	5.78 W	19.25@	197.46	0.64
2693.00	0.79	178.01	2692.87	63.00	-19.28	19.28 S	5.74 W	20.12@	196.58	0.14
2745.00	0.88	173.26	2744.86	52.00	-20.04	20.04 S	5.68 W	20.83@	195.83	0.22
STRAIGHT LINE PROJECTION TO BIT @ 2818' MD.										
2818.00	0.88	173.23	2817.85	73.00	-21.15	21.15 S	5.55 W	21.87@	194.70	0.00



A Schlumberger Company

TIE-IN SURVEY INFORMATION SHEET

CLIENT INFORMATION

CLIENT:	YATES PETROLEUM		
LEASE / WELL No.:	SHOCKER SWD #1	ORIGINAL WELLBORE	
WELL LOCATION:	EDDY COUNTY		
COUNTY / STATE / COUNTRY:	EDDY COUNTY	NEW MEXICO	USA
RIG:	PATRIOT 5		
API WELL No:	30-015-39470		
JOB No:	700004506 WT-WT		
P.O. / AFE No.	11-170-0		
DIRECTIONAL COMPANY:	PATHFINDER ENERGY SERVICES		

WELL SITE INFORMATION

TOTAL MAGNETIC CORRECTION (TMC):			
On Wall Plat:	7.72	LWD Calculated:	7.535212
		Agreed Upon:	7.54
X =	603049.900000	Feet	Y = 396831.400000
			Feet
SITE LATITUDE:	32.090568	SITE LONGITUDE:	104.000582
GRID SYSTEM:	TRUE ☐ UTM ☒ LAMBERT ☐	ZONE:	
PROPOSED DRIFT DIRECTION:	0		
KELLY BUSHING ELEVATION:	26.5		
ALTITUDE:	3016.5	Feet	WATER DEPTH:
			0
			Feet

TIE-IN SURVEY

MEASURED DEPTH:	400' 341		
DRIFT ANGLE:	0		
DRIFT DIRECTION:	0		
TRUE VERTICAL DEPTH:	0		
VERTICAL SECTION:	0		
RECTANGULAR COORDINATE (N / S) :	0		
RECTANGULAR COORDINATE (E / W) :	0		
CLOSURE DISTANCE / DIRECTION:			
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:	TOTAL DEPTH:	15600
KICKOFF ANGLE:	MAX ANGLE:	0

PES Engineers: J. EASLEY
G. SAKAS

**Signature of both field engineers required if applicable

Directional Driller: IRBY LEJUENE

DATE: 10-Dec-2011



A Schlumberger Company

PathFinder Energy Services, Inc.

Magnetic & Grid Calculations

Yates Petroleum Corporation
Shocker SWD #1
Eddy County, NM
Rig: Patriot 5

Tue Dec 06 17:06:54 2011

Coordinates

Latitude: 32.090568 N (32 deg. 5 min. 26.0462 sec.)
Longitude: 104.000582 W (-104 deg. 0 min. 2.0949 sec.)
Elevation: 3016.50 feet.
Calculation Date: Dec/06/2011

Magnetic Calculations

Model: IGRF2010
Dip Angle: 59.9764 degrees
Total Magnetic Field: 0.48443 gauss
Magnetic Declination: 7.713322 degrees
Horizontal Intensity: 0.242388 gauss
To Convert a Magnetic Dir. to a TRUE North Dir. Add 7.713322 Degr

Transverse Mercator Grid Calculations NAD27

Grid System: Transverse Mercator: new mexico east
Ellipsoid: Clarke 1866
X: 603049.9000 feet
Y: 396831.4000 feet
True to Grid: (convergence) -0.176779 degrees
Magnetic to Grid: 7.536544 degrees
To Convert a Magnetic Dir. to a GRID dir. Add 7.536544 Degr.

PathFinder Energy Services, Inc.

Magnetic & Grid Calculations

Yates Petroleum
Shocker SWD #1
WILDCAT;DEVONION

Sat Dec 10 13:27:14 2011

Coordinates

Latitude: 32.090568 N (32 deg. 5 min. 26.0462 sec.)
Longitude: 104.000582 W (-104 deg. 0 min. 2.0949 sec.)
Elevation: 3016.50 feet.
Calculation Date: Dec/10/2011

Magnetic Calculations

Model: IGRF2010
Dip Angle: 59.9761 degrees
Total Magnetic Field: 0.48442 gauss
Magnetic Declination: 7.711991 degrees
Horizontal Intensity: 0.242385 gauss
To Convert a Magnetic Dir. to a TRUE North Dir. Add 7.711991 Degs

Transverse Mercator Grid Calculations NAD27

Grid System: Transverse Mercator: new mexico east
Ellipsoid: Clarke 1866
X: 603049.9000 feet
Y: 396831.4000 feet
True to Grid: (convergence) -0.176779 degrees
Magnetic to Grid: 7.535212 degrees
To Convert a Magnetic Dir. to a GRID dir. Add 7.535212 Degs.

Field Calculation



A Schlumberger Company

DIRECTIONAL SURVEY REPORT

YATES PETROLEUM

SHOCKER SWD #1

EDDY COUNTY, NEW MEXICO

PREPARED BY: STEVE BIBB

Pathfinder

6213 WCR 112
Midland, Texas 79706
Tel (432)687-1647
Fax (432)687-1544



DIRECTIONAL SURVEY COMPANY REPORT:

1. NAME OF SURVEYING COMPANY: PATHFINDER ENERGY SERVICES
2. NAME OF PERSON(S) PERFORMING SURVEY:
A) GEORGE SAKAS
3. POSITION OF SAID PERSON(S): (A-F) SURVEYORS (FIELD ENGINEERS)
4. DATE(S) ON WHICH SURVEY WAS PERFORMED: 01-16-12 TO 01-22-12
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
SHOCKER SWD #1
EDDY COUNTY, NM
RIG: PATRIOT 5
9. SURVEY CERTIFIED FROM: 11007 TO 12363 FEET MEASURED DEPTH.

THIS IS TO VERIFY THAT ATTACHED DOCUMENTS SHOWING THE WELL TO BE DISPLACED AT 43.69 FEET ON A BEARING OF 231.67 DEGREES FROM THE CENTER OF THE ROTARY TABLE AT A PROJECTED BIT DEPTH OF 12415 FEET, ARE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE.

A handwritten signature in black ink, appearing to read "AZ Bibb".

STEVE BIBB
MWD COORDINATOR

PathFinder Energy Services, Inc.

BHL Report

Page 01/01
Tie-in Date: 12/10/2011
Date Completed: 01/19/2012

YATES PETROLEUM
SHOCKER SWD #1
EDDY COUNTY, NM
Rig: PATRIOT 5
PathFinder Office Supervisor: Steve Bibb
PathFinder Field Engineers: J. Easley
G. Sakas

Survey Horiz. Reference: WELLHEAD
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GRID Reference: NAD27 new mexico east Transverse Mercator
Ref GRID Coord: X: 603049.9000 Y: 396831.4000
North Aligned To: GRID NORTH
Total Magnetic Correction: 7.54° EAST TO GRID
Vertical Section Plane: 0.00
Survey Vert. Reference: 26.50' Rotary Table To Ground
Altitude: 2990.00' Ground To MSL

Measured Depth	12415.00	(feet)
Inclination	1.14	(deg)
Azimuth	235.35	(deg)
True Vertical Depth	12414.27	(feet)
Vertical Section	-27.10	(feet)
Survey X cord	603015.63	(feet)
Survey Y cord	396804.30	(feet)
Survey Lat	32.09049419 N	(deg)
Survey Lon	104.00069287 W	(deg)
Rectangular Corr. N/S	27.10 S	(feet)
Rectangular Corr. E/W	34.27 W	(feet)
Closure Distance	43.69	(feet)
Direction of Closure	231.67	(deg)
Dogleg Severity	0.00	(deg/100ft)

PathFinder Energy Services, Inc.

Survey Report

YATES PETROLEUM
SHOCKER SWD #1
EDDY COUNTY, NM
Rig: PATRIOT 5
PathFinder Office Supervisor: Steve Bibb
PathFinder Field Engineers: J. Easley
G. Sakas

Page 01/01
Tie-in Date: 12/10/2011
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Altitude: 2990.00' Ground To MSL

Survey Calculations by PathCalc v2.00 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 TO ASSUMED VERTICAL DEPTH @ 10907' MD.										
10907.00	0.00	0.00	10907.00	0.00	0.00	0.00	0.00	0.00@	0.00	0.00
THE FOLLOWING ARE PATHFINDER MWD SURVEYS										
11007.00	3.34	215.11	11006.94	100.00	-2.38	2.38 S	1.68 W	2.91@	215.11	3.34
11125.00	2.55	213.97	11124.79	118.00	-7.37	7.37 S	5.12 W	8.98@	214.78	0.67
11188.00	2.37	216.62	11187.73	63.00	-9.58	9.58 S	6.68 W	11.68@	214.89	0.34
11252.00	1.93	224.65	11251.68	64.00	-11.41	11.41 S	8.23 W	14.07@	215.79	0.83
11346.00	1.85	224.80	11345.63	94.00	-13.61	13.61 S	10.41 W	17.14@	217.40	0.09
11441.00	1.49	250.36	11440.59	95.00	-15.12	15.12 S	12.65 W	19.71@	219.93	0.86
11536.00	1.76	246.02	11535.56	95.00	-16.12	16.12 S	15.15 W	22.12@	223.21	0.31
11630.00	1.67	249.18	11629.51	94.00	-17.20	17.20 S	17.75 W	24.71@	225.90	0.14
11725.00	1.49	249.03	11724.48	95.00	-18.13	18.13 S	20.19 W	27.14@	228.08	0.19
11819.00	1.49	239.19	11818.44	94.00	-19.19	19.19 S	22.39 W	29.49@	229.39	0.27
11915.00	1.49	242.05	11914.41	96.00	-20.42	20.42 S	24.56 W	31.94@	230.26	0.08
12009.00	1.41	241.31	12008.38	94.00	-21.55	21.55 S	26.65 W	34.27@	231.05	0.09
12104.00	1.41	234.39	12103.35	95.00	-22.79	22.79 S	28.63 W	36.59@	231.48	0.18
12198.00	1.41	231.53	12197.33	94.00	-24.18	24.18 S	30.48 W	38.90@	231.57	0.07
12290.00	1.32	230.43	12289.30	92.00	-25.56	25.56 S	32.18 W	41.09@	231.54	0.10
12363.00	1.14	235.35	12362.28	73.00	-26.51	26.51 S	33.42 W	42.66@	231.58	0.29
STRAIGHT LINE PROJECTION TO BIT DEPTH @ 12415' MD.										
12415.00	1.14	235.35	12414.27	52.00	-27.10	27.10 S	34.27 W	43.69@	231.67	0.00



A Schlumberger Company

TIE-IN SURVEY INFORMATION SHEET

CLIENT INFORMATION

CLIENT:	YATES PETROLEUM		
LEASE / WELL No.:	SHOCKER SWD #1	ORIGINAL WELLBORE	
WELL LOCATION:	EDDY COUNTY		
COUNTY / STATE / COUNTRY:	EDDY COUNTY	NEW MEXICO	USA
RIG:	PATRIOT 5		
API WELL No:	30-015-39470		
JOB No:	700004506 WT-WT		
P.O. / AFE No.	11-170-0		
DIRECTIONAL COMPANY:	PATHFINDER ENERGY SERVICES		

WELL SITE INFORMATION

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On Wall Plat:	7.72	LWD Calculated:	7.535212
		Agreed Upon:	7.54
X =	603049.900000	Feet	Y = 396831.400000
			Feet
SITE LATITUDE:	32.090568	SITE LONGITUDE:	104.000582
GRID SYSTEM:	TRUE ☐ UTM ☒ LAMBERT ☐	ZONE:	
PROPOSED DRIFT DIRECTION:	0		
KELLY BUSHING ELEVATION:	26.5		
ALTITUDE:	3016.5	Feet	WATER DEPTH:
			0
			Feet

TIE-IN SURVEY

MEASURED DEPTH:	10907		
DRIFT ANGLE:	0		
DRIFT DIRECTION:	10707		
TRUE VERTICAL DEPTH:	0		
VERTICAL SECTION:	0		
RECTANGULAR COORDINATE (N / S) :	0		
RECTANGULAR COORDINATE (E / W) :	0		
CLOSURE DISTANCE / DIRECTION:			
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:	TOTAL DEPTH:	15600
KICKOFF ANGLE:	MAX ANGLE:	0

PES Engineers

J EASLEY

**Signature of both field engineers required if applicable

G. SAKAS

Directional Driller: IRBY LEJUENE

DATE: 10-Dec-2011



A Schlumberger Company

PathFinder Energy Services, Inc.

Magnetic & Grid Calculations

Yates Petroleum Corporation
Shocker SWD #1
Eddy County, NM
Rig:Patriot 5

Tue Dec 06 17:06:54 2011

Coordinates

Latitude: 32.090568 N (32 deg. 5 min. 26.0462 sec.)
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