



MAR 19 2009

30-005-64037

DIRECTIONAL SURVEY REPORT

YATES PETROLEUM

KRAKATOA BMK STATE #1

CHAVES COUNTY, NEW MEXICO

PREPARED BY: MIKE EVANS

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) JOHN PATTERSON
3. POSITION OF SAID PERSON(S): (A-F) SURVEYORS (FIELD ENGINEERS)
4. DATE(S) ON WHICH SURVEY WAS PERFORMED: 01/30/09 TO 01/31/09
5. STATE IN WHICH SURVEY WAS PERFORMED: NEW MEXICO
6. LOCATION OF WELL: CHAVES COUNTY
7. TYPE OF SURVEY(S) PERFORMED: MWD
8. COMPLETE IDENTIFICATION OF WELL:

YATES PETROLEUM
KRAKATOA BMK STATE #1
CHAVES COUNTY, NM
RIG: SILVER OAK #10
9. SURVEY CERTIFIED FROM: 1,887 TO 2,852 FEET MEASURED DEPTH.

THIS IS TO VERIFY THAT ATTACHED DOCUMENTS SHOWING THE WELL TO BE DISPLACED AT 4.42 FEET ON A BEARING OF 274.86 DEGREES FROM THE CENTER OF THE ROTARY TABLE AT A PROJECTED BIT DEPTH OF 2,900 FEET, ARE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE.


MIKE EVANS
MWD ENGINEER

PathFinder Energy Services, Inc.

BHL Report

Page 01/01
Tie-in Date: 01/30/2009
Date Completed: 01/31/2009

YATES PETROLEUM
KRAKATOA BMK ST #1
CHAVEZ COUNTY, NM
Rig: SILVER OAK #10
PathFinder Office Supervisor: MIKE EVANS
PathFinder Field Engineers: J PATTERSON

Survey Horiz. Reference: WELLHEAD
Ref Coordinates: LAT: 33.13.44.5836 N LON: 104.11.43.3932 W
SRID Reference: NAD27 new mexico east Transverse Mercator
Ref GRID Coord: X: 542182.4442 Y: 810874.2978
North Aligned To: GRID NORTH
Total Magnetic Correction: 8.15° EAST TO GRID
Vertical Section Plane: 0.00
Survey Vert. Reference: 18.50' Kelly Bushing To Ground
Altitude: 3706.00' Ground To MSL

Measured Depth	2900.00	(feet)
Inclination	0.18	(deg)
Azimuth	284.65	(deg)
True Vertical Depth	2899.97	(feet)
Vertical Section	0.37	(feet)
Survey X cord	542178.05	(feet)
Survey Y cord	810874.67	(feet)
Survey Lat	33.22905204 N	(deg)
Survey Lon	104.19540138 W	(deg)
Rectangular Corr. N/S	0.37 N	(feet)
Rectangular Corr. E/W	4.40 W	(feet)
Closure Distance	4.42	(feet)
Direction of Closure	274.86	(deg)
Dogleg Severity	0.00	(deg/100ft)

PathFinder Energy Services, Inc.

Survey Report

YATES PETROLEUM
KRAKATOA BMK ST #1
CHAVEZ COUNTY, NM
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PathFinder Office Supervisor: MIKE EVANS
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Altitude: 3706.00' Ground To MSL

Survey Calculations by PathCalc v1.99 using Minimum Curvature

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 (dig/100ft)
ASSUMED VERTICAL @ 1800' MD.								
1800.00	0.00	0.00	1800.00	0.00	0.00	0.00	0.00@ 0.00	0.00
THE FOLLOWING ARE PATHFINDER MWD SURVEYS.								
1887.00	0.62	302.08	1887.00	87.00	0.25	0.25 N 0.40 W	0.47@ 302.08	0.71
1917.00	0.62	307.43	1917.00	30.00	0.43	0.43 N 0.67 W	0.79@ 303.17	0.19
2009.00	0.70	295.69	2008.99	92.00	0.98	0.98 N 1.57 W	1.85@ 302.05	0.17
2104.00	0.70	300.86	2103.98	95.00	1.53	1.53 N 2.59 W	3.01@ 300.59	0.07
2198.00	0.79	298.69	2197.98	94.00	2.14	2.14 N 3.65 W	4.23@ 300.34	0.10
2292.00	0.18	127.21	2291.97	94.00	2.36	2.36 N 4.10 W	4.73@ 299.90	1.03
2385.00	0.26	170.37	2384.97	93.00	2.06	2.06 N 3.95 W	4.45@ 297.57	0.19
2479.00	0.44	172.70	2478.97	94.00	1.49	1.49 N 3.87 W	4.15@ 291.11	0.19
2573.00	0.53	196.68	2572.97	94.00	0.72	0.72 N 3.95 W	4.01@ 280.32	0.23
2666.00	0.09	178.29	2665.97	93.00	0.23	0.23 N 4.07 W	4.07@ 273.29	0.48
2759.00	0.09	341.32	2758.97	93.00	0.23	0.23 N 4.09 W	4.09@ 273.22	0.19
2852.00	0.18	284.65	2851.97	93.00	0.34	0.34 N 4.25 W	4.27@ 274.51	0.16
STRAIGHT LINE PROJECTION TO BIT AT 2900' MD.								
2900.00	0.18	284.65	2899.97	48.00	0.37	0.37 N 4.40 W	4.42@ 274.86	0.00

PATHFINDER

ENERGY SERVICES

TIE-IN SURVEY INFORMATION SHEET

CLIENT INFORMATION

CLIENT:	YATES PETROLEUM		
LEASE / WELL No.:	KRAKATOA BMK	ST #1	
WELL LOCATION:	WC; DEVONIAN		
COUNTY / STATE / COUNTRY:	CHAVEZ	NM	USA
RIG:	SILVER OAK #10		
API WELL No:	30-05-64037		
JOB No:	101008251 WT-WT		
P.O. / AFE No.			
DIRECTIONAL COMPANY:	PES		

WELL SITE INFORMATION

TOTAL MAGNETIC CORRECTION (TMC):			
On Wall Plat:	8.15	LWD Calculated:	8.15
		Agreed Upon:	8.15
X =	542182.444200	Feet	Y = 810874.297800
			Feet
SITE LATITUDE:	33.229051 N	SITE LONGITUDE:	104.195387 W
GRID SYSTEM:	TRUE ☐ UTM ☐ LAMBERT ☒	ZONE:	NEW MEXICO EAST
PROPOSED DRIFT DIRECTION:	0		
KELLY BUSHING ELEVATION:	18.5		
ALTITUDE:	3706	Feet	WATER DEPTH:
			Feet

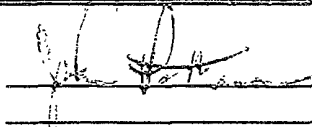
TIE-IN SURVEY

MEASURED DEPTH:	-1700-		
DRIFT ANGLE:	-0.53-		
DRIFT DIRECTION:	-301.24-		
TRUE VERTICAL DEPTH:	-1699.98-		
VERTICAL SECTION:	-2.74-		
RECTANGULAR COORDINATE (N / S) :	-2.74-		
RECTANGULAR COORDINATE (E / W) :	-5.53-		
CLOSURE DISTANCE / DIRECTION:	-6.17-	-296.36-	
SURVEY CALCULATION METHOD:	AA ☐	MC ☒	RC ☐ BT ☐
SOURCE OF TIE-IN DATA (COMPANY):	INTERPOLATED SURVEY		
COPY OF TIE-IN SURVEY REPORT	☐ YES ☒ NO		

WELL PLAN

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

PES Engineers:



**Signature of both field engineers required if applicable

Directional Driller:



DATE:

1/31/09

PathFinder Energy Services, Inc.

Magnetic & Grid Calculations

Yates Petroleum
Krakatoa BMK State #1
Chaves County, NM
Rig: Silver Oak 10

Fri Jan 30 08:17:20 2009

Coordinates

Latitude: 33.229051 N (33 deg. 13 min. 44.5836 sec.)
Longitude: 104.195387 W (-104 deg. 11 min. 43.3932 sec.)
Elevation: 3706.00 feet.
Calculation Date: Jan/30/2009

Magnetic Calculations

Model: IGRF2005
Dip Angle: 61.0784 degrees
Total Magnetic Field: 0.49413 gauss
Magnetic Declination: 8.224371 degrees
Horizontal Intensity: 0.238968 gauss
To Convert a Magnetic Dir. to a TRUE North Dir. Add 8.224371 Degr.

Transverse Mercator Grid Calculations NAD27

Grid System: Transverse Mercator: new mexico east
Ellipsoid: Clarke 1866
X: 542182.4442 feet
Y: 810874.2978 feet
True to Grid: (convergence) -0.075593 degrees
Magnetic to Grid: 8.148778 degrees
To Convert a Magnetic Dir. to a GRID dir. Add 8.148778 Degr.

Field

PathFinder Energy Services, Inc.
Magnetic & Grid Calculations

YATES PETROLEUM
KRAKATOA BMK ST #1
CHAVEZ CO NEW MEXICO
Rig: SILVER OAK #10

Field
Copy

Fri Jan 30 19:35:02 2009

Coordinates

Latitude: 33.229051 N (33 deg. 13 min. 44.5836 sec.)
Longitude: 104.195387 W (-104 deg. 11 min. 43.3932 sec.)
Elevation: 3724.50 feet.
Calculation Date: Jan/30/2009

Magnetic Calculations

Model: IGRF2005
Dip Angle: 61.0784 degrees
Total Magnetic Field: 0.49413 gauss
Magnetic Declination: 8.224361 degrees
Horizontal Intensity: 0.238967 gauss
To Convert a Magnetic Dir. to a TRUE North Dir. Add 8.224361 Degs

Transverse Mercator Grid Calculations NAD27

Grid System: Transverse Mercator: new mexico east
Ellipsoid: Clarke 1866
X: 542182.4442 feet
Y: 810874.2978 feet
True to Grid: (convergence) -0.075593 degrees
Magnetic to Grid: 8.148768 degrees
To Convert a Magnetic Dir. to a GRID dir. Add 8.148768 Degs.

State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

Permit 78642

APPLICATION FOR PERMIT TO DRILL, RE-ENTER, DEEPEN, PLUGBACK, OR ADD A ZONE

1. Operator Name and Address YATES PETROLEUM CORPORATION 105 S 4TH ST ARTESIA, NM 88210		2. OGRID Number 25575
		3. API Number 30-05-64037
4. Property Code 37258	5. Property Name KRAKATOA BMK STATE	6. Well No. 001

7. Surface Location

UL - Lot	Section	Township	Range	Lot Mn	Feet From	N/S Line	Feet From	E/W Line	County
M	36	12S	27E	M	810	S	810	W	CHAVES

8. Pool Information

WC:DEVONIAN (GAS)DO NOT USE	96061
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Additional Well Information

9. Well Type New Well	10. Well Type OIL	11. Cable/Rotary	12. Lease Type State	13. Ground Level Elevation 3706
14. Multiple N	15. Proposed Depth 7850	16. Formation Devonian	17. Contractor	18. Spud Date
Depth to Ground Water		Distance from nearest fresh water well		Distance to nearest surface water
PR: Liner: Synthetic ☐ mils thick Clay ☐ PZ Volume: bbls Drilling Method: Closed Loop System ☐ Fresh Water ☒ Brine ☐ Diesel/Oil-based ☐ Gas/Air ☐				

19. Proposed Casing and Cement Program

Type	Hole Size	Casing Type	Casing Weight/ft	Setting Depth	Sacks of Cement	Estimated TOC
Surf	12.25	8.625	24	1400	650	
Prod	7.875	5.5	17	7850	1275	

Casing/Cement Program: Additional Comments

Yates Petroleum Corporation plans to drill and test the Devonian and Intermediate formations. Surface casing will be set at 1400' and cemented to surface. Should the well be determined to be commercial, production casing will be set at 7850' and cemented back to approximately 900', perforated and stimulated as needed to gain production.

Proposed Blowout Prevention Program

Type	Working Pressure	Test Pressure	Manufacturer
Double Ram	3000	3000	

I hereby certify that the information given above is true and complete to the best of my knowledge and belief. I further certify that the drilling pit will be constructed according to NMOCB guidelines ☐ a general permit ☐ or an (attached) alternative OCB-approved plan ☐ . Printed Name: Electronically filed by Monti Sanders Title: Email Address: montis@ypcnm.com Date: 7/17/2008 Phone: 575-748-4244	OIL CONSERVATION DIVISION	
	Approved By: Tim Gum	
	Title: District Supervisor	
	Approved Date: 7/21/2008	Expiration Date: 7/21/2010
	Conditions of Approval Attached	

District II

1301 W. Grand Ave., Artesia, NM 88210
Phone: (505) 748-1283 Fax: (505) 748-9720

District III

1000 Rio Brazos Rd., Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170

District IV

1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3470 Fax: (505) 476-3462

Oil Conservation Division

1220 S. St. Francis Dr.

Santa Fe, NM 87505

WELL LOCATION AND ACREAGE DEDICATION PLAT

1. API Number 30-05-64037	2. Pool Code 96061	3. Pool Name WC:DEVONIAN (GAS)DO NOT USE
4. Property Code 37258	5. Property Name KRAKATOA BMK STATE	6. Well No. 001
7. OGRID No. 25575	8. Operator Name YATES PETROLEUM CORPORATION	9. Elevation 3706

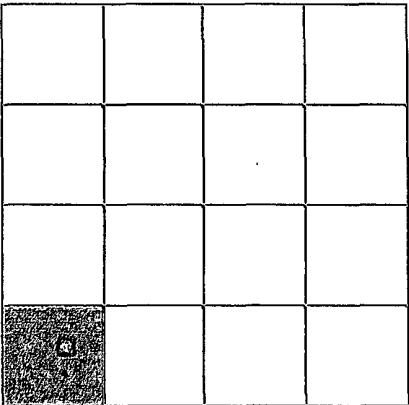
10. Surface Location

UL - Lot	Section	Township	Range	Lot 1/4	Feet From	N/S Line	Feet From	E/W Line	County
M	36	12S	27E		810	S	810	W	CHAVES

11. Bottom Hole Location If Different From Surface

UL - Lot	Section	Township	Range	Lot 1/4	Feet From	N/S Line	Feet From	E/W Line	County
12. Dedicated Acres 40.00	13. Joint or Well	14. Consolidation Code	15. Order No.						

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

	OPERATOR CERTIFICATION <i>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(s) or has a right to drill this well at this 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> E-Signed By: Monti Sanders Title: Date: 7/17/2008		
	SURVEYOR CERTIFICATION <i>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.</i> Surveyed By: Ronald Edison Date of Survey: 7/3/2008 Certificate Number: 3239		