



An Operating Unit of Smith International, Inc.

DIRECTIONAL SURVEY REPORT

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

RECEIVED

MAR 22 2011

NMOCD ARTESIA

PREPARED BY: FRANCISCO SINISTERRA

Pathfinder Energy Services, Inc.
6213 W. Interstate 20 • Midland, TX • 79706
(432) 681-6000

Pathfinder

6213 W. Interstate 20
Midland, Texas. 79706
Tel. 432.687.1647
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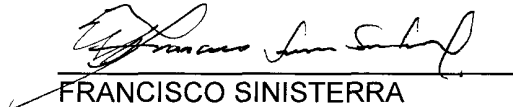
DIRECTIONAL SURVEY COMPANY REPORT:

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 12-10-10
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
EDDY COUNTY, NM
RIG: PATRIOT 5

9. SURVEY CERTIFIED FROM: 475 TO 11284 FEET MEASURED DEPTH.

THIS IS TO VERIFY THAT ATTACHED DOCUMENTS SHOWING THE WELL TO BE
DISPLACED AT 5169.99 FEET ON A BEARING OF 359.57 DEGREES FROM THE
CENTER OF THE ROTARY TABLE AT A PROJECTED BIT DEPTH OF 11340 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: 12/10/2010

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

PathFinder Office Supervisor: FRANCISCO SINISTERRA
PathFinder Field Engineers: BRYANT BLAKEMORE
MIKE SAKAS
PRITHWISH DAS

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	11340.00	(feet)
Inclination	89.34	(deg)
Azimuth	358.55	(deg)
True Vertical Depth	6395.29	(feet)
Vertical Section	5169.95	(feet)
Survey X cord	600588.29	(feet)
Survey Y cord	376205.22	(feet)
Survey Lat	32.03412398 N	(deg)
Survey Lon	104.14212369 W	(deg)
Rectangular Corr. N/S	5169.85 N	(feet)
Rectangular Corr. E/W	39.02 W	(feet)
Closure Distance	5169.99	(feet)
Direction of Closure	359.57	(deg)
Dogleg Severity	0.00	(deg/100ft)

PathFinder Energy Services, Inc.

Survey Report

YATES PETROLEUM CORPORATION
 CASSIOPEIA BQD STATE COM #1H
 EDDY COUNTY, NEW MEXICO
 Rig: PATRIOT #5
 PathFinder Office Supervisor: FRANCISCO SINISTERRA
 PathFinder Field Engineers: BRYANT BLAKEMORE
 MIKE SAKAS
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Survey Calculations by RX5 V6.03C using Minimum Curvature

Survey Horiz. Reference: WELLHEAD
 Ref Coordinates: LAT: 32.1.11.6832 N LON: 104.8.31.2984 W
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 Ref GRID Coord: X: 600627.3080 Y: 371035.3750
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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

Measured Depth (ft)	Incl (deg)	Drift Dir. (deg)	TVD (ft)	Course Length (ft)	Vertical Section (ft)	TOTAL		Closure		DLS (dg/100ft)
						Rectangular (ft)	Offsets (ft)	Dist (ft)	Dir (deg)	
TIE IN TO MS ENERGY GYRO SURVEY @ 400'MD.										
400.00	0.25	47.57	399.99	0.00	2.04	2.04 N	0.31 E	2.06@	8.64	0.00
THE FOLLOWING ARE PATHFINDER MWD SURVEYS.										
475.00	0.53	128.98	474.99	75.00	1.93	1.93 N	0.70 E	2.06@	19.93	0.74
566.00	1.06	125.73	565.98	91.00	1.17	1.18 N	1.71 E	2.08@	55.50	0.59
665.00	0.97	110.51	664.96	99.00	0.34	0.35 N	3.24 E	3.26@	83.88	0.29
760.00	0.88	108.40	759.95	95.00	-0.18	0.16 S	4.68 E	4.69@	92.01	0.10
854.00	0.62	108.00	853.94	94.00	-0.57	0.55 S	5.85 E	5.88@	95.36	0.28
948.00	0.26	226.12	947.94	94.00	-0.87	0.85 S	6.18 E	6.24@	97.87	0.83
1043.00	0.79	242.90	1042.94	95.00	-1.32	1.30 S	5.44 E	5.60@	103.45	0.57
1137.00	1.32	227.18	1136.92	94.00	-2.35	2.33 S	4.07 E	4.69@	119.80	0.64
1231.00	0.70	122.23	1230.91	94.00	-3.39	3.38 S	3.77 E	5.06@	131.88	1.75
1325.00	0.79	144.32	1324.90	94.00	-4.22	4.21 S	4.63 E	6.26@	132.27	0.32
1420.00	1.14	126.37	1419.89	95.00	-5.32	5.30 S	5.77 E	7.84@	132.56	0.48
1513.00	0.26	63.98	1512.88	93.00	-5.78	5.76 S	6.71 E	8.84@	130.64	1.12
1607.00	1.06	98.08	1606.88	94.00	-5.81	5.79 S	7.76 E	9.68@	126.71	0.91
1701.00	0.35	110.59	1700.87	94.00	-6.04	6.01 S	8.89 E	10.73@	124.06	0.77
1796.00	0.44	88.39	1795.87	95.00	-6.13	6.10 S	9.52 E	11.31@	122.64	0.19
1890.00	1.32	94.51	1889.86	94.00	-6.21	6.18 S	10.96 E	12.58@	119.39	0.94
1984.00	1.67	89.35	1983.82	94.00	-6.29	6.24 S	13.41 E	14.80@	114.96	0.40
2078.00	0.62	76.55	2077.80	94.00	-6.16	6.11 S	15.28 E	16.46@	111.80	1.14
2172.00	0.26	296.51	2171.80	94.00	-5.95	5.90 S	15.58 E	16.66@	110.73	0.89
2267.00	0.97	288.23	2266.80	95.00	-5.60	5.55 S	14.63 E	15.64@	110.78	0.75
2361.00	1.14	286.89	2360.78	94.00	-5.07	5.03 S	12.97 E	13.92@	111.19	0.18
2456.00	1.06	284.57	2455.76	95.00	-4.57	4.53 S	11.22 E	12.10@	112.00	0.10
2644.00	1.32	295.22	2643.72	188.00	-3.20	3.17 S	7.58 E	8.22@	112.72	0.18

PathFinder Energy Services, Inc.

Survey Report

YATES PETROLEUM CORPORATION
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 (ft) (ft)		Closure Dist Dir (ft) (deg)		DLS (dg/100ft)
2807.00	1.23	295.71	2806.68	163.00	-1.63	1.61 S	4.30 E	4.60@	110.56	0.06
2920.00	0.97	275.52	2919.66	113.00	-1.00	1.00 S	2.26 E	2.47@	113.80	0.41
3108.00	0.88	270.69	3107.64	188.00	-0.82	0.83 S	0.77 W	1.13@	222.96	0.06
3296.00	0.88	269.04	3295.61	188.00	-0.82	0.83 S	3.66 W	3.75@	257.17	0.01
3484.00	0.97	271.29	3483.59	188.00	-0.80	0.82 S	6.69 W	6.74@	263.00	0.05
3672.00	0.88	289.62	3671.57	188.00	-0.27	0.30 S	9.64 W	9.65@	268.22	0.16
3767.00	0.97	224.35	3766.56	95.00	-0.59	0.63 S	10.89 W	10.91@	266.69	1.05
3954.00	0.97	212.81	3953.53	187.00	-3.05	3.09 S	12.85 W	13.22@	256.47	0.10
4142.00	0.97	218.79	4141.50	188.00	-5.62	5.67 S	14.71 W	15.77@	248.92	0.05
4331.00	1.41	111.83	4330.48	189.00	-7.74	7.78 S	13.56 W	15.63@	240.14	1.02
4519.00	1.06	132.32	4518.43	188.00	-9.78	9.81 S	10.12 W	14.10@	225.89	0.30
4707.00	0.79	134.26	4706.41	188.00	-11.86	11.89 S	7.91 W	14.28@	213.64	0.14
4896.00	0.62	154.53	4895.40	189.00	-13.70	13.72 S	6.54 W	15.20@	205.48	0.16
5084.00	1.49	79.70	5083.37	188.00	-14.19	14.20 S	3.70 W	14.68@	194.58	0.78
5272.00	1.32	94.10	5271.31	188.00	-13.92	13.92 S	0.87 E	13.95@	176.43	0.21
5367.00	1.32	82.16	5366.29	95.00	-13.86	13.85 S	3.05 E	14.18@	167.60	0.29
5462.00	1.41	92.82	5461.26	95.00	-13.77	13.76 S	5.30 E	14.74@	158.94	0.28
5555.00	0.62	84.86	5554.25	93.00	-13.79	13.77 S	6.94 E	15.42@	153.25	0.86
5650.00	1.14	6.06	5649.24	95.00	-12.81	12.78 S	7.55 E	14.85@	149.43	1.25
5744.00	1.58	353.58	5743.21	94.00	-10.59	10.57 S	7.51 E	12.96@	144.61	0.56
5806.00	1.32	354.01	5805.19	62.00	-9.03	9.01 S	7.34 E	11.62@	140.83	0.42
5871.00	3.96	0.20	5870.12	65.00	-6.04	6.02 S	7.27 E	9.43@	129.62	4.08
5902.00	9.06	4.65	5900.91	31.00	-2.54	2.51 S	7.47 E	7.88@	108.58	16.52
5934.00	13.81	3.17	5932.26	32.00	3.79	3.82 N	7.88 E	8.76@	64.16	14.87
5965.00	16.53	3.59	5962.18	31.00	11.89	11.91 N	8.36 E	14.56@	35.07	8.78
5996.00	19.17	2.82	5991.68	31.00	21.37	21.40 N	8.89 E	23.17@	22.56	8.55
6059.00	25.15	1.22	6050.00	63.00	45.11	45.14 N	9.69 E	46.17@	12.11	9.54
6091.00	27.70	1.45	6078.66	32.00	59.34	59.37 N	10.02 E	60.21@	9.58	7.98

PathFinder Energy Services, Inc.

Survey Report

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

Page 03/05

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)
6122.00	29.63	0.14	6105.86	31.00	74.21	74.24 N	10.22 E	74.94@	7.84	6.55
6153.00	31.83	359.56	6132.50	31.00	90.05	90.08 N	10.18 E	90.65@	6.44	7.16
6185.00	34.29	358.50	6159.32	32.00	107.50	107.53 N	9.87 E	107.99@	5.25	7.90
6216.00	37.28	357.78	6184.47	31.00	125.62	125.65 N	9.28 E	125.99@	4.22	9.74
6248.00	40.10	358.29	6209.44	32.00	145.61	145.64 N	8.60 E	145.89@	3.38	8.87
6279.00	43.09	359.32	6232.62	31.00	166.18	166.21 N	8.18 E	166.41@	2.82	9.89
6310.00	45.81	359.45	6254.75	31.00	187.89	187.92 N	7.94 E	188.08@	2.42	8.78
6342.00	48.72	357.99	6276.46	32.00	211.38	211.41 N	7.41 E	211.54@	2.01	9.69
6374.00	51.70	356.70	6296.94	32.00	235.95	235.97 N	6.27 E	236.05@	1.52	9.81
6405.00	54.52	356.41	6315.55	31.00	260.70	260.71 N	4.78 E	260.76@	1.05	9.13
6437.00	57.33	356.96	6333.47	32.00	287.16	287.17 N	3.24 E	287.19@	0.65	8.90
6468.00	60.41	358.09	6349.50	31.00	313.67	313.68 N	2.10 E	313.69@	0.38	10.41
6499.00	63.84	359.25	6363.99	31.00	341.06	341.07 N	1.47 E	341.07@	0.25	11.55
6531.00	66.65	359.12	6377.39	32.00	370.12	370.13 N	1.06 E	370.13@	0.16	8.79
6562.00	69.29	358.87	6389.02	31.00	398.85	398.85 N	0.55 E	398.86@	0.08	8.55
6594.00	72.72	358.57	6399.43	32.00	429.10	429.10 N	0.12 W	429.10@	359.98	10.76
6625.00	75.80	358.10	6407.84	31.00	458.92	458.92 N	0.99 W	458.92@	359.88	10.04
6657.00	78.00	358.90	6415.09	32.00	490.08	490.08 N	1.81 W	490.08@	359.79	7.29
6688.00	81.07	359.79	6420.72	31.00	520.56	520.55 N	2.15 W	520.56@	359.76	10.30
6720.00	84.94	1.28	6424.62	32.00	552.31	552.31 N	1.85 W	552.31@	359.81	12.95
6778.00	90.66	2.10	6426.84	58.00	610.21	610.22 N	0.15 W	610.22@	359.99	9.96
6810.00	90.75	1.71	6426.45	32.00	642.19	642.20 N	0.92 E	642.20@	0.08	1.25
6904.00	90.66	0.26	6425.29	94.00	736.16	736.17 N	2.53 E	736.18@	0.20	1.55
6998.00	90.31	0.07	6424.50	94.00	830.15	830.17 N	2.80 E	830.17@	0.19	0.42
7092.00	88.90	358.52	6425.15	94.00	924.14	924.15 N	1.65 E	924.15@	0.10	2.23
7186.00	87.93	357.42	6427.75	94.00	1018.06	1018.06 N	1.68 W	1018.06@	359.91	1.56
7280.00	91.19	358.58	6428.47	94.00	1111.99	1111.98 N	4.96 W	1111.99@	359.74	3.68
7374.00	91.19	358.64	6426.52	94.00	1205.95	1205.93 N	7.24 W	1205.96@	359.66	0.06

PathFinder Energy Services, Inc.

Survey Report

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

Page 04/05

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)
7468.00	91.36	358.76	6424.42	94.00	1299.91	1299.89 N	9.37 W	1299.92@ 359.59	0.22
7562.00	91.19	358.78	6422.33	94.00	1393.87	1393.84 N	11.39 W	1393.89@ 359.53	0.18
7657.00	91.19	358.93	6420.36	95.00	1488.84	1488.80 N	13.29 W	1488.86@ 359.49	0.16
7751.00	90.66	358.84	6418.84	94.00	1582.81	1582.77 N	15.12 W	1582.84@ 359.45	0.57
7845.00	90.04	359.02	6418.27	94.00	1676.80	1676.75 N	16.87 W	1676.84@ 359.42	0.69
7939.00	91.54	1.21	6416.97	94.00	1770.78	1770.73 N	16.68 W	1770.81@ 359.46	2.82
8033.00	92.33	2.12	6413.80	94.00	1864.68	1864.64 N	13.95 W	1864.69@ 359.57	1.28
8128.00	91.80	1.39	6410.37	95.00	1959.56	1959.53 N	11.05 W	1959.56@ 359.68	0.95
8222.00	90.84	1.43	6408.21	94.00	2053.50	2053.48 N	8.73 W	2053.50@ 359.76	1.02
8315.00	90.66	1.22	6406.99	93.00	2146.45	2146.44 N	6.58 W	2146.46@ 359.82	0.30
8410.00	89.78	3.02	6406.63	95.00	2241.37	2241.37 N	3.07 W	2241.38@ 359.92	2.11
8505.00	89.52	1.61	6407.21	95.00	2336.28	2336.29 N	0.77 E	2336.29@ 0.02	1.51
8599.00	88.20	359.13	6409.08	94.00	2430.24	2430.26 N	1.38 E	2430.26@ 0.03	2.99
8693.00	90.04	358.46	6410.52	94.00	2524.21	2524.23 N	0.60 W	2524.23@ 359.99	2.08
8787.00	89.96	357.95	6410.52	94.00	2618.18	2618.18 N	3.55 W	2618.18@ 359.92	0.55
8882.00	90.04	357.92	6410.52	95.00	2713.13	2713.12 N	6.97 W	2713.13@ 359.85	0.09
8976.00	90.13	357.87	6410.38	94.00	2807.07	2807.05 N	10.42 W	2807.07@ 359.79	0.11
9070.00	89.78	358.89	6410.46	94.00	2901.04	2901.02 N	13.08 W	2901.04@ 359.74	1.15
9163.00	89.96	358.11	6410.67	93.00	2994.02	2993.98 N	15.51 W	2994.02@ 359.70	0.86
9256.00	89.87	358.73	6410.81	93.00	3086.99	3086.95 N	18.08 W	3087.00@ 359.66	0.67
9349.00	91.01	2.07	6410.09	93.00	3179.97	3179.93 N	17.43 W	3179.98@ 359.69	3.79
9443.00	90.48	2.68	6408.87	94.00	3273.86	3273.84 N	13.53 W	3273.87@ 359.76	0.86
9632.00	88.90	358.36	6409.89	189.00	3462.80	3462.78 N	11.82 W	3462.80@ 359.80	2.43
9726.00	90.57	357.90	6410.33	94.00	3556.75	3556.72 N	14.89 W	3556.75@ 359.76	1.84
9820.00	89.52	357.97	6410.25	94.00	3650.70	3650.66 N	18.27 W	3650.71@ 359.71	1.12
9915.00	90.75	359.04	6410.03	95.00	3745.67	3745.62 N	20.75 W	3745.68@ 359.68	1.72
10009.00	90.04	359.34	6409.38	94.00	3839.66	3839.61 N	22.08 W	3839.67@ 359.67	0.82
10103.00	90.57	359.06	6408.88	94.00	3933.66	3933.60 N	23.39 W	3933.67@ 359.66	0.64

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EDDY COUNTY, NEW MEXICO
RIG:PATRIOT #5

Page 05/05

Measured Depth (ft)	Incl (deg)	Drift Dir. (deg)	TVD (ft)	Course Length (ft)	Vertical Section (ft)	TOTAL Rectangular Offsets		Closure Dist Dir		DLS (dg/100ft)
						(ft)	(ft)	(ft)	(deg)	
10197.00	91.80	358.33	6406.94	94.00	4027.62	4027.55 N	25.53 W	4027.63@	359.64	1.52
10291.00	90.66	356.90	6404.92	94.00	4121.52	4121.45 N	29.44 W	4121.55@	359.59	1.95
10385.00	91.36	357.94	6403.26	94.00	4215.42	4215.33 N	33.67 W	4215.47@	359.54	1.33
10479.00	91.80	358.52	6400.67	94.00	4309.35	4309.25 N	36.58 W	4309.41@	359.51	0.77
10573.00	90.22	1.62	6399.01	94.00	4403.32	4403.22 N	36.46 W	4403.38@	359.53	3.70
10667.00	90.04	3.22	6398.80	94.00	4497.22	4497.14 N	32.49 W	4497.25@	359.59	1.71
10761.00	91.19	1.35	6397.79	94.00	4591.12	4591.05 N	28.74 W	4591.14@	359.64	2.33
10855.00	90.92	359.92	6396.06	94.00	4685.09	4685.03 N	27.70 W	4685.11@	359.66	1.55
10949.00	90.84	359.03	6394.62	94.00	4779.08	4779.01 N	28.56 W	4779.10@	359.66	0.95
11043.00	90.13	357.63	6393.82	94.00	4873.04	4872.97 N	31.30 W	4873.07@	359.63	1.67
11137.00	90.13	358.32	6393.61	94.00	4966.99	4966.91 N	34.63 W	4967.03@	359.60	0.73
11232.00	89.34	359.28	6394.05	95.00	5061.98	5061.88 N	36.61 W	5062.01@	359.59	1.31
11284.00	89.34	358.55	6394.64	52.00	5113.97	5113.87 N	37.60 W	5114.01@	359.58	1.40
STRAIGHT-LINE PROJECTION TO BIT @ 11340' MD.										
11340.00	89.34	358.55	6395.29	56.00	5169.95	5169.85 N	39.02 W	5169.99@	359.57	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:	400		
DRIFT ANGLE:	0.25		
DRIFT DIRECTION:	47.57		
TRUE VERTICAL DEPTH:	399.99		
VERTICAL SECTION:	2.04		
RECTANGULAR COORDINATE (N / S) :	2.04		
RECTANGULAR COORDINATE (E / W) :	0.31		
CLOSURE DISTANCE / DIRECTION:	2.06	8.69	
SURVEY CALCULATION METHOD:	AA ☐	MC ☒	RC ☐ BT ☐
SOURCE OF TIE-IN DATA (COMPANY):	MS Energy Services		
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: 3-Dec-2010

MS ENERGY SERVICES
ODESSA, TEXAS

GYROSCOPIC DIRECTIONAL SURVEY
BY MINIMUM CURVATURE

FOR

* **YATES PETROLEUM** *

JOB NUMBER: SVCO-101046

WELL NAME: CASSIOPEIA BQD STATE #1H

LOCATION: EDDY COUNTY, NEW MEXICO

SURVEY DATE: DECEMBER 03, 2010

SURVEY ENGINEER: S. SMITH

MAGNETIC DECLINATION: 07.80 GRID NORTH

GYRO REFERENCE BEARING: GRID NORTH

VERTICAL SECTION CALCULATED IN A
PROPOSAL DIRECTION OF: 359.81
SURF. ELEVATION: 27

***** DEPTH MEASURED IN FEET *****

***** THIS DIRECTIONAL SURVEY REPORT IS *****
***** CORRECT TO THE BEST OF MY KNOWLEDGE *****
***** AND IS SUPPORTED BY ACTUAL FIELD DATA! *****
COMMENTS: PATRIOT 5 *****
MIKE JONES *****
RKB 27' *****
TBUSSELL@YATESPETROLEUM.COM *****
***** COMPANY REPRESENTATIVE *****

MS ENERGY SERVICES
ODESSA, TEXAS

JOB NUMBER: SVCO-101046

WELL NAME: CASSIOPEIA BQD STATE #1H

INRUN SURVEY
BY MINIMUM CURVATURE

MEAS. DEPTH	VERT. DEPTH	VERT. SECT.	L/R PROP.	INCL	BEARING AZIMUTH	COORDINATES LATITUDE DEPARTURE		D-LEG /100	D-LEG /CL	STATION DISP.	DISPLACEMENT DIRECTION
0.0	0.00	0.00	0.000	00.00	000.00	0.00 N	0.00 E	0.00		0.00	AT 000.00
200.0	200.00	0.87	-0.002	00.50	359.65	0.87 N	0.01 W	0.25	0.50	0.87	AT 359.65
400.0	399.99	2.04	0.318	00.25	047.57	2.04 N	0.31 E	0.19	0.38	2.06	AT 008.68

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*****
*                                     *
*           THE HORIZONTAL DISPLACEMENT AT THE DEPTH OF           *
*                                     *
*   400.00 FEET EQUALS           2.06 FEET AT 008.68           *
*                                     *
*****

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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 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: 7.793789 degrees
To Convert a Magnetic Dir. to a GRID dir. Add 7.793789 Degr.