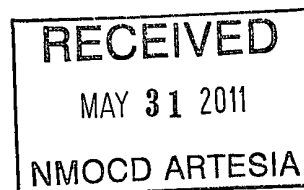




An Operating Unit of Smith International, Inc.



DIRECTIONAL SURVEY REPORT

30-015-38317

YATES PETROLEUM
BLACKBIRD BKR STATE COM #3H
EDDY COUNTY, NEW MEXICO

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
Fax 432.687 1544

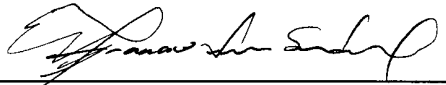


DIRECTIONAL SURVEY COMPANY REPORT:

1. NAME OF SURVEYING COMPANY: PATHFINDER ENERGY SERVICES
2. NAME OF PERSON(S) PERFORMING SURVEY:
A) KIRK DAVIS
3. POSITION OF SAID PERSON(S): (A-F) SURVEYORS (FIELD ENGINEERS)
4. DATE(S) ON WHICH SURVEY WAS PERFORMED: 03-04-11 TO 03-18-11
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
BLACKBIRD BKR STATE COM #3H
EDDY COUNTY, NM
RIG: SILVER OAK 10
9. SURVEY CERTIFIED FROM: 2257 TO 10950 FEET MEASURED DEPTH.

THIS IS TO VERIFY THAT ATTACHED DOCUMENTS SHOWING THE WELL TO BE DISPLACED AT 4618.38 FEET ON A BEARING OF 96.32 DEGREES FROM THE CENTER OF THE ROTARY TABLE AT A PROJECTED BIT DEPTH OF 11033 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: 03/03/2011
Date Completed: 03/18/2011

YATES PETROLEUM CORPORATION
BLACKBIRD BRK STATE COM #3H
EDDY COUNTY, NEW MEXICO
Rig:SILVER OAK 10
PathFinder Office Supervisor: FRANCISCO SINNESTERRA
PathFinder Field Engineers:KIRK DAVIS
RICHARD PAGE
JAMES BURLESON

Survey Horiz. Reference:WELLHEAD
Ref Coordinates: LAT:32.52.26.4911 N LON:104.12.21.7819 W
GRID Reference:NAD83 new mexico east Transverse Mercator
Ref GRID Coord: X: 580414.8000 Y: 681727.6200
North Aligned To:GRID NORTH
Total Magnetic Correction: 7.90° EAST TO GRID
Vertical Section Plane: 96.92
Survey Vert. Reference: 18.00' Rotary Table To Ground
Altitude:3573.00' Ground To MSL

Measured Depth	11033.00	(feet)
Inclination	90.75	(deg)
Azimuth	91.20	(deg)
True Vertical Depth	6589.90	(feet)
Vertical Section	4618.13	(feet)
Survey X cord	585005.08	(feet)
Survey Y cord	681219.08	(feet)
Survey Lat	32.87261142 N	(deg)
Survey Lon	104.19110128 W	(deg)
Rectangular Corr. N/S	508.51 S	(feet)
Rectangular Corr. E/W	4590.30 E	(feet)
Closure Distance	4618.38	(feet)
Direction of Closure	96.32	(deg)
Dogleg Severity	0.00	(deg/100ft)

PathFinder Energy Services, Inc.

Survey Report

YATES PETROLEUM CORPORATION
BLACKBIRD BRK STATE COM #3H
EDDY COUNTY, NEW MEXICO
Rig:SILVER OAK 10

PathFinder Office Supervisor: FRANCISCO SINNESTERRA

PathFinder Field Engineers: KIRK DAVIS

DUSTIN EASLEY

RICHARD PAGE

JAMES BURLESON

Survey Calculations by RX4 using Minimum Curvature

Survey Horiz. Reference:WELLHEAD
Ref Coordinates: LAT:32.52.26.4911 N LON:104.12.21.7819 W
GRID Reference:NAD83 new mexico east Transverse Mercator
Ref GRID Coord: X: 580414.8000 Y: 681727.6200
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Total Magnetic Correction: 7.90° EAST TO GRID
Vertical Section Plane: 96.92
Survey Vert. Reference: 18.00' Rotary Table To Ground
Altitude:3573.00' Ground To MSL

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)
THE FOLLOWING ARE MS ENERGY SERVICES GYRO SURVEYS.										
200.00	0.25	122.07	200.00	0.00	0.39	0.23 S	0.37 E	0.43@	122.34	0.00
400.00	0.25	157.98	400.00	200.00	1.00	0.87 S	0.90 E	1.25@	133.96	0.08
600.00	0.25	139.90	600.00	200.00	1.53	1.61 S	1.35 E	2.10@	140.06	0.04
800.00	0.25	81.82	800.00	200.00	2.27	1.88 S	2.06 E	2.79@	132.39	0.12
1000.00	0.50	54.73	1000.00	200.00	3.34	1.31 S	3.20 E	3.46@	112.29	0.15
1200.00	0.25	31.65	1199.99	200.00	4.17	0.44 S	4.14 E	4.17@	96.02	0.14
1400.00	0.50	311.57	1399.99	200.00	3.63	0.51 N	3.72 E	3.76@	82.15	0.26
1600.00	0.25	315.48	1599.98	200.00	2.57	1.40 N	2.76 E	3.10@	63.06	0.13
1800.00	0.75	246.32	1799.98	200.00	1.10	1.19 N	1.26 E	1.73@	46.59	0.35
2000.00	1.00	251.73	1999.95	200.00	-1.60	0.12 N	1.60 W	1.60@	274.14	0.13
** TIE-IN TO MS ENERGY SERVICES GYRO SURVEYS @ 2150'MD.										
2150.00	1.00	267.57	2149.93	150.00	-4.08	0.35 S	4.15 W	4.16@	265.18	0.18
THE FOLLOWING ARE PATHFINDER MWD SURVEYS.										
2257.00	0.97	275.22	2256.91	107.00	-5.90	0.31 S	5.98 W	5.99@	267.06	0.13
2352.00	1.58	260.23	2351.89	95.00	-7.96	0.46 S	8.08 W	8.09@	266.77	0.73
2447.00	2.81	234.30	2446.82	95.00	-10.93	2.04 S	11.26 W	11.44@	259.74	1.63
2542.00	3.34	222.32	2541.68	95.00	-14.25	5.44 S	15.01 W	15.97@	250.07	0.87
2637.00	3.96	214.88	2636.49	95.00	-17.39	10.18 S	18.75 W	21.34@	241.50	0.82
2731.00	3.43	206.69	2730.30	94.00	-19.86	15.36 S	21.87 W	26.72@	234.93	0.79
2826.00	4.04	201.32	2825.10	95.00	-21.66	21.01 S	24.36 W	32.17@	229.23	0.74
2921.00	3.69	191.75	2919.88	95.00	-22.74	27.12 S	26.20 W	37.71@	224.01	0.77
3016.00	3.34	190.69	3014.70	95.00	-23.18	32.83 S	27.34 W	42.73@	219.78	0.38
3111.00	3.52	192.97	3109.53	95.00	-23.67	38.40 S	28.51 W	47.82@	216.59	0.24
3206.00	3.61	191.04	3204.35	95.00	-24.20	44.17 S	29.73 W	53.25@	213.95	0.16
3301.00	3.61	194.01	3299.16	95.00	-24.78	50.01 S	31.03 W	58.86@	211.82	0.20

PathFinder Energy Services, Inc.

Survey Report

YATES PETROLEUM CORPORATION
BLACKBIRD BRK STATE COM #3H
EDDY COUNTY, NEW MEXICO
RIG:SILVER OAK 10

Page 02/05

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)
3396.00	3.61	192.34	3393.97	95.00	-25.43	55.83 S	32.39 W	64.55@	210.12	0.11
3491.00	3.52	193.16	3488.79	95.00	-26.03	61.60 S	33.70 W	70.21@	208.68	0.11
3586.00	3.52	192.29	3583.61	95.00	-26.62	67.29 S	34.98 W	75.84@	207.47	0.06
3681.00	3.52	191.40	3678.43	95.00	-27.12	72.99 S	36.18 W	81.47@	206.37	0.06
3775.00	3.43	193.54	3772.26	94.00	-27.67	78.56 S	37.41 W	87.01@	205.46	0.17
3870.00	3.25	198.89	3867.09	95.00	-28.56	83.87 S	38.95 W	92.47@	204.91	0.38
3966.00	3.08	197.30	3962.95	96.00	-29.59	88.90 S	40.59 W	97.73@	204.54	0.20
4060.00	3.08	199.52	4056.81	94.00	-30.59	93.70 S	42.19 W	102.76@	204.24	0.13
4156.00	3.17	204.27	4152.67	96.00	-31.95	98.55 S	44.14 W	107.98@	204.13	0.28
4251.00	3.52	190.37	4247.51	95.00	-32.91	103.81 S	45.75 W	113.44@	203.78	0.93
4346.00	3.52	192.00	4342.33	95.00	-33.34	109.53 S	46.88 W	119.14@	203.17	0.10
4441.00	3.17	190.59	4437.17	95.00	-33.77	114.96 S	47.97 W	124.57@	202.65	0.38
4536.00	2.81	191.39	4532.04	95.00	-34.11	119.83 S	48.91 W	129.43@	202.20	0.38
4631.00	2.64	196.61	4626.93	95.00	-34.66	124.21 S	49.99 W	133.89@	201.92	0.32
4726.00	4.13	188.68	4721.76	95.00	-35.14	129.69 S	51.14 W	139.41@	201.52	1.64
4821.00	4.13	192.47	4816.52	95.00	-35.57	136.41 S	52.39 W	146.12@	201.01	0.29
4916.00	3.78	194.60	4911.29	95.00	-36.32	142.78 S	53.92 W	152.62@	200.69	0.40
5011.00	3.69	193.15	5006.09	95.00	-37.07	148.79 S	55.40 W	158.77@	200.42	0.14
5106.00	3.34	187.56	5100.91	95.00	-37.44	154.51 S	56.46 W	164.50@	200.07	0.52
5201.00	4.13	205.56	5195.71	95.00	-38.56	160.34 S	58.30 W	170.61@	199.98	1.48
5295.00	3.96	203.26	5289.48	94.00	-40.56	166.37 S	61.05 W	177.22@	200.15	0.25
5391.00	3.87	206.14	5385.25	96.00	-42.55	172.33 S	63.78 W	183.75@	200.31	0.23
5485.00	3.43	204.63	5479.06	94.00	-44.45	177.73 S	66.35 W	189.71@	200.47	0.48
5580.00	3.25	205.93	5573.90	95.00	-46.20	182.74 S	68.71 W	195.23@	200.61	0.21
5675.00	3.34	205.49	5668.74	95.00	-47.95	187.66 S	71.08 W	200.67@	200.75	0.10
5770.00	2.99	201.08	5763.60	95.00	-49.44	192.47 S	73.16 W	205.90@	200.81	0.45
5865.00	2.81	199.50	5858.48	95.00	-50.56	196.97 S	74.83 W	210.71@	200.80	0.21
5929.00	2.73	199.20	5922.40	64.00	-51.22	199.89 S	75.86 W	213.80@	200.78	0.13
5992.00	2.90	195.45	5985.33	63.00	-51.78	202.84 S	76.78 W	216.89@	200.73	0.40
6024.00	3.17	199.64	6017.28	32.00	-52.09	204.46 S	77.29 W	218.58@	200.71	1.09

PathFinder Energy Services, Inc.

Survey Report

YATES PETROLEUM CORPORATION
BLACKBIRD BRK STATE COM #3H
EDDY COUNTY, NEW MEXICO
RIG:SILVER OAK 10

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)
6056.00	3.96	189.12	6049.22	32.00	-52.33	206.38 S	77.76 W	220.55@	200.65	3.20
6087.00	6.24	189.13	6080.10	31.00	-51.86	209.09 S	77.61 W	223.03@	200.36	9.22
6119.00	9.58	153.84	6111.79	32.00	-49.87	213.19 S	76.11 W	226.37@	199.65	12.25
6155.00	13.01	141.45	6147.09	36.00	-45.34	219.05 S	72.26 W	230.66@	198.26	11.62
6186.00	16.09	133.00	6177.10	31.00	-39.38	224.71 S	66.94 W	234.47@	196.59	12.04
6217.00	19.61	128.14	6206.60	31.00	-31.46	230.86 S	59.71 W	238.46@	194.50	12.32
6247.00	23.48	123.93	6234.50	30.00	-21.82	237.31 S	50.79 W	242.68@	192.08	13.88
6279.00	27.17	120.13	6263.43	32.00	-9.43	244.54 S	39.17 W	247.65@	189.10	12.59
6310.00	30.51	116.23	6290.58	31.00	4.51	251.57 S	25.99 W	252.91@	185.90	12.36
6341.00	33.85	112.09	6316.82	31.00	20.28	258.30 S	10.92 W	258.53@	182.42	12.90
6372.00	36.76	108.45	6342.12	31.00	37.70	264.48 S	5.88 E	264.55@	178.73	11.58
6402.00	39.75	104.20	6365.67	30.00	56.02	269.68 S	23.70 E	270.72@	174.98	13.27
6434.00	42.47	99.64	6389.79	32.00	76.97	274.00 S	44.28 E	277.55@	170.82	12.65
6465.00	45.64	95.93	6412.07	31.00	98.51	276.90 S	65.63 E	284.57@	166.67	13.18
6496.00	49.15	92.90	6433.05	31.00	121.30	278.64 S	88.37 E	292.31@	162.40	13.41
6527.00	53.38	91.99	6452.45	31.00	145.40	279.66 S	112.53 E	301.45@	158.08	13.84
6558.00	57.51	91.42	6470.03	31.00	170.82	280.42 S	138.04 E	312.55@	153.79	13.41
6589.00	61.91	91.06	6485.66	31.00	197.45	280.99 S	164.80 E	325.75@	149.61	14.23
6620.00	65.77	90.93	6499.32	31.00	225.12	281.48 S	192.61 E	341.07@	145.62	12.46
6651.00	69.12	90.84	6511.21	31.00	253.59	281.92 S	221.23 E	358.36@	141.88	10.81
6682.00	71.93	91.14	6521.55	31.00	282.65	282.42 S	250.45 E	377.48@	138.43	9.11
6713.00	75.01	91.88	6530.36	31.00	312.24	283.21 S	280.16 E	398.37@	135.31	10.20
6744.00	77.56	93.12	6537.71	31.00	342.26	284.52 S	310.24 E	420.96@	132.52	9.10
6775.00	80.28	93.74	6543.67	31.00	372.62	286.34 S	340.60 E	444.98@	130.05	8.99
6806.00	83.36	94.46	6548.08	31.00	403.27	288.54 S	371.21 E	470.16@	127.86	10.20
6837.00	87.23	94.72	6550.62	31.00	434.13	291.01 S	402.00 E	496.28@	125.90	12.51
6868.00	90.04	94.87	6551.36	31.00	465.10	293.60 S	432.88 E	523.05@	124.15	9.08
6948.00	91.80	95.06	6550.08	80.00	545.04	300.52 S	512.56 E	594.17@	120.38	2.21
7041.00	91.45	95.18	6547.44	93.00	637.95	308.82 S	605.15 E	679.40@	117.04	0.40
7135.00	91.28	95.11	6545.20	94.00	731.88	317.25 S	698.75 E	767.40@	114.42	0.20

PathFinder Energy Services, Inc.

Survey Report

YATES PETROLEUM CORPORATION
BLACKBIRD BRK STATE COM #3H
EDDY COUNTY, NEW MEXICO
RIG:SILVER OAK 10

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 (ft)	Dir (deg)	DLS (dg/100ft)
7228.00	90.40	94.61	6543.84	93.00	824.81	325.13 S	791.40 E	855.59@	112.33	1.09
7321.00	90.66	94.69	6542.98	93.00	917.73	332.66 S	884.09 E	944.61@	110.62	0.29
7415.00	91.54	95.20	6541.17	94.00	1011.66	340.77 S	977.73 E	1035.41@	109.21	1.08
7508.00	91.28	95.60	6538.88	93.00	1104.60	349.52 S	1070.28 E	1125.91@	108.09	0.51
7601.00	91.10	94.86	6536.95	93.00	1197.54	357.99 S	1162.88 E	1216.73@	107.11	0.82
7695.00	91.10	94.62	6535.15	94.00	1291.45	365.76 S	1256.54 E	1308.69@	106.23	0.25
7788.00	90.84	93.60	6533.57	93.00	1384.33	372.42 S	1349.28 E	1399.74@	105.43	1.13
7882.00	91.19	93.01	6531.91	94.00	1478.12	377.84 S	1443.11 E	1491.76@	104.67	0.73
7975.00	90.92	92.58	6530.20	93.00	1570.87	382.37 S	1535.99 E	1582.87@	103.98	0.55
8068.00	89.96	93.18	6529.48	93.00	1663.63	387.05 S	1628.86 E	1674.22@	103.37	1.22
8162.00	88.37	93.16	6530.85	94.00	1757.42	392.24 S	1722.71 E	1766.80@	102.83	1.69
8254.00	88.81	93.08	6533.12	92.00	1849.19	397.25 S	1814.54 E	1857.52@	102.35	0.49
8348.00	88.37	93.27	6535.43	94.00	1942.96	402.45 S	1908.37 E	1950.35@	101.91	0.51
8442.00	88.55	93.22	6537.95	94.00	2036.73	407.77 S	2002.19 E	2043.29@	101.51	0.20
8535.00	88.72	92.93	6540.17	93.00	2129.49	412.76 S	2095.02 E	2135.30@	101.15	0.36
8628.00	88.20	92.99	6542.67	93.00	2222.24	417.56 S	2187.87 E	2227.36@	100.81	0.56
8721.00	88.20	93.01	6545.59	93.00	2314.98	422.43 S	2280.69 E	2319.48@	100.49	0.02
8814.00	88.29	93.02	6548.44	93.00	2407.71	427.32 S	2373.52 E	2411.68@	100.21	0.10
8907.00	88.37	92.71	6551.15	93.00	2500.44	431.96 S	2466.37 E	2503.91@	99.93	0.34
9001.00	88.55	93.01	6553.68	94.00	2594.17	436.65 S	2560.21 E	2597.18@	99.68	0.37
9094.00	88.72	93.30	6555.89	93.00	2686.95	441.77 S	2653.05 E	2689.58@	99.45	0.36
9187.00	88.29	92.65	6558.32	93.00	2779.69	446.59 S	2745.89 E	2781.97@	99.24	0.84
9281.00	88.11	92.38	6561.27	94.00	2873.37	450.72 S	2839.75 E	2875.30@	99.02	0.35
9374.00	88.29	92.57	6564.19	93.00	2966.04	454.73 S	2932.62 E	2967.66@	98.81	0.28
9467.00	88.20	92.55	6567.04	93.00	3058.73	458.88 S	3025.48 E	3060.08@	98.62	0.10
9560.00	88.46	92.01	6569.75	93.00	3151.39	462.58 S	3118.37 E	3152.49@	98.44	0.64
9653.00	88.90	91.83	6571.89	93.00	3244.01	465.69 S	3211.29 E	3244.88@	98.25	0.51
9747.00	88.37	91.88	6574.13	94.00	3337.61	468.74 S	3305.22 E	3338.29@	98.07	0.57
9839.00	88.72	91.49	6576.47	92.00	3429.20	471.44 S	3397.15 E	3429.70@	97.90	0.57
9932.00	87.85	91.85	6579.25	93.00	3521.77	474.15 S	3490.06 E	3522.13@	97.74	1.01

PathFinder Energy Services, Inc.

Survey Report

YATES PETROLEUM CORPORATION
BLACKBIRD BRK STATE COM #3H
EDDY COUNTY, NEW MEXICO
RIG:SILVER OAK 10

Page 05/05

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)
10026.00	88.02	91.75	6582.64	94.00	3615.33	477.10 S	3583.96 E	3615.57@	97.58	0.21
10119.00	88.02	91.75	6585.85	93.00	3707.90	479.94 S	3676.86 E	3708.05@	97.44	0.00
10212.00	88.72	92.22	6588.50	93.00	3800.52	483.16 S	3769.76 E	3800.60@	97.30	0.91
10305.00	89.16	92.34	6590.22	93.00	3893.19	486.86 S	3862.67 E	3893.23@	97.18	0.49
10398.00	89.16	92.13	6591.58	93.00	3985.87	490.48 S	3955.59 E	3985.89@	97.07	0.23
10492.00	89.78	91.95	6592.45	94.00	4079.53	493.83 S	4049.53 E	4079.53@	96.95	0.69
10585.00	89.52	91.77	6593.02	93.00	4172.16	496.85 S	4142.48 E	4172.17@	96.84	0.34
10679.00	89.96	91.56	6593.44	94.00	4265.77	499.58 S	4236.44 E	4265.79@	96.73	0.52
10773.00	90.48	91.62	6593.08	94.00	4359.36	502.19 S	4330.40 E	4359.42@	96.61	0.56
10866.00	90.75	91.55	6592.09	93.00	4451.95	504.76 S	4423.36 E	4452.07@	96.51	0.30
10950.00	90.75	91.20	6590.99	84.00	4535.55	506.78 S	4507.33 E	4535.73@	96.42	0.42
STRAIGHT LINE PROJECTION TO BIT DEPTH										
11033.00	90.75	91.20	6589.90	83.00	4618.13	508.51 S	4590.30 E	4618.38@	96.32	0.00

** The survey data at tie-in point was furnished by a recognized survey company and entered as submitted. Survey stations above the tie-in point represent recalculated data by PathFinder Energy Services, Inc. and may reflect minor changes due to rounding differences between survey programs. Only survey stations taken by qualified PathFinder personnel are subject to certification.



A Schlumberger Company

TIE-IN SURVEY INFORMATION SHEET

CLIENT INFORMATION

CLIENT:	YATES PETROLEUM		
LEASE / WELL No.:	BLACKBIRD BKR STATE COM	3H	
WELL LOCATION:	EDDY COUNTY		
COUNTY / STATE / COUNTRY:	EDDY	NM	USA
RIG:	SILVER OAK 10		
API WELL No:	30-015-38317		
JOB No:	700001759-WT-WT		
P.O. / AFE No.	10-334-0		
DIRECTIONAL COMPANY:	PATHFINDER ENERGY		

WELL SITE INFORMATION

TOTAL MAGNETIC CORRECTION (TMC):			
On Wall Plat:	7.9	LWD Calculated:	7.89
Agreed Upon:		7.9	
X =	580414.800000	Feet	Y = 681727.620000
Feet			
SITE LATITUDE:	32.874025 N	SITE LONGITUDE:	104.206051 W
GRID SYSTEM:	TRUE ☐ UTM ☒ LAMBERT ☐	ZONE:	NEW MEXICO EAST
PROPOSED DRIFT DIRECTION:	96.92		
KELLY BUSHING ELEVATION:	18 FT		
ALTITUDE:	3573	Feet	WATER DEPTH:
		Feet	

TIE-IN SURVEY

MEASURED DEPTH:	2150		
DRIFT ANGLE:	1		
DRIFT DIRECTION:	267.57		
TRUE VERTICAL DEPTH:	2149.93		
VERTICAL SECTION:	-4.08		
RECTANGULAR COORDINATE (N / S):	-0.35		
RECTANGULAR COORDINATE (E / W):	-4.15		
CLOSURE DISTANCE / DIRECTION:	4.16	265.19	
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:	6076	TOTAL DEPTH:	11026
KICKOFF ANGLE:	3.5	MAX ANGLE:	94

PES Engineers: KIRK DAVIS

RICHARD PAGE

**Signature of both field engineers required if applicable

Directional Driller: RICHARD HILL

DATE: 3-Mar-2011

MS ENERGY SERVICES
ODESSA, TEXAS

JOB NUMBER: SVCO-110222

WELL NAME: BLACKBIRD BKR STATE COM #3H

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	0.39	0.185	00.25	122.07	0.23 S	0.37 E	0.13	0.25	0.44	AT 122.07
400.0	400.00	1.00	0.753	00.25	157.98	0.87 S	0.90 E	0.08	0.15	1.25	AT 133.86
600.0	600.00	1.53	1.432	00.25	139.90	1.61 S	1.35 E	0.04	0.08	2.10	AT 140.00
800.0	799.99	2.27	1.616	00.25	081.82	1.88 S	2.06 E	0.12	0.24	2.79	AT 132.34
1000.0	999.99	3.34	0.916	00.50	054.73	1.31 S	3.21 E	0.15	0.30	3.46	AT 112.26
1200.0	1199.99	4.17	-0.066	00.25	031.65	0.44 S	4.15 E	0.14	0.29	4.17	AT 096.01
1400.0	1399.98	3.63	-0.959	00.50	311.57	0.51 N	3.72 E	0.26	0.52	3.76	AT 082.14
1600.0	1599.98	2.57	-1.727	00.25	315.48	1.40 N	2.76 E	0.13	0.25	3.10	AT 063.07
1800.0	1799.97	1.11	-1.333	00.75	246.32	1.19 N	1.26 E	0.35	0.70	1.73	AT 046.63
2000.0	1999.95	-1.60	0.077	01.00	251.73	0.12 N	1.60 W	0.13	0.26	1.60	AT 274.18
2150.0	2149.93	-4.08	0.846	01.00	267.57	0.35 S	4.15 W	0.18	0.28	4.16	AT 265.19

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*****
*                                     *
*               THE HORIZONTAL DISPLACEMENT AT THE DEPTH OF               *
*               2150.00 FEET EQUALS          4.16 FEET AT 265.19          *
*                                     *
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PathFinder Energy Services, Inc.

Magnetic & Grid Calculations

YATES PETROLEUM
BLACKBIRD BKR STATE COM
EDDY COUNTY, NEW MEXICO
Rig:SILVER OAK 10

Mon Feb 28 16:07:10 2011

Coordinates

Latitude: 32.874025 N (32 deg. 52 min. 26.4911 sec.)
Longitude: 104.206051 W (-104 deg. 12 min. 21.7819 sec.)
Elevation: 3591.00 feet.
Calculation Date: Feb/28/2011

Magnetic Calculations

Model: IGRF2010
Dip Angle: 60.6843 degrees
Total Magnetic Field: 0.48965 gauss
Magnetic Declination: 7.963385 degrees
Horizontal Intensity: 0.239741 gauss
To Convert a Magnetic Dir. to a TRUE North Dir. Add 7.963385 Degr

Transverse Mercator Grid Calculations NAD83

Grid System: Transverse Mercator: new mexico east
Ellipsoid: GRS80
X: 580414.8000 feet
Y: 681727.6200 feet
True to Grid: (convergence) -0.069088 degrees
Magnetic to Grid: 7.894296 degrees
To Convert a Magnetic Dir. to a GRID dir. Add 7.894296 Degr.

PathFinder Energy Services, Inc.

Magnetic & Grid Calculations

Thu Mar 03 20:52:00 2011

Coordinates

Latitude: 32.874025 N (32 deg. 52 min. 26.4911 sec.)
Longitude: 104.206051 W (-104 deg. 12 min. 21.7819 sec.)
Elevation: 3591.00 feet.
Calculation Date: Mar/03/2011

Magnetic Calculations

Model: IGRF2010
Dip Angle: 60.6841 degrees
Total Magnetic Field: 0.48964 gauss
Magnetic Declination: 7.962104 degrees
Horizontal Intensity: 0.239738 gauss

To Convert a Magnetic Dir. to a TRUE North Dir. Add 7.962104 Degr

Transverse Mercator Grid Calculations NAD83

Grid System: Transverse Mercator: new mexico east
Ellipsoid: GRS80
X: 580414.8000 feet
Y: 681727.6200 feet
True to Grid: (convergence) -0.069088 degrees
Magnetic to Grid: 7.893016 degrees

To Convert a Magnetic Dir. to a GRID dir. Add 7.893016 Degr.