



A Schlumberger Company

DIRECTIONAL SURVEY REPORT

30-015-36355

YATES PETROLEUM

HARACZ 'AMO' FEDERAL #2H

EDDY COUNTY, NEW MEXICO

PREPARED BY: JUAN ALCOCER

Pathfinder

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



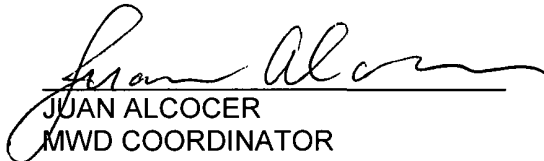
DIRECTIONAL SURVEY COMPANY REPORT:

1. NAME OF SURVEYING COMPANY: PATHFINDER ENERGY SERVICES
2. NAME OF PERSON(S) PERFORMING SURVEY:
A) JEFF HULL
3. POSITION OF SAID PERSON(S): (A-F) SURVEYORS (FIELD ENGINEERS)
4. DATE(S) ON WHICH SURVEY WAS PERFORMED: 7/12/12 TO 7/20/12
5. STATE IN WHICH SURVEY WAS PERFORMED: NEW MEXICO
6. LOCATION OF WELL: EDDY COUNTY, NM
7. TYPE OF SURVEY(S) PERFORMED: GAMMA-RAY
8. COMPLETE IDENTIFICATION OF WELL:

YATES PETROLEUM
HARACZ 'AMO' FEDERAL #2H
EDDY COUNTY, NM
RIG: SILVER OAK 10

9. SURVEY CERTIFIED FROM: 7,751 TO 12,567 FEET MEASURED DEPTH.

THIS IS TO VERIFY THAT ATTACHED DOCUMENTS SHOWING THE WELL TO BE DISPLACED AT 4,411.17 FEET ON A BEARING OF 3.74 DEGREES FROM THE CENTER OF THE ROTARY TABLE AT A PROJECTED BIT DEPTH OF 12,626 FEET, ARE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE.


JUAN ALCOCER
MWD COORDINATOR

PathFinder Energy Services, Inc.

BHL Report

Page 01/01
Tie-in Date: 07/06/2012
Date Completed: 07/20/2012

YATES PETROLEUM CORP.

HARACZ AMO FED #2H

EDDY COUNTY, NM

Rig:SILVER OAK 10

PathFinder Office Supervisor: JUAN ALCOCER

PathFinder Field Engineers:J. HULL

F. LICERO

Survey Horiz. Reference:WELLHEAD

Ref Coordinates: LAT:32.11.49.2246 N LON:103.44.4.8906 W

GRID Reference:NAD83 new mexico east Transverse Mercator

Ref GRID Coord: X: 726512.8000 Y: 435920.9000

North Aligned To:GRID NORTH

Total Magnetic Correction: 7.21° EAST TO GRID

Vertical Section Plane: 3.86

Survey Vert. Reference: 18.00' Kelly Bushing To Ground

Altitude:3549.00' Ground To MSL

Measured Depth	12626.00	(feet)
Inclination	93.03	(deg)
Azimuth	1.28	(deg)
True Vertical Depth	8343.67	(feet)
Vertical Section	4411.16	(feet)
Survey X cord	726800.35	(feet)
Survey Y cord	440322.67	(feet)
Survey Lat	32.20910185 N	(deg)
Survey Lon	103.73368290 W	(deg)
Rectangular Corr. N/S	4401.78 N	(feet)
Rectangular Corr. E/W	287.58 E	(feet)
Closure Distance	4411.17	(feet)
Direction of Closure	3.74	(deg)
Dogleg Severity	0.00	(deg/100ft)

PathFinder Energy Services, Inc.

Survey Report

YATES PETROLEUM CORP.
HARACZ AMO FED #2H / 30-015-36355

EDDY COUNTY, NM

Rig:SILVER OAK 10

PathFinder Office Supervisor: JUAN ALCOCER

PathFinder Field Engineers: J. HULL

F. LICERO

A.FORNIER

A.CASTILLO

Survey Calculations by RX4 using Minimum Curvature

Survey Horiz. Reference:WELLHEAD

Ref Coordinates: LAT:32.11.49.2246 N LON:103.44.4.8906 W

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Ref GRID Coord: X: 726512.8000 Y: 435920.9000

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Vertical Section Plane: 3.86

Survey Vert. Reference: 18.00' Kelly Bushing To Ground

Altitude:3549.00' 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 SURVEY MULTI-SHOT GYRO SURVEYS.										
200.00	0.34	242.08	200.00	0.00	-0.31	0.27 S	0.52 W	0.59@	242.39	0.00
400.00	0.51	259.60	399.99	200.00	-0.84	0.71 S	1.92 W	2.05@	249.68	0.11
600.00	0.56	304.66	599.99	200.00	-0.56	0.32 S	3.60 W	3.62@	264.97	0.21
800.00	0.58	313.24	799.98	200.00	0.58	0.93 N	5.14 W	5.23@	280.27	0.04
1000.00	0.43	309.84	999.97	200.00	1.67	2.11 N	6.46 W	6.79@	288.06	0.08
1200.00	0.21	310.97	1199.97	200.00	2.33	2.83 N	7.31 W	7.84@	291.14	0.11
1400.00	0.24	330.35	1399.96	200.00	2.90	3.43 N	7.79 W	8.52@	293.76	0.04
1600.00	0.31	322.12	1599.96	200.00	3.65	4.22 N	8.33 W	9.34@	296.87	0.04
1800.00	0.51	317.72	1799.96	200.00	4.67	5.31 N	9.27 W	10.68@	299.81	0.10
2000.00	0.45	319.19	1999.95	200.00	5.85	6.56 N	10.38 W	12.28@	302.30	0.03
2200.00	0.38	329.22	2199.94	200.00	6.95	7.73 N	11.23 W	13.63@	304.53	0.05
2400.00	0.17	147.57	2399.94	200.00	7.26	8.05 N	11.41 W	13.96@	305.19	0.27
2600.00	0.42	169.53	2599.94	200.00	6.31	7.07 N	11.12 W	13.18@	302.47	0.13
2800.00	0.89	172.95	2799.93	200.00	4.07	4.81 N	10.79 W	11.82@	294.03	0.24
3000.00	1.61	187.79	2999.88	200.00	-0.25	0.49 N	10.98 W	11.00@	272.54	0.39
3200.00	1.49	198.74	3199.81	200.00	-5.57	4.76 S	12.20 W	13.10@	248.69	0.16
3400.00	0.65	188.63	3399.77	200.00	-9.21	8.34 S	13.21 W	15.62@	237.72	0.43
3600.00	0.22	215.85	3599.76	200.00	-10.67	9.78 S	13.60 W	16.75@	234.29	0.23
3800.00	1.03	251.15	3799.75	200.00	-11.69	10.67 S	15.53 W	18.84@	235.51	0.43
4000.00	0.92	178.73	3999.73	200.00	-13.98	12.85 S	17.19 W	21.47@	233.22	0.58
4200.00	1.59	173.96	4199.68	200.00	-18.32	17.22 S	16.87 W	24.10@	224.41	0.34
4400.00	2.58	164.75	4399.54	200.00	-25.30	24.32 S	15.39 W	28.78@	212.32	0.52
4600.00	1.81	165.02	4599.40	200.00	-32.55	31.72 S	13.39 W	34.43@	202.89	0.38
4800.00	1.17	164.35	4799.33	200.00	-37.46	36.73 S	12.02 W	38.65@	198.12	0.32
5000.00	0.84	171.45	4999.30	200.00	-40.82	40.15 S	11.25 W	41.70@	195.66	0.18

PathFinder Energy Services, Inc.

Survey Report

YATES PETROLEUM CORP.
HARACZ AMO FED #2H / 30-015-36355
EDDY COUNTY, NM
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)
5200.00	0.43	187.88	5199.28	200.00	-43.00	42.34 S	11.14 W	43.78@ 194.74	0.22
5400.00	0.50	195.99	5399.28	200.00	-44.60	43.92 S	11.48 W	45.40@ 194.65	0.05
5600.00	0.53	208.72	5599.27	200.00	-46.29	45.57 S	12.17 W	47.17@ 194.95	0.06
5800.00	0.48	210.75	5799.26	200.00	-47.88	47.11 S	13.04 W	48.88@ 195.47	0.03
6000.00	0.53	202.44	5999.25	200.00	-49.50	48.68 S	13.82 W	50.60@ 195.85	0.04
6200.00	0.45	215.47	6199.25	200.00	-51.05	50.18 S	14.63 W	52.26@ 196.25	0.07
6400.00	0.48	232.08	6399.24	200.00	-52.27	51.33 S	15.75 W	53.69@ 197.05	0.07
6600.00	0.43	248.06	6599.23	200.00	-53.16	52.13 S	17.10 W	54.86@ 198.17	0.07
6800.00	0.34	232.58	6799.23	200.00	-53.88	52.77 S	18.27 W	55.84@ 199.10	0.07
7000.00	1.10	192.27	6999.21	200.00	-56.17	55.00 S	19.15 W	58.24@ 199.20	0.43
7200.00	1.19	201.30	7199.17	200.00	-60.05	58.81 S	20.31 W	62.22@ 199.05	0.10
7400.00	1.71	202.32	7399.11	200.00	-64.86	63.51 S	22.20 W	67.28@ 199.27	0.26
7600.00	1.45	174.61	7599.03	200.00	-70.19	68.79 S	23.10 W	72.56@ 198.56	0.40
** TIED INTO MS SURVEY MULTI-SHOT GYRO SURVEY AT 7712'MD.									
7712.00	1.43	174.15	7711.00	112.00	-72.96	71.59 S	22.82 W	75.14@ 197.68	0.02
7751.00	1.49	175.98	7749.99	39.00	-73.95	72.58 S	22.73 W	76.06@ 197.39	0.20
7782.00	1.41	187.98	7780.98	31.00	-74.73	73.36 S	22.76 W	76.81@ 197.24	1.01
7813.00	0.97	174.11	7811.97	31.00	-75.36	74.00 S	22.79 W	77.43@ 197.11	1.69
7844.00	0.53	28.01	7842.97	31.00	-75.49	74.13 S	22.69 W	77.53@ 197.02	4.65
7875.00	3.08	9.32	7873.95	31.00	-74.53	73.18 S	22.49 W	76.56@ 197.08	8.33
7906.00	5.89	4.35	7904.85	31.00	-72.11	70.78 S	22.23 W	74.19@ 197.44	9.14
7937.00	9.15	1.94	7935.58	31.00	-68.06	66.73 S	22.03 W	70.27@ 198.27	10.56
7969.00	12.66	1.65	7967.00	32.00	-62.01	60.68 S	21.84 W	64.49@ 199.80	10.97
8000.00	16.36	1.29	7997.01	31.00	-54.25	52.91 S	21.65 W	57.17@ 202.25	11.94
8032.00	20.05	2.19	8027.40	32.00	-44.26	42.92 S	21.33 W	47.93@ 206.43	11.56
8063.00	23.74	2.57	8056.16	31.00	-32.71	31.37 S	20.85 W	37.67@ 213.61	11.91
8094.00	27.61	2.58	8084.09	31.00	-19.28	17.96 S	20.25 W	27.06@ 228.43	12.48
8125.00	31.04	2.32	8111.12	31.00	-4.11	2.79 S	19.60 W	19.80@ 261.89	11.07

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Survey Report

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EDDY COUNTY, NM
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)
8156.00	34.91	2.39	8137.12	31.00	12.76	14.06 N	18.91 W	23.56@	306.64	12.48
8187.00	38.51	2.69	8161.96	31.00	31.28	32.57 N	18.08 W	37.26@	330.96	11.63
8218.00	42.56	3.02	8185.52	31.00	51.42	52.69 N	17.08 W	55.39@	342.04	13.08
8249.00	45.99	2.83	8207.71	31.00	73.06	74.30 N	15.98 W	76.00@	347.87	11.07
8280.00	50.21	2.60	8228.41	31.00	96.12	97.34 N	14.88 W	98.47@	351.31	13.62
8312.00	54.52	2.59	8247.95	32.00	121.45	122.65 N	13.74 W	123.42@	353.61	13.47
8343.00	58.56	2.94	8265.03	31.00	147.30	148.48 N	12.49 W	149.00@	355.19	13.07
8375.00	62.17	3.52	8280.86	32.00	175.11	176.24 N	10.92 W	176.58@	356.45	11.39
8406.00	65.51	4.34	8294.52	31.00	202.93	204.00 N	9.01 W	204.20@	357.47	11.03
8437.00	70.00	5.13	8306.25	31.00	231.61	232.59 N	6.64 W	232.68@	358.37	14.67
8462.00	72.63	5.55	8314.26	25.00	255.28	256.16 N	4.43 W	256.20@	359.01	10.64
8493.00	75.36	6.02	8322.81	31.00	285.06	285.81 N	1.43 W	285.81@	359.71	8.93
8525.00	76.85	6.88	8330.49	32.00	316.09	316.67 N	2.06 E	316.68@	0.37	5.34
8556.00	78.70	7.11	8337.06	31.00	346.34	346.74 N	5.75 E	346.79@	0.95	6.01
8587.00	80.11	7.31	8342.76	31.00	376.76	376.97 N	9.57 E	377.09@	1.45	4.59
8618.00	81.43	7.24	8347.73	31.00	407.31	407.32 N	13.45 E	407.55@	1.89	4.26
8649.00	82.66	7.57	8352.02	31.00	437.95	437.77 N	17.41 E	438.11@	2.28	4.11
8680.00	84.15	7.55	8355.58	31.00	468.68	468.30 N	21.46 E	468.79@	2.62	4.81
8773.00	87.67	7.33	8362.21	93.00	561.25	560.26 N	33.47 E	561.26@	3.42	3.79
8866.00	89.60	7.11	8364.43	93.00	654.05	652.49 N	45.15 E	654.05@	3.96	2.09
8961.00	90.40	6.77	8364.43	95.00	748.92	746.80 N	56.63 E	748.94@	4.34	0.92
9053.00	91.89	4.37	8362.59	92.00	840.85	838.34 N	65.56 E	840.90@	4.47	3.07
9147.00	92.15	2.30	8359.27	94.00	934.78	932.11 N	71.02 E	934.82@	4.36	2.22
9240.00	91.01	1.96	8356.71	93.00	1027.70	1025.01 N	74.48 E	1027.71@	4.16	1.28
9333.00	89.16	1.64	8356.57	93.00	1120.64	1117.96 N	77.40 E	1120.64@	3.96	2.02
9427.00	89.43	1.23	8357.73	94.00	1214.54	1211.92 N	79.75 E	1214.55@	3.76	0.52
9520.00	89.08	358.96	8358.94	93.00	1307.33	1304.91 N	79.91 E	1307.36@	3.50	2.47
9614.00	88.64	359.82	8360.81	94.00	1401.02	1398.89 N	78.91 E	1401.11@	3.23	1.03

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Survey Report

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Page 04/05

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9707.00	88.64	2.50	8363.02	93.00	1493.89	1491.83 N	80.79 E	1494.02@	3.10	2.88
9800.00	89.08	4.11	8364.87	93.00	1586.86	1584.66 N	86.15 E	1587.00@	3.11	1.79
9893.00	89.08	5.01	8366.36	93.00	1679.84	1677.35 N	93.54 E	1679.95@	3.19	0.97
9987.00	90.40	4.80	8366.79	94.00	1773.82	1771.00 N	101.58 E	1773.91@	3.28	1.42
10080.00	91.01	5.27	8365.64	93.00	1866.79	1863.63 N	109.74 E	1866.86@	3.37	0.83
10174.00	90.31	4.83	8364.56	94.00	1960.77	1957.26 N	118.01 E	1960.82@	3.45	0.88
10267.00	90.57	4.39	8363.84	93.00	2053.76	2049.96 N	125.49 E	2053.80@	3.50	0.55
10360.00	90.84	4.32	8362.70	93.00	2146.75	2142.68 N	132.55 E	2146.78@	3.54	0.30
10455.00	91.63	4.96	8360.65	95.00	2241.71	2237.35 N	140.23 E	2241.74@	3.59	1.07
10548.00	90.75	4.39	8358.72	93.00	2334.68	2330.02 N	147.81 E	2334.70@	3.63	1.13
10642.00	90.31	3.75	8357.85	94.00	2428.68	2423.78 N	154.48 E	2428.69@	3.65	0.83
10735.00	89.43	3.29	8358.06	93.00	2521.67	2516.60 N	160.19 E	2521.69@	3.64	1.07
10829.00	89.69	3.63	8358.78	94.00	2615.67	2610.42 N	165.86 E	2615.69@	3.64	0.46
10922.00	89.52	4.28	8359.43	93.00	2708.67	2703.20 N	172.28 E	2708.68@	3.65	0.72
11015.00	90.13	4.18	8359.71	93.00	2801.66	2795.95 N	179.14 E	2801.68@	3.67	0.67
11103.00	89.16	4.37	8360.26	88.00	2889.66	2883.70 N	185.70 E	2889.67@	3.68	1.12
11197.00	89.78	4.59	8361.13	94.00	2983.65	2977.41 N	193.04 E	2983.66@	3.71	0.70
11290.00	90.92	5.16	8360.56	93.00	3076.63	3070.07 N	200.94 E	3076.64@	3.74	1.37
11384.00	91.01	5.02	8358.97	94.00	3170.59	3163.68 N	209.28 E	3170.60@	3.78	0.18
11477.00	91.71	5.34	8356.77	93.00	3263.54	3256.28 N	217.68 E	3263.54@	3.82	0.83
11570.00	91.63	5.24	8354.06	93.00	3356.47	3348.84 N	226.25 E	3356.47@	3.87	0.14
11664.00	91.89	5.95	8351.17	94.00	3450.39	3442.35 N	235.41 E	3450.39@	3.91	0.80
11757.00	91.36	5.67	8348.53	93.00	3543.30	3534.83 N	244.82 E	3543.30@	3.96	0.64
11851.00	90.40	5.06	8347.09	94.00	3637.25	3628.41 N	253.60 E	3637.26@	4.00	1.21
11944.00	90.75	6.37	8346.15	93.00	3730.19	3720.94 N	262.86 E	3730.21@	4.04	1.46
12037.00	90.84	6.29	8344.86	93.00	3823.10	3813.36 N	273.12 E	3823.13@	4.10	0.13
12130.00	87.58	1.00	8346.15	93.00	3916.04	3906.12 N	279.03 E	3916.07@	4.09	6.68
12161.00	87.49	0.62	8347.48	31.00	3946.97	3937.09 N	279.47 E	3947.00@	4.06	1.26

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RIG:SILVER OAK 10

Page 05/05

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12192.00	87.49	0.85	8348.84	31.00	3977.90	3968.06 N	279.86 E	3977.91@	4.03	0.74
12223.00	87.67	0.64	8350.15	31.00	4008.82	3999.03 N	280.27 E	4008.84@	4.01	0.89
12254.00	88.81	0.84	8351.10	31.00	4039.76	4030.01 N	280.67 E	4039.77@	3.98	3.73
12286.00	89.87	0.95	8351.47	32.00	4071.71	4062.00 N	281.17 E	4071.72@	3.96	3.33
12317.00	90.13	0.95	8351.47	31.00	4102.68	4093.00 N	281.68 E	4102.68@	3.94	0.84
12348.00	90.31	1.07	8351.35	31.00	4133.64	4123.99 N	282.23 E	4133.64@	3.91	0.70
12379.00	90.40	0.92	8351.16	31.00	4164.60	4154.99 N	282.76 E	4164.60@	3.89	0.56
12411.00	90.31	1.02	8350.96	32.00	4196.56	4186.98 N	283.31 E	4196.56@	3.87	0.42
12442.00	90.48	0.95	8350.75	31.00	4227.52	4217.98 N	283.84 E	4227.52@	3.85	0.59
12473.00	91.19	0.83	8350.29	31.00	4258.47	4248.97 N	284.32 E	4258.47@	3.83	2.32
12505.00	91.89	1.16	8349.43	32.00	4290.42	4280.95 N	284.88 E	4290.42@	3.81	2.42
12535.00	92.42	1.34	8348.31	30.00	4320.37	4310.92 N	285.53 E	4320.37@	3.79	1.87
12567.00	93.03	1.28	8346.78	32.00	4352.30	4342.88 N	286.26 E	4352.30@	3.77	1.92
STRAIGHT LINE PROJECTION TO BIT AT 12626'MD.										
12626.00	93.03	1.28	8343.67	59.00	4411.16	4401.78 N	287.58 E	4411.17@	3.74	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

CLIENT INFORMATION

CLIENT:	YATES PETROLEUM CORPORATION		
LEASE / WELL No.:	HARACAZ AMO FEDERAL	# 2H	
WELL LOCATION:	EDDY COUNTY, NM		
COUNTY / STATE / COUNTRY:	EDDY	NM	USA
RIG:	SILVER OAK 10		
API WELL No:	30-015-36355		
JOB No:	12MLD0264		
P.O. / AFE No.	12-130-00		
DIRECTIONAL COMPANY:	PATHFINDER		

WELL SITE INFORMATION

TOTAL MAGNETIC CORRECTION (TMC):			
On Wall Plat	7.06	LWD Calculated:	7.21
		Agreed Upon:	7.21
X =	726512.800000	Feet	Y = 435920.900000
			Feet
SITE LATITUDE:	32.197007 N	SITE LONGITUDE:	103.734692 W
GRID SYSTEM:	TRUE ☒ UTM ☐ LAMBERT ☐	ZONE:	NEW MEXICO EAST
PROPOSED DRIFT DIRECTION:	3.86		
KELLY BUSHING ELEVATION:	18		
ALTITUDE:	3549	Feet	WATER DEPTH:
			Feet

TIE-IN SURVEY

MEASURED DEPTH:	7712		
DRIFT ANGLE:	1.43		
DRIFT DIRECTION:	174.15		
TRUE VERTICAL DEPTH:	7711		
VERTICAL SECTION:	-72.97		
RECTANGULAR COORDINATE (N / S) :	-71.59		
RECTANGULAR COORDINATE (E / W) :	-22.82		
CLOSURE DISTANCE / DIRECTION:	75.14	197.68	
SURVEY CALCULATION METHOD:	AA ☐	MC ☒	RC ☐ BT ☐
SOURCE OF TIE-IN DATA (COMPANY):	MS SURVEY		
COPY OF TIE-IN SURVEY REPORT	☒ YES ☐ NO		

WELL PLAN

KICKOFF DEPTH:	7887	TOTAL DEPTH:	12600
KICKOFF ANGLE:	0	MAX ANGLE:	90

PES Engineers: J. Hull
F. Licero

**Signature of both field engineers required if applicable

Directional Driller: R. Hill

DATE: 5-Jul-2012



Company:	YATES PETROLEUM CORPORATION	Operator:	JOSHUA SMITH
Lease / Well:	HARACZ AMO FEDERAL #2H	Job Number:	SVCO-120953
County/Parish:	EDDY COUNTY	Probe Serial #	123
State:	NEW MEXICO	Proposed Direction:	3.86
Date:	7/5/2012	Mag. Declination:	7.38 EAST TO GRID
API#:	30-015-36355	Rig / RKB:	SILVER OAK #10 / RKB 20 FEET
Dir. Company:	PATHFINDER	Tie-In From:	N / A
FIELD USE ONLY, DEFINITIVE SURVEY WILL COME FROM MS Survey OFFICES			

TIE-IN Survey					
Measured Depth (ft.)	Inclination	Azimuth Bearing	Vertical Depth	Coordinates (+N/-S) (+E/-W)	
0	0.00	0.00	0.00	0.00	0.00

Rate Gyro Survey Report									
Measured Depth (ft.)	Inclination	Azimuth Bearing	Vertical Depth	Vertical Section	Coordinates (+N/-S) (+E/-W)		Dog-Leg / 100 ft.	Closure Distance	Closure Direction
200	0.34	242.08	200.00	-0.31	-0.28	-0.52	0.17	0.59	242.08°
400	0.51	259.60	399.99	-0.84	-0.72	-1.92	0.11	2.05	249.58°
600	0.56	304.66	599.99	-0.56	-0.32	-3.60	0.21	3.62	264.91°
800	0.58	313.24	799.98	0.58	0.93	-5.14	0.04	5.23	280.23°
1000	0.43	309.84	999.97	1.66	2.10	-6.46	0.08	6.79	288.03°
1200	0.21	310.97	1199.96	2.32	2.82	-7.31	0.11	7.84	291.11°
1400	0.24	330.35	1399.96	2.90	3.43	-7.80	0.04	8.52	293.74°
1600	0.31	322.12	1599.96	3.65	4.22	-8.33	0.04	9.34	296.85°
1800	0.51	317.72	1799.95	4.67	5.30	-9.27	0.10	10.68	299.79°
2000	0.45	319.19	1999.95	5.84	6.56	-10.38	0.03	12.28	302.29°
2200	0.38	329.22	2199.94	6.95	7.72	-11.23	0.05	13.63	304.51°
2400	0.17	147.57	2399.94	7.25	8.04	-11.41	0.27	13.96	305.17°
2600	0.42	169.53	2599.94	6.31	7.07	-11.12	0.13	13.18	302.45°
2800	0.89	172.95	2799.92	4.07	4.81	-10.79	0.24	11.82	294.01°
3000	1.61	187.79	2999.88	-0.26	0.48	-10.99	0.39	11.00	272.51°
3200	1.49	198.74	3199.80	-5.57	-4.76	-12.20	0.16	13.10	248.67°
3400	0.65	188.63	3399.77	-9.22	-8.35	-13.21	0.43	15.62	237.70°
3600	0.22	215.85	3599.76	-10.67	-9.78	-13.60	0.23	16.75	234.28°
3800	1.03	251.15	3799.75	-11.69	-10.67	-15.53	0.43	18.84	235.50°
4000	0.92	178.73	3999.73	-13.99	-12.86	-17.19	0.58	21.47	233.21°
4200	1.59	173.96	4199.68	-18.32	-17.22	-16.87	0.34	24.11	224.40°
4400	2.58	164.75	4399.54	-25.31	-24.33	-15.39	0.52	28.79	212.32°
4600	1.81	165.02	4599.39	-32.55	-31.72	-13.39	0.39	34.43	202.89°
4800	1.17	164.35	4799.33	-37.46	-36.74	-12.02	0.32	38.65	198.12°
5000	0.84	171.45	4999.29	-40.82	-40.15	-11.25	0.18	41.70	195.66°
5200	0.43	187.88	5199.28	-43.00	-42.35	-11.14	0.22	43.79	194.74°
5400	0.50	195.99	5399.28	-44.60	-43.93	-11.48	0.05	45.40	194.65°
5600	0.53	208.72	5599.27	-46.29	-45.58	-12.17	0.06	47.18	194.95°
5800	0.48	210.75	5799.26	-47.88	-47.11	-13.04	0.03	48.88	195.47°
6000	0.53	202.44	5999.25	-49.51	-48.69	-13.82	0.04	50.61	195.85°
6200	0.45	215.47	6199.24	-51.05	-50.18	-14.63	0.07	52.27	196.25°
6400	0.48	232.08	6399.24	-52.28	-51.33	-15.75	0.07	53.70	197.05°
6600	0.43	248.06	6599.23	-53.16	-52.13	-17.10	0.07	54.86	198.16°
6800	0.34	232.58	6799.23	-53.88	-52.77	-18.27	0.07	55.84	199.10°
7000	1.10	192.27	6999.21	-56.17	-55.01	-19.15	0.43	58.25	199.20°
7200	1.19	201.30	7199.17	-60.05	-58.82	-20.31	0.10	62.23	199.05°
7400	1.71	202.32	7399.11	-64.86	-63.51	-22.20	0.26	67.28	199.27°

7600	1.45	174.61	7599.03	-70.19	-68.79	-23.10	0.40	72.57	198.56°
7712	1.43	174.15	7711.00	-72.97	-71.59	-22.82	0.02	75.14	197.68°



A Schlumberger Company

PathFinder Energy Services, Inc. Magnetic & Grid Calculations

YATES PETROLEUM
HARACZ AMO FED #2H
EDDY COUNTY NEW MEXICO
Rig: SILVER OAK #10

Fri Jun 29 17:52:22 2012

Coordinates

Latitude: 32.197007 N (32 deg. 11 min. 49.2246 sec.)
Longitude: 103.734692 W (-103 deg. 44 min. 4.8906 sec.)
Elevation: 3567.00 feet.
Calculation Date: Jun/29/2012

Magnetic Calculations

Model: IGRF2010
Dip Angle: 60.1083 degrees
Total Magnetic Field: 0.48477 gauss
Magnetic Declination: 7.531361 degrees
Horizontal Intensity: 0.241592 gauss
To Convert a Magnetic Dir. to a TRUE North Dir. Add 7.531361 Degr

Transverse Mercator Grid Calculations NAD83

Grid System: Transverse Mercator: new mexico east
Ellipsoid: GRS80
X: 726512.8000 feet
Y: 435920.9000 feet
True to Grid: (convergence) -0.318984 degrees
Magnetic to Grid: 7.212378 degrees
To Convert a Magnetic Dir. to a GRID dir. Add 7.212378 Degr.

PathFinder Energy Services, Inc.

Magnetic & Grid Calculations

Field copy

Thu Jul 05 20:23:41 2012

Coordinates

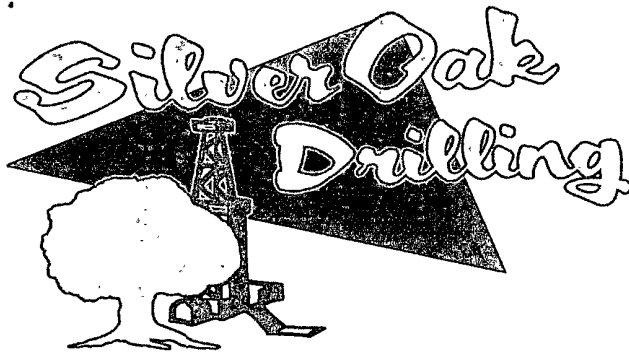
Latitude: 32.197007 N (32 deg. 11 min. 49.2246 sec.)
Longitude: 103.734692 W (-103 deg. 44 min. 4.8906 sec.)
Elevation: 3567.00 feet.
Calculation Date: Jul/05/2012

Magnetic Calculations

Model: IGRF2010
Dip Angle: 60.1079 degrees
Total Magnetic Field: 0.48476 gauss
Magnetic Declination: 7.529344 degrees
Horizontal Intensity: 0.241587 gauss
To Convert a Magnetic Dir. to a TRUE North Dir. Add 7.529344 Degr

Transverse Mercator Grid Calculations NAD83

Grid System: Transverse Mercator: new mexico east
Ellipsoid: GRS80
X: 726512.8000 feet
Y: 435920.9000 feet
True to Grid: (convergence) -0.318984 degrees
Magnetic to Grid: 7.210360 degrees
To Convert a Magnetic Dir. to a GRID dir. Add 7.210360 Degr.



PO Box 1370
Artesia, NM 88211-1370
(505) 748-1288

July 24, 2012

Yates Petroleum Corporation
105 S. 4th
Artesia, NM 88211-1395

RE: Haracz AMO Federal #2H
500' FSL & 1650' FWL
Sec. 24, T24S, R31E
Eddy County, New Mexico

Dear Sir,

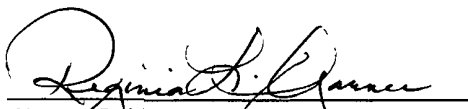
The attached is the Deviation Survey for the above captioned well.

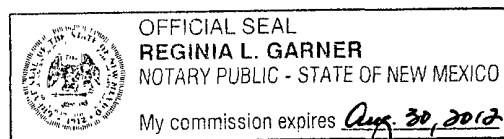
Very truly yours,


Eddie LaRue
Operations Manager

State of New Mexico }
County of Eddy }

The foregoing was acknowledged before me this 24th day of June, 2012.


Regina L. Garner
Notary Public



Pason DataHub Deviation Survey

Well Dossier 1340123795 - HARACZ AMO FEDERAL #2-H

# Date	Depth	Deviation	Direction	TVD	Horiz
6/22/2012	243	0.20	0.00	0.00	0.00
6/22/2012	455	0.90	0.00	0.00	0.00
6/23/2012	664	0.70	0.00	0.00	0.00
6/25/2012	970	0.40	0.00	0.00	0.00
6/25/2012	1402	0.30	0.00	0.00	0.00
6/25/2012	1909	0.60	0.00	0.00	0.00
6/26/2012	2366	0.20	0.00	0.00	0.00
6/26/2012	2645	0.70	0.00	0.00	0.00
6/26/2012	2892	0.60	0.00	0.00	0.00
6/27/2012	3145	1.70	0.00	0.00	0.00
6/28/2012	3394	0.90	0.00	0.00	0.00
6/28/2012	3642	0.30	0.00	0.00	0.00
6/29/2012	3892	1.50	0.00	0.00	0.00
6/29/2012	4265	1.10	0.00	0.00	0.00
7/2/2012	4565	2.40	0.00	0.00	0.00
7/2/2012	4690	1.70	0.00	0.00	0.00
7/2/2012	4813	1.20	0.00	0.00	0.00
7/2/2012	5124	0.90	0.00	0.00	0.00
7/3/2012	5434	0.10	0.00	0.00	0.00
7/3/2012	5717	0.70	0.00	0.00	0.00
7/3/2012	6027	0.60	0.00	0.00	0.00
7/4/2012	6330	0.70	0.00	0.00	0.00
7/4/2012	6673	0.40	0.00	0.00	0.00
7/4/2012	6965	1.50	0.00	0.00	0.00
7/4/2012	7171	1.40	0.00	0.00	0.00
7/5/2012	7362	2.20	0.00	0.00	0.00
7/7/2012	7755	1.49	179.98	7753.00	0.74
7/7/2012	7787	1.41	187.98	7786.00	0.74
7/7/2012	7849	0.53	28.01	7847.00	0.75
7/7/2012	7818	0.97	174.11	7816.00	0.75
7/7/2012	7880	3.08	9.32	7878.00	74.00
7/7/2012	7911	5.89	4.35	7909.00	72.00
7/7/2012	7942	9.15	1.94	7940.00	68.00
7/7/2012	7974	12.66	1.65	7972.00	62.00
7/8/2012	8005	16.36	1.29	8002.00	54.00
7/8/2012	8036	20.05	2.19	8031.00	44.00
7/8/2012	8068	23.74	2.57	8061.00	33.00
7/8/2012	8099	27.67	2.58	8089.00	19.00
7/8/2012	8156	34.91	239.00	8137.00	12.00
7/8/2012	8187	38.51	2.69	8162.00	31.00
7/8/2012	8218	42.56	3.02	8185.00	51.00
7/8/2012	8249	45.99	2.83	8207.00	73.00

# Date	Depth	Deviation	Direction	TVD	Horiz
7/8/2012	8280	50.21	2.60	8228.00	96.00
7/8/2012	8312	54.52	2.59	8248.00	121.00
7/9/2012	8343	58.56	2.94	8265.00	147.00
7/9/2012	8375	62.17	3.52	8281.00	175.00
7/9/2012	8406	65.51	4.34	8294.00	203.00
7/9/2012	8437	70.00	5.13	8306.00	231.00
7/10/2012	8462	72.63	5.55	8314.00	255.00
7/10/2012	8493	75.36	6.02	8322.00	285.00
7/10/2012	8525	76.85	6.88	8330.00	316.00
7/10/2012	8556	78.70	7.11	8337.00	346.00
7/10/2012	8587	80.11	7.31	8342.00	377.00
7/11/2012	8618	81.43	7.24	8347.00	407.00
7/11/2012	8649	82.66	7.57	8352.00	438.00
7/11/2012	8680	84.15	7.55	8355.00	468.00
7/11/2012	8773	87.67	7.33	8362.00	561.00
7/12/2012	8866	89.60	7.11	8364.00	654.00
7/12/2012	8961	90.40	6.77	8364.00	749.00
7/12/2012	9053	91.89	4.37	8362.00	840.00
7/12/2012	9147	92.15	2.30	8359.00	934.00
7/12/2012	9240	91.01	1.96	8357.00	1027.00
7/12/2012	9333	89.16	1.64	8357.00	1120.00
7/13/2012	9427	89.43	1.23	8358.00	1214.00
7/13/2012	9520	89.08	358.96	8359.00	1307.00
7/13/2012	9614	88.64	359.82	8361.00	1401.00
7/13/2012	9707	88.64	2.50	8363.00	1493.00
7/13/2012	9800	89.08	4.11	8364.00	1586.00
7/13/2012	9893	89.08	5.01	8366.36	1679.80
7/13/2012	9987	90.40	4.80	8366.00	1773.00
7/13/2012	10080	91.01	5.27	8365.00	1867.00
7/14/2012	10174	90.31	4.83	8364.00	1960.00
7/14/2012	10267	90.57	4.39	8363.00	2054.00
7/14/2012	10360	90.84	4.32	8363.00	2147.00
7/14/2012	10455	91.63	4.96	8360.00	2241.00
7/14/2012	10548	90.75	4.39	8359.00	2335.00
7/15/2012	10642	90.31	3.75	8358.00	2428.00
7/15/2012	10735	89.43	3.29	8358.00	2521.00
7/15/2012	10829	89.69	3.63	8558.00	2615.00
7/15/2012	10922	89.52	4.28	8359.00	2708.00
7/15/2012	11015	90.13	4.18	8359.00	2801.00
7/17/2012	11103	89.16	4.37	8360.00	2882.00
7/17/2012	11197	89.78	4.59	8361.00	2983.00
7/17/2012	11384	91.01	5.02	8359.00	3170.00
7/18/2012	11477	91.68	5.34	8356.00	3263.00
7/18/2012	11570	91.63	5.24	9354.00	3356.00
7/18/2012	11664	91.89	5.95	8351.00	3450.00

#	Date	Depth	Deviation	Direction	TVD	Horiz
	7/18/2012	11757	91.36	5.67	8348.00	3543.00
	7/18/2012	11851	90.40	5.05	8347.00	3637.00
	7/19/2012	11944	90.75	6.37	8346.00	3730.00
	7/19/2012	12037	90.87	6.29	8344.00	3823.00
	7/19/2012	12130	87.78	1.00	8346.00	3916.00
	7/19/2012	12161	87.49	0.62	8347.00	3947.00
	7/19/2012	12192	87.49	0.85	8348.00	3978.00
	7/19/2012	12223	87.67	0.64	8350.00	4008.00
	7/19/2012	12254	88.81	0.84	8351.00	4039.00
	7/19/2012	12286	89.87	0.95	8351.00	4071.00
	7/19/2012	12317	90.13	0.95	8351.00	4102.00
	7/19/2012	12348	90.31	1.07	8351.00	4133.00
	7/20/2012	12379	90.40	0.92	8351.00	4164.00
	7/20/2012	12411	90.31	1.02	8351.00	4196.00
	7/20/2012	12442	90.48	0.95	8350.00	4227.00
	7/20/2012	12473	91.19	0.83	8350.00	4258.00
	7/20/2012	12505	91.89	1.16	8349.00	4290.00
	7/20/2012	12535	92.42	1.34	8348.00	4320.00
	7/20/2012	12567	93.03	1.28	8346.00	4352.00
#	EOF					



Yates Petroleum Corp.

Eddy County (NAD 83)

Haracz "AMO" Federal

#2H

OH

Design: OH

PathfinderX & Y Report

23 July, 2012

PATHFINDER[®]

A Schlumberger Company



Pathfinder PathfinderX & Y Report

PATHFINDER
A Schlumberger Company

Company:	Yates Petroleum Corp.	Local Co-ordinate Reference:	Well #2H
Project:	Eddy County (NAD 83)	TVD Reference:	KB= 18' @ 3567.0usft (Silver Oak 10)
Site:	Haracz "AMO" Federal	MD Reference:	KB= 18' @ 3567.0usft (Silver Oak 10)
Well:	#2H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM-5000 1 Single User Db

Project:	Eddy County (NAD 83)	System Datum:	Mean Sea Level
Map System:	US State Plane 1983		
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site:	Haracz "AMO" Federal		
Site Position:		Northing:	435,667.609 usft
From:	Map	Easting:	724,196.772 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "
		Latitude:	32.196
		Longitude:	-103.742
		Grid Convergence:	0 32 °

Well		#2H				
Well Position	+N/-S	0.0 usft	Northing:	435,920.900 usft	Latitude:	32.197
	+E/-W	0.0 usft	Easting:	726,512.800 usft	Longitude:	-103.735
Position Uncertainty	0.0 usft	Wellhead Elevation:	usft	Ground Level:	3,549.0 usft	

Wellbore		OH			
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	2/22/2011	7.70	60.14	48,612

Design:	OH			
Audit Notes:				
Version:	1 0	Phase:	ACTUAL	Tie On Depth: 0 0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0 0	0 0	0 0	0.00



Pathfinder PathfinderX & Y Report

PATHFINDER
A Schlumberger Company

Company:	Yates Petroleum Corp.	Local Co-ordinate Reference:	Well #2H
Project:	Eddy County (NAD 83)	TVD Reference:	KB= 18' @ 3567.0usft (Silver Oak 10)
Site:	Haracz "AMO" Federal	MD Reference:	KB= 18' @ 3567 0usft (Silver Oak 10)
Well:	#2H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000 1 Single User Db

Survey Program	Date 7/23/2012		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name
200.0	7,712.0	Gyro #1 (OH)	CTG-SR-SS
7,751.0	12,626.0	MWD #2 (OH)	MWD
			Description
			Continuous gyro - surface ref. s/s
			MWD - Standard

Survey	MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
	0.0	0.00	0.00	0.0	-3,567.0	0.0	0.0	0.0	0.00	435,920.90	726,512.80
	200.0	0.34	242.08	200.0	-3,367.0	-0.3	-0.5	-0.3	0.17	435,920.62	726,512.28
	400.0	0.51	259.60	400.0	-3,167.0	-0.7	-1.9	-0.7	0.11	435,920.18	726,510.88
	600.0	0.56	304.66	600.0	-2,967.0	-0.3	-3.6	-0.3	0.21	435,920.58	726,509.20
	800.0	0.58	313.24	800.0	-2,767.0	0.9	-5.1	0.9	0.04	435,921.83	726,507.66
	1,000.0	0.43	309.84	1,000.0	-2,567.0	2.1	-6.5	2.1	0.08	435,923.00	726,506.34
	1,200.0	0.21	310.97	1,200.0	-2,367.0	2.8	-7.3	2.8	0.11	435,923.72	726,505.49
	1,400.0	0.24	330.35	1,400.0	-2,167.0	3.4	-7.8	3.4	0.04	435,924.33	726,505.00
	1,600.0	0.31	322.12	1,600.0	-1,967.0	4.2	-8.3	4.2	0.04	435,925.12	726,504.47
	1,800.0	0.51	317.72	1,800.0	-1,767.0	5.3	-9.3	5.3	0.10	435,926.20	726,503.53
	2,000.0	0.45	319.19	1,999.9	-1,567.1	6.6	-10.4	6.6	0.03	435,927.46	726,502.42
	2,200.0	0.38	329.22	2,199.9	-1,367.1	7.7	-11.2	7.7	0.05	435,928.62	726,501.57
	2,400.0	0.17	147.57	2,399.9	-1,167.1	8.0	-11.4	8.0	0.27	435,928.94	726,501.39
	2,600.0	0.42	169.53	2,599.9	-967.1	7.1	-11.1	7.1	0.13	435,927.97	726,501.68
	2,800.0	0.89	172.95	2,799.9	-767.1	4.8	-10.8	4.8	0.24	435,925.71	726,502.01
	3,000.0	1.61	187.79	2,999.9	-567.1	0.5	-11.0	0.5	0.39	435,921.38	726,501.81
	3,200.0	1.49	198.74	3,199.8	-367.2	-4.8	-12.2	-4.8	0.16	435,916.14	726,500.60
	3,400.0	0.65	188.63	3,399.8	-167.2	-8.3	-13.2	-8.3	0.43	435,912.55	726,499.59
	3,600.0	0.22	215.85	3,599.8	32.8	-9.8	-13.6	-9.8	0.23	435,911.12	726,499.20
	3,800.0	1.03	251.15	3,799.7	232.7	-10.7	-15.5	-10.7	0.43	435,910.23	726,497.27
	4,000.0	0.92	178.73	3,999.7	432.7	-12.9	-17.2	-12.9	0.58	435,908.04	726,495.61



Pathfinder PathfinderX & Y Report



Company:	Yates Petroleum Corp	Local Co-ordinate Reference:	Well #2H
Project:	Eddy County (NAD 83)	TVD Reference:	KB= 18' @ 3567 0usft (Silver Oak 10)
Site:	Haracz "AMO" Federal	MD Reference:	KB= 18' @ 3567 0usft (Silver Oak 10)
Well:	#2H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000.1-Single User Db

Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V.Sec (usft)	DLeg, (°/100usft)	Northing (usft)	Easting (usft)	
4,200.0	1.59	173.96	4,199.7	632.7	-17.2	-16.9	-17.2	0.34	435,903.68	726,495.93	
4,400.0	2.58	164.75	4,399.5	832.5	-24.3	-15.4	-24.3	0.52	435,896.57	726,497.41	
4,600.0	1.81	165.02	4,599.4	1,032.4	-31.7	-13.4	-31.7	0.39	435,889.18	726,499.41	
4,800.0	1.17	164.35	4,799.3	1,232.3	-36.7	-12.0	-36.7	0.32	435,884.16	726,500.78	
5,000.0	0.84	171.45	4,999.3	1,432.3	-40.2	-11.3	-40.2	0.18	435,880.75	726,501.55	
5,200.0	0.43	187.88	5,199.3	1,632.3	-42.3	-11.1	-42.3	0.22	435,878.55	726,501.66	
5,400.0	0.50	195.99	5,399.3	1,832.3	-43.9	-11.5	-43.9	0.05	435,876.97	726,501.32	
5,600.0	0.53	208.72	5,599.3	2,032.3	-45.6	-12.2	-45.6	0.06	435,875.32	726,500.63	
5,800.0	0.48	210.75	5,799.3	2,232.3	-47.1	-13.0	-47.1	0.03	435,873.79	726,499.76	
6,000.0	0.53	202.44	5,999.3	2,432.3	-48.7	-13.8	-48.7	0.04	435,872.21	726,498.98	
6,200.0	0.45	215.47	6,199.2	2,632.2	-50.2	-14.6	-50.2	0.07	435,870.72	726,498.17	
6,400.0	0.48	232.08	6,399.2	2,832.2	-51.3	-15.7	-51.3	0.07	435,869.57	726,497.05	
6,600.0	0.43	248.06	6,599.2	3,032.2	-52.1	-17.1	-52.1	0.07	435,868.77	726,495.70	
6,800.0	0.34	232.58	6,799.2	3,232.2	-52.8	-18.3	-52.8	0.07	435,868.13	726,494.53	
7,000.0	1.10	192.27	6,999.2	3,432.2	-55.0	-19.2	-55.0	0.43	435,865.89	726,493.65	
7,200.0	1.19	201.30	7,199.2	3,632.2	-58.8	-20.3	-58.8	0.10	435,862.08	726,492.49	
7,400.0	1.71	202.32	7,399.1	3,832.1	-63.5	-22.2	-63.5	0.26	435,857.39	726,490.60	
7,600.0	1.45	174.61	7,599.0	4,032.0	-68.8	-23.1	-68.8	0.40	435,852.11	726,489.70	
7,712.0	1.43	174.15	7,711.0	4,144.0	-71.6	-22.8	-71.6	0.02	435,849.31	726,489.98	
7,751.0	1.49	175.98	7,750.0	4,183.0	-72.6	-22.7	-72.6	0.19	435,848.32	726,490.06	
7,782.0	1.41	187.98	7,781.0	4,214.0	-73.4	-22.8	-73.4	1.01	435,847.54	726,490.04	
7,813.0	0.97	174.11	7,812.0	4,245.0	-74.0	-22.8	-74.0	1.69	435,846.90	726,490.01	
7,844.0	0.53	28.01	7,843.0	4,276.0	-74.1	-22.7	-74.1	4.65	435,846.76	726,490.11	
7,875.0	3.08	9.32	7,874.0	4,307.0	-73.2	-22.5	-73.2	8.33	435,847.71	726,490.31	
KOP - 7875.0 'MD, 7874.0 'TVD, -73.2 'N, -22.5 'E											
7,906.0	5.89	4.35	7,904.9	4,337.9	-70.8	-22.2	-70.8	9.14	435,850.12	726,490.57	
7,937.0	9.15	1.94	7,935.6	4,368.6	-66.7	-22.0	-66.7	10.56	435,854.17	726,490.77	



Pathfinder PathfinderX & Y Report

PATHFINDER
A Schlumberger Company

Company:	Yates Petroleum Corp	Local Co-ordinate Reference:	Well #2H
Project:	Eddy County (NAD 83)	TVD Reference:	KB= 18' @ 3567.0usft (Silver Oak 10)
Site:	Haracz "AMO" Federal	MD Reference:	KB= 18' @ 3567.0usft (Silver Oak 10)
Well:	#2H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000.1 Single User Db

Survey										
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
7,969.0	12.66	1.65	7,967.0	4,400.0	-60.7	-21.8	-60.7	10.97	435,860.22	726,490.96
8,000.0	16.36	1.29	7,997.0	4,430.0	-52.9	-21.6	-52.9	11.94	435,867.98	726,491.15
8,032.0	20.05	2.19	8,027.4	4,460.4	-42.9	-21.3	-42.9	11.56	435,877.97	726,491.46
8,063.0	23.74	2.57	8,056.2	4,489.2	-31.4	-20.9	-31.4	11.91	435,889.52	726,491.95
8,094.0	27.61	2.58	8,084.1	4,517.1	-18.0	-20.2	-18.0	12.48	435,902.94	726,492.55
8,125.0	31.04	2.32	8,111.1	4,544.1	-2.8	-19.6	-2.8	11.07	435,918.10	726,493.20
8,156.0	34.91	2.39	8,137.1	4,570.1	14.1	-18.9	14.1	12.48	435,934.96	726,493.89
8,187.0	38.51	2.69	8,162.0	4,595.0	32.6	-18.1	32.6	11.63	435,953.47	726,494.72
8,218.0	42.56	3.02	8,185.5	4,618.5	52.7	-17.1	52.7	13.08	435,973.59	726,495.72
8,249.0	45.99	2.83	8,207.7	4,640.7	74.3	-16.0	74.3	11.07	435,995.20	726,496.82
8,280.0	50.21	2.60	8,228.4	4,661.4	97.3	-14.9	97.3	13.62	436,018.24	726,497.92
8,312.0	54.52	2.59	8,247.9	4,680.9	122.6	-13.7	122.6	13.47	436,043.55	726,499.06
8,343.0	58.56	2.94	8,265.0	4,698.0	148.5	-12.5	148.5	13.07	436,069.37	726,500.31
8,375.0	62.17	3.52	8,280.9	4,713.9	176.2	-10.9	176.2	11.39	436,097.14	726,501.88
8,406.0	65.51	4.34	8,294.5	4,727.5	204.0	-9.0	204.0	11.03	436,124.89	726,503.79
8,437.0	70.00	5.13	8,306.3	4,739.3	232.6	-6.6	232.6	14.67	436,153.48	726,506.16
8,462.0	72.63	5.55	8,314.3	4,747.3	256.2	-4.4	256.2	10.64	436,177.06	726,508.37
8,493.0	75.36	6.02	8,322.8	4,755.8	285.8	-1.4	285.8	8.93	436,206.70	726,511.37
8,525.0	76.85	6.88	8,330.5	4,763.5	316.7	2.1	316.7	5.34	436,237.57	726,514.86
8,556.0	78.70	7.11	8,337.1	4,770.1	346.7	5.7	346.7	6.01	436,267.64	726,518.55
8,587.0	80.11	7.31	8,342.8	4,775.8	377.0	9.6	377.0	4.59	436,297.87	726,522.37
8,618.0	81.43	7.24	8,347.7	4,780.7	407.3	13.4	407.3	4.26	436,328.22	726,526.25
8,649.0	82.66	7.57	8,352.0	4,785.0	437.8	17.4	437.8	4.11	436,358.66	726,530.21
8,680.0	84.15	7.55	8,355.6	4,788.6	468.3	21.5	468.3	4.81	436,389.19	726,534.26
8,773.0	87.67	7.33	8,362.2	4,795.2	560.3	33.5	560.3	3.79	436,481.16	726,546.27
8,866.0	89.60	7.11	8,364.4	4,797.4	652.5	45.2	652.5	2.09	436,573.39	726,557.95
LP - 8866.0 MD, 8364.4 TVD, 652.5 N, 45.2 E										



Pathfinder PathfinderX & Y Report

PATHFINDER
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Company:	Yates Petroleum Corp.	Local Co-ordinate Reference:	Well #2H
Project:	Eddy County (NAD 83)	TVD Reference:	KB= 18' @ 3567.0usft (Silver Oak 10)
Site:	Haracz "AMO" Federal	MD Reference:	KB= 18' @ 3567.0usft (Silver Oak 10)
Well:	#2H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000.1 Single User Db

Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)	
8,961.0	90.40	6.77	8,364.4	4,797.4	746.8	56.6	746.8	0.92	436,667.69	726,569.43	
9,053.0	91.89	4.37	8,362.6	4,795.6	838.3	65.6	838.3	3.07	436,759.23	726,578.36	
9,147.0	92.15	2.30	8,359.3	4,792.3	932.1	71.0	932.1	2.22	436,853.01	726,583.82	
9,240.0	91.01	1.96	8,356.7	4,789.7	1,025.0	74.5	1,025.0	1.28	436,945.91	726,587.28	
9,333.0	89.16	1.64	8,356.6	4,789.6	1,118.0	77.4	1,118.0	2.02	437,038.86	726,590.20	
9,427.0	89.43	1.23	8,357.7	4,790.7	1,211.9	79.8	1,211.9	0.52	437,132.82	726,592.55	
9,520.0	89.08	358.96	8,358.9	4,791.9	1,304.9	79.9	1,304.9	2.47	437,225.81	726,592.71	
9,614.0	88.64	359.82	8,360.8	4,793.8	1,398.9	78.9	1,398.9	1.03	437,319.78	726,591.71	
9,707.0	88.64	2.50	8,363.0	4,796.0	1,491.8	80.8	1,491.8	2.88	437,412.73	726,593.59	
9,800.0	89.08	4.11	8,364.9	4,797.9	1,584.7	86.1	1,584.7	1.79	437,505.55	726,598.95	
9,893.0	89.08	5.01	8,366.4	4,799.4	1,677.3	93.5	1,677.3	0.97	437,598.24	726,606.34	
9,987.0	90.40	4.80	8,366.8	4,799.8	1,771.0	101.6	1,771.0	1.42	437,691.90	726,614.38	
10,080.0	91.01	5.27	8,365.6	4,798.6	1,863.6	109.7	1,863.6	0.83	437,784.53	726,622.54	
10,174.0	90.31	4.83	8,364.6	4,797.6	1,957.3	118.0	1,957.3	0.88	437,878.16	726,630.81	
10,267.0	90.57	4.39	8,363.8	4,796.8	2,050.0	125.5	2,050.0	0.55	437,970.85	726,638.29	
10,360.0	90.84	4.32	8,362.7	4,795.7	2,142.7	132.5	2,142.7	0.30	438,063.58	726,645.35	
10,455.0	91.63	4.96	8,360.7	4,793.7	2,237.3	140.2	2,237.3	1.07	438,158.24	726,653.03	
10,548.0	90.75	4.39	8,358.7	4,791.7	2,330.0	147.8	2,330.0	1.13	438,250.91	726,660.61	
10,642.0	90.31	3.75	8,357.9	4,790.9	2,423.8	154.5	2,423.8	0.83	438,344.67	726,667.28	
10,735.0	89.43	3.29	8,358.1	4,791.1	2,516.6	160.2	2,516.6	1.07	438,437.49	726,672.99	
10,829.0	89.69	3.63	8,358.8	4,791.8	2,610.4	165.9	2,610.4	0.46	438,531.32	726,678.66	
10,922.0	89.52	4.28	8,359.4	4,792.4	2,703.2	172.3	2,703.2	0.72	438,624.10	726,685.08	
11,015.0	90.13	4.18	8,359.7	4,792.7	2,795.9	179.1	2,795.9	0.66	438,716.84	726,691.94	
11,103.0	89.16	4.37	8,360.3	4,793.3	2,883.7	185.7	2,883.7	1.12	438,804.59	726,698.50	
11,197.0	89.78	4.59	8,361.1	4,794.1	2,977.4	193.0	2,977.4	0.70	438,898.30	726,705.84	
11,290.0	90.92	5.16	8,360.6	4,793.6	3,070.1	200.9	3,070.1	1.37	438,990.96	726,713.74	
11,384.0	91.01	5.02	8,359.0	4,792.0	3,163.7	209.3	3,163.7	0.18	439,084.58	726,722.08	



Pathfinder
PathfinderX & Y Report

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Project:	Eddy County (NAD 83)	TVD Reference:	KB= 18' @ 3567.0usft (Silver Oak 10)
Site:	Haracz "AMO" Federal	MD Reference:	KB= 18' @ 3567.0usft (Silver Oak 10)
Well:	#2H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000.1 Single User Db

Survey										
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (%/100usft)	Northing (usft)	Easting (usft)
11,477.0	91.68	5.34	8,356.8	4,789.8	3,256.3	217.7	3,256.3	0.80	439,177.17	726,730.48
11,570.0	91.63	5.24	8,354.1	4,787.1	3,348.8	226.2	3,348.8	0.12	439,269.74	726,739.05
11,664.0	91.89	5.95	8,351.2	4,784.2	3,442.3	235.4	3,442.3	0.80	439,363.25	726,748.21
11,757.0	91.36	5.67	8,348.6	4,781.6	3,534.8	244.8	3,534.8	0.64	439,455.73	726,757.62
11,851.0	90.40	5.06	8,347.1	4,780.1	3,628.4	253.6	3,628.4	1.21	439,549.31	726,766.40
11,944.0	90.75	6.37	8,346.2	4,779.2	3,720.9	262.9	3,720.9	1.46	439,641.84	726,775.66
12,037.0	90.84	6.29	8,344.9	4,777.9	3,813.4	273.1	3,813.4	0.13	439,734.26	726,785.92
12,130.0	87.58	1.00	8,346.2	4,779.2	3,906.1	279.0	3,906.1	6.68	439,827.02	726,791.83
12,161.0	87.49	0.62	8,347.5	4,780.5	3,937.1	279.5	3,937.1	1.26	439,857.99	726,792.27
12,192.0	87.49	0.85	8,348.9	4,781.9	3,968.1	279.9	3,968.1	0.74	439,888.95	726,792.66
12,223.0	87.67	0.64	8,350.2	4,783.2	3,999.0	280.3	3,999.0	0.89	439,919.92	726,793.07
12,254.0	88.81	0.84	8,351.1	4,784.1	4,030.0	280.7	4,030.0	3.73	439,950.91	726,793.47
12,286.0	89.87	0.95	8,351.5	4,784.5	4,062.0	281.2	4,062.0	3.33	439,982.90	726,793.97
12,317.0	90.13	0.95	8,351.5	4,784.5	4,093.0	281.7	4,093.0	0.84	440,013.89	726,794.48
12,348.0	90.31	1.07	8,351.4	4,784.4	4,124.0	282.2	4,124.0	0.70	440,044.89	726,795.03
12,379.0	90.40	0.92	8,351.2	4,784.2	4,155.0	282.8	4,155.0	0.56	440,075.88	726,795.56
12,411.0	90.31	1.02	8,351.0	4,784.0	4,187.0	283.3	4,187.0	0.42	440,107.88	726,796.11
12,442.0	90.48	0.95	8,350.8	4,783.8	4,218.0	283.8	4,218.0	0.59	440,138.87	726,796.64
12,473.0	91.19	0.83	8,350.3	4,783.3	4,249.0	284.3	4,249.0	2.32	440,169.87	726,797.12
12,505.0	91.89	1.16	8,349.5	4,782.5	4,281.0	284.9	4,281.0	2.42	440,201.85	726,797.68
12,535.0	92.42	1.34	8,348.4	4,781.4	4,310.9	285.5	4,310.9	1.87	440,231.82	726,798.33
12,567.0	93.03	1.28	8,346.8	4,779.8	4,342.9	286.3	4,342.9	1.92	440,263.78	726,799.06
12,626.0	93.03	1.28	8,343.7	4,776.7	4,401.8	287.6	4,401.8	0.00	440,322.68	726,800.38
BHL - 12626.0 'MD, 8343.7 'TVD, 4401.8 'N, 287.6 'E - FWL:654.4', FNL:357.5', FEL:665'										



Pathfinder
PathfinderX & Y Report

PATHFINDER
A Schlumberger Company

Company:	Yates Petroleum Corp.	Local Co-ordinate Reference:	Well #2H
Project:	Eddy County (NAD 83)	TVD Reference:	KB= 18' @ 3567.0usft (Silver Oak 10)
Site:	Haracz "AMO" Federal	MD Reference:	KB= 18' @ 3567.0usft (Silver Oak 10)
Well:	#2H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000.1 Single User Db

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/S (usft)	+E/W (usft)	
7,875.0	7,874.0	-73.2	-22.5	KOP - 7875 0 'MD, 7874.0 'TVD, -73.2 'N, -22.5 'E
8,866 0	8,364 4	652 5	45 2	LP - 8866.0 'MD, 8364 4 'TVD, 652.5 'N, 45.2 'E
12,626 0	8,343 7	4,401 8	287.6	BHL - 12626 0 'MD, 8343.7 'TVD, 4401 8 'N, 287 6 'E
12,626 0	8,343 7	4,401 8	287.6	FWL 654 4', FNL 357 5', FEL 665'

Checked By: _____	Approved By: _____	Date: _____
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PROJECT DETAILS: Eddy County (NAD 83)
Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: New Mexico Eastern Zone
System Datum: Mean Sea Level
Local North: Grid



Azimuths to Grid North
True North: -0.32°
Magnetic North: 7.38°

Magnetic Field
Strength: 48612.1nT
Dip Angle: 60.14°
Date: 2/22/2011
Model: IGRF2010

PATHFINDER®
A Schlumberger Company

Project: Eddy County (NAD 83)
Site: Haracz "AMO" Federal
Well: #2H
Wellbore: OH
Plan: Post Gyro Plan #2 (#2H/OH)

WELL DETAILS: #2H

Ground Elevation: 3549.0
RKB Elevation: KB=18' @ 3567.0usft (Silver Oak 10)
Rig Name: Silver Oak 10

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	435920.900	726512.800	32.197	-103.735	

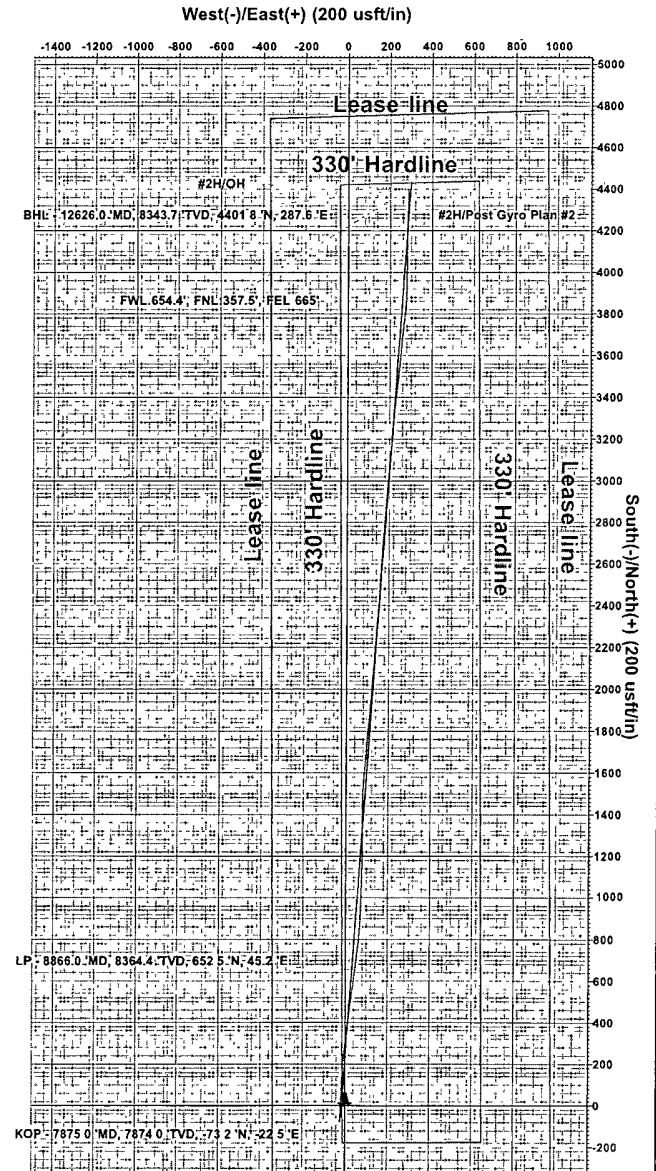
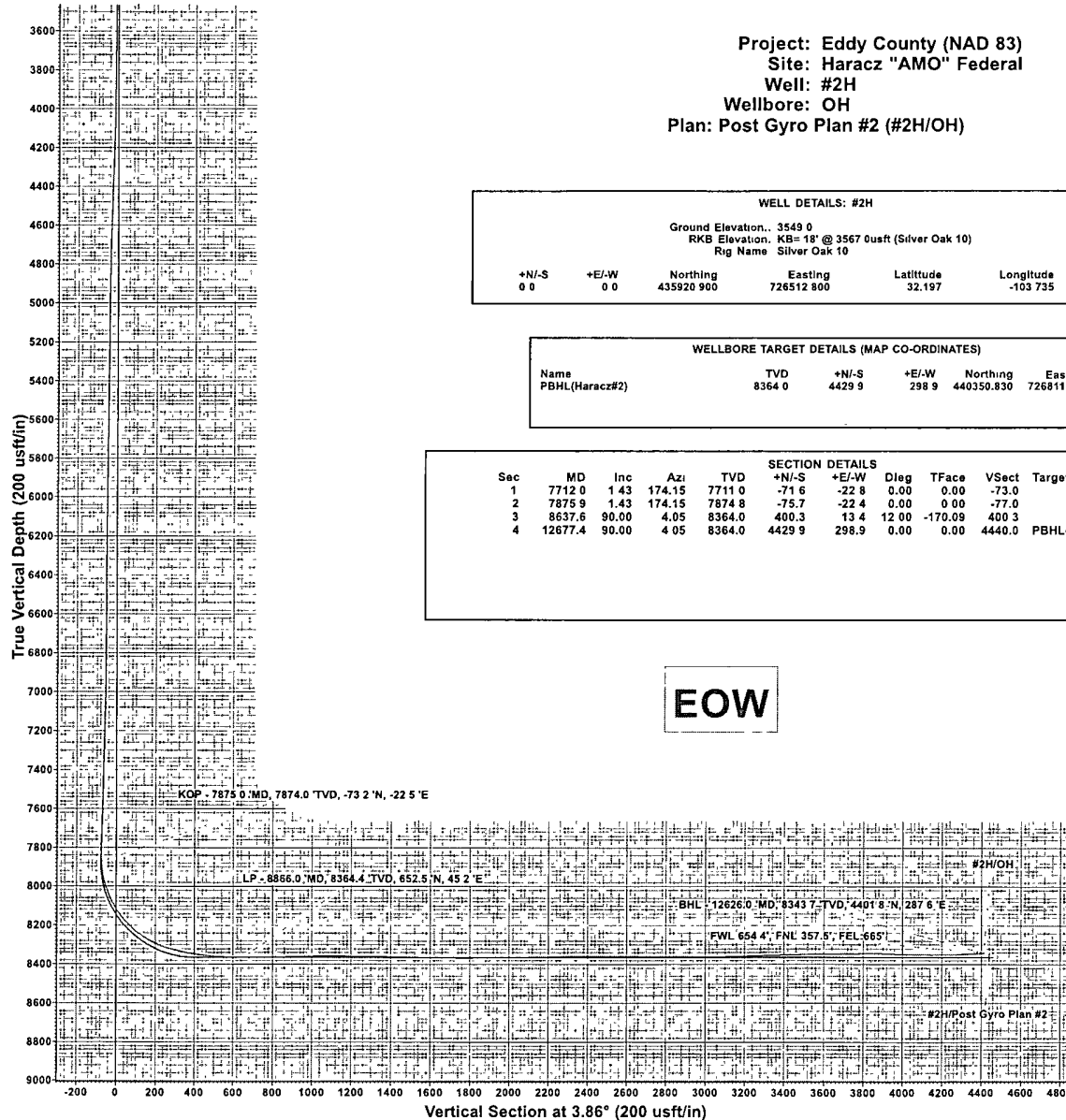
WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N/-S	+E/-W	Northing	Easting	Shape
PBHL(Haracz#2)	8364.0	4429.9	298.9	440350.830	726811.700	Point

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
1	7712.0	1.43	174.15	7711.0	-71.6	-22.8	0.00	0.00	-73.0	
2	7875.9	1.43	174.15	7874.8	-75.7	-22.4	0.00	0.00	-77.0	
3	8637.6	90.00	4.05	8364.0	400.3	13.4	12.00	-170.09	400.3	
4	12677.4	90.00	4.05	8364.0	4429.9	298.9	0.00	0.00	4440.0	PBHL(Haracz#2)

EOW



Plan: Post Gyro Plan #2 (#2H/OH)

Created By: Sam Biffle Date: 9/43, July 23 2012

Checked: _____ Date: _____

Well: Haracz#2
Lease: Haracz#2
Date: 9/43, July 23 2012
Page: 1 of 1