

MAR 02 2015



Job Number: SVMO-141346
 Company: Yates Petroleum Corporation
 Lease/Well: Cranberry BSU State Com 5H
 Location: Lea County, NM
 Rig Name: Nomac #22
 RKB: 21.5'
 G.L. or M.S.L.: GL

State/Country: New Mexico/USA
 Declination: 6.78°
 Grid: East To Grid North
 File name: Y:\WINSER~1\2014SU~1\YATES\MO\CRANBE~1\COM5H.SVY
 Date/Time: 10-Oct-14 / 14:45
 Curve Name: Surface - 1900' M.D. (Rate Gyro)

NOTED
 FEB 09 2015
 RECEIVED

MS Survey

WINSERVE SURVEY CALCULATIONS
 Minimum Curvature Method
 Vertical Section Plane .00
 Vertical Section Referenced to Wellhead
 Rectangular Coordinates Referenced to Wellhead

We hereby certify that our survey data from
 Surface MD to 1900' MD is, to the best of
 our knowledge a true and accurate account of
 the well bore.
 Shawn Cooper 10/10/14
 MS Energy Services Date

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	C L O S U R E		Dogleg Severity Deg/100
							Distance FT	Direction Deg	
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
200.00	.22	162.65	200.00	-.37	.11	-.37	.38	162.65	.11
400.00	.38	152.67	400.00	-1.32	.53	-1.32	1.43	158.03	.08
600.00	.29	168.88	599.99	-2.41	.94	-2.41	2.58	158.77	.06
800.00	.05	266.53	799.99	-2.91	.95	-2.91	3.06	161.99	.15
1000.00	.10	175.68	999.99	-3.09	.87	-3.09	3.21	164.23	.06
1200.00	.02	92.86	1199.99	-3.27	.92	-3.27	3.39	164.26	.05
1400.00	.07	15.38	1399.99	-3.15	.99	-3.15	3.30	162.59	.03
1600.00	.04	110.17	1599.99	-3.06	1.09	-3.06	3.24	160.44	.04
1800.00	.09	96.88	1799.99	-3.10	1.31	-3.10	3.36	157.13	.03

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	C L O S U R E		Dogleg Severity Deg/100
							Distance FT	Direction Deg	
Last Survey Depth Recorded									
1900.00	.03	211.54	1899.99	-3.13	1.37	-3.13	3.42	156.34	.11

Yates Petroleum

Lea County, NM (NAD-83)
Cranberry BSU State Com
#5H

OH

Design: OH

Standard Survey Report

20 October, 2014

HOBBSOCD

FEB 09 2015

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Survey Report

Company:	Yates Petroleum	Local Co-ordinate Reference:	Well #5H
Project:	Lea County, NM (NAD-83)	TVD Reference:	RKB @ 3811.5usft (Nomac 22- KB=21.5')
Site:	Cranberry BSU State Com	MD Reference:	RKB @ 3811.5usft (Nomac 22- KB=21.5')
Well:	#5H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Houston R5000 Database

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

Site	Cranberry BSU State Com		
Site Position:		Northing:	541,488.80 usft
From:	Map	Easting:	787,085.20 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 29' 9.928 N
		Longitude:	103° 32' 10.845 W
		Grid Convergence:	0.43 °

Well	#5H		
Well Position	+N/-S	0.0 usft	Northing: 541,488.10 usft
	+E/-W	0.0 usft	Easting: 786,915.40 usft
Position Uncertainty	0.0 usft	Wellhead Elevation:	0.0 usft
		Latitude:	32° 29' 9.934 N
		Longitude:	103° 32' 12.827 W
		Ground Level:	3,790.0 usft

Wellbore	OH		
Magnetics	Model Name	Sample Date	Declination
	IGRF2010	7/10/2014	(°)
			7.21
			Dip Angle (°)
			60.36
			Field Strength (nT)
			48,468

Design	OH		
Audit Notes:		Phase:	ACTUAL
Version:	1.0	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(usft)	(usft)	(usft)
	0.0	0.0	0.0
			Direction (°)
			359.54

Survey Program	Date	10/20/2014		
From	To	Survey (Wellbore)	Tool Name	Description
(usft)	(usft)			
200.0	1,900.0	Survey #1 - Gyro (OH)	CB-GYRO-MS	Camera based gyro multishot
1,991.0	15,656.0	Survey #2 - Crescent MWD Surveys (OH)	MWD	MWD - Standard

Survey									
Measured Depth	Inclination	Azimuth	Vertical Depth	+N/-S	+E/-W	Vertical Section	Dogleg Rate	Build Rate	Turn Rate
(usft)	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(°/100usft)	(°/100usft)	(°/100usft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
Cranberry #1H									
3.0	0.00	162.65	3.0	0.0	0.0	0.0	0.11	0.11	0.00
Cranberry #5H - Date #4H									
3.1	0.00	162.65	3.1	0.0	0.0	0.0	0.00	0.00	0.00
Date #8H									
200.0	0.22	162.65	200.0	-0.4	0.1	-0.4	0.11	0.11	0.00
400.0	0.38	152.67	400.0	-1.3	0.5	-1.3	0.08	0.08	-4.99
600.0	0.29	168.88	600.0	-2.4	0.9	-2.4	0.06	-0.05	8.11

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Site:	Cranberry BSU State Com	MD Reference:	RKB @ 3811.5usft (Nomac 22 - KB=21.5)
Well:	#5H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Houston R5000 Database

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
800.0	0.05	266.53	800.0	-2.9	0.9	-2.9	0.15	-0.12	48.83
1,000.0	0.10	175.68	1,000.0	-3.1	0.9	-3.1	0.06	0.03	-45.43
1,200.0	0.02	92.86	1,200.0	-3.3	0.9	-3.3	0.05	-0.04	-41.41
1,400.0	0.07	15.38	1,400.0	-3.1	1.0	-3.2	0.03	0.03	-38.74
1,600.0	0.04	110.17	1,600.0	-3.1	1.1	-3.1	0.04	-0.02	47.40
1,800.0	0.09	96.88	1,800.0	-3.1	1.3	-3.1	0.03	0.03	-6.65
1,900.0	0.03	211.54	1,900.0	-3.1	1.4	-3.1	0.11	-0.06	114.66
1,991.0	0.20	191.50	1,991.0	-3.3	1.3	-3.3	0.19	0.19	-22.02
2,084.0	0.20	156.90	2,084.0	-3.6	1.4	-3.6	0.13	0.00	-37.20
2,177.0	0.50	297.00	2,177.0	-3.6	1.1	-3.6	0.72	0.32	150.65
2,271.0	1.20	291.60	2,271.0	-3.0	-0.2	-3.0	0.75	0.74	-5.74
2,364.0	1.80	291.40	2,363.9	-2.1	-2.5	-2.1	0.65	0.65	-0.22
2,457.0	1.90	292.60	2,456.9	-1.0	-5.3	-1.0	0.12	0.11	1.29
2,551.0	2.20	287.90	2,550.8	0.1	-8.4	0.2	0.37	0.32	-5.00
2,644.0	2.60	292.20	2,643.8	1.5	-12.1	1.6	0.47	0.43	4.62
2,738.0	2.40	301.00	2,737.7	3.3	-15.7	3.4	0.46	-0.21	9.36
2,832.0	2.30	291.80	2,831.6	5.0	-19.2	5.2	0.41	-0.11	-9.79
2,926.0	2.80	301.30	2,925.5	6.9	-22.9	7.1	0.69	0.53	10.11
3,020.0	2.80	299.00	3,019.4	9.2	-26.9	9.4	0.12	0.00	-2.45
3,113.0	2.40	311.30	3,112.3	11.6	-30.3	11.8	0.74	-0.43	13.23
3,207.0	2.50	320.90	3,206.2	14.5	-33.1	14.8	0.45	0.11	10.21
3,300.0	2.30	321.50	3,299.1	17.5	-35.5	17.8	0.22	-0.22	0.65
3,394.0	1.80	319.20	3,393.1	20.1	-37.7	20.4	0.54	-0.53	-2.45
3,488.0	2.10	298.40	3,487.0	22.1	-40.1	22.4	0.81	0.32	-22.13
3,581.0	2.10	299.80	3,579.9	23.7	-43.1	24.1	0.06	0.00	1.51
3,674.0	2.60	291.30	3,672.9	25.3	-46.6	25.7	0.65	0.54	-9.14
3,768.0	1.90	312.30	3,766.8	27.2	-49.7	27.6	1.14	-0.74	22.34
3,861.0	2.00	309.20	3,859.7	29.2	-52.1	29.6	0.16	0.11	-3.33
3,956.0	2.00	306.10	3,954.7	31.2	-54.7	31.7	0.11	0.00	-3.26
4,049.0	1.90	301.10	4,047.6	33.0	-57.4	33.5	0.21	-0.11	-5.38
4,144.0	2.10	310.20	4,142.6	34.9	-60.0	35.4	0.39	0.21	9.58
4,238.0	2.00	311.00	4,236.5	37.1	-62.6	37.6	0.11	-0.11	0.85
4,332.0	2.20	311.40	4,330.4	39.4	-65.2	39.9	0.21	0.21	0.43
4,425.0	2.20	313.50	4,423.4	41.8	-67.8	42.3	0.09	0.00	2.26
4,518.0	1.90	315.80	4,516.3	44.1	-70.2	44.7	0.33	-0.32	2.47
4,611.0	1.50	306.90	4,609.3	46.0	-72.2	46.5	0.51	-0.43	-9.57
4,705.0	1.60	310.10	4,703.2	47.6	-74.2	48.1	0.14	0.11	3.40
4,799.0	1.70	309.00	4,797.2	49.3	-76.3	49.9	0.11	0.11	-1.17
4,893.0	1.50	303.90	4,891.2	50.8	-78.4	51.5	0.26	-0.21	-5.43
4,985.0	1.60	304.70	4,983.1	52.2	-80.5	52.9	0.11	0.11	0.87
5,079.0	1.20	307.50	5,077.1	53.6	-82.3	54.2	0.43	-0.43	2.98
5,172.0	1.40	301.00	5,170.1	54.8	-84.1	55.4	0.27	0.22	-6.99
5,265.0	1.20	289.70	5,263.1	55.7	-86.0	56.4	0.35	-0.22	-12.15
5,358.0	1.30	293.00	5,356.0	56.4	-87.8	57.1	0.13	0.11	3.55

Survey Report

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Site:	Cranberry BSU State Com	MD Reference:	RKB @ 3811.5usft (Nomac 22 - KB=21.5')
Well:	#5H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Houston R5000 Database

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N-S (usft)	+E-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
5,452.0	1.40	286.50	5,450.0	57.2	-89.9	57.9	0.19	0.11	-6.91
5,545.0	1.50	288.50	5,543.0	57.9	-92.2	58.6	0.12	0.11	2.15
5,580.0	1.40	286.50	5,578.0	58.1	-93.0	58.9	0.32	-0.29	-5.71
5,655.0	1.80	293.00	5,652.9	58.9	-95.0	59.6	0.58	0.53	8.67
5,749.0	0.20	22.60	5,746.9	59.6	-96.3	60.4	1.93	-1.70	95.32
5,842.0	0.40	113.70	5,839.9	59.6	-95.9	60.4	0.48	0.22	97.96
6,030.0	0.40	136.50	6,027.9	58.9	-94.9	59.6	0.08	0.00	12.13
6,217.0	0.40	147.60	6,214.9	57.8	-94.1	58.6	0.04	0.00	5.94
6,404.0	0.40	146.90	6,401.9	56.7	-93.4	57.5	0.00	0.00	-0.37
6,591.0	0.40	182.60	6,588.9	55.5	-93.0	56.3	0.13	0.00	19.09
6,778.0	0.40	199.30	6,775.9	54.3	-93.3	55.0	0.06	0.00	8.93
6,964.0	0.50	67.60	6,961.9	54.0	-92.7	54.7	0.44	0.05	-70.81
7,150.0	0.50	58.10	7,147.9	54.7	-91.3	55.4	0.04	0.00	-5.11
7,337.0	1.20	118.60	7,334.9	54.2	-88.9	54.9	0.56	0.37	32.35
7,524.0	1.20	127.00	7,521.8	52.1	-85.6	52.8	0.09	0.00	4.49
7,711.0	1.20	130.70	7,708.8	49.6	-82.6	50.3	0.04	0.00	1.98
7,898.0	1.20	147.40	7,895.8	46.7	-80.0	47.3	0.19	0.00	8.93
8,085.0	1.20	152.30	8,082.7	43.3	-78.1	43.9	0.05	0.00	2.62
8,272.0	1.40	153.90	8,269.7	39.5	-76.1	40.1	0.11	0.11	0.86
8,459.0	1.60	158.80	8,456.6	35.1	-74.2	35.6	0.13	0.11	2.62
8,645.0	1.40	188.70	8,642.5	30.4	-73.6	31.0	0.43	-0.11	16.08
8,832.0	1.40	192.80	8,829.5	25.9	-74.4	26.5	0.05	0.00	2.19
9,018.0	1.60	195.90	9,015.4	21.2	-75.7	21.8	0.12	0.11	1.67
9,205.0	1.20	215.40	9,202.4	17.1	-77.5	17.7	0.33	-0.21	10.43
9,392.0	1.10	206.50	9,389.3	13.9	-79.4	14.5	0.11	-0.05	-4.76
9,578.0	1.20	200.80	9,575.3	10.5	-80.9	11.1	0.08	0.05	-3.06
9,765.0	2.10	217.70	9,762.2	5.9	-83.7	6.6	0.54	0.48	9.04
9,952.0	1.10	245.30	9,949.1	2.5	-87.5	3.2	0.66	-0.53	14.76
10,045.0	1.10	257.80	10,042.1	1.9	-89.1	2.6	0.26	0.00	13.44
10,138.0	1.10	255.90	10,135.1	1.5	-90.9	2.2	0.04	0.00	-2.04
10,325.0	1.40	240.60	10,322.1	-0.1	-94.6	0.7	0.24	0.16	-8.18
10,387.0	1.60	233.40	10,384.0	-1.0	-96.0	-0.2	0.44	0.32	-11.61
10,408.0	1.60	226.00	10,405.0	-1.3	-96.4	-0.6	0.98	0.00	-35.24
10,439.0	0.90	291.50	10,436.0	-1.5	-96.9	-0.8	4.76	-2.26	211.29
KOP: 10439.0' MD, 10436.0' TVD									
10,470.0	3.70	347.40	10,467.0	-0.5	-97.4	0.3	10.58	9.03	180.32
10,501.0	7.00	354.70	10,497.9	2.4	-97.8	3.2	10.85	10.65	23.55
10,532.0	10.70	357.80	10,528.5	7.1	-98.1	7.9	12.03	11.94	10.00
10,563.0	14.30	0.10	10,558.7	13.8	-98.2	14.6	11.72	11.61	7.42
PBHL(DBSC#4H)									
10,594.0	17.80	2.00	10,588.5	22.4	-98.0	23.2	11.42	11.29	6.13
10,625.0	22.00	3.30	10,617.7	32.9	-97.5	33.7	13.62	13.55	4.19
10,656.0	26.20	4.10	10,646.0	45.6	-96.7	46.3	13.59	13.55	2.58

Survey Report

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Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
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Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
10,688.0	29.90	4.70	10,674.2	60.6	-95.5	61.3	11.60	11.56	1.88
10,719.0	34.00	4.70	10,700.5	76.9	-94.2	77.7	13.23	13.23	0.00
10,751.0	37.70	4.30	10,726.4	95.6	-92.7	96.3	11.59	11.56	-1.25
10,782.0	40.50	4.00	10,750.5	115.1	-91.3	115.8	9.05	9.03	-0.97
10,813.0	43.80	3.30	10,773.5	135.9	-90.0	136.6	10.75	10.65	-2.26
10,844.0	47.20	3.10	10,795.2	157.9	-88.7	158.6	10.98	10.97	-0.65
10,875.0	50.70	2.70	10,815.5	181.3	-87.6	182.0	11.33	11.29	-1.29
10,906.0	54.00	2.70	10,834.5	205.8	-86.4	206.5	10.65	10.65	0.00
10,937.0	57.20	2.70	10,852.0	231.3	-85.2	232.0	10.32	10.32	0.00
10,968.0	60.40	2.70	10,868.0	257.8	-83.9	258.5	10.32	10.32	0.00
11,000.0	63.70	2.60	10,883.0	286.0	-82.6	286.7	10.32	10.31	-0.31
11,029.1	66.52	2.41	10,895.3	312.4	-81.5	313.1	9.70	9.68	-0.65
Cross 330' Hardline: 11029.1' MD, 10895.3' TVD, 66.52° INC									
11,031.0	66.70	2.40	10,896.0	314.2	-81.4	314.8	9.70	9.68	-0.63
11,062.0	69.50	2.00	10,907.6	342.9	-80.3	343.5	9.11	9.03	-1.29
11,093.0	73.20	1.90	10,917.5	372.2	-79.3	372.9	11.94	11.94	-0.32
11,124.0	76.90	1.70	10,925.5	402.2	-78.4	402.8	11.95	11.94	-0.65
11,155.0	80.20	1.70	10,931.7	432.5	-77.5	433.2	10.65	10.65	0.00
11,186.0	83.20	1.00	10,936.1	463.2	-76.7	463.8	9.93	9.68	-2.26
11,217.0	86.00	0.60	10,939.1	494.1	-76.3	494.7	9.12	9.03	-1.29
11,248.0	88.20	0.80	10,940.6	525.0	-75.9	525.6	7.13	7.10	0.65
11,276.0	89.70	0.30	10,941.1	553.0	-75.7	553.6	5.65	5.36	-1.79
EOC: 11276.0' MD, 10941.1' TVD, 89.70° INC, 0.30° AZ, 553.6' VS									
11,307.0	90.30	0.30	10,941.1	584.0	-75.5	584.6	1.94	1.94	0.00
11,370.0	90.30	359.70	10,940.8	647.0	-75.5	647.6	0.95	0.00	-0.95
11,463.0	91.10	358.20	10,939.7	740.0	-77.2	740.6	1.83	0.86	-1.61
11,556.0	91.10	358.90	10,937.9	832.9	-79.6	833.6	0.75	0.00	0.75
11,650.0	89.70	0.10	10,937.2	926.9	-80.4	927.5	1.96	-1.49	1.28
11,743.0	89.40	0.80	10,938.0	1,019.9	-79.7	1,020.5	0.82	-0.32	0.75
11,837.0	89.70	0.80	10,938.7	1,113.9	-78.3	1,114.5	0.32	0.32	0.00
11,930.0	90.30	0.80	10,938.7	1,206.9	-77.0	1,207.5	0.65	0.65	0.00
12,024.0	91.10	0.60	10,937.6	1,300.9	-75.9	1,301.5	0.88	0.85	-0.21
12,117.0	90.30	0.60	10,936.4	1,393.9	-74.9	1,394.4	0.86	-0.86	0.00
12,211.0	91.70	359.20	10,934.8	1,487.9	-75.1	1,488.4	2.11	1.49	-1.49
12,305.0	91.00	0.30	10,932.6	1,581.8	-75.5	1,582.4	1.39	-0.74	1.17
12,399.0	89.20	359.90	10,932.4	1,675.8	-75.3	1,676.4	1.96	-1.91	-0.43
12,492.0	90.10	359.40	10,933.0	1,768.8	-75.9	1,769.4	1.11	0.97	-0.54
12,587.0	88.30	359.90	10,934.3	1,863.8	-76.5	1,864.4	1.97	-1.89	0.53
12,680.0	88.50	0.80	10,936.9	1,956.8	-75.9	1,957.3	0.99	0.22	0.97
12,773.0	88.50	1.00	10,939.3	2,049.7	-74.5	2,050.2	0.21	0.00	0.22
12,866.0	90.10	1.70	10,940.5	2,142.7	-72.3	2,143.2	1.88	1.72	0.75
12,959.0	91.30	1.30	10,939.3	2,235.6	-69.8	2,236.1	1.36	1.29	-0.43
13,053.0	90.10	2.00	10,938.2	2,329.6	-67.1	2,330.1	1.48	-1.28	0.74
13,146.0	90.60	1.50	10,937.6	2,422.5	-64.3	2,423.0	0.76	0.54	-0.54

Survey Report

Company:	Yates Petroleum	Local Co-ordinate Reference:	Well #5H
Project:	Lea County, NM (NAD-83)	TVD Reference:	RKB @ 3811.5usft (Nomac 22 - KB=21.5')
Site:	Cranberry BSU State Com	MD Reference:	RKB @ 3811.5usft (Nomac 22 - KB=21.5')
Well:	#5H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Houston R5000 Database

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
13,240.0	89.60	1.70	10,937.4	2,516.5	-61.7	2,516.9	1.08	-1.06	0.21
13,333.0	90.10	1.30	10,937.7	2,609.5	-59.2	2,609.9	0.69	0.54	-0.43
13,426.0	91.10	1.50	10,936.7	2,702.4	-56.9	2,702.8	1.10	1.08	0.22
13,520.0	92.60	0.80	10,933.7	2,796.4	-55.1	2,796.7	1.76	1.60	-0.74
13,613.0	92.00	1.30	10,929.9	2,889.3	-53.4	2,889.6	0.84	-0.65	0.54
13,706.0	91.00	1.00	10,927.5	2,982.2	-51.5	2,982.5	1.12	-1.08	-0.32
13,799.0	89.60	0.30	10,927.0	3,075.2	-50.4	3,075.5	1.68	-1.51	-0.75
13,893.0	89.70	359.60	10,927.6	3,169.2	-50.5	3,169.5	0.75	0.11	-0.74
13,986.0	90.80	358.30	10,927.2	3,262.2	-52.2	3,262.5	1.83	1.18	-1.40
14,079.0	90.10	359.40	10,926.5	3,355.2	-54.1	3,355.5	1.40	-0.75	1.18
14,174.0	89.00	0.60	10,927.2	3,450.2	-54.1	3,450.5	1.71	-1.16	1.26
14,268.0	89.60	0.50	10,928.4	3,544.2	-53.2	3,544.5	0.65	0.64	-0.11
14,360.0	90.60	0.60	10,928.2	3,636.1	-52.3	3,636.5	1.09	1.09	0.11
14,453.0	89.90	0.80	10,927.8	3,729.1	-51.2	3,729.4	0.78	-0.75	0.22
14,546.0	91.10	1.30	10,927.0	3,822.1	-49.5	3,822.4	1.40	1.29	0.54
14,639.0	91.10	1.50	10,925.2	3,915.1	-47.2	3,915.3	0.22	0.00	0.22
14,732.0	91.70	1.20	10,922.9	4,008.0	-45.0	4,008.3	0.72	0.65	-0.32
14,826.0	90.40	1.00	10,921.2	4,102.0	-43.2	4,102.2	1.40	-1.38	-0.21
14,920.0	91.80	1.20	10,919.4	4,195.9	-41.4	4,196.1	1.50	1.49	0.21
15,013.0	91.10	0.80	10,917.0	4,288.9	-39.8	4,289.1	0.87	-0.75	-0.43
15,106.0	89.70	1.00	10,916.4	4,381.9	-38.3	4,382.1	1.52	-1.51	0.22
15,200.0	91.00	0.60	10,915.8	4,475.9	-37.0	4,476.0	1.45	1.38	-0.43
15,293.0	89.90	0.60	10,915.1	4,568.9	-36.0	4,569.0	1.18	-1.18	0.00
15,386.0	89.60	0.30	10,915.5	4,661.9	-35.3	4,662.0	0.46	-0.32	-0.32
15,479.0	89.00	0.10	10,916.6	4,754.9	-35.0	4,755.0	0.68	-0.65	-0.22
15,573.0	90.10	0.30	10,917.4	4,848.8	-34.6	4,849.0	1.19	1.17	0.21
15,598.0	90.30	0.60	10,917.3	4,873.8	-34.4	4,874.0	1.44	0.80	1.20
Final MWD Survey: 15598.0' MD, 10917.3' TVD, 4873.8' +N/-S, -34.4' +E/-W									
15,656.0	90.30	0.60	10,917.0	4,931.8	-33.8	4,932.0	0.00	0.00	0.00
BHL: 15656.0' MD, 10917.0' TVD, 90.30° INC, 0.60° AZ, 4931.8' +N/-S, -33.8' +E/-W, 4932.0' VS - TD: 15656.0' MD, 10917.0' TVD - PBHL(CBS									

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
10,439.0	10,436.0	-1.5	-96.9	KOP: 10439.0' MD, 10436.0' TVD
11,029.1	10,895.3	312.4	-81.5	Cross 330' Hardline: 11029.1' MD, 10895.3' TVD, 66.52° INC
11,276.0	10,941.1	553.0	-75.7	EOC: 11276.0' MD, 10941.1' TVD, 89.70° INC, 0.30° AZ, 553.6' VS
15,598.0	10,917.3	4,873.8	-34.4	Final MWD Survey: 15598.0' MD, 10917.3' TVD, 4873.8' +N/-S, -34.4' +E/-W
15,656.0	10,917.0	4,931.8	-33.8	BHL: 15656.0' MD, 10917.0' TVD, 90.30° INC, 0.60° AZ, 4931.8' +N/-S, -33.8' +E/-W
15,656.0	10,917.0	4,931.8	-33.8	TD: 15656.0' MD, 10917.0' TVD

Survey Report

Company:	Yates Petroleum	Local Co-ordinate Reference:	Well #5H
Project:	Lea County - NM (NAD-83)	TVD Reference:	RKB @ 3811.5usft (Nomac 22 - KB=21.5')
Site:	Cranberry BSU State Com	MD Reference:	RKB @ 3811.5usft (Nomac 22 - KB=21.5')
Well:	#5H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Houston R5000 Database

Checked By: _____ Approved By: _____ Date: _____



Yates Petroleum
Project: Lea County, NM (NAD-83)
Site: Cranberry BSU State Com
Well: #5H
Wellbore: OH
Plan: Plan #2 (#5H/OH)

WELL DETAILS: #5H

Ground Elevation:: 3790.0
RKB Elevation: RKB @ 3811.5usft (Nomac 22 - KB=21.5')
Rig Name: Nomac 22 - KB=21.5'

Surface Hole Location
Northing 541488.10 Easting 786915.40 Latitude 32° 29' 9.934 N Longitude 103° 32' 12.827 W

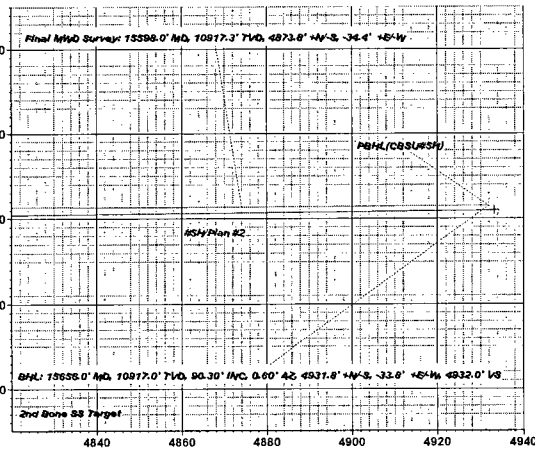


Azimuths to Grid North
True North: -0.43°
Magnetic North: 6.78°

Magnetic Field
Strength: 48467.7snT
Dip Angle: 60.36°
Date: 7/10/2014
Model: IGRF2010

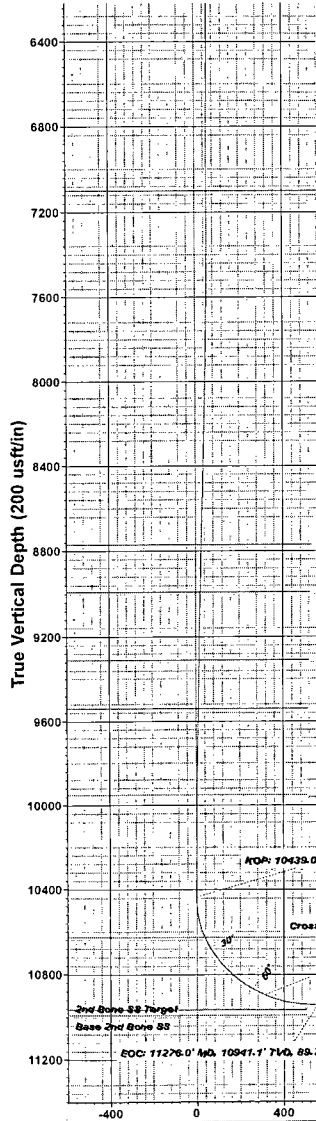
Section Details

	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect
1	12866.0	90.10	1.70	10940.5	2142.7	-72.3	0.00	0.00	2143.2
2	12918.0	90.10	1.70	10940.4	2194.7	-70.7	0.00	0.00	2195.2
3	12952.1	90.76	1.87	10940.1	2228.7	-69.7	2.00	14.44	2229.2
4	13352.1	90.76	1.87	10934.8	2628.5	-56.6	0.00	0.00	2628.8
5	13430.2	90.23	0.40	10934.1	2706.6	-55.1	2.00	-109.82	2706.9
6	13723.6	90.23	0.40	10933.0	2999.9	-53.0	0.00	0.00	3000.3
7	13729.1	90.34	0.40	10932.9	3005.4	-53.0	2.00	0.00	3005.8
8	14723.4	90.34	0.40	10927.0	3999.7	-46.0	0.00	0.00	3999.9
9	14733.9	90.55	0.40	10926.9	4010.2	-46.0	2.00	0.00	4010.4
10	15656.7	90.55	0.40	10918.1	4933.0	-39.5	0.00	126.72	4933.2

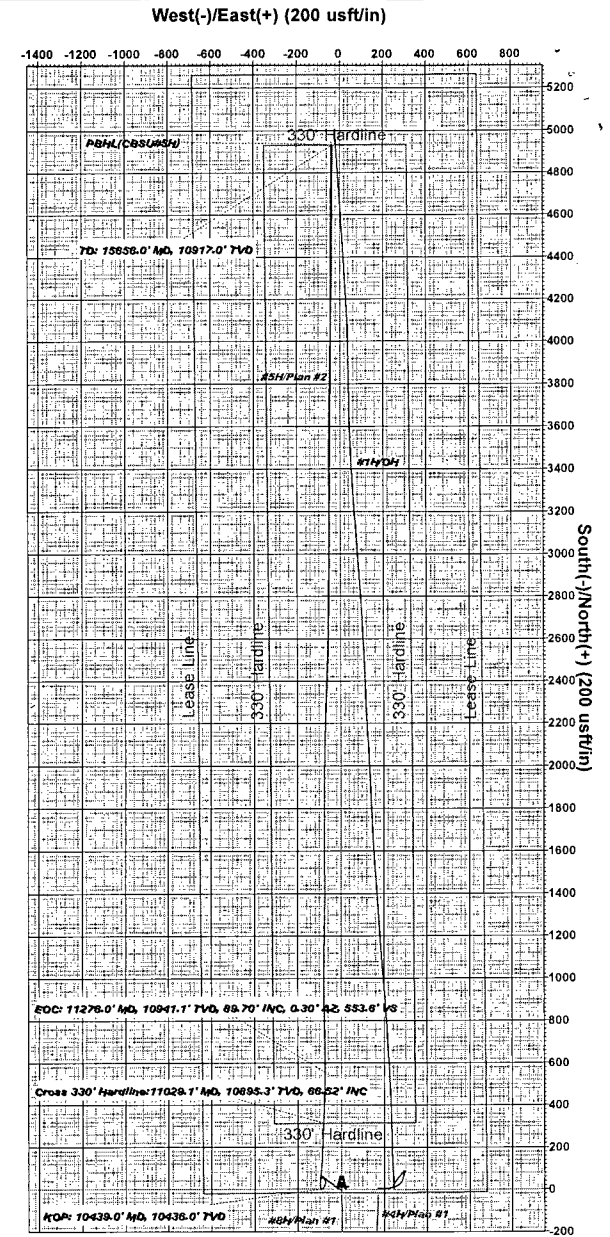


Vertical Section at 359.54° (10 usft/in)

DESIGN TARGET DETAILS				
Name	+N/-S	+E/-W	Northing	Easting
Cranberry #1H	0.7	168.6	541488.90	787085.20
Cranberry #5H	0.0	0.0	541488.10	786915.40
Date #5H	-29.2	176.0	541458.00	787085.40
Date #5H	-29.9	0.3	541458.20	786915.70
PBHL/CBSU/ASH	4933.0	-38.5	540421.10	786875.90
PBHL/CBSU/ASH	-4963.3	-38.9	536324.80	786875.50



Vertical Section at 359.54° (200 usft/in)



PROJECT DETAILS: Lea County, NM (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



Crescent Directional Drilling
7715 West Industrial Ave. Midland, Tx 79706
Phone: 432-618-1135

Plan: Plan #2 (#5H/OH)
Created By: Adrian Castro Date: 6:21, October 20 2014