

Results of Directional Survey

API number:	30-025-40907		
OGRID:		Operator:	YATES PETROLEUM CORPORATION
		Property:	YARROW BHY STATE # 5H

surface	ULSTR:	A	32	T 23S	R 33E
				200 FNL	660 FEL

BH Loc	ULSTR:	P	32	T 23S	R 33E
15670	MD	11158.5	TVD	331 FSL	633 FEL
				4949 FNL	

Top Perf/OH	ULSTR:	A	32	T 23S	R 33E
11465	MD	11222.3	TVD	746 FNL	618 FEL

Bot Perf/OH	ULSTR:	P	32	T 23S	R 33E
15610	MD	11159.9	TVD	391 FSL	633 FEL
				4889 FNL	

	MD	N/S	E/W	VD
	11451	-531.60	41.50	11221.1
TOP PERFS/OH	11465	-545.55	41.55	11222.32
	11482	-562.50	41.60	11223.80
	15590	-4669.00	26.60	11160.30
BOT PERFS/OH	15610	-4689.00	26.60	11159.90
	15615	-4694.00	26.60	11159.80

NEXT TO LAST	15615	-4694.00	26.60	11159.80
LAST READING	15670.9	-4749.80	26.70	11158.50
TD	15670	-4748.90	26.70	11158.52

Surface Location	200	FN	660	FE
Projected BHL	4949	FN	633	FE
Location of				
Top Perfs/OH	746	FN	618	FE
Bottom Perfs/OH	4889	FN	633	FE

SUMMARY of Subsurface Locations

Surface Location	A-32-23S-33E	200	FN	660	FE	Vert. Depth
Top Perfs/OH	A-32-23S-33E	746	FN	618	FE	11222.32
Bottom Perfs/OH	P-32-23S-33E	4889	FN	633	FE	11159.90
Projected TD	P-32-23S-33E	4949	FN	633	FE	11158.52

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Yates Petroleum

Lea County, NM (NAD-83)

Yarrow BHY State

5H

Wellbore #1

Design: Wellbore #1

Standard Survey Report

06 February, 2014

Survey Report

Company:	Yates Petroleum	Local Co-ordinate Reference:	Well 5H
Project:	Lea County, NM (NAD-83)	TVD Reference:	RKB2 @ 3684.0usft (Nomac 22)
Site:	Yarrow BHY State	MD Reference:	RKB2 @ 3684.0usft (Nomac 22)
Well:	5H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	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		Yarrow BHY State			
Site Position:		Northing:	461,710.24 usft	Latitude:	32° 16' 1.715 N
From:	Map	Easting:	770,345.04 usft	Longitude:	103° 35' 32.725 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.40 °

Well	5H					
Well Position	+N/-S	0.0 usft	Northing:	461,991.12 usft	Latitude:	32° 16' 4.400 N
	+E/-W	0.0 usft	Easting:	771,726.08 usft	Longitude:	103° 35' 16.618 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	0.0 usft	Ground Level:	3,663.0 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination	Dip Angle	Field Strength
			(°)	(°)	(nT)
	IGRF2010	12/17/2013	7.29	60.16	48,388

Design	Wellbore #1				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction	
	(usft)	(usft)	(usft)	(°)	
	0.0	0.0	0.0	179.55	

Survey Program	Date 2/6/2014			
From	To	Survey (Wellbore)	Tool Name	Description
(usft)	(usft)			
200.0	10,652.0	Survey #1 - Gyros (Wellbore #1)	Good_gyro	Good Gyro
10,690.0	15,670.9	Survey #2 - Crescent MWD Surveys (Wellbore #1)	MWD	MWD - Standard

Survey										
Measured	Inclination	Azimuth	Vertical	+N/-S	+E/-W	Vertical	Dogleg	Build	Turn	
Depth	(°)	(°)	Depth	(usft)	(usft)	Section	Rate	Rate	Rate	
(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	
200.0	0.24	170.39	200.0	-0.4	0.1	0.4	0.12	0.12	0.00	
400.0	0.32	118.30	400.0	-1.1	0.6	1.1	0.13	0.04	-26.05	
600.0	0.57	132.71	600.0	-2.0	1.9	2.0	0.14	0.13	7.21	
800.0	0.73	158.36	800.0	-3.9	3.1	3.9	0.16	0.08	12.83	
1,000.0	0.74	163.43	1,000.0	-6.3	3.9	6.3	0.03	0.01	2.54	
1,200.0	0.75	190.26	1,199.9	-8.8	4.0	8.9	0.17	0.01	13.42	
1,400.0	0.86	169.56	1,399.9	-11.6	4.1	11.6	0.15	0.06	-10.35	
1,600.0	0.85	168.96	1,599.9	-14.5	4.6	14.6	0.01	-0.01	-0.30	
1,800.0	1.15	176.46	1,799.9	-18.0	5.0	18.0	0.16	0.15	3.75	

Survey Report

Company:	Yates Petroleum	Local Co-ordinate Reference:	Well 5H
Project:	Lea County, NM (NAD-83)	TVD Reference:	RKB2 @ 3684.0usft (Nomac 22)
Site:	Yarrow BHY State	MD Reference:	RKB2 @ 3684.0usft (Nomac 22)
Well:	5H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	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)
2,000.0	1.22	181.27	1,999.8	-22.1	5.1	22.2	0.06	0.04	2.41
2,200.0	1.41	183.58	2,199.8	-26.7	4.9	26.7	0.10	0.10	1.16
2,400.0	1.49	190.01	2,399.7	-31.7	4.3	31.8	0.09	0.04	3.22
2,600.0	1.70	188.51	2,599.6	-37.2	3.4	37.2	0.11	0.11	-0.75
2,800.0	1.15	186.54	2,799.6	-42.1	2.7	42.2	0.28	-0.28	-0.99
3,000.0	0.82	179.59	2,999.5	-45.6	2.5	45.6	0.18	-0.17	-3.48
3,200.0	0.80	173.08	3,199.5	-48.4	2.7	48.4	0.05	-0.01	-3.26
3,400.0	0.99	170.03	3,399.5	-51.5	3.2	51.5	0.10	0.10	-1.53
3,600.0	2.09	154.02	3,599.4	-56.5	5.1	56.5	0.59	0.55	-8.01
3,800.0	0.43	22.97	3,799.4	-59.0	7.0	59.1	1.20	-0.83	-65.53
4,000.0	0.93	358.26	3,999.4	-56.7	7.2	56.8	0.28	0.25	-12.36
4,200.0	1.40	353.46	4,199.3	-52.7	6.9	52.7	0.24	0.24	-2.40
4,400.0	1.09	40.35	4,399.3	-48.8	7.8	48.9	0.52	-0.16	23.45
4,600.0	1.78	82.02	4,599.2	-46.9	12.1	47.0	0.60	0.35	20.84
4,800.0	1.63	120.32	4,799.1	-47.9	17.7	48.1	0.56	-0.08	19.15
5,000.0	0.72	109.63	4,999.1	-49.8	21.3	50.0	0.47	-0.46	-5.35
5,200.0	0.60	80.28	5,199.1	-50.0	23.5	50.2	0.18	-0.06	-14.68
5,400.0	0.58	80.36	5,399.1	-49.7	25.6	49.9	0.01	-0.01	0.04
5,600.0	0.52	82.03	5,599.1	-49.4	27.4	49.6	0.03	-0.03	0.84
5,800.0	0.57	40.95	5,799.1	-48.5	29.0	48.7	0.19	0.03	-20.54
6,000.0	0.80	36.25	5,999.0	-46.6	30.5	46.9	0.12	0.12	-2.35
6,200.0	0.96	49.30	6,199.0	-44.4	32.6	44.7	0.13	0.08	6.53
6,400.0	0.83	53.64	6,399.0	-42.5	35.0	42.7	0.07	-0.07	2.17
6,600.0	0.84	56.57	6,599.0	-40.8	37.4	41.1	0.02	0.01	1.47
6,800.0	1.02	26.04	6,799.0	-38.4	39.4	38.7	0.26	0.09	-15.27
7,000.0	0.79	25.77	6,998.9	-35.6	40.8	35.9	0.12	-0.12	-0.14
7,200.0	0.86	22.44	7,198.9	-32.9	42.0	33.3	0.04	0.04	-1.67
7,400.0	0.72	6.11	7,398.9	-30.3	42.7	30.6	0.13	-0.07	-8.17
7,600.0	0.75	11.17	7,598.9	-27.8	43.1	28.1	0.04	0.02	2.53
7,800.0	0.95	18.51	7,798.8	-24.9	43.8	25.2	0.11	0.10	3.67
8,000.0	0.87	22.61	7,998.8	-21.9	44.9	22.3	0.05	-0.04	2.05
8,200.0	0.61	6.09	8,198.8	-19.5	45.6	19.8	0.17	-0.13	-8.26
8,400.0	0.19	94.49	8,398.8	-18.4	46.1	18.8	0.32	-0.21	44.20
8,600.0	0.32	194.22	8,598.8	-19.0	46.3	19.4	0.20	0.07	49.87
8,800.0	0.74	191.03	8,798.8	-20.8	45.9	21.2	0.21	0.21	-1.60
9,000.0	0.87	210.63	8,998.8	-23.4	44.9	23.7	0.15	0.07	9.80
9,200.0	1.17	216.16	9,198.7	-26.3	42.9	26.7	0.16	0.15	2.77
9,400.0	1.20	207.16	9,398.7	-29.8	40.7	30.2	0.09	0.02	-4.50
9,600.0	1.90	207.24	9,598.6	-34.7	38.3	35.0	0.35	0.35	0.04
9,800.0	1.42	189.80	9,798.5	-40.0	36.3	40.3	0.35	-0.24	-8.72
10,000.0	1.71	194.03	9,998.5	-45.4	35.2	45.7	0.16	0.15	2.12
10,200.0	1.95	189.18	10,198.4	-51.6	33.9	51.9	0.14	0.12	-2.43
10,400.0	2.18	182.21	10,398.2	-58.8	33.2	59.1	0.17	0.12	-3.49

Survey Report

Company:	Yates Petroleum	Local Co-ordinate Reference:	Well 5H
Project:	Lea County, NM (NAD-83)	TVD Reference:	RKB2 @ 3684.0usft (Nomac 22)
Site:	Yarrow BHY State	MD Reference:	RKB2 @ 3684.0usft (Nomac 22)
Well:	5H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	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)
10,600.0	2.20	183.84	10,598.1	-66.4	32.8	66.7	0.03	0.01	0.82
10,652.0	2.08	184.07	10,650.1	-68.4	32.7	68.6	0.23	-0.23	0.44
10,690.0	1.90	190.80	10,688.0	-69.7	32.5	69.9	0.78	-0.47	17.71
10,721.0	3.70	189.70	10,719.0	-71.2	32.2	71.4	5.81	5.81	-3.55
KOP: 10721.0' MD, 10719.0' TVD									
10,752.0	7.70	188.10	10,749.8	-74.2	31.8	74.5	12.91	12.90	-5.16
10,784.0	12.10	185.80	10,781.3	-79.7	31.1	79.9	13.80	13.75	-7.19
10,814.0	16.00	183.40	10,810.4	-86.9	30.6	87.2	13.14	13.00	-8.00
10,846.0	19.90	181.60	10,840.9	-96.8	30.2	97.0	12.31	12.19	-5.63
10,877.0	23.20	180.90	10,869.7	-108.2	29.9	108.4	10.68	10.65	-2.26
10,908.0	26.40	182.00	10,897.8	-121.2	29.6	121.4	10.43	10.32	3.55
10,930.0	28.03	183.16	10,917.4	-131.2	29.1	131.4	7.79	7.41	5.27
Cross into 330' Lease at 10930.0' MD, 28.03° INC, 183.16° AZ									
10,939.0	28.70	183.60	10,925.3	-135.5	28.9	135.7	7.79	7.44	4.88
10,970.0	31.00	184.30	10,952.2	-150.9	27.8	151.1	7.50	7.42	2.26
11,001.0	34.30	184.10	10,978.3	-167.5	26.6	167.7	10.65	10.65	-0.65
11,032.0	37.50	183.00	11,003.4	-185.7	25.5	185.9	10.53	10.32	-3.55
11,064.0	39.90	182.10	11,028.4	-205.7	24.6	205.9	7.70	7.50	-2.81
11,095.0	43.30	181.10	11,051.6	-226.2	24.0	226.4	11.17	10.97	-3.23
11,126.0	46.80	180.40	11,073.5	-248.2	23.7	248.4	11.40	11.29	-2.26
11,157.0	49.60	180.70	11,094.1	-271.3	23.5	271.5	9.06	9.03	0.97
11,188.0	52.30	180.20	11,113.7	-295.4	23.3	295.5	8.80	8.71	-1.61
11,219.0	56.80	178.50	11,131.6	-320.6	23.6	320.8	15.19	14.52	-5.48
11,250.0	60.00	176.50	11,147.9	-347.0	24.8	347.2	11.69	10.32	-6.45
11,281.0	61.20	174.90	11,163.1	-373.9	26.8	374.1	5.93	3.87	-5.16
11,313.0	62.30	172.70	11,178.2	-401.9	29.9	402.1	6.96	3.44	-6.88
11,344.0	64.90	173.00	11,192.0	-429.5	33.3	429.7	8.43	8.39	0.97
11,375.0	70.40	174.10	11,203.8	-457.9	36.5	458.2	18.04	17.74	3.55
11,406.0	75.70	175.60	11,212.8	-487.5	39.2	487.8	17.71	17.10	4.84
11,437.0	80.80	177.60	11,219.2	-517.8	41.0	518.1	17.62	16.45	6.45
11,451.0	83.00	178.30	11,221.1	-531.6	41.5	531.9	16.48	15.71	5.00
11,482.0	87.30	181.10	11,223.8	-562.5	41.6	562.8	16.53	13.87	9.03
11,513.0	88.30	182.10	11,224.9	-593.4	40.8	593.7	4.56	3.23	3.23
EOC: 11513.0' MD, 11224.9' TVD, 88.30° INC, 182.10° AZ, 593.7' VS									
11,575.0	88.90	182.00	11,226.5	-655.4	38.5	655.7	0.98	0.97	-0.16
11,669.0	90.60	181.30	11,226.9	-749.3	35.8	749.6	1.96	1.81	-0.74
11,763.0	91.30	181.40	11,225.3	-843.3	33.6	843.5	0.75	0.74	0.11
11,856.0	91.00	181.60	11,223.4	-936.3	31.2	936.5	0.39	-0.32	0.22
11,950.0	90.60	181.60	11,222.1	-1,030.2	28.6	1,030.4	0.43	-0.43	0.00
12,043.0	92.00	181.30	11,220.0	-1,123.2	26.2	1,123.3	1.54	1.51	-0.32
12,136.0	92.00	180.90	11,216.8	-1,216.1	24.4	1,216.2	0.43	0.00	-0.43
12,230.0	91.70	180.70	11,213.7	-1,310.0	23.1	1,310.2	0.38	-0.32	-0.21
12,323.0	91.80	180.40	11,210.9	-1,403.0	22.2	1,403.1	0.34	0.11	-0.32
12,417.0	91.80	180.20	11,207.9	-1,496.9	21.7	1,497.1	0.21	0.00	-0.21

Survey Report

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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)
12,510.0	92.20	179.90	11,204.7	-1,589.9	21.7	1,590.0	0.54	0.43	-0.32
12,603.0	91.00	180.00	11,202.1	-1,682.8	21.7	1,683.0	1.29	-1.29	0.11
12,697.0	90.10	180.00	11,201.2	-1,776.8	21.7	1,776.9	0.96	-0.96	0.00
12,790.0	89.70	179.00	11,201.4	-1,869.9	22.5	1,869.9	1.16	-0.43	-1.08
12,884.0	91.10	178.80	11,200.7	-1,963.8	24.4	1,963.9	1.50	1.49	-0.21
12,977.0	91.70	178.80	11,198.4	-2,056.8	26.3	2,056.9	0.65	0.65	0.00
13,070.0	92.20	179.30	11,195.3	-2,149.7	27.8	2,149.8	0.76	0.54	0.54
13,163.0	90.60	179.20	11,193.0	-2,242.6	29.1	2,242.8	1.72	-1.72	-0.11
13,256.0	90.30	178.60	11,192.3	-2,335.6	30.8	2,335.8	0.72	-0.32	-0.65
13,350.0	90.60	178.50	11,191.5	-2,429.6	33.2	2,429.8	0.34	0.32	-0.11
13,443.0	91.10	178.60	11,190.1	-2,522.6	35.6	2,522.8	0.55	0.54	0.11
13,537.0	91.30	178.30	11,188.2	-2,616.5	38.1	2,616.7	0.38	0.21	-0.32
13,631.0	90.60	179.30	11,186.6	-2,710.5	40.1	2,710.7	1.30	-0.74	1.06
13,724.0	91.70	179.90	11,184.8	-2,803.4	40.7	2,803.7	1.35	1.18	0.65
13,817.0	90.60	180.40	11,182.9	-2,896.4	40.5	2,896.6	1.30	-1.18	0.54
13,910.0	90.60	180.40	11,181.9	-2,989.4	39.8	2,989.6	0.00	0.00	0.00
14,003.0	91.00	180.60	11,180.6	-3,082.4	39.0	3,082.6	0.48	0.43	0.22
14,096.0	89.20	180.00	11,180.5	-3,175.4	38.5	3,175.6	2.04	-1.94	-0.65
14,190.0	90.10	180.00	11,181.0	-3,269.4	38.5	3,269.6	0.96	0.96	0.00
14,283.0	90.10	180.00	11,180.9	-3,362.4	38.5	3,362.6	0.00	0.00	0.00
14,377.0	90.10	180.20	11,180.7	-3,456.4	38.4	3,456.6	0.21	0.00	0.21
14,470.0	91.30	179.70	11,179.6	-3,549.4	38.5	3,549.6	1.40	1.29	-0.54
14,564.0	91.70	179.50	11,177.1	-3,643.3	39.1	3,643.5	0.48	0.43	-0.21
14,657.0	91.50	179.90	11,174.5	-3,736.3	39.6	3,736.5	0.48	-0.22	0.43
14,750.0	92.90	180.70	11,170.9	-3,829.2	39.1	3,829.4	1.73	1.51	0.86
14,844.0	91.50	181.10	11,167.3	-3,923.1	37.6	3,923.3	1.55	-1.49	0.43
14,937.0	90.60	181.60	11,165.6	-4,016.1	35.4	4,016.3	1.11	-0.97	0.54
15,030.0	90.10	181.40	11,165.1	-4,109.1	33.0	4,109.2	0.58	-0.54	-0.22
15,123.0	90.10	181.30	11,164.9	-4,202.0	30.8	4,202.2	0.11	0.00	-0.11
15,216.0	89.60	181.30	11,165.1	-4,295.0	28.7	4,295.1	0.54	-0.54	0.00
15,310.0	90.30	180.60	11,165.2	-4,389.0	27.2	4,389.1	1.05	0.74	-0.74
15,403.0	90.80	179.90	11,164.3	-4,482.0	26.7	4,482.1	0.92	0.54	-0.75
15,496.0	91.50	180.20	11,162.5	-4,575.0	26.7	4,575.1	0.82	0.75	0.32
15,590.0	91.10	179.90	11,160.3	-4,669.0	26.6	4,669.0	0.53	-0.43	-0.32
15,615.0	91.30	179.90	11,159.8	-4,694.0	26.6	4,694.0	0.80	0.80	0.00
15,670.9	91.30	179.90	11,158.5	-4,749.8	26.7	4,749.9	0.00	0.00	0.00
BHL: 15670.9' MD, 11158.5' TVD, 91.30° INC, 179.90° AZ, 4749.8' +N/-S, 26.7' +E/-W, 4749.9' VS									

Survey Report

Company:	Yates Petroleum	Local Co-ordinate Reference:	Well 5H
Project:	Lea County, NM (NAD-83)	TVD Reference:	RKB2 @ 3684.0usft (Nomac 22)
Site:	Yarrow BHY State	MD Reference:	RKB2 @ 3684.0usft (Nomac 22)
Well:	5H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	Houston R5000 Database

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
10,721.0	10,719.0	-71.2	32.2	KOP: 10721.0' MD, 10719.0' TVD
10,930.0	10,917.4	-131.2	29.1	Cross into 330' Lease at 10930.0' MD, 28.03° INC, 183.16° AZ
11,513.0	11,224.9	-593.4	40.8	EOC: 11513.0' MD, 11224.9' TVD, 88.30° INC, 182.10° AZ, 593.7' VS
15,670.9	11,158.5	-4,749.8	26.7	BHL: 15670.9' MD, 11158.5' TVD, 91.30° INC, 179.90° AZ, -4749.8' +N/-S, 26.7

Checked By: _____	Approved By: _____	Date: _____
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WELL DETAILS: 5H

Ground Elevation:: 3663.0
RKB Elevation: RKB2 @ 3684.0usft (Nomac 22)
Rig Name: Nomac 22

Yates Petroleum
Project: Lea County, NM (NAD-83)
Site: Yarrow BHY State
Well: 5H
Wellbore: Wellbore #1
Plan: Plan #3 (5H/Wellbore #1)

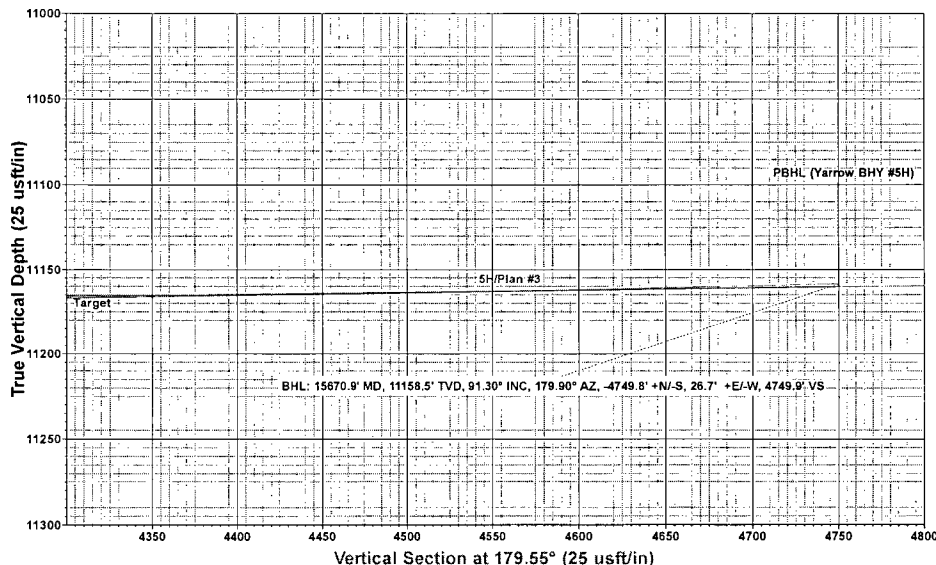
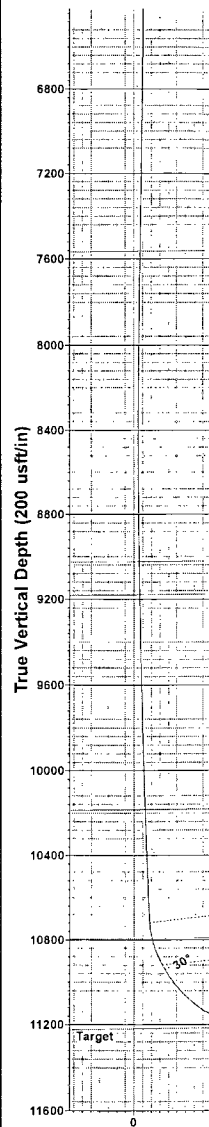
Surface Hole Location
Northing: 461991.12 Easting: 771726.08 Latitude: 32° 16' 4.400 N Longitude: 103° 35' 16.618 W



Azimuths to Grid North
True North: -0.40°
Magnetic North: 6.89°

Magnetic Field
Strength: 48388.3snT
Dip Angle: 60.16°
Date: 12/17/2013
Model: IGRF2010

Name	TVD	+N/-S	+E/-W	Northing	Easting
Salado #3	0.0	70.3	534.4	462061.45	772260.48
Yarrow 1	0.0	-791.5	-324.6	461199.65	771401.43
PBHL (Yarrow BHY #5H)	11160.0	-4749.7	37.1	457241.41	771763.20

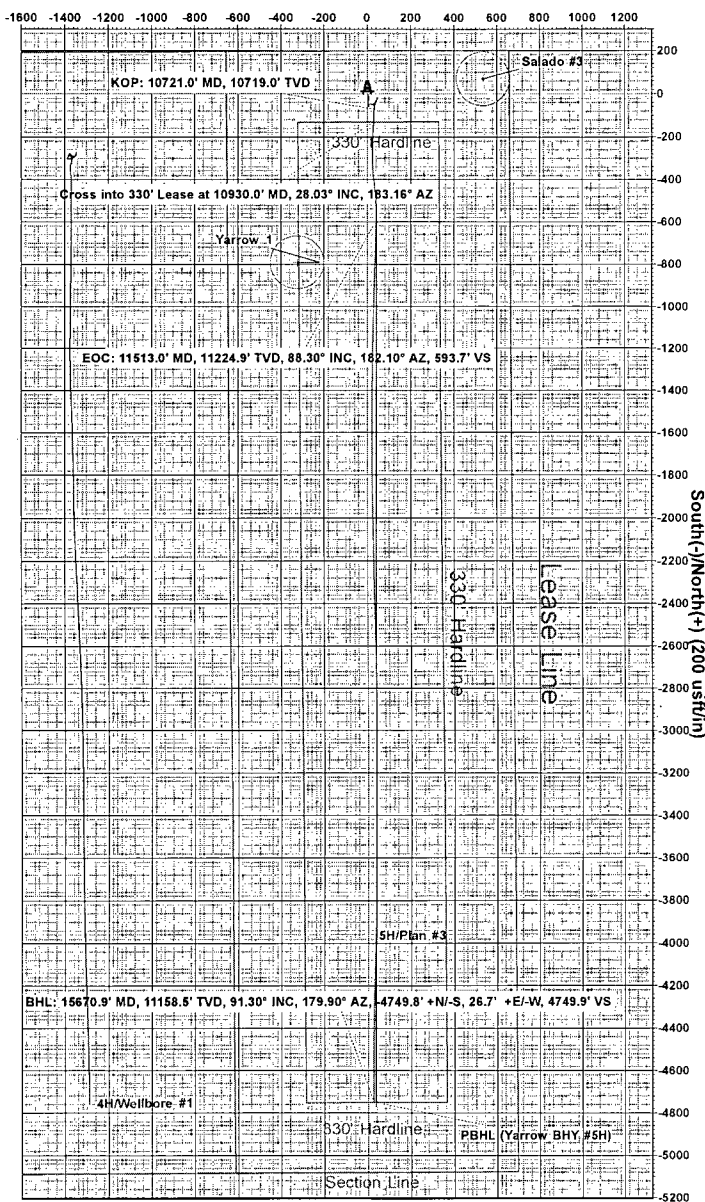


Vertical Section at 179.55° (200 usft/in)



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

West(-)/East(+) (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

Plan: Plan #3 (5H/Wellbore #1)
Created By: Adrian Castro Date: 7:47, February 06 2014



3335 Pollok Drive
Conroe, Texas 77303

936.442.2500 (office)
936.442.2599 (fax)
www.msenergyservices.com

Surveyor Certification Form

HOBBS OCD

MAY 16 2014

RECEIVED

Survey Company: MS ENERGY SERVICES
Surveyors Name: CLAYTON SMITH
Survey Job Type: RATE GYRO
Customer: YATES PETROLEUM CORP.
Well: YARROW BHY STATE 005H
API: 30-025-40907
Surveyed from: SURFACE TO A DEPTH OF 10652' MD
Survey Run Date: 1-26-14
Surface Location: LEA COUNTY, NM

I certify that the data is true, correct, and complete and within the limitations of the tool set forth by MS Energy Services; that I am authorized and qualified to make this report; and that I have reviewed this report and find that it conforms to the principles and procedures as set forth by MS Energy Services.

Clayton Smith

Digitally signed by Clayton Smith
DN: cn=Clayton Smith, o=MS ENERGY SERVICES, ou,
email=CSMITH@MSENERGYSERVICES.COM, c=US
Date: 2014.01.27 15:23:18 -06'00'



Job Number: SVMO-140093
 Company: Yates Petroleum Corporation
 Lease/Well: Yarrow BHY State 005H
 Location: Lea County, NM
 Rig Name: Nomac #22
 RKB: 21.5'
 G.L. or M.S.L.: GL

State/Country: New Mexico/USA
 Declination: 6.91°
 Grid: East To Grid North
 File name: S:\2014SU~1\YATES\MOI\YARROW~1\005H.SVY
 Date/Time: 27-Jan-14 / 15:17
 Curve Name: Surface - 10652' M.D. (Rate Gyro)

WINSERVE SURVEY CALCULATIONS
 Minimum Curvature Method
 Vertical Section Plane 179.55
 Vertical Section Referenced to Wellhead
 Rectangular Coordinates Referenced to Wellhead

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	.24	170.39	200.00	-.41	.07	.41	.42	170.39	.12
400.00	.32	118.30	400.00	-1.09	.63	1.10	1.26	149.93	.13
600.00	.57	132.71	599.99	-2.03	1.85	2.04	2.75	137.59	.14
800.00	.73	158.36	799.98	-3.89	3.06	3.91	4.95	141.85	.16
1000.00	.74	163.43	999.96	-6.31	3.89	6.34	7.42	148.33	.03
1200.00	.75	190.26	1199.95	-8.84	4.03	8.87	9.71	155.49	.17
1400.00	.86	169.56	1399.93	-11.60	4.07	11.63	12.29	160.68	.15
1600.00	.85	168.96	1599.90	-14.53	4.62	14.57	15.25	162.35	.01
1800.00	1.15	176.46	1799.87	-17.99	5.03	18.03	18.68	164.38	.16

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	
2000.00	1.22	181.27	1999.83	-22.12	5.11	22.16	22.71	167.00	.06
2200.00	1.41	183.58	2199.78	-26.71	4.91	26.75	27.16	169.59	.10
2400.00	1.49	190.01	2399.71	-31.73	4.30	31.76	32.02	172.28	.09
2600.00	1.70	188.51	2599.64	-37.22	3.41	37.25	37.38	174.76	.11
2800.00	1.15	186.54	2799.57	-42.15	2.74	42.17	42.24	176.28	.28
3000.00	.82	179.59	2999.54	-45.57	2.52	45.59	45.64	176.83	.18
3200.00	.80	173.08	3199.52	-48.39	2.70	48.41	48.47	176.80	.05
3400.00	.99	170.03	3399.50	-51.48	3.17	51.50	51.58	176.48	.10
3600.00	2.09	154.02	3599.43	-56.46	5.07	56.50	56.69	174.87	.59
3800.00	.43	22.97	3799.39	-59.05	6.96	59.10	59.45	173.28	1.20
4000.00	.93	358.26	3999.37	-56.73	7.20	56.79	57.19	172.77	.28
4200.00	1.40	353.46	4199.33	-52.68	6.87	52.74	53.13	172.57	.24
4400.00	1.09	40.35	4399.29	-48.81	7.83	48.87	49.43	170.89	.52
4600.00	1.78	82.02	4599.23	-46.92	12.14	47.02	48.47	165.50	.60
4800.00	1.63	120.32	4799.15	-47.93	17.67	48.07	51.08	159.77	.56
5000.00	.72	109.63	4999.10	-49.79	21.31	49.95	54.16	156.83	.47
5200.00	.60	80.28	5199.09	-50.03	23.52	50.22	55.29	154.82	.18
5400.00	.58	80.36	5399.08	-49.69	25.55	49.89	55.87	152.79	.01
5600.00	.52	82.03	5599.07	-49.39	27.45	49.61	56.51	150.94	.03
5800.00	.57	40.95	5799.06	-48.51	29.00	48.74	56.52	149.13	.19
6000.00	.80	36.25	5999.05	-46.64	30.48	46.87	55.71	146.84	.12
6200.00	.96	49.30	6199.02	-44.42	32.57	44.67	55.08	143.75	.13
6400.00	.83	53.64	6399.00	-42.47	35.01	42.74	55.04	140.50	.07
6600.00	.84	56.57	6598.98	-40.80	37.40	41.09	55.35	137.49	.02
6800.00	1.02	26.04	6798.95	-38.39	39.40	38.70	55.02	134.26	.26
7000.00	.79	25.77	6998.93	-35.55	40.79	35.87	54.11	131.08	.12
7200.00	.86	22.44	7198.91	-32.92	41.96	33.25	53.33	128.12	.04
7400.00	.72	6.11	7398.89	-30.29	42.66	30.62	52.32	125.37	.13
7600.00	.75	11.17	7598.87	-27.75	43.05	28.09	51.22	122.81	.04

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	
7800.00	.95	18.51	7798.85	-24.90	43.83	25.24	50.41	119.60	.11
8000.00	.87	22.61	7998.82	-21.92	44.94	22.28	50.00	116.00	.05
8200.00	.61	6.09	8198.81	-19.46	45.64	19.82	49.62	113.10	.17
8400.00	.19	94.49	8398.80	-18.43	46.08	18.79	49.63	111.80	.32
8600.00	.32	194.22	8598.80	-19.00	46.28	19.36	50.02	112.32	.20
8800.00	.74	191.03	8798.79	-20.81	45.89	21.17	50.39	114.39	.21
9000.00	.87	210.63	8998.77	-23.38	44.87	23.73	50.60	117.52	.15
9200.00	1.17	216.16	9198.74	-26.34	42.89	26.67	50.33	121.55	.16
9400.00	1.20	207.16	9398.70	-29.85	40.73	30.17	50.50	126.23	.09
9600.00	1.90	207.24	9598.62	-34.66	38.26	34.96	51.62	132.17	.35
9800.00	1.42	189.80	9798.54	-40.05	36.32	40.33	54.06	137.80	.35
10000.00	1.71	194.03	9998.47	-45.39	35.17	45.66	57.42	142.22	.16
10200.00	1.95	189.18	10198.36	-51.64	33.91	51.90	61.78	146.71	.14
10400.00	2.18	182.21	10398.23	-58.80	33.22	59.06	67.53	150.54	.17
10600.00	2.20	183.84	10598.09	-66.43	32.81	66.69	74.09	153.71	.03

Last Survey Depth Recorded

10652.00	2.08	184.07	10650.05	-68.37	32.68	68.62	75.78	154.45	.23
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