

MAR 02 2015



Job Number: SVMO-141210

Company: Yates Petroleum Corporation

Lease/Well: Date BTB State Com 4H

Location: Lea County, NM

Rig Name: Nômac #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: S:\2014SU-1\YATES\MO\DATEBT-14H.SVY

Date/Time: 09-Sep-14 / 09:32

Curve Name: Surface - 2000' M.D. (SRG)

MS SURVEY

WINSERVE SURVEY CALCULATIONS

Minimum Curvature Method

Vertical Section Plane 182.44

Vertical Section Referenced to Wellhead

Rectangular Coordinates Referenced to Wellhead

We hereby certify that our survey data from
Surface MD to 2000 MD is, to the best of
our knowledge, a true and accurate account of the
well bore.

Daniel West
MS Energy Services

9/9/14
Date

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	CLOSURE		Dogleg Severity Deg/100
							Distance FT	Direction Deg	
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
200.00	.12	90.57	200.00	.00	.21	-.01	.21	90.57	.06
400.00	.26	78.67	400.00	.08	.86	-.12	.87	84.38	.07
600.00	.21	69.47	600.00	.30	1.65	-.37	1.68	79.62	.03
800.00	.01	311.13	800.00	.44	1.98	-.53	2.03	77.41	.11
1000.00	.12	345.81	1000.00	.66	1.92	-.74	2.03	71.08	.06
1200.00	.03	146.28	1200.00	.82	1.90	-.90	2.06	66.69	.07
1400.00	.12	181.68	1400.00	.56	1.92	-.64	2.00	73.62	.05
1600.00	.27	158.47	1599.99	-.08	2.09	.00	2.09	92.30	.08
1800.00	.90	152.80	1799.98	-1.92	2.98	1.79	3.54	122.82	.32

HOBSOCD
FEB 09 2015
RECEIVED

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									
2000.00	1.03	128.35	1999.96	-4.43	5.10	4.21	6.76	130.97	.21

HOBBSOCD

FEB 09 2015

RECEIVED

Yates Petroleum

Lea County, NM (NAD-83)

Date BTB State Com

#4H

OH

Design: OH

Standard Survey Report

19 September, 2014

Survey Report

Company:	Yates Petroleum	Local Co-ordinate Reference:	Well #4H
Project:	Lea County, NM (NAD-83)	TVD Reference:	RKB @ 3809.5usft (Nomac 22 - KB=21.5')
Site:	Date BTB State Com	MD Reference:	RKB @ 3809.5usft (Nomac 22 - KB=21.5')
Well:	#4H	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	Date BTB State Com		
Site Position:		Northing:	541,458.90 usft
From:	Map	Easting:	787,085.40 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 29' 9.632 N
		Longitude:	103° 32' 10.845 W
		Grid Convergence:	0.43 °

Well	#4H		
Well Position	+N-S	0.0 usft	Northing: 541,458.90 usft
	+E-W	0.0 usft	Easting: 787,085.40 usft
Position Uncertainty	0.0 usft	Wellhead Elevation:	0.0 usft
		Ground Level:	3,788.0 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:			
Version:	1.0	Phase:	ACTUAL
		Tie On Depth:	0.0
Vertical Section:	Depth From (TVD)	+N-S	+E-W
	(usft)	(usft)	(usft)
	0.0	0.0	0.0
			Direction
			(°)
			182.44

Survey Program	Date 9/19/2014		
From	To	Survey (Wellbore)	Tool Name
(usft)	(usft)		
200.0	2,000.0	Survey #1 - Gyro (OH)	CB-GYRO-MS
2,177.0	16,418.0	Survey #2 - Crescent MWD Surveys (OH)	MWD
			Description
			Camera based gyro multishot
			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	0.12	90.57	200.0	0.0	0.2	0.0	0.06	0.06	0.00	
400.0	0.26	78.67	400.0	0.1	0.9	-0.1	0.07	0.07	-5.95	
600.0	0.21	69.47	600.0	0.3	1.7	-0.4	0.03	-0.03	-4.60	
800.0	0.01	311.13	800.0	0.4	2.0	-0.5	0.11	-0.10	-59.17	
1,000.0	0.12	345.81	1,000.0	0.7	1.9	-0.7	0.06	0.06	17.34	
1,200.0	0.03	146.28	1,200.0	0.8	1.9	-0.9	0.07	-0.05	80.24	
1,400.0	0.12	181.68	1,400.0	0.6	1.9	-0.6	0.05	0.05	17.70	
1,600.0	0.27	158.47	1,600.0	-0.1	2.1	0.0	0.08	0.08	-11.61	
1,800.0	0.90	152.80	1,800.0	-1.9	3.0	1.8	0.32	0.32	-2.84	

Survey Report

Company:	Yates Petroleum	Local Co-ordinate Reference:	Well #4H
Project:	Lea County, NM (NAD-83)	TVD Reference:	RKB @ 3809.5usft (Nomac 22 - KB=21.5')
Site:	Date BTB State Com	MD Reference:	RKB @ 3809.5usft (Nomac 22 - KB=21.5')
Well:	#4H	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)
2,000.0	1.03	128.35	2,000.0	-4.4	5.1	4.2	0.21	0.07	-12.23
2,177.0	1.80	104.20	2,176.9	-6.1	9.0	5.7	0.54	0.44	-13.64
2,364.0	1.70	114.40	2,363.8	-8.0	14.4	7.3	0.17	-0.05	5.45
2,551.0	1.80	108.50	2,550.7	-10.0	19.7	9.2	0.11	0.05	-3.16
2,738.0	1.90	103.80	2,737.6	-11.7	25.5	10.6	0.10	0.05	-2.51
2,924.0	1.80	102.50	2,923.5	-13.1	31.4	11.7	0.06	-0.05	-0.70
3,111.0	1.60	109.50	3,110.5	-14.6	36.7	13.0	0.15	-0.11	3.74
3,298.0	2.20	102.80	3,297.3	-16.3	42.7	14.4	0.34	0.32	-3.58
3,486.0	1.50	100.90	3,485.2	-17.5	48.6	15.4	0.37	-0.37	-1.01
3,672.0	1.60	101.80	3,671.2	-18.5	53.5	16.2	0.06	0.05	0.48
3,859.0	2.20	92.60	3,858.1	-19.2	59.7	16.7	0.36	0.32	-4.92
4,046.0	1.70	97.10	4,045.0	-19.7	66.0	16.9	0.28	-0.27	2.41
4,233.0	1.30	82.50	4,231.9	-19.8	70.9	16.7	0.29	-0.21	-7.81
4,419.0	1.70	73.80	4,417.8	-18.7	75.6	15.5	0.25	0.22	-4.68
4,606.0	1.40	75.80	4,604.8	-17.4	80.5	14.0	0.16	-0.16	1.07
4,792.0	0.90	87.90	4,790.7	-16.8	84.1	13.2	0.30	-0.27	6.51
4,979.0	0.90	84.10	4,977.7	-16.6	87.1	12.9	0.03	0.00	-2.03
5,165.0	1.10	74.00	5,163.7	-15.9	90.2	12.1	0.14	0.11	-5.43
5,352.0	1.20	63.10	5,350.6	-14.6	93.7	10.6	0.13	0.05	-5.83
5,539.0	0.60	41.00	5,537.6	-12.9	96.1	8.8	0.36	-0.32	-11.82
5,581.0	0.50	40.70	5,579.6	-12.6	96.4	8.5	0.24	-0.24	-0.71
5,744.0	0.40	43.90	5,742.6	-11.7	97.2	7.5	0.06	-0.06	1.96
5,931.0	0.40	14.20	5,929.6	-10.6	97.8	6.4	0.11	0.00	-15.88
6,118.0	0.40	14.90	6,116.6	-9.3	98.2	5.1	0.00	0.00	0.37
6,305.0	1.20	279.90	6,303.6	-8.4	96.4	4.2	0.69	0.43	-50.80
6,491.0	1.60	271.00	6,489.5	-8.0	91.9	4.1	0.24	0.22	-4.78
6,678.0	1.20	267.50	6,676.5	-8.0	87.3	4.3	0.22	-0.21	-1.87
6,866.0	1.40	277.10	6,864.4	-7.8	83.1	4.3	0.16	0.11	5.11
7,052.0	1.60	276.30	7,050.4	-7.2	78.2	3.9	0.11	0.11	-0.43
7,238.0	1.80	268.50	7,236.3	-7.0	72.7	3.9	0.16	0.11	-4.19
7,426.0	1.80	256.90	7,424.2	-7.8	66.9	4.9	0.19	0.00	-6.17
7,612.0	1.90	262.20	7,610.1	-8.9	61.0	6.3	0.11	0.05	2.85
7,800.0	1.90	256.90	7,798.0	-10.0	54.9	7.6	0.09	0.00	-2.82
7,988.0	1.60	254.30	7,985.9	-11.4	49.3	9.3	0.17	-0.16	-1.38
8,175.0	1.40	258.10	8,172.8	-12.6	44.6	10.7	0.12	-0.11	2.03
8,362.0	1.60	252.00	8,359.8	-13.9	39.9	12.2	0.14	0.11	-3.26
8,548.0	1.40	263.90	8,545.7	-14.9	35.1	13.4	0.20	-0.11	6.40
8,734.0	1.40	261.10	8,731.7	-15.5	30.6	14.2	0.04	0.00	-1.51
8,920.0	1.60	263.40	8,917.6	-16.2	25.8	15.0	0.11	0.11	1.24
9,107.0	0.90	231.80	9,104.6	-17.4	22.1	16.4	0.51	-0.37	-16.90
9,294.0	2.80	240.70	9,291.4	-20.5	16.9	19.8	1.02	1.02	4.76
9,481.0	1.10	242.30	9,478.3	-23.6	11.3	23.1	0.91	-0.91	0.86
9,668.0	1.40	236.00	9,665.3	-25.7	7.9	25.3	0.18	0.16	-3.37

Survey Report

Company:	Yates Petroleum	Local Co-ordinate Reference:	Well #4H
Project:	Lea County, NM (NAD=83)	TVD Reference:	RKB @ 3809.5usft (Nomac 22 - KB=21.5')
Site:	Date BTB State Com	MD Reference:	RKB @ 3809.5usft (Nomac 22 - KB=21.5')
Well:	#4H	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)	
9,808.0	1.40	192.80	9,805.2	-28.3	6.1	28.0	0.74	0.00	-30.86	
9,949.0	2.10	181.00	9,946.2	-32.6	5.6	32.3	0.56	0.50	-8.37	
10,135.0	0.90	210.00	10,132.1	-37.2	4.9	37.0	0.74	-0.65	15.59	
10,322.0	1.20	336.00	10,319.1	-36.7	3.3	36.6	1.00	0.16	67.38	
10,508.0	1.80	20.00	10,505.0	-32.2	3.5	32.0	0.67	0.32	23.66	
10,696.0	1.20	71.10	10,693.0	-28.8	6.4	28.5	0.75	-0.32	27.18	
10,883.0	1.80	103.60	10,879.9	-28.8	11.1	28.4	0.54	0.32	17.38	
11,069.0	0.20	59.90	11,065.9	-29.4	14.2	28.7	0.89	-0.86	-23.49	
11,170.0	0.70	65.00	11,166.9	-29.0	14.9	28.4	0.50	0.50	5.05	
11,183.0	0.70	71.50	11,179.9	-29.0	15.1	28.3	0.61	0.00	50.00	
11,214.0	1.10	116.50	11,210.9	-29.0	15.5	28.4	2.52	1.29	145.16	
11,245.0	3.20	162.50	11,241.9	-30.0	16.1	29.3	8.26	6.77	148.39	
11,277.0	6.00	174.70	11,273.8	-32.5	16.5	31.8	9.22	8.75	38.13	
11,308.0	9.30	179.90	11,304.5	-36.6	16.6	35.9	10.87	10.65	16.77	
11,339.0	12.80	183.60	11,334.9	-42.6	16.4	41.8	11.51	11.29	11.94	
KOP: 11339.0' MD, 11334.9' TVD										
11,370.0	16.50	186.40	11,364.9	-50.4	15.7	49.7	12.15	11.94	9.03	
11,401.0	20.40	187.80	11,394.3	-60.1	14.5	59.4	12.66	12.58	4.52	
11,432.0	24.30	187.50	11,422.9	-71.8	12.9	71.2	12.59	12.58	-0.97	
11,463.0	28.30	186.80	11,450.7	-85.4	11.2	84.9	12.94	12.90	-2.26	
11,495.0	31.70	185.40	11,478.4	-101.3	9.5	100.8	10.85	10.63	-4.38	
11,526.0	35.20	184.10	11,504.3	-118.3	8.1	117.9	11.52	11.29	-4.19	
11,557.0	38.90	183.30	11,529.0	-137.0	6.9	136.6	12.04	11.94	-2.58	
11,588.0	41.50	182.60	11,552.7	-157.0	5.9	156.6	8.51	8.39	-2.26	
11,619.0	44.70	182.60	11,575.4	-178.1	4.9	177.7	10.32	10.32	0.00	
11,650.0	48.40	183.10	11,596.7	-200.6	3.8	200.2	11.99	11.94	1.61	
11,681.0	51.70	183.60	11,616.6	-224.3	2.4	224.0	10.72	10.65	1.61	
11,713.0	54.70	184.00	11,635.7	-249.9	0.7	249.6	9.43	9.38	1.25	
11,744.0	57.90	183.60	11,652.9	-275.6	-1.0	275.4	10.38	10.32	-1.29	
11,775.0	60.70	182.60	11,668.8	-302.2	-2.4	302.0	9.45	9.03	-3.23	
11,789.6	62.11	182.41	11,675.7	-315.0	-3.0	314.9	9.74	9.68	-1.31	
Cross 330' Hardline: 11789.6' MD, 11675.7' TVD, 62.11° INC										
11,806.0	63.70	182.20	11,683.2	-329.6	-3.6	329.5	9.74	9.68	-1.27	
11,836.0	67.70	181.30	11,695.6	-356.9	-4.4	356.8	13.61	13.33	-3.00	
11,867.0	71.60	181.30	11,706.3	-386.0	-5.1	385.9	12.58	12.58	0.00	
11,899.0	75.80	181.70	11,715.3	-416.7	-5.9	416.6	13.18	13.13	1.25	
11,930.0	80.60	182.00	11,721.7	-447.0	-6.8	446.9	15.51	15.48	0.97	
11,961.0	85.00	182.00	11,725.5	-477.7	-7.9	477.6	14.19	14.19	0.00	
11,992.0	87.10	182.60	11,727.7	-508.6	-9.2	508.6	7.04	6.77	1.94	
12,026.0	87.10	182.40	11,729.4	-542.6	-10.6	542.5	0.59	0.00	-0.59	
12,119.0	88.20	183.20	11,733.2	-635.4	-15.2	635.4	1.46	1.18	0.86	
12,212.0	88.70	183.20	11,735.7	-728.2	-20.4	728.4	0.54	0.54	0.00	
EOC: 12212.0' MD, 11735.7' TVD, 88.70° INC, 183.20° AZ, 728.4' VS										
12,306.0	88.20	183.50	11,738.3	-822.0	-25.9	822.3	0.62	-0.53	0.32	

Survey Report

Company:	Yates Petroleum	Local Co-ordinate Reference:	Well #4H
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Site:	Date BTB State Com	MD Reference:	RKB @ 3809.5usft (Nomac 22 - KB=21.5')
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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)	
12,399.0	88.50	182.80	11,740.9	-914.8	-31.0	915.3	0.82	0.32	-0.75	
12,493.0	88.60	181.60	11,743.3	-1,008.7	-34.6	1,009.3	1.28	0.11	-1.28	
12,586.0	89.30	181.40	11,745.0	-1,101.7	-37.0	1,102.2	0.78	0.75	-0.22	
12,680.0	88.90	180.50	11,746.5	-1,195.6	-38.6	1,196.2	1.05	-0.43	-0.96	
12,774.0	88.50	180.50	11,748.6	-1,289.6	-39.4	1,290.1	0.43	-0.43	0.00	
12,867.0	88.90	181.30	11,750.7	-1,382.6	-40.8	1,383.1	0.96	0.43	0.86	
12,960.0	89.20	182.50	11,752.3	-1,475.5	-43.9	1,476.0	1.33	0.32	1.29	
13,054.0	88.80	183.40	11,753.9	-1,569.4	-48.8	1,570.0	1.05	-0.43	0.96	
13,147.0	89.10	183.40	11,755.6	-1,662.2	-54.3	1,663.0	0.32	0.32	0.00	
13,240.0	88.90	184.00	11,757.3	-1,755.0	-60.3	1,756.0	0.68	-0.22	0.65	
13,334.0	88.50	184.10	11,759.4	-1,848.7	-66.9	1,849.9	0.44	-0.43	0.11	
13,427.0	89.20	184.80	11,761.3	-1,941.4	-74.1	1,942.8	1.06	0.75	0.75	
13,521.0	88.40	185.20	11,763.2	-2,035.0	-82.3	2,036.7	0.95	-0.85	0.43	
13,614.0	88.80	184.20	11,765.5	-2,127.7	-89.9	2,129.6	1.16	0.43	-1.08	
13,708.0	89.00	183.20	11,767.3	-2,221.5	-96.0	2,223.6	1.08	0.21	-1.06	
13,802.0	88.80	183.60	11,769.1	-2,315.3	-101.6	2,317.5	0.48	-0.21	0.43	
13,895.0	89.10	182.60	11,770.8	-2,408.2	-106.6	2,410.5	1.12	0.32	-1.08	
13,989.0	88.80	183.10	11,772.5	-2,502.0	-111.3	2,504.5	0.62	-0.32	0.53	
14,082.0	88.50	183.60	11,774.7	-2,594.8	-116.7	2,597.4	0.63	-0.32	0.54	
14,176.0	89.40	182.50	11,776.4	-2,688.7	-121.7	2,691.4	1.51	0.96	-1.17	
14,269.0	89.50	182.80	11,777.3	-2,781.6	-126.0	2,784.4	0.34	0.11	0.32	
14,363.0	89.60	183.40	11,778.1	-2,875.4	-131.1	2,878.4	0.65	0.11	0.64	
14,456.0	89.30	182.40	11,779.0	-2,968.3	-135.8	2,971.4	1.12	-0.32	-1.08	
14,550.0	89.00	182.50	11,780.4	-3,062.2	-139.8	3,065.4	0.34	-0.32	0.11	
14,643.0	88.90	183.40	11,782.1	-3,155.1	-144.6	3,158.4	0.97	-0.11	0.97	
14,737.0	88.20	182.80	11,784.4	-3,248.9	-149.7	3,252.3	0.98	-0.74	-0.64	
14,830.0	88.10	182.10	11,787.4	-3,341.8	-153.7	3,345.3	0.76	-0.11	-0.75	
14,923.0	88.50	181.50	11,790.2	-3,434.7	-156.6	3,438.2	0.78	0.43	-0.65	
15,017.0	89.10	181.50	11,792.2	-3,528.6	-159.0	3,532.2	0.64	0.64	0.00	
15,110.0	88.60	181.60	11,794.0	-3,621.6	-161.6	3,625.2	0.55	-0.54	0.11	
15,204.0	89.10	181.40	11,795.9	-3,715.5	-164.0	3,719.1	0.57	0.53	-0.21	
15,297.0	89.20	181.80	11,797.3	-3,808.5	-166.6	3,812.1	0.44	0.11	0.43	
15,390.0	89.30	182.00	11,798.5	-3,901.4	-169.7	3,905.1	0.24	0.11	0.22	
15,483.0	89.10	182.60	11,799.8	-3,994.3	-173.4	3,998.1	0.68	-0.22	0.65	
15,577.0	89.40	182.80	11,801.1	-4,088.2	-177.9	4,092.1	0.38	0.32	0.21	
15,670.0	89.30	183.20	11,802.1	-4,181.1	-182.7	4,185.1	0.44	-0.11	0.43	
15,763.0	88.30	181.90	11,804.1	-4,274.0	-186.9	4,278.1	1.76	-1.08	-1.40	
15,856.0	88.60	181.20	11,806.6	-4,366.9	-189.4	4,371.0	0.82	0.32	-0.75	
15,950.0	89.10	181.80	11,808.5	-4,460.9	-191.8	4,465.0	0.83	0.53	0.64	
16,043.0	89.30	182.10	11,809.8	-4,553.8	-195.0	4,558.0	0.39	0.22	0.32	
16,137.0	88.50	181.90	11,811.6	-4,647.7	-198.3	4,651.9	0.88	-0.85	-0.21	
16,231.0	88.40	181.90	11,814.1	-4,741.6	-201.4	4,745.9	0.11	-0.11	0.00	
16,326.0	87.90	181.60	11,817.2	-4,836.5	-204.3	4,840.8	0.61	-0.53	-0.32	

Survey Report

Company:	Yates Petroleum	Local Co-ordinate Reference:	Well #4H
Project:	Lea County, NM (NAD-83)	TVD Reference:	RKB @ 3809.5usft (Nomac 22 - KB=21.5')
Site:	Date BTB State Com	MD Reference:	RKB @ 3809.5usft (Nomac 22 - KB=21.5')
Well:	#4H	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)
16,357.0	87.60	181.40	11,818.4	-4,867.5	-205.1	4,871.8	1.16	-0.97	-0.65
Final MWD Survey: 16357.0' MD, 11818.4' TVD, -4867.5' +N/-S, -205.1' +E/-W									
16,418.0	87.60	181.40	11,820.9	-4,928.4	-206.6	4,932.8	0.00	0.00	0.00
BHL: 16418.0' MD, 11820.9' TVD, 87.60° INC, 181.40° AZ, -4928.4' +N/-S, -206.6' +E/-W, 4932.8' VS - TD: 16418.0' MD, 11820.9' TVD - PBHL									

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
11,339.0	11,334.9	-42.6	16.4	KOP: 11339.0' MD, 11334.9' TVD
11,789.6	11,675.7	-315.0	-3.0	Cross 330' Hardline: 11789.6' MD, 11675.7' TVD, 62.11° INC
12,212.0	11,735.7	-728.2	-20.4	EOC: 12212.0' MD, 11735.7' TVD, 88.70° INC, 183.20° AZ, 728.4' VS
16,357.0	11,818.4	-4,867.5	-205.1	Final MWD Survey: 16357.0' MD, 11818.4' TVD, -4867.5' +N/-S, -205.1' +E/-W
16,418.0	11,820.9	-4,928.4	-206.6	BHL: 16418.0' MD, 11820.9' TVD, 87.60° INC, 181.40° AZ, -4928.4' +N/-S, -206
16,418.0	11,820.9	-4,928.4	-206.6	TD: 16418.0' MD, 11820.9' TVD

Checked By: _____ Approved By: _____ Date: _____



Yates Petroleum
Project: Lea County, NM (NAD-83)
Site: Date BTB State Com
Well: #4H
Wellbore: OH
Plan: Plan #1 (#4H/OH)

WELL DETAILS: #4H

Ground Elevation:: 3788.0
RKB Elevation: RKB @ 3809.5usft (Nomac 22 - KB=21.5')
Rig Name: Nomac 22 - KB=21.5'

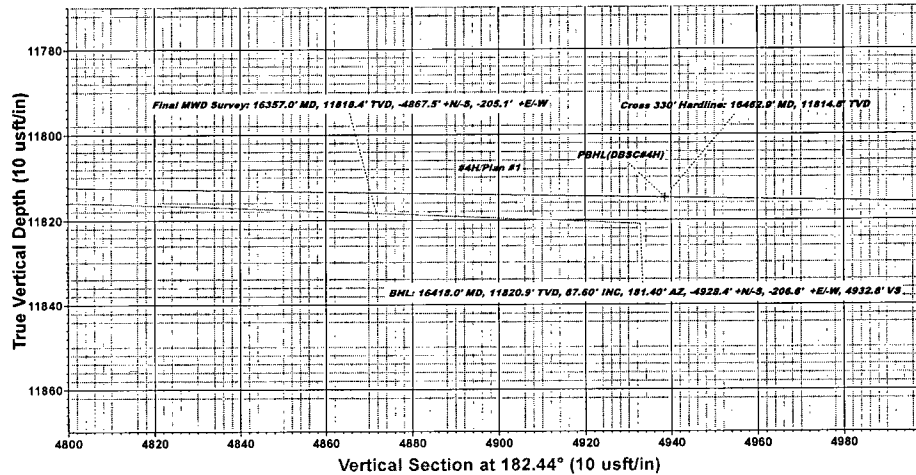
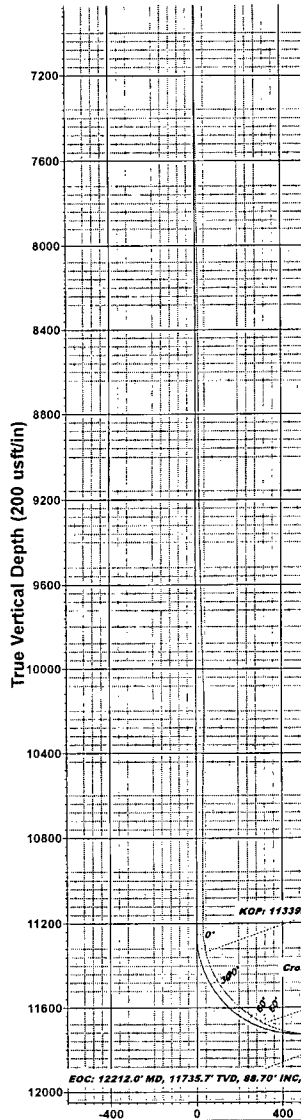
Surface Hole Location
Northing: 541458.90
Easting: 787085.40
Latitude: 32° 29' 9.632 N
Longitude: 103° 32' 10.845 W



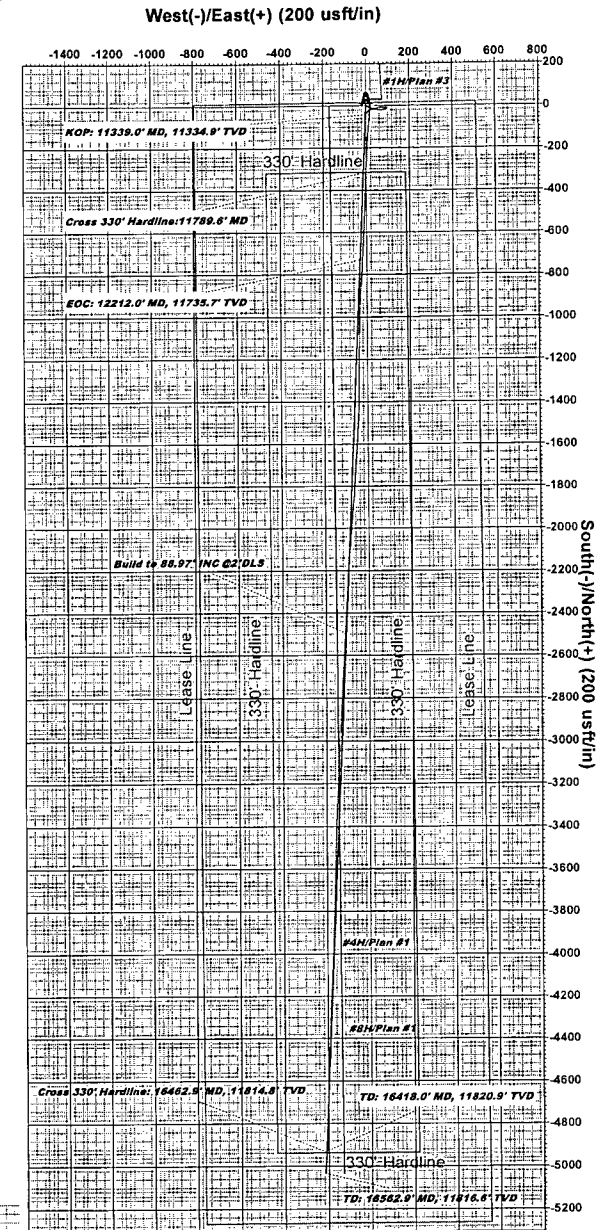
Azimuths to Grid North
True North: -0.43°
Magnetic North: 6.78°
Magnetic Field
Strength: 48467.7nT
Dip Angle: 60.36°
Date: 7/10/2014
Model: IGRF2010

Section Details

	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0
2	11251.0	0.00	0.00	11251.0	0.0	0.0	0.00	0.00	0.0
3	11991.0	88.80	182.44	11728.4	-467.0	-19.9	12.00	182.44	467.5
4	14024.0	88.80	182.44	11770.9	-2497.7	-106.4	0.00	0.00	2500.0
5	14032.5	88.97	182.44	11771.1	-2506.2	-106.8	2.00	0.00	2508.5
6	14524.1	88.97	182.44	11779.9	-2997.3	-127.7	0.00	0.00	3000.0
7	16462.9	88.97	182.44	11814.8	-4934.1	-210.3	0.00	0.00	4938.6
8	16562.9	88.97	182.44	11816.6	-5034.0	-214.5	0.00	0.00	5038.5



Vertical Section at 182.44° (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 #1 (#4H/OH)
Created By: Adrian Castro Date: 9:41, September 19 2014