



Yates Petroleum Corp.

Eddy County, NM (NAD83 NME)

Southland Royalty APM State

#4H

WB1/Job #1410459

Design: Surveys (McVay 8)

30-015-39859

Phoenix Final Survey Report

21 March, 2014





Phoenix Technology Services

Phoenix Final Survey Report



Company:	Yates Petroleum Corp.	Local Co-ordinate Reference:	Well #4H
Project:	Eddy County, NM (NAD83 NME)	TVD Reference:	KB @ 3370.50usft (McVay 8)
Site:	Southland Royalty APM State	MD Reference:	KB @ 3370.50usft (McVay 8)
Well:	#4H	North Reference:	Grid
Wellbore:	WB1/Job #1410459	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (McVay 8)	Database:	GCR DB

Project	Eddy County, NM (NAD83 NME)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site	Southland Royalty APM State		
Site Position:		Northing:	596,440.56 usft
From:	Map	Easting:	636,047.24 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16"
		Latitude:	32° 38' 21.43223 N
		Longitude:	104° 1' 32.35058 W
		Grid Convergence:	0.17 °

Well	#4H		
Well Position	+N/-S	0.00 usft	Northing:
	+E/-W	0.00 usft	Easting:
Position Uncertainty	0.00 usft	Wellhead Elevation:	usft
		Latitude:	32° 38' 21.51778 N
		Longitude:	104° 1' 48.67598 W
		Ground Level:	3,352.00 usft

Wellbore	WB1/Job #1410459		
Magnetics	Model Name	Sample Date	Declination
			(°)
	IGRF2010_14	03/06/14	7.49
			Dip Angle
			(°)
			60.42
			Field Strength
			(nT)
			48,544

Design	Surveys (McVay 8)		
Audit Notes:			
Version:	1.0	Phase:	ACTUAL
		Tie On Depth:	0.00
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(usft)	(usft)	(usft)
	0.00	0.00	0.00
			Direction
			(°)
			358.68

Survey Program	Date 03/21/14		
From	To	Survey (Wellbore)	Tool Name
(usft)	(usft)		
100.00	5,690.00	MS Gyro Survey (WB1/Job #1410459)	CB-GYRO-MS
5,749.00	10,694.00	Stryker MWD 2 Surveys (WB1/Job #14104)	MWD
10,877.00	12,762.00	Phoenix MWD 3 Surveys (WB1/Job #1410)	MWD
			Description
			Camera based gyro multishot
			MWD - Standard
			MWD - Standard

Survey			
MD	Inc	Azi (azimuth)	TVD
(usft)	(°)	(°)	(usft)
0.00	0.00	0.00	0.00
100.00	0.29	280.73	100.00
200.00	0.53	243.60	200.00
300.00	0.53	232.93	299.99
400.00	0.35	213.86	399.99
500.00	0.18	233.91	499.99
600.00	0.18	28.05	599.99
700.00	0.84	64.96	699.98
800.00	1.38	48.95	799.97
900.00	1.80	55.47	899.93
			N/S
			(usft)
			0.00
			0.05
			-0.11
			-0.60
			-1.13
			-1.47
			-1.43
			-0.98
			-0.12
			1.80
			E/W
			(usft)
			0.00
			-0.25
			-0.91
			-1.69
			-2.23
			-2.53
			-2.58
			-1.85
			-0.27
			1.93
			V. Sec
			(usft)
			0.00
			-0.05
			-0.09
			-0.56
			-1.08
			-1.42
			-1.37
			-0.94
			0.13
			1.76
			DLeg
			(°/100usft)
			0.00
			0.29
			0.35
			0.10
			0.23
			0.19
			0.35
			0.70
			0.62
			0.46



Phoenix Technology Services

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Site:	Southland Royalty APM State	MD Reference:	KB @ 3370.50usft (McVay 8)
Well:	#4H	North Reference:	Grid
Wellbore:	WB1/Job #1410459	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (McVay 8)	Database:	GCR DB

Survey								
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	
1,000.00	1.81	62.90	999.88	3.41	4.63	3.30	0.23	
1,100.00	2.08	71.00	1,099.82	4.72	7.75	4.54	0.38	
1,200.00	2.15	87.10	1,199.75	5.41	11.34	5.15	0.60	
1,300.00	2.20	98.14	1,299.68	5.23	15.11	4.88	0.42	
1,400.00	2.17	97.44	1,399.61	4.71	18.89	4.28	0.04	
1,500.00	1.65	114.00	1,499.55	3.88	22.08	3.37	0.75	
1,600.00	1.28	116.88	1,599.52	2.79	24.39	2.23	0.38	
1,700.00	0.84	123.71	1,699.50	1.88	26.00	1.28	0.46	
1,800.00	0.71	153.85	1,799.49	0.92	26.88	0.30	0.42	
1,900.00	0.80	172.56	1,899.49	-0.33	27.25	-0.96	0.26	
2,000.00	0.85	175.10	1,999.48	-1.76	27.40	-2.39	0.06	
2,100.00	0.75	167.40	2,099.47	-3.14	27.61	-3.77	0.15	
2,200.00	0.57	167.20	2,199.46	-4.26	27.86	-4.90	0.18	
2,300.00	0.51	172.71	2,299.45	-5.19	28.03	-5.83	0.08	
2,400.00	0.32	170.60	2,399.45	-5.91	28.13	-6.55	0.19	
2,500.00	0.23	182.10	2,499.45	-6.38	28.17	-7.03	0.11	
2,600.00	0.08	177.73	2,599.45	-6.65	28.16	-7.30	0.15	
2,700.00	0.08	335.75	2,699.45	-6.66	28.14	-7.31	0.16	
2,800.00	0.08	76.97	2,799.45	-6.58	28.17	-7.23	0.12	
2,900.00	0.08	202.55	2,899.45	-6.63	28.22	-7.28	0.14	
3,000.00	0.46	289.71	2,999.45	-6.56	27.81	-7.20	0.46	
3,100.00	0.49	293.37	3,099.45	-6.25	27.04	-6.87	0.04	
3,200.00	0.47	298.23	3,199.44	-5.89	26.29	-6.49	0.05	
3,300.00	0.23	302.64	3,299.44	-5.59	25.76	-6.18	0.24	
3,400.00	0.32	336.12	3,399.44	-5.22	25.47	-5.81	0.18	
3,500.00	0.38	332.86	3,499.44	-4.67	25.21	-5.25	0.06	
3,600.00	0.53	330.46	3,599.43	-3.97	24.83	-4.55	0.15	
3,700.00	0.41	339.55	3,699.43	-3.24	24.48	-3.80	0.14	
3,800.00	0.50	314.77	3,799.43	-2.59	24.04	-3.15	0.21	
3,900.00	0.67	328.52	3,899.42	-1.79	23.43	-2.33	0.22	
4,000.00	0.73	317.89	3,999.41	-0.82	22.70	-1.34	0.14	
4,100.00	0.75	324.34	4,099.41	0.19	21.89	-0.32	0.09	
4,200.00	0.50	318.15	4,199.40	1.04	21.21	0.55	0.26	
4,300.00	0.55	321.16	4,299.40	1.74	20.62	1.27	0.06	
4,400.00	0.76	337.69	4,399.39	2.73	20.07	2.27	0.28	
4,500.00	0.74	342.63	4,499.38	3.96	19.62	3.51	0.07	
4,600.00	0.82	349.26	4,599.37	5.28	19.30	4.83	0.12	
4,700.00	1.16	0.08	4,699.36	6.99	19.17	6.55	0.39	
4,800.00	1.62	5.94	4,799.33	9.41	19.31	8.97	0.48	
4,900.00	1.76	10.43	4,899.28	12.33	19.74	11.87	0.19	
5,000.00	2.16	15.07	4,999.23	15.66	20.51	15.18	0.43	
5,100.00	2.16	11.00	5,099.15	19.33	21.36	18.83	0.15	
5,200.00	2.25	13.09	5,199.08	23.09	22.16	22.57	0.12	
5,300.00	2.53	11.87	5,298.99	27.16	23.06	26.62	0.28	
5,400.00	2.77	12.84	5,398.89	31.68	24.05	31.12	0.24	



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Well:	#4H	North Reference:	Grid
Wellbore:	WB1/Job #1410459	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (McVay 8)	Database:	GCR DB

Survey							
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
5,500.00	2.69	16.13	5,498.77	36.29	25.24	35.70	0.18
5,600.00	2.60	14.40	5,598.67	40.74	26.45	40.12	0.12
5,690.00	2.38	13.25	5,688.58	44.54	27.39	43.89	0.25
5,749.00	2.30	358.60	5,747.53	46.91	27.64	46.26	1.02
5,843.00	1.80	325.30	5,841.48	50.01	26.76	49.38	1.35
5,937.00	0.50	288.60	5,935.46	51.36	25.53	50.75	1.52
6,031.00	1.30	275.20	6,029.44	51.58	24.08	51.01	0.87
6,125.00	1.30	278.40	6,123.42	51.84	21.96	51.32	0.08
6,220.00	1.40	300.70	6,218.39	52.59	19.90	52.11	0.56
6,314.00	1.50	309.30	6,312.36	53.95	17.96	53.52	0.25
6,408.00	2.00	317.60	6,406.32	55.94	15.90	55.56	0.60
6,502.00	0.90	2.80	6,500.29	57.89	14.83	57.53	1.60
6,596.00	1.10	347.10	6,594.28	59.51	14.66	59.15	0.36
6,690.00	1.50	332.20	6,688.25	61.47	13.89	61.14	0.55
6,784.00	0.70	250.40	6,782.24	62.37	12.77	62.06	1.66
6,878.00	1.10	258.50	6,876.23	62.00	11.35	61.72	0.45
6,972.00	1.10	258.20	6,970.21	61.63	9.58	61.40	0.01
7,066.00	1.60	243.40	7,064.18	60.86	7.52	60.67	0.64
7,161.00	1.50	244.30	7,159.15	59.73	5.22	59.59	0.11
7,255.00	1.80	237.40	7,253.11	58.40	2.86	58.32	0.38
7,349.00	1.80	232.50	7,347.06	56.71	0.45	56.68	0.16
7,443.00	2.10	235.90	7,441.01	54.84	-2.15	54.88	0.34
7,537.00	1.10	307.80	7,534.98	54.43	-4.29	54.51	2.18
7,626.00	1.00	315.00	7,623.96	55.50	-5.51	55.61	0.19
7,657.00	1.10	323.40	7,654.96	55.93	-5.88	56.05	0.59
7,688.00	3.60	338.70	7,685.93	57.08	-6.41	57.21	8.24
7,719.00	7.70	348.00	7,716.77	60.02	-7.20	60.17	13.51
7,751.00	12.30	354.00	7,748.28	65.51	-8.00	65.67	14.72
7,782.00	14.70	355.90	7,778.42	72.71	-8.63	72.89	7.87
7,814.00	17.00	355.20	7,809.20	81.43	-9.31	81.62	7.21
7,845.00	20.20	355.90	7,838.58	91.28	-10.07	91.49	10.35
7,876.00	24.30	357.10	7,867.26	103.00	-10.78	103.22	13.31
7,908.00	28.10	358.60	7,895.97	117.11	-11.29	117.34	12.05
7,939.00	31.40	358.40	7,922.88	132.49	-11.70	132.72	10.65
7,970.00	34.30	358.20	7,948.92	149.29	-12.20	149.54	9.36
8,002.00	37.10	357.80	7,974.91	167.95	-12.85	168.21	8.78
8,033.00	39.50	359.30	7,999.23	187.16	-13.33	187.42	8.30
8,065.00	41.90	0.01	8,023.49	208.02	-13.45	208.28	7.64
8,096.00	45.50	0.01	8,045.90	229.44	-13.45	229.69	11.61
8,128.00	49.60	358.60	8,067.49	253.04	-13.75	253.29	13.22
8,159.00	53.20	359.10	8,086.83	277.26	-14.23	277.51	11.68
8,190.00	56.30	0.10	8,104.72	302.57	-14.40	302.82	10.34
8,222.00	59.40	0.50	8,121.75	329.66	-14.26	329.90	9.75
8,253.00	61.80	1.40	8,136.96	356.66	-13.81	356.89	8.14



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Wellbore:	WB1/Job #1410459	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (McVay 8)	Database:	GCR DB

Survey							
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
8,285.00	65.40	1.70	8,151.19	385.31	-13.03	385.51	11.28
8,316.00	69.70	1.20	8,163.03	413.94	-12.31	414.12	13.95
8,347.00	71.80	0.80	8,173.25	443.21	-11.80	443.36	6.88
8,379.00	74.70	0.10	8,182.47	473.84	-11.56	473.98	9.30
8,411.00	78.50	359.10	8,189.88	504.96	-11.78	505.10	12.26
8,442.00	81.30	359.40	8,195.32	535.48	-12.18	535.62	9.08
8,473.00	83.50	0.50	8,199.42	566.20	-12.21	566.33	7.92
8,505.00	87.10	0.30	8,202.04	598.09	-11.98	598.21	11.27
8,528.00	90.10	0.01	8,202.60	621.08	-11.92	621.19	13.11
8,559.00	91.30	359.60	8,202.22	652.08	-12.03	652.18	4.09
8,622.00	93.10	0.30	8,199.80	715.03	-12.08	715.12	3.07
8,685.00	93.80	0.80	8,196.01	777.91	-11.48	777.97	1.36
8,748.00	92.90	0.30	8,192.33	840.80	-10.88	840.83	1.63
8,811.00	91.20	0.01	8,190.08	903.76	-10.71	903.76	2.74
8,873.00	90.10	359.40	8,189.37	965.75	-11.03	965.75	2.02
8,936.00	90.70	359.10	8,188.94	1,028.74	-11.86	1,028.74	1.06
8,998.00	91.80	358.90	8,187.58	1,090.72	-12.94	1,090.73	1.80
9,061.00	92.80	358.70	8,185.05	1,153.65	-14.26	1,153.67	1.62
9,156.00	91.70	359.10	8,181.32	1,248.56	-16.08	1,248.60	1.23
9,218.00	91.30	359.40	8,179.70	1,310.53	-16.89	1,310.57	0.81
9,281.00	91.10	359.40	8,178.38	1,373.52	-17.55	1,373.56	0.32
9,346.00	89.80	359.40	8,177.87	1,438.51	-18.23	1,438.55	2.00
9,440.00	90.40	358.90	8,177.71	1,532.50	-19.63	1,532.54	0.83
9,534.00	91.20	358.70	8,176.40	1,626.47	-21.59	1,626.53	0.88
9,628.00	92.20	358.90	8,173.61	1,720.40	-23.56	1,720.49	1.08
9,722.00	90.70	358.60	8,171.23	1,814.35	-25.61	1,814.46	1.63
9,816.00	91.50	358.20	8,169.42	1,908.29	-28.24	1,908.44	0.95
9,910.00	92.30	357.70	8,166.31	2,002.18	-31.60	2,002.38	1.00
10,005.00	91.20	357.50	8,163.41	2,097.05	-35.57	2,097.31	1.18
10,099.00	92.30	357.30	8,160.54	2,190.91	-39.83	2,191.25	1.19
10,193.00	92.20	358.00	8,156.84	2,284.76	-43.69	2,285.16	0.75
10,224.00	92.60	358.00	8,155.55	2,315.71	-44.77	2,316.13	1.29
10,287.00	92.10	358.00	8,152.96	2,378.62	-46.96	2,379.07	0.79
10,350.00	92.00	358.00	8,150.71	2,441.54	-49.16	2,442.03	0.16
10,412.00	92.90	358.20	8,148.06	2,503.45	-51.21	2,503.97	1.49
10,506.00	91.90	357.80	8,144.12	2,597.31	-54.49	2,597.87	1.15
10,600.00	91.30	358.00	8,141.50	2,691.21	-57.94	2,691.83	0.67
10,694.00	91.50	357.30	8,139.20	2,785.10	-61.79	2,785.79	0.77
Tie-on to 10694' MD							
10,877.00	92.00	356.90	8,133.61	2,967.78	-71.04	2,968.63	0.35
First Phoenix MWD Survey							
10,971.00	90.40	356.40	8,131.65	3,061.60	-76.53	3,062.55	1.78
11,065.00	88.80	356.90	8,132.30	3,155.43	-82.03	3,156.48	1.78
11,159.00	87.00	356.80	8,135.75	3,249.22	-87.19	3,250.37	1.92



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11,253.00	86.00	357.70	8,141.48	3,342.94	-91.69	3,344.16	1.43
11,347.00	87.40	359.20	8,146.90	3,436.74	-94.23	3,438.00	2.18
11,441.00	94.20	4.00	8,145.58	3,530.61	-91.61	3,531.78	8.85
11,536.00	93.30	0.10	8,139.37	3,625.33	-88.22	3,626.40	4.20
11,630.00	91.80	358.80	8,135.19	3,719.23	-89.12	3,720.29	2.11
11,724.00	91.70	358.20	8,132.31	3,813.15	-91.58	3,814.25	0.65
11,818.00	91.50	357.50	8,129.69	3,907.05	-95.11	3,908.20	0.77
11,912.00	91.30	357.00	8,127.39	4,000.91	-99.62	4,002.14	0.57
12,007.00	90.50	357.30	8,125.90	4,095.78	-104.34	4,097.10	0.90
12,101.00	90.60	359.90	8,125.00	4,189.74	-106.63	4,191.08	2.77
12,195.00	90.20	359.10	8,124.34	4,283.73	-107.45	4,285.07	0.95
12,289.00	90.50	0.60	8,123.77	4,377.73	-107.70	4,379.05	1.63
12,384.00	90.90	359.80	8,122.61	4,472.72	-107.37	4,474.01	0.94
12,478.00	90.80	359.80	8,121.21	4,566.71	-107.70	4,567.98	0.11
Last Phoenix MWD Survey							
12,762.00	90.80	359.80	8,117.25	4,850.68	-108.69	4,851.89	0.00
Projection to TD							

Design Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment	
		+N/-S (usft)	+E/-W (usft)		
10,694.00	8,139.20	2,785.10	-61.79	Tie-on to 10694' MD	
10,877.00	8,133.61	2,967.78	-71.04	First Phoenix MWD Survey	
12,478.00	8,121.21	4,566.71	-107.70	Last Phoenix MWD Survey	
12,762.00	8,117.25	4,850.68	-108.69	Projection to TD	

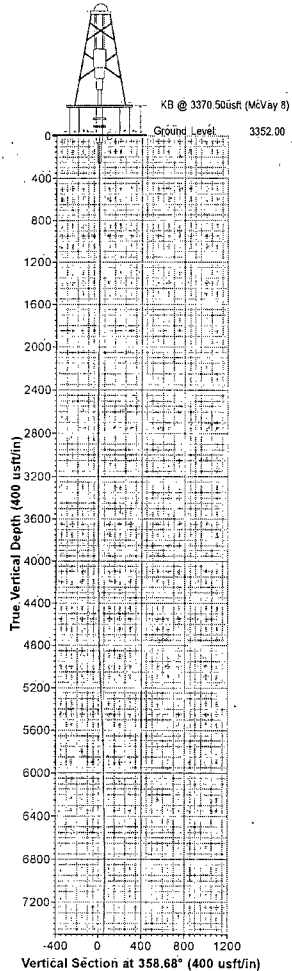
Checked By: _____	Approved By: _____	Date: _____
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Project: Eddy County, NM (NAD83 NME)
Site: Southland Royalty APM State
Well: #4H
Wellbore: WB1/Job #1410459
Design: Plan #1 03-13-14
Rig: McVay 8



Azimuths to Grid North
True North: -0.16°
Magnetic North: 7.33°
Magnetic Field
Strength: 48544.0 nT
Dip Angle: 60.42°
Date: 03/06/2014
Model: IGRF2010_14



WELL DETAILS												
	+N/-S	+E/-W	Northing	Ground Level Easting	3352.00	Latitude	Longitude					
	0.00	0.00	598445.19	634651.31		32° 38' 21.51778 N	104° 1' 48.67598 W					

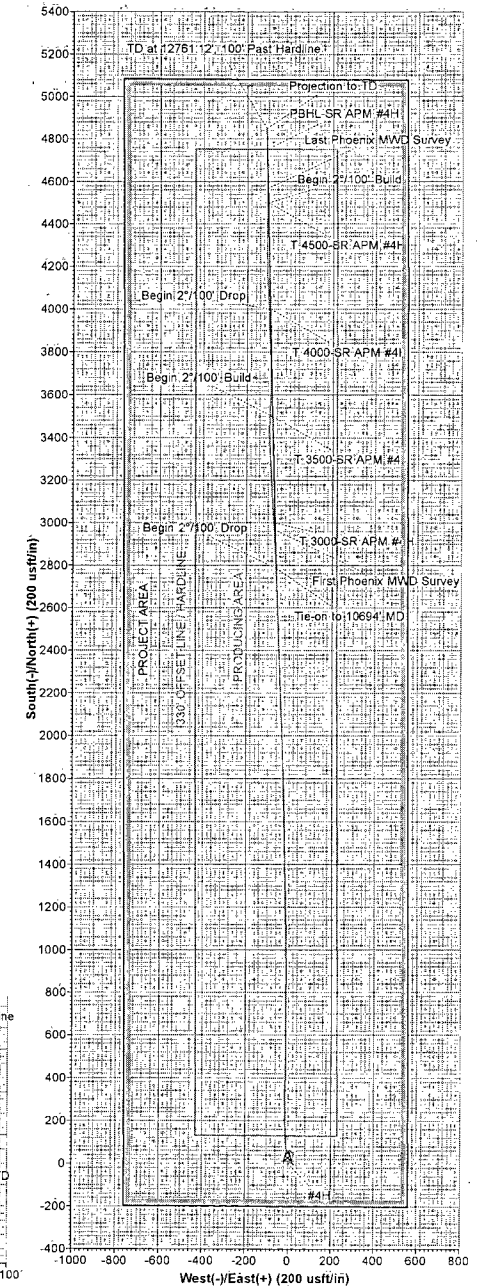
SECTION DETAILS												
Seq	MD	Incl	Azi	TVD	+N/-S	+E/-W	Dleg	IFace	VSecl	Target	Annotation	
1	10694.00	91.50	357.30	8139.20	2785.07	-61.74	0.00	0.00	2785.75		Begin 2°/100' Drop	
2	10793.94	90.87	358.55	8137.76	2854.84	-64.27	2.00	116.91	2855.56			
3	11408.35	90.87	358.55	8128.00	3499.07	-80.63	0.00	0.00	3500.00	T 3500-SR APM #4H	Begin 2°/100' Build	
4	11415.55	90.92	358.68	8127.89	3506.27	-80.80	2.00	68.94	3507.20			
5	11908.41	90.92	358.68	8120.00	3998.94	-92.15	0.00	0.00	4000.00	T 4000-SR APM #4H	Begin 2°/100' Drop	
6	11944.08	90.20	358.68	8119.85	4034.59	-92.97	2.00	-179.92	4035.66			
7	12408.42	90.20	358.68	8118.00	4498.81	-103.66	0.00	0.00	4500.00	T 4500-SR APM #4H	Begin 2°/100' Build	
8	12433.55	90.71	358.74	8117.80	4524.03	-104.23	2.00	6.35	4525.23			
9	12661.12	90.71	358.74	8115.00	4751.43	-109.25	0.00	0.00	4752.68	PBHL-SR APM #4H		
10	12761.12	90.71	358.74	8113.77	4851.40	-111.46	0.00	0.00	4852.68		TD at 12761.12, 100' Past Hardline	

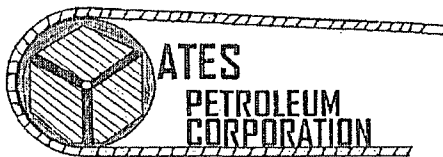
DESIGN TARGET DETAILS												
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape				
PBHL-SR APM #4H	8115.00	4751.43	-109.25	601196.62	634542.06	32° 39' 8.53748 N	104° 1' 49.79522 W	Point				
- plan hits target center												
T 4500-SR APM #4H	8118.00	4498.81	-103.66	600944.00	634547.65	32° 39' 6.03758 N	104° 1' 49.73630 W	Point				
- plan hits target center												
T 4000-SR APM #4H	8120.00	3998.94	-92.15	600444.13	634559.16	32° 39' 1.09094 N	104° 1' 49.62025 W	Point				
- plan hits target center												
T 3500-SR APM #4H	8128.00	3499.07	-80.63	599944.26	634570.68	32° 38' 56.14429 N	104° 1' 49.50221 W	Point				
- plan hits target center												
T 3000-SR APM #4H	8135.00	2999.20	-69.11	599444.40	634582.20	32° 38' 51.19765 N	104° 1' 49.38417 W	Point				
- plan misses target center by 1.30usft at 10908.30usft MD (8135.57 TVD, 2999.24 N, -67.94 E)												

Map System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone Name: New Mexico Eastern Zone
Local Origin: Well #4H, Grid North
Latitude: 32° 38' 21.51778 N
Longitude: 104° 1' 48.67598 W
Grid East: 634651.31
Grid North: 598445.19
Scale Factor: 1.000
Geomagnetic Model: IGRF2010_14
Sample Date: 06-Mar-14
Magnetic Declination: 7.49°
Dip Angle from Horizontal: 60.42°
Magnetic Field Strength: 48544
To convert a Magnetic Direction to a Grid Direction, Add 7.33°
To convert a Magnetic Direction to a True Direction, Add 7.49° East
To convert a True Direction to a Grid Direction, Subtract 0.16°

LÉGEND

— #4H, WB1/Job #1410459, Surveys (McVay 8) V0
- Plan #1 03-13-14





Yates Petroleum Corp.

Eddy County, NM (NAD83 NME)
Southland Royalty APM State
#4H

WB1/Job #1410459

Design: Surveys (McVay 8)

Standard Survey Report

04 April, 2014

NM OIL CONSERVATION
ARTESIA DISTRICT
JUL 03 2014
RECEIVED





Phoenix Technology Services

Survey Report



Company:	Yates Petroleum Corp.	Local Co-ordinate Reference:	Site Southland Royalty APM State
Project:	Eddy County, NM (NAD83 NME)	TVD Reference:	KB @ 3370.50usft (McVay 8)
Site:	Southland Royalty APM State	MD Reference:	KB @ 3370.50usft (McVay 8)
Well:	#4H	North Reference:	Grid
Wellbore:	WB1/Job #1410459	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (McVay 8)	Database:	GCR DB

Project	Eddy County, NM (NAD83 NME)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site	Southland Royalty APM State		
Site Position:		Northing:	596,440.56 usft
From:	Map	Easting:	636,047.25 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 38' 21.43223 N
		Longitude:	104° 1' 32.35058 W
		Grid Convergence:	0.17 °

Well	#4H		
Well Position	+N/-S	4.63 usft	Northing:
	+E/-W	-1,395.94 usft	Easting:
Position Uncertainty	0.00 usft	Wellhead Elevation:	usft
		Latitude:	32° 38' 21.51778 N
		Longitude:	104° 1' 48.67598 W
		Ground Level:	3,352.00 usft

Wellbore	WB1/Job #1410459		
Magnetics	Model Name	Sample Date	Declination
	IGRF2010_14	03/06/14	(°)
			7.49
			Dip Angle
			(°)
			60.42
			Field Strength
			(nT)
			48,544

Design	Surveys (McVay 8)		
Audit Notes:			
Version:	1.0	Phase:	ACTUAL
		Tie On Depth:	0.00
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(usft)	(usft)	(usft)
	0.00	4.63	-1,395.94
			Direction
			(°)
			358.68

Survey Program	Date 04/04/14		
From	To	Survey (Wellbore)	Tool Name
(usft)	(usft)		
100.00	5,690.00	MS Gyro Survey (WB1/Job #1410459)	CB-GYRO-MS
5,749.00	10,694.00	Stryker MWD 2 Surveys (WB1/Job #14104)	MWD
10,877.00	12,762.00	Phoenix MWD 3 Surveys (WB1/Job #1410)	MWD
			Description
			Camera based gyro multishot
			MWD - Standard
			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)
	0.00	0.00	0.00	0.00	4.63	-1,395.94	0.00	0.00	0.00	0.00
	100.00	0.29	280.73	100.00	4.68	-1,396.18	0.05	0.29	0.29	0.00
	200.00	0.53	243.60	200.00	4.52	-1,396.85	-0.09	0.35	0.24	-37.13
	300.00	0.53	232.93	299.99	4.04	-1,397.63	-0.56	0.10	0.00	-10.67
	400.00	0.35	213.86	399.99	3.50	-1,398.17	-1.08	0.23	-0.18	-19.07
	500.00	0.18	233.91	499.99	3.16	-1,398.47	-1.42	0.19	-0.17	20.05
	600.00	0.18	28.05	599.99	3.20	-1,398.52	-1.37	0.35	0.00	154.14
	700.00	0.84	64.96	699.98	3.65	-1,397.78	-0.94	0.70	0.66	36.91
	800.00	1.38	48.95	799.97	4.75	-1,396.21	0.13	0.62	0.54	-16.01



Phoenix Technology Services

Survey Report



Company: Yates Petroleum Corp.
Project: Eddy County, NM (NAD83 NME)
Site: Southland Royalty APM State
Well: #4H
Wellbore: WB1/Job #1410459
Design: Surveys (McVay 8)

Local Co-ordinate Reference: Site Southland Royalty APM State
TVD Reference: KB @ 3370.50usft (McVay 8)
MD Reference: KB @ 3370.50usft (McVay 8)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: GCR DB

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)
900.00	1.80	55.47	899.93	6.43	-1,394.01	1.76	0.46	0.42	6.52
1,000.00	1.81	62.90	999.88	8.04	-1,391.31	3.30	0.23	0.01	7.43
1,100.00	2.08	71.00	1,099.82	9.35	-1,388.19	4.54	0.38	0.27	8.10
1,200.00	2.15	87.10	1,199.75	10.04	-1,384.60	5.15	0.60	0.07	16.10
1,300.00	2.20	98.14	1,299.68	9.86	-1,380.82	4.88	0.42	0.05	11.04
1,400.00	2.17	97.44	1,399.61	9.35	-1,377.05	4.28	0.04	-0.03	-0.70
1,500.00	1.65	114.00	1,499.55	8.52	-1,373.85	3.37	0.75	-0.52	16.56
1,600.00	1.28	116.88	1,599.52	7.43	-1,371.54	2.23	0.38	-0.37	2.88
1,700.00	0.84	123.71	1,699.50	6.51	-1,369.94	1.28	0.46	-0.44	6.83
1,800.00	0.71	153.85	1,799.49	5.55	-1,369.05	0.30	0.42	-0.13	30.14
1,900.00	0.80	172.56	1,899.49	4.30	-1,368.69	-0.96	0.26	0.09	18.71
2,000.00	0.85	175.10	1,999.48	2.87	-1,368.54	-2.39	0.06	0.05	2.54
2,100.00	0.75	167.40	2,099.47	1.49	-1,368.33	-3.77	0.15	-0.10	-7.70
2,200.00	0.57	167.20	2,199.46	0.37	-1,368.08	-4.90	0.18	-0.18	-0.20
2,300.00	0.51	172.71	2,299.45	-0.56	-1,367.91	-5.83	0.08	-0.06	5.51
2,400.00	0.32	170.60	2,399.45	-1.27	-1,367.81	-6.55	0.19	-0.19	-2.11
2,500.00	0.23	182.10	2,499.45	-1.75	-1,367.77	-7.03	0.11	-0.09	11.50
2,600.00	0.08	177.73	2,599.45	-2.02	-1,367.77	-7.30	0.15	-0.15	-4.37
2,700.00	0.08	335.75	2,699.45	-2.03	-1,367.80	-7.31	0.16	0.00	158.02
2,800.00	0.08	76.97	2,799.45	-1.95	-1,367.76	-7.23	0.12	0.00	101.22
2,900.00	0.08	202.55	2,899.45	-2.00	-1,367.72	-7.28	0.14	0.00	125.58
3,000.00	0.46	289.71	2,999.45	-1.93	-1,368.12	-7.20	0.46	0.38	87.16
3,100.00	0.49	293.37	3,099.45	-1.62	-1,368.90	-6.87	0.04	0.03	3.66
3,200.00	0.47	298.23	3,199.44	-1.26	-1,369.65	-6.49	0.05	-0.02	4.86
3,300.00	0.23	302.64	3,299.44	-0.95	-1,370.18	-6.18	0.24	-0.24	4.41
3,400.00	0.32	336.12	3,399.44	-0.59	-1,370.46	-5.81	0.18	0.09	33.48
3,500.00	0.38	332.86	3,499.44	-0.04	-1,370.73	-5.25	0.06	0.06	-3.26
3,600.00	0.53	330.46	3,599.43	0.66	-1,371.11	-4.55	0.15	0.15	-2.40
3,700.00	0.41	339.55	3,699.43	1.39	-1,371.46	-3.80	0.14	-0.12	9.09
3,800.00	0.50	314.77	3,799.43	2.04	-1,371.89	-3.15	0.21	0.09	-24.78
3,900.00	0.67	328.52	3,899.42	2.84	-1,372.51	-2.33	0.22	0.17	13.75
4,000.00	0.73	317.89	3,999.41	3.81	-1,373.24	-1.34	0.14	0.06	-10.63
4,100.00	0.75	324.34	4,099.41	4.82	-1,374.05	-0.32	0.09	0.02	6.45
4,200.00	0.50	318.15	4,199.40	5.68	-1,374.72	0.55	0.26	-0.25	-6.19
4,300.00	0.55	321.16	4,299.40	6.37	-1,375.31	1.27	0.06	0.05	3.01
4,400.00	0.76	337.69	4,399.39	7.36	-1,375.87	2.27	0.28	0.21	16.53
4,500.00	0.74	342.63	4,499.38	8.59	-1,376.31	3.51	0.07	-0.02	4.94
4,600.00	0.82	349.26	4,599.37	9.91	-1,376.64	4.83	0.12	0.08	6.63
4,700.00	1.16	0.08	4,699.36	11.63	-1,376.77	6.55	0.39	0.34	10.82
4,800.00	1.62	5.94	4,799.33	14.04	-1,376.62	8.97	0.48	0.46	5.86
4,900.00	1.76	10.43	4,899.28	16.96	-1,376.20	11.87	0.19	0.14	4.49
5,000.00	2.16	15.07	4,999.23	20.29	-1,375.43	15.18	0.43	0.40	4.64
5,100.00	2.16	11.00	5,099.15	23.96	-1,374.58	18.83	0.15	0.00	-4.07



Phoenix Technology Services

Survey Report



Company: Yates Petroleum Corp.
Project: Eddy County, NM (NAD83 NME)
Site: Southland Royalty APM State
Well: #4H
Wellbore: WB1/Job #1410459
Design: Surveys (McVay 8)

Local Co-ordinate Reference: Site Southland Royalty APM State
TVD Reference: KB @ 3370.50usft (McVay 8)
MD Reference: KB @ 3370.50usft (McVay 8)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: GCR DB

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)	
5,200.00	2.25	13.09	5,199.08	27.72	-1,373.78	22.57	0.12	0.09	2.09	
5,300.00	2.53	11.87	5,298.99	31.79	-1,372.88	26.62	0.28	0.28	-1.22	
5,400.00	2.77	12.84	5,398.89	36.31	-1,371.89	31.12	0.24	0.24	0.97	
5,500.00	2.69	16.13	5,498.77	40.92	-1,370.70	35.70	0.18	-0.08	3.29	
5,600.00	2.60	14.40	5,598.67	45.37	-1,369.48	40.12	0.12	-0.09	-1.73	
5,690.00	2.38	13.25	5,688.58	49.17	-1,368.55	43.89	0.25	-0.24	-1.28	
5,749.00	2.30	358.60	5,747.53	51.54	-1,368.29	46.26	1.02	-0.14	-24.83	
5,843.00	1.80	325.30	5,841.48	54.64	-1,369.18	49.38	1.35	-0.53	-35.43	
5,937.00	0.50	288.60	5,935.46	55.99	-1,370.41	50.75	1.52	-1.38	-39.04	
6,031.00	1.30	275.20	6,029.44	56.21	-1,371.86	51.01	0.87	0.85	-14.26	
6,125.00	1.30	278.40	6,123.42	56.47	-1,373.98	51.32	0.08	0.00	3.40	
6,220.00	1.40	300.70	6,218.39	57.22	-1,376.04	52.11	0.56	0.11	23.47	
6,314.00	1.50	309.30	6,312.36	58.58	-1,377.98	53.52	0.25	0.11	9.15	
6,408.00	2.00	317.60	6,406.32	60.57	-1,380.04	55.56	0.60	0.53	8.83	
6,502.00	0.90	2.80	6,500.29	62.52	-1,381.11	57.53	1.60	-1.17	48.09	
6,596.00	1.10	347.10	6,594.28	64.14	-1,381.27	59.15	0.36	0.21	-16.70	
6,690.00	1.50	332.20	6,688.25	66.11	-1,382.05	61.14	0.55	0.43	-15.85	
6,784.00	0.70	250.40	6,782.24	67.00	-1,383.16	62.06	1.66	-0.85	-87.02	
6,878.00	1.10	258.50	6,876.23	66.63	-1,384.59	61.72	0.45	0.43	8.62	
6,972.00	1.10	258.20	6,970.21	66.27	-1,386.36	61.40	0.01	0.00	-0.32	
7,066.00	1.60	243.40	7,064.18	65.49	-1,388.41	60.67	0.64	0.53	-15.74	
7,161.00	1.50	244.30	7,159.15	64.36	-1,390.72	59.59	0.11	-0.11	0.95	
7,255.00	1.80	237.40	7,253.11	63.03	-1,393.07	58.32	0.38	0.32	-7.34	
7,349.00	1.80	232.50	7,347.06	61.34	-1,395.49	56.68	0.16	0.00	-5.21	
7,443.00	2.10	235.90	7,441.01	59.47	-1,398.08	54.88	0.34	0.32	3.62	
7,537.00	1.10	307.80	7,534.98	59.06	-1,400.22	54.51	2.18	-1.06	76.49	
7,626.00	1.00	315.00	7,623.96	60.13	-1,401.45	55.61	0.19	-0.11	8.09	
7,657.00	1.10	323.40	7,654.96	60.56	-1,401.82	56.05	0.59	0.32	27.10	
7,688.00	3.60	338.70	7,685.93	61.71	-1,402.35	57.21	8.24	8.06	49.35	
7,719.00	7.70	348.00	7,716.77	64.65	-1,403.13	60.17	13.51	13.23	30.00	
7,751.00	12.30	354.00	7,748.28	70.14	-1,403.94	65.67	14.72	14.38	18.75	
7,782.00	14.70	355.90	7,778.42	77.35	-1,404.56	72.89	7.87	7.74	6.13	
7,814.00	17.00	355.20	7,809.20	86.06	-1,405.24	81.62	7.21	7.19	-2.19	
7,845.00	20.20	355.90	7,838.58	95.92	-1,406.01	91.49	10.35	10.32	2.26	
7,876.00	24.30	357.10	7,867.26	107.63	-1,406.71	103.22	13.31	13.23	3.87	
7,908.00	28.10	358.60	7,895.97	121.75	-1,407.23	117.34	12.05	11.88	4.69	
7,939.00	31.40	358.40	7,922.88	137.12	-1,407.63	132.72	10.65	10.65	-0.65	
7,970.00	34.30	358.20	7,948.92	153.93	-1,408.13	149.54	9.36	9.35	-0.65	
8,002.00	37.10	357.80	7,974.91	172.59	-1,408.79	168.21	8.78	8.75	-1.25	
8,033.00	39.50	359.30	7,999.23	191.79	-1,409.27	187.42	8.30	7.74	4.84	
8,065.00	41.90	0.01	8,023.49	212.66	-1,409.39	208.28	7.64	7.50	2.20	
8,096.00	45.50	0.01	8,045.90	234.07	-1,409.39	229.69	11.61	11.61	0.00	
8,128.00	49.60	358.60	8,067.49	257.67	-1,409.68	253.29	13.22	12.81	-4.39	



Phoenix Technology Services

Survey Report



Company: Yates Petroleum Corp.
Project: Eddy County, NM (NAD83 NME)
Site: Southland Royalty APM State
Well: #4H
Wellbore: WB1/Job #1410459
Design: Surveys (McVay 8)

Local Co-ordinate Reference: Site Southland Royalty APM State
TVD Reference: KB @ 3370.50usft (McVay 8)
MD Reference: KB @ 3370.50usft (McVay 8)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: GCR DB

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)
8,159.00	53.20	359.10	8,086.83	281.89	-1,410.17	277.51	11.68	11.61	1.61
8,190.00	56.30	0.10	8,104.72	307.20	-1,410.34	302.82	10.34	10.00	3.23
8,222.00	59.40	0.50	8,121.75	334.29	-1,410.20	329.90	9.75	9.69	1.25
8,253.00	61.80	1.40	8,136.97	361.29	-1,409.75	356.89	8.14	7.74	2.90
8,285.00	65.40	1.70	8,151.19	389.94	-1,408.97	385.51	11.28	11.25	0.94
8,316.00	69.70	1.20	8,163.03	418.58	-1,408.25	414.12	13.95	13.87	-1.61
8,347.00	71.80	0.80	8,173.25	447.84	-1,407.74	443.36	6.88	6.77	-1.29
8,379.00	74.70	0.10	8,182.47	478.47	-1,407.50	473.98	9.30	9.06	-2.19
8,411.00	78.50	359.10	8,189.88	509.60	-1,407.72	505.10	12.26	11.88	-3.13
8,442.00	81.30	359.40	8,195.32	540.11	-1,408.12	535.62	9.08	9.03	0.97
8,473.00	83.50	0.50	8,199.42	570.84	-1,408.14	566.33	7.92	7.10	3.55
8,505.00	87.10	0.30	8,202.04	602.72	-1,407.92	598.21	11.27	11.25	-0.63
8,528.00	90.10	0.01	8,202.60	625.71	-1,407.86	621.19	13.11	13.04	-1.28
8,559.00	91.30	359.60	8,202.22	656.71	-1,407.97	652.18	4.09	3.87	-1.31
8,622.00	93.10	0.30	8,199.80	719.66	-1,408.02	715.12	3.07	2.86	1.11
8,685.00	93.80	0.80	8,196.01	782.54	-1,407.42	777.97	1.36	1.11	0.79
8,748.00	92.90	0.30	8,192.33	845.43	-1,406.81	840.83	1.63	-1.43	-0.79
8,811.00	91.20	0.01	8,190.08	908.39	-1,406.65	903.76	2.74	-2.70	-0.47
8,873.00	90.10	359.40	8,189.38	970.38	-1,406.97	965.75	2.02	-1.77	-0.98
8,936.00	90.70	359.10	8,188.94	1,033.37	-1,407.79	1,028.74	1.06	0.95	-0.48
8,998.00	91.80	358.90	8,187.58	1,095.35	-1,408.87	1,090.73	1.80	1.77	-0.32
9,061.00	92.80	358.70	8,185.05	1,158.28	-1,410.19	1,153.67	1.62	1.59	-0.32
9,156.00	91.70	359.10	8,181.32	1,253.19	-1,412.02	1,248.60	1.23	-1.16	0.42
9,218.00	91.30	359.40	8,179.70	1,315.17	-1,412.83	1,310.57	0.81	-0.65	0.48
9,281.00	91.10	359.40	8,178.38	1,378.15	-1,413.49	1,373.56	0.32	-0.32	0.00
9,346.00	89.80	359.40	8,177.87	1,443.14	-1,414.17	1,438.55	2.00	-2.00	0.00
9,440.00	90.40	358.90	8,177.71	1,537.13	-1,415.56	1,532.54	0.83	0.64	-0.53
9,534.00	91.20	358.70	8,176.40	1,631.10	-1,417.53	1,626.53	0.88	0.85	-0.21
9,628.00	92.20	358.90	8,173.61	1,725.04	-1,419.50	1,720.49	1.08	1.06	0.21
9,722.00	90.70	358.60	8,171.23	1,818.98	-1,421.55	1,814.46	1.63	-1.60	-0.32
9,816.00	91.50	358.20	8,169.42	1,912.93	-1,424.17	1,908.44	0.95	0.85	-0.43
9,910.00	92.30	357.70	8,166.31	2,006.81	-1,427.53	2,002.38	1.00	0.85	-0.53
10,005.00	91.20	357.50	8,163.41	2,101.68	-1,431.51	2,097.31	1.18	-1.16	-0.21
10,099.00	92.30	357.30	8,160.54	2,195.54	-1,435.77	2,191.25	1.19	1.17	-0.21
10,193.00	92.20	358.00	8,156.85	2,289.39	-1,439.62	2,285.16	0.75	-0.11	0.74
10,224.00	92.60	358.00	8,155.55	2,320.34	-1,440.70	2,316.13	1.29	1.29	0.00
10,287.00	92.10	358.00	8,152.96	2,383.25	-1,442.90	2,379.07	0.79	-0.79	0.00
10,350.00	92.00	358.00	8,150.71	2,446.17	-1,445.10	2,442.03	0.16	-0.16	0.00
10,412.00	92.90	358.20	8,148.06	2,508.08	-1,447.15	2,503.97	1.49	1.45	0.32
10,506.00	91.90	357.80	8,144.12	2,601.94	-1,450.43	2,597.87	1.15	-1.06	-0.43
10,600.00	91.30	358.00	8,141.50	2,695.84	-1,453.87	2,691.83	0.67	-0.64	0.21
10,694.00	91.50	357.30	8,139.20	2,789.73	-1,457.72	2,785.79	0.77	0.21	-0.74
Tie-in to 10694' MD									
10,877.00	92.00	356.90	8,133.61	2,972.41	-1,466.98	2,968.63	0.35	0.27	-0.22



Phoenix Technology Services Survey Report



Company: Yates Petroleum Corp.
Project: Eddy County, NM (NAD83 NME)
Site: Southland Royalty APM State
Well: #4H
Wellbore: WB1/Job #1410459
Design: Surveys (McVay 8)

Local Co-ordinate Reference: Site Southland Royalty APM State
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North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: GCR DB

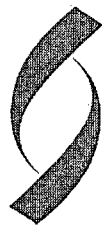
Survey

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)
First Phoenix MWD Survey									
10,971.00	90.40	356.40	8,131.65	3,066.23	-1,472.47	3,062.55	1.78	-1.70	-0.53
11,065.00	88.80	356.90	8,132.30	3,160.06	-1,477.96	3,156.48	1.78	-1.70	0.53
11,159.00	87.00	356.80	8,135.75	3,253.85	-1,483.12	3,250.37	1.92	-1.91	-0.11
11,253.00	86.00	357.70	8,141.48	3,347.57	-1,487.63	3,344.16	1.43	-1.06	0.96
11,347.00	87.40	359.20	8,146.90	3,441.37	-1,490.16	3,438.00	2.18	1.49	1.60
11,441.00	94.20	4.00	8,145.58	3,535.24	-1,487.54	3,531.79	8.85	7.23	5.11
11,536.00	93.30	0.10	8,139.37	3,629.96	-1,484.16	3,626.40	4.20	-0.95	-4.11
11,630.00	91.80	358.80	8,135.19	3,723.86	-1,485.06	3,720.29	2.11	-1.60	-1.38
11,724.00	91.70	358.20	8,132.31	3,817.78	-1,487.52	3,814.25	0.65	-0.11	-0.64
11,818.00	91.50	357.50	8,129.69	3,911.68	-1,491.04	3,908.20	0.77	-0.21	-0.74
11,912.00	91.30	357.00	8,127.39	4,005.54	-1,495.55	4,002.14	0.57	-0.21	-0.53
12,007.00	90.50	357.30	8,125.90	4,100.41	-1,500.27	4,097.10	0.90	-0.84	0.32
12,101.00	90.60	359.90	8,125.00	4,194.37	-1,502.57	4,191.08	2.77	0.11	2.77
12,195.00	90.20	359.10	8,124.34	4,288.36	-1,503.39	4,285.07	0.95	-0.43	-0.85
12,289.00	90.50	0.60	8,123.77	4,382.36	-1,503.64	4,379.05	1.63	0.32	1.60
12,384.00	90.90	359.80	8,122.61	4,477.35	-1,503.31	4,474.01	0.94	0.42	-0.84
12,478.00	90.80	359.80	8,121.21	4,571.34	-1,503.63	4,567.98	0.11	-0.11	0.00
Last Phoenix MWD Survey									
12,662.35	90.80	359.80	8,118.64	4,755.67	-1,504.28	4,752.27	0.00	0.00	0.00
12662.35' MD, 330' Crossing Point									
12,762.00	90.80	359.80	8,117.25	4,855.31	-1,504.62	4,851.89	0.00	0.00	0.00
Projection to TD at 100' N & 1' E of BHL									

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N-S (usft)	+E-W (usft)	
10,694.00	8,139.20	2,789.73	-1,457.72	Tie-on to 10694' MD
10,877.00	8,133.61	2,972.41	-1,466.98	First Phoenix MWD Survey
12,478.00	8,121.21	4,571.34	-1,503.63	Last Phoenix MWD Survey
12,662.35	8,118.64	4,755.67	-1,504.28	12662.35' MD, 330' Crossing Point
12,762.00	8,117.25	4,855.31	-1,504.62	Projection to TD at 100' N & 1' E of BHL

Checked By: _____ Approved By: _____ Date: _____



PHOENIX
TECHNOLOGY SERVICES

RECEIVED
JUN 05 2014
MAIL ROOM

June 2, 2014

Yates Petroleum Corp.
Attention: Regulatory Department
105 S. 4th St.
Artesia, NM 88210

Re: Yates Petroleum
Southland Royalty APM State #4H
Eddy County, NM
API #30-015-39859
Job No. 1410459

NM OIL CONSERVATION
ARTESIA DISTRICT

JUL 03 2014

RECEIVED

Dear Regulatory Department;

Phoenix Technology Services, Inc. has filed the Survey Data Certification, Surveys, and Lease Plat for the above referenced well with the State of New Mexico Oil Conservation Division – District 2 via certified mail. A copy of the filing is attached for your records.

Name of Surveyor	Drain Hole Number	Surveyed Depths		Dates Performed		Type of Survey
		From	To	Start	End	
James Garber	4H	10,877	12,478	03/15/14	03/17/14	MWD

Thank you for the opportunity to be of service. Please contact me if you have any questions or require additional information.

Best Regards,

Dana Robinson

Dana Robinson
Operations Administrator

Phoenix Technology Services SURVEY DATA CERTIFICATION



PHOENIX JOB NUMBER 1410459

OPERATOR Yates Petroleum

WELL NAME Southland Royalty APM State #4H

COUNTY & STATE Eddy, New Mexico

API WELL NUMBER 30-015-39859

PROPOSED DIRECTION 358.74

TIE-IN DATA						
MEASURED	VERTICAL			N-S	E-W	DATA
DEPTH	DEPTH	INCLIN	AZIMUTH	COORD	COORD	SOURCE
10,694 ft	8,139.20 ft	91.5 ft	357.3 ft	2,785.07 ft	-61.74 ft	Surface

FIRST	FIRST		
SURVEY	SURVEY		
DATE	DEPTH	INCLIN	AZIMUTH
15-Mar-14	10,877 ft	92.0	356.9

SURVEY INSTRUMENT
TYPE
Phoenix MWD

LAST	LAST		
SURVEY	SURVEY		
DATE	DEPTH	INCLIN	AZIMUTH
17-Mar-14	12,478 ft	90.8	359.8

TO THE BEST OF MY KNOWLEDGE I
CERTIFY THIS SURVEY DATA TO BE
TRUE AND CORRECT.

PROJECTED	PROJECTED		
TD SURVEY	TD SURVEY		
DATE	DEPTH	INCLIN	AZIMUTH
18-Mar-14	12,762 ft	90.8	359.8

James D Garber

PRINT YOUR NAME ABOVE

James D. Garber

SIGN YOUR NAME ABOVE

3/18/2014

TODAY'S DATE

MAGNETIC DECLINATION OR TOTAL GRID

TOTAL CORRECTION USED	7.49
DECLINATION OR GRID	GRID

MWD SUPERVISOR 1 James Garber

DIRECTIONAL DRILLER 1

Jeremy Tolbert

MWD SUPERVISOR 2

0

DIRECTIONAL DRILLER 2

Larry Sledge

1805 Brittmore Road Houston, Texas 77043 (713)3370609 (Voice), (713)337-0599 (Fax)

nothing will printout below this line

**McVAY DRILLING COMPANY**

P.O. Box 2450
Hobbs, New Mexico 88241
(575) 397-3311
FAX: 39-DRILL

Well Name and Num: Southland Royalty APM State 4H
Location: Sec 24, T19S, R29E
Operator: Yates
Drilling Contractor: McVay Drilling Company

The undersigned certifies that he is an authorized representative of the drilling contractor who drilled the above described well and that he has conducted deviation tests and obtained the following results:

<u>Degrees @</u>	<u>Depth</u>	<u>Degrees @</u>	<u>Depth</u>	<u>Degrees @</u>	<u>Depth</u>
0.43	190	1.80	5843	92.00	10877
0.69	324	1.50	6690	86.00	11253
0.50	570	1.50	7160	94.20	11441
1.58	861	2.10	7443	91.50	11818
2.35	1181	20.20	7845	90.60	12101
2.17	1421	37.10	8002	90.80	12477
1.34	1516	71.80	8347		
0.58	2080	87.10	8505		
1.12	2488	93.10	8622		
0.97	2960	91.80	8998		
0.56	3452	91.71	9156		
0.87	3668	91.20	9534		
0.78	4153	90.70	9722		
1.82	4872	92.30	10148		
1.97	5125	92.00	10350		
2.91	5470	91.50	10694		
3.13	5660	90.91	10789		

By: *Hugh P. ...*

Subscribed and sworn to before me this 24th day of March, 2014

Tina Flemens
Notary Public, Lea County, New Mexico

