



DIRECTIONAL TECHNOLOGIES INC.

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# **WPX Energy Rocky Mountain, LLC**

**GV 28-06S-096W**

**GM 323-28 Pad**

**GM 42-28 - Slot 2A07**

**14-10-158**

**Final Surveys - Jan.26,2015**

**License:**

**UWI:**

## **Survey Report**

**26 January, 2015**





<b>Company:</b>	WPX Energy Rocky Mountain, LLC	<b>Local Co-ordinate Reference:</b>	Well GM 42-28 - Slot 2A07
<b>Project:</b>	GV 28-06S-096W	<b>TVD Reference:</b>	KELLY BUSHING @ 5500.00usft (H&P 318 (24' RKB) mab)
<b>Site:</b>	GM 323-28 Pad	<b>MD Reference:</b>	KELLY BUSHING @ 5500.00usft (H&P 318 (24' RKB) mab)
<b>Well:</b>	GM 42-28	<b>North Reference:</b>	True
<b>Wellbore:</b>	14-10-158	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Final Surveys - Jan.26,2015	<b>Database:</b>	EDM_2011

<b>Project</b>	GV 28-06S-096W, 28-06S-096W		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	Colorado Central Zone		Using geodetic scale factor

<b>Site</b>	GM 323-28 Pad			
<b>Site Position:</b>		<b>Northing:</b>	1,614,757.30 usft	<b>Latitude:</b> 39° 29' 31.675 N
<b>From:</b> Map		<b>Easting:</b>	2,262,158.50 usft	<b>Longitude:</b> 108° 6' 53.344 W
<b>Position Uncertainty:</b>	0.00 usft	<b>Slot Radius:</b>	13.200 in	<b>Grid Convergence:</b> -1.65 °

<b>Well</b>	GM 42-28 - Slot 2A07			
<b>Well Position</b>	<b>+N/-S</b>	0.00 usft	<b>Northing:</b>	1,614,764.90 usft
	<b>+E/-W</b>	0.00 usft	<b>Easting:</b>	2,262,165.00 usft
<b>Position Uncertainty</b>	0.00 usft		<b>Wellhead Elevation:</b>	0.00 usft
			<b>Ground Level:</b>	5,476.00 usft

<b>Wellbore</b>	14-10-158	<b>Well UWI</b>		<b>License</b>	
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2010	10/29/2014	9.97	65.62	51,897

<b>Design</b>	Final Surveys - Jan.26,2015			
<b>Audit Notes:</b>				
<b>Version:</b>	1.0	<b>Phase:</b>	ACTUAL	<b>Tie On Depth:</b> 0.00
<b>Vertical Section:</b>	<b>Depth From (TVD) (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Direction (°)</b>
	0.00	0.00	0.00	41.22

<b>Survey Program</b>	<b>Date</b>	1/26/2015			
<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
104.00	7,890.00	Final Surveys (14-10-158)	MWD+sag	/D v3:standard declination + s	

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	SS (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.00	0.00	0.00	0.00	5,500.00	0.00	0.00	0.00	0.00	0.00	0.00
KOP										
78.00	0.59	86.22	78.00	5,422.00	0.03	0.40	0.29	0.76	0.76	0.00
104.00	0.79	86.22	104.00	5,396.00	0.05	0.72	0.51	0.76	0.76	0.00
135.00	1.23	61.35	134.99	5,365.01	0.22	1.22	0.97	1.97	1.42	-80.23
165.00	1.76	46.58	164.98	5,335.02	0.69	1.84	1.73	2.17	1.77	-49.23
196.00	2.64	43.51	195.96	5,304.04	1.54	2.68	2.92	2.86	2.84	-9.90
226.00	3.43	48.52	225.92	5,274.08	2.63	3.82	4.50	2.78	2.63	16.70
256.00	4.22	43.68	255.85	5,244.15	4.03	5.26	6.49	2.84	2.63	-16.13

<b>Company:</b>	WPX Energy Rocky Mountain, LLC	<b>Local Co-ordinate Reference:</b>	Well GM 42-28 - Slot 2A07
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<b>Site:</b>	GM 323-28 Pad	<b>MD Reference:</b>	KELLY BUSHING @ 5500.00usft (H&P 318 (24' RKB) mab)
<b>Well:</b>	GM 42-28	<b>North Reference:</b>	True
<b>Wellbore:</b>	14-10-158	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Final Surveys - Jan.26,2015	<b>Database:</b>	EDM_2011

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	SS (usft)	+N-S (usft)	+E-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
286.00	5.19	47.64	285.75	5,214.25	5.74	7.02	8.94	3.41	3.23	13.20
316.00	6.33	43.15	315.60	5,184.40	7.86	9.16	11.95	4.08	3.80	-14.97
345.00	7.30	41.84	344.39	5,155.61	10.40	11.48	15.39	3.39	3.34	-4.52
376.00	8.71	40.78	375.09	5,124.91	13.64	14.33	19.70	4.57	4.55	-3.42
406.00	10.03	38.50	404.69	5,095.31	17.41	17.44	24.58	4.57	4.40	-7.60
436.00	11.26	37.79	434.17	5,065.83	21.77	20.86	30.12	4.12	4.10	-2.37
467.00	12.32	38.50	464.52	5,035.48	26.75	24.77	36.44	3.45	3.42	2.29
497.00	13.20	39.37	493.77	5,006.23	31.90	28.94	43.06	3.00	2.93	2.90
527.00	14.34	38.94	522.91	4,977.09	37.44	33.44	50.20	3.82	3.80	-1.43
557.00	15.48	38.76	551.90	4,948.10	43.45	38.29	57.91	3.80	3.80	-0.60
587.00	16.36	40.78	580.75	4,919.25	49.77	43.55	66.14	3.47	2.93	6.73
617.00	17.07	42.28	609.48	4,890.52	56.23	49.27	74.76	2.77	2.37	5.00
629.00	17.54	42.72	620.94	4,879.06	58.86	51.69	78.33	4.07	3.92	3.67
689.00	19.91	45.27	677.76	4,822.24	72.69	65.08	97.56	4.18	3.95	4.25
779.00	23.34	43.60	761.41	4,738.59	96.40	88.27	130.67	3.87	3.81	-1.86
871.00	26.77	42.20	844.75	4,655.25	124.95	114.76	169.61	3.78	3.73	-1.52
962.00	30.33	40.53	924.67	4,575.33	157.61	143.47	213.09	4.01	3.91	-1.84
1,056.00	34.51	40.96	1,004.00	4,496.00	195.77	176.36	263.47	4.45	4.45	0.46
1,150.00	37.80	40.00	1,079.89	4,420.11	237.96	212.34	318.92	3.55	3.50	-1.02
1,244.00	40.88	40.17	1,152.58	4,347.42	283.54	250.71	378.48	3.28	3.28	0.18
1,339.00	44.18	40.17	1,222.58	4,277.42	332.61	292.13	442.68	3.47	3.47	0.00
1,433.00	45.85	40.26	1,289.03	4,210.97	383.38	335.06	509.16	1.78	1.78	0.10
1,527.00	46.99	39.91	1,353.83	4,146.17	435.47	378.90	577.24	1.24	1.21	-0.37
Interpolated Casing Point - Surface Casing										
1,585.00	47.31	39.38	1,393.27	4,106.73	468.22	406.03	619.74	0.86	0.54	-0.91
1,624.00	47.52	39.03	1,419.66	4,080.34	490.47	424.18	648.44	0.86	0.55	-0.90
1,718.00	47.25	40.53	1,483.31	4,016.69	543.63	468.44	717.59	1.21	-0.29	1.60
1,813.00	46.77	40.00	1,548.09	3,951.91	596.65	513.35	787.07	0.65	-0.51	-0.56
1,907.00	47.34	40.17	1,612.13	3,887.87	649.29	557.66	855.86	0.62	0.61	0.18
2,001.00	47.74	41.58	1,675.59	3,824.41	701.73	603.04	925.20	1.19	0.43	1.50
2,095.00	48.44	43.07	1,738.38	3,761.62	753.44	650.15	995.14	1.39	0.74	1.59
2,189.00	49.14	43.60	1,800.31	3,699.69	804.87	698.68	1,065.81	0.86	0.74	0.56
2,284.00	48.97	43.16	1,862.56	3,637.44	857.03	747.96	1,137.51	0.39	-0.18	-0.46
2,378.00	48.79	42.20	1,924.38	3,575.62	909.08	795.97	1,208.30	0.79	-0.19	-1.02
2,472.00	49.10	42.11	1,986.12	3,513.88	961.63	843.54	1,279.18	0.34	0.33	-0.10
2,566.00	49.10	41.93	2,047.67	3,452.33	1,014.42	891.10	1,350.22	0.14	0.00	-0.19
2,660.00	48.88	41.49	2,109.35	3,390.65	1,067.37	938.29	1,421.15	0.42	-0.23	-0.47
2,755.00	48.66	41.32	2,171.96	3,328.04	1,120.96	985.55	1,492.60	0.27	-0.23	-0.18
2,848.00	48.53	40.70	2,233.47	3,266.53	1,173.59	1,031.32	1,562.35	0.52	-0.14	-0.67
2,943.00	48.00	40.35	2,296.71	3,203.29	1,227.48	1,077.38	1,633.24	0.62	-0.56	-0.37
3,037.00	46.68	41.76	2,360.41	3,139.59	1,279.61	1,122.78	1,702.36	1.79	-1.40	1.50

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3,131.00	46.59	41.14	2,424.95	3,075.05	1,330.83	1,168.01	1,770.69	0.49	-0.10	-0.66
3,225.00	45.85	40.35	2,489.99	3,010.01	1,382.24	1,212.31	1,838.56	0.99	-0.79	-0.84
3,320.00	44.62	40.35	2,556.89	2,943.11	1,433.65	1,255.98	1,906.00	1.29	-1.29	0.00
3,414.00	44.40	41.67	2,623.92	2,876.08	1,483.37	1,299.22	1,971.89	1.01	-0.23	1.40
3,509.00	44.04	41.41	2,692.01	2,807.99	1,532.96	1,343.16	2,038.15	0.42	-0.38	-0.27
3,603.00	43.87	40.35	2,759.68	2,740.32	1,582.29	1,385.86	2,103.39	0.80	-0.18	-1.13
3,697.00	42.59	41.49	2,828.17	2,671.83	1,630.94	1,428.02	2,167.77	1.60	-1.36	1.21
3,792.00	40.53	41.49	2,899.25	2,600.75	1,678.15	1,469.77	2,230.79	2.17	-2.17	0.00
3,886.00	38.15	40.88	2,971.94	2,528.06	1,722.99	1,509.01	2,290.37	2.57	-2.53	-0.65
3,980.00	36.88	41.41	3,046.50	2,453.50	1,766.09	1,546.67	2,347.61	1.39	-1.35	0.56
4,075.00	35.03	42.11	3,123.40	2,376.60	1,807.70	1,583.81	2,403.38	1.99	-1.95	0.74
4,169.00	33.32	41.41	3,201.16	2,298.84	1,847.08	1,618.98	2,456.18	1.87	-1.82	-0.74
4,263.00	31.34	41.93	3,280.59	2,219.41	1,884.64	1,652.40	2,506.45	2.13	-2.11	0.55
4,357.00	29.54	42.63	3,361.63	2,138.37	1,919.88	1,684.43	2,554.06	1.95	-1.91	0.74
4,451.00	27.16	40.53	3,444.35	2,055.65	1,953.24	1,714.07	2,598.69	2.74	-2.53	-2.23
4,545.00	25.32	40.44	3,528.66	1,971.34	1,984.85	1,741.05	2,640.24	1.96	-1.96	-0.10
4,639.00	23.34	43.87	3,614.31	1,885.69	2,013.57	1,767.00	2,678.95	2.59	-2.11	3.65
4,734.00	21.76	42.02	3,702.05	1,797.95	2,040.22	1,791.83	2,715.36	1.82	-1.66	-1.95
4,828.00	20.26	41.49	3,789.80	1,710.20	2,065.36	1,814.28	2,749.06	1.61	-1.60	-0.56
4,922.00	18.20	40.88	3,878.55	1,621.45	2,088.65	1,834.67	2,780.01	2.20	-2.19	-0.65
5,017.00	15.78	39.30	3,969.39	1,530.61	2,109.87	1,852.56	2,807.76	2.59	-2.55	-1.66
5,110.00	13.54	37.71	4,059.36	1,440.64	2,128.27	1,867.23	2,831.27	2.45	-2.41	-1.71
5,204.00	13.14	37.54	4,150.82	1,349.18	2,145.45	1,880.48	2,852.92	0.43	-0.43	-0.18
5,298.00	11.74	42.81	4,242.62	1,257.38	2,160.94	1,893.49	2,873.14	1.92	-1.49	5.61
5,392.00	10.02	48.61	4,334.93	1,165.07	2,173.36	1,906.12	2,890.81	2.17	-1.83	6.17
5,485.00	8.31	50.19	4,426.74	1,073.26	2,183.01	1,917.35	2,905.47	1.86	-1.84	1.70
5,581.00	7.12	45.89	4,521.87	978.13	2,191.60	1,926.96	2,918.26	1.38	-1.24	-4.48
5,675.00	6.90	46.85	4,615.16	884.84	2,199.51	1,935.26	2,929.68	0.27	-0.23	1.02
5,768.00	6.86	50.19	4,707.50	792.50	2,206.89	1,943.60	2,940.73	0.43	-0.04	3.59
5,862.00	4.53	43.60	4,801.03	698.97	2,213.17	1,950.47	2,949.98	2.57	-2.48	-7.01
5,956.00	4.44	42.63	4,894.74	605.26	2,218.54	1,955.50	2,957.33	0.13	-0.10	-1.03
6,050.00	5.50	45.36	4,988.38	511.62	2,224.38	1,961.17	2,965.46	1.16	1.13	2.90
6,144.00	4.04	47.29	5,082.06	417.94	2,229.79	1,966.81	2,973.25	1.56	-1.55	2.05
6,238.00	3.60	47.12	5,175.85	324.15	2,234.05	1,971.40	2,979.48	0.47	-0.47	-0.18
6,333.00	3.38	45.36	5,270.67	229.33	2,238.04	1,975.58	2,985.24	0.26	-0.23	-1.85
6,427.00	3.08	38.15	5,364.52	135.48	2,241.98	1,979.11	2,990.52	0.54	-0.32	-7.67
6,521.00	2.94	38.42	5,458.39	41.61	2,245.85	1,982.17	2,995.45	0.15	-0.15	0.29
6,616.00	2.68	41.93	5,553.28	-53.28	2,249.41	1,985.17	3,000.10	0.33	-0.27	3.69
6,710.00	2.42	55.56	5,647.18	-147.18	2,252.17	1,988.27	3,004.22	0.70	-0.28	14.50
6,804.00	2.15	62.32	5,741.11	-241.11	2,254.11	1,991.47	3,007.79	0.41	-0.29	7.19
6,898.00	2.29	62.41	5,835.04	-335.04	2,255.80	1,994.70	3,011.19	0.15	0.15	0.10

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Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	SS (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
6,993.00	1.80	81.13	5,929.98	-429.98	2,256.91	1,997.85	3,014.10	0.87	-0.52	19.71
7,087.00	1.36	89.75	6,023.94	-523.94	2,257.14	2,000.43	3,015.97	0.53	-0.47	9.17
7,181.00	0.97	103.28	6,117.92	-617.92	2,256.96	2,002.32	3,017.09	0.50	-0.41	14.39
7,275.00	0.75	126.22	6,211.91	-711.91	2,256.42	2,003.59	3,017.51	0.43	-0.23	24.40
7,368.00	0.79	146.00	6,304.91	-804.91	2,255.53	2,004.44	3,017.40	0.29	0.04	21.27
7,463.00	0.70	159.79	6,399.90	-899.90	2,254.44	2,005.00	3,016.96	0.21	-0.09	14.52
7,557.00	0.57	170.96	6,493.89	-993.89	2,253.44	2,005.28	3,016.38	0.19	-0.14	11.88
7,651.00	1.05	198.11	6,587.88	-1,087.88	2,252.16	2,005.08	3,015.29	0.64	0.51	28.88
7,745.00	1.32	211.65	6,681.86	-1,181.86	2,250.42	2,004.25	3,013.43	0.41	0.29	14.40
Last Survey										
7,830.00	1.45	219.56	6,766.84	-1,266.84	2,248.75	2,003.05	3,011.39	0.27	0.15	9.31
Extrapolation to TD										
7,890.00	1.45	219.56	6,826.82	-1,326.82	2,247.58	2,002.08	3,009.88	0.00	0.00	0.00

Casing Points				
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)
1,585.00	1,393.27	Surface Casing		

Survey Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
78.00	78.00	0.03	0.40	KOP
1,585.00	1,393.27	468.22	406.03	Interpolated Casing Point
7,830.00	6,766.84	2,248.75	2,003.05	Last Survey
7,890.00	6,826.82	2,247.58	2,002.08	Extrapolation to TD