



Directional Survey Certification

2948 I-70 Business Loop
Grand Junction, CO 81504
(970)-245-9447 Fax (970)-245-9454

Operator	<u>WPX Energy Rocky Mountain, LLC.</u>
Well Name & No.	<u>PA 41-27</u>
County & State	<u>Garfield, CO</u>
SDI Job No.	<u>421114DEFK222596</u>
Rig	<u>Nabors 576</u>

I, Mel Mireles Jr., having personal knowledge of all the facts, hereby certify that the attached directional survey run from a measured depth of 0 feet to a measured depth of 8,721 feet is true and correct as determined from all available records.


Signature

02-Dec-14
Date

Mel Mireles Jr.
Grand Junction Assistant Well Planner
Scientific Drilling - Colorado District

Company:	WPX Energy Rocky Mountain, LLC	Local Co-ordinate Reference:	Well PA 41-27 - Slot A03
Project:	Garfield County, CO NAD83	TVD Reference:	KELLY BUSHING @ 5882.01ft (Nabors 576 (26' RKB) mab)
Site:	DOE 2-W-27 Pad	MD Reference:	KELLY BUSHING @ 5882.01ft (Nabors 576 (26' RKB) mab)
Well:	PA 41-27	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	Grand Junction District

Project	Garfield County, CO NAD83		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Central Zone		

Site		DOE 2-W-27 Pad			
Site Position:		Northing:	1,615,065.30 usft	Latitude:	39° 29' 45.439 N
From:	Map	Easting:	2,300,864.40 usft	Longitude:	107° 58' 39.895 W
Position Uncertainty:	0.00 ft	Slot Radius:	13.200 in	Grid Convergence:	-1.56 °

Well	PA 41-27 - Slot A03					
Well Position	+N/-S	0.00 ft	Northing:	1,615,095.31 usft	Latitude:	39° 29' 45.736 N
	+E/-W	0.00 ft	Easting:	2,300,865.78 usft	Longitude:	107° 58' 39.888 W
Position Uncertainty		0.00 ft	Wellhead Elevation:	ft	Ground Level:	5,856.01 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	12/3/2014	9.90	65.65	51,903

Design	Wellbore #1				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)	
	0.00	0.00	0.00	3.69	

Survey Program	Date	12/2/2014		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
82.00	815.00	Survey #1 - Gyro MWD (Wellbore #1)	SDI Gyro MWD 104	SDI Gyro MWD Error Model Ver 1.0.4
886.00	2,907.00	Survey #2 - Surface MWD (Wellbore #1)	MWD SDI	MWD - Standard ver 1.0.1
2,972.00	8,721.00	Survey #3 - Production MWD (Wellbore #1)	MWD SDI	MWD - Standard ver 1.0.1

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
82.00	0.53	22.59	82.00	0.35	0.15	0.36	0.65	0.65	0.00	
First SDI Gyro MWD Survey										
175.00	1.32	2.20	174.99	1.82	0.35	1.84	0.91	0.85	-21.92	
267.00	2.38	359.74	266.94	4.79	0.38	4.80	1.16	1.15	-2.67	
359.00	5.19	7.12	358.73	10.83	0.89	10.86	3.09	3.05	8.02	
450.00	8.89	10.28	449.03	21.83	2.66	21.96	4.09	4.07	3.47	

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Well:	PA 41-27	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	Grand Junction District

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
541.00	10.38	3.78	538.74	36.93	4.45	37.14	2.02	1.64	-7.14
631.00	11.61	359.30	627.09	54.08	4.88	54.28	1.66	1.37	-4.98
723.00	12.93	359.47	716.99	73.63	4.67	73.78	1.44	1.43	0.18
815.00	14.96	0.79	806.27	95.80	4.74	95.91	2.23	2.21	1.43
Last SDI Gyro MWD Survey									
886.00	15.10	3.42	874.84	114.19	5.41	114.31	0.98	0.20	3.70
First SDI Surface MWD Survey									
977.00	16.39	3.14	962.43	138.85	6.82	139.00	1.42	1.42	-0.31
1,069.00	14.88	5.52	1,051.02	163.57	8.67	163.79	1.78	-1.64	2.59
1,164.00	12.80	5.30	1,143.26	186.19	10.82	186.50	2.19	-2.19	-0.23
1,259.00	13.24	5.35	1,235.82	207.50	12.80	207.89	0.46	0.46	0.05
1,354.00	14.77	1.73	1,327.99	230.44	14.18	230.87	1.86	1.61	-3.81
1,449.00	13.82	1.34	1,420.05	253.88	14.82	254.31	1.01	-1.00	-0.41
1,545.00	12.96	8.69	1,513.44	275.99	16.71	276.49	1.98	-0.90	7.66
1,640.00	13.91	11.21	1,605.84	297.72	20.54	298.43	1.17	1.00	2.65
1,736.00	14.29	8.31	1,698.95	320.77	24.50	321.68	0.84	0.40	-3.02
1,830.00	14.60	2.61	1,789.99	344.08	26.71	345.09	1.55	0.33	-6.06
1,925.00	15.88	3.03	1,881.64	369.02	27.94	370.06	1.35	1.35	0.44
2,020.00	15.13	0.23	1,973.19	394.40	28.68	395.43	1.12	-0.79	-2.95
2,115.00	14.04	359.70	2,065.12	418.32	28.67	419.30	1.16	-1.15	-0.56
2,209.00	14.76	0.02	2,156.17	441.70	28.61	442.62	0.77	0.77	0.34
2,305.00	13.84	358.54	2,249.19	465.41	28.33	466.26	1.03	-0.96	-1.54
2,400.00	13.34	0.14	2,341.54	487.73	28.06	488.52	0.66	-0.53	1.68
2,495.00	13.99	359.86	2,433.85	510.17	28.06	510.92	0.69	0.68	-0.29
2,590.00	13.81	4.19	2,526.07	532.96	28.86	533.71	1.11	-0.19	4.56
2,685.00	14.10	4.51	2,618.26	555.80	30.60	556.62	0.32	0.31	0.34
2,780.00	14.32	5.05	2,710.36	579.04	32.55	579.94	0.27	0.23	0.57
2,907.00	15.92	4.01	2,832.96	612.07	35.15	613.06	1.28	1.26	-0.82
Last SDI Surface MWD Survey									
2,972.00	17.26	3.77	2,895.25	630.58	36.40	631.62	2.06	2.06	-0.37
First SDI Production MWD Survey									
3,067.00	15.35	4.89	2,986.42	657.17	38.40	658.28	2.04	-2.01	1.18
3,162.00	14.65	4.79	3,078.19	681.67	40.48	682.87	0.74	-0.74	-0.11
3,257.00	13.69	5.05	3,170.29	704.84	42.47	706.12	1.01	-1.01	0.27
3,353.00	12.88	4.46	3,263.72	726.83	44.30	728.17	0.86	-0.84	-0.61
3,448.00	13.14	2.78	3,356.29	748.17	45.65	749.56	0.48	0.27	-1.77
3,544.00	14.22	2.56	3,449.56	770.85	46.70	772.26	1.13	1.13	-0.23
3,639.00	15.47	5.81	3,541.39	795.11	48.51	796.59	1.58	1.32	3.42
3,734.00	15.12	5.87	3,633.02	820.04	51.06	821.63	0.37	-0.37	0.06
3,829.00	14.22	6.01	3,724.93	843.97	53.55	845.67	0.95	-0.95	0.15
3,924.00	13.50	3.42	3,817.16	866.64	55.43	868.42	1.00	-0.76	-2.73
4,020.00	14.61	4.78	3,910.29	889.90	57.11	891.73	1.21	1.16	1.42
4,115.00	13.73	4.59	4,002.39	913.07	59.01	914.98	0.93	-0.93	-0.20

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Well:	PA 41-27	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
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Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
4,211.00	15.09	5.59	4,095.37	936.87	61.14	938.86	1.44	1.42	1.04
4,306.00	14.79	4.57	4,187.16	961.26	63.31	963.34	0.42	-0.32	-1.07
4,401.00	14.07	4.55	4,279.16	984.86	65.19	987.01	0.76	-0.76	-0.02
4,496.00	15.19	3.60	4,371.08	1,008.79	66.89	1,011.01	1.21	1.18	-1.00
4,591.00	15.67	7.77	4,462.66	1,033.93	69.40	1,036.25	1.27	0.51	4.39
4,686.00	15.11	6.67	4,554.25	1,058.94	72.58	1,061.41	0.66	-0.59	-1.16
4,781.00	14.08	6.05	4,646.19	1,082.73	75.23	1,085.33	1.10	-1.08	-0.65
4,876.00	15.36	6.39	4,738.07	1,106.73	77.85	1,109.44	1.35	1.35	0.36
4,972.00	14.75	7.69	4,830.77	1,131.47	80.90	1,134.33	0.73	-0.64	1.35
5,067.00	14.86	5.24	4,922.62	1,155.59	83.63	1,158.57	0.67	0.12	-2.58
5,163.00	16.11	3.70	5,015.13	1,181.14	85.62	1,184.20	1.37	1.30	-1.60
5,257.00	15.78	1.26	5,105.52	1,206.93	86.74	1,210.01	0.79	-0.35	-2.60
5,352.00	14.82	0.80	5,197.15	1,232.00	87.19	1,235.05	1.02	-1.01	-0.48
5,448.00	13.90	0.72	5,290.15	1,255.80	87.51	1,258.83	0.96	-0.96	-0.08
5,543.00	12.31	7.70	5,382.68	1,277.25	89.01	1,280.33	2.36	-1.67	7.35
5,638.00	11.33	6.51	5,475.66	1,296.56	91.42	1,299.75	1.06	-1.03	-1.25
5,733.00	10.29	6.24	5,568.98	1,314.27	93.41	1,317.55	1.10	-1.09	-0.28
5,828.00	9.00	5.79	5,662.63	1,330.09	95.08	1,333.45	1.36	-1.36	-0.47
5,924.00	8.24	6.12	5,757.55	1,344.40	96.57	1,347.83	0.79	-0.79	0.34
6,019.00	7.55	5.57	5,851.64	1,357.38	97.90	1,360.87	0.73	-0.73	-0.58
6,115.00	7.19	2.66	5,946.85	1,369.66	98.79	1,373.18	0.54	-0.38	-3.03
6,210.00	6.28	11.32	6,041.20	1,380.70	100.09	1,384.28	1.43	-0.96	9.12
6,305.00	4.10	19.84	6,135.80	1,388.99	102.26	1,392.69	2.43	-2.29	8.97
6,400.00	3.83	16.17	6,230.58	1,395.23	104.30	1,399.05	0.39	-0.28	-3.86
6,496.00	2.20	28.97	6,326.44	1,399.92	106.08	1,403.85	1.83	-1.70	13.33
6,592.00	1.76	35.83	6,422.38	1,402.73	107.84	1,406.76	0.52	-0.46	7.15
6,687.00	1.29	40.10	6,517.35	1,404.73	109.38	1,408.86	0.51	-0.49	4.49
6,782.00	0.72	49.21	6,612.33	1,405.94	110.52	1,410.13	0.62	-0.60	9.59
6,877.00	1.30	330.02	6,707.32	1,407.26	110.43	1,411.45	1.43	0.61	-83.36
6,972.00	1.41	324.75	6,802.30	1,409.15	109.22	1,413.26	0.17	0.12	-5.55
7,067.00	0.87	341.29	6,897.28	1,410.79	108.31	1,414.83	0.66	-0.57	17.41
7,162.00	0.47	336.09	6,992.27	1,411.83	107.93	1,415.84	0.43	-0.42	-5.47
7,257.00	0.17	253.71	7,087.27	1,412.14	107.63	1,416.14	0.50	-0.32	-86.72
7,352.00	0.74	87.30	7,182.27	1,412.13	108.11	1,416.16	0.95	0.60	-175.17
7,447.00	0.84	104.59	7,277.26	1,411.99	109.40	1,416.10	0.27	0.11	18.20
7,543.00	0.93	144.98	7,373.25	1,411.17	110.52	1,415.36	0.64	0.09	42.07
7,639.00	1.14	158.83	7,469.23	1,409.64	111.32	1,413.88	0.34	0.22	14.43
7,734.00	1.35	176.25	7,564.21	1,407.64	111.73	1,411.91	0.45	0.22	18.34
7,830.00	1.47	189.39	7,660.18	1,405.30	111.60	1,409.57	0.36	0.13	13.69
7,925.00	1.58	187.61	7,755.15	1,402.80	111.23	1,407.05	0.13	0.12	-1.87
8,020.00	1.87	195.54	7,850.10	1,400.01	110.64	1,404.22	0.39	0.31	8.35
8,115.00	2.50	199.34	7,945.04	1,396.56	109.54	1,400.71	0.68	0.66	4.00

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Well:	PA 41-27	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	Grand Junction District

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
8,210.00	3.29	209.27	8,039.91	1,392.23	107.52	1,396.26	0.98	0.83	10.45
8,305.00	3.86	212.13	8,134.73	1,387.14	104.49	1,390.99	0.63	0.60	3.01
8,401.00	3.73	215.25	8,230.52	1,381.85	100.97	1,385.49	0.25	-0.14	3.25
8,496.00	3.95	217.16	8,325.31	1,376.72	97.21	1,380.12	0.27	0.23	2.01
8,591.00	3.98	217.62	8,420.08	1,371.50	93.22	1,374.66	0.05	0.03	0.48
8,663.00	3.85	217.09	8,491.91	1,367.60	90.24	1,370.57	0.19	-0.18	-0.74
Last SDI Production MWD Survey									
8,721.00	3.85	217.09	8,549.78	1,364.49	87.89	1,367.32	0.00	0.00	0.00
Projection to Bit									

Design Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
82.00	82.00	0.35	0.15	First SDI Gyro MWD Survey
815.00	806.27	95.80	4.74	Last SDI Gyro MWD Survey
886.00	874.84	114.19	5.41	First SDI Surface MWD Survey
2,907.00	2,832.96	612.07	35.15	Last SDI Surface MWD Survey
2,972.00	2,895.25	630.58	36.40	First SDI Production MWD Survey
8,663.00	8,491.91	1,367.60	90.24	Last SDI Production MWD Survey
8,721.00	8,549.78	1,364.49	87.89	Projection to Bit

Checked By: _____	Approved By: _____	Date: _____
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