



Directional Survey Certification

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

Operator	WPX Energy
Well Name & No.	GM 421-9
County & State	Garfield, CO
SDI Job No.	420616DEFK368928
Rig	H&P 318

I, Janie Collins, having personal knowledge of all the facts, hereby certify that the attached directional survey run from a measured depth of 85 feet to a measured depth of 6,707 feet is true and correct as determined from all available records.



Signature

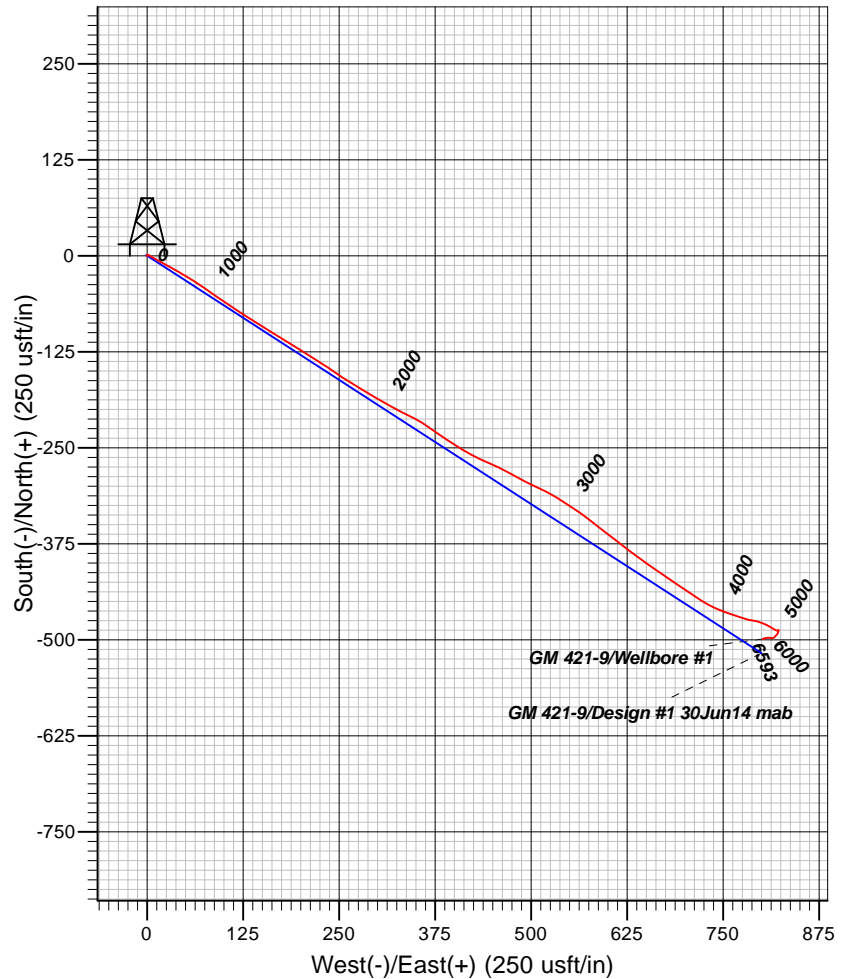
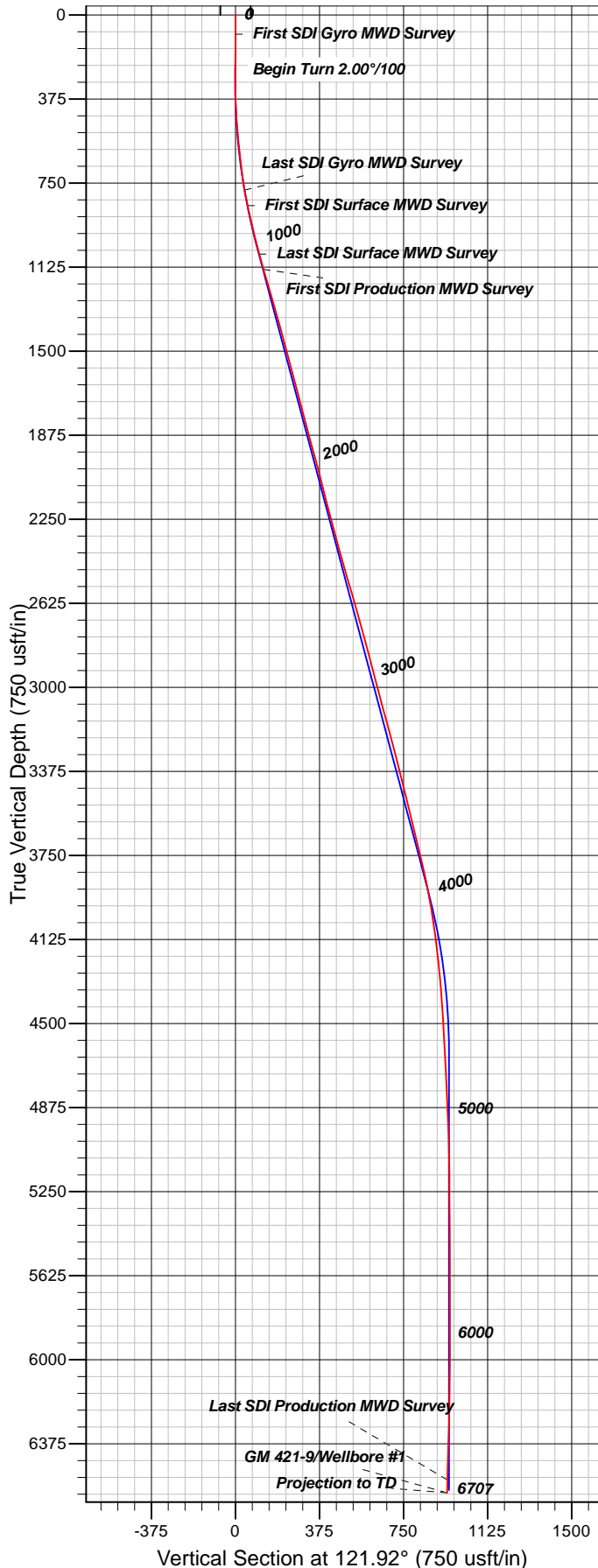
1-Jul-16

Date

Janie Collins
Colorado District Well Planner
Scientific Drilling International



Company: WPX Energy Rocky Mountain, LLC
Project: Garfield County, CO NAD83
Site: MV 16-9 Pad
Well: GM 421-9
Wellbore: Wellbore #1
Design: Wellbore #1



Well Details: GM 421-9

+N/-S	+E/-W	TVD Reference: KB @ 6111.00usft (HP 318)	Ground Level: 6087.00	Slot
0.00	0.00	Northing	East	B02
		1601975.44	2260356.25	
		39.4569119	-108.1198953	

REFERENCE INFORMATION

Co-ordinate (N/E) Reference: Well GM 421-9 - Slot B02, True North
Vertical (TVD) Reference: KB @ 6111.00usft (HP 318)
Section (VS) Reference: Slot - B02(0.00N, 0.00E)
Measured Depth Reference: KB @ 6111.00usft (HP 318)
Calculation Method: Minimum Curvature

PROJECT DETAILS: Garfield County, CO NAD83

Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: Colorado Central Zone

System Datum: Mean Sea Level

Plan: Wellbore #1

15:17, July 01 2016
Created By: Janie Collins

Company:	WPX Energy Rocky Mountain, LLC	Local Co-ordinate Reference:	Well GM 421-9 - Slot B02
Project:	Garfield County, CO NAD83	TVD Reference:	KB @ 6111.00usft (HP 318)
Site:	MV 16-9 Pad	MD Reference:	KB @ 6111.00usft (HP 318)
Well:	GM 421-9	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		MV 16-9 Pad			
Site Position:		Northing:	1,601,987.30 usft	Latitude:	39.4569442
From:	Map	Easting:	2,260,352.30 usft	Longitude:	-108.1199106
Position Uncertainty:	0.00 usft	Slot Radius:	13.20 in	Grid Convergence:	-1.65 °

Well	GM 421-9 - Slot B02					
Well Position	+N/-S	0.00 usft	Northing:	1,601,975.44 usft	Latitude:	39.4569120
	+E/-W	0.00 usft	Easting:	2,260,356.25 usft	Longitude:	-108.1198954
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	6,087.00 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2016	5/19/2016	9.76	65.59	51,621

Design	Wellbore #1				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.00	0.00	0.00	121.92	

Survey Program	Date	7/1/2016			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
85.00	783.00	Survey #1 - Gyro MWD Survey (Wellbore)	SDI Gyro MWD 104	SDI Gyro MWD Error Model Ver 1.0.4	
854.00	1,076.00	Survey #2 - Surface MWD Survey (Wellbo)	SDI MWD	SDI MWD - Standard ver 1.0.1	
1,147.00	6,707.00	Survey #3 - Production MWD Survey (Wel)	SDI MWD	SDI MWD - Standard ver 1.0.1	

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)	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
85.00	0.62	157.41	85.00	-0.42	0.18	0.37	0.73	0.73	0.00	
First SDI Gyro MWD Survey										
148.00	0.88	320.98	148.00	-0.36	0.00	0.19	2.36	0.41	259.63	
239.00	0.88	358.51	238.99	0.88	-0.46	-0.85	0.62	0.00	41.24	
329.00	1.06	79.19	328.98	1.73	0.34	-0.62	1.40	0.20	89.64	
420.00	2.90	126.65	419.92	0.51	3.02	2.29	2.55	2.02	52.15	
511.00	4.84	119.97	510.71	-2.78	8.19	8.42	2.19	2.13	-7.34	
602.00	6.16	119.18	601.29	-7.08	15.78	17.14	1.45	1.45	-0.87	

Company:	WPX Energy Rocky Mountain, LLC	Local Co-ordinate Reference:	Well GM 421-9 - Slot B02
Project:	Garfield County, CO NAD83	TVD Reference:	KB @ 6111.00usft (HP 318)
Site:	MV 16-9 Pad	MD Reference:	KB @ 6111.00usft (HP 318)
Well:	GM 421-9	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	Grand Junction District

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)
693.00	6.95	118.21	691.70	-12.06	24.90	27.51	0.88	0.87	-1.07
783.00	9.85	119.27	780.72	-18.40	36.41	40.64	3.23	3.22	1.18
Last SDI Gyro MWD Survey									
854.00	11.88	120.25	850.44	-25.06	48.02	54.01	2.87	2.86	1.38
First SDI Surface MWD Survey									
944.00	13.53	124.30	938.24	-35.66	64.72	73.79	2.08	1.83	4.50
1,035.00	14.66	124.34	1,026.50	-48.15	83.03	95.93	1.24	1.24	0.04
1,076.00	15.04	123.76	1,066.13	-54.03	91.73	106.43	1.00	0.93	-1.41
Last SDI Surface MWD Survey									
1,147.00	15.83	124.02	1,134.57	-64.57	107.42	125.32	1.12	1.11	0.37
First SDI Production MWD Survey									
1,238.00	16.09	122.72	1,222.06	-78.33	128.32	150.33	0.49	0.29	-1.43
1,333.00	16.02	121.87	1,313.35	-92.37	150.52	176.60	0.26	-0.07	-0.89
1,427.00	15.68	121.96	1,403.78	-105.94	172.32	202.27	0.36	-0.36	0.10
1,521.00	15.15	121.62	1,494.40	-119.10	193.55	227.26	0.57	-0.56	-0.36
1,616.00	13.88	121.79	1,586.36	-131.62	213.81	251.07	1.34	-1.34	0.18
1,710.00	15.32	124.07	1,677.33	-144.51	233.68	274.75	1.65	1.53	2.43
1,804.00	15.17	123.25	1,768.02	-158.21	254.25	299.46	0.28	-0.16	-0.87
1,899.00	14.29	121.49	1,859.90	-171.15	274.65	323.61	1.04	-0.93	-1.85
1,993.00	15.58	120.76	1,950.72	-183.67	295.39	347.83	1.39	1.37	-0.78
2,088.00	15.24	118.43	2,042.31	-196.14	317.33	373.05	0.74	-0.36	-2.45
2,182.00	14.07	115.58	2,133.25	-206.96	338.50	396.74	1.46	-1.24	-3.03
2,276.00	13.86	122.28	2,224.47	-217.90	358.33	419.36	1.73	-0.22	7.13
2,370.00	15.32	124.98	2,315.44	-231.04	378.02	443.02	1.71	1.55	2.87
2,464.00	16.68	123.63	2,405.80	-245.63	399.43	468.90	1.50	1.45	-1.44
2,559.00	16.15	117.96	2,496.93	-259.37	422.45	495.71	1.78	-0.56	-5.97
2,653.00	15.54	112.45	2,587.37	-270.31	445.64	521.18	1.73	-0.65	-5.86
2,747.00	15.96	118.64	2,677.84	-281.31	468.62	546.50	1.84	0.45	6.59
2,841.00	15.35	117.75	2,768.36	-293.30	490.98	571.81	0.70	-0.65	-0.95
2,935.00	14.67	114.27	2,859.15	-303.99	512.84	596.02	1.20	-0.72	-3.70
3,029.00	15.02	122.38	2,950.02	-315.40	533.98	620.00	2.24	0.37	8.63
3,124.00	14.40	122.80	3,041.91	-328.40	554.30	644.12	0.66	-0.65	0.44
3,218.00	15.61	128.10	3,132.70	-342.53	574.08	668.38	1.95	1.29	5.64
3,312.00	15.36	127.84	3,223.29	-357.97	593.87	693.34	0.28	-0.27	-0.28
3,407.00	14.67	127.38	3,315.05	-373.00	613.36	717.83	0.74	-0.73	-0.48
3,501.00	14.10	127.03	3,406.10	-387.12	631.96	741.08	0.61	-0.61	-0.37
3,595.00	13.08	126.02	3,497.47	-400.27	649.71	763.10	1.11	-1.09	-1.07
3,690.00	13.98	123.89	3,589.83	-412.99	667.93	785.29	1.08	0.95	-2.24
3,784.00	13.61	124.38	3,681.12	-425.57	686.48	807.69	0.41	-0.39	0.52
3,879.00	13.34	123.17	3,773.50	-437.87	704.88	829.81	0.41	-0.28	-1.27
3,973.00	11.53	123.81	3,865.30	-449.03	721.76	850.04	1.93	-1.93	0.68
4,067.00	10.75	114.47	3,957.53	-457.89	737.55	868.13	2.09	-0.83	-9.94
4,162.00	8.09	108.99	4,051.24	-463.74	751.94	883.43	2.95	-2.80	-5.77
4,256.00	7.46	108.75	4,144.38	-467.85	763.97	895.82	0.67	-0.67	-0.26

Company:	WPX Energy Rocky Mountain, LLC	Local Co-ordinate Reference:	Well GM 421-9 - Slot B02
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Site:	MV 16-9 Pad	MD Reference:	KB @ 6111.00usft (HP 318)
Well:	GM 421-9	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	Grand Junction District

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)
4,351.00	6.18	109.93	4,238.71	-471.58	774.62	906.83	1.36	-1.35	1.24
4,445.00	4.55	100.83	4,332.29	-474.01	783.04	915.25	1.95	-1.73	-9.68
4,540.00	4.44	98.41	4,427.00	-475.25	790.37	922.14	0.23	-0.12	-2.55
4,634.00	3.33	110.41	4,520.78	-476.74	796.53	928.15	1.46	-1.18	12.77
4,729.00	3.20	111.81	4,615.63	-478.68	801.58	933.47	0.16	-0.14	1.47
4,823.00	2.75	115.55	4,709.50	-480.63	806.05	938.29	0.52	-0.48	3.98
4,917.00	2.73	117.86	4,803.40	-482.65	810.06	942.77	0.12	-0.02	2.46
5,011.00	2.55	120.47	4,897.30	-484.76	813.85	947.09	0.23	-0.19	2.78
5,106.00	1.53	120.85	4,992.23	-486.48	816.76	950.47	1.07	-1.07	0.40
5,201.00	1.39	125.74	5,087.20	-487.80	818.78	952.89	0.20	-0.15	5.15
5,295.00	0.83	58.92	5,181.19	-488.12	820.29	954.34	1.39	-0.60	-71.09
5,389.00	0.70	53.58	5,275.18	-487.42	821.33	954.86	0.16	-0.14	-5.68
5,484.00	0.45	116.71	5,370.18	-487.25	822.13	955.44	0.67	-0.26	66.45
5,578.00	0.11	132.75	5,464.18	-487.47	822.53	955.90	0.37	-0.36	17.06
5,672.00	0.64	209.29	5,558.17	-487.99	822.34	956.01	0.66	0.56	81.43
5,766.00	0.88	202.16	5,652.16	-489.12	821.81	956.16	0.27	0.26	-7.59
5,861.00	0.93	189.62	5,747.15	-490.55	821.41	956.57	0.21	0.05	-13.20
5,955.00	1.31	214.67	5,841.14	-492.19	820.67	956.81	0.65	0.40	26.65
6,049.00	1.47	221.33	5,935.11	-493.98	819.26	956.56	0.24	0.17	7.09
6,143.00	1.31	226.03	6,029.08	-495.63	817.69	956.10	0.21	-0.17	5.00
6,238.00	1.49	229.12	6,124.05	-497.19	815.98	955.47	0.21	0.19	3.25
6,332.00	1.42	282.27	6,218.03	-497.75	813.91	954.01	1.39	-0.07	56.54
6,427.00	1.83	271.03	6,312.99	-497.47	811.25	951.60	0.54	0.43	-11.83
6,521.00	2.01	271.43	6,406.93	-497.40	808.10	948.90	0.19	0.19	0.43
6,616.00	2.21	253.03	6,501.87	-497.89	804.68	946.26	0.74	0.21	-19.37
6,650.00	2.20	247.68	6,535.85	-498.33	803.45	945.44	0.61	-0.03	-15.74
Last SDI Production MWD Survey									
6,707.00	2.20	247.68	6,592.80	-499.16	801.43	944.16	0.00	0.00	0.00
Projection to TD									

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
85.00	85.00	-0.42	0.18	First SDI Gyro MWD Survey
783.00	780.72	-18.40	36.41	Last SDI Gyro MWD Survey
854.00	850.44	-25.06	48.02	First SDI Surface MWD Survey
1,076.00	1,066.13	-54.03	91.73	Last SDI Surface MWD Survey
1,147.00	1,134.57	-64.57	107.42	First SDI Production MWD Survey
6,650.00	6,535.85	-498.33	803.45	Last SDI Production MWD Survey
6,707.00	6,592.80	-499.16	801.43	Projection to TD

Checked By: _____ Approved By: _____ Date: _____