



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 442-8
County & State	Garfield, CO
SDI Job No.	420616DEFK366575
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 114 feet to a measured depth of 6,833 feet is true and correct as determined from all available records.



Signature

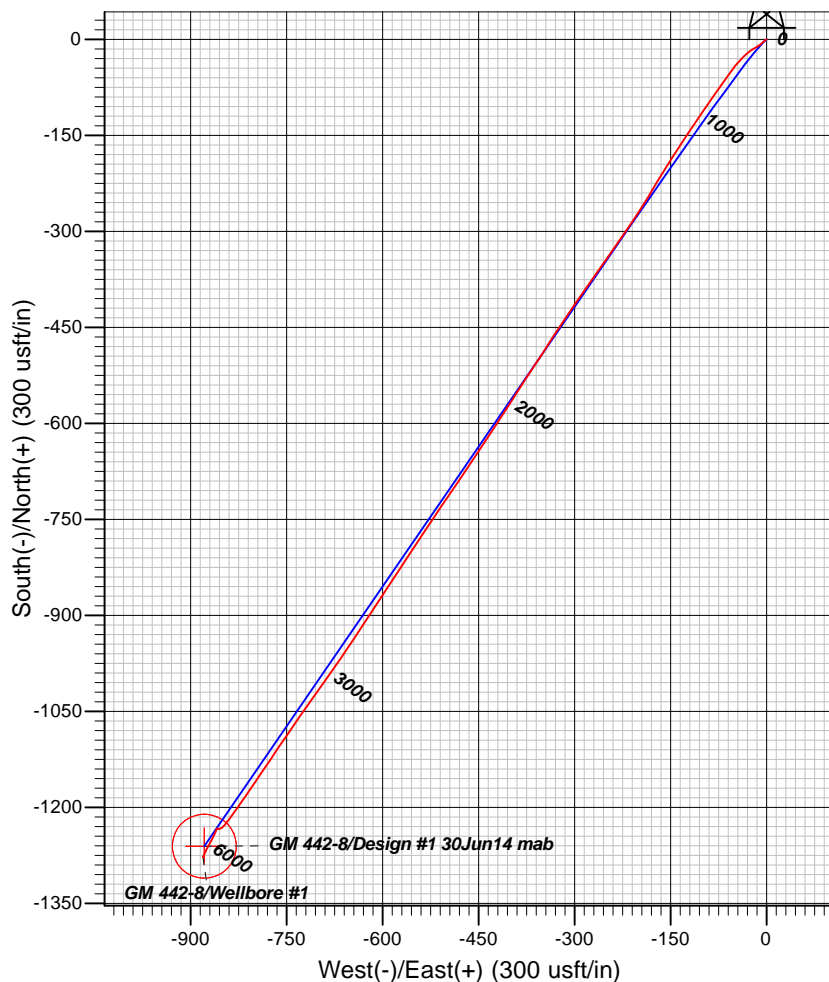
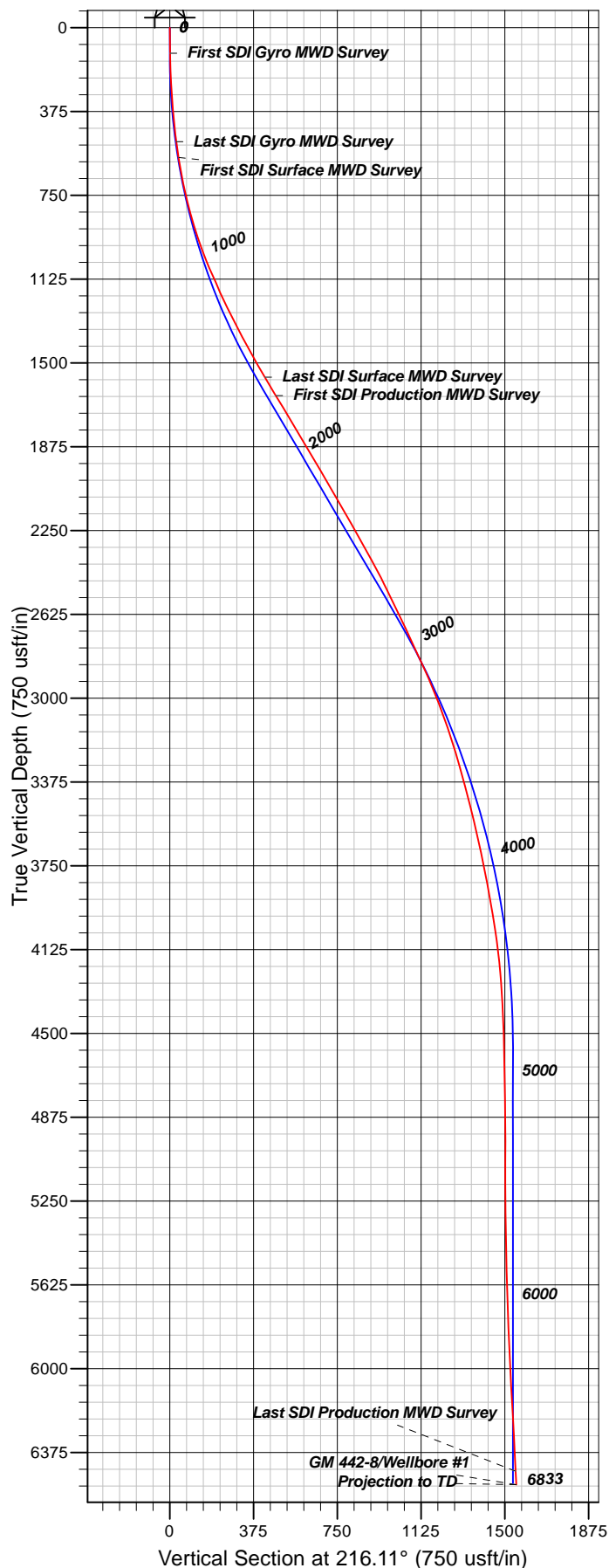
17-Jun-16

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 442-8
Wellbore: Wellbore #1
Design: Wellbore #1



Well Details: GM 442-8

+N/-S	+E/-W	TVD Reference: KB @ 6111.00usft (HP 318)	Ground Level: 6087.00	Slot
0.00	0.00	Northing: 1601956.40	Easting: 2260330.90	A06
		Latitude: 39.4568576	Longitude: -108.1199831	

REFERENCE INFORMATION

Co-ordinate (N/E) Reference: Well GM 442-8 - Slot A06, True North
Vertical (TVD) Reference: KB @ 6111.00usft (HP 318)
Section (VS) Reference: Slot - A06(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

9:32, June 17 2016
Created By: Janie Collins

Company:	WPX Energy Rocky Mountain, LLC	Local Co-ordinate Reference:	Well GM 442-8 - Slot A06
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 442-8	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 442-8 - Slot A06					
Well Position	+N/-S	0.00 usft	Northing:	1,601,956.39 usft	Latitude:	39.4568577
	+E/-W	0.00 usft	Easting:	2,260,330.90 usft	Longitude:	-108.1199832
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	216.11	

Survey Program	Date	6/17/2016			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
114.00	511.00	Survey #1 - Gyro Survey (Wellbore #1)	SDI Gyro MWD 104	SDI Gyro MWD Error Model Ver 1.0.4	
582.00	1,646.00	Survey #2 - Surface MWD Survey (Wellbo	SDI MWD	SDI MWD - Standard ver 1.0.1	
1,742.00	6,833.00	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	
114.00	0.88	240.47	114.00	-0.43	-0.76	0.80	0.77	0.77	0.00	
First SDI Gyro MWD Survey										
148.00	1.85	245.65	147.99	-0.79	-1.49	1.51	2.87	2.85	15.24	
239.00	3.52	226.93	238.88	-3.30	-4.87	5.53	2.05	1.84	-20.57	
329.00	4.40	226.05	328.67	-7.58	-9.37	11.65	0.98	0.98	-0.98	
420.00	5.28	242.23	419.35	-11.96	-15.59	18.85	1.78	0.97	17.78	
511.00	8.45	237.30	509.68	-17.52	-24.92	28.84	3.54	3.48	-5.42	

Company:	WPX Energy Rocky Mountain, LLC	Local Co-ordinate Reference:	Well GM 442-8 - Slot A06
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 442-8	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)
Last SDI Gyro MWD Survey									
582.00	9.47	225.76	579.82	-24.41	-33.50	39.47	2.90	1.44	-16.25
First SDI Surface MWD Survey									
673.00	10.27	222.22	669.48	-35.65	-44.31	54.91	1.10	0.88	-3.89
763.00	13.35	215.64	757.56	-50.04	-55.76	73.29	3.73	3.42	-7.31
854.00	16.21	215.46	845.54	-68.92	-69.26	96.50	3.14	3.14	-0.20
944.00	18.43	214.91	931.46	-90.82	-84.69	123.28	2.47	2.47	-0.61
1,035.00	21.14	214.39	1,017.08	-116.17	-102.19	154.07	2.98	2.98	-0.57
1,126.00	23.48	213.64	1,101.26	-144.80	-121.51	188.59	2.59	2.57	-0.82
1,217.00	24.48	212.99	1,184.40	-175.71	-141.81	225.53	1.14	1.10	-0.71
1,308.00	26.34	211.64	1,266.60	-208.72	-162.67	264.49	2.14	2.04	-1.48
1,403.00	27.82	210.71	1,351.18	-245.72	-185.05	307.57	1.62	1.56	-0.98
1,497.00	28.63	214.01	1,434.01	-283.25	-208.85	351.92	1.87	0.86	3.51
1,591.00	29.70	214.96	1,516.09	-321.00	-234.79	397.71	1.24	1.14	1.01
1,646.00	30.78	215.08	1,563.60	-343.69	-250.69	425.40	1.97	1.96	0.22
Last SDI Surface MWD Survey									
1,742.00	31.40	215.46	1,645.81	-384.16	-279.31	474.97	0.68	0.65	0.40
First SDI Production MWD Survey									
1,804.00	31.14	214.53	1,698.81	-410.52	-297.77	507.14	0.88	-0.42	-1.50
1,898.00	30.14	212.62	1,779.69	-450.43	-324.27	555.00	1.48	-1.06	-2.03
1,993.00	31.23	213.29	1,861.38	-491.10	-350.65	603.40	1.20	1.15	0.71
2,088.00	30.81	212.99	1,942.80	-532.09	-377.41	652.29	0.47	-0.44	-0.32
2,182.00	30.22	212.36	2,023.78	-572.27	-403.18	699.94	0.71	-0.63	-0.67
2,276.00	30.31	213.72	2,104.97	-611.98	-429.01	747.24	0.74	0.10	1.45
2,370.00	29.02	213.86	2,186.65	-650.65	-454.88	793.73	1.37	-1.37	0.15
2,464.00	29.60	214.08	2,268.61	-688.81	-480.59	839.71	0.63	0.62	0.23
2,559.00	29.34	214.21	2,351.32	-727.49	-506.83	886.42	0.28	-0.27	0.14
2,653.00	27.75	213.77	2,433.89	-764.73	-531.94	931.31	1.71	-1.69	-0.47
2,747.00	25.55	213.21	2,517.90	-799.88	-555.21	973.42	2.36	-2.34	-0.60
2,841.00	26.22	213.43	2,602.47	-834.17	-577.75	1,014.41	0.72	0.71	0.23
2,935.00	25.65	213.25	2,687.00	-868.52	-600.35	1,055.47	0.61	-0.61	-0.19
3,029.00	24.73	213.08	2,772.06	-902.01	-622.24	1,095.43	0.98	-0.98	-0.18
3,123.00	24.46	213.71	2,857.53	-934.67	-643.77	1,134.51	0.40	-0.29	0.67
3,218.00	23.05	214.72	2,944.48	-966.32	-665.28	1,172.75	1.54	-1.48	1.06
3,312.00	20.88	215.20	3,031.65	-995.14	-685.42	1,207.90	2.32	-2.31	0.51
3,407.00	18.97	214.80	3,120.96	-1,021.65	-703.99	1,240.27	2.02	-2.01	-0.42
3,501.00	17.32	215.61	3,210.29	-1,045.58	-720.86	1,269.54	1.78	-1.76	0.86
3,595.00	15.54	214.38	3,300.44	-1,067.35	-736.12	1,296.12	1.93	-1.89	-1.31
3,689.00	15.03	214.44	3,391.12	-1,087.79	-750.12	1,320.89	0.54	-0.54	0.06
3,784.00	14.61	214.00	3,482.96	-1,107.88	-763.79	1,345.17	0.46	-0.44	-0.46
3,878.00	12.52	213.70	3,574.33	-1,126.19	-776.07	1,367.20	2.22	-2.22	-0.32
3,973.00	12.32	214.65	3,667.11	-1,143.09	-787.55	1,387.62	0.30	-0.21	1.00
4,067.00	12.05	213.63	3,758.99	-1,159.51	-798.68	1,407.45	0.37	-0.29	-1.09
4,162.00	9.92	214.81	3,852.24	-1,174.49	-808.85	1,425.54	2.25	-2.24	1.24

Company:	WPX Energy Rocky Mountain, LLC	Local Co-ordinate Reference:	Well GM 442-8 - Slot A06
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 442-8	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)
4,256.00	9.76	214.91	3,944.86	-1,187.67	-818.03	1,441.60	0.17	-0.17	0.11
4,351.00	8.40	214.53	4,038.67	-1,199.99	-826.57	1,456.59	1.43	-1.43	-0.40
4,445.00	7.03	215.35	4,131.82	-1,210.34	-833.79	1,469.21	1.46	-1.46	0.87
4,540.00	5.39	218.70	4,226.26	-1,218.57	-839.94	1,479.48	1.77	-1.73	3.53
4,634.00	3.06	216.96	4,319.99	-1,224.02	-844.21	1,486.40	2.48	-2.48	-1.85
4,728.00	2.25	222.32	4,413.89	-1,227.39	-846.97	1,490.74	0.90	-0.86	5.70
4,823.00	2.48	221.95	4,508.81	-1,230.29	-849.59	1,494.64	0.24	0.24	-0.39
4,917.00	1.43	241.59	4,602.76	-1,232.36	-851.99	1,497.72	1.31	-1.12	20.89
5,011.00	0.87	254.04	4,696.74	-1,233.12	-853.70	1,499.34	0.65	-0.60	13.24
5,106.00	0.99	259.48	4,791.72	-1,233.47	-855.20	1,500.51	0.16	0.13	5.73
5,201.00	1.11	258.35	4,886.71	-1,233.80	-856.91	1,501.79	0.13	0.13	-1.19
5,295.00	0.45	343.68	4,980.70	-1,233.63	-857.91	1,502.23	1.24	-0.70	90.78
5,389.00	0.33	331.12	5,074.70	-1,233.04	-858.14	1,501.89	0.16	-0.13	-13.36
5,484.00	0.26	269.51	5,169.70	-1,232.80	-858.49	1,501.91	0.32	-0.07	-64.85
5,578.00	0.65	211.82	5,263.70	-1,233.26	-858.98	1,502.57	0.59	0.41	-61.37
5,672.00	0.87	206.18	5,357.69	-1,234.35	-859.58	1,503.80	0.25	0.23	-6.00
5,766.00	1.12	199.49	5,451.67	-1,235.86	-860.20	1,505.38	0.29	0.27	-7.12
5,861.00	1.32	205.86	5,546.65	-1,237.72	-860.99	1,507.35	0.25	0.21	6.71
5,955.00	1.65	200.82	5,640.62	-1,239.96	-861.94	1,509.72	0.38	0.35	-5.36
6,049.00	2.06	206.34	5,734.57	-1,242.74	-863.17	1,512.69	0.48	0.44	5.87
6,143.00	2.50	203.76	5,828.50	-1,246.13	-864.75	1,516.36	0.48	0.47	-2.74
6,238.00	2.69	208.31	5,923.40	-1,249.99	-866.64	1,520.59	0.29	0.20	4.79
6,332.00	3.08	212.10	6,017.28	-1,254.07	-869.03	1,525.30	0.46	0.41	4.03
6,427.00	3.09	208.32	6,112.14	-1,258.48	-871.60	1,530.38	0.21	0.01	-3.98
6,521.00	3.01	205.87	6,206.01	-1,262.93	-873.88	1,535.32	0.16	-0.09	-2.61
6,615.00	3.20	207.10	6,299.87	-1,267.49	-876.15	1,540.34	0.21	0.20	1.31
6,710.00	2.98	202.72	6,394.73	-1,272.13	-878.31	1,545.36	0.34	-0.23	-4.61
6,773.00	2.86	203.93	6,457.65	-1,275.08	-879.58	1,548.49	0.21	-0.19	1.92
Last SDI Production MWD Survey									
6,833.00	2.86	203.93	6,517.58	-1,277.81	-880.80	1,551.42	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)	
114.00	114.00	-0.43	-0.76	First SDI Gyro MWD Survey
511.00	509.68	-17.52	-24.92	Last SDI Gyro MWD Survey
582.00	579.82	-24.41	-33.50	First SDI Surface MWD Survey
1,646.00	1,563.60	-343.69	-250.69	Last SDI Surface MWD Survey
1,742.00	1,645.81	-384.16	-279.31	First SDI Production MWD Survey
6,773.00	6,457.65	-1,275.08	-879.58	Last SDI Production MWD Survey
6,833.00	6,517.58	-1,277.81	-880.80	Projection to TD



Company:	WPX Energy Rocky Mountain, LLC	Local Co-ordinate Reference:	Well GM 442-8 - Slot A06
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 442-8	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	Grand Junction District

Checked By: _____	Approved By: _____	Date: _____
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