



Directional Survey Certification

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

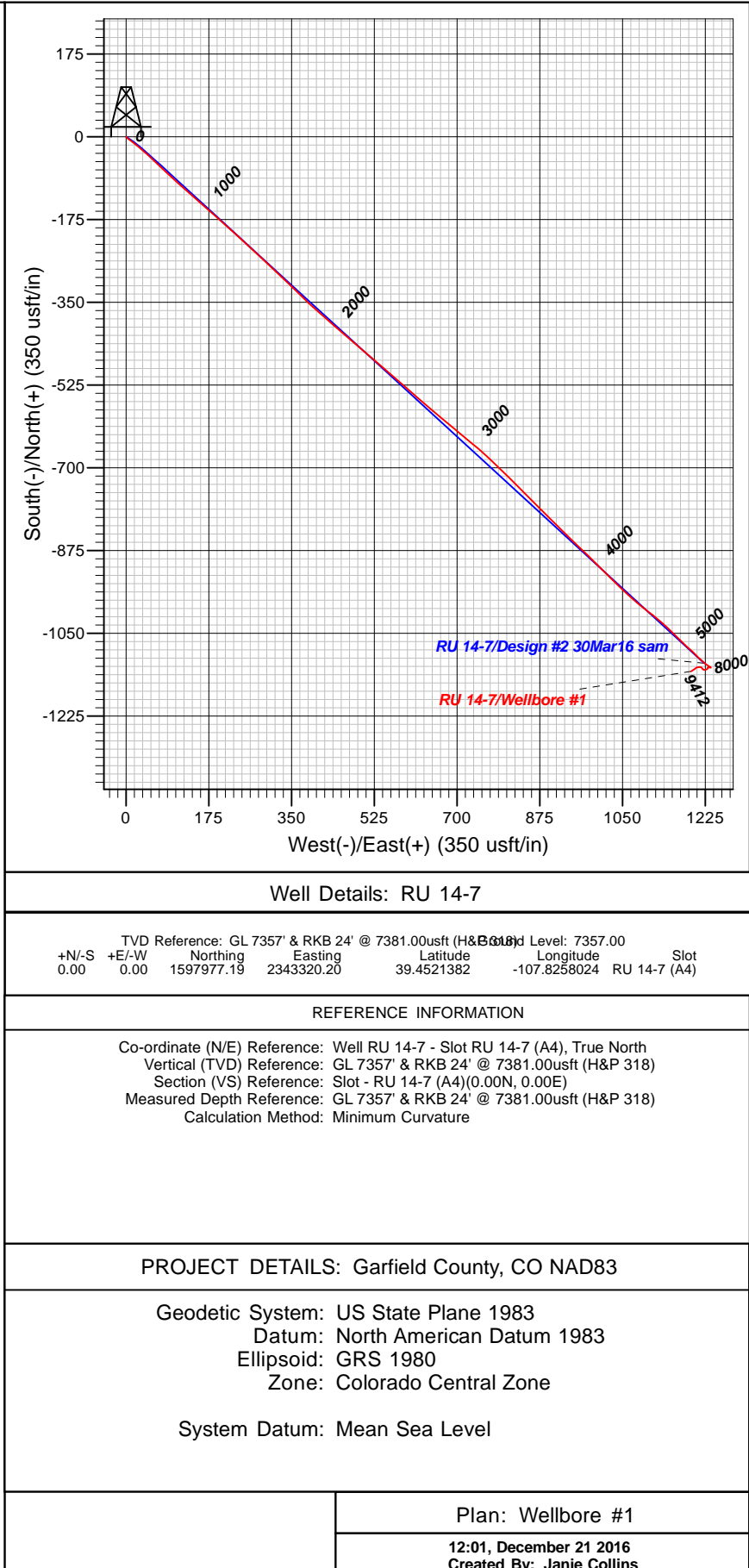
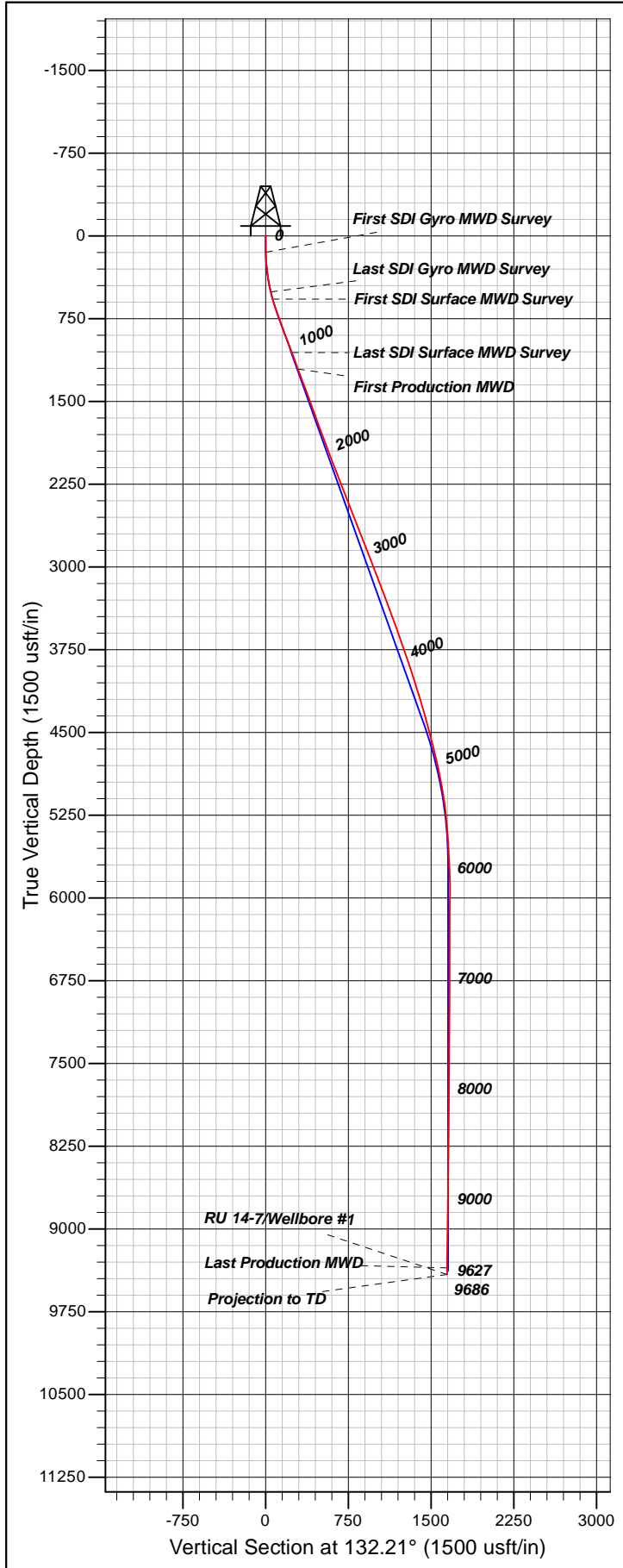
Operator	TEP Rocky Mountain, LLC.
Well Name & No.	RU 14-7
County & State	Garfield, CO
SDI Job No.	421116DEFK401893
Rig	H&P 318

I, Mel Mireles Jr., having personal knowledge of all the facts, hereby certify that the attached directional survey run from a measured depth of 146 feet to a measured depth of 9,686 feet is true and correct as determined from all available records.


Signature

21-Dec-16
Date

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



Company:	TEP Rocky Mountain LLC	Local Co-ordinate Reference:	Well RU 14-7 - Slot RU 14-7 (A4)
Project:	Garfield County, CO NAD83	TVD Reference:	GL 7357' & RKB 24' @ 7381.00usft (H&P 318)
Site:	SR 43-12 Pad	MD Reference:	GL 7357' & RKB 24' @ 7381.00usft (H&P 318)
Well:	RU 14-7	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		SR 43-12 Pad			
Site Position:		Northing:	1,598,022.09 usft	Latitude:	39.4522607
From:	Map	Easting:	2,343,309.20 usft	Longitude:	-107.8258454
Position Uncertainty:	0.00 usft	Slot Radius:	0.00 in	Grid Convergence:	-1.47 °

Well	RU 14-7 - Slot RU 14-7 (A4)					
Well Position	+N/-S	0.00 usft	Northing:	1,597,977.19 usft	Latitude:	39.4521382
	+E/-W	0.00 usft	Easting:	2,343,320.20 usft	Longitude:	-107.8258024
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	7,357.00 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	11/30/2016	9.32	65.67	51,757

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	132.21	

Survey Program	Date	12/21/2016			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
146.00	510.00	Survey #1 - Gyro MWD (Wellbore #1)	SDI Gyro MWD 104	SDI Gyro MWD Error Model Ver 1.0.4	
578.00	1,091.00	Survey #2 - Surface MWD (Wellbore #1)	SDI MWD	SDI MWD - Standard ver 1.0.1	
1,251.00	9,686.00	Survey #3 - Production MWD (Wellbore #1)	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
146.00	1.41	139.04	145.99	-1.36	1.18	1.78	0.97	0.97	0.00
First SDI Gyro MWD Survey									
236.00	3.96	126.04	235.88	-4.02	4.42	5.97	2.89	2.83	-14.44
328.00	7.04	128.67	327.45	-9.41	11.39	14.76	3.36	3.35	2.86
419.00	9.85	127.00	417.45	-17.59	21.96	28.08	3.10	3.09	-1.84
510.00	13.20	131.92	506.60	-29.21	35.91	46.23	3.83	3.68	5.41
Last SDI Gyro MWD Survey									

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Project:	Garfield County, CO NAD83	TVD Reference:	GL 7357' & RKB 24' @ 7381.00usft (H&P 318)
Site:	SR 43-12 Pad	MD Reference:	GL 7357' & RKB 24' @ 7381.00usft (H&P 318)
Well:	RU 14-7	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)	
578.00	15.34	131.22	572.50	-40.33	48.46	62.99	3.16	3.15	-1.03	
First SDI Surface MWD Survey										
669.00	18.68	134.61	659.51	-58.50	67.89	89.59	3.83	3.67	3.73	
759.00	20.65	132.33	744.26	-79.31	89.89	119.86	2.35	2.19	-2.53	
850.00	21.34	132.69	829.22	-101.34	113.92	152.47	0.77	0.76	0.40	
941.00	20.12	130.81	914.33	-122.80	137.94	184.67	1.53	-1.34	-2.07	
1,032.00	20.00	131.13	999.80	-143.27	161.51	215.88	0.18	-0.13	0.35	
1,091.00	19.87	131.93	1,055.27	-156.60	176.56	235.99	0.51	-0.22	1.36	
Last SDI Surface MWD Survey										
1,251.00	20.50	131.81	1,205.44	-193.45	217.68	291.20	0.39	0.39	-0.08	
First Production MWD										
1,345.00	20.80	132.19	1,293.40	-215.63	242.31	324.35	0.35	0.32	0.40	
1,439.00	20.82	133.04	1,381.27	-238.24	266.89	357.74	0.32	0.02	0.90	
1,534.00	20.52	132.72	1,470.16	-261.06	291.46	391.27	0.34	-0.32	-0.34	
1,628.00	20.59	133.42	1,558.17	-283.60	315.57	424.27	0.27	0.07	0.74	
1,722.00	20.00	133.66	1,646.34	-306.06	339.20	456.87	0.63	-0.63	0.26	
1,817.00	19.93	133.88	1,735.63	-328.50	362.63	489.29	0.11	-0.07	0.23	
1,911.00	19.68	134.00	1,824.07	-350.60	385.56	521.13	0.27	-0.27	0.13	
2,005.00	21.69	131.52	1,912.00	-373.11	409.95	554.32	2.33	2.14	-2.64	
2,099.00	21.29	130.30	1,999.47	-395.66	435.98	588.75	0.64	-0.43	-1.30	
2,193.00	21.02	130.80	2,087.13	-417.72	461.75	622.66	0.35	-0.29	0.53	
2,288.00	20.78	131.27	2,175.88	-439.96	487.32	656.54	0.31	-0.25	0.49	
2,382.00	20.54	130.47	2,263.84	-461.67	512.39	689.69	0.39	-0.26	-0.85	
2,476.00	19.91	130.66	2,352.04	-482.80	537.08	722.18	0.67	-0.67	0.20	
2,570.00	21.94	130.47	2,439.84	-504.63	562.59	755.73	2.16	2.16	-0.20	
2,665.00	22.08	131.36	2,527.91	-527.95	589.49	791.33	0.38	0.15	0.94	
2,759.00	21.87	131.33	2,615.09	-551.18	615.90	826.50	0.22	-0.22	-0.03	
2,854.00	21.70	130.26	2,703.30	-574.22	642.59	861.74	0.45	-0.18	-1.13	
2,948.00	21.53	129.70	2,790.69	-596.47	669.12	896.34	0.28	-0.18	-0.60	
3,042.00	21.23	129.76	2,878.22	-618.37	695.47	930.58	0.32	-0.32	0.06	
3,137.00	20.57	129.20	2,966.97	-639.92	721.63	964.43	0.73	-0.69	-0.59	
3,231.00	20.75	130.19	3,054.93	-661.10	747.15	997.56	0.42	0.19	1.05	
3,326.00	21.25	134.05	3,143.62	-683.93	772.38	1,031.59	1.55	0.53	4.06	
3,420.00	21.28	134.59	3,231.22	-707.75	796.77	1,065.66	0.21	0.03	0.57	
3,514.00	20.61	134.92	3,319.01	-731.41	820.63	1,099.23	0.72	-0.71	0.35	
3,609.00	20.48	134.87	3,407.97	-754.94	844.25	1,132.53	0.14	-0.14	-0.05	
3,703.00	20.31	134.94	3,496.07	-778.06	867.45	1,165.25	0.18	-0.18	0.07	
3,797.00	19.79	134.52	3,584.38	-800.74	890.34	1,197.45	0.57	-0.55	-0.45	
3,891.00	19.21	135.50	3,672.98	-822.93	912.53	1,228.79	0.71	-0.62	1.04	
3,986.00	18.58	133.76	3,762.87	-844.55	934.41	1,259.52	0.89	-0.66	-1.83	
4,080.00	18.59	134.38	3,851.96	-865.39	955.94	1,289.46	0.21	0.01	0.66	
4,175.00	17.96	134.04	3,942.17	-886.16	977.29	1,319.23	0.67	-0.66	-0.36	
4,269.00	17.63	133.71	4,031.67	-906.07	998.00	1,347.95	0.37	-0.35	-0.35	
4,363.00	17.55	135.59	4,121.28	-926.03	1,018.21	1,376.33	0.61	-0.09	2.00	

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Site:	SR 43-12 Pad	MD Reference:	GL 7357' & RKB 24' @ 7381.00usft (H&P 318)
Well:	RU 14-7	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)	
4,458.00	16.89	136.03	4,212.02	-946.19	1,037.81	1,404.39	0.71	-0.69	0.46	
4,552.00	15.67	130.58	4,302.26	-964.28	1,056.94	1,430.71	2.08	-1.30	-5.80	
4,647.00	15.59	130.03	4,393.74	-980.84	1,076.45	1,456.29	0.18	-0.08	-0.58	
4,741.00	14.95	128.67	4,484.42	-996.54	1,095.59	1,481.02	0.78	-0.68	-1.45	
4,835.00	14.18	129.86	4,575.40	-1,011.49	1,113.90	1,504.62	0.88	-0.82	1.27	
4,930.00	14.41	129.94	4,667.46	-1,026.54	1,131.89	1,528.06	0.24	0.24	0.08	
5,024.00	12.30	134.56	4,758.92	-1,041.08	1,148.00	1,549.75	2.51	-2.24	4.91	
5,118.00	12.48	134.14	4,850.73	-1,055.18	1,162.42	1,569.91	0.21	0.19	-0.45	
5,213.00	10.46	135.23	4,943.83	-1,068.45	1,175.86	1,588.78	2.14	-2.13	1.15	
5,307.00	9.25	130.46	5,036.44	-1,079.41	1,187.62	1,604.86	1.55	-1.29	-5.07	
5,401.00	7.94	134.85	5,129.38	-1,088.89	1,197.97	1,618.89	1.56	-1.39	4.67	
5,495.00	6.70	135.36	5,222.61	-1,097.37	1,206.43	1,630.85	1.32	-1.32	0.54	
5,589.00	4.73	128.23	5,316.14	-1,103.67	1,213.32	1,640.20	2.22	-2.10	-7.59	
5,684.00	4.39	132.23	5,410.84	-1,108.54	1,219.09	1,647.74	0.49	-0.36	4.21	
5,778.00	4.54	135.30	5,504.56	-1,113.60	1,224.37	1,655.05	0.30	0.16	3.27	
5,872.00	2.38	120.74	5,598.38	-1,117.24	1,228.67	1,660.68	2.46	-2.30	-15.49	
5,967.00	2.65	111.46	5,693.29	-1,119.06	1,232.41	1,664.67	0.51	0.28	-9.77	
6,061.00	2.08	131.22	5,787.21	-1,120.98	1,235.71	1,668.41	1.05	-0.61	21.02	
6,155.00	0.36	218.26	5,881.19	-1,122.33	1,236.81	1,670.13	2.23	-1.83	92.60	
6,249.00	0.36	263.36	5,975.19	-1,122.60	1,236.34	1,669.96	0.29	0.00	47.98	
6,344.00	0.63	296.40	6,070.19	-1,122.40	1,235.57	1,669.26	0.40	0.28	34.78	
6,438.00	0.57	258.91	6,164.18	-1,122.26	1,234.65	1,668.48	0.41	-0.06	-39.88	
6,532.00	0.65	291.92	6,258.18	-1,122.15	1,233.70	1,667.70	0.38	0.09	35.12	
6,627.00	0.67	259.34	6,353.17	-1,122.05	1,232.65	1,666.86	0.39	0.02	-34.29	
6,721.00	0.98	257.69	6,447.16	-1,122.33	1,231.33	1,666.06	0.33	0.33	-1.76	
6,815.00	0.26	266.31	6,541.15	-1,122.51	1,230.33	1,665.45	0.77	-0.77	9.17	
6,910.00	0.24	195.07	6,636.15	-1,122.72	1,230.06	1,665.39	0.31	-0.02	-74.99	
7,004.00	0.35	197.32	6,730.15	-1,123.18	1,229.93	1,665.60	0.12	0.12	2.39	
7,099.00	0.03	25.71	6,825.15	-1,123.44	1,229.85	1,665.72	0.40	-0.34	-180.64	
7,193.00	0.35	189.32	6,919.15	-1,123.70	1,229.81	1,665.86	0.40	0.34	174.05	
7,287.00	0.05	98.03	7,013.15	-1,123.99	1,229.81	1,666.05	0.38	-0.32	-97.12	
7,382.00	0.58	203.29	7,108.15	-1,124.43	1,229.66	1,666.24	0.63	0.56	110.80	
7,476.00	0.32	223.98	7,202.15	-1,125.06	1,229.29	1,666.39	0.32	-0.28	22.01	
7,570.00	0.97	235.20	7,296.14	-1,125.70	1,228.45	1,666.20	0.70	0.69	11.94	
7,665.00	0.59	247.45	7,391.13	-1,126.35	1,227.34	1,665.81	0.43	-0.40	12.89	
7,759.00	0.91	257.20	7,485.12	-1,126.70	1,226.17	1,665.18	0.37	0.34	10.37	
7,853.00	0.79	261.21	7,579.11	-1,126.96	1,224.80	1,664.34	0.14	-0.13	4.27	
7,948.00	0.81	250.15	7,674.10	-1,127.29	1,223.52	1,663.62	0.16	0.02	-11.64	
8,042.00	0.39	293.62	7,768.10	-1,127.39	1,222.60	1,663.00	0.63	-0.45	46.24	
8,137.00	1.04	277.52	7,863.09	-1,127.15	1,221.45	1,661.99	0.71	0.68	-16.95	
8,231.00	0.62	6.63	7,957.08	-1,126.53	1,220.66	1,660.99	1.28	-0.45	94.80	
8,325.00	0.44	305.25	8,051.08	-1,125.82	1,220.43	1,660.34	0.60	-0.19	-65.30	
8,420.00	1.09	292.86	8,146.07	-1,125.25	1,219.30	1,659.12	0.70	0.68	-13.04	

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Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	Grand Junction District

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8,514.00	0.62	1.85	8,240.06	-1,124.40	1,218.49	1,657.95	1.11	-0.50	73.39	
8,609.00	0.79	314.56	8,335.06	-1,123.43	1,218.04	1,656.96	0.62	0.18	-49.78	
8,703.00	0.79	322.56	8,429.05	-1,122.46	1,217.18	1,655.68	0.12	0.00	8.51	
8,797.00	0.96	278.55	8,523.04	-1,121.83	1,216.01	1,654.38	0.72	0.18	-46.82	
8,892.00	1.06	291.27	8,618.02	-1,121.39	1,214.41	1,652.90	0.26	0.11	13.39	
8,986.00	1.41	254.97	8,712.00	-1,121.37	1,212.48	1,651.46	0.89	0.37	-38.62	
9,080.00	1.29	264.42	8,805.98	-1,121.78	1,210.31	1,650.13	0.27	-0.13	10.05	
9,175.00	1.50	263.52	8,900.95	-1,122.02	1,208.01	1,648.59	0.22	0.22	-0.95	
9,269.00	1.22	238.73	8,994.92	-1,122.68	1,205.93	1,647.49	0.69	-0.30	-26.37	
9,363.00	1.65	230.45	9,088.89	-1,124.06	1,204.03	1,647.01	0.51	0.46	-8.81	
9,457.00	1.88	239.49	9,182.85	-1,125.70	1,201.66	1,646.36	0.38	0.24	9.62	
9,552.00	2.25	231.44	9,277.79	-1,127.66	1,198.86	1,645.60	0.49	0.39	-8.47	
9,627.00	2.02	239.24	9,352.73	-1,129.25	1,196.57	1,644.97	0.49	-0.31	10.40	
Last Production MWD										
9,686.00	2.02	239.24	9,411.70	-1,130.31	1,194.79	1,644.37	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)		
146.00	145.99	-1.36	1.18	First SDI Gyro MWD Survey	
510.00	506.60	-29.21	35.91	Last SDI Gyro MWD Survey	
578.00	572.50	-40.33	48.46	First SDI Surface MWD Survey	
1,091.00	1,055.27	-156.60	176.56	Last SDI Surface MWD Survey	
1,251.00	1,205.44	-193.45	217.68	First Production MWD	
9,627.00	9,352.73	-1,129.25	1,196.57	Last Production MWD	
9,686.00	9,411.70	-1,130.31	1,194.79	Projection to TD	

Checked By: _____	Approved By: _____	Date: _____
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