



7327 West Barton Road
Casper, WY 82604
(307)-472-6621 Fax (307) 472-5439

Survey Certification

Operator	TEP Rocky Mountain LLC
Well Name & No.	SG 22-22
API #	05-045-24007
County & State	Garfield County, CO
SDI Job #	OP.024472
Rig	H&P 318
Survey Date	21-Mar-2020

I, Seth M. Burstad, 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 6310 feet is true and correct as determined from all available records.

Seth M. Burstad

Signature

22-Mar-2020

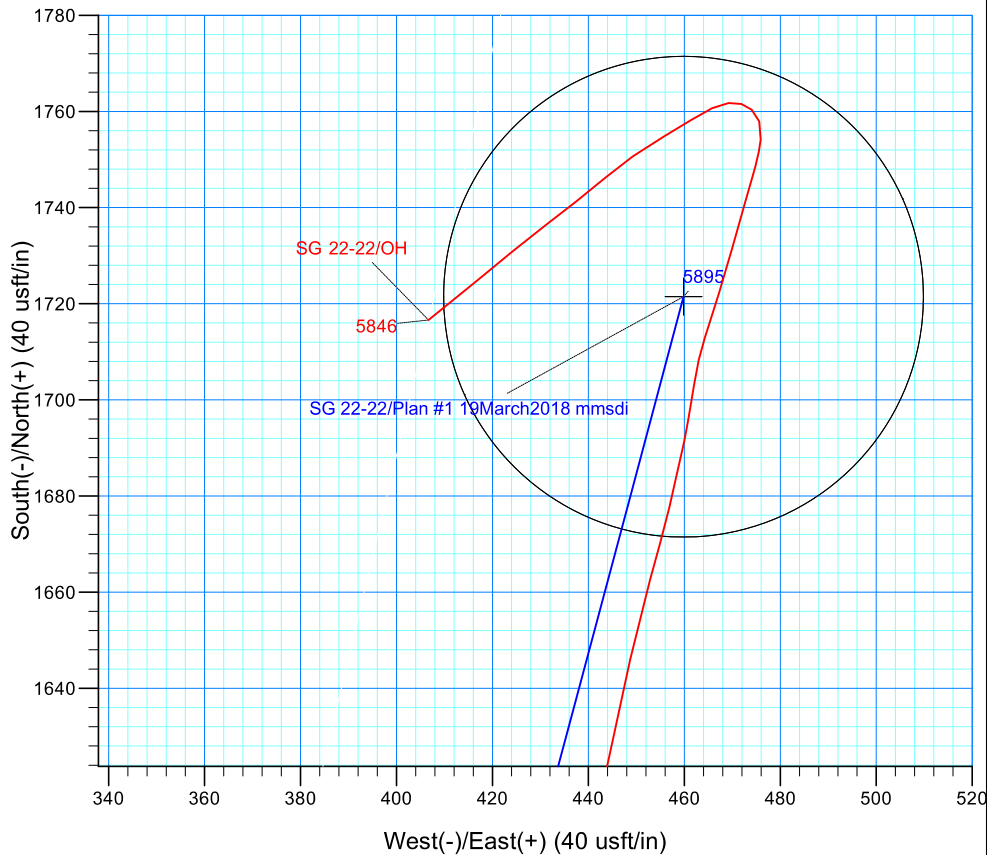
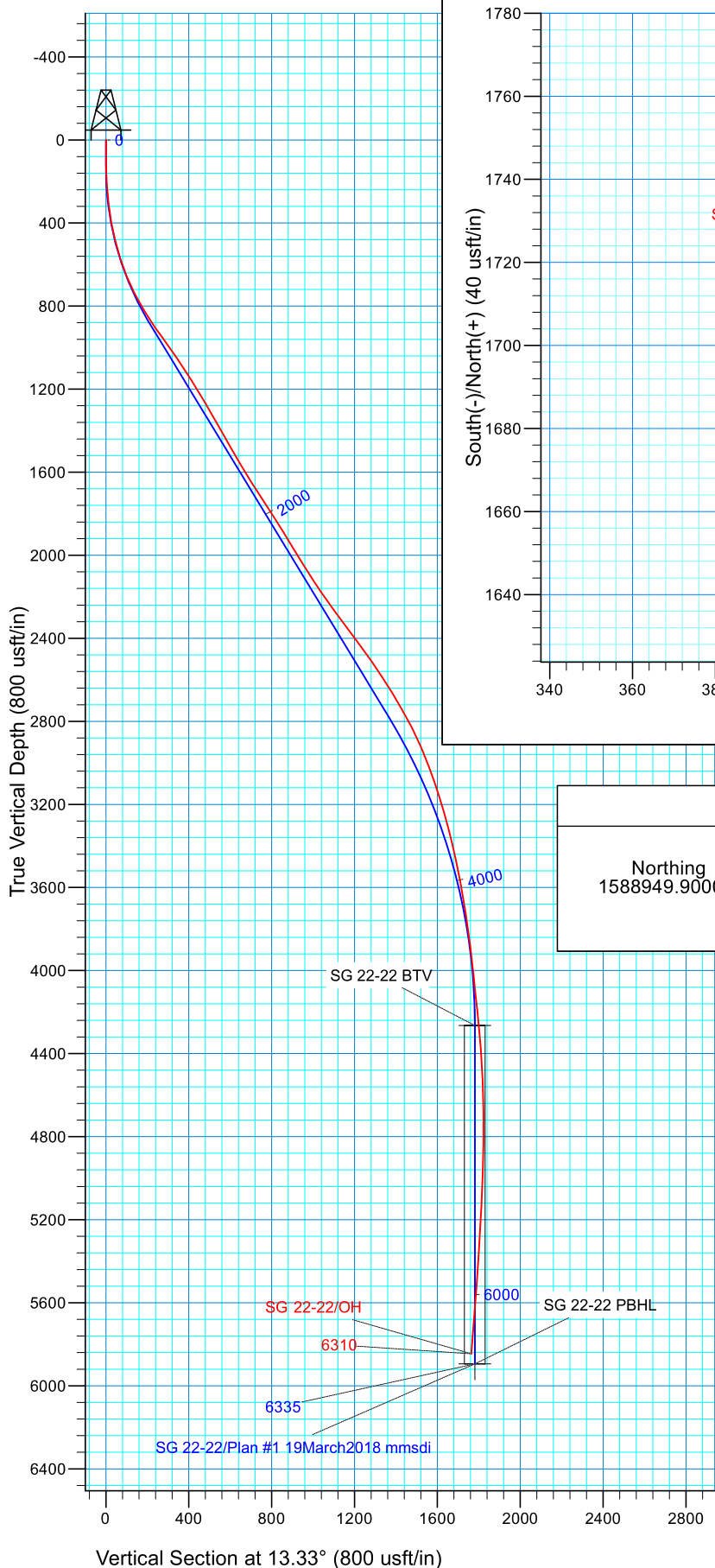
Date

Seth M. Burstad

Rockies Region Well Planner
Scientific Drilling - Rocky Mountain District



Project: Garfield County, CO NAD83
Site: SG 23-22 Pad
Well: SG 22-22
Wellbore: OH
Design: OH



WELL DETAILS: SG 22-22

GL 5665' & RKB 24' @ 5689.00usft5665.00
Northing Easting Latitude Longitude
1588949.9000 2265672.2000 39.4215844 -108.0997560

PROJECT DETAILS: Garfield County, CO NAD83

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

REFERENCE INFORMATION

Co-ordinate (N/E) Reference: Well SG 22-22 - Slot SG 22-22 (B2), True North
Vertical (TVD) Reference: GL 5665' & RKB 24' @ 5689.00usft
Section (VS) Reference: Slot - SG 22-22 (B2)(0.00N, 0.00E)
Measured Depth Reference: GL 5665' & RKB 24' @ 5689.00usft
Calculation Method: Minimum Curvature
Local North: True
Location:

TEP Rocky Mountain LLC

Garfield County, CO NAD83

SG 23-22 Pad

SG 22-22 - Slot SG 22-22 (B2)

OH

Design: OH

Standard Survey Report

22 March, 2020



Scientific Drilling, Intl

Survey Report

Company:	TEP Rocky Mountain LLC	Local Co-ordinate Reference:	Well SG 22-22 - Slot SG 22-22 (B2)
Project:	Garfield County, CO NAD83	TVD Reference:	GL 5665' & RKB 24' @ 5689.00usft
Site:	SG 23-22 Pad	MD Reference:	GL 5665' & RKB 24' @ 5689.00usft
Well:	SG 22-22	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Grand Junction

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		SG 23-22 Pad			
Site Position:		Northing:	1,588,957.4000 usft	Latitude:	39.4216042
From:	Map	Easting:	2,265,662.2000 usft	Longitude:	-108.0997922
Position Uncertainty:	0.00 usft	Slot Radius:	13.20 in	Grid Convergence:	-1.64 °

Well	SG 22-22 - Slot SG 22-22 (B2)					
Well Position	+N/-S	0.00 usft	Northing:	1,588,949.9000 usft	Latitude:	39.4215844
	+E/-W	0.00 usft	Easting:	2,265,672.2000 usft	Longitude:	-108.0997561
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	5,665.00 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	3/19/2018	9.47	65.62	51,729.10000000

Design	OH				
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	13.33	

Survey Program	Date	3/22/2020			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
122.00	950.00	Survey #1 - Surface Gyro Survey (OH)	Gyro MWD 105	Gyro MWD Error Model Ver 1.0.5	
1,075.00	6,310.00	Survey #2 - Production MWD Survey (OH)	MWD+HDGM	OWSG MWD + HDGM	

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	
122.00	0.70	33.57	122.00	0.62	0.41	0.70	0.57	0.57	0.00	
First SDI Gyro Surface Survey										
213.00	3.87	10.90	212.91	4.10	1.30	4.29	3.56	3.48	-24.91	
304.00	6.51	10.37	303.53	12.19	2.81	12.51	2.90	2.90	-0.58	
395.00	9.77	13.71	393.60	24.77	5.57	25.39	3.62	3.58	3.67	
486.00	13.90	10.11	482.65	43.04	9.32	44.03	4.61	4.54	-3.96	
576.00	17.68	9.67	569.24	67.16	13.51	68.47	4.20	4.20	-0.49	
667.00	22.08	12.48	654.80	97.50	19.53	99.38	4.95	4.84	3.09	
761.00	27.54	16.61	740.10	135.61	29.57	138.77	6.09	5.81	4.39	

Scientific Drilling, Intl

Survey Report

Company:	TEP Rocky Mountain LLC	Local Co-ordinate Reference:	Well SG 22-22 - Slot SG 22-22 (B2)
Project:	Garfield County, CO NAD83	TVD Reference:	GL 5665' & RKB 24' @ 5689.00usft
Site:	SG 23-22 Pad	MD Reference:	GL 5665' & RKB 24' @ 5689.00usft
Well:	SG 22-22	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Grand Junction

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)
856.00	31.41	15.21	822.79	180.56	42.35	185.46	4.14	4.07	-1.47
950.00	34.57	13.36	901.62	230.16	54.94	236.62	3.53	3.36	-1.97
Last SDI Gyro Surface Survey									
1,075.00	36.03	11.47	1,003.64	300.69	70.45	308.84	1.46	1.17	-1.51
First SDI MWD Production Survey									
1,170.00	33.92	14.84	1,081.49	353.71	82.80	363.27	3.01	-2.22	3.55
1,264.00	31.84	15.58	1,160.42	402.95	96.17	414.27	2.25	-2.21	0.79
1,358.00	31.12	16.60	1,240.59	450.12	109.77	463.30	0.95	-0.77	1.09
1,453.00	29.99	17.00	1,322.40	496.35	123.73	511.50	1.21	-1.19	0.42
1,547.00	29.84	15.51	1,403.87	541.35	136.85	558.32	0.81	-0.16	-1.59
1,642.00	29.83	15.11	1,486.28	586.94	149.33	605.55	0.21	-0.01	-0.42
1,736.00	30.62	13.49	1,567.50	632.79	161.01	652.86	1.21	0.84	-1.72
1,830.00	32.92	15.56	1,647.42	680.68	173.45	702.33	2.71	2.45	2.20
1,924.00	32.80	15.95	1,726.38	729.77	187.30	753.29	0.26	-0.13	0.41
2,019.00	32.75	15.41	1,806.25	779.28	201.20	804.67	0.31	-0.05	-0.57
2,113.00	31.65	13.89	1,885.80	827.73	213.87	854.74	1.45	-1.17	-1.62
2,208.00	31.32	14.29	1,966.81	875.86	225.95	904.36	0.41	-0.35	0.42
2,301.00	32.21	13.45	2,045.88	923.39	237.68	953.31	1.07	0.96	-0.90
2,396.00	33.24	12.68	2,125.80	973.42	249.29	1,004.67	1.17	1.08	-0.81
2,490.00	34.63	11.59	2,203.79	1,024.72	260.31	1,057.13	1.61	1.48	-1.16
2,585.00	37.16	15.71	2,280.75	1,078.80	273.51	1,112.79	3.68	2.66	4.34
2,679.00	36.55	15.05	2,355.97	1,133.16	288.46	1,169.14	0.77	-0.65	-0.70
2,774.00	36.26	14.42	2,432.43	1,187.68	302.80	1,225.50	0.50	-0.31	-0.66
2,869.00	35.33	14.22	2,509.48	1,241.52	316.55	1,281.06	0.99	-0.98	-0.21
2,963.00	33.15	15.56	2,587.19	1,292.63	330.12	1,333.92	2.45	-2.32	1.43
3,057.00	31.40	17.84	2,666.66	1,340.71	344.52	1,384.02	2.27	-1.86	2.43
3,151.00	30.00	18.05	2,747.49	1,386.36	359.30	1,431.85	1.49	-1.49	0.22
3,246.00	27.11	19.82	2,830.92	1,429.32	374.00	1,477.04	3.17	-3.04	1.86
3,340.00	24.03	22.06	2,915.71	1,467.22	388.46	1,517.25	3.43	-3.28	2.38
3,435.00	21.12	21.73	3,003.42	1,501.05	402.06	1,553.31	3.07	-3.06	-0.35
3,529.00	19.29	20.09	3,091.63	1,531.37	413.67	1,585.48	2.04	-1.95	-1.74
3,624.00	17.43	18.69	3,181.79	1,559.58	423.62	1,615.23	2.01	-1.96	-1.47
3,718.00	15.63	20.80	3,271.91	1,584.76	432.62	1,641.81	2.02	-1.91	2.24
3,813.00	13.90	14.63	3,363.77	1,607.77	440.05	1,665.91	2.46	-1.82	-6.49
3,907.00	11.55	11.80	3,455.46	1,627.91	444.83	1,686.61	2.59	-2.50	-3.01
4,002.00	10.83	12.40	3,548.65	1,645.93	448.69	1,705.04	0.77	-0.76	0.63
4,096.00	10.11	15.92	3,641.09	1,662.49	452.85	1,722.11	1.02	-0.77	3.74
4,190.00	9.10	14.03	3,733.77	1,677.64	456.92	1,737.78	1.13	-1.07	-2.01
4,284.00	8.31	10.91	3,826.68	1,691.52	460.00	1,752.00	0.98	-0.84	-3.32
4,379.00	6.28	8.67	3,920.91	1,703.40	462.09	1,764.04	2.16	-2.14	-2.36
4,473.00	5.73	17.81	4,014.40	1,712.95	464.30	1,773.85	1.17	-0.59	9.72
4,568.00	6.24	17.71	4,108.88	1,722.38	467.32	1,783.72	0.54	0.54	-0.11
4,662.00	5.89	14.98	4,202.35	1,731.91	470.12	1,793.64	0.48	-0.37	-2.90

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Survey Report

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Project:	Garfield County, CO NAD83	TVD Reference:	GL 5665' & RKB 24' @ 5689.00usft
Site:	SG 23-22 Pad	MD Reference:	GL 5665' & RKB 24' @ 5689.00usft
Well:	SG 22-22	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Grand Junction

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)	
4,757.00	5.40	15.93	4,296.89	1,740.92	472.60	1,802.97	0.53	-0.52	1.00	
4,850.00	4.26	16.09	4,389.56	1,748.44	474.76	1,810.80	1.23	-1.23	0.17	
4,945.00	2.81	5.20	4,484.38	1,754.15	475.95	1,816.63	1.68	-1.53	-11.46	
5,039.00	1.96	340.16	4,578.30	1,757.96	475.62	1,820.25	1.41	-0.90	-26.64	
5,134.00	1.62	310.90	4,673.25	1,760.37	474.05	1,822.23	1.01	-0.36	-30.80	
5,228.00	1.39	287.56	4,767.22	1,761.58	471.96	1,822.93	0.69	-0.24	-24.83	
5,323.00	1.94	264.71	4,862.18	1,761.78	469.26	1,822.51	0.90	0.58	-24.05	
5,417.00	2.50	243.46	4,956.11	1,760.72	465.84	1,820.68	1.05	0.60	-22.61	
5,512.00	3.47	238.95	5,050.98	1,758.31	461.52	1,817.34	1.05	1.02	-4.75	
5,606.00	4.66	238.95	5,144.74	1,754.87	455.81	1,812.68	1.27	1.27	0.00	
5,701.00	4.76	235.48	5,239.42	1,750.65	449.26	1,807.06	0.32	0.11	-3.65	
5,795.00	4.28	228.76	5,333.13	1,746.12	443.41	1,801.31	0.76	-0.51	-7.15	
5,890.00	5.03	232.46	5,427.82	1,741.25	437.44	1,795.19	0.85	0.79	3.89	
5,983.00	5.13	232.55	5,520.45	1,736.24	430.91	1,788.81	0.11	0.11	0.10	
6,077.00	5.43	230.36	5,614.05	1,730.84	424.15	1,782.00	0.38	0.32	-2.33	
6,172.00	5.57	230.87	5,708.62	1,725.07	417.11	1,774.76	0.16	0.15	0.54	
Last SDI MWD Production Survey										
6,310.00	5.57	230.87	5,845.96	1,716.61	406.72	1,764.14	0.00	0.00	0.00	
Projection to TD										

Design Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
122.00	122.00	0.62	0.41	First SDI Gyro Surface Survey	
950.00	901.62	230.16	54.94	Last SDI Gyro Surface Survey	
1,075.00	1,003.64	300.69	70.45	First SDI MWD Production Survey	
6,172.00	5,708.62	1,725.07	417.11	Last SDI MWD Production Survey	
6,310.00	5,845.96	1,716.61	406.72	Projection to TD	

Checked By: _____ Approved By: _____ Date: _____