



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 12-22
API #	05-045-24011
County & State	Garfield County, CO
SDI Job #	OP.024358
Rig	H&P 318
Survey Date	10-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 6438 feet is true and correct as determined from all available records.

Seth M. Burstad

Signature

18-Mar-2020

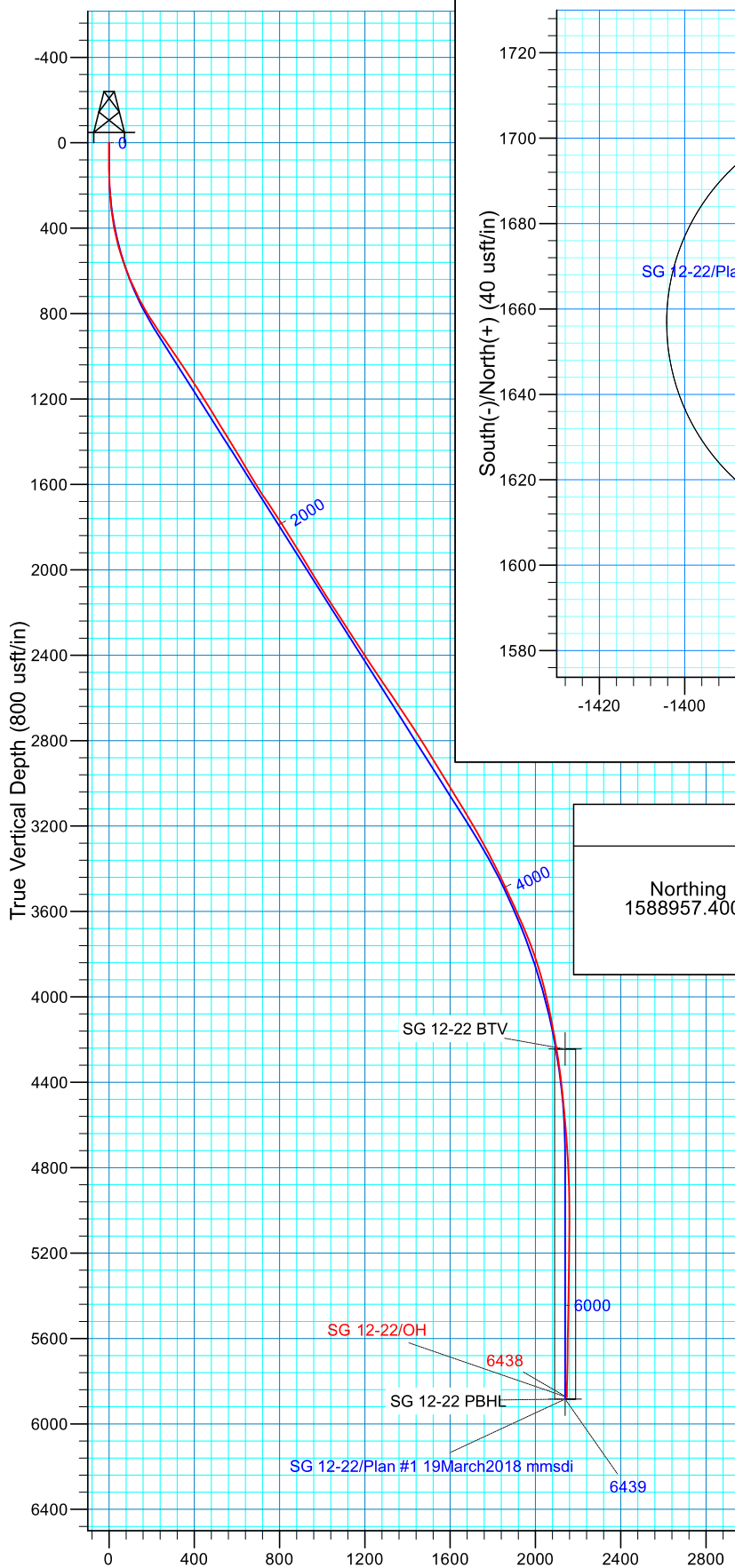
Date

Seth M. Burstad

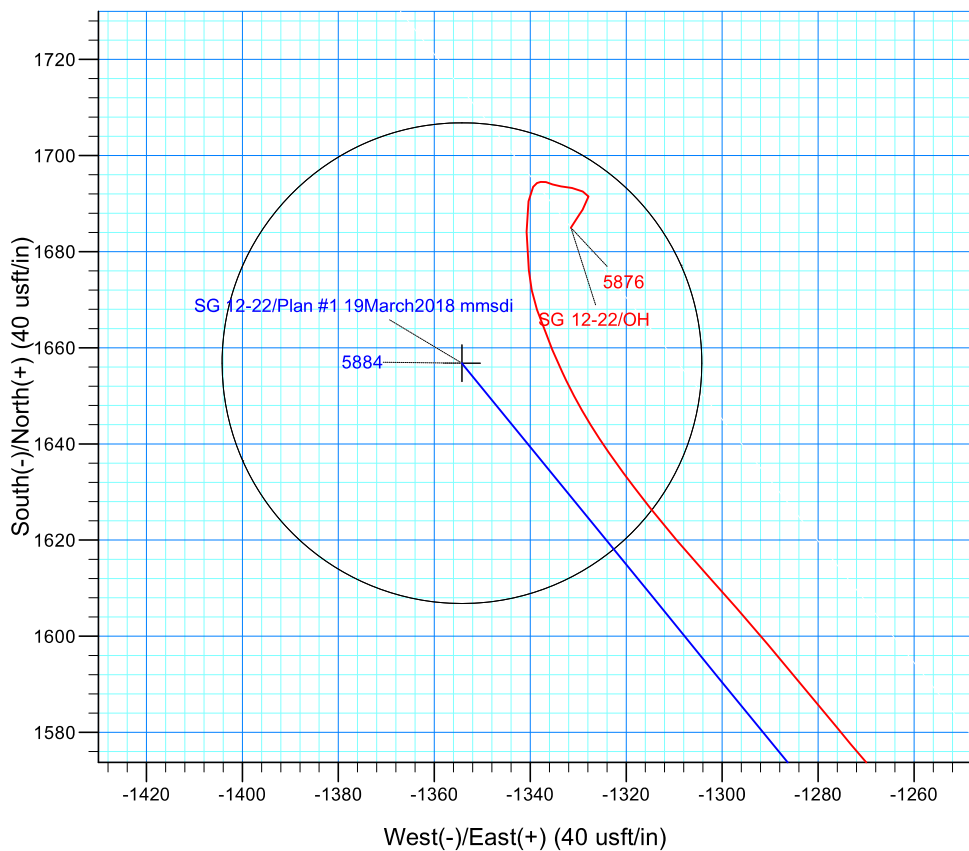
Rockies Region Well Planner
Scientific Drilling - Rocky Mountain District



Project: Garfield County, CO NAD83
Site: SG 23-22 Pad
Well: SG 12-22
Wellbore: OH
Design: OH



Vertical Section at 321.68° (800 usft/in)



WELL DETAILS: SG 12-22

GL 5665' & RKB 24' @ 5689.00usft5665.00
Northing Easting Latitude Longitude
1588957.4000 2265662.2000 39.4216042 -108.0997922

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 12-22 - Slot SG 12-22 (A1), True North
Vertical (TVD) Reference: GL 5665' & RKB 24' @ 5689.00usft
Section (VS) Reference: Slot - SG 12-22 (A1)(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 12-22 - Slot SG 12-22 (A1)**

OH

Design: OH

Standard Survey Report

18 March, 2020



Scientific Drilling, Intl

Survey Report

Company:	TEP Rocky Mountain LLC	Local Co-ordinate Reference:	Well SG 12-22 - Slot SG 12-22 (A1)
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 12-22	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 12-22 - Slot SG 12-22 (A1)					
Well Position	+N/-S	0.00 usft	Northing:	1,588,957.4000 usft	Latitude:	39.4216042
	+E/-W	0.00 usft	Easting:	2,265,662.2000 usft	Longitude:	-108.0997922
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_FILE	3/13/2019	9.37	65.58	51,624.30000000

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	321.68	

Survey Program	Date	3/18/2020			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
123.00	486.00	Survey #1 - Surface Gyro Survey (OH)	Gyro MWD 105	Gyro MWD Error Model Ver 1.0.5	
557.00	648.00	Survey #2 - Surface MWD Survey (OH)	MWD+HDGM	OWSG MWD + HDGM	
761.00	761.00	Survey #3 - Surface Gyro Survey 2 (OH)	Gyro MWD 105	Gyro MWD Error Model Ver 1.0.5	
836.00	931.00	Survey #4 - Surface MWD Survey 2 (OH)	MWD+HDGM	OWSG MWD + HDGM	
1,075.00	6,438.00	Survey #5 - 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	
123.00	0.44	282.74	123.00	0.10	-0.46	0.37	0.36	0.36	0.00	
First SDI Gyro Surface Survey										
213.00	3.34	326.95	212.94	2.38	-2.23	3.25	3.38	3.22	49.12	
304.00	6.25	335.92	303.62	9.12	-5.70	10.69	3.29	3.20	9.86	
395.00	10.12	330.29	393.67	20.60	-11.68	23.40	4.34	4.25	-6.19	
486.00	15.40	327.22	482.39	37.71	-22.19	43.35	5.85	5.80	-3.37	

Scientific Drilling, Intl

Survey Report

Company:	TEP Rocky Mountain LLC	Local Co-ordinate Reference:	Well SG 12-22 - Slot SG 12-22 (A1)
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 12-22	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)	
557.00	18.74	325.24	550.26	55.01	-33.80	64.12	4.77	4.70	-2.79	
First SDI MWD Surface Survey										
648.00	22.59	322.27	635.39	80.85	-52.84	96.20	4.38	4.23	-3.26	
761.00	27.89	320.54	737.57	118.45	-82.94	144.36	4.74	4.69	-1.53	
Last SDI Surface Gyro Survey										
836.00	31.39	321.69	802.74	147.33	-106.20	181.44	4.73	4.67	1.53	
931.00	34.32	327.49	882.56	189.35	-135.95	232.85	4.52	3.08	6.11	
Last SDI MWD Surface Survey										
1,075.00	35.16	327.60	1,000.89	258.59	-179.98	314.48	0.58	0.58	0.08	
1,170.00	33.96	325.96	1,079.12	303.68	-209.50	368.15	1.60	-1.26	-1.73	
1,264.00	32.25	325.14	1,157.86	346.01	-238.53	419.37	1.88	-1.82	-0.87	
1,359.00	30.98	325.07	1,238.76	386.86	-267.02	469.08	1.34	-1.34	-0.07	
1,453.00	31.74	323.36	1,319.03	426.54	-295.63	517.95	1.24	0.81	-1.82	
1,548.00	32.58	321.85	1,399.46	466.70	-326.34	568.51	1.22	0.88	-1.59	
1,642.00	30.28	319.76	1,479.66	504.70	-357.29	617.51	2.71	-2.45	-2.22	
1,736.00	30.59	318.92	1,560.71	540.82	-388.31	665.08	0.56	0.33	-0.89	
1,831.00	32.62	322.08	1,641.62	579.25	-419.94	714.84	2.76	2.14	3.33	
1,925.00	34.47	323.22	1,719.96	620.54	-451.44	766.77	2.08	1.97	1.21	
2,019.00	33.07	322.41	1,798.10	662.17	-483.01	819.01	1.56	-1.49	-0.86	
2,114.00	30.67	318.93	1,878.78	700.99	-514.75	869.14	3.18	-2.53	-3.66	
2,208.00	32.00	316.09	1,959.07	737.01	-547.78	917.88	2.11	1.41	-3.02	
2,302.00	30.75	316.35	2,039.32	772.34	-581.64	966.60	1.34	-1.33	0.28	
2,396.00	32.98	318.36	2,119.16	808.85	-615.23	1,016.07	2.63	2.37	2.14	
2,490.00	33.24	319.67	2,197.89	847.62	-648.90	1,067.36	0.81	0.28	1.39	
2,585.00	33.09	319.34	2,277.42	887.14	-682.65	1,119.29	0.25	-0.16	-0.35	
2,680.00	32.45	319.01	2,357.30	926.05	-716.27	1,170.66	0.70	-0.67	-0.35	
2,774.00	34.39	319.82	2,435.75	965.37	-749.94	1,222.39	2.12	2.06	0.86	
2,869.00	33.90	320.46	2,514.38	1,006.30	-784.12	1,275.70	0.64	-0.52	0.67	
2,963.00	34.07	320.47	2,592.32	1,046.82	-817.56	1,328.23	0.18	0.18	0.01	
3,057.00	33.79	321.18	2,670.31	1,087.50	-850.71	1,380.69	0.52	-0.30	0.76	
3,152.00	33.25	321.50	2,749.51	1,128.46	-883.48	1,433.15	0.60	-0.57	0.34	
3,246.00	31.78	321.58	2,828.78	1,168.02	-914.91	1,483.67	1.56	-1.56	0.09	
3,340.00	30.87	320.50	2,909.08	1,206.03	-945.63	1,532.54	1.14	-0.97	-1.15	
3,435.00	32.07	319.97	2,990.10	1,244.14	-977.35	1,582.12	1.30	1.26	-0.56	
3,530.00	31.10	319.50	3,071.03	1,282.11	-1,009.51	1,631.84	1.05	-1.02	-0.49	
3,624.00	30.93	319.38	3,151.59	1,318.91	-1,041.00	1,680.24	0.19	-0.18	-0.13	
3,718.00	30.90	319.50	3,232.23	1,355.60	-1,072.41	1,728.50	0.07	-0.03	0.13	
3,813.00	27.49	318.99	3,315.15	1,390.71	-1,102.65	1,774.79	3.60	-3.59	-0.54	
3,907.00	25.69	317.80	3,399.21	1,422.17	-1,130.57	1,816.79	2.00	-1.91	-1.27	
4,002.00	25.65	317.11	3,484.83	1,452.49	-1,158.40	1,857.83	0.32	-0.04	-0.73	
4,096.00	25.11	316.08	3,569.76	1,481.76	-1,186.08	1,897.96	0.74	-0.57	-1.10	
4,190.00	23.20	317.21	3,655.53	1,509.72	-1,212.49	1,936.27	2.09	-2.03	1.20	
4,285.00	21.63	317.80	3,743.35	1,536.43	-1,236.97	1,972.40	1.67	-1.65	0.62	
4,379.00	18.88	318.67	3,831.52	1,560.68	-1,258.65	2,004.88	2.94	-2.93	0.93	

Scientific Drilling, Intl

Survey Report

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Site:	SG 23-22 Pad	MD Reference:	GL 5665' & RKB 24' @ 5689.00usft
Well:	SG 12-22	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)	
4,473.00	14.58	320.44	3,921.53	1,581.24	-1,276.24	2,031.91	4.61	-4.57	1.88	
4,568.00	12.55	319.88	4,013.87	1,598.35	-1,290.51	2,054.18	2.14	-2.14	-0.59	
4,662.00	11.55	317.67	4,105.80	1,613.12	-1,303.43	2,073.78	1.17	-1.06	-2.35	
4,757.00	10.26	321.71	4,199.08	1,626.79	-1,315.07	2,091.73	1.58	-1.36	4.25	
4,851.00	8.28	325.33	4,291.85	1,638.93	-1,324.11	2,106.85	2.19	-2.11	3.85	
4,945.00	7.30	332.62	4,384.98	1,649.80	-1,330.71	2,119.47	1.48	-1.04	7.76	
5,040.00	5.80	336.75	4,479.36	1,659.57	-1,335.38	2,130.03	1.65	-1.58	4.35	
5,134.00	5.16	341.67	4,572.93	1,667.94	-1,338.58	2,138.59	0.84	-0.68	5.23	
5,229.00	5.04	355.20	4,667.56	1,676.16	-1,340.28	2,146.09	1.27	-0.13	14.24	
5,323.00	4.74	358.49	4,761.22	1,684.16	-1,340.72	2,152.64	0.44	-0.32	3.50	
5,418.00	2.96	11.22	4,856.00	1,690.49	-1,340.35	2,157.38	2.07	-1.87	13.40	
5,512.00	0.97	38.65	4,949.94	1,693.49	-1,339.38	2,159.13	2.28	-2.12	29.18	
5,606.00	0.45	60.05	5,043.94	1,694.29	-1,338.56	2,159.26	0.61	-0.55	22.77	
5,701.00	0.54	79.94	5,138.93	1,694.56	-1,337.80	2,158.99	0.20	0.09	20.94	
5,795.00	0.82	102.03	5,232.93	1,694.50	-1,336.71	2,158.26	0.40	0.30	23.50	
5,890.00	1.00	115.25	5,327.91	1,694.00	-1,335.29	2,157.00	0.29	0.19	13.92	
5,983.00	1.23	94.44	5,420.90	1,693.58	-1,333.56	2,155.59	0.50	0.25	-22.38	
6,078.00	1.59	100.81	5,515.87	1,693.25	-1,331.25	2,153.90	0.41	0.38	6.71	
6,172.00	1.28	115.27	5,609.84	1,692.56	-1,329.02	2,151.98	0.50	-0.33	15.38	
6,266.00	0.78	157.28	5,703.82	1,691.52	-1,327.82	2,150.42	0.93	-0.53	44.69	
6,360.00	3.24	214.22	5,797.76	1,688.73	-1,329.07	2,149.01	3.07	2.62	60.57	
6,378.00	3.25	213.18	5,815.74	1,687.88	-1,329.64	2,148.69	0.33	0.06	-5.78	
Last SDI MWD Production Survey										
6,438.00	3.25	213.18	5,875.64	1,685.04	-1,331.50	2,147.61	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	
123.00	123.00	0.10	-0.46	First SDI Gyro Surface Survey	
557.00	550.26	55.01	-33.80	First SDI MWD Surface Survey	
761.00	737.57	118.45	-82.94	Last SDI Surface Gyro Survey	
931.00	882.56	189.35	-135.95	Last SDI MWD Surface Survey	
6,378.00	5,815.74	1,687.88	-1,329.64	Last SDI MWD Production Survey	
6,438.00	5,875.64	1,685.04	-1,331.50	Projection to TD	

Checked By: _____ Approved By: _____ Date: _____