



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 312-22
API #	05-045-24013
County & State	Garfield County, CO
SDI Job #	OP.024409
Rig	H&P 318
Survey Date	17-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 6311 feet is true and correct as determined from all available records.

A handwritten signature in blue ink that reads 'Seth M. Burstad'.

Signature

20-Mar-2020

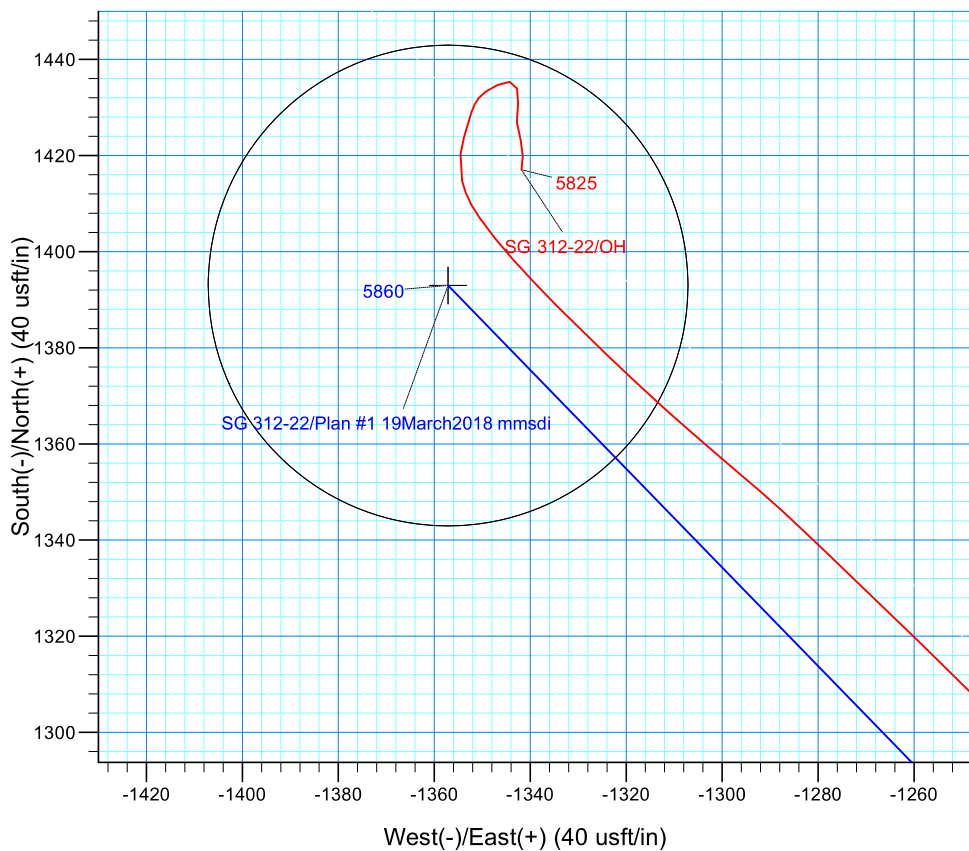
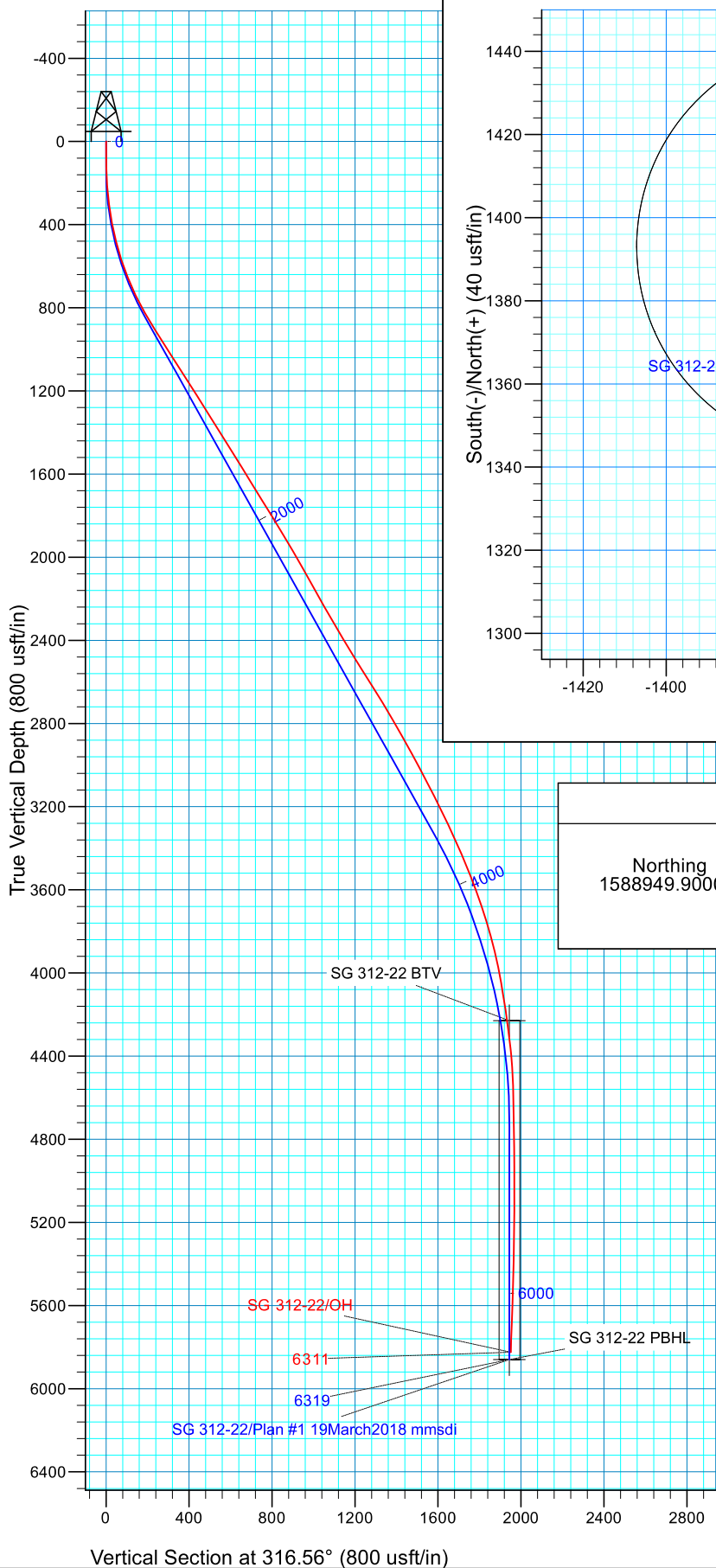
Date

Seth M. Burstad

Rockies Region Well Planner
Scientific Drilling - Rocky Mountain District



Project: Garfield County, CO NAD83
Site: SG 23-22 Pad
Well: SG 312-22
Wellbore: OH
Design: OH



WELL DETAILS: SG 312-22

GL 5665' & RKB 24' @ 5689.00usft5665.00			
Northing	Easting	Latitude	Longitude
1588949.9000	2265662.2000	39.4215836	-108.0997914

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 312-22 - Slot SG 312-22 (A2), True North
Vertical (TVD) Reference: GL 5665' & RKB 24' @ 5689.00usft
Section (VS) Reference: Slot - SG 312-22 (A2)(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 312-22 - Slot SG 312-22 (A2)

OH

Design: OH

Standard Survey Report

20 March, 2020



Scientific Drilling, Intl

Survey Report

Company:	TEP Rocky Mountain LLC	Local Co-ordinate Reference:	Well SG 312-22 - Slot SG 312-22 (A2)
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 312-22	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 312-22 - Slot SG 312-22 (A2)					
Well Position	+N/-S	0.00 usft	Northing:	1,588,949.9000 usft	Latitude:	39.4215837
	+E/-W	0.00 usft	Easting:	2,265,662.2000 usft	Longitude:	-108.0997915
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	3/17/2020	9.27	65.55	51,518.20000000

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	316.56	

Survey Program	Date	3/20/2020			
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	6,311.00	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	1.06	343.83	121.99	1.08	-0.31	1.00	0.87	0.87	0.00	
First SDI Gyro Surface Survey										
213.00	4.40	325.11	212.88	4.76	-2.55	5.20	3.75	3.67	-20.57	
304.00	7.57	322.03	303.37	12.35	-8.23	14.63	3.50	3.48	-3.38	
395.00	10.38	317.99	393.25	23.17	-17.41	28.79	3.16	3.09	-4.44	
486.00	14.34	318.43	482.12	37.69	-30.38	48.26	4.35	4.35	0.48	
576.00	18.12	314.03	568.52	55.77	-47.84	73.39	4.41	4.20	-4.89	
667.00	21.82	319.39	654.04	78.45	-69.03	104.43	4.53	4.07	5.89	
761.00	26.13	325.90	739.93	108.87	-92.02	142.33	5.37	4.59	6.93	

Scientific Drilling, Intl

Survey Report

Company:	TEP Rocky Mountain LLC	Local Co-ordinate Reference:	Well SG 312-22 - Slot SG 312-22 (A2)
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 312-22	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)
855.00	29.91	324.67	822.90	145.15	-117.19	185.97	4.07	4.02	-1.31
950.00	32.02	321.33	904.36	184.14	-146.63	234.53	2.86	2.22	-3.52
Last SDI Gyro Surface Survey									
1,075.00	32.99	319.30	1,009.78	235.82	-189.53	301.55	1.17	0.78	-1.62
First SDI MWD Production Survey									
1,170.00	32.72	319.41	1,089.58	274.92	-223.10	353.02	0.29	-0.28	0.12
1,264.00	32.16	317.19	1,168.92	312.57	-256.63	403.42	1.40	-0.60	-2.36
1,358.00	32.51	314.71	1,248.34	348.69	-291.59	453.68	1.46	0.37	-2.64
1,453.00	32.20	314.36	1,328.59	384.35	-327.83	504.49	0.38	-0.33	-0.37
1,547.00	32.20	313.23	1,408.14	419.02	-363.98	554.52	0.64	0.00	-1.20
1,642.00	31.99	312.12	1,488.62	453.23	-401.09	604.88	0.66	-0.22	-1.17
1,736.00	31.93	310.32	1,568.37	486.02	-438.51	654.41	1.02	-0.06	-1.91
1,830.00	31.75	309.81	1,648.23	517.93	-476.46	703.68	0.34	-0.19	-0.54
1,924.00	32.06	308.40	1,728.03	549.27	-515.01	752.94	0.86	0.33	-1.50
2,019.00	32.10	310.84	1,808.53	581.44	-553.87	803.02	1.36	0.04	2.57
2,113.00	30.77	311.83	1,888.73	613.81	-590.68	851.83	1.52	-1.41	1.05
2,208.00	30.67	313.92	1,970.40	646.82	-626.25	900.26	1.13	-0.11	2.20
2,301.00	29.53	315.96	2,050.86	679.75	-659.26	946.87	1.65	-1.23	2.19
2,396.00	29.40	316.49	2,133.57	713.49	-691.59	993.60	0.31	-0.14	0.56
2,490.00	29.40	315.59	2,215.47	746.71	-723.62	1,039.74	0.47	0.00	-0.96
2,585.00	29.89	314.90	2,298.03	780.07	-756.71	1,086.72	0.63	0.52	-0.73
2,679.00	30.95	317.19	2,379.09	814.34	-789.73	1,134.30	1.67	1.13	2.44
2,774.00	31.52	316.72	2,460.32	850.34	-823.35	1,183.56	0.65	0.60	-0.49
2,869.00	31.97	319.61	2,541.11	887.58	-856.68	1,233.51	1.67	0.47	3.04
2,963.00	32.31	318.85	2,620.71	925.45	-889.33	1,283.46	0.56	0.36	-0.81
3,057.00	31.27	321.35	2,700.61	963.42	-921.10	1,332.88	1.79	-1.11	2.66
3,151.00	30.83	320.98	2,781.14	1,001.19	-951.51	1,381.21	0.51	-0.47	-0.39
3,246.00	29.45	320.88	2,863.30	1,038.22	-981.57	1,428.77	1.45	-1.45	-0.11
3,340.00	28.56	318.90	2,945.51	1,073.08	-1,010.92	1,474.26	1.39	-0.95	-2.11
3,435.00	27.40	315.49	3,029.41	1,105.79	-1,041.18	1,518.81	2.08	-1.22	-3.59
3,529.00	27.27	314.88	3,112.91	1,136.41	-1,071.60	1,561.97	0.33	-0.14	-0.65
3,624.00	26.84	313.76	3,197.51	1,166.60	-1,102.51	1,605.14	0.70	-0.45	-1.18
3,718.00	26.08	312.06	3,281.67	1,195.12	-1,133.18	1,646.94	1.14	-0.81	-1.81
3,813.00	24.57	312.40	3,367.54	1,222.43	-1,163.27	1,687.45	1.60	-1.59	0.36
3,907.00	22.77	315.21	3,453.63	1,248.52	-1,190.52	1,725.14	2.26	-1.91	2.99
4,002.00	21.10	316.70	3,541.75	1,274.01	-1,215.20	1,760.62	1.85	-1.76	1.57
4,096.00	19.13	316.05	3,630.01	1,297.42	-1,237.50	1,792.94	2.11	-2.10	-0.69
4,190.00	17.88	313.86	3,719.15	1,318.50	-1,258.59	1,822.76	1.52	-1.33	-2.33
4,284.00	16.19	313.95	3,809.02	1,337.60	-1,278.43	1,850.27	1.80	-1.80	0.10
4,379.00	13.31	310.11	3,900.88	1,353.84	-1,296.34	1,874.37	3.20	-3.03	-4.04
4,473.00	11.10	311.71	3,992.75	1,366.83	-1,311.37	1,894.14	2.38	-2.35	1.70
4,568.00	9.63	314.05	4,086.20	1,378.44	-1,323.91	1,911.19	1.61	-1.55	2.46
4,662.00	8.47	314.72	4,179.03	1,388.78	-1,334.48	1,925.97	1.24	-1.23	0.71

Scientific Drilling, Intl

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 312-22	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	7.54	318.55	4,273.10	1,398.38	-1,343.57	1,939.19	1.13	-0.98	4.03	
4,850.00	6.20	324.62	4,365.43	1,407.04	-1,350.52	1,950.26	1.64	-1.44	6.53	
4,945.00	4.33	349.20	4,460.04	1,414.75	-1,354.16	1,958.36	3.04	-1.97	25.87	
5,039.00	2.55	9.45	4,553.87	1,420.30	-1,354.49	1,962.61	2.26	-1.89	21.54	
5,134.00	1.82	14.07	4,648.80	1,423.85	-1,353.77	1,964.70	0.79	-0.77	4.86	
5,228.00	1.76	18.41	4,742.76	1,426.67	-1,352.95	1,966.18	0.16	-0.06	4.62	
5,323.00	1.24	14.93	4,837.72	1,429.04	-1,352.23	1,967.41	0.56	-0.55	-3.66	
5,417.00	0.95	32.44	4,931.71	1,430.68	-1,351.55	1,968.13	0.47	-0.31	18.63	
5,512.00	0.94	33.71	5,026.69	1,432.00	-1,350.69	1,968.50	0.02	-0.01	1.34	
5,606.00	1.40	56.37	5,120.67	1,433.27	-1,349.31	1,968.47	0.69	0.49	24.11	
5,701.00	2.12	64.12	5,215.63	1,434.68	-1,346.76	1,967.74	0.80	0.76	8.16	
5,795.00	1.17	97.06	5,309.59	1,435.32	-1,344.25	1,966.48	1.39	-1.01	35.04	
5,890.00	1.60	156.21	5,404.57	1,433.99	-1,342.75	1,964.48	1.49	0.45	62.26	
5,983.00	2.43	188.58	5,497.51	1,430.85	-1,342.52	1,962.04	1.48	0.89	34.81	
6,077.00	2.33	178.71	5,591.43	1,426.97	-1,342.77	1,959.40	0.45	-0.11	-10.50	
6,172.00	2.33	157.82	5,686.35	1,423.25	-1,342.00	1,956.17	0.89	0.00	-21.99	
6,251.00	2.73	185.05	5,765.28	1,419.89	-1,341.56	1,953.43	1.59	0.51	34.47	
Last SDI MWD Production Survey										
6,311.00	2.73	185.05	5,825.21	1,417.05	-1,341.81	1,951.53	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	121.99	1.08	-0.31	First SDI Gyro Surface Survey	
950.00	904.36	184.14	-146.63	Last SDI Gyro Surface Survey	
1,075.00	1,009.78	235.82	-189.53	First SDI MWD Production Survey	
6,251.00	5,765.28	1,419.89	-1,341.56	Last SDI MWD Production Survey	
6,311.00	5,825.21	1,417.05	-1,341.81	Projection to TD	

Checked By: _____ Approved By: _____ Date: _____