



Terra Energy Partners, LLP

Garfield County, CO

Sec 20, T6S, R96W

CHEVRON GM 3219

Wellbore #1

Design: Wellbore #1

QES Survey Certification Report

25 December, 2020



Quintana Energy Services

11390 FM 830
Willis, TX 77318
Phone: (936) 856-4332
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Survey Certification Sheet

Company	Job Number	Date
TEP Rocky Mountain, LLC	RM-200871	12/25/2020

Lease	Well Name	County & State
SWNW Sec 20 T6S R96W	GM 32-19	Garfield, Colorado

API No.	Survey Depth Range	Survey Type
05-045-24360	976 feet to 7783 feet MD	MWD

Sidetrack Information	Directional Supervisor/Surveyor
Click here to enter text.	Richie Moulton

Certification Statement

The data and calculations for this survey have been checked by me and conform to the standards and procedures set forth by Quintana Energy Services (QES). This report represents a true and correct directional survey of this well based on the original data obtained at the well site. Wellbore coordinates are calculated using minimum curvature.

Kristopher Ray

Digitally signed by Kristopher Ray
DN: cn=Kristopher Ray, o=Regulatory
Compliance Manager, ou=QES DD,
email=kris.ray@qesinc.com, c=US
Date: 2020.12.30 09:40:52 -06'00'

Kristopher Ray
Regulatory Compliance Manager
Quintana Energy Services

Company: Terra Energy Partners, LLP	Local Co-ordinate Reference: Well GM 32-19
Project: Garfield County, CO	TVD Reference: KB=24' @ 5772.40usft (H&P #318)
Site: Sec 20, T6S, R96W	MD Reference: KB=24' @ 5772.40usft (H&P #318)
Well: GM 32-19	North Reference: True
Wellbore: Wellbore #1	Survey Calculation Method: Minimum Curvature
Design: Wellbore #1	Database: EDM 5000.1 Single User Db

Project Garfield County, CO		
Map System: US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum: North American Datum 1983		
Map Zone: Colorado Central Zone		

Site Sec 20, T6S, R96W					
Site Position:		Northing:	1,622,121.83 usft	Latitude:	39.511803
From: Map		Easting:	2,255,366.39 usft	Longitude:	-108.139633
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16"	Grid Convergence:	-1.66 °

Well GM 32-19						
Well Position	+N/-S	0.00 usft	Northing:	1,622,121.83 usft	Latitude:	39.511803
	+E/-W	0.00 usft	Easting:	2,255,366.39 usft	Longitude:	-108.139633
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	5,748.40 usft

Wellbore Wellbore #1					
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM2020	12/14/2020	9.33	65.73	51,358.60000000

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	271.92

Survey Program		Date	12/25/2020		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
117.00	976.00	Surface Gyro's (Wellbore #1)	GYRO-NS	OWSG Gyrocompass Gyro	
1,057.00	7,783.00	QES MWD Surveys (Wellbore #1)	OWSG (REV5) MWD HDGM	OWSG MWD - Standard	

Survey								
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)	
976.00	33.92	273.62	924.80	2.47	-254.07	254.08	270.56	
Gyro Tie In @ 976.00'MD / 924.80' TVD								
1,057.00	36.08	273.09	991.15	5.19	-300.45	300.49	270.99	
1,150.00	38.89	273.35	1,064.94	8.37	-356.95	357.04	271.34	
1,244.00	42.32	272.39	1,136.29	11.41	-418.04	418.19	271.56	
1,338.00	46.23	274.23	1,203.58	15.24	-483.53	483.77	271.81	
1,432.00	50.19	274.23	1,266.21	20.41	-553.41	553.79	272.11	
1,526.00	51.33	273.53	1,325.68	25.33	-626.05	626.56	272.32	
1,619.00	50.76	271.77	1,384.15	28.68	-698.28	698.87	272.35	
1,713.00	49.53	269.93	1,444.39	29.76	-770.43	771.00	272.21	
1,807.00	49.92	269.05	1,505.16	29.12	-842.14	842.65	271.98	

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Well:	GM 32-19	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1 Single User Db

Survey								
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)	
1,901.00	51.06	270.37	1,564.96	28.76	-914.66	915.11	271.80	
1,995.00	51.24	269.31	1,623.93	28.55	-987.86	988.28	271.66	
2,088.00	52.25	270.10	1,681.51	28.18	-1,060.89	1,061.26	271.52	
2,182.00	51.64	271.07	1,739.45	28.93	-1,134.90	1,135.27	271.46	
2,276.00	50.89	270.72	1,798.27	30.08	-1,208.22	1,208.59	271.43	
2,369.00	50.71	271.77	1,857.05	31.65	-1,280.27	1,280.66	271.42	
2,463.00	50.76	272.65	1,916.54	34.45	-1,352.99	1,353.43	271.46	
2,557.00	49.83	271.16	1,976.60	36.86	-1,425.26	1,425.74	271.48	
2,652.00	48.69	270.37	2,038.59	37.83	-1,497.23	1,497.71	271.45	
2,746.00	47.42	268.87	2,101.43	37.37	-1,567.14	1,567.59	271.37	
2,840.00	46.93	271.07	2,165.33	37.33	-1,636.08	1,636.50	271.31	
2,934.00	43.86	270.54	2,231.33	38.28	-1,702.99	1,703.42	271.29	
3,029.00	42.80	272.39	2,300.44	39.94	-1,768.15	1,768.60	271.29	
3,123.00	41.88	273.35	2,369.92	43.10	-1,831.38	1,831.89	271.35	
3,218.00	39.42	273.27	2,441.99	46.68	-1,893.16	1,893.73	271.41	
3,312.00	37.22	272.74	2,515.73	49.74	-1,951.36	1,951.99	271.46	
3,406.00	34.06	272.04	2,592.12	52.03	-2,006.07	2,006.75	271.49	
3,500.00	31.11	268.17	2,671.32	52.20	-2,056.67	2,057.33	271.45	
3,595.00	30.41	270.80	2,752.96	51.75	-2,105.24	2,105.88	271.41	
3,689.00	30.19	274.67	2,834.12	54.00	-2,152.59	2,153.27	271.44	
3,783.00	29.18	273.88	2,915.79	57.48	-2,199.01	2,199.76	271.50	
3,877.00	28.52	276.17	2,998.12	61.44	-2,244.19	2,245.03	271.57	
3,971.00	27.29	275.99	3,081.19	66.10	-2,287.93	2,288.89	271.65	
4,065.00	26.19	275.73	3,165.14	70.42	-2,330.00	2,331.07	271.73	
4,158.00	24.43	276.87	3,249.21	74.77	-2,369.52	2,370.70	271.81	
4,252.00	22.85	278.63	3,335.32	79.84	-2,406.87	2,408.19	271.90	
4,347.00	20.70	280.03	3,423.53	85.53	-2,441.64	2,443.14	272.01	
4,441.00	19.78	280.65	3,511.73	91.36	-2,473.63	2,475.32	272.12	
4,536.00	17.67	280.65	3,601.70	97.00	-2,503.60	2,505.48	272.22	
4,629.00	15.60	277.92	3,690.80	101.33	-2,529.86	2,531.89	272.29	
4,723.00	13.18	274.67	3,781.85	103.95	-2,553.07	2,555.18	272.33	
4,818.00	12.04	271.86	3,874.55	105.15	-2,573.77	2,575.91	272.34	
4,912.00	10.85	272.56	3,966.68	105.86	-2,592.40	2,594.56	272.34	
5,005.00	9.89	272.12	4,058.16	106.55	-2,609.13	2,611.30	272.34	
5,099.00	9.27	268.08	4,150.85	106.59	-2,624.76	2,626.93	272.33	
5,194.00	7.91	269.66	4,244.78	106.30	-2,638.95	2,641.09	272.31	
5,288.00	6.68	271.86	4,338.02	106.44	-2,650.88	2,653.02	272.30	
5,382.00	5.72	275.81	4,431.47	107.09	-2,661.01	2,663.16	272.30	
5,476.00	5.41	277.40	4,525.03	108.13	-2,670.06	2,672.25	272.32	
5,570.00	3.25	290.67	4,618.76	109.65	-2,676.95	2,679.19	272.35	
5,664.00	1.45	330.04	4,712.68	111.62	-2,680.04	2,682.36	272.38	
5,758.00	0.97	322.31	4,806.66	113.28	-2,681.12	2,683.51	272.42	
5,852.00	0.79	314.75	4,900.65	114.36	-2,682.06	2,684.50	272.44	
5,945.00	1.14	290.84	4,993.63	115.14	-2,683.38	2,685.85	272.46	

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Survey								
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)	
6,040.00	1.54	294.80	5,088.61	116.01	-2,685.43	2,687.93	272.47	
6,134.00	1.67	297.00	5,182.57	117.17	-2,687.79	2,690.35	272.50	
6,228.00	1.93	301.04	5,276.52	118.60	-2,690.37	2,692.98	272.52	
6,322.00	0.18	143.01	5,370.51	119.30	-2,691.64	2,694.28	272.54	
6,416.00	0.44	181.16	5,464.51	118.82	-2,691.56	2,694.18	272.53	
6,510.00	0.79	279.33	5,558.50	118.57	-2,692.20	2,694.81	272.52	
6,604.00	0.53	322.92	5,652.50	119.02	-2,693.10	2,695.73	272.53	
6,698.00	0.79	268.61	5,746.49	119.35	-2,694.01	2,696.66	272.54	
6,792.00	0.92	297.26	5,840.48	119.68	-2,695.33	2,697.99	272.54	
6,886.00	1.01	286.01	5,934.47	120.26	-2,696.80	2,699.48	272.55	
6,980.00	1.76	289.53	6,028.44	120.97	-2,698.96	2,701.67	272.57	
7,074.00	1.89	281.70	6,122.39	121.76	-2,701.83	2,704.58	272.58	
7,168.00	1.80	288.73	6,216.34	122.55	-2,704.75	2,707.53	272.59	
7,262.00	2.46	298.23	6,310.28	123.98	-2,707.93	2,710.76	272.62	
7,357.00	2.90	291.20	6,405.18	125.81	-2,711.96	2,714.88	272.66	
7,451.00	2.98	284.52	6,499.05	127.29	-2,716.55	2,719.53	272.68	
7,545.00	3.74	273.75	6,592.89	128.10	-2,721.97	2,724.98	272.69	
7,639.00	5.44	260.61	6,686.59	127.57	-2,729.43	2,732.41	272.68	
7,712.00	6.37	252.26	6,759.20	125.77	-2,736.70	2,739.59	272.63	
7,783.00	6.37	252.26	6,829.76	123.37	-2,744.20	2,746.97	272.57	
TD @ 7783.00' MD / 6829.76' TVD								

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
976.00	924.80	2.47	-254.07	Gyro Tie In @ 976.00'MD / 924.80' TVD
7,783.00	6,829.76	123.37	-2,744.20	TD @ 7783.00' MD / 6829.76' TVD