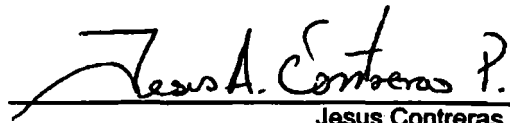


HALLIBURTON

3950 Interwood S. Pkwy • Houston, TX 77032
PHONE 281.986.4400 • FAX 281.986.4499

State of New Mexico, Lea

I, Jesus Contreras certify that I am employed by Halliburton Energy Services, Inc. (aka Sperry Drilling) and that on the dates of April 19, 2019 through August 04, 2019, I did conduct or supervise the taking of MWD directional surveys for the Ender Wiggins 14 TB FC 3H well from a depth of 54' MD to a depth of 19840' MD. This data is true, correct, complete and within the limitations of the tools as set forth by Halliburton Energy Services, Inc. (aka Sperry Drilling). I am authorized and qualified to make this report and these surveys were conducted at the request of Marathon Oil Permian LLC, for the Ender Wiggins 14 TB FC 3H well in Lea. I have reviewed this report and find that it confirms to the principles and procedures as set forth by Halliburton Energy Services, Inc. (aka Sperry Drilling.)


Jesus Contreras
Field Engineer



Marathon Oil Permian LLC

GL+KB 25' @ 3357.00usft (PD 601)
3332.00

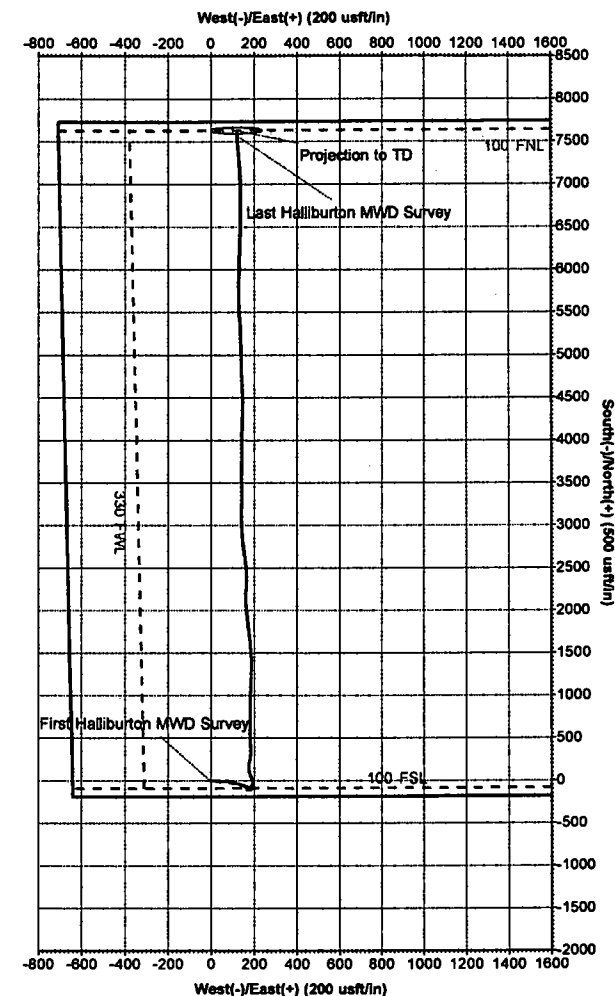
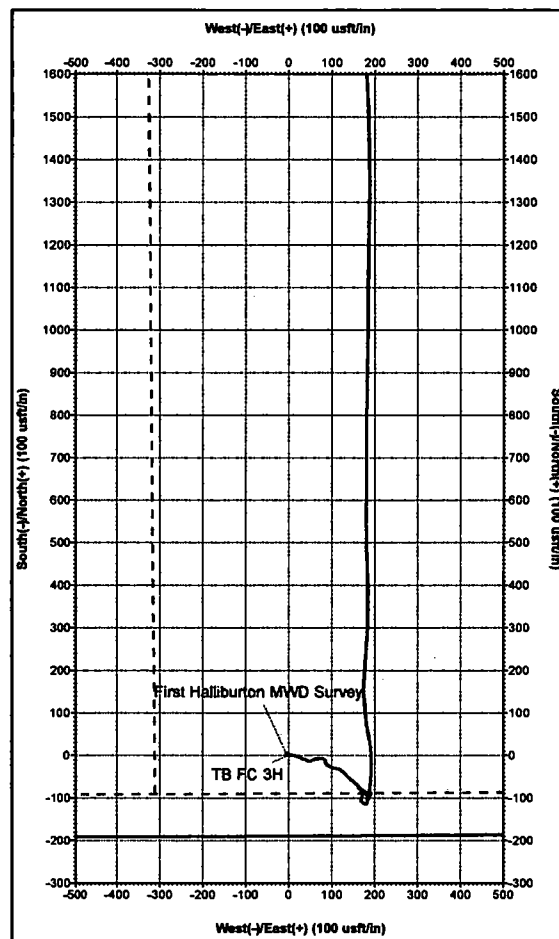
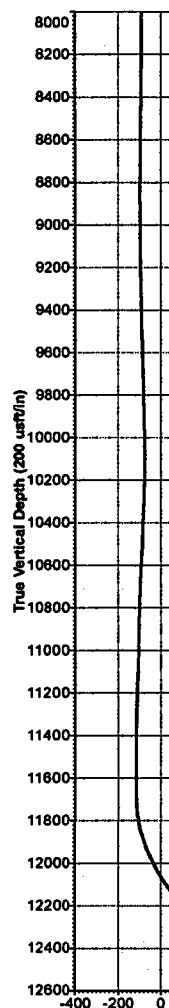
Project: Lea County, New Mexico (NAD27)
Site: Ender Wiggins 14 Pad (Grid)
Well: TB FC 3H
Wellbore: Wellbore #1
Design: Actual
Rig: PD 601

Map System: US State Plane 1927 (Exact solution)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1886
Zone Name: New Mexico East 3001



Azimuths to Grid North
True North: -0.47°
Magnetic North: 6.15°
Magnetic Field
Strength: 47612.7nT
Dip Angle: 69.75°
Date: 4/15/2019
Model: HDGM_2019

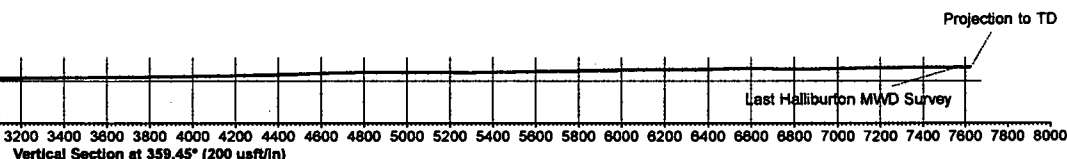
WELL DETAILS					
3332.00					
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.00	0.00	412472.51	774450.14	32.13089877	-103.44674875

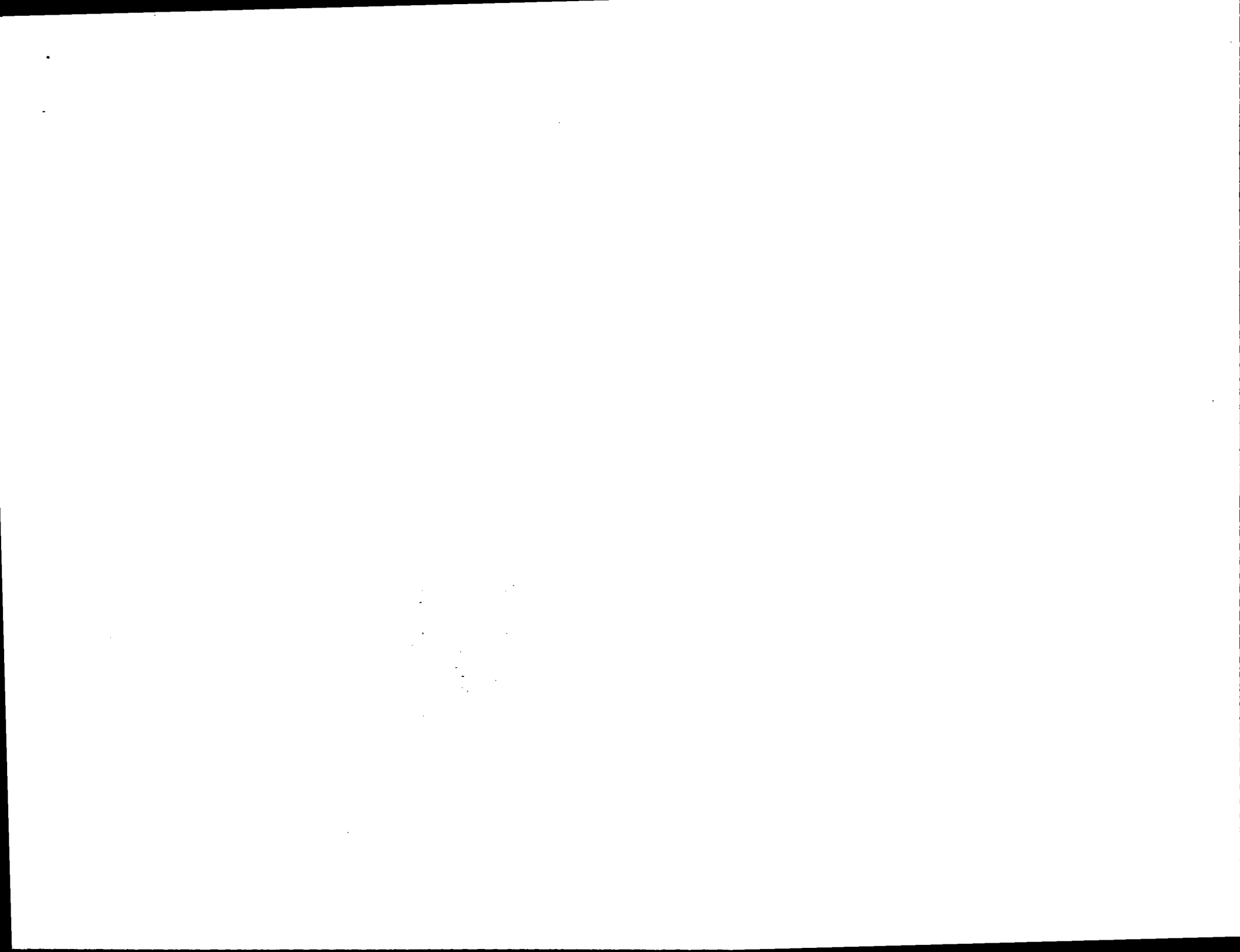


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JAN 21 2020

HOBBS OCD





PD 601

Marathon Oil Permian LLC

Lea County, New Mexico (NAD27) Ender Wiggins 14 Pad (Grid)

API#

TB FC 3H

Wellbore #1

Design: Actual

Sperry Drilling Services

Combo Report

13 August, 2019

Well Coordinates: 32.13089877
-103.44874875

NAD 1927 (NADCON CONUS)
New Mexico East 3001
412,472.51 N
774,450.14 E

Ground Level: 3,332.00 usft

Local Coordinate Origin:

Viewing Datum:

TVDs to System:

North Reference:

Unit System:

Centered on Well TB FC 3H
GL+KB 25' @ 3357.00usft (PD 601)
N
Grid
Midcon (2 decimal)

Version: 5000.15 Build: 91

Report Version: Midcon Combo v1.13

HALLIBURTON

HALLIBURTON**Design Report for TB FC 3H - Actual**

Measured Depth (usft)	Inclination (°)	Grid Azimuth (°)	Vertical Depth (usft)	Local Coordinates		Map Coordinates		Dogleg Rate (°/100usft)	Vertical Section (usft)	Toolface Angle (°)	Comments
Northing (usft)	Easting (usft)	Northing (usft)	Easting (usft)								
0.00	0.00	0.00	0.00	0.00 N	0.00 E	412,472.51	774,450.14	0.00	0.00	0.00	
54.00	0.50	38.22	54.00	0.19 N	0.15 E	412,472.70	774,450.28	0.93	0.18	38.22	
142.00	0.30	96.22	142.00	0.46 N	0.61 E	412,472.97	774,450.75	0.48	0.46	143.28	
223.00	0.40	358.22	223.00	0.72 N	0.81 E	412,473.23	774,450.95	0.68	0.71	-131.92	
311.00	0.70	262.22	310.99	0.96 N	0.27 E	412,473.47	774,450.41	0.96	0.95	-124.20	
406.00	0.50	328.22	405.99	1.23 N	0.52 W	412,473.74	774,449.62	0.71	1.23	137.39	
500.00	0.60	325.22	499.99	1.98 N	1.02 W	412,474.49	774,449.12	0.11	1.99	-17.57	
594.00	0.40	331.22	593.98	2.67 N	1.46 W	412,475.18	774,448.68	0.22	2.69	168.32	
689.00	1.00	285.22	688.97	3.18 N	2.42 W	412,475.69	774,447.72	0.82	3.21	-67.72	
783.00	1.00	293.22	782.96	3.72 N	3.96 W	412,476.23	774,446.18	0.15	3.76	94.00	
878.00	0.60	328.22	877.95	4.47 N	4.99 W	412,476.98	774,445.15	0.65	4.52	145.91	
973.00	0.50	252.22	972.95	4.77 N	5.64 W	412,477.28	774,444.50	0.72	4.82	-134.64	
1,072.00	0.47	273.96	1,071.94	4.66 N	6.46 W	412,477.17	774,443.68	0.19	4.73	110.02	First Halliburton MWD Survey
1,161.00	0.10	93.20	1,160.94	4.68 N	6.74 W	412,477.19	774,443.40	0.64	4.75	179.87	
1,251.00	0.49	95.30	1,250.94	4.64 N	6.28 W	412,477.15	774,443.86	0.43	4.70	2.64	
1,340.00	0.40	84.55	1,339.94	4.64 N	5.60 W	412,477.15	774,444.54	0.14	4.69	-142.44	
1,430.00	0.53	120.99	1,429.94	4.45 N	4.93 W	412,476.96	774,445.21	0.35	4.50	85.21	
1,520.00	0.48	88.63	1,519.93	4.25 N	4.19 W	412,476.76	774,445.95	0.32	4.29	-115.86	
1,609.00	0.38	130.46	1,608.93	4.07 N	3.59 W	412,476.58	774,446.55	0.36	4.10	127.84	
1,699.00	0.94	103.70	1,698.93	3.70 N	2.65 W	412,476.21	774,447.49	0.69	3.72	-42.66	
1,788.00	1.43	107.57	1,787.91	3.19 N	0.88 W	412,475.70	774,449.26	0.56	3.20	11.21	
1,878.00	1.48	104.84	1,877.88	2.55 N	1.31 E	412,475.06	774,451.45	0.09	2.54	-55.57	
1,967.00	1.29	104.58	1,966.85	2.01 N	3.39 E	412,474.52	774,453.53	0.21	1.97	-178.24	
2,056.00	1.70	104.07	2,055.82	1.43 N	5.64 E	412,473.94	774,455.78	0.46	1.38	-2.11	
2,146.00	1.97	107.39	2,145.77	0.65 N	8.41 E	412,473.16	774,458.55	0.32	0.57	23.16	
2,236.00	2.24	107.89	2,235.71	0.36 S	11.56 E	412,472.15	774,461.70	0.30	-0.47	4.14	
2,325.00	2.46	107.25	2,324.64	1.46 S	15.04 E	412,471.05	774,465.18	0.25	-1.60	-7.12	
2,415.00	2.80	107.19	2,414.54	2.68 S	18.99 E	412,469.83	774,469.13	0.38	-2.86	-0.49	
2,504.00	3.31	107.16	2,503.42	4.08 S	23.52 E	412,468.43	774,473.66	0.57	-4.31	-0.19	
2,594.00	3.46	107.27	2,593.26	5.65 S	28.60 E	412,466.86	774,478.74	0.17	-5.93	2.53	
2,683.00	3.27	118.63	2,682.11	7.67 S	33.39 E	412,464.84	774,483.53	0.78	-7.99	111.53	
2,773.00	3.68	116.32	2,771.94	10.18 S	38.23 E	412,462.33	774,488.37	0.48	-10.54	-20.01	
2,862.00	3.35	115.85	2,860.77	12.58 S	43.13 E	412,459.93	774,493.27	0.37	-12.99	-175.24	
2,952.00	1.74	105.82	2,950.68	14.10 S	46.81 E	412,458.41	774,496.95	1.85	-14.54	-169.51	
3,042.00	0.76	52.73	3,040.68	14.11 S	48.60 E	412,458.40	774,498.74	1.58	-14.57	-154.66	
3,131.00	1.22	62.66	3,129.65	13.31 S	49.91 E	412,459.20	774,500.05	0.55	-13.79	25.47	

Design Report for TB FC 3H - Actual

Measured Depth (usft)	Inclination (°)	Grid Azimuth (°)	Vertical Depth (usft)	Local Coordinates		Map Coordinates		Dogleg Rate (°/100usft)	Vertical Section (usft)	Toolface Angle (°)	Comments
Depth (usft)	Inclination (°)	Azimuth (°)	Depth (usft)	Northing (usft)	Easting (usft)	Northing (usft)	Easting (usft)				
3,221.00	1.76	71.10	3,219.62	12.43 S	52.07 E	412,460.08	774,502.21	0.65	-12.93	26.37	
3,310.00	2.39	67.68	3,308.56	11.28 S	55.08 E	412,461.23	774,505.22	0.72	-11.81	-12.83	
3,400.00	2.94	64.23	3,398.46	9.56 S	58.90 E	412,462.95	774,509.04	0.64	-10.13	-17.99	
3,489.00	2.84	76.66	3,487.35	8.06 S	63.10 E	412,464.45	774,513.24	0.71	-8.67	105.24	
3,578.00	2.82	90.62	3,576.24	7.56 S	67.43 E	412,464.93	774,517.57	0.77	-8.22	98.63	
3,668.00	3.53	84.56	3,666.10	7.34 S	72.40 E	412,465.17	774,522.54	0.87	-8.03	-28.35	
3,757.00	3.52	90.45	3,754.94	7.10 S	77.86 E	412,465.41	774,528.00	0.41	-7.85	94.52	
3,847.00	3.00	134.41	3,844.80	8.77 S	82.31 E	412,463.74	774,532.45	2.76	-9.56	123.13	
3,936.00	4.21	170.19	3,933.64	13.62 S	84.53 E	412,458.89	774,534.67	2.80	-14.43	80.37	
4,026.00	3.32	161.19	4,023.44	19.34 S	85.93 E	412,453.17	774,536.07	1.18	-20.17	-150.85	
4,115.00	1.78	118.36	4,112.36	22.44 S	87.98 E	412,450.07	774,538.12	2.64	-23.28	-149.00	
4,204.00	1.88	114.64	4,201.31	23.70 S	90.52 E	412,448.81	774,540.66	0.17	-24.57	-51.78	
4,294.00	2.21	119.91	4,291.26	25.18 S	93.37 E	412,447.33	774,543.51	0.42	-26.08	32.33	
4,383.00	2.73	113.23	4,380.17	26.88 S	96.80 E	412,445.63	774,546.94	0.67	-27.80	-32.33	
4,473.00	3.02	109.94	4,470.06	28.53 S	101.00 E	412,443.98	774,551.14	0.37	-28.50	-31.29	
4,562.00	3.20	105.83	4,558.93	30.01 S	105.60 E	412,442.50	774,555.74	0.32	-31.02	-53.15	
4,652.00	4.45	103.88	4,648.73	31.53 S	111.40 E	412,440.98	774,561.54	1.40	-32.60	-6.91	
4,741.00	5.16	115.51	4,737.41	34.08 S	118.37 E	412,438.43	774,568.51	1.35	-35.22	59.80	
4,831.00	4.18	135.96	4,827.12	38.18 S	124.30 E	412,434.33	774,574.44	2.13	-39.38	130.41	
4,920.00	4.78	133.36	4,915.85	43.06 S	129.25 E	412,429.45	774,579.39	0.71	-44.30	-20.00	
5,009.00	5.62	129.96	5,004.48	48.41 S	135.29 E	412,424.10	774,585.43	1.00	-49.70	-21.84	
5,099.00	4.07	135.40	5,094.16	53.51 S	140.91 E	412,419.00	774,591.05	1.79	-54.86	166.19	
5,188.00	4.37	132.04	5,182.92	58.03 S	145.64 E	412,414.48	774,595.78	0.44	-59.43	-41.18	
5,278.00	4.37	133.34	5,272.66	62.68 S	150.68 E	412,409.83	774,600.82	0.11	-64.12	90.65	
5,368.00	4.35	134.17	5,362.34	68.46 S	156.73 E	412,404.05	774,606.87	0.06	-69.96	108.00	
5,448.00	3.96	130.09	5,442.18	71.38 S	159.94 E	412,401.13	774,610.08	0.82	-72.91	-144.86	
5,538.00	4.24	128.64	5,531.95	75.46 S	164.92 E	412,397.05	774,615.06	0.33	-77.04	-21.04	
5,627.00	3.63	130.83	5,620.74	79.36 S	169.62 E	412,393.15	774,619.76	0.71	-80.98	167.25	
5,717.00	2.53	133.20	5,710.61	82.58 S	173.22 E	412,389.93	774,623.36	1.23	-84.24	174.58	
5,806.00	1.51	146.65	5,799.55	84.91 S	175.30 E	412,387.60	774,625.44	1.26	-86.58	161.69	
5,896.00	1.43	157.15	5,889.52	86.93 S	176.39 E	412,385.58	774,626.53	0.31	-88.62	111.75	
5,986.00	1.45	148.84	5,979.49	88.94 S	177.41 E	412,383.57	774,627.55	0.23	-90.64	-88.69	
6,076.00	1.48	146.07	6,069.46	90.88 S	178.65 E	412,381.63	774,628.79	0.09	-92.59	-68.43	
6,165.00	1.32	138.46	6,158.44	92.60 S	179.97 E	412,379.91	774,630.11	0.28	-94.32	-134.48	
6,255.00	1.22	95.62	6,248.42	93.47 S	181.61 E	412,379.04	774,631.75	1.04	-95.21	-117.15	
6,345.00	1.15	94.93	6,338.40	93.64 S	183.47 E	412,378.87	774,633.61	0.08	-95.40	-168.82	
6,434.00	1.26	98.19	6,427.38	93.86 S	185.33 E	412,378.65	774,635.47	0.15	-95.63	33.57	

Design Report for TB FC 3H - Actual

Measured Depth (usft)	Inclination (°)	Grid Azimuth (°)	Vertical Depth (usft)	Local Coordinates		Map Coordinates		Dogleg Rate (°/100usft)	Vertical Section (usft)	Toolface Angle (°)	Comments
				Northing (usft)	Easting (usft)	Northing (usft)	Easting (usft)				
6,524.00	1.42	95.26	6,517.35	94.10 S	187.42 E	412,378.41	774,637.56	0.19	-95.89	-24.65	
6,613.00	0.28	21.87	6,606.34	94.00 S	188.60 E	412,378.51	774,638.74	1.54	-95.81	-168.68	
6,703.00	0.31	349.16	6,696.34	93.56 S	188.63 E	412,378.95	774,638.77	0.19	-95.36	-96.52	
6,793.00	0.44	16.12	6,786.34	92.99 S	188.68 E	412,379.52	774,638.82	0.24	-94.79	67.61	
6,882.00	0.33	6.83	6,875.34	92.40 S	188.81 E	412,380.11	774,638.95	0.14	-94.21	-155.02	
6,972.00	0.37	5.91	6,965.34	91.86 S	188.87 E	412,380.65	774,639.01	0.04	-93.66	-8.46	
7,061.00	0.45	0.01	7,054.33	91.22 S	188.90 E	412,381.29	774,639.04	0.10	-93.03	-30.79	
7,151.00	0.45	8.64	7,144.33	90.52 S	188.95 E	412,381.99	774,639.09	0.08	-92.33	94.31	
7,241.00	0.59	31.98	7,234.33	89.78 S	189.25 E	412,382.73	774,639.39	0.28	-91.59	68.57	
7,330.00	0.34	54.02	7,323.33	89.23 S	189.71 E	412,383.28	774,639.85	0.34	-91.05	155.10	
7,420.00	0.44	57.96	7,413.32	88.89 S	190.21 E	412,383.62	774,640.35	0.11	-90.71	16.99	
7,509.00	0.19	55.69	7,502.32	88.63 S	190.63 E	412,383.88	774,640.77	0.28	-90.45	-178.28	
7,599.00	0.34	326.48	7,592.32	88.32 S	190.60 E	412,384.19	774,640.74	0.43	-90.15	-118.59	
7,689.00	0.22	162.87	7,682.32	88.26 S	190.51 E	412,384.25	774,640.65	0.62	-90.09	-173.57	
7,778.00	0.41	186.79	7,771.32	88.74 S	190.52 E	412,383.77	774,640.66	0.26	-90.57	47.04	
7,867.00	0.81	192.41	7,860.31	89.67 S	190.34 E	412,382.84	774,640.48	0.45	-91.50	11.32	
7,957.00	0.50	134.28	7,950.31	90.57 S	190.49 E	412,381.94	774,640.63	0.77	-92.39	-142.13	
8,047.00	0.49	221.45	8,040.31	91.13 S	190.52 E	412,381.38	774,640.66	0.76	-92.96	134.19	
8,136.00	0.69	238.90	8,129.30	91.69 S	189.80 E	412,380.82	774,639.94	0.30	-93.51	50.88	
8,226.00	0.43	212.98	8,219.30	92.26 S	189.16 E	412,380.25	774,639.30	0.40	-94.07	-148.21	
8,315.00	0.22	216.45	8,308.30	92.67 S	188.87 E	412,379.84	774,639.01	0.24	-94.48	176.38	
8,405.00	0.55	200.33	8,398.29	93.22 S	188.62 E	412,379.29	774,638.76	0.38	-95.02	-26.34	
8,495.00	0.81	189.49	8,488.29	94.25 S	188.37 E	412,378.26	774,638.51	0.32	-96.05	-31.81	
8,584.00	0.79	193.50	8,577.28	95.47 S	188.12 E	412,377.04	774,638.26	0.07	-97.27	111.65	
8,673.00	0.98	200.86	8,666.27	96.77 S	187.70 E	412,375.74	774,637.84	0.25	-98.57	34.61	
8,763.00	1.03	204.99	8,756.25	98.23 S	187.09 E	412,374.28	774,637.23	0.10	-100.02	57.46	
8,853.00	0.78	288.78	8,846.25	98.76 S	186.17 E	412,373.75	774,636.31	1.36	-100.55	140.64	
8,942.00	1.26	294.66	8,935.23	98.16 S	184.70 E	412,374.35	774,634.84	0.55	-99.93	15.25	
9,032.00	0.88	302.41	9,025.22	97.38 S	183.22 E	412,375.13	774,633.36	0.45	-99.13	163.00	
9,121.00	1.17	329.50	9,114.20	96.23 S	182.18 E	412,376.28	774,632.32	0.63	-97.97	73.12	
9,211.00	0.96	342.01	9,204.19	94.72 S	181.48 E	412,377.79	774,631.62	0.35	-96.46	138.23	
9,300.00	1.05	324.72	9,293.17	93.34 S	180.78 E	412,379.17	774,630.92	0.35	-95.07	-82.23	
9,389.00	1.41	320.55	9,382.15	91.83 S	179.62 E	412,380.68	774,629.76	0.42	-93.55	-16.05	
9,479.00	1.82	324.10	9,472.12	89.82 S	178.07 E	412,382.69	774,628.21	0.47	-91.53	15.49	
9,568.00	2.82	317.52	9,561.04	87.06 S	175.77 E	412,385.45	774,625.91	1.16	-88.74	-18.22	
9,658.00	2.44	319.03	9,650.95	83.98 S	173.02 E	412,388.53	774,623.16	0.43	-85.64	170.42	
9,748.00	3.92	289.62	9,740.81	81.50 S	168.86 E	412,391.01	774,619.00	2.40	-83.12	-63.11	

Design Report for TB FC 3H - Actual

Measured Depth (usft)	Inclination (°)	Grid Azimuth (°)	Vertical Depth (usft)	Local Coordinates		Map Coordinates		Dogleg Rate (°/100usft)	Vertical Section (usft)	Toolface Angle (°)	Comments
				Northing (usft)	Easting (usft)	Northing (usft)	Easting (usft)				
9,837.00	2.27	306.05	9,829.68	79.44 S	164.57 E	412,393.07	774,614.71	2.09	-81.02	159.77	
9,927.00	1.71	337.25	9,919.63	77.15 S	162.61 E	412,395.36	774,612.75	1.33	-78.71	132.34	
10,017.00	1.09	347.91	10,009.60	75.08 S	161.91 E	412,397.43	774,612.05	0.74	-76.63	162.48	
10,106.00	0.23	27.44	10,098.60	74.09 S	161.82 E	412,398.42	774,611.96	1.04	-75.64	170.89	
10,195.00	1.86	127.93	10,187.58	74.82 S	163.04 E	412,397.69	774,613.18	2.15	-76.38	107.27	
10,284.00	2.69	148.39	10,276.51	77.49 S	165.27 E	412,395.02	774,615.41	1.29	-79.07	54.91	
10,374.00	2.15	164.66	10,366.43	80.92 S	166.83 E	412,391.59	774,616.97	0.97	-82.51	136.11	
10,463.00	2.75	161.21	10,455.35	84.55 S	167.96 E	412,387.96	774,618.10	0.69	-86.16	-15.54	
10,553.00	3.35	164.01	10,545.22	89.12 S	169.38 E	412,383.39	774,619.52	0.69	-90.74	15.35	
10,642.00	2.71	166.40	10,634.10	93.66 S	170.59 E	412,378.85	774,620.73	0.73	-95.30	170.03	
10,732.00	1.31	202.22	10,724.04	96.68 S	170.70 E	412,375.83	774,620.84	2.02	-98.32	155.04	
10,821.00	1.66	218.34	10,813.01	98.64 S	169.51 E	412,373.87	774,619.65	0.61	-100.26	58.29	
10,911.00	2.13	214.19	10,902.96	101.04 S	167.76 E	412,371.47	774,617.90	0.54	-102.65	-18.36	
11,000.00	1.76	194.00	10,991.91	103.74 S	166.50 E	412,368.77	774,616.64	0.87	-105.33	-128.21	
11,089.00	1.31	139.32	11,080.89	105.84 S	166.84 E	412,366.67	774,616.98	1.65	-107.43	-133.16	
11,179.00	2.15	135.77	11,170.84	107.83 S	166.69 E	412,364.68	774,618.83	0.94	-109.44	-9.05	
11,268.00	3.39	136.83	11,259.74	110.94 S	171.65 E	412,361.57	774,621.79	1.39	-112.58	2.90	
11,358.00	1.38	121.81	11,349.66	113.45 S	174.39 E	412,359.06	774,624.53	2.32	-115.12	-170.14	
11,447.00	1.39	87.37	11,438.63	113.97 S	176.38 E	412,358.54	774,626.52	0.92	-115.66	-106.55	
11,537.00	1.46	82.83	11,528.60	113.78 S	178.61 E	412,358.73	774,628.75	0.15	-115.48	-60.48	
11,592.00	1.08	95.04	11,583.59	113.73 S	179.82 E	412,358.78	774,629.96	0.84	-115.45	150.54	
11,643.00	0.81	110.67	11,634.58	113.90 S	180.64 E	412,358.61	774,630.78	0.73	-115.63	143.96	
11,671.00	0.78	137.46	11,662.58	114.11 S	180.95 E	412,358.40	774,631.09	1.32	-115.84	107.92	
11,765.00	4.86	10.89	11,756.48	110.67 S	182.14 E	412,361.84	774,632.28	5.70	-112.41	-133.26	
11,859.00	14.73	10.97	11,848.99	94.99 S	185.17 E	412,377.52	774,635.31	10.50	-96.76	0.12	
11,953.00	22.85	5.51	11,937.91	65.04 S	189.20 E	412,407.47	774,639.34	8.83	-66.85	-14.83	
12,047.00	28.86	3.17	12,022.47	24.18 S	192.21 E	412,448.33	774,642.35	6.48	-26.03	-10.70	
12,126.00	33.76	351.29	12,090.01	16.61 N	189.94 E	412,489.12	774,640.08	9.95	14.79	-56.75	
12,224.00	42.93	348.80	12,166.79	76.40 N	179.31 E	412,548.91	774,629.45	9.49	74.68	-10.55	
12,319.00	52.62	0.98	12,230.69	146.19 N	173.65 E	412,618.70	774,623.79	13.90	144.51	47.21	
12,413.00	59.21	4.62	12,283.35	223.87 N	177.54 E	412,696.38	774,627.68	7.71	222.16	25.62	
12,509.00	67.18	2.44	12,326.61	309.32 N	182.76 E	412,781.83	774,632.90	8.55	307.56	-14.22	
12,603.00	74.71	358.36	12,357.29	398.09 N	183.31 E	412,870.60	774,633.45	9.00	396.31	-27.81	
12,697.00	76.61	358.06	12,380.57	489.11 N	180.46 E	412,961.62	774,630.60	2.04	487.35	-8.73	
12,790.00	85.37	1.24	12,395.13	580.86 N	179.93 E	413,053.37	774,630.07	10.01	579.10	20.00	
12,884.00	88.09	359.80	12,400.49	674.69 N	180.78 E	413,147.20	774,630.92	3.27	672.92	-27.90	

Design Report for TB FC 3H - Actual

Measured		Grid	Vertical	Local Coordinates		Map Coordinates		Dogleg	Vertical	Toolface	
Depth	Inclination	Azimuth	Depth	Northing	Easting	Northing	Easting	Rate	Section	Angle	Comments
(usft)	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)	(°/100usft)	(usft)	(°)	
12,978.00	90.09	0.04	12,401.98	768.67 N	180.65 E	413,241.18	774,630.79	2.14	766.90	6.84	
13,072.00	91.33	1.01	12,400.82	862.66 N	181.51 E	413,335.17	774,631.65	1.67	860.88	38.03	
13,166.00	90.15	0.59	12,399.60	956.64 N	182.82 E	413,429.15	774,632.96	1.33	954.84	-160.41	
13,260.00	91.11	359.93	12,398.57	1,050.63 N	183.25 E	413,523.14	774,633.39	1.24	1,048.82	-34.50	
13,354.00	89.54	0.98	12,398.03	1,144.62 N	184.00 E	413,617.13	774,634.14	2.01	1,142.80	146.22	
13,448.00	90.31	1.23	12,398.16	1,238.60 N	185.81 E	413,711.11	774,635.95	0.86	1,238.76	17.99	
13,540.00	88.85	0.36	12,400.44	1,330.55 N	187.08 E	413,803.06	774,637.22	3.88	1,328.69	-165.90	
13,634.00	89.51	358.81	12,403.42	1,424.49 N	186.40 E	413,897.00	774,636.54	3.27	1,422.64	-30.25	
13,728.00	90.12	358.03	12,403.73	1,518.45 N	183.81 E	413,990.96	774,633.95	1.05	1,516.62	-51.97	
13,822.00	90.62	357.43	12,403.12	1,612.38 N	180.09 E	414,084.89	774,630.23	0.83	1,610.57	-50.19	
13,915.00	90.74	357.44	12,402.02	1,705.28 N	175.93 E	414,177.79	774,626.07	0.13	1,703.51	4.76	
14,009.00	91.30	357.77	12,400.34	1,799.18 N	172.00 E	414,271.69	774,622.14	0.69	1,797.45	30.50	
14,102.00	92.04	357.34	12,397.63	1,892.05 N	168.03 E	414,364.56	774,618.17	0.92	1,890.35	-30.14	
14,197.00	92.35	357.60	12,393.99	1,986.89 N	163.84 E	414,459.40	774,613.98	0.43	1,985.23	39.96	
14,292.00	90.68	358.33	12,391.48	2,081.79 N	160.47 E	414,554.30	774,610.61	1.92	2,080.16	156.39	
14,386.00	88.76	0.94	12,391.94	2,175.78 N	159.87 E	414,648.29	774,610.01	3.45	2,174.14	126.34	
14,480.00	88.27	0.80	12,394.38	2,269.74 N	161.30 E	414,742.25	774,611.44	0.54	2,268.08	-164.06	
14,573.00	89.57	0.89	12,396.13	2,362.71 N	162.67 E	414,835.22	774,612.81	1.40	2,361.04	3.96	
14,667.00	89.81	359.08	12,396.64	2,456.70 N	162.65 E	414,929.21	774,612.79	1.94	2,455.03	-82.45	
14,761.00	90.06	356.98	12,396.75	2,550.64 N	159.41 E	415,023.15	774,609.55	2.25	2,548.99	-83.21	
14,855.00	90.99	356.40	12,395.88	2,644.48 N	153.99 E	415,116.99	774,604.13	1.17	2,642.88	-31.95	
14,950.00	90.93	357.56	12,394.29	2,739.33 N	148.98 E	415,211.84	774,599.12	1.22	2,737.78	92.95	
15,043.00	90.99	358.04	12,392.73	2,832.25 N	145.41 E	415,304.76	774,595.55	0.52	2,830.72	82.87	
15,138.00	91.05	358.39	12,391.04	2,927.19 N	142.45 E	415,399.70	774,592.59	0.37	2,925.69	80.27	
15,232.00	90.68	359.59	12,389.62	3,021.16 N	140.80 E	415,493.67	774,590.94	1.34	3,019.67	107.13	
15,325.00	90.56	359.87	12,388.62	3,114.16 N	140.36 E	415,586.67	774,590.50	0.33	3,112.66	113.20	
15,419.00	90.68	0.37	12,387.60	3,208.15 N	140.56 E	415,680.66	774,590.70	0.55	3,206.65	76.50	
15,513.00	90.43	0.46	12,386.69	3,302.14 N	141.24 E	415,774.65	774,591.38	0.28	3,300.63	160.20	
15,606.00	90.49	359.62	12,385.94	3,395.14 N	141.30 E	415,867.65	774,591.44	0.91	3,393.63	-85.91	
15,701.00	90.74	359.78	12,384.92	3,490.13 N	140.81 E	415,962.64	774,590.95	0.31	3,488.62	32.62	
15,794.00	90.80	0.12	12,383.67	3,583.12 N	140.72 E	416,055.63	774,590.86	0.37	3,581.61	79.99	
15,888.00	90.49	0.04	12,382.62	3,677.12 N	140.86 E	416,149.63	774,591.00	0.34	3,675.60	-165.53	
15,981.00	90.33	0.86	12,381.95	3,770.11 N	141.59 E	416,242.62	774,591.73	0.90	3,768.58	101.04	
16,074.00	91.05	0.20	12,380.83	3,863.10 N	142.45 E	416,335.61	774,592.59	1.05	3,861.55	-42.50	
16,169.00	90.43	359.64	12,379.60	3,958.09 N	142.31 E	416,430.60	774,592.45	0.88	3,956.54	-137.91	
16,263.00	90.62	0.19	12,378.74	4,052.09 N	142.17 E	416,524.60	774,592.31	0.62	4,050.53	70.94	
16,357.00	91.05	0.62	12,377.37	4,146.07 N	142.84 E	416,618.58	774,592.98	0.65	4,144.51	44.99	

HALLIBURTON**Design Report for TB FC 3H - Actual**

Measured Depth (usft)	Inclination (°)	Grid Azimuth (°)	Vertical Depth (usft)	Local Coordinates		Map Coordinates		Dogleg Rate (°/100usft)	Vertical Section (usft)	Toolface Angle (°)	Comments
				Northing (usft)	Easting (usft)	Northing (usft)	Easting (usft)				
16,451.00	90.93	0.50	12,375.75	4,240.05 N	143.76 E	416,712.56	774,593.90	0.18	4,238.48	-135.00	
16,546.00	91.60	0.98	12,373.65	4,335.02 N	144.98 E	416,807.53	774,595.12	0.87	4,333.43	35.61	
16,640.00	91.98	0.42	12,370.71	4,428.97 N	146.13 E	416,901.48	774,596.27	0.72	4,427.36	-55.82	
16,733.00	91.36	358.65	12,368.00	4,521.92 N	145.38 E	416,994.43	774,595.52	2.02	4,520.32	-109.28	
16,827.00	92.10	359.20	12,365.17	4,615.88 N	143.61 E	417,088.37	774,593.75	0.98	4,614.27	36.60	
16,921.00	91.54	359.38	12,362.18	4,709.81 N	142.45 E	417,182.32	774,592.59	0.63	4,708.22	162.19	
17,015.00	90.43	358.80	12,360.56	4,803.78 N	140.96 E	417,276.29	774,591.10	1.33	4,802.20	-152.41	
17,108.00	90.19	359.24	12,360.06	4,896.76 N	139.37 E	417,369.27	774,589.51	0.54	4,895.20	118.61	
17,202.00	89.75	359.26	12,360.11	4,990.76 N	138.14 E	417,463.27	774,588.28	0.47	4,989.20	177.40	
17,296.00	89.88	359.32	12,360.41	5,084.75 N	136.97 E	417,557.26	774,587.11	0.15	5,083.20	24.78	
17,390.00	89.57	358.94	12,360.87	5,178.74 N	135.54 E	417,651.25	774,585.68	0.52	5,177.20	-129.21	
17,484.00	90.19	359.13	12,361.06	5,272.72 N	133.96 E	417,745.23	774,584.10	0.69	5,271.19	17.04	
17,578.00	91.17	358.90	12,359.95	5,366.70 N	132.35 E	417,839.21	774,582.49	1.07	5,365.18	-13.21	
17,672.00	90.99	358.69	12,358.17	5,460.66 N	130.37 E	417,933.17	774,580.51	0.29	5,459.16	-130.60	
17,766.00	90.68	359.01	12,356.80	5,554.63 N	128.48 E	418,027.14	774,578.62	0.47	5,553.14	134.09	
17,860.00	90.93	359.30	12,355.48	5,648.61 N	127.10 E	418,121.12	774,577.24	0.41	5,647.13	49.23	
17,955.00	91.05	0.17	12,353.84	5,743.60 N	126.66 E	418,216.11	774,576.80	0.92	5,742.12	82.14	
18,049.00	90.99	0.68	12,352.17	5,837.58 N	127.35 E	418,310.09	774,577.49	0.55	5,836.09	96.71	
18,143.00	90.62	0.39	12,350.85	5,931.57 N	128.23 E	418,404.08	774,578.37	0.50	5,930.06	-141.91	
18,237.00	90.87	0.86	12,348.63	6,025.55 N	129.26 E	418,498.06	774,579.40	0.57	6,024.03	61.99	
18,331.00	90.49	0.63	12,348.51	6,119.54 N	130.48 E	418,592.05	774,580.62	0.47	6,118.00	-148.82	
18,426.00	90.12	0.32	12,348.01	6,214.53 N	131.27 E	418,687.04	774,581.41	0.51	6,212.99	-140.04	
18,520.00	90.12	0.43	12,347.81	6,308.53 N	131.88 E	418,781.04	774,582.02	0.12	6,306.97	90.00	
18,614.00	91.30	0.81	12,346.64	6,402.52 N	132.90 E	418,875.03	774,583.04	1.32	6,400.95	17.85	
18,708.00	91.61	1.02	12,344.26	6,496.47 N	134.40 E	418,968.98	774,584.54	0.40	6,494.88	34.10	
18,801.00	90.19	0.26	12,342.80	6,589.45 N	135.44 E	419,061.96	774,585.58	1.73	6,587.85	-151.84	
18,895.00	88.45	0.49	12,343.91	6,683.44 N	136.05 E	419,155.95	774,586.19	1.87	6,681.83	172.47	
18,990.00	90.19	0.14	12,345.04	6,778.43 N	136.58 E	419,250.94	774,586.72	1.87	6,776.81	-11.37	
19,083.00	90.31	359.68	12,344.63	6,871.43 N	136.43 E	419,343.94	774,586.57	0.51	6,869.80	-75.38	
19,178.00	90.31	358.93	12,344.12	6,966.42 N	135.28 E	419,438.93	774,585.42	0.79	6,964.80	-90.00	
19,272.00	91.92	359.07	12,342.29	7,060.38 N	133.64 E	419,532.89	774,583.78	1.72	7,058.78	4.97	
19,366.00	90.93	358.87	12,339.95	7,154.34 N	131.95 E	419,626.85	774,582.09	1.07	7,152.74	-168.58	
19,461.00	90.80	358.56	12,338.52	7,249.30 N	129.82 E	419,721.81	774,579.96	0.35	7,247.72	-112.75	
19,555.00	90.06	358.15	12,337.81	7,343.26 N	127.12 E	419,815.77	774,577.26	0.90	7,341.70	-151.01	
19,649.00	90.43	358.15	12,337.41	7,437.21 N	124.08 E	419,909.72	774,574.22	0.39	7,435.68	0.00	
19,743.00	90.06	358.28	12,337.01	7,531.16 N	121.16 E	420,003.67	774,571.30	0.42	7,529.65	160.64	
19,776.00	90.00	357.96	12,336.99	7,564.15 N	120.07 E	420,036.66	774,570.21	0.99	7,562.65	-100.62	Last Halliburton MWD Survey

HALLIBURTON

Marathon Oil Permian LLC
Lea County, New Mexico (NAD27)

Design Report for TB FC 3H - Actual

Measured Depth (usft)	Inclination (°)	Grid Azimuth (°)	Vertical Depth (usft)	Local Coordinates		Map Coordinates		Dogleg Rate (°/100usft)	Vertical Section (usft)	Toolface Angle (°)	Comments
				Northing (usft)	Easting (usft)	Northing (usft)	Easting (usft)				
19,840.00	90.00	357.96	12,336.99	7,628.11 N	117.80 E	420,100.62	774,567.94	0.00	7,626.62	0.00	Projection to TD

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
1,072.00	1,071.94	4.66	-6.48	First Halliburton MWD Survey
19,776.00	12,336.99	7,564.15	120.07	Last Halliburton MWD Survey
19,840.00	12,336.99	7,628.11	117.80	Projection to TD

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin +N/-S (usft)	Origin +E/-W (usft)	Start TVD (usft)
User	No Target (Freehand)	359.45	Slot	0.00	0.00	0.00

Survey tool program

From (usft)	To (usft)	Survey/Plan	Survey Tool
54.00	973.00	Spudder (12.25")	2_MWD
1,072.00	5,278.00	BHA #1 (12.25")	2_MWD+HRGM+AX
5,388.00	9,658.00	BHA #2 (8.75")	2_MWD+HRGM+AX
9,748.00	10,017.00	BHA #3 (8.75")	2_MWD+HRGM+AX
10,106.00	11,592.00	BHA #4 (8.75")	2_MWD+HRGM+AX
11,643.00	12,047.00	BHA #5 (6.125")	2_MWD+HRGM+AX
12,126.00	13,448.00	BHA #6 (6.125")	2_MWD+HRGM+AX
13,540.00	14,102.00	BHA #7 (6.125")	2_MWD+HRGM+AX
14,197.00	19,776.00	BHA #9 (6.125")	2_MWD+HRGM+AX
19,840.00	19,840.00	Projection to TD	2_Blind

Design Report for TB FC 3H - Actual

Design Targets

Target Name - hit/miss	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
target	()	()	()	()	()	()	()		
0									

Directional Difficulty Index

Average Dogleg over Survey:	1.25 °/100usft	Maximum Dogleg over Survey:	13.90 °/100usft at 12,319.00 usft
Net Tortosity applicable to Plans:	0.36 °/100usft	Directional Difficulty Index:	6.507

Audit Info

North Reference Sheet for Ender Wiggins 14 Pad (Grid) - TB FC 3H - Wellbore #1

All data is in US Feet unless otherwise stated. Directions and Coordinates are relative to Grid North Reference.

Vertical Depths are relative to GL+KB 25' @ 3357.00usft (PD 601). Northing and Easting are relative to TB FC 3H

Coordinate System is US State Plane 1927 (Exact solution), New Mexico East 3001 using datum NAD 1927 (NADCON CONUS), ellipsoid Clarke 1866

Projection method is Transverse Mercator (Gauss-Kruger)

Central Meridian is -104.33333333°, Longitude Origin:0.00000000°, Latitude Origin:0.00000000°

False Easting: 500,000.00usft, False Northing: 0.00usft, Scale Reduction: 0.99999536

Grid Coordinates of Well: 412,472.51 usft N, 774,450.14 usft E

Geographical Coordinates of Well: 32° 07' 51.24" N, 103° 26' 48.30" W

Grid Convergence at Surface is: 0.47°

Based upon Minimum Curvature type calculations, at a Measured Depth of 19,840.00usft
the Bottom Hole Displacement is 7,629.02usft in the Direction of 0.88° (Grid).

Magnetic Convergence at surface is: -6.15° (15 April 2019, , HDGM_2019)

