

Project: WELD-NAD83-UTMFT13N
Site: Wagner 1N-W10HZ Pad - PD
Well: Wagner 26C-10HZ
Wellbore: Original Wellbore
Design: Final Surveys



US ROCKIES WATTENBERG PLANNING

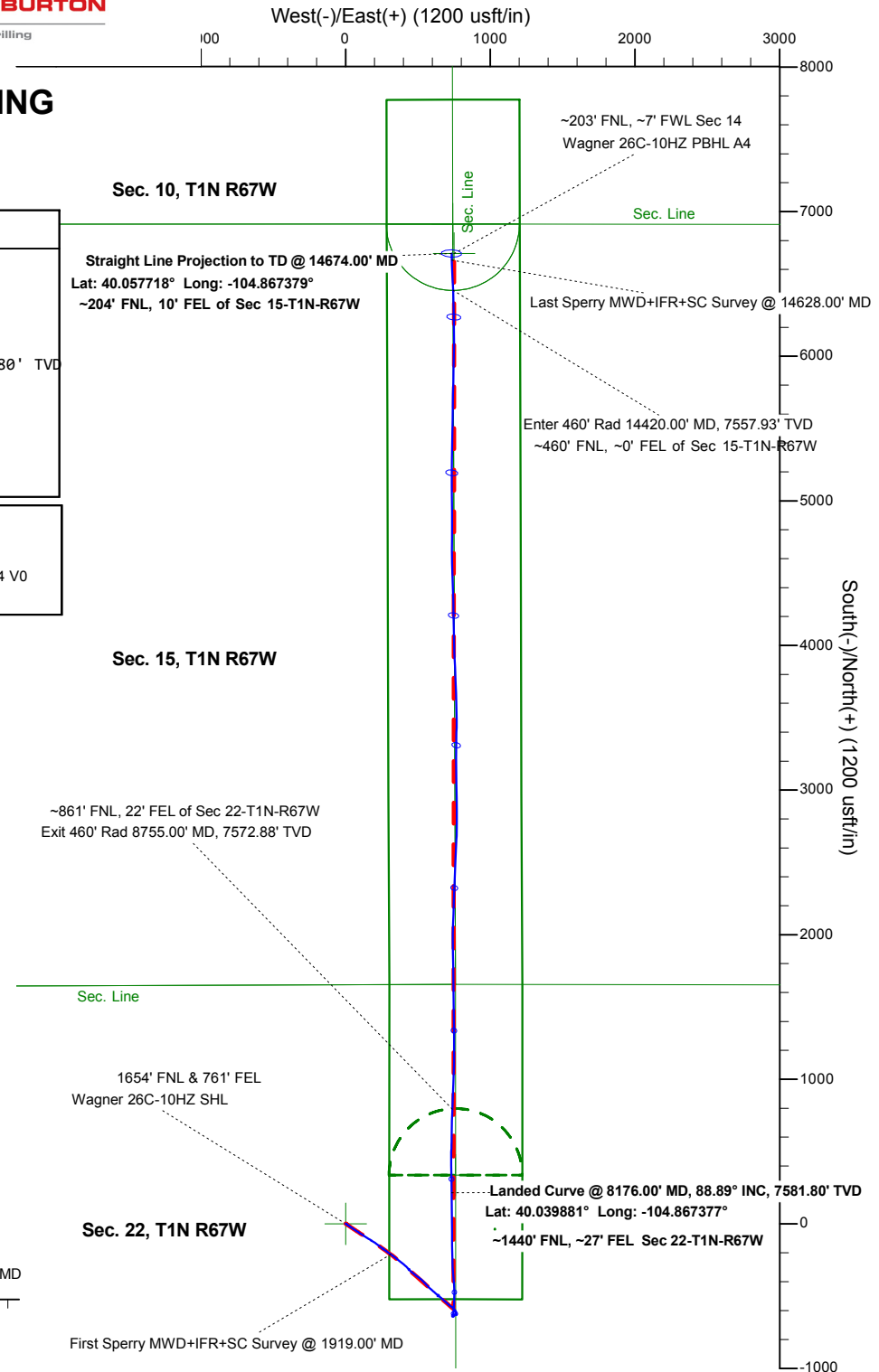
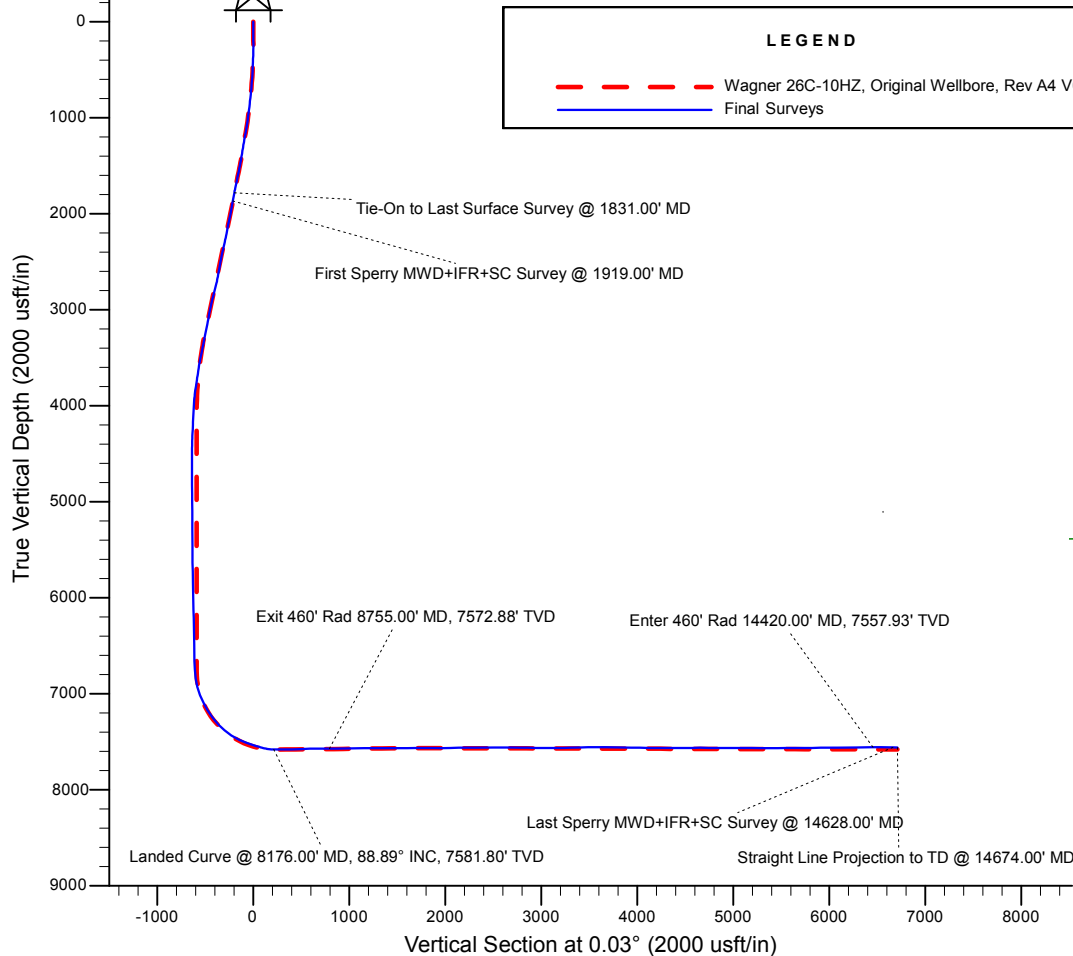
WELL DETAILS: Wagner 26C-10HZ	Design: Final Surveys (Wagner 26C-10HZ/Original Wellbore)
Ground Level: 4971.00 RKB 21' @ 4992.00usft (Precision 464)	Created By: Jerry Popp Date: 11:46, October 10 2017

ANNOTATIONS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Annotation
133.00	1.01	11.56	132.99	1.15	0.23	First Total MWD+IFR Surface Survey
1831.00	17.75	125.47	1782.66	-195.99	290.99	Last Total MWD+IFR Surface Survey
1831.00	17.75	125.47	1782.67	-195.99	290.99	Tie-On to Last Surface Survey @ 1831.00' MD
1919.00	17.37	126.26	1866.57	-211.54	312.51	First Sperry MWD+IFR+SC Survey @ 1919.00' MD
8176.00	88.89	359.14	7581.80	214.98	732.86	Landed Curve @ 8176.00' MD, 88.89° INC, 7581.80' TVD
8176.00	88.89	359.14	7581.80	214.98	732.86	Lat: 40.039881° Long: -104.867377°
8755.00	89.39	2.29	7572.88	793.65	737.66	Exit 460' Rad 8755.00' MD, 7572.88' TVD
14420.00	90.53	357.28	7557.93	6456.46	742.64	Enter 460' Rad 14420.00' MD, 7557.93' TVD
14628.00	88.98	358.30	7559.18	6664.24	733.41	Last Sperry MWD+IFR+SC Survey @ 14628.00' MD
14674.00	88.98	358.30	7560.00	6710.21	732.05	Straight Line Projection to TD @ 14674.00' MD
14674.00	88.98	358.30	7560.00	6710.21	732.05	Lat: 40.057718° Long: -104.867379°

LEGEND

- Wagner 26C-10HZ, Original Wellbore, Rev A4 V0
- Final Surveys



Job# 904337671

Precision 464

US ROCKIES WATTENBERG PLANNING

WELD-NAD83-UTMFT13N Wagner 1N-W10HZ Pad - PD 464

API# 05-123-43477

Wagner 26C-10HZ

Original Wellbore

Design: Final Surveys

Sperry Drilling Services

Combo Report

10 October, 2017

Well Coordinates: 40° 02' 21.45" N
104° 52' 11.98" W

North American Datum 1983
Zone 13N (108 W to 102 W)
14,541,067.52 N
1,676,803.82 E

Ground Level: 4,971.00 usft

Local Coordinate Origin:

Centered on Well Wagner 26C-10HZ

Viewing Datum:

RKB 21' @ 4992.00usft (Precision 464)

TVDs to System:

N

North Reference:

True

Unit System:

Dec-Deg - API - US Survey Feet - Custom

Version: 5000.1 Build: 81D

Report Version: Midcon Combo v1.11

HALLIBURTON

Design Report for Wagner 26C-10HZ - Final Surveys

Measured Depth (usft)	Inclination (°)	True Azimuth (°)	TVD below System (usft)	Vertical Depth (usft)	Local Coordinates		Map Coordinates		Dogleg Rate (°/100usft)	Vertical Section (usft)	Comments
					Northing (usft)	Easting (usft)	Northing (usft)	Easting (usft)			
0.00	0.00	0.00	-4,992.00	0.00	0.00 N	0.00 E	14,541,067.52	1,676,803.82	0.00	0.00	
133.00	1.01	11.56	-4,859.01	132.99	1.15 N	0.23 E	14,541,068.67	1,676,804.05	0.76	1.15	First Total MWD+IFR Surface Survey
165.00	0.88	45.84	-4,827.01	164.99	1.60 N	0.47 E	14,541,069.12	1,676,804.28	1.78	1.60	
197.00	0.92	60.78	-4,795.02	196.98	1.89 N	0.87 E	14,541,069.41	1,676,804.68	0.74	1.89	
229.00	1.05	83.28	-4,763.02	228.98	2.05 N	1.38 E	14,541,069.58	1,676,805.20	1.27	2.05	
260.00	1.27	98.22	-4,732.03	259.97	2.04 N	2.01 E	14,541,069.56	1,676,805.82	1.20	2.04	
292.00	1.45	125.47	-4,700.04	291.96	1.75 N	2.69 E	14,541,069.28	1,676,806.50	2.08	1.75	
324.00	1.67	132.67	-4,668.05	323.95	1.20 N	3.36 E	14,541,068.73	1,676,807.18	0.92	1.20	
355.00	1.93	137.33	-4,637.06	354.94	0.51 N	4.04 E	14,541,068.04	1,676,807.86	0.96	0.51	
387.00	2.42	136.54	-4,605.09	386.91	0.38 S	4.87 E	14,541,067.15	1,676,808.69	1.53	-0.37	
419.00	2.90	135.93	-4,573.12	418.88	1.45 S	5.90 E	14,541,066.08	1,676,809.72	1.50	-1.45	
451.00	3.52	128.28	-4,541.17	450.83	2.64 S	7.24 E	14,541,064.89	1,676,811.06	2.35	-2.64	
483.00	4.44	130.04	-4,509.25	482.75	4.04 S	8.96 E	14,541,063.49	1,676,812.78	2.90	-4.04	
514.00	5.27	125.82	-4,478.36	513.64	5.65 S	11.03 E	14,541,061.89	1,676,814.86	2.91	-5.64	
546.00	6.20	125.03	-4,446.52	545.48	7.50 S	13.64 E	14,541,060.04	1,676,817.47	2.92	-7.49	
577.00	6.72	125.91	-4,415.72	576.28	9.53 S	16.48 E	14,541,058.02	1,676,820.31	1.71	-9.52	
609.00	7.34	125.91	-4,383.96	608.04	11.82 S	19.65 E	14,541,055.73	1,676,823.48	1.94	-11.81	
640.00	7.73	124.68	-4,353.23	638.77	14.17 S	22.97 E	14,541,053.38	1,676,826.81	1.36	-14.16	
672.00	8.35	123.01	-4,321.54	670.46	16.66 S	26.68 E	14,541,050.90	1,676,830.53	2.07	-16.65	
704.00	8.88	122.39	-4,289.90	702.10	19.25 S	30.72 E	14,541,048.32	1,676,834.57	1.68	-19.23	
736.00	9.58	124.06	-4,258.32	733.68	22.06 S	35.01 E	14,541,045.51	1,676,838.86	2.34	-22.05	
767.00	10.72	124.32	-4,227.80	764.20	25.14 S	39.53 E	14,541,042.44	1,676,843.38	3.68	-25.11	
799.00	11.25	124.76	-4,196.39	795.61	28.59 S	44.55 E	14,541,038.99	1,676,848.41	1.68	-28.57	
830.00	11.73	124.41	-4,166.01	825.99	32.10 S	49.64 E	14,541,035.50	1,676,853.50	1.56	-32.07	
862.00	12.17	123.97	-4,134.70	857.30	35.82 S	55.12 E	14,541,031.78	1,676,858.99	1.40	-35.79	
894.00	12.74	123.18	-4,103.46	888.54	39.64 S	60.87 E	14,541,027.97	1,676,864.74	1.86	-39.60	
925.00	12.92	122.92	-4,073.23	918.77	43.39 S	66.64 E	14,541,024.23	1,676,870.52	0.61	-43.36	
957.00	13.45	122.74	-4,042.07	949.93	47.35 S	72.77 E	14,541,020.28	1,676,876.66	1.66	-47.31	
988.00	13.84	121.95	-4,011.95	980.05	51.26 S	78.95 E	14,541,016.38	1,676,882.84	1.39	-51.22	
1,020.00	14.46	121.77	-3,980.92	1,011.08	55.39 S	85.59 E	14,541,012.26	1,676,889.49	1.94	-55.34	
1,050.00	15.16	123.71	-3,951.92	1,040.08	59.54 S	92.04 E	14,541,008.12	1,676,895.95	2.86	-59.49	
1,115.00	15.82	123.27	-3,889.28	1,102.72	69.11 S	106.52 E	14,540,998.56	1,676,910.44	1.03	-69.06	
1,147.00	16.52	123.44	-3,858.54	1,133.46	74.01 S	113.96 E	14,540,993.67	1,676,917.89	2.19	-73.96	
1,178.00	17.18	125.20	-3,828.88	1,163.12	79.08 S	121.38 E	14,540,988.62	1,676,925.32	2.69	-79.02	
1,210.00	17.97	124.32	-3,798.37	1,193.63	84.59 S	129.32 E	14,540,983.12	1,676,933.26	2.60	-84.52	
1,242.00	18.63	124.59	-3,767.99	1,224.01	90.28 S	137.60 E	14,540,977.45	1,676,941.56	2.08	-90.20	
1,274.00	18.41	123.27	-3,737.65	1,254.35	95.95 S	146.04 E	14,540,971.79	1,676,950.00	1.48	-95.87	
1,305.00	17.62	121.16	-3,708.17	1,283.83	101.06 S	154.15 E	14,540,966.68	1,676,958.11	3.30	-100.98	
1,337.00	17.27	120.10	-3,677.64	1,314.36	105.95 S	162.40 E	14,540,961.81	1,676,966.37	1.48	-105.87	
1,368.00	17.62	120.10	-3,648.06	1,343.94	110.61 S	170.44 E	14,540,957.16	1,676,974.42	1.13	-110.52	
1,400.00	17.49	122.57	-3,617.55	1,374.45	115.63 S	178.68 E	14,540,952.15	1,676,982.67	2.36	-115.54	

Design Report for Wagner 26C-10HZ - Final Surveys

Measured Depth (usft)	Inclination (°)	True Azimuth (°)	TVD below System (usft)	Vertical Depth (usft)	Local Coordinates		Map Coordinates		Dogleg Rate (°/100usft)	Vertical Section (usft)	Comments
					Northing (usft)	Easting (usft)	Northing (usft)	Easting (usft)			
1,432.00	17.62	121.69	-3,587.04	1,404.96	120.76 S	186.86 E	14,540,947.03	1,676,990.85	0.92	-120.66	
1,463.00	17.53	122.30	-3,557.49	1,434.51	125.72 S	194.79 E	14,540,942.08	1,676,998.80	0.66	-125.62	
1,495.00	17.75	125.29	-3,526.99	1,465.01	131.11 S	202.85 E	14,540,936.70	1,677,006.86	2.91	-131.01	
1,527.00	18.33	126.61	-3,496.57	1,495.43	136.93 S	210.87 E	14,540,930.90	1,677,014.89	2.22	-136.82	
1,558.00	18.63	127.05	-3,467.17	1,524.83	142.82 S	218.73 E	14,540,925.02	1,677,022.76	1.07	-142.71	
1,590.00	18.94	126.35	-3,436.87	1,555.13	148.98 S	227.00 E	14,540,918.87	1,677,031.03	1.20	-148.86	
1,622.00	19.51	126.08	-3,406.66	1,585.34	155.21 S	235.50 E	14,540,912.66	1,677,039.54	1.80	-155.08	
1,652.00	19.12	126.08	-3,378.34	1,613.66	161.05 S	243.52 E	14,540,906.83	1,677,047.57	1.30	-160.92	
1,684.00	19.16	126.43	-3,348.11	1,643.89	167.25 S	251.98 E	14,540,900.63	1,677,056.04	0.38	-167.12	
1,716.00	19.73	126.08	-3,317.94	1,674.06	173.55 S	260.57 E	14,540,894.35	1,677,064.64	1.82	-173.42	
1,780.00	19.64	126.96	-3,257.68	1,734.32	186.38 S	277.89 E	14,540,881.54	1,677,081.99	0.48	-186.24	
1,811.00	18.24	126.08	-3,228.36	1,763.64	192.37 S	285.98 E	14,540,875.57	1,677,090.08	4.61	-192.22	
1,831.00	17.75	125.47	-3,209.33	1,782.67	195.99 S	290.99 E	14,540,871.96	1,677,095.10	2.62	-195.83	Last Total MWD+IFR Surface Survey - Tie-On to Last Surface Survey @ 1831.00' MD
1,919.00	17.37	126.26	-3,125.43	1,866.57	211.54 S	312.51 E	14,540,856.44	1,677,116.64	0.51	-211.38	First Sperry MWD+IFR+SC Survey @ 1919.00' MD
2,009.00	16.77	124.41	-3,039.40	1,952.60	226.82 S	334.05 E	14,540,841.19	1,677,138.20	0.90	-226.65	
2,099.00	18.11	129.90	-2,953.53	2,038.47	243.13 S	355.50 E	14,540,824.91	1,677,159.67	2.36	-242.95	
2,188.00	17.95	128.94	-2,868.90	2,123.10	260.63 S	376.78 E	14,540,807.44	1,677,180.98	0.38	-260.43	
2,278.00	17.46	126.67	-2,783.16	2,208.84	277.41 S	398.39 E	14,540,790.70	1,677,202.62	0.94	-277.20	
2,368.00	18.54	137.23	-2,697.55	2,294.45	295.98 S	418.95 E	14,540,772.15	1,677,223.20	3.81	-295.76	
2,458.00	17.02	135.45	-2,611.85	2,380.15	315.87 S	437.90 E	14,540,752.29	1,677,242.18	1.79	-315.64	
2,548.00	15.75	130.24	-2,525.50	2,466.50	333.15 S	456.47 E	14,540,735.04	1,677,260.78	2.16	-332.91	
2,637.00	16.95	128.62	-2,440.10	2,551.90	349.05 S	475.83 E	14,540,719.17	1,677,280.16	1.44	-348.80	
2,727.00	16.23	125.77	-2,353.85	2,638.15	364.59 S	496.28 E	14,540,703.65	1,677,300.64	1.21	-364.33	
2,817.00	20.26	128.54	-2,268.39	2,723.61	381.66 S	518.69 E	14,540,686.62	1,677,323.06	4.58	-381.39	
2,907.00	20.01	138.75	-2,183.86	2,808.14	402.95 S	541.03 E	14,540,665.36	1,677,345.44	3.91	-402.67	
2,996.00	18.51	135.81	-2,099.84	2,892.16	424.53 S	560.92 E	14,540,643.81	1,677,365.36	2.01	-424.24	
3,086.00	17.04	133.26	-2,014.14	2,977.86	443.81 S	580.49 E	14,540,624.55	1,677,384.95	1.85	-443.51	
3,176.00	15.95	129.94	-1,927.84	3,064.16	460.79 S	599.57 E	14,540,607.61	1,677,404.06	1.60	-460.48	
3,266.00	17.95	132.18	-1,841.76	3,150.24	478.04 S	619.33 E	14,540,590.38	1,677,423.85	2.34	-477.72	
3,356.00	17.11	130.65	-1,755.94	3,236.06	495.98 S	639.65 E	14,540,572.47	1,677,444.20	1.06	-495.65	
3,445.00	15.59	127.99	-1,670.54	3,321.46	511.87 S	659.01 E	14,540,556.61	1,677,463.58	1.90	-511.53	
3,535.00	18.11	131.54	-1,584.40	3,407.60	528.60 S	679.02 E	14,540,539.92	1,677,483.61	3.02	-528.24	
3,625.00	17.08	131.77	-1,498.62	3,493.38	546.68 S	699.35 E	14,540,521.87	1,677,503.96	1.15	-546.31	
3,715.00	15.33	128.50	-1,412.19	3,579.81	562.89 S	718.52 E	14,540,505.68	1,677,523.16	2.19	-562.51	
3,804.00	13.33	126.71	-1,325.97	3,666.03	576.35 S	735.95 E	14,540,492.25	1,677,540.61	2.30	-575.96	
3,894.00	11.36	140.38	-1,238.03	3,753.97	589.38 S	749.93 E	14,540,479.24	1,677,554.60	3.90	-588.99	
3,984.00	10.14	146.00	-1,149.61	3,842.39	602.78 S	760.01 E	14,540,465.85	1,677,564.71	1.79	-602.38	
4,074.00	4.73	154.31	-1,060.40	3,931.60	612.70 S	766.05 E	14,540,455.94	1,677,570.77	6.11	-612.29	
4,164.00	3.78	201.50	-970.62	4,021.38	618.80 S	766.57 E	14,540,449.84	1,677,571.30	3.90	-618.40	
4,253.00	3.40	204.42	-881.80	4,110.20	623.93 S	764.41 E	14,540,444.70	1,677,569.14	0.47	-623.53	

Design Report for Wagner 26C-10HZ - Final Surveys

Measured Depth (usft)	Inclination (°)	True Azimuth (°)	TVD below System (usft)	Vertical Depth (usft)	Local Coordinates		Map Coordinates		Dogleg Rate (°/100usft)	Vertical Section (usft)	Comments
					Northing (usft)	Easting (usft)	Northing (usft)	Easting (usft)			
4,343.00	4.87	239.07	-792.02	4,199.98	628.33 S	760.03 E	14,540,440.30	1,677,564.76	3.15	-627.93	
4,433.00	6.55	249.52	-702.47	4,289.53	632.09 S	751.94 E	14,540,436.53	1,677,556.68	2.19	-631.70	
4,612.00	1.00	165.08	-523.87	4,468.13	637.18 S	742.77 E	14,540,431.43	1,677,547.52	3.65	-636.79	
4,702.00	0.67	73.76	-433.88	4,558.12	637.79 S	743.48 E	14,540,430.82	1,677,548.23	1.35	-637.40	
4,792.00	0.28	68.77	-343.88	4,648.12	637.56 S	744.19 E	14,540,431.05	1,677,548.94	0.44	-637.17	
4,882.00	0.26	31.53	-253.88	4,738.12	637.31 S	744.50 E	14,540,431.30	1,677,549.25	0.19	-636.92	
4,971.00	0.42	333.64	-164.88	4,827.12	636.84 S	744.46 E	14,540,431.77	1,677,549.21	0.40	-636.45	
5,061.00	0.71	338.51	-74.89	4,917.11	636.03 S	744.11 E	14,540,432.58	1,677,548.85	0.33	-635.64	
5,151.00	0.80	330.09	15.10	5,007.10	634.96 S	743.59 E	14,540,433.64	1,677,548.34	0.16	-634.58	
5,241.00	0.36	1.20	105.10	5,097.10	634.14 S	743.28 E	14,540,434.47	1,677,548.03	0.58	-633.75	
5,330.00	0.59	13.77	194.10	5,186.10	633.41 S	743.40 E	14,540,435.19	1,677,548.14	0.28	-633.02	
5,420.00	0.39	359.60	284.09	5,276.09	632.66 S	743.51 E	14,540,435.95	1,677,548.25	0.26	-632.27	
5,599.00	0.28	11.63	463.09	5,455.09	631.62 S	743.59 E	14,540,436.99	1,677,548.33	0.07	-631.23	
5,689.00	0.30	3.40	553.09	5,545.09	631.17 S	743.65 E	14,540,437.44	1,677,548.39	0.05	-630.78	
5,779.00	0.58	34.44	643.09	5,635.09	630.56 S	743.92 E	14,540,438.05	1,677,548.66	0.40	-630.17	
5,868.00	0.65	1.85	732.08	5,724.08	629.68 S	744.19 E	14,540,438.93	1,677,548.93	0.40	-629.29	
5,999.00	1.17	359.32	863.06	5,855.06	627.60 S	744.20 E	14,540,441.01	1,677,548.93	0.40	-627.21	
6,178.00	1.11	357.06	1,042.03	6,034.03	624.04 S	744.09 E	14,540,444.57	1,677,548.82	0.04	-623.65	
6,268.00	1.24	3.65	1,132.01	6,124.01	622.20 S	744.11 E	14,540,446.41	1,677,548.83	0.21	-621.81	
6,358.00	1.47	7.14	1,221.98	6,213.98	620.08 S	744.31 E	14,540,448.53	1,677,549.03	0.27	-619.69	
6,448.00	1.57	3.56	1,311.95	6,303.95	617.71 S	744.53 E	14,540,450.90	1,677,549.25	0.15	-617.32	
6,538.00	1.23	358.40	1,401.93	6,393.93	615.51 S	744.58 E	14,540,453.10	1,677,549.30	0.40	-615.12	
6,627.00	1.16	354.83	1,490.91	6,482.91	613.66 S	744.47 E	14,540,454.95	1,677,549.19	0.11	-613.27	
6,807.00	0.76	26.97	1,670.88	6,662.88	610.78 S	744.85 E	14,540,457.83	1,677,549.56	0.36	-610.39	
6,897.00	3.67	14.83	1,760.81	6,752.81	607.46 S	745.86 E	14,540,461.15	1,677,550.56	3.26	-607.07	
6,986.00	8.14	6.18	1,849.31	6,841.31	598.44 S	747.27 E	14,540,470.17	1,677,551.96	5.11	-598.05	
7,076.00	14.33	2.36	1,937.55	6,929.55	580.96 S	748.41 E	14,540,487.65	1,677,553.08	6.92	-580.57	
7,166.00	22.24	0.38	2,022.93	7,014.93	552.76 S	748.98 E	14,540,515.86	1,677,553.61	8.81	-552.36	
7,256.00	26.49	4.48	2,104.91	7,096.91	515.69 S	750.67 E	14,540,552.92	1,677,555.24	5.08	-515.30	
7,345.00	31.16	358.36	2,182.87	7,174.87	472.86 S	751.56 E	14,540,595.76	1,677,556.07	6.20	-472.46	
7,435.00	37.55	356.49	2,257.14	7,249.14	422.15 S	749.21 E	14,540,646.46	1,677,553.65	7.20	-421.76	
7,525.00	42.56	355.22	2,326.00	7,318.00	364.41 S	744.99 E	14,540,704.20	1,677,549.34	5.64	-364.02	
7,615.00	49.06	356.42	2,388.71	7,380.71	300.08 S	740.33 E	14,540,768.52	1,677,544.58	7.28	-299.70	
7,705.00	57.56	358.26	2,442.43	7,434.43	228.06 S	737.05 E	14,540,840.54	1,677,541.20	9.58	-227.67	
7,799.00	64.24	0.58	2,488.13	7,480.13	145.98 S	736.27 E	14,540,922.61	1,677,540.30	7.43	-145.60	
7,893.00	71.85	359.53	2,523.25	7,515.25	58.87 S	736.33 E	14,541,009.73	1,677,540.24	8.16	-58.48	
7,987.00	71.99	358.02	2,552.42	7,544.42	30.47 N	734.42 E	14,541,099.06	1,677,538.19	1.53	30.85	
8,082.00	76.71	0.44	2,578.04	7,570.04	121.90 N	733.21 E	14,541,190.50	1,677,536.85	5.54	122.29	
8,176.00	88.89	359.14	2,589.80	7,581.80	214.98 N	732.86 E	14,541,283.58	1,677,536.36	13.03	215.37	Landed Curve @ 8176.00' MD, 88.89° INC, 7581.80'
											TVD - Lat: 40.039881° Long: -104.867377°
8,270.00	91.08	359.43	2,589.83	7,581.83	308.97 N	731.69 E	14,541,377.56	1,677,535.05	2.35	309.35	

Design Report for Wagner 26C-10HZ - Final Surveys

Measured Depth (usft)	Inclination (°)	True Azimuth (°)	TVD below System (usft)	Vertical Depth (usft)	Local Coordinates		Map Coordinates		Dogleg Rate (°/100usft)	Vertical Section (usft)	Comments
					Northing (usft)	Easting (usft)	Northing (usft)	Easting (usft)			
8,364.00	90.83	358.59	2,588.26	7,580.26	402.94 N	730.06 E	14,541,471.53	1,677,533.29	0.93	403.33	
8,459.00	93.82	1.81	2,584.41	7,576.41	497.84 N	730.39 E	14,541,566.43	1,677,533.48	4.62	498.22	
8,553.00	90.83	0.64	2,580.59	7,572.59	591.73 N	732.40 E	14,541,660.32	1,677,535.35	3.42	592.11	
8,741.00	89.11	2.23	2,580.69	7,572.69	779.66 N	737.10 E	14,541,848.25	1,677,539.79	1.25	780.04	
8,755.00	89.39	2.29	2,580.88	7,572.88	793.65 N	737.66 E	14,541,862.24	1,677,540.32	2.07	794.03	Exit 460' Rad 8755.00' MD, 7572.88' TVD
8,835.00	91.02	2.61	2,580.59	7,572.59	873.57 N	741.07 E	14,541,942.17	1,677,543.62	2.07	873.96	
8,930.00	91.51	2.24	2,578.49	7,570.49	968.46 N	745.09 E	14,542,037.07	1,677,547.50	0.65	968.85	
9,024.00	90.89	1.42	2,576.52	7,568.52	1,062.39 N	748.09 E	14,542,131.00	1,677,550.36	1.09	1,062.78	
9,118.00	90.18	359.89	2,575.64	7,567.64	1,156.38 N	749.17 E	14,542,224.99	1,677,551.30	1.79	1,156.77	
9,208.00	90.31	0.34	2,575.26	7,567.26	1,246.38 N	749.35 E	14,542,314.99	1,677,551.35	0.52	1,246.77	
9,298.00	89.41	359.15	2,575.48	7,567.48	1,336.37 N	748.95 E	14,542,404.99	1,677,550.82	1.66	1,336.76	
9,477.00	90.74	359.67	2,575.24	7,567.24	1,515.36 N	747.10 E	14,542,583.97	1,677,548.71	0.80	1,515.75	
9,567.00	90.83	359.10	2,574.01	7,566.01	1,605.34 N	746.14 E	14,542,673.95	1,677,547.61	0.64	1,605.74	
9,657.00	90.95	359.08	2,572.61	7,564.61	1,695.32 N	744.71 E	14,542,763.93	1,677,546.05	0.14	1,695.71	
9,746.00	88.89	358.71	2,572.74	7,564.74	1,784.30 N	742.99 E	14,542,852.90	1,677,544.21	2.35	1,784.69	
9,836.00	89.66	359.79	2,573.88	7,565.88	1,874.28 N	741.82 E	14,542,942.89	1,677,542.90	1.47	1,874.67	
9,926.00	89.45	359.47	2,574.57	7,566.57	1,964.28 N	741.23 E	14,543,032.88	1,677,542.19	0.43	1,964.67	
10,016.00	92.13	2.05	2,573.33	7,565.33	2,054.25 N	742.43 E	14,543,122.85	1,677,543.25	4.13	2,054.64	
10,105.00	90.40	1.61	2,571.37	7,563.37	2,143.18 N	745.27 E	14,543,211.78	1,677,545.96	2.01	2,143.57	
10,195.00	90.15	1.99	2,570.94	7,562.94	2,233.13 N	748.10 E	14,543,301.74	1,677,548.65	0.51	2,233.52	
10,285.00	89.97	1.97	2,570.84	7,562.84	2,323.08 N	751.20 E	14,543,391.69	1,677,551.63	0.20	2,323.47	
10,464.00	90.77	2.70	2,569.69	7,561.69	2,501.92 N	758.50 E	14,543,570.55	1,677,558.66	0.61	2,502.32	
10,554.00	91.30	3.28	2,568.06	7,560.06	2,591.78 N	763.19 E	14,543,660.42	1,677,563.23	0.87	2,592.18	
10,644.00	88.77	1.46	2,568.01	7,560.01	2,681.70 N	766.91 E	14,543,750.33	1,677,566.82	3.46	2,682.10	
10,734.00	88.58	1.06	2,570.09	7,562.09	2,771.65 N	768.89 E	14,543,840.29	1,677,568.66	0.49	2,772.05	
10,823.00	89.45	359.33	2,571.62	7,563.62	2,860.63 N	769.19 E	14,543,929.27	1,677,568.84	2.18	2,861.03	
10,913.00	89.48	358.85	2,572.46	7,564.46	2,950.62 N	767.76 E	14,544,019.26	1,677,567.28	0.53	2,951.02	
11,003.00	89.75	359.04	2,573.06	7,565.06	3,040.60 N	766.11 E	14,544,109.24	1,677,565.49	0.37	3,041.00	
11,093.00	89.41	358.92	2,573.72	7,565.72	3,130.58 N	764.50 E	14,544,199.22	1,677,563.75	0.40	3,130.98	
11,183.00	90.99	0.06	2,573.41	7,565.41	3,220.57 N	763.70 E	14,544,289.21	1,677,562.82	2.16	3,220.97	
11,272.00	91.73	1.02	2,571.30	7,563.30	3,309.54 N	764.54 E	14,544,378.18	1,677,563.53	1.36	3,309.94	
11,362.00	92.22	1.37	2,568.19	7,560.19	3,399.47 N	766.42 E	14,544,468.11	1,677,565.27	0.67	3,399.87	
11,452.00	91.20	359.51	2,565.51	7,557.51	3,489.42 N	767.11 E	14,544,558.06	1,677,565.83	2.36	3,489.82	
11,541.00	90.40	358.92	2,564.27	7,556.27	3,578.40 N	765.89 E	14,544,647.04	1,677,564.48	1.12	3,578.80	
11,631.00	88.98	358.51	2,564.75	7,556.75	3,668.38 N	763.87 E	14,544,737.01	1,677,562.33	1.64	3,668.78	
11,721.00	88.92	357.32	2,566.40	7,558.40	3,758.30 N	760.60 E	14,544,826.93	1,677,558.93	1.32	3,758.70	
11,811.00	88.61	357.13	2,568.34	7,560.34	3,848.17 N	756.24 E	14,544,916.80	1,677,554.44	0.40	3,848.57	
11,901.00	88.62	357.30	2,570.52	7,562.52	3,938.04 N	751.87 E	14,545,006.66	1,677,549.94	0.19	3,938.43	
11,990.00	89.69	359.41	2,571.83	7,563.83	4,026.99 N	749.32 E	14,545,095.60	1,677,547.26	2.66	4,027.38	
12,080.00	89.60	358.94	2,572.39	7,564.39	4,116.98 N	748.02 E	14,545,185.59	1,677,545.83	0.53	4,117.37	
12,170.00	89.54	358.81	2,573.06	7,565.06	4,206.96 N	746.25 E	14,545,275.56	1,677,543.93	0.16	4,207.35	

Design Report for Wagner 26C-10HZ - Final Surveys

Measured Depth (usft)	Inclination (°)	True Azimuth (°)	TVD below System (usft)	Vertical Depth (usft)	Local Coordinates		Map Coordinates		Dogleg Rate (°/100usft)	Vertical Section (usft)	Comments
					Northing (usft)	Easting (usft)	Northing (usft)	Easting (usft)			
12,260.00	89.85	358.50	2,573.54	7,565.54	4,296.93 N	744.14 E	14,545,365.53	1,677,541.69	0.49	4,297.32	
12,349.00	90.25	358.30	2,573.46	7,565.46	4,385.90 N	741.65 E	14,545,454.50	1,677,539.07	0.50	4,386.28	
12,529.00	90.62	358.04	2,572.10	7,564.10	4,565.80 N	735.91 E	14,545,634.39	1,677,533.06	0.25	4,566.18	
12,619.00	89.66	0.45	2,571.88	7,563.88	4,655.78 N	734.72 E	14,545,724.37	1,677,531.74	2.88	4,656.17	
12,708.00	89.45	0.87	2,572.57	7,564.57	4,744.77 N	735.75 E	14,545,813.36	1,677,532.64	0.53	4,745.16	
12,798.00	89.23	359.80	2,573.61	7,565.61	4,834.77 N	736.27 E	14,545,903.36	1,677,533.03	1.21	4,835.15	
12,888.00	90.34	359.83	2,573.94	7,565.94	4,924.76 N	735.98 E	14,545,993.35	1,677,532.61	1.23	4,925.15	
12,978.00	90.22	359.26	2,573.50	7,565.50	5,014.76 N	735.27 E	14,546,083.35	1,677,531.77	0.65	5,015.14	
13,067.00	89.69	358.89	2,573.57	7,565.57	5,103.75 N	733.83 E	14,546,172.33	1,677,530.20	0.73	5,104.13	
13,157.00	90.00	1.05	2,573.82	7,565.82	5,193.74 N	733.78 E	14,546,262.33	1,677,530.02	2.42	5,194.12	
13,247.00	89.51	0.39	2,574.20	7,566.20	5,283.73 N	734.91 E	14,546,352.32	1,677,531.02	0.91	5,284.12	
13,426.00	90.43	1.37	2,574.30	7,566.30	5,462.71 N	737.66 E	14,546,531.30	1,677,533.51	0.75	5,463.09	
13,516.00	90.49	0.78	2,573.57	7,565.57	5,552.69 N	739.35 E	14,546,621.28	1,677,535.06	0.66	5,553.07	
13,606.00	90.00	0.71	2,573.19	7,565.19	5,642.68 N	740.52 E	14,546,711.28	1,677,536.10	0.55	5,643.07	
13,696.00	90.06	1.44	2,573.14	7,565.14	5,732.66 N	742.21 E	14,546,801.26	1,677,537.66	0.81	5,733.05	
13,785.00	90.40	1.13	2,572.78	7,564.78	5,821.64 N	744.21 E	14,546,890.24	1,677,539.53	0.52	5,822.03	
13,875.00	90.74	1.38	2,571.89	7,563.89	5,911.61 N	746.18 E	14,546,980.22	1,677,541.37	0.47	5,912.00	
13,965.00	90.22	0.86	2,571.13	7,563.13	6,001.59 N	747.94 E	14,547,070.20	1,677,542.99	0.82	6,001.98	
14,055.00	90.09	0.30	2,570.89	7,562.89	6,091.59 N	748.85 E	14,547,160.19	1,677,543.77	0.64	6,091.98	
14,234.00	91.05	359.18	2,569.11	7,561.11	6,270.57 N	748.04 E	14,547,339.18	1,677,542.70	0.82	6,270.96	
14,324.00	91.17	358.51	2,567.37	7,559.37	6,360.54 N	746.22 E	14,547,429.14	1,677,540.76	0.76	6,360.93	
14,414.00	90.59	357.29	2,565.98	7,557.98	6,450.46 N	742.92 E	14,547,519.06	1,677,537.33	1.50	6,450.85	
14,420.00	90.53	357.28	2,565.93	7,557.93	6,456.46 N	742.64 E	14,547,525.05	1,677,537.03	1.03	6,456.84	Enter 460' Rad 14420.00' MD, 7557.93' TVD
14,504.00	89.69	357.08	2,565.76	7,557.76	6,540.35 N	738.50 E	14,547,608.94	1,677,532.78	1.03	6,540.74	
14,593.00	89.20	357.87	2,566.63	7,558.63	6,629.26 N	734.58 E	14,547,697.85	1,677,528.72	1.04	6,629.64	
14,628.00	88.98	358.30	2,567.18	7,559.18	6,664.24 N	733.41 E	14,547,732.82	1,677,527.50	1.38	6,664.62	Last Sperry MWD+IFR+SC Survey @ 14628.00' MD
14,674.00	88.98	358.30	2,568.00	7,560.00	6,710.21 N	732.05 E	14,547,778.79	1,677,526.07	0.00	6,710.59	Straight Line Projection to TD @ 14674.00' MD - Lat: 40.057718° Long: -104.867379°

Design Report for Wagner 26C-10HZ - Final Surveys

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
133.00	132.99	1.15	0.23	First Total MWD+IFR Surface Survey
1,831.00	1,782.66	-195.99	290.99	Last Total MWD+IFR Surface Survey
1,831.00	1,782.67	-195.99	290.99	Tie-On to Last Surface Survey @ 1831.00' MD
1,919.00	1,866.57	-211.54	312.51	First Sperry MWD+IFR+SC Survey @ 1919.00' MD
8,176.00	7,581.80	214.98	732.86	Landed Curve @ 8176.00' MD, 88.89° INC, 7581.80' TVD
8,176.00	7,581.80	214.98	732.86	Lat: 40.039881° Long: -104.867377°
8,755.00	7,572.88	793.65	737.66	Exit 460' Rad 8755.00' MD, 7572.88' TVD
14,420.00	7,557.93	6,456.46	742.64	Enter 460' Rad 14420.00' MD, 7557.93' TVD
14,628.00	7,559.18	6,664.24	733.41	Last Sperry MWD+IFR+SC Survey @ 14628.00' MD
14,674.00	7,560.00	6,710.21	732.05	Straight Line Projection to TD @ 14674.00' MD
14,674.00	7,560.00	6,710.21	732.05	Lat: 40.057718° Long: -104.867379°

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin		Start TVD (usft)
				+N/-S (usft)	+E/-W (usft)	
User	No Target (Freehand)	0.03	Slot	0.00	0.00	0.00

Survey tool program

From (usft)	To (usft)	Survey/Plan	Survey Tool
133.00	1,831.00	MWD+IFR Surface Surveys	APC_ISCWSA REV 2 MWD+IFR1
1,831.00	14,628.00	Sperry MWD+IFR+SC Surveys	APC_ISCWSA REV 2 MWD+IFR1+SC
14,674.00	14,674.00	PTB	APC_BLIND

Design Report for Wagner 26C-10HZ - Final Surveys

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
Wagner 26C-10HZ 460 RAD N (At NE Sec 15)									
	0.00	0.00	0.40	6,914.88	741.55	14,547,983.48	1,677,535.27	40.058280	-104.867345
- actual wellpath misses target center by 6954.55usft at 61.42usft MD (61.42 TVD, 0.24 N, 0.05 E)									
- Circle (radius 460.00)									
Wagner 26C-10HZ 460 RAD S (?? At N16E Sec 22 ??)									
	0.00	0.00	0.40	337.68	760.50	14,541,406.31	1,677,563.83	40.040218	-104.867278
- actual wellpath misses target center by 832.11usft at 4.66usft MD (4.66 TVD, 0.00 N, 0.00 E)									
- Circle (radius 460.00)									
Wagner 26C-10HZ SHL ()									
	0.00	0.00	0.40	0.00	0.00	14,541,067.52	1,676,803.82	40.039291	-104.869995
- actual wellpath hits target center									
- Point									
Wagner 26C-10HZ PBHL A4 (203' FNL 14' FEL Sec 22 NEW)									
	0.00	0.00	7,581.00	6,711.00	750.00	14,547,779.61	1,677,544.02	40.057720	-104.867315
- actual wellpath misses target center by 27.64usft at 14674.00usft MD (7560.00 TVD, 6710.21 N, 732.05 E)									
- Point									

Directional Difficulty Index

Average Dogleg over Survey:	1.85 °/100usft	Maximum Dogleg over Survey:	13.03 °/100usft at 8,176.00 usft
Net Tortousity applicable to Plans:	0.88 °/100usft	Directional Difficulty Index:	6.643

Audit Info

North Reference Sheet for Wagner 1N-W10HZ Pad - PD 464 - Wagner 26C-10HZ - Original Wellbore

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

Vertical Depths are relative to RKB 21' @ 4992.00usft (Precision 464). Northing and Easting are relative to Wagner 26C-10HZ

Coordinate System is Universal Transverse Mercator (US Survey Feet), Zone 13N (108 W to 102 W) using datum North American Datum 1983, ellipsoid GRS 1980

Projection method is Transverse Mercator (Gauss-Kruger)

Central Meridian is -105.000000°, Longitude Origin:0.000000°, Latitude Origin:0.000000°

False Easting: 1,640,416.67usft, False Northing: 0.00usft, Scale Reduction: 0.99960151

Grid Coordinates of Well: 14,541,067.52 usft N, 1,676,803.82 usft E

Geographical Coordinates of Well: 40° 02' 21.45" N, 104° 52' 11.98" W

Grid Convergence at Surface is: 0.08°

Based upon Minimum Curvature type calculations, at a Measured Depth of 14,674.00usft the Bottom Hole Displacement is 6,750.02usft in the Direction of 6.23° (True).

Magnetic Convergence at surface is: -8.31° (2 October 2017, , BGGM2017)

