



Chisholm Energy Holdings

GL = 31' KB @ 3650.80usft (JDC 7)

Ground Level: 3619.80

Project: Lea County, NM (NAD 83)

Site: Diamondback 24 Federal

Well: 2BS 1H

Wellbore: ST01

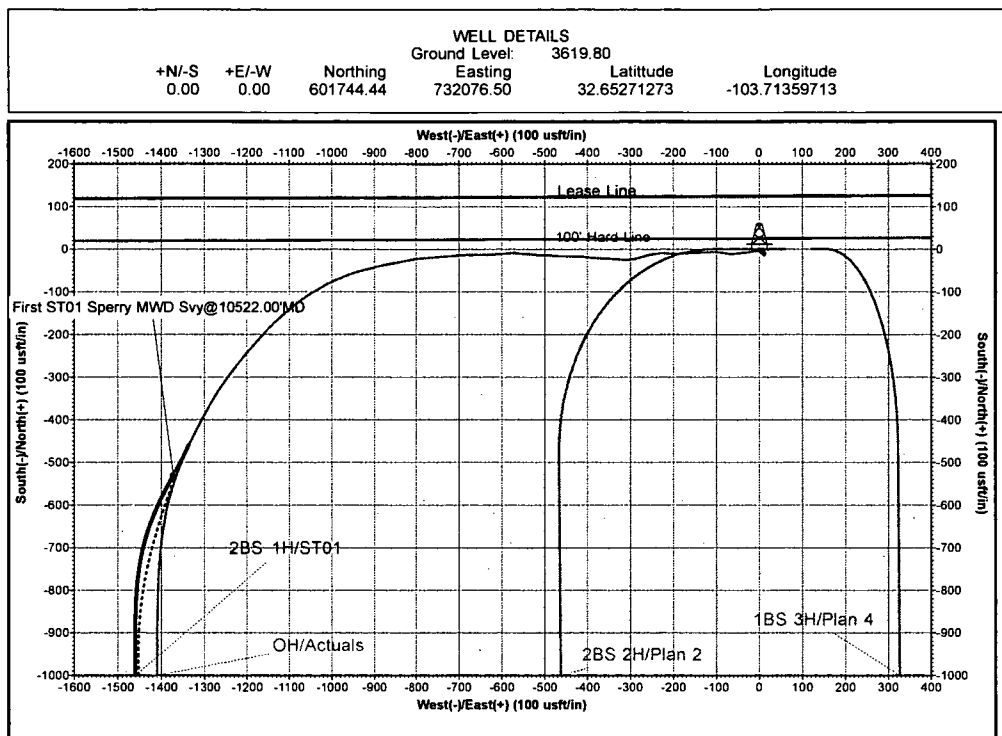
Design: Plan 6

Rig: JDC 7

Map System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone Name: New Mexico Eastern Zone



Azimuths to Grid North
True North: -0.33°
Magnetic North: 6.64°
Magnetic Field
Strength: 48119.3nT
Dip Angle: 60.40°
Date: 7/26/2018
Model: BGM2018

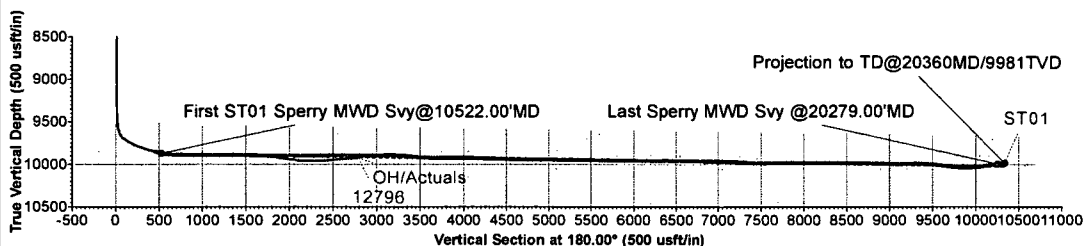
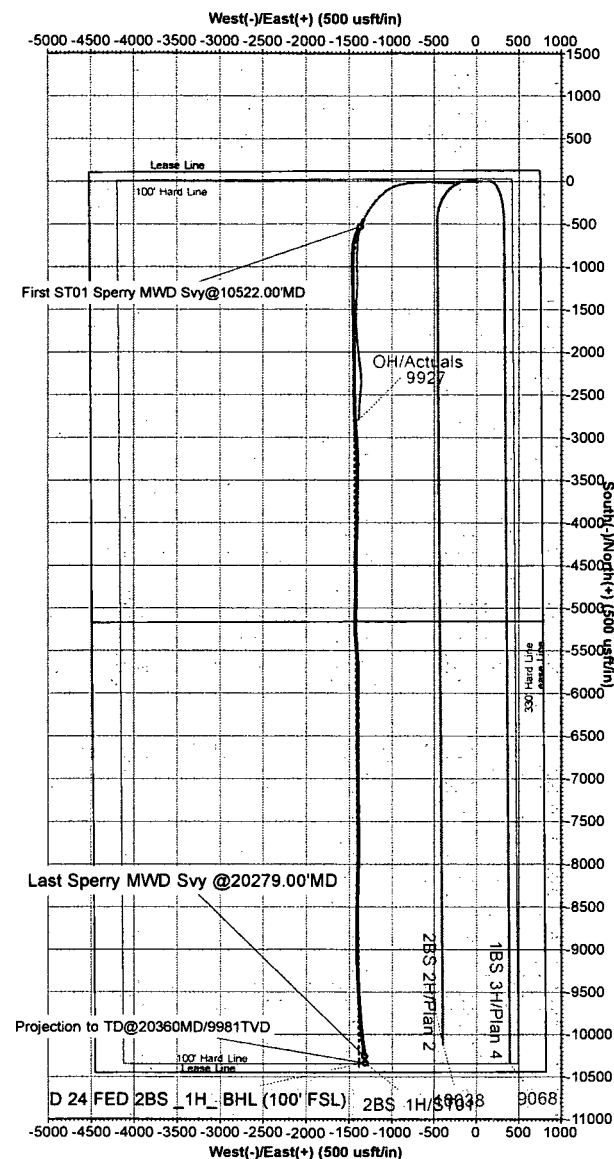


SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Annotation
10470.00	78.42	203.19	9860.49	-485.81	-1348.57	0.00	0.00	485.81	Tie in to OH, Begin Build & Turn
10704.43	89.20	194.34	9885.79	-706.00	-1423.18	5.93	-39.82	706.00	Begin Turn
10953.07	89.20	179.59	9889.29	-952.10	-1453.24	5.93	-90.09	952.10	Hold
20345.82	89.20	179.59	10020.43	-10343.69	-1386.03	0.00	0.00	10343.69	TD at 20345.82' MD (100' FSL)

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
D 24 FED 2BS_1H_BHL (100' FSL)	0.00	-10343.69	-1386.03	591400.75	730690.47	32.62430456	-103.71829487



HOBBS OGD
DEC 26 2018
RECEIVED

JDC 7

Chisholm Energy Holdings

Lea County, NM (NAD 83) Diamondback 24 Federal

API#

2BS 1H

ST01

Design: ST01 (Final Surveys)

Sperry Drilling Services

Combo Report

04 October, 2018

Well Coordinates: 32.65271273
-103.71359713

North American Datum 1983
New Mexico Eastern Zone
601,744.44 N
732,076.50 E

Ground Level: 3,619.80 usft

Local Coordinate Origin:

Viewing Datum:

TVDs to System:

North Reference:

Unit System:

Centered on Well 2BS 1H
GL = 31' KB @ 3650.80usft (JDC 7)
N
Grid
Midcon (2 decimal)

Version: 5000.1 Build: 81E

Report Version: Midcon Combo v1.13

HALLIBURTON

HALLIBURTON**Design Report for 2BS 1H - ST01 (Final Surveys)**

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	601,744.44	732,076.50	0.00	0.00	0.00	
134.00	0.22	205.32	134.00	0.23 S	0.11 W	601,744.21	732,076.39	0.16	0.23	205.32	
194.00	0.53	172.87	194.00	0.61 S	0.12 W	601,743.83	732,076.38	0.61	0.61	-51.37	
254.00	0.84	165.07	253.99	1.31 S	0.02 E	601,743.13	732,076.52	0.54	1.31	-20.67	
314.00	1.02	173.62	313.99	2.27 S	0.20 E	601,742.17	732,076.70	0.38	2.27	41.96	
374.00	1.03	156.93	373.98	3.29 S	0.47 E	601,741.15	732,076.97	0.50	3.29	-96.44	
434.00	1.23	172.39	433.97	4.43 S	0.76 E	601,740.01	732,077.26	0.60	4.43	64.62	
527.00	1.01	159.52	526.95	6.19 S	1.18 E	601,738.25	732,077.68	0.36	6.19	-137.48	
621.00	0.96	146.15	620.93	7.62 S	1.91 E	601,736.82	732,078.41	0.25	7.62	-108.90	
716.00	0.83	127.87	715.92	8.70 S	2.90 E	601,735.74	732,079.40	0.33	8.70	-123.43	
810.00	0.89	109.91	809.91	9.37 S	4.12 E	601,735.07	732,080.62	0.29	9.37	-86.53	
905.00	0.50	112.53	904.90	9.78 S	5.20 E	601,734.66	732,081.70	0.41	9.78	176.65	
1,093.00	0.28	74.88	1,092.90	9.97 S	6.40 E	601,734.47	732,082.90	0.17	9.97	-148.43	
1,291.00	0.26	207.31	1,290.90	10.24 S	6.66 E	601,734.20	732,083.16	0.25	10.24	157.15	
1,386.00	0.57	140.85	1,385.90	10.80 S	6.86 E	601,733.64	732,083.36	0.55	10.80	-93.54	
1,481.00	0.50	134.41	1,480.89	11.46 S	7.45 E	601,732.98	732,083.95	0.10	11.46	-142.53	
1,576.00	0.53	130.25	1,575.89	12.03 S	8.08 E	601,732.41	732,084.58	0.05	12.03	-53.35	
1,671.00	0.44	147.87	1,670.89	12.63 S	8.61 E	601,731.81	732,085.11	0.18	12.63	129.72	
1,765.00	0.34	138.49	1,764.88	13.14 S	8.99 E	601,731.30	732,085.49	0.13	13.14	-152.07	
1,859.00	0.56	156.68	1,858.88	13.77 S	9.36 E	601,730.67	732,085.86	0.28	13.77	42.31	
1,953.00	0.65	114.42	1,952.88	14.41 S	10.02 E	601,730.03	732,086.52	0.47	14.41	-100.23	
2,048.00	0.56	88.20	2,047.87	14.62 S	10.98 E	601,729.82	732,087.48	0.30	14.62	-120.82	
2,142.00	0.51	95.85	2,141.87	14.65 S	11.85 E	601,729.79	732,088.35	0.09	14.65	128.78	
2,237.00	0.64	40.62	2,236.86	14.29 S	12.62 E	601,730.15	732,089.12	0.57	14.29	-105.42	
2,331.00	1.04	21.88	2,330.85	13.10 S	13.28 E	601,731.34	732,089.78	0.51	13.10	-44.09	
2,426.00	1.43	12.26	2,425.83	11.14 S	13.85 E	601,733.30	732,090.35	0.46	11.14	-32.86	
2,520.00	1.47	343.15	2,519.80	8.84 S	13.75 E	601,735.60	732,090.25	0.78	8.84	-101.51	
2,615.00	2.10	313.37	2,614.76	6.48 S	12.13 E	601,737.96	732,088.63	1.16	6.48	-71.31	
2,709.00	2.55	292.51	2,708.68	4.50 S	8.95 E	601,739.94	732,085.45	1.01	4.50	-72.68	
2,804.00	3.21	268.79	2,803.56	3.74 S	4.34 E	601,740.70	732,080.84	1.42	3.74	-73.22	
2,898.00	4.14	263.75	2,897.37	4.17 S	1.67 W	601,740.27	732,074.83	1.05	4.17	-21.68	
2,992.00	4.92	263.55	2,991.08	4.99 S	9.04 W	601,739.45	732,067.46	0.83	4.99	-1.26	
3,087.00	5.03	263.00	3,085.72	5.96 S	17.23 W	601,738.48	732,059.27	0.13	5.96	-23.72	
3,181.00	5.33	261.33	3,179.33	7.12 S	25.63 W	601,737.32	732,050.87	0.36	7.12	-27.52	
3,276.00	5.44	259.83	3,273.91	8.58 S	34.43 W	601,735.86	732,042.07	0.19	8.58	-52.74	
3,370.00	5.65	266.79	3,367.48	9.62 S	43.43 W	601,734.82	732,033.07	0.75	9.62	76.14	

HALLIBURTON**Design Report for 2BS 1H - ST01 (Final Surveys)**

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)				
3,464.00	5.71	264.73	3,461.01	10.31 S	52.71 W	601,734.13	732,023.79	0.23	10.31	-74.63	
3,559.00	5.55	266.13	3,555.56	11.05 S	62.00 W	601,733.39	732,014.50	0.22	11.05	140.05	
3,653.00	5.30	277.64	3,649.14	10.78 S	70.84 W	601,733.66	732,005.66	1.19	10.78	108.63	
3,748.00	5.70	279.69	3,743.70	9.41 S	79.84 W	601,735.03	731,996.66	0.47	9.41	27.18	
3,841.00	6.18	278.02	3,836.20	7.93 S	89.34 W	601,736.51	731,987.16	0.55	7.93	-20.63	
3,936.00	6.40	273.65	3,930.63	6.88 S	99.69 W	601,737.56	731,976.81	0.55	6.88	-67.50	
4,031.00	6.58	268.51	4,025.02	6.69 S	110.42 W	601,737.75	731,966.08	0.64	6.69	-75.35	
4,125.00	7.15	266.14	4,118.35	7.22 S	121.64 W	601,737.22	731,954.86	0.68	7.22	-27.61	
4,220.00	7.22	266.66	4,212.60	7.96 S	133.50 W	601,736.48	731,943.00	0.10	7.96	43.15	
4,314.00	7.49	269.22	4,305.83	8.39 S	145.52 W	601,736.05	731,930.98	0.45	8.39	51.79	
4,409.00	7.57	267.85	4,400.01	8.71 S	157.96 W	601,735.73	731,918.54	0.21	8.71	-66.66	
4,504.00	7.73	266.68	4,494.16	9.32 S	170.60 W	601,735.12	731,905.90	0.24	9.32	-44.81	
4,599.00	6.92	264.60	4,588.39	10.22 S	182.67 W	601,734.22	731,893.83	0.90	10.22	-162.90	
4,693.00	6.07	266.64	4,681.78	11.05 S	193.27 W	601,733.39	731,883.23	0.94	11.05	165.82	
4,787.00	5.22	273.56	4,775.33	11.07 S	202.50 W	601,733.37	731,874.00	1.16	11.07	144.72	
4,882.00	5.46	274.81	4,869.92	10.43 S	211.32 W	601,734.01	731,865.18	0.28	10.43	26.48	
4,977.00	5.47	272.15	4,964.48	9.88 S	220.35 W	601,734.56	731,856.15	0.27	9.88	-89.06	
5,071.00	5.66	267.96	5,058.04	9.88 S	229.46 W	601,734.56	731,847.04	0.48	9.88	-67.03	
5,166.00	5.85	260.80	5,152.56	10.82 S	238.92 W	601,733.62	731,837.58	0.78	10.82	-78.76	
5,261.00	5.68	258.37	5,247.08	12.54 S	248.30 W	601,731.90	731,828.20	0.31	12.54	-126.06	
5,355.00	5.64	258.47	5,340.62	14.40 S	257.38 W	601,730.04	731,819.12	0.04	14.40	166.20	
5,450.00	5.84	253.92	5,435.15	16.67 S	266.60 W	601,727.77	731,809.90	0.52	16.67	-68.55	
5,549.00	6.12	254.03	5,533.61	19.52 S	276.51 W	601,724.92	731,799.99	0.28	19.52	2.40	
5,612.00	5.36	253.25	5,596.29	21.29 S	282.56 W	601,723.15	731,793.94	1.21	21.29	-174.53	
5,706.00	4.57	254.51	5,689.94	23.56 S	290.37 W	601,720.88	731,786.13	0.85	23.56	172.77	
5,801.00	3.96	267.20	5,784.68	24.73 S	297.30 W	601,719.71	731,779.20	1.18	24.73	129.10	
5,895.00	3.85	269.56	5,878.46	24.91 S	303.69 W	601,719.53	731,772.81	0.21	24.91	125.56	
5,990.00	3.64	269.09	5,973.26	24.98 S	309.90 W	601,719.46	731,766.60	0.22	24.98	-171.92	
6,084.00	5.74	272.51	6,066.94	24.82 S	317.58 W	601,719.62	731,758.92	2.25	24.82	9.29	
6,179.00	5.60	270.52	6,161.47	24.57 S	326.96 W	601,719.87	731,749.54	0.25	24.57	-126.44	
6,274.00	5.57	276.80	6,256.02	23.99 S	336.17 W	601,720.45	731,740.33	0.64	23.99	95.93	
6,368.00	5.35	276.60	6,349.60	22.94 S	345.06 W	601,721.50	731,731.44	0.23	22.94	-175.16	
6,463.00	4.86	273.04	6,444.22	22.22 S	353.47 W	601,722.22	731,723.03	0.61	22.22	-148.88	
6,557.00	4.72	272.27	6,537.89	21.85 S	361.32 W	601,722.59	731,715.18	0.16	21.85	-155.72	
6,652.00	4.48	271.21	6,632.59	21.62 S	368.93 W	601,722.82	731,707.57	0.27	21.62	-161.02	
6,746.00	4.30	273.94	6,726.31	21.30 S	376.12 W	601,723.14	731,700.38	0.29	21.30	132.10	
6,840.00	4.35	275.21	6,820.04	20.74 S	383.18 W	601,723.70	731,693.32	0.11	20.74	63.07	

HALLIBURTON**Design Report for 2BS 1H - ST01 (Final Surveys)**

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)				
6,935.00	4.37	273.67	6,914.77	20.18 S	390.38 W	601,724.26	731,686.12	0.13	20.18	-81.07	
7,029.00	4.64	276.73	7,008.48	19.50 S	397.73 W	601,724.94	731,678.77	0.38	19.50	43.21	
7,124.00	4.33	277.23	7,103.19	18.60 S	405.11 W	601,725.84	731,671.39	0.33	18.60	173.06	
7,218.00	4.12	276.71	7,196.93	17.76 S	411.98 W	601,726.68	731,664.52	0.23	17.76	-169.92	
7,312.00	4.78	272.80	7,290.65	17.17 S	419.25 W	601,727.27	731,657.25	0.77	17.17	-26.64	
7,407.00	4.83	272.37	7,385.31	16.81 S	427.19 W	601,727.63	731,649.31	0.06	16.81	-35.98	
7,501.00	4.28	269.61	7,479.02	16.67 S	434.66 W	601,727.77	731,641.84	0.63	16.67	-159.64	
7,596.00	4.82	269.96	7,573.72	16.70 S	442.19 W	601,727.74	731,634.31	0.57	16.70	3.12	
7,690.00	3.97	270.87	7,667.44	16.66 S	449.40 W	601,727.78	731,627.10	0.91	16.66	175.76	
7,785.00	4.33	272.08	7,762.19	16.48 S	456.27 W	601,727.96	731,620.23	0.39	16.48	14.27	
7,880.00	5.38	269.59	7,856.85	16.38 S	464.31 W	601,728.06	731,612.19	1.13	16.38	-12.59	
7,974.00	4.21	271.36	7,950.52	16.33 S	472.16 W	601,728.11	731,604.34	1.25	16.33	173.67	
8,069.00	4.12	273.77	8,045.27	16.02 S	479.05 W	601,728.42	731,597.45	0.21	16.02	118.41	
8,163.00	4.08	276.55	8,139.03	15.42 S	485.74 W	601,729.02	731,590.76	0.22	15.42	102.76	
8,257.00	7.23	269.37	8,232.56	15.10 S	494.98 W	601,729.34	731,581.52	3.43	15.10	-16.25	
8,352.00	6.36	273.67	8,326.89	14.83 S	506.21 W	601,729.61	731,570.29	1.06	14.83	151.80	
8,446.00	5.03	276.99	8,420.42	13.99 S	515.50 W	601,730.45	731,561.00	1.46	13.99	167.74	
8,541.00	3.85	275.34	8,515.14	13.19 S	522.81 W	601,731.25	731,553.69	1.25	13.19	-174.64	
8,635.00	5.33	272.64	8,608.83	12.69 S	530.31 W	601,731.75	731,546.19	1.59	12.69	-9.65	
8,730.00	5.48	275.12	8,703.41	12.09 S	539.24 W	601,732.35	731,537.26	0.29	12.09	58.53	
8,824.00	5.09	274.93	8,797.01	11.33 S	547.86 W	601,733.11	731,528.64	0.42	11.33	-177.53	
8,919.00	4.74	274.90	8,891.66	10.63 S	555.97 W	601,733.81	731,520.53	0.37	10.63	-179.59	
9,052.00	4.18	275.88	9,024.26	9.66 S	566.27 W	601,734.78	731,510.23	0.42	9.66	172.74	
9,084.00	3.93	273.32	9,056.18	9.48 S	568.52 W	601,734.96	731,507.98	0.96	9.48	-145.36	
9,115.00	3.96	271.56	9,087.10	9.39 S	570.66 W	601,735.05	731,505.84	0.40	9.39	-76.96	
9,146.00	6.99	265.46	9,117.96	9.51 S	573.61 W	601,734.93	731,502.89	9.94	9.51	-13.92	
9,178.00	10.50	267.89	9,149.58	9.77 S	578.46 W	601,734.67	731,498.04	11.03	9.77	7.21	
9,209.00	12.69	265.49	9,179.95	10.14 S	584.68 W	601,734.30	731,491.82	7.23	10.14	-13.60	
9,241.00	16.66	265.44	9,210.90	10.79 S	592.76 W	601,733.65	731,483.74	12.41	10.79	-0.21	
9,272.00	21.14	263.60	9,240.22	11.76 S	602.75 W	601,732.68	731,473.75	14.58	11.76	-8.45	
9,304.00	24.38	267.43	9,269.73	12.70 S	615.09 W	601,731.74	731,461.41	11.13	12.70	26.35	
9,335.00	26.20	267.81	9,297.75	13.25 S	628.32 W	601,731.19	731,448.18	5.89	13.25	5.27	
9,367.00	27.75	269.16	9,326.27	13.63 S	642.83 W	601,730.81	731,433.67	5.21	13.63	22.16	
9,398.00	29.47	270.68	9,353.49	13.65 S	657.67 W	601,730.79	731,418.83	6.02	13.65	23.61	
9,430.00	32.63	268.99	9,380.90	13.70 S	674.17 W	601,730.74	731,402.33	10.24	13.70	-16.15	
9,461.00	33.40	265.95	9,406.89	14.45 S	691.04 W	601,729.99	731,385.46	5.89	14.45	-66.35	
9,493.00	31.79	265.22	9,433.85	15.78 S	708.23 W	601,728.66	731,368.27	5.18	15.78	-166.58	

HALLIBURTON**Design Report for 2BS 1H - ST01 (Final Surveys)**

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)				
9,524.00	33.35	265.39	9,459.98	17.14 S	724.86 W	601,727.30	731,351.64	5.04	17.14	3.43	
9,556.00	35.01	265.71	9,486.45	18.54 S	742.78 W	601,725.90	731,333.72	5.22	18.54	6.31	
9,588.00	37.93	265.97	9,512.18	19.92 S	761.75 W	601,724.52	731,314.75	9.14	19.92	3.13	
9,620.00	38.51	264.80	9,537.32	21.51 S	781.48 W	601,722.93	731,295.02	2.90	21.51	-51.76	
9,651.00	42.95	262.34	9,560.81	23.79 S	801.57 W	601,720.65	731,274.93	15.23	23.79	-20.82	
9,683.00	48.02	260.34	9,583.24	27.25 S	824.12 W	601,717.19	731,252.38	16.46	27.25	-16.42	
9,714.00	52.67	259.60	9,603.01	31.41 S	847.61 W	601,713.03	731,228.89	15.11	31.41	-7.22	
9,746.00	58.10	257.24	9,621.19	36.71 S	873.40 W	601,707.73	731,203.10	18.02	36.71	-20.36	
9,777.00	61.92	256.72	9,636.68	42.76 S	899.55 W	601,701.68	731,176.95	12.41	42.76	-6.86	
9,809.00	64.31	254.89	9,651.15	49.76 S	927.21 W	601,694.68	731,149.29	9.04	49.76	-34.75	
9,840.00	65.15	250.64	9,664.39	58.07 S	953.98 W	601,686.37	731,122.52	12.69	58.07	-78.58	
9,872.00	65.71	247.23	9,677.70	68.53 S	981.13 W	601,675.91	731,095.37	9.85	68.53	-80.48	
9,903.00	66.52	243.34	9,690.25	80.38 S	1,006.87 W	601,664.06	731,069.63	11.77	80.38	-77.96	
9,934.00	67.38	239.49	9,702.39	94.02 S	1,031.91 W	601,650.42	731,044.59	11.76	94.02	-77.11	
9,966.00	68.08	236.14	9,714.52	109.80 S	1,056.97 W	601,634.64	731,019.53	9.93	109.80	-77.91	
9,997.00	69.22	233.30	9,725.81	126.47 S	1,080.53 W	601,617.97	730,995.97	9.29	126.47	-67.21	
10,029.00	69.65	229.87	9,737.06	145.09 S	1,104.00 W	601,599.35	730,972.50	10.13	145.09	-82.98	
10,060.00	70.01	227.35	9,747.75	164.32 S	1,125.83 W	601,580.12	730,950.67	7.72	164.32	-81.78	
10,092.00	70.60	224.23	9,758.53	185.33 S	1,147.42 W	601,559.11	730,929.08	9.36	185.33	-79.17	
10,123.00	71.19	222.17	9,768.68	206.68 S	1,167.47 W	601,537.76	730,909.03	6.56	206.68	-73.48	
10,155.00	71.80	221.31	9,778.84	229.33 S	1,187.67 W	601,515.11	730,888.83	3.18	229.33	-53.34	
10,186.00	72.21	220.11	9,788.41	251.67 S	1,206.90 W	601,492.77	730,869.60	3.91	251.67	-70.43	
10,218.00	73.16	217.83	9,797.94	275.43 S	1,226.11 W	601,469.01	730,850.39	7.42	275.43	-66.76	
10,249.00	74.18	216.50	9,806.66	299.13 S	1,244.08 W	601,445.31	730,832.42	5.27	299.13	-51.56	
10,281.00	74.89	213.44	9,815.19	324.40 S	1,261.76 W	601,420.04	730,814.74	9.48	324.40	-76.88	
10,313.00	75.23	211.38	9,823.44	350.50 S	1,278.33 W	601,393.94	730,798.17	6.31	350.50	-80.57	
10,344.00	75.99	209.37	9,831.15	376.41 S	1,293.51 W	601,368.03	730,782.99	6.74	376.41	-68.93	
10,376.00	75.75	207.83	9,838.96	403.65 S	1,308.36 W	601,340.79	730,768.14	4.73	403.65	-99.32	
10,407.00	76.22	207.08	9,846.47	430.34 S	1,322.23 W	601,314.10	730,754.27	2.79	430.34	-57.23	
10,439.00	76.98	205.64	9,853.88	458.23 S	1,336.05 W	601,286.21	730,740.45	4.98	458.23	-61.69	
10,522.00	78.43	208.09	9,871.56	530.57 S	1,372.70 W	601,213.87	730,703.80	3.37	530.57	59.06	First ST01 Sperry MWD Svy@10522.00'MD
10,554.00	81.13	208.32	9,877.24	558.32 S	1,387.58 W	601,186.12	730,688.92	8.47	558.32	4.81	
10,585.00	83.44	204.95	9,881.40	585.77 S	1,401.35 W	601,158.67	730,675.15	13.10	585.77	-55.56	
10,617.00	86.35	202.81	9,884.25	614.91 S	1,414.25 W	601,129.53	730,662.25	11.27	614.91	-36.32	
10,648.00	88.09	200.11	9,885.75	643.73 S	1,425.57 W	601,100.71	730,650.93	10.35	643.73	-57.24	
10,680.00	88.83	196.05	9,886.61	674.13 S	1,435.50 W	601,070.31	730,641.00	12.89	674.13	-79.73	

Design Report for 2BS 1H - ST01 (Final Surveys)

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)				
10,711.00	88.77	192.78	9,887.26	704.14 S	1,443.21 W	601,040.30	730,633.29	10.55	704.14	-91.09	
10,743.00	88.89	189.29	9,887.91	735.54 S	1,449.34 W	601,008.90	730,627.16	10.91	735.54	-88.07	
10,837.00	88.58	182.08	9,889.99	828.99 S	1,458.64 W	600,915.45	730,617.86	7.68	828.99	-92.54	
10,932.00	89.32	180.28	9,891.73	923.95 S	1,460.59 W	600,820.49	730,615.91	2.05	923.95	-67.67	
11,026.00	89.51	178.93	9,892.69	1,017.94 S	1,459.95 W	600,726.50	730,616.55	1.45	1,017.94	-82.00	
11,121.00	90.19	180.46	9,892.94	1,112.94 S	1,459.44 W	600,631.50	730,617.06	1.76	1,112.94	66.04	
11,215.00	90.31	179.79	9,892.53	1,206.93 S	1,459.65 W	600,537.51	730,616.85	0.72	1,206.93	-79.84	
11,310.00	90.93	179.20	9,891.50	1,301.92 S	1,458.81 W	600,442.52	730,617.69	0.90	1,301.92	-43.58	
11,404.00	88.89	178.40	9,891.65	1,395.90 S	1,456.84 W	600,348.54	730,619.66	2.33	1,395.90	-158.59	
11,499.00	89.01	177.34	9,893.39	1,490.82 S	1,453.31 W	600,253.62	730,623.19	1.12	1,490.82	-83.55	
11,594.00	88.83	178.67	9,895.18	1,585.74 S	1,450.00 W	600,158.70	730,626.50	1.41	1,585.74	97.72	
11,688.00	88.76	179.05	9,897.16	1,679.70 S	1,448.13 W	600,064.74	730,628.37	0.41	1,679.70	100.44	
11,783.00	88.89	178.47	9,899.11	1,774.66 S	1,446.08 W	599,969.78	730,630.42	0.63	1,774.66	-77.37	
11,877.00	88.46	179.75	9,901.28	1,868.62 S	1,444.62 W	599,875.82	730,631.88	1.44	1,868.62	108.59	
11,972.00	89.94	179.97	9,902.61	1,963.61 S	1,444.39 W	599,780.83	730,632.11	1.58	1,963.61	8.46	
12,067.00	91.30	179.36	9,901.58	2,058.60 S	1,443.83 W	599,685.84	730,632.67	1.57	2,058.60	-24.15	
12,161.00	90.19	179.61	9,900.36	2,152.58 S	1,442.99 W	599,591.86	730,633.51	1.21	2,152.58	167.31	
12,256.00	90.86	179.96	9,899.49	2,247.58 S	1,442.63 W	599,496.86	730,633.87	0.80	2,247.58	27.58	
12,351.00	90.00	179.88	9,898.77	2,342.57 S	1,442.50 W	599,401.87	730,634.00	0.91	2,342.57	-174.69	
12,445.00	90.56	180.05	9,898.31	2,436.57 S	1,442.44 W	599,307.87	730,634.06	0.62	2,436.57	16.89	
12,515.00	91.67	179.41	9,896.95	2,506.56 S	1,442.11 W	599,237.88	730,634.39	1.83	2,506.56	-29.96	
12,610.00	88.52	178.62	9,896.79	2,601.53 S	1,440.48 W	599,142.91	730,636.02	3.42	2,601.53	-165.92	
12,705.00	89.20	178.00	9,898.68	2,696.47 S	1,437.68 W	599,047.97	730,638.82	0.97	2,696.47	-42.36	
12,799.00	89.88	177.43	9,899.44	2,790.39 S	1,433.93 W	598,954.05	730,642.57	0.94	2,790.39	-39.97	
12,894.00	90.25	176.68	9,899.33	2,885.26 S	1,429.05 W	598,859.18	730,647.45	0.88	2,885.26	-63.74	
12,988.00	90.62	175.95	9,898.62	2,979.07 S	1,423.01 W	598,765.37	730,653.49	0.87	2,979.07	-63.12	
13,079.00	91.17	175.33	9,897.20	3,069.79 S	1,416.09 W	598,674.65	730,660.41	0.91	3,069.79	-48.42	
13,177.00	90.87	175.94	9,895.45	3,167.49 S	1,408.63 W	598,576.95	730,667.87	0.69	3,167.49	116.19	
13,272.00	86.23	179.12	9,897.85	3,262.33 S	1,404.54 W	598,482.11	730,671.96	5.92	3,262.33	145.61	
13,366.00	83.50	180.81	9,906.27	3,355.94 S	1,404.48 W	598,388.50	730,672.02	3.41	3,355.94	148.41	
13,461.00	84.37	180.73	9,916.30	3,450.40 S	1,405.75 W	598,294.04	730,670.75	0.92	3,450.40	-5.23	
13,555.00	86.60	181.03	9,923.70	3,544.09 S	1,407.19 W	598,200.35	730,669.31	2.39	3,544.09	7.65	
13,650.00	90.37	181.49	9,926.22	3,639.02 S	1,409.27 W	598,105.42	730,667.23	4.00	3,639.02	6.96	
13,744.00	91.05	181.05	9,925.05	3,732.99 S	1,411.36 W	598,011.45	730,665.14	0.86	3,732.99	-32.90	
13,839.00	90.49	180.04	9,923.77	3,827.97 S	1,412.26 W	597,916.47	730,664.24	1.22	3,827.97	-119.00	
13,933.00	89.38	179.34	9,923.88	3,921.97 S	1,411.75 W	597,822.47	730,664.75	1.40	3,921.97	-147.76	
14,027.00	89.32	181.43	9,924.95	4,015.96 S	1,412.38 W	597,728.48	730,664.12	2.22	4,015.96	91.66	

HALLIBURTON**Design Report for 2BS 1H - ST01 (Final Surveys)**

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)				
14,122.00	89.13	183.33	9,926.23	4,110.86 S	1,416.33 W	597,633.58	730,660.17	2.01	4,110.86	95.72	
14,216.00	88.02	182.35	9,928.57	4,204.72 S	1,420.98 W	597,539.72	730,655.52	1.57	4,204.72	-138.58	
14,311.00	88.21	182.01	9,931.69	4,299.59 S	1,424.60 W	597,444.85	730,651.90	0.41	4,299.59	-60.79	
14,405.00	88.15	180.29	9,934.68	4,393.52 S	1,426.48 W	597,350.92	730,650.02	1.83	4,393.52	-92.03	
14,500.00	88.27	179.43	9,937.65	4,488.48 S	1,426.25 W	597,255.96	730,650.25	0.91	4,488.48	-82.07	
14,594.00	89.14	179.02	9,939.77	4,582.44 S	1,424.98 W	597,162.00	730,651.52	1.02	4,582.44	-25.23	
14,689.00	89.01	178.58	9,941.31	4,677.41 S	1,422.99 W	597,067.03	730,653.51	0.48	4,677.41	-106.47	
14,783.00	89.32	179.69	9,942.68	4,771.39 S	1,421.57 W	596,973.05	730,654.93	1.23	4,771.39	74.40	
14,878.00	90.12	181.31	9,943.14	4,866.38 S	1,422.40 W	596,878.06	730,654.10	1.90	4,866.38	63.72	
14,972.00	89.75	182.43	9,943.25	4,960.33 S	1,425.47 W	596,784.11	730,651.03	1.25	4,960.33	108.28	
15,066.00	89.13	182.32	9,944.17	5,054.24 S	1,429.36 W	596,690.20	730,647.14	0.67	5,054.24	-169.94	
15,161.00	88.27	180.48	9,946.32	5,149.18 S	1,431.68 W	596,595.26	730,644.82	2.14	5,149.18	-115.08	
15,255.00	89.13	177.61	9,948.45	5,243.14 S	1,430.12 W	596,501.30	730,646.38	3.19	5,243.14	-73.35	
15,350.00	89.14	176.19	9,949.89	5,337.98 S	1,424.98 W	596,406.46	730,651.52	1.49	5,337.98	-89.61	
15,444.00	89.14	175.21	9,951.30	5,431.71 S	1,417.93 W	596,312.73	730,658.57	1.04	5,431.71	-90.01	
15,539.00	89.20	175.87	9,952.68	5,526.41 S	1,410.55 W	596,218.03	730,665.95	0.70	5,526.41	84.81	
15,634.00	89.13	176.81	9,954.06	5,621.20 S	1,404.48 W	596,123.24	730,672.02	0.99	5,621.20	94.27	
15,728.00	89.26	178.90	9,955.38	5,715.12 S	1,400.96 W	596,029.32	730,675.54	2.23	5,715.12	86.46	
15,823.00	88.77	180.42	9,957.01	5,810.11 S	1,400.40 W	595,934.33	730,676.10	1.68	5,810.11	107.88	
15,917.00	89.01	180.40	9,958.83	5,904.09 S	1,401.07 W	595,840.35	730,675.43	0.26	5,904.09	-4.76	
16,012.00	88.76	180.17	9,960.68	5,999.07 S	1,401.55 W	595,745.37	730,674.95	0.36	5,999.07	-137.39	
16,103.00	89.81	179.76	9,961.82	6,090.06 S	1,401.49 W	595,654.38	730,675.01	1.24	6,090.06	-21.33	
16,199.00	90.93	179.99	9,961.20	6,186.05 S	1,401.28 W	595,558.39	730,675.22	1.19	6,186.05	11.60	
16,293.00	90.37	179.96	9,960.13	6,280.05 S	1,401.24 W	595,464.39	730,675.26	0.60	6,280.05	-176.93	
16,388.00	89.81	180.62	9,959.98	6,375.04 S	1,401.72 W	595,369.40	730,674.78	0.91	6,375.04	130.31	
16,482.00	90.12	180.52	9,960.04	6,469.04 S	1,402.66 W	595,275.40	730,673.84	0.35	6,469.04	-17.88	
16,577.00	89.51	180.98	9,960.35	6,564.03 S	1,403.90 W	595,180.41	730,672.60	0.80	6,564.03	142.98	
16,671.00	88.21	179.42	9,962.22	6,658.01 S	1,404.23 W	595,086.43	730,672.27	2.16	6,658.01	-129.82	
16,765.00	88.89	179.12	9,964.60	6,751.97 S	1,403.03 W	594,992.47	730,673.47	0.79	6,751.97	-23.80	
16,860.00	90.19	177.91	9,965.36	6,846.93 S	1,400.57 W	594,897.51	730,675.93	1.87	6,846.93	-42.95	
16,954.00	89.20	178.99	9,965.86	6,940.89 S	1,398.03 W	594,803.55	730,678.47	1.56	6,940.89	132.51	
17,049.00	89.07	179.92	9,967.29	7,035.87 S	1,397.12 W	594,708.57	730,679.38	0.99	7,035.87	97.97	
17,143.00	88.58	180.61	9,969.22	7,129.85 S	1,397.56 W	594,614.59	730,678.94	0.90	7,129.85	125.39	
17,238.00	86.66	179.99	9,973.17	7,224.77 S	1,398.05 W	594,519.67	730,678.45	2.12	7,224.77	-162.13	
17,334.00	84.74	179.98	9,980.36	7,320.49 S	1,398.03 W	594,423.95	730,678.47	2.00	7,320.49	-179.70	
17,429.00	88.27	178.75	9,986.15	7,415.29 S	1,396.98 W	594,329.15	730,679.52	3.93	7,415.29	-19.22	
17,523.00	90.23	178.54	9,987.38	7,509.25 S	1,394.75 W	594,235.19	730,681.75	2.10	7,509.25	-6.12	

HALLIBURTON**Design Report for 2BS 1H - ST01 (Final Surveys)**

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)				
17,617.00	90.25	178.41	9,986.99	7,603.22 S	1,392.25 W	594,141.22	730,684.25	0.14	7,603.22	-81.25	
17,712.00	90.25	179.57	9,986.58	7,698.20 S	1,390.58 W	594,046.24	730,685.92	1.22	7,698.20	90.00	
17,807.00	90.25	180.47	9,986.16	7,793.20 S	1,390.61 W	593,951.24	730,685.89	0.95	7,793.20	90.00	
17,901.00	90.19	181.13	9,985.80	7,887.19 S	1,391.92 W	593,857.25	730,684.58	0.71	7,887.19	95.19	
17,996.00	90.25	181.98	9,985.44	7,982.15 S	1,394.50 W	593,762.29	730,682.00	0.90	7,982.15	85.96	
18,090.00	90.31	181.94	9,984.98	8,076.10 S	1,397.72 W	593,668.34	730,678.78	0.08	8,076.10	-33.69	
18,184.00	90.12	181.69	9,984.62	8,170.05 S	1,400.69 W	593,574.39	730,675.81	0.33	8,170.05	-127.23	
18,279.00	90.19	181.15	9,984.37	8,265.02 S	1,403.05 W	593,479.42	730,673.45	0.57	8,265.02	-82.61	
18,374.00	89.69	180.86	9,984.47	8,360.00 S	1,404.71 W	593,384.44	730,671.79	0.61	8,360.00	-149.89	
18,468.00	89.07	180.57	9,985.48	8,453.99 S	1,405.89 W	593,290.45	730,670.61	0.73	8,453.99	-154.94	
18,657.00	89.13	180.24	9,988.45	8,642.96 S	1,407.22 W	593,101.48	730,669.28	0.18	8,642.96	-79.70	
18,752.00	89.81	179.97	9,989.33	8,737.96 S	1,407.40 W	593,006.48	730,669.10	0.77	8,737.96	-21.66	
18,846.00	89.07	180.15	9,990.25	8,831.95 S	1,407.50 W	592,912.49	730,669.00	0.81	8,831.95	166.33	
18,941.00	88.09	180.18	9,992.60	8,926.92 S	1,407.77 W	592,817.52	730,668.73	1.03	8,926.92	178.25	
19,035.00	87.47	180.33	9,996.25	9,020.85 S	1,408.19 W	592,723.59	730,668.31	0.68	9,020.85	166.41	
19,130.00	90.93	178.83	9,997.57	9,115.82 S	1,407.49 W	592,628.62	730,669.01	3.97	9,115.82	-23.45	
19,225.00	92.41	178.08	9,994.80	9,210.74 S	1,404.93 W	592,533.70	730,671.57	1.75	9,210.74	-26.85	
19,319.00	90.19	177.65	9,992.67	9,304.65 S	1,401.43 W	592,439.79	730,675.07	2.41	9,304.65	-169.04	
19,414.00	88.02	177.37	9,994.15	9,399.54 S	1,397.30 W	592,344.90	730,679.20	2.30	9,399.54	-172.65	
19,509.00	85.55	176.58	9,999.48	9,494.25 S	1,392.30 W	592,250.19	730,684.20	2.73	9,494.25	-162.31	
19,603.00	82.50	176.80	10,009.27	9,587.57 S	1,386.90 W	592,156.87	730,689.60	3.25	9,587.57	175.91	
19,698.00	81.94	176.96	10,022.13	9,681.56 S	1,381.78 W	592,062.88	730,694.72	0.61	9,681.56	164.20	
19,793.00	85.92	175.42	10,032.17	9,775.79 S	1,375.50 W	591,968.65	730,701.00	4.49	9,775.79	-21.13	
19,887.00	90.00	174.61	10,035.52	9,869.36 S	1,367.34 W	591,875.08	730,709.16	4.42	9,869.36	-11.24	
19,982.00	93.96	173.52	10,032.23	9,963.77 S	1,357.52 W	591,780.67	730,718.98	4.32	9,963.77	-15.37	
20,077.00	97.99	173.38	10,022.35	10,057.62 S	1,346.75 W	591,686.82	730,729.75	4.24	10,057.62	-1.97	
20,171.00	98.49	173.03	10,008.87	10,150.00 S	1,335.74 W	591,594.44	730,740.76	0.65	10,150.00	-34.69	
20,279.00	98.12	173.84	9,993.27	10,256.16 S	1,323.52 W	591,488.28	730,752.98	0.82	10,256.16	114.72	Last Sperry MWD Svy @20279.00'MD
20,360.00	98.12	173.84	9,981.83	10,335.89 S	1,314.92 W	591,408.55	730,761.58	0.00	10,335.89	0.00	Projection to TD@20360MD/9981TVD

Design Report for 2BS 1H - ST01 (Final Surveys)

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
10,522.00	9,871.56	-530.57	-1,372.70	First ST01 Sperry MWD Svy@10522.00'MD
20,279.00	9,993.27	-10,256.16	-1,323.52	Last Sperry MWD Svy @20279.00'MD
20,360.00	9,981.83	-10,335.89	-1,314.92	Projection to TD@20360MD/9981TVD

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	+N/-S (usft)	+E/-W (usft)	Start TVD (usft)
User	No Target (Freehand)	180.00	Slot	0.00	0.00	0.00

Survey tool program

From (usft)	To (usft)	Survey/Plan	Survey Tool
134.00	10,439.00	HAL MWD	2_MWD
10,522.00	20,279.00	HAL MWD	2_MWD
20,360.00	20,360.00	Projection to TD (ST01)	2_Blind + Trend

Casing Details

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
5,506.00	5,490.85	7"	7	8-3/4

Design Targets

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