

30-025-43825

HOBBS OCD

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Latshaw 17

Chisholm Energy Holdings

Lea County, NM (NAD 83) Grama Ridge East 34 State

API#

3BS 2H

OH

Design: Actuals

Sperry Drilling Services

Combo Report

15 June, 2018

Well Coordinates: 32° 26' 30.88" N
103° 27' 48.56" W

North American Datum 1983
New Mexico Eastern Zone
525,591.30 N
809,682.20 E

Ground Level: 3,715.00 usft

Local Coordinate Origin:

Viewing Datum:

TVDs to System:

North Reference:

Unit System:

Centered on Well 3BS 2H
GE 3715 + 26' KB @ 3741.00usft (Latshaw 17)

N

Grid

Midcon (2 decimal)

Version: 5000.1 Build: 81E

Report Version: Midcon Combo v1.12

HALLIBURTON

HALLIBURTON

Design Report for 3BS 2H - Actuals

Measured Depth (usft)	Inclination (°)	Grid Azimuth (°)	Vertical Depth (usft)	Local Coordinates		Map Coordinates		Dogleg Rate (°/100usft)	Vertical Section (usft)	Toothface Angle (°)	Comments
				Northing (usft)	Easting (usft)	Northing (usft)	Easting (usft)				
0.00	0.00	0.00	0.00	0.00 N	0.00 E	525,591.30	809,682.20	0.00	0.00	0.00	
197.00	0.40	321.84	197.00	0.54 N	0.42 W	525,591.84	809,681.78	0.20	-0.23	321.84	
397.00	1.05	286.94	396.98	1.62 N	2.61 W	525,592.92	809,679.59	0.38	0.04	-52.49	
575.00	1.05	313.66	574.95	3.22 N	5.35 W	525,594.52	809,676.85	0.27	0.16	103.36	
762.00	1.36	309.27	761.91	5.81 N	8.31 W	525,597.11	809,673.89	0.17	-0.42	-18.79	
883.00	1.90	319.40	882.86	8.24 N	10.72 W	525,599.54	809,671.48	0.50	-1.17	33.21	
975.00	0.18	27.93	974.84	9.53 N	11.65 W	525,600.83	809,670.55	2.00	-1.76	174.78	
1,157.00	1.93	111.95	1,156.81	8.64 N	8.67 W	525,599.94	809,673.53	1.05	-2.61	89.37	
1,252.00	1.85	108.15	1,251.76	7.56 N	5.73 W	525,598.86	809,676.47	0.16	-3.28	-124.44	
1,442.00	1.98	85.85	1,441.65	6.84 N	0.46 E	525,598.14	809,682.66	0.40	-6.01	-91.37	
1,632.00	2.55	65.28	1,631.51	8.85 N	7.57 E	525,600.15	809,689.77	0.52	-11.53	-65.53	
1,809.00	2.24	59.22	1,808.35	12.27 N	14.12 E	525,603.57	809,696.32	0.23	-17.94	-143.76	
1,924.00	2.46	53.48	1,923.26	14.88 N	18.03 E	525,606.18	809,700.23	0.28	-22.25	-49.82	
2,019.00	3.25	60.27	2,018.14	17.43 N	22.01 E	525,608.73	809,704.21	0.90	-26.54	26.59	
2,114.00	2.73	62.44	2,113.01	19.82 N	26.35 E	525,611.12	809,708.55	0.56	-30.89	168.80	
2,208.00	0.88	74.66	2,206.96	21.04 N	29.03 E	525,612.34	809,711.23	2.00	-33.37	174.31	
2,303.00	1.23	130.47	2,301.94	20.57 N	30.51 E	525,611.87	809,712.71	1.09	-33.77	100.51	
2,398.00	1.14	54.80	2,396.93	20.46 N	32.06 E	525,611.76	809,714.26	1.53	-34.50	-130.63	
2,492.00	2.02	154.73	2,490.91	19.50 N	33.53 E	525,610.80	809,715.73	2.64	-34.49	126.79	
2,587.00	1.67	167.82	2,585.86	16.63 N	34.54 E	525,607.93	809,716.74	0.57	-32.61	136.13	
2,682.00	1.93	182.50	2,680.81	13.68 N	34.76 E	525,604.98	809,716.96	0.55	-30.25	68.05	
2,777.00	0.97	226.27	2,775.78	11.52 N	34.11 E	525,602.82	809,716.31	1.47	-28.08	151.37	
2,872.00	1.14	268.63	2,870.77	10.95 N	32.59 E	525,602.25	809,714.79	0.82	-26.77	99.43	
2,967.00	2.02	277.69	2,965.73	11.15 N	29.98 E	525,602.45	809,712.18	0.96	-25.54	20.41	
3,061.00	2.46	294.21	3,059.66	12.20 N	26.50 E	525,603.50	809,708.70	0.83	-24.55	64.17	
3,155.00	3.08	305.55	3,153.55	14.49 N	22.61 E	525,605.79	809,704.81	0.88	-24.39	47.23	
3,250.00	1.49	315.57	3,248.47	16.86 N	19.66 E	525,608.16	809,701.86	1.72	-24.79	170.87	
3,345.00	0.26	235.50	3,343.46	17.62 N	18.62 E	525,608.92	809,700.82	1.54	-24.87	-169.95	
3,439.00	0.79	140.49	3,437.46	17.00 N	18.86 E	525,608.30	809,701.06	0.91	-24.48	-112.69	
3,533.00	1.67	138.73	3,531.43	15.47 N	20.17 E	525,606.77	809,702.37	0.94	-23.90	-3.34	
3,628.00	2.99	116.41	3,626.35	13.32 N	23.31 E	525,604.62	809,705.51	1.66	-23.78	-46.00	
3,723.00	2.73	129.06	3,721.24	10.80 N	27.28 E	525,602.10	809,709.48	0.72	-23.79	118.62	
3,818.00	1.06	148.93	3,816.18	8.62 N	29.49 E	525,599.92	809,711.69	1.86	-23.15	168.26	
3,907.00	0.62	185.31	3,905.17	7.43 N	29.87 E	525,598.73	809,712.07	0.75	-22.35	146.75	
4,002.00	0.70	196.65	4,000.17	6.37 N	29.66 E	525,597.67	809,711.86	0.16	-21.34	64.27	
4,097.00	0.88	196.39	4,095.16	5.11 N	29.29 E	525,596.41	809,711.49	0.19	-20.08	-1.27	

Design Report for 3BS 2H - Actuals

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)								
4,192.00	1.06	198.15	4,190.14	3.58 N	28.81 E	525,594.88	809,711.01	0.19	-18.53	10.28	
4,287.00	1.06	194.98	4,285.13	1.89 N	28.31 E	525,593.19	809,710.51	0.06	-16.84	-91.58	
4,382.00	1.23	196.30	4,380.11	0.06 N	27.79 E	525,591.36	809,709.99	0.18	-15.02	9.48	
4,477.00	1.23	197.53	4,475.09	1.89 S	27.20 E	525,589.41	809,709.40	0.03	-13.06	90.61	
4,621.00	1.85	184.96	4,619.04	5.68 S	26.53 E	525,585.62	809,708.73	0.49	-9.51	-34.96	
4,666.00	2.29	181.53	4,664.01	7.30 S	26.45 E	525,584.00	809,708.65	1.02	-8.09	-17.44	
4,760.00	2.37	184.79	4,757.93	11.11 S	26.23 E	525,580.19	809,708.43	0.16	-4.77	60.52	
4,855.00	2.11	182.76	4,852.86	14.82 S	25.99 E	525,576.48	809,708.19	0.29	-1.51	-164.04	
4,950.00	1.85	182.32	4,947.80	18.10 S	25.84 E	525,573.20	809,708.04	0.27	1.33	-176.87	
5,044.00	1.67	179.95	5,041.75	20.98 S	25.78 E	525,570.32	809,707.98	0.21	3.79	-159.16	
5,139.00	1.23	178.81	5,136.72	23.39 S	25.80 E	525,567.91	809,708.00	0.46	5.81	-176.82	
5,233.00	1.14	179.42	5,230.70	25.33 S	25.83 E	525,565.97	809,708.03	0.10	7.43	172.33	
5,328.00	1.06	177.32	5,325.69	27.15 S	25.88 E	525,564.15	809,708.08	0.09	8.94	-154.30	
5,422.00	1.06	186.37	5,419.67	28.88 S	25.83 E	525,562.42	809,708.03	0.18	10.43	94.52	
5,517.00	1.14	195.77	5,514.65	30.67 S	25.47 E	525,560.63	809,707.67	0.21	12.12	70.84	
5,612.00	1.23	191.38	5,609.63	32.58 S	25.02 E	525,558.72	809,707.22	0.13	13.97	-47.46	
5,693.00	1.14	188.74	5,690.62	34.23 S	24.72 E	525,557.07	809,706.92	0.13	15.52	-150.07	
5,829.00	1.23	173.45	5,826.59	37.01 S	24.68 E	525,554.29	809,706.88	0.24	17.89	-81.85	
5,923.00	1.14	171.25	5,920.57	38.94 S	24.94 E	525,552.36	809,707.14	0.11	19.38	-154.28	
6,017.00	1.06	173.62	6,014.55	40.73 S	25.18 E	525,550.57	809,707.38	0.10	20.75	151.55	
6,111.00	0.97	163.16	6,108.53	42.35 S	25.51 E	525,548.95	809,707.71	0.22	21.95	-121.07	
6,206.00	0.88	160.97	6,203.52	43.81 S	25.98 E	525,547.49	809,708.18	0.10	22.92	-159.65	
6,301.00	1.23	159.91	6,298.51	45.46 S	26.56 E	525,545.84	809,708.76	0.37	24.00	-3.72	
6,396.00	0.62	286.04	6,393.50	46.28 S	26.42 E	525,545.02	809,708.62	1.76	24.76	162.57	
6,491.00	0.97	300.63	6,488.49	45.72 S	25.23 E	525,545.58	809,707.43	0.42	24.93	37.47	
6,585.00	0.88	301.24	6,582.48	44.94 S	23.93 E	525,546.36	809,706.13	0.10	24.98	174.06	
6,680.00	0.97	297.64	6,677.46	44.19 S	22.60 E	525,547.11	809,704.80	0.11	25.06	-34.66	
6,774.00	0.97	297.99	6,771.45	43.45 S	21.19 E	525,547.85	809,703.39	0.01	25.20	90.17	
6,869.00	1.06	294.56	6,866.44	42.71 S	19.68 E	525,548.59	809,701.88	0.11	25.38	-35.75	
6,962.00	1.14	284.37	6,959.42	42.12 S	18.00 E	525,549.18	809,700.20	0.23	25.79	-72.90	
7,057.00	1.23	282.08	7,054.40	41.67 S	16.09 E	525,549.63	809,698.29	0.11	26.45	-28.90	
7,151.00	1.41	312.93	7,148.38	40.67 S	14.26 E	525,550.63	809,696.46	0.77	26.59	91.54	
7,245.00	1.41	311.17	7,242.35	39.12 S	12.54 E	525,552.18	809,694.74	0.05	26.21	-90.88	
7,340.00	1.41	296.32	7,337.32	37.84 S	10.61 E	525,553.46	809,692.81	0.38	26.16	-97.42	
7,435.00	1.14	290.43	7,432.29	36.99 S	8.68 E	525,554.31	809,690.88	0.32	26.49	-157.03	
7,530.00	1.14	291.13	7,527.28	36.32 S	6.91 E	525,554.98	809,689.11	0.01	26.88	90.35	
7,624.00	1.06	290.34	7,621.26	35.68 S	5.22 E	525,555.62	809,687.42	0.09	27.25	-169.66	

HALLIBURTON

Design Report for 3BS 2H - Actuals

Measured Depth (usft)	Inclination (°)	Grid Azimuth (°)	Vertical Depth (usft)	Local Coordinates		Map Coordinates		Dogleg Rate (°/100usft)	Vertical Section (usft)	Tooface Angle (°)	Comments
				Northing (usft)	Easting (usft)	Northing (usft)	Easting (usft)				
7,718.00	0.97	288.15	7,715.24	35.13 S	3.65 E	525,556.17	809,685.85	0.10	27.63	-157.77	
7,813.00	0.88	295.70	7,810.23	34.56 S	2.23 E	525,556.74	809,684.43	0.16	27.92	130.18	
7,908.00	0.79	297.55	7,905.22	33.94 S	0.99 E	525,557.36	809,683.19	0.10	28.06	164.25	
8,002.00	0.70	295.44	7,999.21	33.40 S	0.10 W	525,557.90	809,682.10	0.10	28.19	-164.10	
8,096.00	0.70	313.28	8,093.21	32.76 S	1.04 W	525,558.54	809,681.16	0.23	28.16	98.92	
8,190.00	0.70	326.03	8,187.20	31.89 S	1.78 W	525,559.41	809,680.42	0.17	27.82	96.37	
8,285.00	0.70	331.74	8,282.19	30.89 S	2.38 W	525,560.41	809,679.82	0.07	27.31	92.85	
8,379.00	0.26	347.82	8,376.19	30.18 S	2.69 W	525,561.12	809,679.51	0.48	26.88	170.91	
8,473.00	0.53	351.16	8,470.19	29.54 S	2.80 W	525,561.76	809,679.40	0.29	26.40	6.55	
8,566.00	0.26	334.55	8,563.18	28.93 S	2.96 W	525,562.37	809,679.24	0.31	25.97	-165.18	
8,659.00	0.88	318.29	8,656.18	28.20 S	3.53 W	525,563.10	809,678.67	0.68	25.66	-22.85	
8,754.00	1.06	299.57	8,751.17	27.22 S	4.78 W	525,564.08	809,677.42	0.38	25.51	-69.98	
8,848.00	1.06	287.44	8,845.15	26.53 S	6.36 W	525,564.77	809,675.84	0.24	25.78	-96.06	
8,970.00	1.49	310.29	8,967.12	25.17 S	8.65 W	525,566.13	809,673.55	0.54	25.87	61.58	
9,062.00	1.67	333.41	9,059.09	23.20 S	10.16 W	525,568.10	809,672.04	0.71	25.02	85.99	
9,159.00	1.76	333.76	9,156.04	20.60 S	11.45 W	525,570.70	809,670.75	0.09	23.52	6.81	
9,256.00	2.02	330.42	9,252.99	17.77 S	12.95 W	525,573.53	809,669.25	0.29	21.95	-24.64	
9,349.00	1.23	330.42	9,345.95	15.48 S	14.26 W	525,575.82	809,667.94	0.85	20.72	180.00	
9,444.00	1.06	334.90	9,440.93	13.80 S	15.13 W	525,577.50	809,667.07	0.20	19.78	154.46	
9,538.00	0.70	314.42	9,534.92	12.61 S	15.91 W	525,578.69	809,666.29	0.50	19.19	-148.79	
9,631.00	0.97	283.84	9,627.91	12.02 S	17.08 W	525,579.28	809,665.12	0.55	19.33	-74.69	
9,726.00	0.97	271.45	9,722.90	11.81 S	18.67 W	525,579.49	809,663.53	0.22	20.01	-96.19	
9,820.00	0.88	247.98	9,816.89	12.06 S	20.13 W	525,579.24	809,662.07	0.41	21.00	-114.91	
9,914.00	0.88	252.81	9,910.88	12.55 S	21.49 W	525,578.75	809,660.71	0.08	22.14	92.41	
10,009.00	0.44	265.12	10,005.87	12.79 S	22.55 W	525,578.51	809,659.65	0.48	22.92	168.23	
10,103.00	0.44	281.47	10,099.87	12.75 S	23.26 W	525,578.55	809,658.94	0.13	23.27	98.17	
10,198.00	0.26	289.90	10,194.86	12.61 S	23.82 W	525,578.69	809,658.38	0.20	23.45	168.22	
10,292.00	0.53	292.63	10,288.86	12.37 S	24.43 W	525,578.93	809,657.77	0.29	23.57	5.35	
10,386.00	0.44	257.12	10,382.86	12.28 S	25.18 W	525,579.02	809,657.02	0.33	23.91	-123.91	
10,481.00	0.70	192.26	10,477.86	12.93 S	25.66 W	525,578.37	809,656.54	0.68	24.71	-102.68	
10,576.00	1.06	175.38	10,572.84	14.37 S	25.71 W	525,576.93	809,656.49	0.46	25.95	-44.40	
10,671.00	1.67	173.01	10,667.82	16.62 S	25.47 W	525,574.68	809,656.73	0.64	27.72	-6.47	
10,766.00	1.93	166.77	10,762.77	19.55 S	24.94 W	525,571.75	809,657.26	0.34	29.90	-40.16	
10,860.00	1.76	164.31	10,856.72	22.48 S	24.18 W	525,568.82	809,658.02	0.20	31.97	-156.25	
10,955.00	1.93	179.86	10,951.67	25.49 S	23.78 W	525,565.81	809,658.42	0.55	34.28	79.12	
11,050.00	2.11	181.45	11,046.61	28.83 S	23.83 W	525,562.47	809,658.37	0.20	37.13	18.09	
11,145.00	1.93	194.72	11,141.55	32.13 S	24.28 W	525,559.17	809,657.92	0.53	40.15	117.59	

Design Report for 3BS 2H - Actuals

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)				
11,239.00	1.67	194.45	11,235.51	34.99 S	25.02 W	525,556.31	809,657.18	0.28	42.95	-178.27	
11,333.00	1.58	191.82	11,329.47	37.58 S	25.63 W	525,553.72	809,656.57	0.12	45.47	-141.66	
11,428.00	1.67	197.44	11,424.43	40.18 S	26.31 W	525,551.12	809,655.89	0.19	48.03	63.37	
11,523.00	1.76	203.95	11,519.39	42.84 S	27.32 W	525,548.46	809,654.88	0.23	50.81	68.48	
11,618.00	1.67	209.92	11,614.35	45.37 S	28.60 W	525,545.93	809,653.60	0.21	53.63	119.70	
11,713.00	1.58	215.90	11,709.31	47.63 S	30.06 W	525,543.67	809,652.14	0.20	56.32	120.92	
11,808.00	1.23	212.91	11,804.28	49.55 S	31.38 W	525,541.75	809,650.82	0.38	58.65	-169.66	
11,902.00	1.14	214.40	11,898.26	51.17 S	32.46 W	525,540.13	809,649.74	0.10	60.59	161.84	
11,997.00	0.88	226.97	11,993.25	52.44 S	33.52 W	525,538.86	809,648.68	0.36	62.24	145.73	Final Integrity Survey - 11997.00' MD

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
11,997.00	11,993.25	-52.44	-33.52	Final Integrity Survey - 11997.00' MD

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin		Start TVD (usft)
				+N/-S (usft)	+E/-W (usft)	
TD	No Target (Freehand)	212.59	Slot	0.00	0.00	0.00

Survey tool program

From (usft)	To (usft)	Survey/Plan	Survey Tool
197.00	11,997.00	Integrity Surveys	MWD

Design Report for 3BS 2H - Actuals

Design Targets

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

Directional Difficulty Index

Average Dogleg over Survey:	0.47 °/100usft	Maximum Dogleg over Survey:	2.64 °/100usft at 2,492.00 usft
Net Tortousity applicable to Plans:	0.42 °/100usft	Directional Difficulty Index:	4.187

Audit Info

North Reference Sheet for Grama Ridge East 34 State - 3BS 2H - OH

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

Vertical Depths are relative to GE 3715 + 26' KB @ 3741.00usft (Latshaw 17). Northing and Easting are relative to 3BS 2H

Coordinate System is US State Plane 1983, New Mexico Eastern Zone using datum North American Datum 1983, ellipsoid GRS 1980

Projection method is Transverse Mercator (Gauss-Kruger)

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

False Easting: 541,337.50usft, False Northing: 0.00usft, Scale Reduction: 0.99999156

Grid Coordinates of Well: 525,591.30 usft N, 809,682.20 usft E

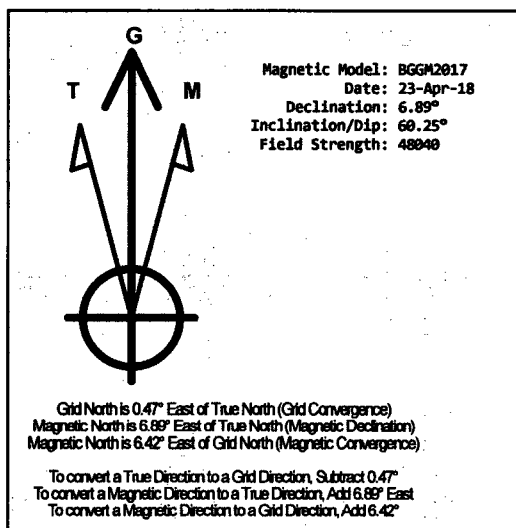
Geographical Coordinates of Well: 32° 28' 30.88" N, 103° 27' 48.56" W

Grid Convergence at Surface is: 0.47°

Based upon Minimum Curvature type calculations, at a Measured Depth of 11,997.00usft

the Bottom Hole Displacement is 62.24usft in the Direction of 212.59° (Grid).

Magnetic Convergence at surface is: -6.42° (23 April 2018, , BGGM2017)



Latshaw 17

Chisholm Energy Holdings

Lea County, NM (NAD 83) Grama Ridge East 34 State

API#

3BS 2H

ST01

Design: Actuals

Sperry Drilling Services

Combo Report

15 June, 2018

Well Coordinates: 32° 26' 30.88" N
 103° 27' 48.56" W

North American Datum 1983
New Mexico Eastern Zone
525,591.30 N
809,682.20 E

Ground Level: 3,715.00 usft

Local Coordinate Origin:

Viewing Datum:

TVDs to System:

North Reference:

Unit System:

Centered on Well 3BS 2H
GE 3715 + 26' KB @ 3741.00usft (Latshaw 17)
N
Grid
Midcon (2 decimal)

Version: 5000.1 Build: 81E

Report Version: Midcon Combo v1.12

HALLIBURTON

HALLIBURTON

Design Report for 3BS 2H - Actuals

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	525,591.30	809,682.20	0.00	0.00	0.00	
197.00	0.40	321.84	197.00	0.54 N	0.42 W	525,591.84	809,681.78	0.20	-0.25	321.84	
397.00	1.05	286.94	396.98	1.62 N	2.61 W	525,592.92	809,679.59	0.38	-0.06	-52.49	
575.00	1.05	313.66	574.95	3.22 N	5.35 W	525,594.52	809,676.85	0.27	-0.03	103.36	
762.00	1.36	309.27	761.91	5.81 N	8.31 W	525,597.11	809,673.89	0.17	-0.73	-18.79	
883.00	1.90	319.40	882.86	8.24 N	10.72 W	525,599.54	809,671.48	0.50	-1.58	33.21	
975.00	0.18	27.93	974.84	9.53 N	11.65 W	525,600.83	809,670.55	2.00	-2.21	174.78	
1,157.00	1.93	111.95	1,156.81	8.64 N	8.67 W	525,599.94	809,673.53	1.05	-2.97	89.37	
1,252.00	1.85	108.15	1,251.76	7.56 N	5.73 W	525,598.86	809,676.47	0.16	-3.55	-124.44	
1,442.00	1.98	85.85	1,441.65	6.84 N	0.46 E	525,598.14	809,682.66	0.40	-6.11	-91.37	
1,632.00	2.55	65.28	1,631.51	8.85 N	7.57 E	525,600.15	809,689.77	0.52	-11.48	-65.53	
1,809.00	2.24	59.22	1,808.35	12.27 N	14.12 E	525,603.57	809,696.32	0.23	-17.77	-143.76	
1,924.00	2.46	53.48	1,923.26	14.88 N	18.03 E	525,606.18	809,700.23	0.28	-22.03	-49.82	
2,019.00	3.25	60.27	2,018.14	17.43 N	22.01 E	525,608.73	809,704.21	0.90	-26.25	26.59	
2,114.00	2.73	62.44	2,113.01	19.82 N	26.35 E	525,611.12	809,708.55	0.56	-30.53	168.80	
2,208.00	0.88	74.66	2,208.96	21.04 N	29.03 E	525,612.34	809,711.23	2.00	-32.95	174.31	
2,303.00	1.23	130.47	2,301.94	20.57 N	30.51 E	525,611.87	809,712.71	1.09	-33.31	100.51	
2,398.00	1.14	54.80	2,396.93	20.46 N	32.06 E	525,611.76	809,714.26	1.53	-34.00	-130.63	
2,492.00	2.02	154.73	2,490.91	19.50 N	33.53 E	525,610.80	809,715.73	2.64	-33.93	126.79	
2,587.00	1.67	167.82	2,585.86	16.63 N	34.54 E	525,607.93	809,716.74	0.57	-31.99	136.13	
2,682.00	1.93	182.50	2,680.81	13.68 N	34.76 E	525,604.98	809,716.96	0.55	-29.57	68.05	
2,777.00	0.97	226.27	2,775.78	11.52 N	34.11 E	525,602.82	809,716.31	1.47	-27.39	151.37	
2,872.00	1.14	268.63	2,870.77	10.95 N	32.59 E	525,602.25	809,714.79	0.82	-26.11	99.43	
2,967.00	2.02	277.69	2,965.73	11.15 N	29.98 E	525,602.45	809,712.18	0.96	-24.95	20.41	
3,061.00	2.46	294.21	3,059.66	12.20 N	26.50 E	525,603.50	809,708.70	0.83	-24.06	64.17	
3,155.00	3.08	305.55	3,153.55	14.49 N	22.61 E	525,605.79	809,704.81	0.88	-24.03	47.23	
3,250.00	1.49	315.57	3,248.47	16.86 N	19.66 E	525,608.16	809,701.86	1.72	-24.56	170.87	
3,345.00	0.26	235.50	3,343.46	17.62 N	18.62 E	525,608.92	809,700.82	1.54	-24.67	-169.95	
3,439.00	0.79	140.49	3,437.46	17.00 N	18.86 E	525,608.30	809,701.06	0.91	-24.26	-112.69	
3,533.00	1.67	138.73	3,531.43	15.47 N	20.17 E	525,606.77	809,702.37	0.94	-23.62	-3.34	
3,628.00	2.99	116.41	3,626.35	13.32 N	23.31 E	525,604.62	809,705.51	1.66	-23.39	-46.00	
3,723.00	2.73	129.06	3,721.24	10.80 N	27.28 E	525,602.10	809,709.48	0.72	-23.26	118.62	
3,818.00	1.06	148.93	3,816.18	8.62 N	29.49 E	525,599.92	809,711.69	1.86	-22.52	168.26	
3,907.00	0.62	185.31	3,905.17	7.43 N	29.87 E	525,598.73	809,712.07	0.75	-21.70	146.75	
4,002.00	0.70	196.65	4,000.17	6.37 N	29.66 E	525,597.67	809,711.86	0.16	-20.68	64.27	
4,097.00	0.88	196.39	4,095.16	5.11 N	29.29 E	525,596.41	809,711.49	0.19	-19.41	-1.27	

Design Report for 3BS 2H - Actuals

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)				
4,192.00	1.06	198.15	4,190.14	3.58 N	28.81 E	525,594.88	809,711.01	0.19	-17.84	10.28	
4,287.00	1.06	194.98	4,285.13	1.89 N	28.31 E	525,593.19	809,710.51	0.06	-16.14	-91.58	
4,382.00	1.23	196.30	4,380.11	0.06 N	27.79 E	525,591.36	809,709.99	0.18	-14.31	9.48	
4,477.00	1.23	197.53	4,475.09	1.89 S	27.20 E	525,589.41	809,709.40	0.03	-12.33	90.61	
4,621.00	1.85	184.96	4,619.04	5.68 S	26.53 E	525,585.62	809,708.73	0.49	-8.73	-34.96	
4,666.00	2.29	181.53	4,664.01	7.30 S	26.45 E	525,584.00	809,708.65	1.02	-7.30	-17.44	
4,760.00	2.37	184.79	4,757.93	11.11 S	26.23 E	525,580.19	809,708.43	0.16	-3.91	60.52	
4,855.00	2.11	182.76	4,852.86	14.82 S	25.99 E	525,576.48	809,708.19	0.29	-0.61	-164.04	
4,950.00	1.85	182.32	4,947.80	18.10 S	25.84 E	525,573.20	809,708.04	0.27	2.28	-176.87	
5,044.00	1.67	179.95	5,041.75	20.98 S	25.78 E	525,570.32	809,707.98	0.21	4.79	-159.16	
5,139.00	1.23	178.81	5,136.72	23.39 S	25.80 E	525,567.91	809,708.00	0.46	6.84	-176.82	
5,233.00	1.14	179.42	5,230.70	25.33 S	25.83 E	525,565.97	809,708.03	0.10	8.50	172.33	
5,328.00	1.06	177.32	5,325.69	27.15 S	25.88 E	525,564.15	809,708.08	0.09	10.04	-154.30	
5,422.00	1.06	186.37	5,419.67	28.88 S	25.83 E	525,562.42	809,708.03	0.18	11.55	94.52	
5,517.00	1.14	195.77	5,514.65	30.67 S	25.47 E	525,560.63	809,707.67	0.21	13.26	70.84	
5,612.00	1.23	191.38	5,609.63	32.58 S	25.02 E	525,558.72	809,707.22	0.13	15.14	-47.46	
5,693.00	1.14	188.74	5,690.62	34.23 S	24.72 E	525,557.07	809,706.92	0.13	16.70	-150.07	
5,829.00	1.23	173.45	5,826.59	37.01 S	24.68 E	525,554.29	809,706.88	0.24	19.12	-81.85	
5,923.00	1.14	171.25	5,920.57	38.94 S	24.94 E	525,552.36	809,707.14	0.11	20.64	-154.28	
6,017.00	1.06	173.62	6,014.55	40.73 S	25.18 E	525,550.57	809,707.38	0.10	22.05	151.55	
6,111.00	0.97	163.16	6,108.53	42.35 S	25.51 E	525,548.95	809,707.71	0.22	23.28	-121.07	
6,206.00	0.88	160.97	6,203.52	43.81 S	25.98 E	525,547.49	809,708.18	0.10	24.29	-159.65	
6,301.00	1.23	159.91	6,298.51	45.46 S	26.56 E	525,545.84	809,708.76	0.37	25.40	-3.72	
6,396.00	0.62	286.04	6,393.50	46.28 S	26.42 E	525,545.02	809,708.62	1.76	26.18	162.57	
6,491.00	0.97	300.63	6,488.49	45.72 S	25.23 E	525,545.58	809,707.43	0.42	26.31	37.47	
6,585.00	0.88	301.24	6,582.48	44.94 S	23.93 E	525,546.36	809,706.13	0.10	26.31	174.06	
6,680.00	0.97	297.64	6,677.46	44.19 S	22.60 E	525,547.11	809,704.80	0.11	26.35	-34.66	
6,774.00	0.97	297.99	6,771.45	43.45 S	21.19 E	525,547.85	809,703.39	0.01	26.43	90.17	
6,869.00	1.06	294.56	6,866.44	42.71 S	19.68 E	525,548.59	809,701.88	0.11	26.57	-35.75	
6,962.00	1.14	284.37	6,959.42	42.12 S	18.00 E	525,549.18	809,700.20	0.23	26.93	-72.90	
7,057.00	1.23	282.08	7,054.40	41.67 S	16.09 E	525,549.63	809,698.29	0.11	27.52	-28.90	
7,151.00	1.41	312.93	7,148.38	40.67 S	14.26 E	525,550.63	809,696.46	0.77	27.61	91.54	
7,245.00	1.41	311.17	7,242.35	39.12 S	12.54 E	525,552.18	809,694.74	0.05	27.16	-90.88	
7,340.00	1.41	296.32	7,337.32	37.84 S	10.61 E	525,553.46	809,692.81	0.38	27.04	-97.42	
7,435.00	1.14	290.43	7,432.29	36.99 S	8.68 E	525,554.31	809,690.88	0.32	27.30	-157.03	
7,530.00	1.14	291.13	7,527.28	36.32 S	6.91 E	525,554.98	809,689.11	0.01	27.63	90.35	
7,624.00	1.06	290.34	7,621.26	35.68 S	5.22 E	525,555.62	809,687.42	0.09	27.95	-169.66	

Design Report for 3BS 2H - Actuals

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)								
7,718.00	0.97	288.15	7,715.24	35.13 S	3.65 E	525,556.17	809,685.85	0.10	28.28	-157.77	
7,813.00	0.88	295.70	7,810.23	34.56 S	2.23 E	525,556.74	809,684.43	0.16	28.53	130.18	
7,908.00	0.79	297.55	7,905.22	33.94 S	0.99 E	525,557.36	809,683.19	0.10	28.63	164.25	
8,002.00	0.70	295.44	7,999.21	33.40 S	0.10 W	525,557.90	809,682.10	0.10	28.72	-164.10	
8,096.00	0.70	313.28	8,093.21	32.76 S	1.04 W	525,558.54	809,681.16	0.23	28.65	98.92	
8,190.00	0.70	326.03	8,187.20	31.89 S	1.78 W	525,559.41	809,680.42	0.17	28.28	96.37	
8,285.00	0.70	331.74	8,282.19	30.89 S	2.38 W	525,560.41	809,679.82	0.07	27.74	92.85	
8,379.00	0.26	347.82	8,376.19	30.18 S	2.69 W	525,561.12	809,679.51	0.48	27.29	170.91	
8,473.00	0.53	351.16	8,470.19	29.54 S	2.80 W	525,561.76	809,679.40	0.29	26.80	6.55	
8,566.00	0.26	334.55	8,563.18	28.93 S	2.96 W	525,562.37	809,679.24	0.31	26.35	-165.18	
8,659.00	0.88	318.29	8,656.18	28.20 S	3.53 W	525,563.10	809,678.67	0.68	26.02	-22.85	
8,754.00	1.06	299.57	8,751.17	27.22 S	4.78 W	525,564.08	809,677.42	0.38	25.82	-69.98	
8,848.00	1.06	287.44	8,845.15	26.53 S	6.36 W	525,564.77	809,675.84	0.24	26.04	-96.06	
8,970.00	1.49	310.29	8,967.12	25.17 S	8.65 W	525,566.13	809,673.55	0.54	26.04	61.58	
9,062.00	1.67	333.41	9,059.09	23.20 S	10.16 W	525,568.10	809,672.04	0.71	25.13	85.99	
9,159.00	1.76	333.76	9,156.04	20.60 S	11.45 W	525,570.70	809,670.75	0.09	23.56	6.81	
9,256.00	2.02	330.42	9,252.99	17.77 S	12.95 W	525,573.53	809,669.25	0.29	21.90	-24.64	
9,349.00	1.23	330.42	9,345.95	15.48 S	14.26 W	525,575.82	809,667.94	0.85	20.60	180.00	
9,444.00	1.06	334.90	9,440.93	13.80 S	15.13 W	525,577.50	809,667.07	0.20	19.61	154.46	
9,538.00	0.70	314.42	9,534.92	12.61 S	15.91 W	525,578.69	809,666.29	0.50	18.99	-148.79	
9,631.00	0.97	283.84	9,627.91	12.02 S	17.08 W	525,579.28	809,665.12	0.55	19.08	-74.69	
9,726.00	0.97	271.45	9,722.90	11.81 S	18.67 W	525,579.49	809,663.53	0.22	19.71	-96.19	
9,820.00	0.88	247.98	9,816.89	12.06 S	20.13 W	525,579.24	809,662.07	0.41	20.68	-114.91	
9,914.00	0.88	252.81	9,910.88	12.55 S	21.49 W	525,578.75	809,660.71	0.08	21.79	92.41	
10,009.00	0.44	265.12	10,005.87	12.79 S	22.55 W	525,578.51	809,659.65	0.48	22.55	168.23	
10,103.00	0.44	281.47	10,099.87	12.75 S	23.26 W	525,578.55	809,658.94	0.13	22.88	98.17	
10,198.00	0.26	289.90	10,194.86	12.61 S	23.82 W	525,578.69	809,658.38	0.20	23.04	168.22	
10,292.00	0.53	292.63	10,288.86	12.37 S	24.43 W	525,578.93	809,657.77	0.29	23.14	5.35	
10,386.00	0.44	257.12	10,382.86	12.28 S	25.18 W	525,579.02	809,657.02	0.33	23.45	-123.91	
10,481.00	0.70	192.26	10,477.86	12.93 S	25.66 W	525,578.37	809,656.54	0.68	24.26	-102.68	
10,576.00	1.06	175.38	10,572.84	14.37 S	25.71 W	525,576.93	809,656.49	0.46	25.52	-44.40	Tie in to Integrity Survey - 10576.00' MD
10,609.00	4.23	245.91	10,605.81	15.17 S	26.80 W	525,576.13	809,655.40	12.13	26.77	84.96	
10,624.00	4.50	214.54	10,620.77	15.88 S	27.64 W	525,575.42	809,654.56	15.82	27.81	-99.35	
10,655.00	6.43	214.86	10,651.63	18.31 S	29.32 W	525,572.99	809,652.88	6.23	30.75	1.06	
10,687.00	8.19	235.68	10,683.37	21.06 S	32.22 W	525,570.24	809,649.98	9.85	34.61	67.02	
10,718.00	12.11	247.28	10,713.88	23.57 S	37.05 W	525,567.73	809,645.15	14.20	39.23	33.34	
10,750.00	17.02	249.74	10,744.84	26.49 S	44.54 W	525,564.81	809,637.66	15.46	45.58	8.38	

Design Report for 3BS 2H - Actuals

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)				
10,781.00	22.19	251.01	10,774.04	29.96 S	54.34 W	525,561.34	809,627.86	16.73	53.59	5.31	
10,812.00	27.74	251.27	10,802.13	34.19 S	66.72 W	525,557.11	809,615.48	17.91	63.57	1.25	
10,844.00	32.24	247.87	10,829.84	39.80 S	81.69 W	525,551.50	809,600.51	15.03	76.06	-22.17	
10,876.00	35.06	245.53	10,856.48	46.82 S	97.97 W	525,544.48	809,584.23	9.70	90.44	-25.67	
10,908.00	38.11	251.57	10,882.18	53.76 S	115.71 W	525,537.54	809,566.49	14.74	105.49	52.18	
10,939.00	40.59	249.02	10,906.15	60.39 S	134.20 W	525,530.91	809,548.00	9.55	120.67	-34.10	
10,970.00	42.29	244.55	10,929.39	68.49 S	153.04 W	525,522.81	809,529.16	11.00	137.28	-61.81	
11,002.00	44.01	240.41	10,952.74	78.61 S	172.44 W	525,512.69	809,509.76	10.35	155.91	-60.25	
11,034.00	45.62	235.38	10,975.45	90.60 S	191.52 W	525,500.70	809,490.68	12.16	176.00	-67.38	
11,065.00	46.51	233.79	10,996.96	103.53 S	209.71 W	525,487.77	809,472.49	4.68	196.43	-52.70	
11,097.00	47.85	228.70	11,018.72	118.23 S	228.00 W	525,473.07	809,454.20	12.39	218.42	-72.00	
11,129.00	47.42	226.27	11,040.28	134.20 S	245.42 W	525,457.10	809,436.78	5.77	241.07	-104.29	
11,160.00	47.41	221.24	11,061.27	150.68 S	261.20 W	525,440.62	809,421.00	11.94	263.31	-91.86	
11,192.00	47.37	215.04	11,082.94	169.18 S	275.73 W	525,422.12	809,406.47	14.26	286.65	-92.60	
11,223.00	46.73	209.03	11,104.07	188.40 S	287.76 W	525,402.90	809,394.44	14.34	309.31	-100.32	
11,255.00	47.70	203.51	11,125.82	209.45 S	298.14 W	525,381.85	809,384.06	13.02	332.70	-78.42	
11,286.00	50.87	202.21	11,146.04	231.10 S	307.26 W	525,360.20	809,374.94	10.71	355.97	-17.69	
11,318.00	53.33	200.92	11,165.69	254.58 S	316.54 W	525,336.72	809,365.66	8.32	380.88	-22.88	
11,350.00	55.79	200.17	11,184.25	278.99 S	325.68 W	525,312.31	809,356.52	7.92	406.53	-14.17	
11,381.00	58.02	198.46	11,201.17	303.50 S	334.27 W	525,287.80	809,347.93	8.55	431.97	-33.19	
11,413.00	59.95	197.00	11,217.66	329.62 S	342.62 W	525,261.68	809,339.58	7.19	458.68	-33.34	
11,445.00	62.26	195.43	11,233.13	356.52 S	350.43 W	525,234.78	809,331.77	8.40	485.78	-31.14	
11,476.00	64.48	194.42	11,247.02	383.29 S	357.57 W	525,208.01	809,324.63	7.73	512.43	-22.36	
11,508.00	66.12	193.39	11,260.39	411.51 S	364.55 W	525,179.79	809,317.65	5.90	540.23	-29.93	
11,540.00	68.05	192.31	11,272.85	440.25 S	371.11 W	525,151.05	809,311.09	6.79	568.26	-27.48	
11,571.00	70.61	191.48	11,283.79	468.63 S	377.08 W	525,122.67	809,305.12	8.63	595.69	-17.02	
11,603.00	71.58	190.96	11,294.16	498.32 S	382.97 W	525,092.98	809,299.23	3.40	624.20	-26.98	
11,634.00	74.04	189.05	11,303.32	527.48 S	388.11 W	525,063.82	809,294.09	9.88	651.88	-36.85	
11,666.00	75.19	188.85	11,311.81	557.96 S	392.91 W	525,033.34	809,289.29	3.64	680.50	-9.55	
11,697.00	76.32	188.08	11,319.44	587.68 S	397.33 W	525,003.62	809,284.87	4.37	708.28	-33.54	
11,729.00	78.65	186.11	11,326.37	618.68 S	401.19 W	524,972.62	809,281.01	9.44	736.87	-39.75	
11,760.00	81.30	185.14	11,331.77	649.05 S	404.18 W	524,942.25	809,278.02	9.09	764.48	-19.91	
11,792.00	83.85	183.67	11,335.91	680.69 S	406.62 W	524,910.61	809,275.58	9.18	792.89	-29.85	Final ST01 HAL MWD - 11792.00' MD
11,840.00	83.85	183.67	11,341.05	728.31 S	409.67 W	524,862.99	809,272.53	0.00	835.34	0.00	Projection to TD ST01 - 11840.00' MD

Design Report for 3BS 2H - Actuals

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
10,576.00	10,572.84	-14.37	-25.71	Tie in to Integrity Survey - 10576.00' MD
11,792.00	11,335.91	-680.69	-406.62	Final ST01 HAL MWD - 11792.00' MD
11,840.00	11,341.05	-728.31	-409.67	Projection to TD ST01 - 11840.00' MD

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin		Start TVD (usft)
				+N/-S (usft)	+E/-W (usft)	
User	No Target (Freehand)	210.85	Slot	0.00	0.00	0.00

Survey tool program

From (usft)	To (usft)	Survey/Plan	Survey Tool
197.00	10,576.00	Integrity Surveys	MWD
10,609.00	11,792.00	Survey #1	MWD
11,840.00	11,840.00	Projection to TD	Blind (OWSG)

Design Targets

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

Directional Difficulty Index

Average Dogleg over Survey:	1.47 °/100usft	Maximum Dogleg over Survey:	17.91 °/100usft at 10,812.00 usft
Net Tortousity applicable to Plans:	-0.04 °/100usft	Directional Difficulty Index:	5.307

HALLIBURTON

Chisholm Energy Holdings
Lea County, NM (NAD 83)

Design Report for 3BS 2H - Actuals

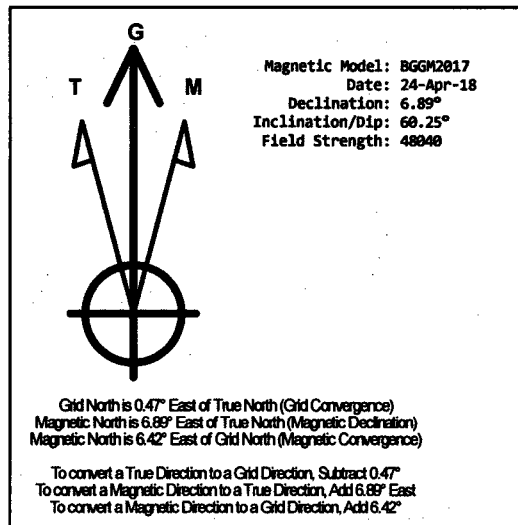
Audit Info

North Reference Sheet for Grama Ridge East 34 State - 3BS 2H - ST01

All data is in US Feet unless otherwise stated. Directions and Coordinates are relative to Grid North Reference.
Vertical Depths are relative to GE 3715 + 26' KB @ 3741.00usft (Latshaw 17). Northing and Easting are relative to 3BS 2H
Coordinate System is US State Plane 1983, New Mexico Eastern Zone using datum North American Datum 1983, ellipsoid GRS 1980
Projection method is Transverse Mercator (Gauss-Kruger)
Central Meridian is -104.33333333°, Longitude Origin:0.00000000°, Latitude Origin:0.00000000°
False Easting: 541,337.50usft, False Northing: 0.00usft, Scale Reduction: 0.99999156

Grid Coordinates of Well: 525,591.30 usft N, 809,682.20 usft E
Geographical Coordinates of Well: 32° 26' 30.88" N, 103° 27' 48.56" W
Grid Convergence at Surface is: 0.47°

Based upon Minimum Curvature type calculations, at a Measured Depth of 11,840.00usft
the Bottom Hole Displacement is 835.63usft in the Direction of 209.36° (Grid).
Magnetic Convergence at surface is: -6.42° (24 April 2018, , BGGM2017)



Latshaw 17

Chisholm Energy Holdings

Lea County, NM (NAD 83) Grama Ridge East 34 State

API#

3BS 2H

ST02

Design: Actual

Sperry Drilling Services Combo Report

15 June, 2018

Well Coordinates: 32° 26' 30.88" N
103° 27' 48.56" W

North American Datum 1983
New Mexico Eastern Zone
525,591.30 N
809,682.20 E

Ground Level: 3,715.00 usft

Local Coordinate Origin:

Viewing Datum:

TVDs to System:

North Reference:

Unit System:

Centered on Well 3BS 2H
GE 3715 + 26' KB @ 3741.00usft (Latshaw 17)
N
Grid
Midcon (2 decimal)

Version: 5000.1 Build: 81E

Report Version: Midcon Combo v1.12

HALLIBURTON

Design Report for 3BS 2H - 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	525,591.30	809,682.20	0.00	0.00	0.00	
197.00	0.40	321.84	197.00	0.54 N	0.42 W	525,591.84	809,681.78	0.20	0.45	321.84	
397.00	1.05	286.94	396.98	1.62 N	2.61 W	525,592.92	809,679.59	0.38	2.68	-52.49	
575.00	1.05	313.66	574.95	3.22 N	5.35 W	525,594.52	809,676.85	0.27	5.49	103.36	
762.00	1.36	309.27	761.91	5.81 N	8.31 W	525,597.11	809,673.89	0.17	8.56	-18.79	
883.00	1.90	319.40	882.86	8.24 N	10.72 W	525,599.54	809,671.48	0.50	11.08	33.21	
975.00	0.18	27.93	974.84	9.53 N	11.65 W	525,600.83	809,670.55	2.00	12.06	174.78	
1,157.00	1.93	111.95	1,156.81	8.64 N	8.67 W	525,599.94	809,673.53	1.05	9.04	89.37	
1,252.00	1.85	108.15	1,251.76	7.56 N	5.73 W	525,598.86	809,676.47	0.16	6.06	-124.44	
1,442.00	1.98	85.85	1,441.65	6.84 N	0.46 E	525,598.14	809,682.66	0.40	-0.15	-91.37	
1,632.00	2.55	65.28	1,631.51	8.85 N	7.57 E	525,600.15	809,689.77	0.52	-7.17	-65.53	
1,809.00	2.24	59.22	1,808.35	12.27 N	14.12 E	525,603.57	809,696.32	0.23	-13.56	-143.76	
1,924.00	2.46	53.48	1,923.26	14.88 N	18.03 E	525,606.18	809,700.23	0.28	-17.36	-49.82	
2,019.00	3.25	60.27	2,018.14	17.43 N	22.01 E	525,608.73	809,704.21	0.90	-21.22	26.59	
2,114.00	2.73	62.44	2,113.01	19.82 N	26.35 E	525,611.12	809,708.55	0.56	-25.45	168.80	
2,208.00	0.88	74.66	2,206.96	21.04 N	29.03 E	525,612.34	809,711.23	2.00	-28.08	174.31	
2,303.00	1.23	130.47	2,301.94	20.57 N	30.51 E	525,611.87	809,712.71	1.09	-29.58	100.51	
2,398.00	1.14	54.80	2,396.93	20.46 N	32.06 E	525,611.76	809,714.26	1.53	-31.13	-130.63	
2,492.00	2.02	154.73	2,490.91	19.50 N	33.53 E	525,610.80	809,715.73	2.64	-32.64	126.79	
2,587.00	1.67	167.82	2,585.86	16.63 N	34.54 E	525,607.93	809,716.74	0.57	-33.77	136.13	
2,682.00	1.93	182.50	2,680.81	13.68 N	34.76 E	525,604.98	809,716.96	0.55	-34.13	68.05	
2,777.00	0.97	226.27	2,775.78	11.52 N	34.11 E	525,602.82	809,716.31	1.47	-33.57	151.37	
2,872.00	1.14	268.63	2,870.77	10.95 N	32.59 E	525,602.25	809,714.79	0.82	-32.07	99.43	
2,967.00	2.02	277.69	2,965.73	11.15 N	29.98 E	525,602.45	809,712.18	0.96	-29.46	20.41	
3,061.00	2.46	294.21	3,059.66	12.20 N	26.50 E	525,603.50	809,708.70	0.83	-25.94	64.17	
3,155.00	3.08	305.55	3,153.55	14.49 N	22.61 E	525,605.79	809,704.81	0.88	-21.94	47.23	
3,250.00	1.49	315.57	3,248.47	16.86 N	19.66 E	525,608.16	809,701.86	1.72	-18.90	170.87	
3,345.00	0.26	235.50	3,343.46	17.62 N	18.62 E	525,608.92	809,700.82	1.54	-17.83	-169.95	
3,439.00	0.79	140.49	3,437.46	17.00 N	18.86 E	525,608.30	809,701.06	0.91	-18.09	-112.69	
3,533.00	1.67	138.73	3,531.43	15.47 N	20.17 E	525,606.77	809,702.37	0.94	-19.47	-3.34	
3,628.00	2.99	116.41	3,626.35	13.32 N	23.31 E	525,604.62	809,705.51	1.66	-22.70	-46.00	
3,723.00	2.73	129.06	3,721.24	10.80 N	27.28 E	525,602.10	809,709.48	0.72	-26.78	118.62	
3,818.00	1.06	148.93	3,816.18	8.62 N	29.49 E	525,599.92	809,711.69	1.86	-29.08	168.26	
3,907.00	0.62	185.31	3,905.17	7.43 N	29.87 E	525,598.73	809,712.07	0.75	-29.52	146.75	
4,002.00	0.70	196.65	4,000.17	6.37 N	29.66 E	525,597.67	809,711.86	0.16	-29.35	64.27	
4,097.00	0.88	196.39	4,095.16	5.11 N	29.29 E	525,596.41	809,711.49	0.19	-29.03	-1.27	

HALLIBURTON

Design Report for 3BS 2H - Actual

Measured Depth (usft)	Inclination (°)	Grid Azimuth (°)	Vertical Depth (usft)	Local Coordinates		Map Coordinates		Dogleg Rate (°/100usft)	Vertical Section (usft)	Tooface Angle (°)	Comments
				Northing (usft)	Easting (usft)	Northing (usft)	Easting (usft)				
4,192.00	1.06	198.15	4,190.14	3.58 N	28.81 E	525,594.88	809,711.01	0.19	-28.62	10.28	
4,287.00	1.06	194.98	4,285.13	1.89 N	28.31 E	525,593.19	809,710.51	0.06	-28.20	-91.58	
4,382.00	1.23	196.30	4,380.11	0.06 N	27.79 E	525,591.36	809,709.99	0.18	-27.76	9.48	
4,477.00	1.23	197.53	4,475.09	1.89 S	27.20 E	525,589.41	809,709.40	0.03	-27.26	90.61	
4,621.00	1.85	184.96	4,619.04	5.68 S	26.53 E	525,585.62	809,708.73	0.49	-26.76	-34.96	
4,666.00	2.29	181.53	4,664.01	7.30 S	26.45 E	525,584.00	809,708.65	1.02	-26.74	-17.44	
4,760.00	2.37	184.79	4,757.93	11.11 S	26.23 E	525,580.19	809,708.43	0.16	-26.70	60.52	
4,855.00	2.11	182.76	4,852.86	14.82 S	25.99 E	525,576.48	809,708.19	0.29	-26.61	-164.04	
4,950.00	1.85	182.32	4,947.80	18.10 S	25.84 E	525,573.20	809,708.04	0.27	-26.61	-176.87	
5,044.00	1.67	179.95	5,041.75	20.98 S	25.78 E	525,570.32	809,707.98	0.21	-26.68	-159.16	
5,139.00	1.23	178.81	5,136.72	23.39 S	25.80 E	525,567.91	809,708.00	0.46	-26.81	-176.82	
5,233.00	1.14	177.42	5,230.70	25.33 S	25.83 E	525,565.97	809,708.03	0.10	-26.92	172.33	
5,328.00	1.06	179.32	5,325.69	27.15 S	25.88 E	525,564.15	809,708.08	0.09	-27.06	-154.30	
5,422.00	1.06	186.37	5,419.67	28.88 S	25.83 E	525,562.42	809,708.03	0.18	-27.08	94.52	
5,517.00	1.14	195.77	5,514.65	30.67 S	25.47 E	525,560.63	809,707.67	0.21	-26.80	70.84	
5,612.00	1.23	191.38	5,609.63	32.58 S	25.02 E	525,558.72	809,707.22	0.13	-26.43	-47.46	
5,693.00	1.14	188.74	5,690.62	34.23 S	24.72 E	525,557.07	809,706.92	0.13	-26.21	-150.07	
5,829.00	1.23	173.45	5,826.59	37.01 S	24.68 E	525,554.29	809,706.88	0.24	-26.29	-81.85	
5,923.00	1.14	171.25	5,920.57	38.94 S	24.94 E	525,552.36	809,707.14	0.11	-26.63	-154.28	
6,017.00	1.06	173.62	6,014.55	40.73 S	25.18 E	525,550.57	809,707.38	0.10	-26.95	151.55	
6,111.00	0.97	163.16	6,108.53	42.35 S	25.51 E	525,548.95	809,707.71	0.22	-27.35	-121.07	
6,206.00	0.88	160.97	6,203.52	43.81 S	25.98 E	525,547.49	809,708.18	0.10	-27.88	-159.65	
6,301.00	1.23	159.91	6,298.51	45.46 S	26.56 E	525,545.84	809,708.76	0.37	-28.54	-3.72	
6,396.00	0.62	286.04	6,393.50	46.28 S	26.42 E	525,545.02	809,708.62	1.76	-28.44	162.57	
6,491.00	0.97	300.63	6,488.49	45.72 S	25.23 E	525,545.58	809,707.43	0.42	-27.23	37.47	
6,585.00	0.88	301.24	6,582.48	44.94 S	23.93 E	525,546.36	809,706.13	0.10	-25.89	174.06	
6,680.00	0.97	297.64	6,677.46	44.19 S	22.60 E	525,547.11	809,704.80	0.11	-24.52	-34.66	
6,774.00	0.97	297.99	6,771.45	43.45 S	21.19 E	525,547.85	809,703.39	0.01	-23.08	90.17	
6,869.00	1.06	294.56	6,866.44	42.71 S	19.68 E	525,548.59	809,701.88	0.11	-21.54	-35.75	
6,962.00	1.14	284.37	6,959.42	42.12 S	18.00 E	525,549.18	809,700.20	0.23	-19.84	-72.90	
7,057.00	1.23	282.08	7,054.40	41.67 S	16.09 E	525,549.63	809,698.29	0.11	-17.91	-28.90	
7,151.00	1.41	312.93	7,148.38	40.67 S	14.26 E	525,550.63	809,696.46	0.77	-16.04	91.54	
7,245.00	1.41	311.17	7,242.35	39.12 S	12.54 E	525,552.18	809,694.74	0.05	-14.25	-90.88	
7,340.00	1.41	296.32	7,337.32	37.84 S	10.61 E	525,553.46	809,692.81	0.38	-12.27	-97.42	
7,435.00	1.14	290.43	7,432.29	36.99 S	8.68 E	525,554.31	809,690.88	0.32	-10.30	-157.03	
7,530.00	1.14	291.13	7,527.28	36.32 S	6.91 E	525,554.98	809,689.11	0.01	-8.51	90.35	
7,624.00	1.06	290.34	7,621.26	35.68 S	5.22 E	525,555.62	809,687.42	0.09	-6.79	-169.66	

Design Report for 3BS 2H - 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)				
7,718.00	0.97	288.15	7,715.24	35.13 S	3.65 E	525,556.17	809,685.85	0.10	-5.20	-157.77	
7,813.00	0.88	295.70	7,810.23	34.56 S	2.23 E	525,556.74	809,684.43	0.16	-3.75	130.18	
7,908.00	0.79	297.55	7,905.22	33.94 S	0.99 E	525,557.36	809,683.19	0.10	-2.49	164.25	
8,002.00	0.70	295.44	7,999.21	33.40 S	0.10 W	525,557.90	809,682.10	0.10	-1.37	-164.10	
8,096.00	0.70	313.28	8,093.21	32.76 S	1.04 W	525,558.54	809,681.16	0.23	-0.41	98.92	
8,190.00	0.70	326.03	8,187.20	31.89 S	1.78 W	525,559.41	809,680.42	0.17	0.37	96.37	
8,285.00	0.70	331.74	8,282.19	30.89 S	2.38 W	525,560.41	809,679.82	0.07	1.01	92.85	
8,379.00	0.26	347.82	8,376.19	30.18 S	2.69 W	525,561.12	809,679.51	0.48	1.36	170.91	
8,473.00	0.53	351.16	8,470.19	29.54 S	2.80 W	525,561.76	809,679.40	0.29	1.50	6.55	
8,566.00	0.26	334.55	8,563.18	28.93 S	2.96 W	525,562.37	809,679.24	0.31	1.68	-165.18	
8,659.00	0.88	318.29	8,656.18	28.20 S	3.53 W	525,563.10	809,678.67	0.68	2.28	-22.85	
8,754.00	1.06	299.57	8,751.17	27.22 S	4.78 W	525,564.08	809,677.42	0.38	3.57	-69.98	
8,848.00	1.06	287.44	8,845.15	26.53 S	6.36 W	525,564.77	809,675.84	0.24	5.19	-96.06	
8,970.00	1.49	310.29	8,967.12	25.17 S	8.65 W	525,566.13	809,673.55	0.54	7.53	61.58	
9,062.00	1.67	333.41	9,059.09	23.20 S	10.16 W	525,568.10	809,672.04	0.71	9.13	85.99	
9,159.00	1.76	333.76	9,156.04	20.80 S	11.45 W	525,570.70	809,670.75	0.09	10.53	6.81	
9,256.00	2.02	330.42	9,252.99	17.77 S	12.95 W	525,573.53	809,669.25	0.29	12.16	-24.64	
9,349.00	1.23	330.42	9,345.95	15.48 S	14.26 W	525,575.82	809,667.94	0.85	13.56	180.00	
9,444.00	1.06	334.90	9,440.93	13.80 S	15.13 W	525,577.50	809,667.07	0.20	14.51	154.46	
9,538.00	0.70	314.42	9,534.92	12.61 S	15.91 W	525,578.69	809,666.29	0.50	15.34	-148.79	
9,631.00	0.97	283.84	9,627.91	12.02 S	17.08 W	525,579.28	809,665.12	0.55	16.53	-74.69	
9,726.00	0.97	271.45	9,722.90	11.81 S	18.67 W	525,579.49	809,663.53	0.22	18.13	-96.19	
9,820.00	0.88	247.98	9,816.89	12.06 S	20.13 W	525,579.24	809,662.07	0.41	19.58	-114.91	
9,914.00	0.88	252.81	9,910.88	12.55 S	21.49 W	525,578.75	809,660.71	0.08	20.92	92.41	
10,009.00	0.44	265.12	10,005.87	12.79 S	22.55 W	525,578.51	809,659.65	0.48	21.96	168.23	
10,103.00	0.44	281.47	10,099.87	12.75 S	23.26 W	525,578.55	809,658.94	0.13	22.68	98.17	
10,198.00	0.26	289.90	10,194.86	12.61 S	23.82 W	525,578.69	809,658.38	0.20	23.24	168.22	
10,292.00	0.53	292.63	10,288.86	12.37 S	24.43 W	525,578.93	809,657.77	0.29	23.86	5.35	
10,386.00	0.44	257.12	10,382.86	12.28 S	25.18 W	525,579.02	809,657.02	0.33	24.61	-123.91	
10,481.00	0.70	192.26	10,477.86	12.93 S	25.66 W	525,578.37	809,656.54	0.68	25.06	-102.68	
10,576.00	1.06	175.38	10,572.84	14.37 S	25.71 W	525,576.93	809,656.49	0.46	25.05	-44.40	
10,609.00	4.23	245.91	10,605.81	15.17 S	26.80 W	525,576.13	809,655.40	12.13	26.10	84.96	
10,624.00	4.50	214.54	10,620.77	15.88 S	27.64 W	525,575.42	809,654.56	15.82	26.91	-99.35	
10,655.00	6.43	214.86	10,651.63	18.31 S	29.32 W	525,572.99	809,652.88	6.23	28.48	1.06	
10,687.00	8.19	235.68	10,683.37	21.06 S	32.22 W	525,570.24	809,649.98	9.85	31.26	67.02	
10,718.00	12.11	247.28	10,713.88	23.57 S	37.05 W	525,567.73	809,645.15	14.20	35.97	33.34	
10,750.00	17.02	249.74	10,744.84	26.49 S	44.54 W	525,564.81	809,637.66	15.46	43.33	8.38	

Design Report for 3BS 2H - Actual

Measured Depth (usft)	Inclination (°)	Grid Azimuth (°)	Vertical Depth (usft)	Local Coordinates Northing (usft)	Local Coordinates Easting (usft)	Map Coordinates Northing (usft)	Map Coordinates Easting (usft)	Dogleg Rate (°/100usft)	Vertical Section (usft)	Toolface Angle (°)	Comments
10,780.00	14.30	271.55	10,773.75	27.91 S	52.38 W	525,563.39	809,629.82	21.45	51.09	125.04	
10,811.00	16.90	285.75	10,803.62	26.58 S	60.54 W	525,564.72	809,621.66	14.84	59.31	62.73	
10,843.00	17.79	296.49	10,834.17	23.14 S	69.40 W	525,568.16	809,612.80	10.37	68.31	79.64	
10,875.00	17.68	295.33	10,864.65	18.88 S	78.17 W	525,572.42	809,604.03	1.16	77.26	-107.84	
10,907.00	18.53	293.03	10,895.07	14.81 S	87.24 W	525,576.49	809,594.96	3.47	86.50	-41.16	
10,969.00	26.28	290.51	10,952.34	6.13 S	109.19 W	525,585.17	809,573.01	12.59	108.82	-8.24	
11,000.00	29.67	288.20	10,979.72	1.33 S	122.91 W	525,589.97	809,559.29	11.48	122.74	-18.75	
11,032.00	32.49	287.40	11,007.12	3.72 N	138.64 W	525,595.02	809,543.56	8.91	138.67	-8.68	
11,064.00	34.60	286.33	11,033.79	8.84 N	155.56 W	525,600.14	809,526.64	6.85	155.80	-16.10	
11,096.00	36.33	285.41	11,059.85	13.91 N	173.42 W	525,605.21	809,508.78	5.66	173.87	-17.52	
11,128.00	36.91	279.11	11,085.55	17.96 N	192.06 W	525,609.26	809,490.14	11.88	192.66	-83.76	
11,159.00	37.22	270.49	11,110.30	19.51 N	210.64 W	525,610.81	809,471.56	16.78	211.29	-90.03	
11,191.00	37.85	265.44	11,135.68	18.81 N	230.10 W	525,610.11	809,452.10	9.81	230.71	-80.44	
11,222.00	38.50	259.54	11,160.06	16.30 N	249.08 W	525,607.60	809,433.12	11.95	249.56	-82.22	
11,254.00	38.54	254.62	11,185.10	11.85 N	268.49 W	525,603.15	809,413.71	9.57	268.75	-91.18	Last HAL MWD ST02 - 11254.00' MD
11,302.00	39.00	247.00	11,222.55	1.98 N	296.83 W	525,593.28	809,385.37	9.98	296.63	-87.47	Projection to TD ST02 - 11302.00' MD

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
11,254.00	11,185.10	11.85	-268.49	Last HAL MWD ST02 - 11254.00' MD
11,302.00	11,222.55	1.98	-296.83	Projection to TD ST02 - 11302.00' MD

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin +N/-S (usft)	Origin +E/-W (usft)	Start TVD (usft)
User	No Target (Freehand)	272.53	Slot	0.00	0.00	0.00

Design Report for 3BS 2H - Actual

Survey tool program

From (usft)	To (usft)	Survey/Plan	Survey Tool
197.00	10,576.00	Integrity Surveys	MWD
10,609.00	10,750.00	Survey #1	MWD
10,780.00	11,254.00	HAL MWD	MWD
11,302.00	11,302.00	Projection to TD	Blind (OWSG)

Design Targets

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

Directional Difficulty Index

Average Dogleg over Survey:	1.15 °/100usft	Maximum Dogleg over Survey:	21.45 °/100usft at 10,780.00 usft
Net Tortousity applicable to Plans:	-0.06 °/100usft	Directional Difficulty Index:	4.834

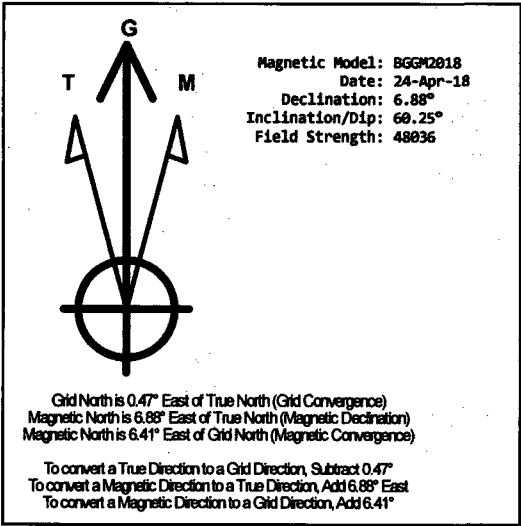
Audit Info

North Reference Sheet for Grama Ridge East 34 State - 3BS 2H - ST02

All data is in US Feet unless otherwise stated. Directions and Coordinates are relative to Grid North Reference.
Vertical Depths are relative to GE 3715 + 26' KB @ 3741.00usft (Latshaw 17). Northing and Easting are relative to 3BS 2H
Coordinate System is US State Plane 1983, New Mexico Eastern Zone using datum North American Datum 1983, ellipsoid GRS 1980
Projection method is Transverse Mercator (Gauss-Kruger)
Central Meridian is -104.3333333°, Longitude Origin:0.00000000°, Latitude Origin:0.00000000°
False Easting: 541,337.50usft, False Northing: 0.00usft, Scale Reduction: 0.99999156

Grid Coordinates of Well: 525,591.30 usft N, 809,682.20 usft E
Geographical Coordinates of Well: 32° 26' 30.88" N, 103° 27' 48.56" W
Grid Convergence at Surface is: 0.47°

Based upon Minimum Curvature type calculations, at a Measured Depth of 11,302.00usft
the Bottom Hole Displacement is 296.84usft in the Direction of 270.38° (Grid).
Magnetic Convergence at surface is: -6.41° (24 April 2018, , BGGM2018)



Latshaw 17

Chisholm Energy Holdings

Lea County, NM (NAD 83) Grama Ridge East 34 State

API#

3BS 2H

ST03

Design: ST03

Sperry Drilling Services Combo Report

15 June, 2018

Well Coordinates: 32° 26' 30.88" N
 103° 27' 48.56" W

North American Datum 1983
New Mexico Eastern Zone
525,591.30 N
809,682.20 E

Ground Level: 3,715.00 usft

Local Coordinate Origin:

Viewing Datum:

TVDs to System:

North Reference:

Unit System:

Centered on Well 3BS 2H
GE 3715 + 26' KB @ 3741.00usft (Latshaw 17)

N

Grid

Midcon (2 decimal)

Version: 5000.1 Build: 81E

Report Version: Midcon Combo v1.12

HALLIBURTON

Design Report for 3BS 2H - ST03

Measured Depth (usft)	Inclination (°)	Grid Azimuth (°)	Vertical Depth (usft)	Local Coordinates		Map Coordinates		Dogleg Rate (°/100usft)	Vertical Section (usft)	Toolface Angle (°)	Comments
Northings	Easting	Northings	Easting								
0.00	0.00	0.00	0.00	0.00 N	0.00 E	525,591.30	809,682.20	0.00	0.00	0.00	
197.00	0.40	321.84	197.00	0.54 N	0.42 W	525,591.84	809,681.78	0.20	-0.28	321.84	
397.00	1.05	286.94	396.98	1.62 N	2.61 W	525,592.92	809,679.59	0.38	-0.19	-52.49	
575.00	1.05	313.66	574.95	3.22 N	5.35 W	525,594.52	809,676.85	0.27	-0.31	103.36	
762.00	1.36	309.27	761.91	5.81 N	8.31 W	525,597.11	809,673.89	0.17	-1.19	-18.79	
883.00	1.90	319.40	882.86	8.24 N	10.72 W	525,599.54	809,671.48	0.50	-2.18	33.21	
975.00	0.18	27.93	974.84	9.53 N	11.65 W	525,600.83	809,670.55	2.00	-2.88	174.78	
1,157.00	1.93	111.95	1,156.81	8.64 N	8.67 W	525,599.94	809,673.53	1.05	-3.50	89.37	
1,252.00	1.85	108.15	1,251.76	7.56 N	5.73 W	525,598.86	809,676.47	0.16	-3.95	-124.44	
1,442.00	1.98	85.85	1,441.65	6.84 N	0.46 E	525,598.14	809,682.66	0.40	-6.24	-91.37	
1,632.00	2.55	65.28	1,631.51	8.85 N	7.57 E	525,600.15	809,689.77	0.52	-11.38	-65.53	
1,809.00	2.24	59.22	1,808.35	12.27 N	14.12 E	525,603.57	809,696.32	0.23	-17.49	-143.76	
1,924.00	2.46	53.48	1,923.26	14.88 N	18.03 E	525,606.18	809,700.23	0.28	-21.65	-49.82	
2,019.00	3.25	60.27	2,018.14	17.43 N	22.01 E	525,608.73	809,704.21	0.90	-25.78	26.59	
2,114.00	2.73	62.44	2,113.01	19.82 N	26.35 E	525,611.12	809,708.55	0.56	-29.93	168.80	
2,208.00	0.88	74.66	2,206.96	21.04 N	29.03 E	525,612.34	809,711.23	2.00	-32.28	174.31	
2,303.00	1.23	130.47	2,301.94	20.57 N	30.51 E	525,611.87	809,712.71	1.09	-32.57	100.51	
2,398.00	1.14	54.80	2,396.93	20.46 N	32.06 E	525,611.76	809,714.26	1.53	-33.20	-130.63	
2,492.00	2.02	154.73	2,490.91	19.50 N	33.53 E	525,610.80	809,715.73	2.64	-33.05	126.79	
2,587.00	1.67	167.82	2,585.86	16.63 N	34.54 E	525,607.93	809,716.74	0.57	-31.00	136.13	
2,682.00	1.93	182.50	2,680.81	13.68 N	34.76 E	525,604.98	809,716.96	0.55	-28.51	68.05	
2,777.00	0.97	226.27	2,775.78	11.52 N	34.11 E	525,602.82	809,716.31	1.47	-26.30	151.37	
2,872.00	1.14	268.63	2,870.77	10.95 N	32.59 E	525,602.25	809,714.79	0.82	-25.07	99.43	
2,967.00	2.02	277.69	2,965.73	11.15 N	29.98 E	525,602.45	809,712.18	0.96	-24.02	20.41	
3,061.00	2.46	294.21	3,059.66	12.20 N	26.50 E	525,603.50	809,708.70	0.83	-23.29	64.17	
3,155.00	3.08	305.55	3,153.55	14.49 N	22.61 E	525,605.79	809,704.81	0.88	-23.47	47.23	
3,250.00	1.49	315.57	3,248.47	16.86 N	19.66 E	525,608.16	809,701.86	1.72	-24.16	170.87	
3,345.00	0.26	235.50	3,343.46	17.62 N	18.62 E	525,608.92	809,700.82	1.54	-24.34	-169.95	
3,439.00	0.79	140.49	3,437.46	17.00 N	18.86 E	525,608.30	809,701.06	0.91	-23.90	-112.69	
3,533.00	1.67	138.73	3,531.43	15.47 N	20.17 E	525,606.77	809,702.37	0.94	-23.18	-3.34	
3,628.00	2.99	116.41	3,626.35	13.32 N	23.31 E	525,604.62	809,705.51	1.66	-22.77	-46.00	
3,723.00	2.73	129.06	3,721.24	10.80 N	27.28 E	525,602.10	809,709.48	0.72	-22.43	118.62	
3,818.00	1.06	148.93	3,816.18	8.62 N	29.49 E	525,599.92	809,711.69	1.86	-21.56	168.26	
3,907.00	0.62	185.31	3,905.17	7.43 N	29.87 E	525,598.73	809,712.07	0.75	-20.69	146.75	
4,002.00	0.70	196.65	4,000.17	6.37 N	29.66 E	525,597.67	809,711.86	0.16	-19.65	64.27	
4,097.00	0.88	196.39	4,095.16	5.11 N	29.29 E	525,596.41	809,711.49	0.19	-18.37	-1.27	

Design Report for 3BS 2H - ST03

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)				
4,192.00	1.06	198.15	4,190.14	3.58 N	28.81 E	525,594.88	809,711.01	0.19	-16.79	10.28	
4,287.00	1.06	194.98	4,285.13	1.89 N	28.31 E	525,593.19	809,710.51	0.06	-15.07	-91.58	
4,382.00	1.23	196.30	4,380.11	0.06 N	27.79 E	525,591.36	809,709.99	0.18	-13.22	9.48	
4,477.00	1.23	197.53	4,475.09	1.89 S	27.20 E	525,589.41	809,709.40	0.03	-11.22	90.61	
4,621.00	1.85	184.96	4,619.04	5.68 S	26.53 E	525,585.62	809,708.73	0.49	-7.56	-34.96	
4,666.00	2.29	181.53	4,664.01	7.30 S	26.45 E	525,584.00	809,708.65	1.02	-6.09	-17.44	
4,760.00	2.37	184.79	4,757.93	11.11 S	26.23 E	525,580.19	809,708.43	0.16	-2.63	60.52	
4,855.00	2.11	182.76	4,852.86	14.82 S	25.99 E	525,576.48	809,708.19	0.29	0.75	-164.04	
4,950.00	1.85	182.32	4,947.80	18.10 S	25.84 E	525,573.20	809,708.04	0.27	3.70	-176.87	
5,044.00	1.67	179.95	5,041.75	20.98 S	25.78 E	525,570.32	809,707.98	0.21	6.27	-159.16	
5,139.00	1.23	178.81	5,136.72	23.39 S	25.80 E	525,567.91	809,708.00	0.46	8.38	-176.82	
5,233.00	1.14	179.42	5,230.70	25.33 S	25.83 E	525,565.97	809,708.03	0.10	10.08	172.33	
5,328.00	1.06	177.32	5,325.69	27.15 S	25.88 E	525,564.15	809,708.08	0.09	11.66	-154.30	
5,422.00	1.06	186.37	5,419.67	28.88 S	25.83 E	525,562.42	809,708.03	0.18	13.21	94.52	
5,517.00	1.14	195.77	5,514.65	30.67 S	25.47 E	525,560.63	809,707.67	0.21	14.95	70.84	
5,612.00	1.23	191.38	5,609.63	32.58 S	25.02 E	525,558.72	809,707.22	0.13	16.85	-47.46	
5,693.00	1.14	188.74	5,690.62	34.23 S	24.72 E	525,557.07	809,706.92	0.13	18.44	-150.07	
5,829.00	1.23	173.45	5,826.59	37.01 S	24.68 E	525,554.29	809,706.88	0.24	20.91	-81.85	
5,923.00	1.14	171.25	5,920.57	38.94 S	24.94 E	525,552.36	809,707.14	0.11	22.49	-154.28	
6,017.00	1.06	173.62	6,014.55	40.73 S	25.18 E	525,550.57	809,707.38	0.10	23.95	151.55	
6,111.00	0.97	163.16	6,108.53	42.35 S	25.51 E	525,548.95	809,707.71	0.22	25.23	-121.07	
6,206.00	0.88	160.97	6,203.52	43.81 S	25.98 E	525,547.49	809,708.18	0.10	26.29	-159.65	
6,301.00	1.23	159.91	6,298.51	45.46 S	26.56 E	525,545.84	809,708.76	0.37	27.46	-3.72	
6,396.00	0.62	286.04	6,393.50	46.28 S	26.42 E	525,545.02	809,708.62	1.76	28.25	162.57	
6,491.00	0.97	300.63	6,488.49	45.72 S	25.23 E	525,545.58	809,707.43	0.42	28.32	37.47	
6,585.00	0.88	301.24	6,582.48	44.94 S	23.93 E	525,546.36	809,706.13	0.10	28.25	174.06	
6,680.00	0.97	297.64	6,677.46	44.19 S	22.60 E	525,547.11	809,704.80	0.11	28.22	-34.66	
6,774.00	0.97	297.99	6,771.45	43.45 S	21.19 E	525,547.85	809,703.39	0.01	28.24	90.17	
6,869.00	1.06	294.56	6,866.44	42.71 S	19.68 E	525,548.59	809,701.88	0.11	28.30	-35.75	
6,962.00	1.14	284.37	6,959.42	42.12 S	18.00 E	525,549.18	809,700.20	0.23	28.57	-72.90	
7,057.00	1.23	282.08	7,054.40	41.67 S	16.09 E	525,549.63	809,698.29	0.11	29.09	-28.90	
7,151.00	1.41	312.93	7,148.38	40.67 S	14.26 E	525,550.63	809,696.46	0.77	29.07	91.54	
7,245.00	1.41	311.17	7,242.35	39.12 S	12.54 E	525,552.18	809,694.74	0.05	28.52	-90.88	
7,340.00	1.41	296.32	7,337.32	37.84 S	10.61 E	525,553.46	809,692.81	0.38	28.30	-97.42	
7,435.00	1.14	290.43	7,432.29	36.99 S	8.68 E	525,554.31	809,690.88	0.32	28.47	-157.03	
7,530.00	1.14	291.13	7,527.28	36.32 S	6.91 E	525,554.98	809,689.11	0.01	28.72	90.35	
7,624.00	1.06	290.34	7,621.26	35.68 S	5.22 E	525,555.62	809,687.42	0.09	28.95	-169.66	

Design Report for 3BS 2H - ST03

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)				
7,718.00	0.97	288.15	7,715.24	35.13 S	3.65 E	525,556.17	809,685.85	0.10	29.21	-157.77	
7,813.00	0.88	295.70	7,810.23	34.56 S	2.23 E	525,556.74	809,684.43	0.16	29.39	130.18	
7,908.00	0.79	297.55	7,905.22	33.94 S	0.99 E	525,557.36	809,683.19	0.10	29.43	164.25	
8,002.00	0.70	295.44	7,999.21	33.40 S	0.10 W	525,557.90	809,682.10	0.10	29.46	-164.10	
8,096.00	0.70	313.28	8,093.21	32.76 S	1.04 W	525,558.54	809,681.16	0.23	29.34	98.92	
8,190.00	0.70	326.03	8,187.20	31.89 S	1.78 W	525,559.41	809,680.42	0.17	28.93	96.37	
8,285.00	0.70	331.74	8,282.19	30.89 S	2.38 W	525,560.41	809,679.82	0.07	28.33	92.85	
8,379.00	0.26	347.82	8,376.19	30.18 S	2.69 W	525,561.12	809,679.51	0.48	27.86	170.91	
8,473.00	0.53	351.16	8,470.19	29.54 S	2.80 W	525,561.76	809,679.40	0.29	27.35	6.55	
8,566.00	0.26	334.55	8,563.18	28.93 S	2.96 W	525,562.37	809,679.24	0.31	26.88	-165.18	
8,659.00	0.88	318.29	8,656.18	28.20 S	3.53 W	525,563.10	809,678.67	0.68	26.51	-22.85	
8,754.00	1.06	299.57	8,751.17	27.22 S	4.78 W	525,564.08	809,677.42	0.38	26.24	-69.98	
8,848.00	1.06	287.44	8,845.15	26.53 S	6.36 W	525,564.77	809,675.84	0.24	26.38	-96.06	
8,970.00	1.49	310.29	8,967.12	25.17 S	8.65 W	525,566.13	809,673.55	0.54	26.26	61.58	
9,062.00	1.67	333.41	9,059.09	23.20 S	10.16 W	525,568.10	809,672.04	0.71	25.24	85.99	
9,159.00	1.76	333.76	9,156.04	20.60 S	11.45 W	525,570.70	809,670.75	0.09	23.56	6.81	
9,256.00	2.02	330.42	9,252.99	17.77 S	12.95 W	525,573.53	809,669.25	0.29	21.79	-24.64	
9,349.00	1.23	330.42	9,345.95	15.48 S	14.26 W	525,575.82	809,667.94	0.85	20.39	180.00	
9,444.00	1.06	334.90	9,440.93	13.80 S	15.13 W	525,577.50	809,667.07	0.20	19.32	154.46	
9,538.00	0.70	314.42	9,534.92	12.61 S	15.91 W	525,578.69	809,666.29	0.50	18.64	-148.79	
9,631.00	0.97	283.84	9,627.91	12.02 S	17.08 W	525,579.28	809,665.12	0.55	18.68	-74.69	
9,726.00	0.97	271.45	9,722.90	11.81 S	18.67 W	525,579.49	809,663.53	0.22	19.24	-96.19	
9,820.00	0.88	247.98	9,816.89	12.06 S	20.13 W	525,579.24	809,662.07	0.41	20.16	-114.91	
9,914.00	0.88	252.81	9,910.88	12.55 S	21.49 W	525,578.75	809,660.71	0.08	21.23	92.41	
10,009.00	0.44	265.12	10,005.87	12.79 S	22.55 W	525,578.51	809,659.65	0.48	21.95	168.23	
10,103.00	0.44	281.47	10,099.87	12.75 S	23.26 W	525,578.55	809,658.94	0.13	22.25	98.17	
10,198.00	0.26	289.90	10,194.86	12.61 S	23.82 W	525,578.69	809,658.38	0.20	22.38	168.22	
10,292.00	0.53	292.63	10,288.86	12.37 S	24.43 W	525,578.93	809,657.77	0.29	22.46	5.35	
10,386.00	0.44	257.12	10,382.86	12.28 S	25.18 W	525,579.02	809,657.02	0.33	22.74	-123.91	
10,402.00	0.69	250.08	10,398.86	12.32 S	25.33 W	525,578.98	809,656.87	1.62	22.85	-19.06	
10,465.00	5.63	263.59	10,461.74	12.80 S	28.76 W	525,578.50	809,653.44	7.88	24.89	15.37	
10,496.00	7.75	261.87	10,492.53	13.26 S	32.34 W	525,578.04	809,649.86	6.87	27.00	-6.25	
10,537.00	9.40	259.89	10,533.07	14.24 S	38.37 W	525,577.06	809,643.83	4.09	30.72	-11.12	
10,567.00	11.46	259.80	10,562.57	15.20 S	43.72 W	525,576.10	809,638.48	6.87	34.09	-0.50	
10,600.00	14.52	250.44	10,594.73	17.17 S	50.85 W	525,574.13	809,631.35	11.22	39.20	-39.14	
10,632.00	18.78	249.68	10,625.38	20.30 S	59.46 W	525,571.00	809,622.74	13.33	46.04	-3.29	
10,663.00	22.50	249.00	10,654.39	24.16 S	69.68 W	525,567.14	809,612.52	12.02	54.28	-4.01	

HALLIBURTON

Design Report for 3BS 2H - ST03

Measured Depth (usft)	Inclination (°)	Grid Azimuth (°)	Vertical Depth (usft)	Local Coordinates		Map Coordinates		Dogleg Rate (°/100usft)	Vertical Section (usft)	Toothface Angle (°)	Comments
Northing (usft)	Easting (usft)	Northing (usft)	Easting (usft)								
10,694.00	27.37	247.37	10,682.49	29.03 S	81.80 W	525,562.27	809,600.40	15.86	64.31	-8.77	
10,726.00	30.91	245.71	10,710.43	35.24 S	96.09 W	525,556.06	809,586.11	11.35	76.54	-13.59	
10,758.00	32.84	244.63	10,737.61	42.34 S	111.42 W	525,548.96	809,570.78	6.29	90.06	-16.92	
10,789.00	34.45	243.60	10,763.41	49.84 S	126.87 W	525,541.46	809,555.33	5.51	103.98	-19.95	
10,819.00	36.87	241.07	10,787.79	57.97 S	142.35 W	525,533.33	809,539.85	9.45	118.47	-32.40	
10,851.00	38.78	239.29	10,813.06	67.74 S	159.37 W	525,523.56	809,522.83	6.87	135.13	-30.45	
10,882.00	43.46	238.34	10,836.41	78.30 S	176.80 W	525,513.00	809,505.40	15.23	152.68	-7.96	
10,914.00	46.98	235.68	10,858.95	90.67 S	195.84 W	525,500.63	809,486.36	12.48	172.60	-29.15	
10,945.00	50.42	231.25	10,879.41	104.55 S	214.53 W	525,486.75	809,467.67	15.44	193.67	-45.53	
10,977.00	53.11	224.20	10,899.23	121.46 S	233.08 W	525,469.84	809,449.12	19.23	217.35	-66.31	
11,001.00	53.05	218.37	10,913.66	135.86 S	245.73 W	525,455.44	809,436.47	19.42	236.03	-92.49	
11,032.00	54.55	212.46	10,931.97	156.24 S	260.21 W	525,435.06	809,421.99	16.12	260.83	-74.30	
11,064.00	55.94	208.63	10,950.22	178.88 S	273.56 W	525,412.42	809,408.64	10.75	287.09	-67.27	
11,096.00	57.16	204.68	10,967.86	202.74 S	285.53 W	525,388.56	809,396.67	10.98	313.77	-70.78	
11,127.00	57.61	200.00	10,984.58	226.88 S	295.45 W	525,364.42	809,386.75	12.80	339.73	-84.75	
11,159.00	57.85	194.84	11,001.67	252.68 S	303.54 W	525,338.62	809,378.66	13.65	366.29	-88.23	
11,190.00	57.30	189.42	11,018.30	278.25 S	309.04 W	525,313.05	809,373.16	14.86	391.42	-98.30	
11,217.00	57.81	187.69	11,032.79	300.78 S	312.43 W	525,290.52	809,369.77	5.73	412.87	-71.21	
11,248.00	59.81	184.88	11,048.84	327.14 S	315.32 W	525,264.16	809,366.88	10.09	437.45	-50.97	
11,280.00	61.54	183.81	11,064.52	354.95 S	317.44 W	525,236.35	809,364.76	6.14	462.95	-28.60	
11,312.00	62.58	183.78	11,079.51	383.16 S	319.31 W	525,208.14	809,362.89	3.25	488.68	-1.47	
11,343.00	64.25	183.53	11,093.38	410.83 S	321.07 W	525,180.47	809,361.13	5.44	513.88	-7.68	
11,375.00	64.84	183.59	11,107.14	439.66 S	322.87 W	525,151.64	809,359.33	1.85	540.13	5.26	
11,406.00	65.95	183.53	11,120.04	467.79 S	324.62 W	525,123.51	809,357.58	3.58	565.74	-2.83	
11,438.00	66.97	182.86	11,132.82	497.09 S	326.25 W	525,094.21	809,355.95	3.72	592.31	-31.19	
11,470.00	67.82	182.29	11,145.12	526.60 S	327.58 W	525,064.70	809,354.62	3.12	618.93	-31.87	
11,501.00	67.89	182.20	11,156.81	555.29 S	328.70 W	525,036.01	809,353.50	0.35	644.74	-50.00	
11,533.00	67.70	181.59	11,168.90	584.90 S	329.68 W	525,006.40	809,352.52	1.86	671.28	-108.71	
11,565.00	67.16	180.95	11,181.19	614.44 S	330.34 W	524,976.86	809,351.86	2.50	697.61	-132.54	
11,596.00	66.56	180.20	11,193.37	642.94 S	330.62 W	524,948.36	809,351.58	2.95	722.85	-131.17	
11,627.00	66.15	178.24	11,205.80	671.34 S	330.24 W	524,919.96	809,351.96	5.94	747.68	-103.26	
11,659.00	66.07	177.40	11,218.76	700.57 S	329.13 W	524,890.73	809,353.07	2.41	772.90	-96.12	
11,690.00	66.90	177.11	11,231.13	728.97 S	327.76 W	524,862.33	809,354.44	2.81	797.26	-17.82	
11,722.00	67.68	176.72	11,243.48	758.44 S	326.18 W	524,832.86	809,356.02	2.68	822.47	-24.84	
11,754.00	69.75	177.04	11,255.10	788.21 S	324.55 W	524,803.09	809,357.65	6.54	847.93	8.26	
11,784.00	70.87	178.10	11,265.21	816.43 S	323.36 W	524,774.87	809,358.84	5.00	872.22	41.88	

HALLIBURTON

Design Report for 3BS 2H - ST03

Measured Depth (usft)	Inclination (°)	Grid Azimuth (°)	Vertical Depth (usft)	Local Coordinates		Map Coordinates		Dogleg Rate (°/100usft)	Vertical Section (usft)	Toolface Angle (°)	Comments
				Northing	Easting (usft)	Northing	Easting (usft)				
11,817.00	71.19	178.56	11,275.93	847.63 S	322.45 W	524,743.67	809,359.75	1.64	899.26	53.74	
11,848.00	72.23	179.35	11,285.66	877.06 S	321.91 W	524,714.24	809,360.29	4.14	924.93	35.93	
11,879.00	73.91	179.75	11,294.69	906.71 S	321.68 W	524,684.59	809,360.52	5.56	950.94	12.89	
11,910.00	75.37	179.94	11,302.90	936.60 S	321.60 W	524,654.70	809,360.60	4.75	977.23	7.18	
11,941.00	77.10	179.80	11,310.28	966.71 S	321.53 W	524,624.59	809,360.67	5.60	1,003.71	-4.51	
11,973.00	78.43	179.82	11,317.06	997.98 S	321.43 W	524,593.32	809,360.77	4.16	1,031.21	0.84	
12,005.00	80.88	180.31	11,322.80	1,029.46 S	321.46 W	524,561.84	809,360.74	7.80	1,058.95	11.18	
12,036.00	82.63	180.93	11,327.25	1,060.14 S	321.79 W	524,531.16	809,360.41	5.98	1,086.12	19.37	
12,067.00	83.74	180.85	11,330.93	1,090.91 S	322.27 W	524,500.39	809,359.93	3.59	1,113.46	-4.10	
12,099.00	84.56	180.25	11,334.19	1,122.75 S	322.58 W	524,468.55	809,359.62	3.17	1,141.64	-36.08	
12,131.00	87.03	179.59	11,336.54	1,154.66 S	322.53 W	524,436.64	809,359.67	7.99	1,169.73	-14.95	
12,161.00	88.33	179.06	11,337.75	1,184.63 S	322.18 W	524,406.67	809,360.02	4.68	1,195.96	-22.18	
12,193.00	89.63	179.20	11,338.32	1,216.62 S	321.69 W	524,374.68	809,360.51	4.09	1,223.90	6.15	
12,257.00	90.87	179.06	11,338.04	1,280.61 S	320.72 W	524,310.69	809,361.48	1.95	1,279.81	-6.44	
12,350.00	90.62	178.26	11,336.83	1,373.58 S	318.55 W	524,217.72	809,363.65	0.90	1,360.66	-107.35	
12,446.00	91.85	177.40	11,334.76	1,469.48 S	314.91 W	524,121.82	809,367.29	1.56	1,443.41	-34.95	
12,541.00	89.44	179.13	11,333.69	1,564.42 S	312.04 W	524,026.88	809,370.16	3.12	1,525.67	144.32	
12,635.00	88.39	178.62	11,335.47	1,658.39 S	310.19 W	523,932.91	809,372.01	1.24	1,607.56	-154.10	
12,730.00	88.89	179.44	11,337.73	1,753.34 S	308.59 W	523,837.96	809,373.61	1.01	1,690.43	58.63	
12,824.00	89.63	178.85	11,338.94	1,847.32 S	307.18 W	523,743.98	809,375.02	1.01	1,772.54	-38.57	
12,919.00	92.53	179.66	11,337.15	1,942.29 S	305.95 W	523,649.01	809,376.25	3.17	1,855.60	15.60	
13,015.00	88.89	180.75	11,335.96	2,038.26 S	306.29 W	523,553.04	809,375.91	3.96	1,940.30	163.32	
13,109.00	90.68	181.05	11,336.32	2,132.25 S	307.77 W	523,459.05	809,374.43	1.93	2,023.77	9.52	
13,205.00	92.29	181.23	11,333.83	2,228.19 S	309.68 W	523,363.11	809,372.52	1.69	2,109.19	6.38	
13,300.00	92.90	182.80	11,329.53	2,323.03 S	313.01 W	523,268.27	809,369.19	1.77	2,194.30	68.71	
13,395.00	91.98	183.61	11,325.48	2,417.80 S	318.32 W	523,173.50	809,363.88	1.29	2,280.28	138.65	
13,490.00	93.77	183.60	11,320.72	2,512.49 S	324.29 W	523,078.81	809,357.91	1.88	2,366.50	-0.32	
13,585.00	91.05	183.38	11,316.72	2,607.22 S	330.06 W	522,984.08	809,352.14	2.87	2,452.67	-175.37	
13,681.00	89.44	182.91	11,316.31	2,703.07 S	335.33 W	522,888.23	809,346.87	1.75	2,539.59	-163.72	
13,776.00	90.80	182.23	11,316.11	2,797.97 S	339.59 W	522,793.33	809,342.61	1.60	2,625.20	-26.57	
13,872.00	92.35	182.32	11,313.47	2,893.85 S	343.40 W	522,697.45	809,338.80	1.62	2,711.45	3.32	
13,967.00	91.48	182.55	11,310.30	2,988.71 S	347.43 W	522,602.59	809,334.77	0.95	2,796.91	165.20	
14,060.00	92.10	181.13	11,307.39	3,081.62 S	350.42 W	522,509.68	809,331.78	1.67	2,880.16	-66.38	
14,155.00	88.02	181.02	11,307.30	3,176.58 S	352.20 W	522,414.72	809,330.00	4.30	2,964.64	-178.46	
14,250.00	88.58	180.87	11,310.11	3,271.53 S	353.77 W	522,319.77	809,328.43	0.61	3,049.01	-14.99	
14,345.00	93.15	180.45	11,308.68	3,366.48 S	354.86 W	522,224.82	809,327.34	4.83	3,133.16	-5.25	
14,440.00	91.42	180.41	11,304.89	3,461.40 S	355.57 W	522,129.90	809,326.63	1.82	3,217.10	-178.68	

Design Report for 3BS 2H - ST03

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)				
14,535.00	90.06	182.22	11,303.67	3,556.36 S	357.75 W	522,034.94	809,324.45	2.38	3,301.77	126.91	
14,629.00	87.40	179.37	11,305.75	3,650.31 S	359.06 W	521,940.99	809,323.14	4.15	3,385.14	-133.06	
14,724.00	88.70	179.44	11,308.98	3,745.25 S	358.07 W	521,846.05	809,324.13	1.37	3,468.29	3.08	
14,819.00	91.30	179.62	11,308.98	3,840.24 S	357.29 W	521,751.06	809,324.91	2.74	3,551.59	3.96	
14,914.00	92.59	179.99	11,305.76	3,935.18 S	356.97 W	521,656.12	809,325.23	1.41	3,635.06	15.99	
15,008.00	84.93	180.95	11,307.79	4,029.09 S	357.74 W	521,562.21	809,324.46	8.21	3,718.13	172.86	
15,104.00	87.10	181.81	11,314.46	4,124.82 S	360.04 W	521,466.48	809,322.16	2.43	3,803.54	21.60	
15,199.00	87.71	180.00	11,318.76	4,219.71 S	361.54 W	521,371.59	809,320.66	2.01	3,887.83	-71.40	
15,294.00	90.12	177.86	11,320.56	4,314.66 S	359.77 W	521,276.64	809,322.43	3.39	3,970.62	-41.62	
15,389.00	89.63	176.86	11,320.77	4,409.56 S	355.39 W	521,181.74	809,326.81	1.17	4,052.13	-116.11	
15,485.00	90.19	176.51	11,320.92	4,505.40 S	349.84 W	521,085.90	809,332.36	0.69	4,133.92	-32.01	
15,580.00	88.64	176.19	11,321.89	4,600.19 S	343.80 W	520,991.11	809,338.40	1.67	4,214.55	-168.34	Last HAL MWD ST03 - 15580.00' MD
15,645.00	88.64	176.19	11,323.43	4,665.03 S	339.48 W	520,926.27	809,342.72	0.00	4,269.61	0.00	Projection to TD ST03 - 15645.00' MD

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
15,580.00	11,321.89	-4,600.19	-343.80	Last HAL MWD ST03 - 15580.00' MD
15,645.00	11,323.43	-4,665.03	-339.48	Projection to TD ST03 - 15645.00' MD

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin +N/-S (usft)	Origin +E/-W (usft)	Start TVD (usft)
User	No Target (Freehand)	208.26	Slot	0.00	0.00	0.00

Survey tool program

From (usft)	To (usft)	Survey/Plan	Survey Tool
197.00	10,386.00	Integrity Surveys	MWD
10,402.00	15,580.00	HAL MWD	MWD
15,645.00	15,645.00	Projection to TD	Blind (OWSG)

Design Report for 3BS 2H - ST03

Casing Details

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
10,386.00	10,382.86	5 1/2"	5-1/2	6

Design Targets

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

Directional Difficulty Index

Average Dogleg over Survey:	1.65 °/100usft	Maximum Dogleg over Survey:	19.42 °/100usft at 11,001.00 usft
Net Tortousity applicable to Plans:	0.50 °/100usft	Directional Difficulty Index:	6.255

Audit Info

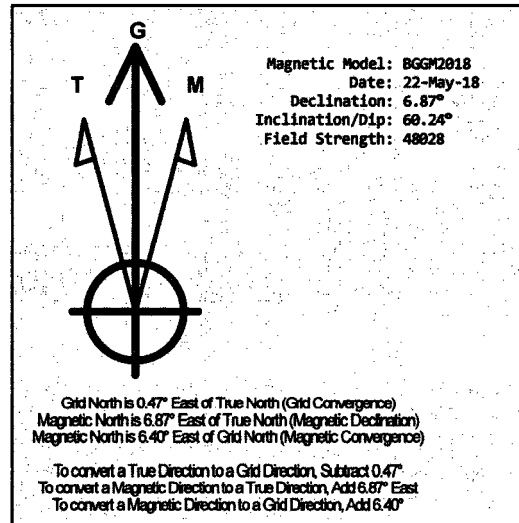
North Reference Sheet for Grama Ridge East 34 State - 3BS 2H - ST03

All data is in US Feet unless otherwise stated. Directions and Coordinates are relative to Grid North Reference.
Vertical Depths are relative to GE 3715 + 26' KB @ 3741.00usft (Latshaw 17). Northing and Easting are relative to 3BS 2H
Coordinate System is US State Plane 1983, New Mexico Eastern Zone using datum North American Datum 1983, ellipsoid GRS 1980
Projection method is Transverse Mercator (Gauss-Kruger)
Central Meridian is -104.33333333°, Longitude Origin:0.00000000°, Latitude Origin:0.00000000°
False Easting: 541,337.50usft, False Northing: 0.00usft, Scale Reduction: 0.99999156

Grid Coordinates of Well: 525,591.30 usft N, 809,682.20 usft E
Geographical Coordinates of Well: 32° 26' 30.88" N, 103° 27' 48.56" W
Grid Convergence at Surface is: 0.47°

Based upon Minimum Curvature type calculations, at a Measured Depth of 15,645.00usft
the Bottom Hole Displacement is 4,677.37usft in the Direction of 184.16° (Grid).

Magnetic Convergence at surface is: -6.40° (22 May 2018, , BGGM2018)





Chisholm Energy Holdings

GE 3715 + 26' KB @ 3741.00ust (Latshaw 17)

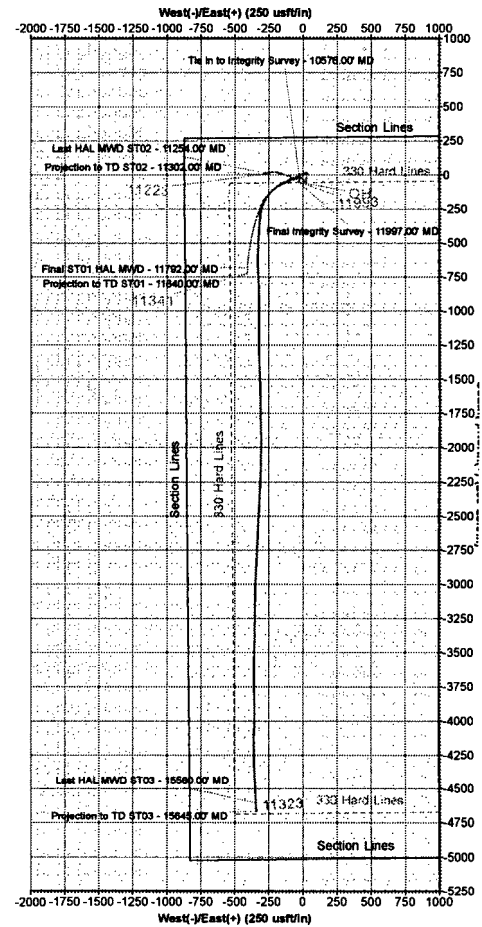
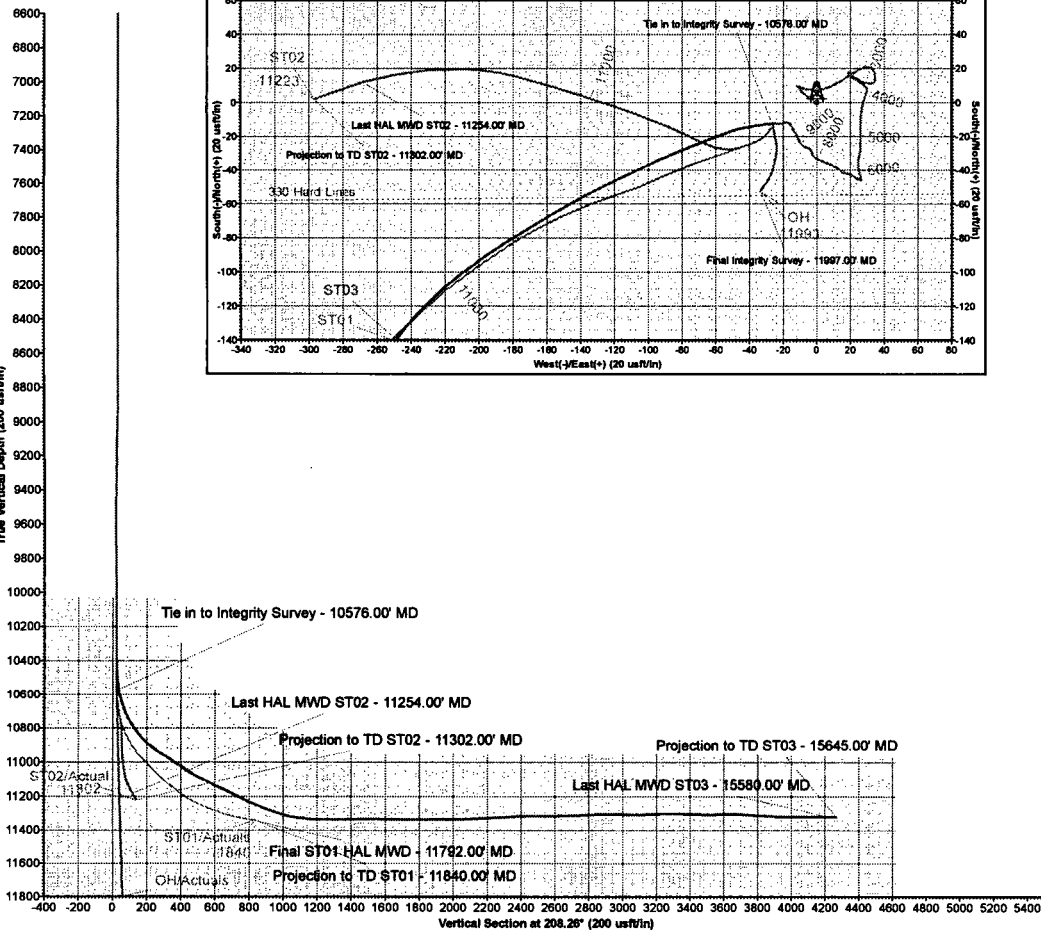
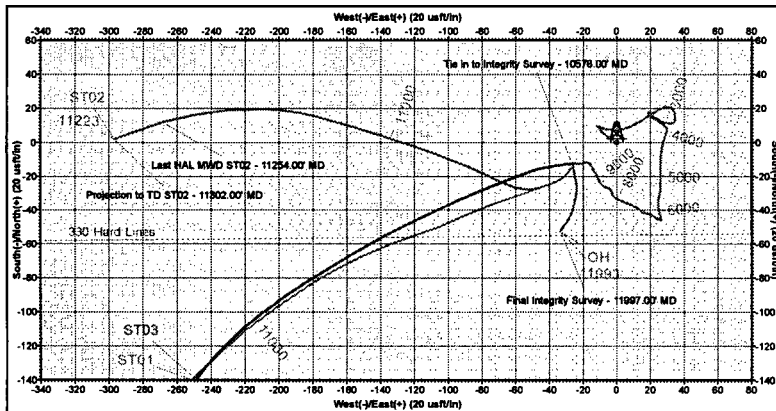
Ground Level: 3715.00

Project: Lea County, NM (NAD 83)
Site: Grama Ridge East 34 State
Well: 3BS 2H
Wellbore: ST03
Design: ST03
Rig: Latshaw 17

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

North Arrow
Azimuths to Grid North
True North: -0.47°
Magnetic North: 8.40°
Magnetic Field
Strength: 49027.8nT
Dip Angle: 69.34°
Date: 8/22/2018
Model: BGGM2018

WELL DETAILS					
Ground Level: 3715.00					
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.00	0.00	525591.30	809682.20	32.44191175	-103.46348832



HALLIBURTON Sperry Drilling