

Conoco Phillips Company

Arapahoe County, Colorado

Sec. 22-T4S-R65W

Sunset 4-65 21-22 1H

Plan D

Plan: Rev D0

Sperry Drilling Services

Proposal Report

11 March, 2014

Well Coordinates: 1,675,427.05 N, 3,241,439.17 E (39° 41' 04.98" N, 104° 38' 31.66" W)

Ground Level: 5,758.00 usft

Local Coordinate Origin:

Viewing Datum:

TVDs to System:

North Reference:

Unit System:

Geodetic Scale Factor Applied

Version: 5000.1 Build: 70

Centered on Well Sunset 4-65 21-22 1H

KB 24 ft @ 5782.00usft (H&P 276)

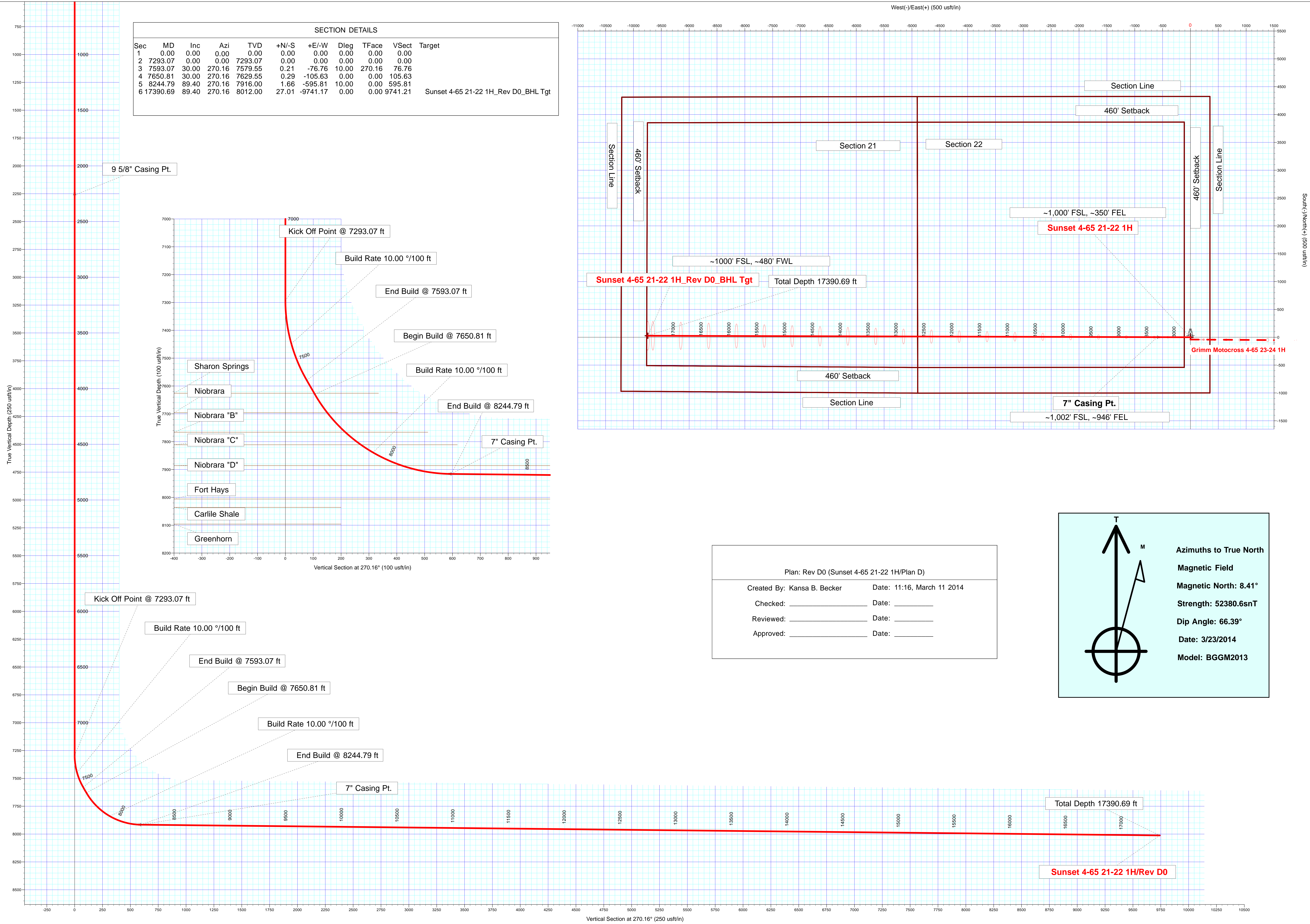
N

True

API - US Survey Feet - Custom

HALLIBURTON

HALLIBURTON
Sperry Drilling



Plan Report for Sunset 4-65 21-22 1H - Rev D0

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	Toolface Azimuth (°)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,822.00	0.00	0.00	1,822.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fox Hills										
1,900.00	0.00	0.00	1,900.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2,062.00	0.00	0.00	2,062.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pierre Shale										
2,100.00	0.00	0.00	2,100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2,200.00	0.00	0.00	2,200.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2,262.00	0.00	0.00	2,262.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Surface Casing - 9 5/8" Casing Pt.										
2,300.00	0.00	0.00	2,300.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2,400.00	0.00	0.00	2,400.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2,500.00	0.00	0.00	2,500.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2,600.00	0.00	0.00	2,600.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2,700.00	0.00	0.00	2,700.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2,800.00	0.00	0.00	2,800.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2,900.00	0.00	0.00	2,900.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3,000.00	0.00	0.00	3,000.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3,100.00	0.00	0.00	3,100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3,200.00	0.00	0.00	3,200.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3,300.00	0.00	0.00	3,300.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3,400.00	0.00	0.00	3,400.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3,500.00	0.00	0.00	3,500.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3,600.00	0.00	0.00	3,600.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3,700.00	0.00	0.00	3,700.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3,800.00	0.00	0.00	3,800.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3,900.00	0.00	0.00	3,900.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4,000.00	0.00	0.00	4,000.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4,100.00	0.00	0.00	4,100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4,200.00	0.00	0.00	4,200.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4,300.00	0.00	0.00	4,300.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4,400.00	0.00	0.00	4,400.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4,500.00	0.00	0.00	4,500.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4,600.00	0.00	0.00	4,600.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4,700.00	0.00	0.00	4,700.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4,800.00	0.00	0.00	4,800.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4,900.00	0.00	0.00	4,900.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5,000.00	0.00	0.00	5,000.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5,100.00	0.00	0.00	5,100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Plan Report for Sunset 4-65 21-22 1H - Rev D0

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	Toolface Azimuth (°)
5,200.00	0.00	0.00	5,200.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5,300.00	0.00	0.00	5,300.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5,400.00	0.00	0.00	5,400.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5,500.00	0.00	0.00	5,500.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5,600.00	0.00	0.00	5,600.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5,700.00	0.00	0.00	5,700.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5,800.00	0.00	0.00	5,800.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5,900.00	0.00	0.00	5,900.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6,000.00	0.00	0.00	6,000.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6,100.00	0.00	0.00	6,100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6,200.00	0.00	0.00	6,200.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6,300.00	0.00	0.00	6,300.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6,400.00	0.00	0.00	6,400.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6,500.00	0.00	0.00	6,500.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6,600.00	0.00	0.00	6,600.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6,700.00	0.00	0.00	6,700.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6,800.00	0.00	0.00	6,800.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6,900.00	0.00	0.00	6,900.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7,000.00	0.00	0.00	7,000.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7,100.00	0.00	0.00	7,100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7,200.00	0.00	0.00	7,200.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7,293.07	0.00	0.00	7,293.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Kick Off Point @ 7293.07 ft										
7,300.00	0.69	270.16	7,300.00	0.00	-0.04	0.04	10.00	10.00	0.00	270.16
7,400.00	10.69	270.16	7,399.38	0.03	-9.95	9.95	10.00	10.00	0.00	0.00
7,450.00	15.69	270.16	7,448.05	0.06	-21.36	21.36	10.00	10.00	0.00	0.00
Build Rate 10.00 °/100 ft										
7,500.00	20.69	270.16	7,495.53	0.10	-36.96	36.96	10.00	10.00	0.00	0.00
7,593.07	30.00	270.16	7,579.55	0.21	-76.76	76.76	10.00	10.00	0.00	0.00
End Build @ 7593.07 ft										
7,600.00	30.00	270.16	7,585.55	0.22	-80.23	80.23	0.00	0.00	0.00	0.00
7,646.71	30.00	270.16	7,626.00	0.29	-103.58	103.58	0.00	0.00	0.00	0.00
Sharon Springs										
7,650.81	30.00	270.16	7,629.55	0.29	-105.63	105.63	0.00	0.00	0.00	0.00
Begin Build @ 7650.81 ft										
7,700.00	34.92	270.16	7,671.05	0.37	-132.02	132.02	10.00	10.00	0.00	0.00
7,731.04	38.02	270.16	7,696.00	0.42	-150.47	150.47	10.00	10.00	0.00	0.00
Niobrara										
7,800.00	44.92	270.16	7,747.64	0.55	-196.11	196.11	10.00	10.00	0.00	0.00
7,826.55	47.57	270.16	7,766.00	0.60	-215.29	215.29	10.00	10.00	0.00	0.00
Niobrara "B"										
7,898.35	54.75	270.16	7,811.00	0.76	-271.18	271.19	10.00	10.00	0.00	0.00
Niobrara "C"										
7,900.00	54.92	270.16	7,811.95	0.76	-272.53	272.53	10.00	10.00	0.00	0.00
7,950.00	59.92	270.16	7,838.86	0.88	-314.65	314.65	10.00	10.00	0.00	0.00
Build Rate 10.00 °/100 ft										
8,000.00	64.92	270.16	7,862.01	1.00	-358.95	358.95	10.00	10.00	0.00	0.00
8,064.49	71.37	270.16	7,886.00	1.17	-418.77	418.77	10.00	10.00	0.00	0.00
Niobrara "D"										
8,100.00	74.92	270.16	7,896.30	1.26	-452.75	452.75	10.00	10.00	0.00	0.00
8,200.00	84.92	270.16	7,913.78	1.53	-551.08	551.09	10.00	10.00	0.00	0.00
8,244.79	89.40	270.16	7,916.00	1.66	-595.81	595.81	10.00	10.00	0.00	0.00
End Build @ 8244.79 ft - 7" Casing Pt.										
8,300.00	89.40	270.16	7,916.58	1.81	-651.01	651.02	0.00	0.00	0.00	0.00
8,400.00	89.40	270.16	7,917.63	2.09	-751.01	751.01	0.00	0.00	0.00	0.00
8,500.00	89.40	270.16	7,918.68	2.36	-851.00	851.01	0.00	0.00	0.00	0.00
8,600.00	89.40	270.16	7,919.73	2.64	-951.00	951.00	0.00	0.00	0.00	0.00
8,700.00	89.40	270.16	7,920.78	2.92	-1,050.99	1,050.99	0.00	0.00	0.00	0.00

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Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	Toolface Azimuth (°)
8,800.00	89.40	270.16	7,921.83	3.20	-1,150.98	1,150.99	0.00	0.00	0.00	0.00
8,900.00	89.40	270.16	7,922.87	3.47	-1,250.98	1,250.98	0.00	0.00	0.00	0.00
9,000.00	89.40	270.16	7,923.92	3.75	-1,350.97	1,350.98	0.00	0.00	0.00	0.00
9,100.00	89.40	270.16	7,924.97	4.03	-1,450.97	1,450.97	0.00	0.00	0.00	0.00
9,200.00	89.40	270.16	7,926.02	4.31	-1,550.96	1,550.97	0.00	0.00	0.00	0.00
9,300.00	89.40	270.16	7,927.07	4.58	-1,650.96	1,650.96	0.00	0.00	0.00	0.00
9,400.00	89.40	270.16	7,928.12	4.86	-1,750.95	1,750.96	0.00	0.00	0.00	0.00
9,500.00	89.40	270.16	7,929.17	5.14	-1,850.94	1,850.95	0.00	0.00	0.00	0.00
9,600.00	89.40	270.16	7,930.22	5.41	-1,950.94	1,950.95	0.00	0.00	0.00	0.00
9,700.00	89.40	270.16	7,931.27	5.69	-2,050.93	2,050.94	0.00	0.00	0.00	0.00
9,800.00	89.40	270.16	7,932.32	5.97	-2,150.93	2,150.93	0.00	0.00	0.00	0.00
9,900.00	89.40	270.16	7,933.37	6.25	-2,250.92	2,250.93	0.00	0.00	0.00	0.00
10,000.00	89.40	270.16	7,934.42	6.52	-2,350.91	2,350.92	0.00	0.00	0.00	0.00
10,100.00	89.40	270.16	7,935.47	6.80	-2,450.91	2,450.92	0.00	0.00	0.00	0.00
10,200.00	89.40	270.16	7,936.52	7.08	-2,550.90	2,550.91	0.00	0.00	0.00	0.00
10,300.00	89.40	270.16	7,937.57	7.35	-2,650.90	2,650.91	0.00	0.00	0.00	0.00
10,400.00	89.40	270.16	7,938.62	7.63	-2,750.89	2,750.90	0.00	0.00	0.00	0.00
10,500.00	89.40	270.16	7,939.67	7.91	-2,850.88	2,850.90	0.00	0.00	0.00	0.00
10,600.00	89.40	270.16	7,940.72	8.19	-2,950.88	2,950.89	0.00	0.00	0.00	0.00
10,700.00	89.40	270.16	7,941.77	8.46	-3,050.87	3,050.88	0.00	0.00	0.00	0.00
10,800.00	89.40	270.16	7,942.82	8.74	-3,150.87	3,150.88	0.00	0.00	0.00	0.00
10,900.00	89.40	270.16	7,943.87	9.02	-3,250.86	3,250.87	0.00	0.00	0.00	0.00
11,000.00	89.40	270.16	7,944.92	9.29	-3,350.86	3,350.87	0.00	0.00	0.00	0.00
11,100.00	89.40	270.16	7,945.97	9.57	-3,450.85	3,450.86	0.00	0.00	0.00	0.00
11,200.00	89.40	270.16	7,947.02	9.85	-3,550.84	3,550.86	0.00	0.00	0.00	0.00
11,300.00	89.40	270.16	7,948.07	10.13	-3,650.84	3,650.85	0.00	0.00	0.00	0.00
11,400.00	89.40	270.16	7,949.12	10.40	-3,750.83	3,750.85	0.00	0.00	0.00	0.00
11,500.00	89.40	270.16	7,950.17	10.68	-3,850.83	3,850.84	0.00	0.00	0.00	0.00
11,600.00	89.40	270.16	7,951.22	10.96	-3,950.82	3,950.83	0.00	0.00	0.00	0.00
11,700.00	89.40	270.16	7,952.27	11.24	-4,050.81	4,050.83	0.00	0.00	0.00	0.00
11,800.00	89.40	270.16	7,953.32	11.51	-4,150.81	4,150.82	0.00	0.00	0.00	0.00
11,900.00	89.40	270.16	7,954.37	11.79	-4,250.80	4,250.82	0.00	0.00	0.00	0.00
12,000.00	89.40	270.16	7,955.41	12.07	-4,350.80	4,350.81	0.00	0.00	0.00	0.00
12,100.00	89.40	270.16	7,956.46	12.34	-4,450.79	4,450.81	0.00	0.00	0.00	0.00
12,200.00	89.40	270.16	7,957.51	12.62	-4,550.78	4,550.80	0.00	0.00	0.00	0.00
12,300.00	89.40	270.16	7,958.56	12.90	-4,650.78	4,650.80	0.00	0.00	0.00	0.00
12,400.00	89.40	270.16	7,959.61	13.18	-4,750.77	4,750.79	0.00	0.00	0.00	0.00
12,500.00	89.40	270.16	7,960.66	13.45	-4,850.77	4,850.79	0.00	0.00	0.00	0.00
12,600.00	89.40	270.16	7,961.71	13.73	-4,950.76	4,950.78	0.00	0.00	0.00	0.00
12,700.00	89.40	270.16	7,962.76	14.01	-5,050.75	5,050.77	0.00	0.00	0.00	0.00
12,800.00	89.40	270.16	7,963.81	14.28	-5,150.75	5,150.77	0.00	0.00	0.00	0.00
12,900.00	89.40	270.16	7,964.86	14.56	-5,250.74	5,250.76	0.00	0.00	0.00	0.00
13,000.00	89.40	270.16	7,965.91	14.84	-5,350.74	5,350.76	0.00	0.00	0.00	0.00
13,100.00	89.40	270.16	7,966.96	15.12	-5,450.73	5,450.75	0.00	0.00	0.00	0.00
13,200.00	89.40	270.16	7,968.01	15.39	-5,550.73	5,550.75	0.00	0.00	0.00	0.00
13,300.00	89.40	270.16	7,969.06	15.67	-5,650.72	5,650.74	0.00	0.00	0.00	0.00
13,400.00	89.40	270.16	7,970.11	15.95	-5,750.71	5,750.74	0.00	0.00	0.00	0.00
13,500.00	89.40	270.16	7,971.16	16.22	-5,850.71	5,850.73	0.00	0.00	0.00	0.00
13,600.00	89.40	270.16	7,972.21	16.50	-5,950.70	5,950.72	0.00	0.00	0.00	0.00
13,700.00	89.40	270.16	7,973.26	16.78	-6,050.70	6,050.72	0.00	0.00	0.00	0.00
13,800.00	89.40	270.16	7,974.31	17.06	-6,150.69	6,150.71	0.00	0.00	0.00	0.00
13,900.00	89.40	270.16	7,975.36	17.33	-6,250.68	6,250.71	0.00	0.00	0.00	0.00
14,000.00	89.40	270.16	7,976.41	17.61	-6,350.68	6,350.70	0.00	0.00	0.00	0.00
14,100.00	89.40	270.16	7,977.46	17.89	-6,450.67	6,450.70	0.00	0.00	0.00	0.00
14,200.00	89.40	270.16	7,978.51	18.17	-6,550.67	6,550.69	0.00	0.00	0.00	0.00
14,300.00	89.40	270.16	7,979.56	18.44	-6,650.66	6,650.69	0.00	0.00	0.00	0.00
14,400.00	89.40	270.16	7,980.61	18.72	-6,750.65	6,750.68	0.00	0.00	0.00	0.00
14,500.00	89.40	270.16	7,981.66	19.00	-6,850.65	6,850.68	0.00	0.00	0.00	0.00
14,600.00	89.40	270.16	7,982.71	19.27	-6,950.64	6,950.67	0.00	0.00	0.00	0.00
14,700.00	89.40	270.16	7,983.76	19.55	-7,050.64	7,050.66	0.00	0.00	0.00	0.00

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Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	Toolface Azimuth (°)
14,800.00	89.40	270.16	7,984.81	19.83	-7,150.63	7,150.66	0.00	0.00	0.00	0.00
14,900.00	89.40	270.16	7,985.86	20.11	-7,250.63	7,250.65	0.00	0.00	0.00	0.00
15,000.00	89.40	270.16	7,986.91	20.38	-7,350.62	7,350.65	0.00	0.00	0.00	0.00
15,100.00	89.40	270.16	7,987.96	20.66	-7,450.61	7,450.64	0.00	0.00	0.00	0.00
15,200.00	89.40	270.16	7,989.00	20.94	-7,550.61	7,550.64	0.00	0.00	0.00	0.00
15,300.00	89.40	270.16	7,990.05	21.21	-7,650.60	7,650.63	0.00	0.00	0.00	0.00
15,400.00	89.40	270.16	7,991.10	21.49	-7,750.60	7,750.63	0.00	0.00	0.00	0.00
15,500.00	89.40	270.16	7,992.15	21.77	-7,850.59	7,850.62	0.00	0.00	0.00	0.00
15,600.00	89.40	270.16	7,993.20	22.05	-7,950.58	7,950.61	0.00	0.00	0.00	0.00
15,700.00	89.40	270.16	7,994.25	22.32	-8,050.58	8,050.61	0.00	0.00	0.00	0.00
15,800.00	89.40	270.16	7,995.30	22.60	-8,150.57	8,150.60	0.00	0.00	0.00	0.00
15,900.00	89.40	270.16	7,996.35	22.88	-8,250.57	8,250.60	0.00	0.00	0.00	0.00
16,000.00	89.40	270.16	7,997.40	23.15	-8,350.56	8,350.59	0.00	0.00	0.00	0.00
16,100.00	89.40	270.16	7,998.45	23.43	-8,450.55	8,450.59	0.00	0.00	0.00	0.00
16,200.00	89.40	270.16	7,999.50	23.71	-8,550.55	8,550.58	0.00	0.00	0.00	0.00
16,300.00	89.40	270.16	8,000.55	23.99	-8,650.54	8,650.58	0.00	0.00	0.00	0.00
16,400.00	89.40	270.16	8,001.60	24.26	-8,750.54	8,750.57	0.00	0.00	0.00	0.00
16,500.00	89.40	270.16	8,002.65	24.54	-8,850.53	8,850.56	0.00	0.00	0.00	0.00
16,600.00	89.40	270.16	8,003.70	24.82	-8,950.53	8,950.56	0.00	0.00	0.00	0.00
16,700.00	89.40	270.16	8,004.75	25.10	-9,050.52	9,050.55	0.00	0.00	0.00	0.00
16,800.00	89.40	270.16	8,005.80	25.37	-9,150.51	9,150.55	0.00	0.00	0.00	0.00
16,819.09	89.40	270.16	8,006.00	25.43	-9,169.60	9,169.64	0.00	0.00	0.00	0.00
Fort Hays										
16,900.00	89.40	270.16	8,006.85	25.65	-9,250.51	9,250.54	0.00	0.00	0.00	0.00
17,000.00	89.40	270.16	8,007.90	25.93	-9,350.50	9,350.54	0.00	0.00	0.00	0.00
17,100.00	89.40	270.16	8,008.95	26.20	-9,450.50	9,450.53	0.00	0.00	0.00	0.00
17,200.00	89.40	270.16	8,010.00	26.48	-9,550.49	9,550.53	0.00	0.00	0.00	0.00
17,300.00	89.40	270.16	8,011.05	26.76	-9,650.48	9,650.52	0.00	0.00	0.00	0.00
17,390.69	89.40	270.16	8,012.00	27.01	-9,741.17	9,741.21	0.00	0.00	0.00	0.00
Total Depth 17390.69 ft										

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
7,293.07	7,293.07	0.00	0.00	Kick Off Point @ 7293.07 ft
7,450.00	7,448.05	0.06	-21.36	Build Rate 10.00 °/100 ft
7,593.07	7,579.55	0.21	-76.76	End Build @ 7593.07 ft
7,650.81	7,629.55	0.29	-105.63	Begin Build @ 7650.81 ft
7,950.00	7,838.86	0.88	-314.65	Build Rate 10.00 °/100 ft
8,244.79	7,916.00	1.66	-595.81	End Build @ 8244.79 ft
17,390.69	8,012.00	27.01	-9,741.17	Total Depth 17390.69 ft

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin		Start TVD (usft)
				+N/_S (usft)	+E/-W (usft)	
Target	Sunset 4-65 21-22 1H_Rev D0_BHL Tgt	270.16	Slot	0.00	0.00	0.00

Survey tool program

From (usft)	To (usft)	Survey/Plan	Survey Tool
0.00	2,262.00	Rev D0	NS-GYRO-MS
2,262.00	8,244.79	Rev D0	MWD
8,244.79	17,390.69	Rev D0	MWD

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Casing Details

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
2,262.00	2,262.00	9 5/8" Casing Pt.	9-5/8	13-1/2
8,244.79	7,916.00	7" Casing Pt.	7	8-3/4

Formation Details

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,822.00	1,822.00	Fox Hills			
2,062.00	2,062.00	Pierre Shale			
2,262.00	2,262.00	Surface Casing			
7,646.71	7,626.00	Sharon Springs			
7,731.04	7,696.00	Niobrara			
7,826.55	7,766.00	Niobrara "B"			
7,898.35	7,811.00	Niobrara "C"			
8,064.49	7,886.00	Niobrara "D"			
16,819.09	8,006.00	Fort Hays			

Targets associated with this wellbore

Target Name	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Shape
Sunset 4-65 21-22 1H_SL	0.00	0.01	0.00	Polygon
Sunset 4-65 21-22 1H_SB	0.00	0.01	0.00	Polygon
Sunset 4-65 21-22 1H_Rev D0_BHL Tgt	8,012.00	27.01	-9,741.17	Point

Directional Difficulty Index

Average Dogleg over Survey:	0.51 °/100usft	Maximum Dogleg over Survey:	10.00 °/100usft at 8,244.79 usft
Net Tortousity applicable to Plans:	0.51 °/100usft	Directional Difficulty Index:	6.560

Audit Info

North Reference Sheet for Sec. 22-T4S-R65W - Sunset 4-65 21-22 1H - Plan D

All data is in US Feet unless otherwise stated. Directions and Coordinates are relative to True North Reference .
 Vertical Depths are relative to KB 24 ft @ 5782.00usft (H&P 276). Northing and Easting are relative to Sunset 4-65 21-22 1H
 Coordinate System is US State Plane 1983, Colorado Central Zone using datum North American Datum 1983, ellipsoid GRS 1980
 Projection method is Lambert Conformal Conic (2 parallel)
 Central Meridian is -105.50°, Longitude Origin:0° 0' 0.000 E°, Latitude Origin:39° 45' 0.000 N°
 False Easting: 3,000,000.00usft, False Northing: 1,000,000.00usft, Scale Reduction: 0.99998774

Grid Coordinates of Well: 1,675,427.05 usft N, 3,241,439.17 usft E
 Geographical Coordinates of Well: 39° 41' 04.98" N, 104° 38' 31.66" W
 Grid Convergence at Surface is: 0.54°

Based upon Minimum Curvature type calculations, at a Measured Depth of 17,390.69usft
 the Bottom Hole Displacement is 9,741.21usft in the Direction of 270.16° (True).
 Magnetic Convergence at surface is: -7.87° (23 March 2014, , BGGM2013)

