

Conoco Phillips Company

Adams County, Colorado

Sec. 35-T3S-R65W

Reserve 3-65 34-35 1H

Plan A (Lateral)

Plan: Rev A1

Sperry Drilling Services

Proposal Report

15 November, 2013

Well Coordinates: 1,153,905.55 N, 3,246,521.45 E (39° 45' 08.97" N, 104° 37' 23.58" W)

Ground Level: 5,506.00 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 Reserve 3-65 34-35 1H

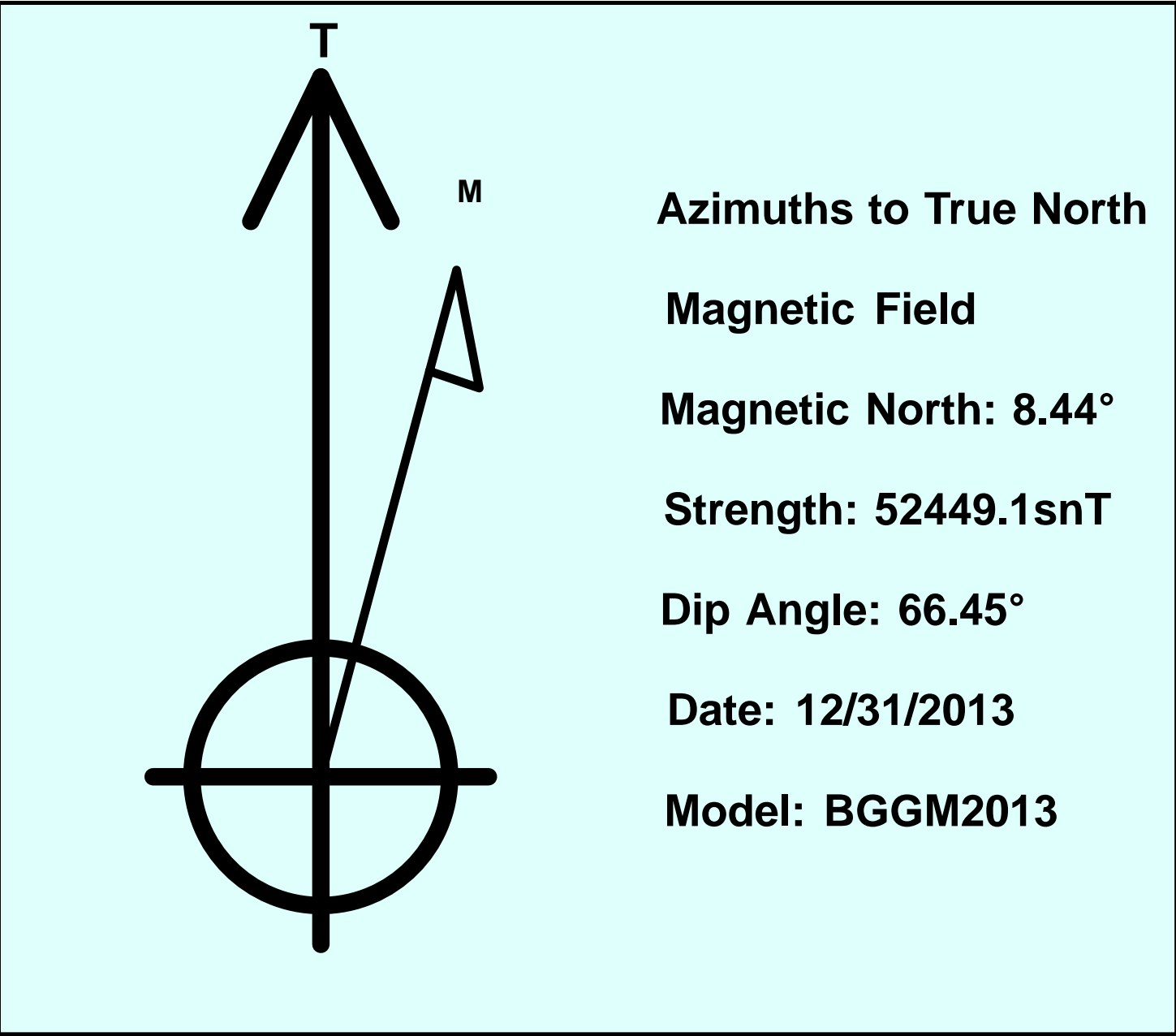
KB 24 ft @ 5530.00usft (H&P 280)

N

True

API - US Survey Feet - Custom

HALLIBURTON



Plan Report for Reserve 3-65 34-35 1H - Rev A1

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
1,574.00	0.00	0.00	1,574.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fox Hills										
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
1,814.00	0.00	0.00	1,814.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pierre Shale										
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
2,014.00	0.00	0.00	2,014.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Surface Casing - 9 5/8" Casing Pt.										
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
2,300.00	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
3,550.00	0.00	0.00	3,550.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hold Inc 0.00°, Azi 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

Plan Report for Reserve 3-65 34-35 1H - Rev A1

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 (°)
5,000.00	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
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
7,107.08	0.00	0.00	7,107.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Kick Off Point @ 7107.08 ft										
7,200.00	9.29	270.39	7,199.59	0.05	-7.52	7.52	10.00	10.00	0.00	270.39
7,300.00	19.29	270.39	7,296.38	0.22	-32.17	32.17	10.00	10.00	0.00	0.00
7,400.00	29.29	270.39	7,387.41	0.50	-73.26	73.26	10.00	10.00	0.00	0.00
7,500.00	39.29	270.39	7,469.92	0.88	-129.53	129.53	10.00	10.00	0.00	0.00
7,529.15	42.21	270.39	7,492.00	1.00	-148.55	148.56	10.00	10.00	0.00	0.00
Sharon Springs										
7,550.00	44.29	270.39	7,507.19	1.10	-162.84	162.84	10.00	10.00	0.00	0.00
Build Rate 10.00 °/100 ft										
7,600.00	49.29	270.39	7,541.41	1.35	-199.27	199.27	10.00	10.00	0.00	0.00
7,632.68	52.56	270.39	7,562.00	1.52	-224.63	224.64	10.00	10.00	0.00	0.00
Niobrara										
7,700.00	59.29	270.39	7,599.70	1.89	-280.36	280.37	10.00	10.00	0.00	0.00
7,737.99	63.09	270.39	7,618.00	2.12	-313.64	313.65	10.00	10.00	0.00	0.00
Niobrara B										
7,800.00	69.29	270.39	7,643.02	2.50	-370.35	370.36	10.00	10.00	0.00	0.00
7,899.67	79.26	270.39	7,670.00	3.15	-466.17	466.18	10.00	10.00	0.00	0.00
Niobrara C										
7,900.00	79.29	270.39	7,670.06	3.15	-466.49	466.50	10.00	10.00	0.00	0.00
8,000.00	89.29	270.39	7,679.99	3.82	-565.87	565.88	10.00	10.00	0.00	0.00
8,000.57	89.35	270.39	7,680.00	3.83	-566.43	566.45	10.00	10.00	0.00	0.00
End Build @ 8000.57 ft										
8,100.00	89.35	270.39	7,681.13	4.50	-665.86	665.87	0.00	0.00	0.00	0.00
8,200.00	89.35	270.39	7,682.27	5.17	-765.85	765.87	0.00	0.00	0.00	0.00
8,300.00	89.35	270.39	7,683.40	5.85	-865.84	865.86	0.00	0.00	0.00	0.00
8,400.00	89.35	270.39	7,684.54	6.53	-965.83	965.85	0.00	0.00	0.00	0.00
8,500.00	89.35	270.39	7,685.68	7.20	-1,065.82	1,065.85	0.00	0.00	0.00	0.00
8,600.00	89.35	270.39	7,686.81	7.88	-1,165.81	1,165.84	0.00	0.00	0.00	0.00
8,700.00	89.35	270.39	7,687.95	8.55	-1,265.80	1,265.83	0.00	0.00	0.00	0.00
8,800.00	89.35	270.39	7,689.08	9.23	-1,365.80	1,365.83	0.00	0.00	0.00	0.00
8,900.00	89.35	270.39	7,690.22	9.90	-1,465.79	1,465.82	0.00	0.00	0.00	0.00
9,000.00	89.35	270.39	7,691.36	10.58	-1,565.78	1,565.81	0.00	0.00	0.00	0.00
9,100.00	89.35	270.39	7,692.49	11.26	-1,665.77	1,665.81	0.00	0.00	0.00	0.00
9,200.00	89.35	270.39	7,693.63	11.93	-1,765.76	1,765.80	0.00	0.00	0.00	0.00
9,300.00	89.35	270.39	7,694.77	12.61	-1,865.75	1,865.79	0.00	0.00	0.00	0.00

Plan Report for Reserve 3-65 34-35 1H - Rev A1

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 (°)
9,400.00	89.35	270.39	7,695.90	13.28	-1,965.74	1,965.79	0.00	0.00	0.00	0.00
9,500.00	89.35	270.39	7,697.04	13.96	-2,065.73	2,065.78	0.00	0.00	0.00	0.00
9,600.00	89.35	270.39	7,698.17	14.63	-2,165.73	2,165.77	0.00	0.00	0.00	0.00
9,700.00	89.35	270.39	7,699.31	15.31	-2,265.72	2,265.77	0.00	0.00	0.00	0.00
9,800.00	89.35	270.39	7,700.45	15.99	-2,365.71	2,365.76	0.00	0.00	0.00	0.00
9,900.00	89.35	270.39	7,701.58	16.66	-2,465.70	2,465.76	0.00	0.00	0.00	0.00
10,000.00	89.35	270.39	7,702.72	17.34	-2,565.69	2,565.75	0.00	0.00	0.00	0.00
10,100.00	89.35	270.39	7,703.86	18.01	-2,665.68	2,665.74	0.00	0.00	0.00	0.00
10,200.00	89.35	270.39	7,704.99	18.69	-2,765.67	2,765.74	0.00	0.00	0.00	0.00
10,300.00	89.35	270.39	7,706.13	19.36	-2,865.66	2,865.73	0.00	0.00	0.00	0.00
10,400.00	89.35	270.39	7,707.26	20.04	-2,965.66	2,965.72	0.00	0.00	0.00	0.00
10,500.00	89.35	270.39	7,708.40	20.71	-3,065.65	3,065.72	0.00	0.00	0.00	0.00
10,600.00	89.35	270.39	7,709.54	21.39	-3,165.64	3,165.71	0.00	0.00	0.00	0.00
10,700.00	89.35	270.39	7,710.67	22.07	-3,265.63	3,265.70	0.00	0.00	0.00	0.00
10,800.00	89.35	270.39	7,711.81	22.74	-3,365.62	3,365.70	0.00	0.00	0.00	0.00
10,900.00	89.35	270.39	7,712.95	23.42	-3,465.61	3,465.69	0.00	0.00	0.00	0.00
11,000.00	89.35	270.39	7,714.08	24.09	-3,565.60	3,565.68	0.00	0.00	0.00	0.00
11,100.00	89.35	270.39	7,715.22	24.77	-3,665.59	3,665.68	0.00	0.00	0.00	0.00
11,200.00	89.35	270.39	7,716.35	25.44	-3,765.59	3,765.67	0.00	0.00	0.00	0.00
11,300.00	89.35	270.39	7,717.49	26.12	-3,865.58	3,865.66	0.00	0.00	0.00	0.00
11,400.00	89.35	270.39	7,718.63	26.80	-3,965.57	3,965.66	0.00	0.00	0.00	0.00
11,500.00	89.35	270.39	7,719.76	27.47	-4,065.56	4,065.65	0.00	0.00	0.00	0.00
11,600.00	89.35	270.39	7,720.90	28.15	-4,165.55	4,165.65	0.00	0.00	0.00	0.00
11,700.00	89.35	270.39	7,722.04	28.82	-4,265.54	4,265.64	0.00	0.00	0.00	0.00
11,800.00	89.35	270.39	7,723.17	29.50	-4,365.53	4,365.63	0.00	0.00	0.00	0.00
11,900.00	89.35	270.39	7,724.31	30.17	-4,465.52	4,465.63	0.00	0.00	0.00	0.00
12,000.00	89.35	270.39	7,725.44	30.85	-4,565.52	4,565.62	0.00	0.00	0.00	0.00
Hold Inc 89.35°, Azi 270.39°										
12,100.00	89.35	270.39	7,726.58	31.53	-4,665.51	4,665.61	0.00	0.00	0.00	0.00
12,200.00	89.35	270.39	7,727.72	32.20	-4,765.50	4,765.61	0.00	0.00	0.00	0.00
12,300.00	89.35	270.39	7,728.85	32.88	-4,865.49	4,865.60	0.00	0.00	0.00	0.00
12,400.00	89.35	270.39	7,729.99	33.55	-4,965.48	4,965.59	0.00	0.00	0.00	0.00
12,500.00	89.35	270.39	7,731.13	34.23	-5,065.47	5,065.59	0.00	0.00	0.00	0.00
12,600.00	89.35	270.39	7,732.26	34.90	-5,165.46	5,165.58	0.00	0.00	0.00	0.00
12,700.00	89.35	270.39	7,733.40	35.58	-5,265.45	5,265.57	0.00	0.00	0.00	0.00
12,800.00	89.35	270.39	7,734.53	36.25	-5,365.45	5,365.57	0.00	0.00	0.00	0.00
12,900.00	89.35	270.39	7,735.67	36.93	-5,465.44	5,465.56	0.00	0.00	0.00	0.00
13,000.00	89.35	270.39	7,736.81	37.61	-5,565.43	5,565.56	0.00	0.00	0.00	0.00
13,100.00	89.35	270.39	7,737.94	38.28	-5,665.42	5,665.55	0.00	0.00	0.00	0.00
13,192.98	89.35	270.39	7,739.00	38.91	-5,758.39	5,758.52	0.00	0.00	0.00	0.00
Niobrara D										
13,200.00	89.35	270.39	7,739.08	38.96	-5,765.41	5,765.54	0.00	0.00	0.00	0.00
13,300.00	89.35	270.39	7,740.22	39.63	-5,865.40	5,865.54	0.00	0.00	0.00	0.00
13,400.00	89.35	270.39	7,741.35	40.31	-5,965.39	5,965.53	0.00	0.00	0.00	0.00
13,500.00	89.35	270.39	7,742.49	40.98	-6,065.38	6,065.52	0.00	0.00	0.00	0.00
13,600.00	89.35	270.39	7,743.62	41.66	-6,165.38	6,165.52	0.00	0.00	0.00	0.00
13,700.00	89.35	270.39	7,744.76	42.34	-6,265.37	6,265.51	0.00	0.00	0.00	0.00
13,800.00	89.35	270.39	7,745.90	43.01	-6,365.36	6,365.50	0.00	0.00	0.00	0.00
13,900.00	89.35	270.39	7,747.03	43.69	-6,465.35	6,465.50	0.00	0.00	0.00	0.00
14,000.00	89.35	270.39	7,748.17	44.36	-6,565.34	6,565.49	0.00	0.00	0.00	0.00
14,100.00	89.35	270.39	7,749.31	45.04	-6,665.33	6,665.48	0.00	0.00	0.00	0.00
14,200.00	89.35	270.39	7,750.44	45.71	-6,765.32	6,765.48	0.00	0.00	0.00	0.00
14,300.00	89.35	270.39	7,751.58	46.39	-6,865.31	6,865.47	0.00	0.00	0.00	0.00
14,400.00	89.35	270.39	7,752.71	47.06	-6,965.31	6,965.46	0.00	0.00	0.00	0.00
14,500.00	89.35	270.39	7,753.85	47.74	-7,065.30	7,065.46	0.00	0.00	0.00	0.00
14,600.00	89.35	270.39	7,754.99	48.42	-7,165.29	7,165.45	0.00	0.00	0.00	0.00
14,700.00	89.35	270.39	7,756.12	49.09	-7,265.28	7,265.45	0.00	0.00	0.00	0.00
14,800.00	89.35	270.39	7,757.26	49.77	-7,365.27	7,365.44	0.00	0.00	0.00	0.00
14,900.00	89.35	270.39	7,758.40	50.44	-7,465.26	7,465.43	0.00	0.00	0.00	0.00
15,000.00	89.35	270.39	7,759.53	51.12	-7,565.25	7,565.43	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 (°)
15,100.00	89.35	270.39	7,760.67	51.79	-7,665.24	7,665.42	0.00	0.00	0.00	0.00
15,200.00	89.35	270.39	7,761.80	52.47	-7,765.24	7,765.41	0.00	0.00	0.00	0.00
15,300.00	89.35	270.39	7,762.94	53.15	-7,865.23	7,865.41	0.00	0.00	0.00	0.00
15,400.00	89.35	270.39	7,764.08	53.82	-7,965.22	7,965.40	0.00	0.00	0.00	0.00
15,500.00	89.35	270.39	7,765.21	54.50	-8,065.21	8,065.39	0.00	0.00	0.00	0.00
15,600.00	89.35	270.39	7,766.35	55.17	-8,165.20	8,165.39	0.00	0.00	0.00	0.00
15,700.00	89.35	270.39	7,767.49	55.85	-8,265.19	8,265.38	0.00	0.00	0.00	0.00
15,800.00	89.35	270.39	7,768.62	56.52	-8,365.18	8,365.37	0.00	0.00	0.00	0.00
15,900.00	89.35	270.39	7,769.76	57.20	-8,465.17	8,465.37	0.00	0.00	0.00	0.00
16,000.00	89.35	270.39	7,770.90	57.88	-8,565.17	8,565.36	0.00	0.00	0.00	0.00
16,100.00	89.35	270.39	7,772.03	58.55	-8,665.16	8,665.36	0.00	0.00	0.00	0.00
16,200.00	89.35	270.39	7,773.17	59.23	-8,765.15	8,765.35	0.00	0.00	0.00	0.00
16,300.00	89.35	270.39	7,774.30	59.90	-8,865.14	8,865.34	0.00	0.00	0.00	0.00
16,361.27	89.35	270.39	7,775.00	60.32	-8,926.40	8,926.61	0.00	0.00	0.00	0.00
Total Depth 16361.27 ft										

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
3,550.00	3,550.00	0.00	0.00	Hold Inc 0.00°, Azi 0.00°
7,107.08	7,107.08	0.00	0.00	Kick Off Point @ 7107.08 ft
7,550.00	7,507.19	1.10	-162.84	Build Rate 10.00 °/100 ft
8,000.57	7,680.00	3.83	-566.43	End Build @ 8000.57 ft
12,000.00	7,725.44	30.85	-4,565.52	Hold Inc 89.35°, Azi 270.39°
16,361.27	7,775.00	60.32	-8,926.40	Total Depth 16361.27 ft

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin		Start TVD (usft)
				+N/_S (usft)	+E/-W (usft)	
Target	Reserve 3-65 34-35 1H_Rev A1 (Lateral)_BHL Tgt	270.39	Slot	0.00	0.00	0.00

Survey tool program

From (usft)	To (usft)	Survey/Plan	Survey Tool
0.00	2,014.00	Rev A1	Assumed Vertical - 30
2,014.00	16,361.27	Rev A1	Inclinometer MWD

Casing Details

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
2,014.00	2,014.00	9 5/8" Casing Pt.	9-5/8	13-1/2

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Formation Details

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,574.00	1,574.00	Fox Hills			
1,814.00	1,814.00	Pierre Shale			
2,014.00	2,014.00	Surface Casing			
7,529.15	7,492.00	Sharon Springs			
7,632.68	7,562.00	Niobrara			
7,737.99	7,618.00	Niobrara B			
7,899.67	7,670.00	Niobrara C			
13,192.98	7,739.00	Niobrara D			

Targets associated with this wellbore

Target Name	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Shape
Flader Industries INC B-1_SB (500 ft)	0.00	65.29	-9,524.21	Circle
Reserve 3-65 34-35 1H_SB	0.00	0.03	0.00	Polygon
Reserve 3-64 34-35 1H_SL	0.00	0.03	0.00	Polygon
Reserve 3-65 34-35 1H_Rev A1 (Lateral)_B+	7,775.00	60.32	-8,926.41	Point

Directional Difficulty Index

Average Dogleg over Survey:	0.55 °/100usft	Maximum Dogleg over Survey:	10.00 °/100usft at 8,000.57 usft
Net Tortousity applicable to Plans:	0.55 °/100usft	Directional Difficulty Index:	6.370

Audit Info

North Reference Sheet for Sec. 35-T3S-R65W - Reserve 3-65 34-35 1H - Plan A
(Lateral)

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 @ 5530.00usft (H&P 280). Northing and Easting are relative to Reserve 3-65 34-35 1H
Coordinate System is US State Plane 1983, Colorado Northern 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:40° 47' 0.000 N°
False Easting: 3,000,000.00usft, False Northing: 1,000,000.00usft, Scale Reduction: 0.99999441

Grid Coordinates of Well: 1,153,905.55 usft N, 3,246,521.45 usft E
Geographical Coordinates of Well: 39° 45' 08.97" N, 104° 37' 23.58" W
Grid Convergence at Surface is: 0.57°

Based upon Minimum Curvature type calculations, at a Measured Depth of 16,361.27usft
the Bottom Hole Displacement is 8,926.61usft in the Direction of 270.39° (True).
Magnetic Convergence at surface is: -7.87° (31 December 2013, , BGGM2013)

