

Conoco Phillips Company

Arapahoe County, Colorado

Sec. 22-T4S-R65W

Sunset 4-65 21-22 1H

Plan B (Lateral)

Plan: Rev B0 (Lateral)

Sperry Drilling Services

Proposal Report

09 October, 2013

Well Coordinates: 1,675,427.06 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 280)

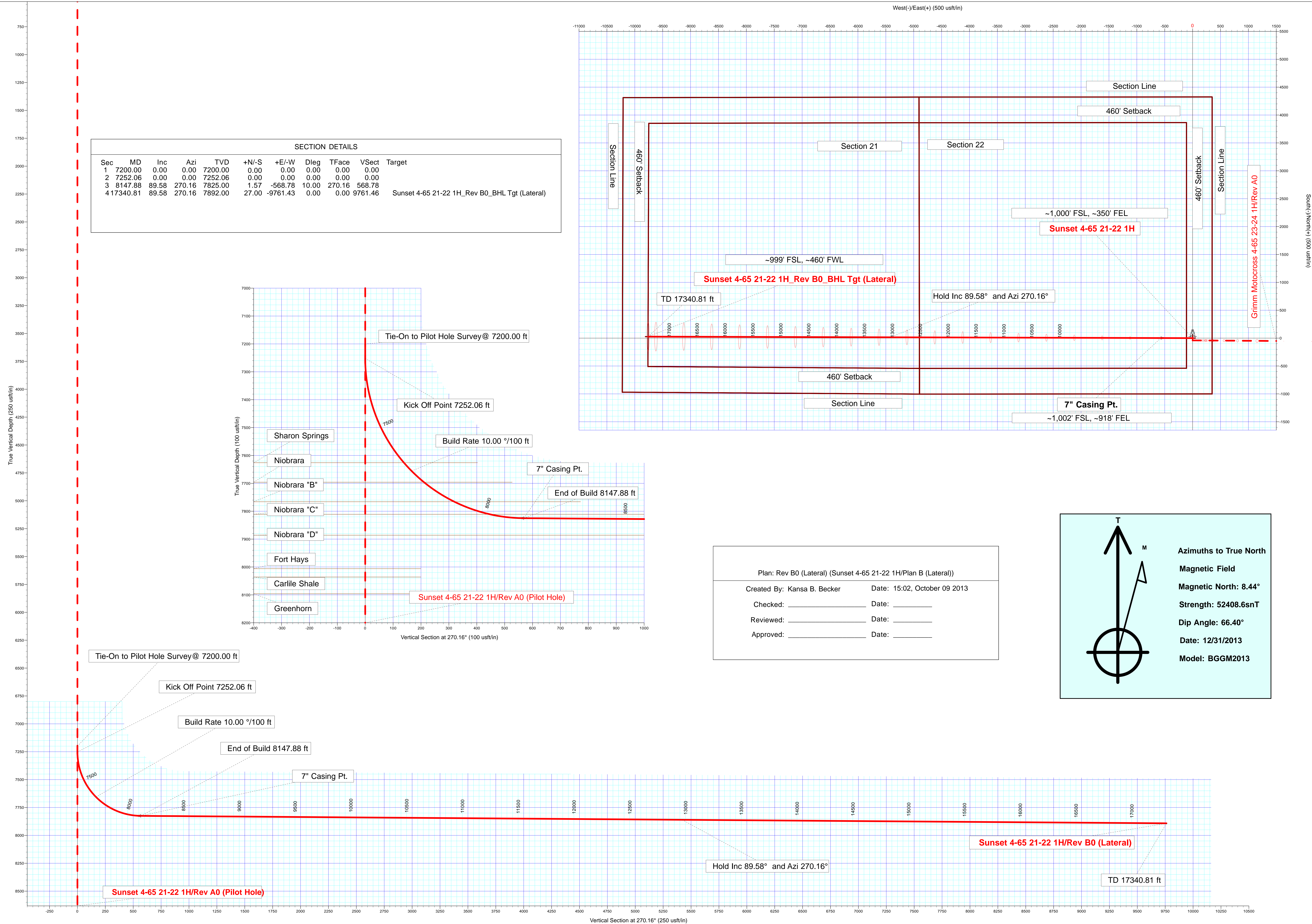
N

True

API - US Survey Feet - Custom

HALLIBURTON

Conoco Phillips Company



Plan Report for Sunset 4-65 21-22 1H - Rev B0 (Lateral)

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 (°)
7,200.00	0.00	0.00	7,200.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tie-On to Pilot Hole Survey@ 7200.00 ft										
7,252.06	0.00	0.00	7,252.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Kick Off Point 7252.06 ft										
7,300.00	4.79	270.16	7,299.94	0.01	-2.00	2.00	10.00	10.00	0.00	270.16
7,400.00	14.79	270.16	7,398.36	0.05	-18.99	18.99	10.00	10.00	0.00	0.00
7,500.00	24.79	270.16	7,492.33	0.15	-52.81	52.81	10.00	10.00	0.00	0.00
7,600.00	34.79	270.16	7,579.01	0.28	-102.44	102.44	10.00	10.00	0.00	0.00
7,659.48	40.74	270.16	7,626.00	0.38	-138.85	138.85	10.00	10.00	0.00	0.00
Sharon Springs										
7,700.00	44.79	270.16	7,655.74	0.46	-166.36	166.36	10.00	10.00	0.00	0.00
Build Rate 10.00 °/100 ft										
7,759.95	50.79	270.16	7,696.00	0.58	-210.74	210.75	10.00	10.00	0.00	0.00
Niobrara										
7,800.00	54.79	270.16	7,720.21	0.67	-242.64	242.64	10.00	10.00	0.00	0.00
7,889.72	63.77	270.16	7,766.00	0.88	-319.69	319.69	10.00	10.00	0.00	0.00
Niobrara "B"										
7,900.00	64.79	270.16	7,770.46	0.91	-328.95	328.95	10.00	10.00	0.00	0.00
8,000.00	74.79	270.16	7,804.96	1.17	-422.67	422.68	10.00	10.00	0.00	0.00
8,025.06	77.30	270.16	7,811.00	1.24	-446.99	446.99	10.00	10.00	0.00	0.00
Niobrara "C"										
8,100.00	84.79	270.16	7,822.65	1.44	-520.97	520.97	10.00	10.00	0.00	0.00
8,147.88	89.58	270.16	7,825.00	1.57	-568.78	568.78	10.00	10.00	0.00	0.00
End of Build 8147.88 ft - 7" Casing Pt.										
8,200.00	89.58	270.16	7,825.38	1.72	-620.89	620.90	0.00	0.00	0.00	0.00
8,300.00	89.58	270.16	7,826.11	1.99	-720.89	720.89	0.00	0.00	0.00	0.00
8,400.00	89.58	270.16	7,826.84	2.27	-820.89	820.89	0.00	0.00	0.00	0.00
8,500.00	89.58	270.16	7,827.57	2.55	-920.88	920.89	0.00	0.00	0.00	0.00
8,600.00	89.58	270.16	7,828.30	2.82	-1,020.88	1,020.89	0.00	0.00	0.00	0.00
8,700.00	89.58	270.16	7,829.03	3.10	-1,120.88	1,120.88	0.00	0.00	0.00	0.00
8,800.00	89.58	270.16	7,829.76	3.38	-1,220.88	1,220.88	0.00	0.00	0.00	0.00
8,900.00	89.58	270.16	7,830.48	3.65	-1,320.87	1,320.88	0.00	0.00	0.00	0.00
9,000.00	89.58	270.16	7,831.21	3.93	-1,420.87	1,420.88	0.00	0.00	0.00	0.00
9,100.00	89.58	270.16	7,831.94	4.21	-1,520.87	1,520.87	0.00	0.00	0.00	0.00
9,200.00	89.58	270.16	7,832.67	4.48	-1,620.86	1,620.87	0.00	0.00	0.00	0.00
9,300.00	89.58	270.16	7,833.40	4.76	-1,720.86	1,720.87	0.00	0.00	0.00	0.00
9,400.00	89.58	270.16	7,834.13	5.04	-1,820.86	1,820.86	0.00	0.00	0.00	0.00
9,500.00	89.58	270.16	7,834.86	5.31	-1,920.85	1,920.86	0.00	0.00	0.00	0.00
9,600.00	89.58	270.16	7,835.59	5.59	-2,020.85	2,020.86	0.00	0.00	0.00	0.00
9,700.00	89.58	270.16	7,836.31	5.87	-2,120.85	2,120.86	0.00	0.00	0.00	0.00
9,800.00	89.58	270.16	7,837.04	6.14	-2,220.85	2,220.85	0.00	0.00	0.00	0.00
9,900.00	89.58	270.16	7,837.77	6.42	-2,320.84	2,320.85	0.00	0.00	0.00	0.00
10,000.00	89.58	270.16	7,838.50	6.70	-2,420.84	2,420.85	0.00	0.00	0.00	0.00
10,100.00	89.58	270.16	7,839.23	6.97	-2,520.84	2,520.85	0.00	0.00	0.00	0.00
10,200.00	89.58	270.16	7,839.96	7.25	-2,620.83	2,620.84	0.00	0.00	0.00	0.00
10,300.00	89.58	270.16	7,840.69	7.53	-2,720.83	2,720.84	0.00	0.00	0.00	0.00
10,400.00	89.58	270.16	7,841.42	7.80	-2,820.83	2,820.84	0.00	0.00	0.00	0.00
10,500.00	89.58	270.16	7,842.14	8.08	-2,920.82	2,920.84	0.00	0.00	0.00	0.00
10,600.00	89.58	270.16	7,842.87	8.36	-3,020.82	3,020.83	0.00	0.00	0.00	0.00
10,700.00	89.58	270.16	7,843.60	8.63	-3,120.82	3,120.83	0.00	0.00	0.00	0.00
10,800.00	89.58	270.16	7,844.33	8.91	-3,220.82	3,220.83	0.00	0.00	0.00	0.00
10,900.00	89.58	270.16	7,845.06	9.19	-3,320.81	3,320.82	0.00	0.00	0.00	0.00
11,000.00	89.58	270.16	7,845.79	9.46	-3,420.81	3,420.82	0.00	0.00	0.00	0.00
11,100.00	89.58	270.16	7,846.52	9.74	-3,520.81	3,520.82	0.00	0.00	0.00	0.00
11,200.00	89.58	270.16	7,847.25	10.02	-3,620.80	3,620.82	0.00	0.00	0.00	0.00
11,300.00	89.58	270.16	7,847.97	10.29	-3,720.80	3,720.81	0.00	0.00	0.00	0.00
11,400.00	89.58	270.16	7,848.70	10.57	-3,820.80	3,820.81	0.00	0.00	0.00	0.00
11,500.00	89.58	270.16	7,849.43	10.85	-3,920.79	3,920.81	0.00	0.00	0.00	0.00

Plan Report for Sunset 4-65 21-22 1H - Rev B0 (Lateral)

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 (°)
11,600.00	89.58	270.16	7,850.16	11.12	-4,020.79	4,020.81	0.00	0.00	0.00	0.00
11,700.00	89.58	270.16	7,850.89	11.40	-4,120.79	4,120.80	0.00	0.00	0.00	0.00
11,800.00	89.58	270.16	7,851.62	11.68	-4,220.78	4,220.80	0.00	0.00	0.00	0.00
11,900.00	89.58	270.16	7,852.35	11.95	-4,320.78	4,320.80	0.00	0.00	0.00	0.00
12,000.00	89.58	270.16	7,853.08	12.23	-4,420.78	4,420.80	0.00	0.00	0.00	0.00
12,100.00	89.58	270.16	7,853.81	12.51	-4,520.78	4,520.79	0.00	0.00	0.00	0.00
12,200.00	89.58	270.16	7,854.53	12.78	-4,620.77	4,620.79	0.00	0.00	0.00	0.00
12,300.00	89.58	270.16	7,855.26	13.06	-4,720.77	4,720.79	0.00	0.00	0.00	0.00
12,400.00	89.58	270.16	7,855.99	13.34	-4,820.77	4,820.78	0.00	0.00	0.00	0.00
12,500.00	89.58	270.16	7,856.72	13.61	-4,920.76	4,920.78	0.00	0.00	0.00	0.00
12,600.00	89.58	270.16	7,857.45	13.89	-5,020.76	5,020.78	0.00	0.00	0.00	0.00
12,700.00	89.58	270.16	7,858.18	14.17	-5,120.76	5,120.78	0.00	0.00	0.00	0.00
12,800.00	89.58	270.16	7,858.91	14.44	-5,220.75	5,220.77	0.00	0.00	0.00	0.00
12,900.00	89.58	270.16	7,859.64	14.72	-5,320.75	5,320.77	0.00	0.00	0.00	0.00
13,000.00	89.58	270.16	7,860.36	14.99	-5,420.75	5,420.77	0.00	0.00	0.00	0.00
Hold Inc 89.58° and Azi 270.16°										
13,100.00	89.58	270.16	7,861.09	15.27	-5,520.75	5,520.77	0.00	0.00	0.00	0.00
13,200.00	89.58	270.16	7,861.82	15.55	-5,620.74	5,620.76	0.00	0.00	0.00	0.00
13,300.00	89.58	270.16	7,862.55	15.82	-5,720.74	5,720.76	0.00	0.00	0.00	0.00
13,400.00	89.58	270.16	7,863.28	16.10	-5,820.74	5,820.76	0.00	0.00	0.00	0.00
13,500.00	89.58	270.16	7,864.01	16.38	-5,920.73	5,920.76	0.00	0.00	0.00	0.00
13,600.00	89.58	270.16	7,864.74	16.65	-6,020.73	6,020.75	0.00	0.00	0.00	0.00
13,700.00	89.58	270.16	7,865.47	16.93	-6,120.73	6,120.75	0.00	0.00	0.00	0.00
13,800.00	89.58	270.16	7,866.19	17.21	-6,220.72	6,220.75	0.00	0.00	0.00	0.00
13,900.00	89.58	270.16	7,866.92	17.48	-6,320.72	6,320.75	0.00	0.00	0.00	0.00
14,000.00	89.58	270.16	7,867.65	17.76	-6,420.72	6,420.74	0.00	0.00	0.00	0.00
14,100.00	89.58	270.16	7,868.38	18.04	-6,520.71	6,520.74	0.00	0.00	0.00	0.00
14,200.00	89.58	270.16	7,869.11	18.31	-6,620.71	6,620.74	0.00	0.00	0.00	0.00
14,300.00	89.58	270.16	7,869.84	18.59	-6,720.71	6,720.73	0.00	0.00	0.00	0.00
14,400.00	89.58	270.16	7,870.57	18.87	-6,820.71	6,820.73	0.00	0.00	0.00	0.00
14,500.00	89.58	270.16	7,871.30	19.14	-6,920.70	6,920.73	0.00	0.00	0.00	0.00
14,600.00	89.58	270.16	7,872.03	19.42	-7,020.70	7,020.73	0.00	0.00	0.00	0.00
14,700.00	89.58	270.16	7,872.75	19.70	-7,120.70	7,120.72	0.00	0.00	0.00	0.00
14,800.00	89.58	270.16	7,873.48	19.97	-7,220.69	7,220.72	0.00	0.00	0.00	0.00
14,900.00	89.58	270.16	7,874.21	20.25	-7,320.69	7,320.72	0.00	0.00	0.00	0.00
15,000.00	89.58	270.16	7,874.94	20.53	-7,420.69	7,420.72	0.00	0.00	0.00	0.00
15,100.00	89.58	270.16	7,875.67	20.80	-7,520.68	7,520.71	0.00	0.00	0.00	0.00
15,200.00	89.58	270.16	7,876.40	21.08	-7,620.68	7,620.71	0.00	0.00	0.00	0.00
15,300.00	89.58	270.16	7,877.13	21.36	-7,720.68	7,720.71	0.00	0.00	0.00	0.00
15,400.00	89.58	270.16	7,877.86	21.63	-7,820.68	7,820.71	0.00	0.00	0.00	0.00
15,500.00	89.58	270.16	7,878.58	21.91	-7,920.67	7,920.70	0.00	0.00	0.00	0.00
15,600.00	89.58	270.16	7,879.31	22.19	-8,020.67	8,020.70	0.00	0.00	0.00	0.00
15,700.00	89.58	270.16	7,880.04	22.46	-8,120.67	8,120.70	0.00	0.00	0.00	0.00
15,800.00	89.58	270.16	7,880.77	22.74	-8,220.66	8,220.69	0.00	0.00	0.00	0.00
15,900.00	89.58	270.16	7,881.50	23.02	-8,320.66	8,320.69	0.00	0.00	0.00	0.00
16,000.00	89.58	270.16	7,882.23	23.29	-8,420.66	8,420.69	0.00	0.00	0.00	0.00
16,100.00	89.58	270.16	7,882.96	23.57	-8,520.65	8,520.69	0.00	0.00	0.00	0.00
16,200.00	89.58	270.16	7,883.69	23.85	-8,620.65	8,620.68	0.00	0.00	0.00	0.00
16,300.00	89.58	270.16	7,884.41	24.12	-8,720.65	8,720.68	0.00	0.00	0.00	0.00
16,400.00	89.58	270.16	7,885.14	24.40	-8,820.64	8,820.68	0.00	0.00	0.00	0.00
16,500.00	89.58	270.16	7,885.87	24.68	-8,920.64	8,920.68	0.00	0.00	0.00	0.00
16,517.53	89.58	270.16	7,886.00	24.72	-8,938.17	8,938.21	0.00	0.00	0.00	0.00
Niobrara "D"										
16,600.00	89.58	270.16	7,886.60	24.95	-9,020.64	9,020.67	0.00	0.00	0.00	0.00
16,700.00	89.58	270.16	7,887.33	25.23	-9,120.64	9,120.67	0.00	0.00	0.00	0.00
16,800.00	89.58	270.16	7,888.06	25.51	-9,220.63	9,220.67	0.00	0.00	0.00	0.00
16,900.00	89.58	270.16	7,888.79	25.78	-9,320.63	9,320.67	0.00	0.00	0.00	0.00
17,000.00	89.58	270.16	7,889.52	26.06	-9,420.63	9,420.66	0.00	0.00	0.00	0.00
17,100.00	89.58	270.16	7,890.24	26.34	-9,520.62	9,520.66	0.00	0.00	0.00	0.00

Plan Report for Sunset 4-65 21-22 1H - Rev B0 (Lateral)

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 (°)
17,200.00	89.58	270.16	7,890.97	26.61	-9,620.62	9,620.66	0.00	0.00	0.00	0.00
17,300.00	89.58	270.16	7,891.70	26.89	-9,720.62	9,720.65	0.00	0.00	0.00	0.00
17,340.81	89.58	270.16	7,892.00	27.00	-9,761.43	9,761.46	0.00	0.00	0.00	0.00
TD 17340.81 ft										

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
7,200.00	7,200.00	0.00	0.00	Tie-On to Pilot Hole Survey@ 7200.00 ft
7,252.06	7,252.06	0.00	0.00	Kick Off Point 7252.06 ft
7,700.00	7,655.74	0.46	-166.36	Build Rate 10.00 °/100 ft
8,147.88	7,825.00	1.57	-568.78	End of Build 8147.88 ft
13,000.00	7,860.36	14.99	-5,420.75	Hold Inc 89.58° and Azi 270.16°
17,340.81	7,892.00	27.00	-9,761.43	TD 17340.81 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 B0_BHL Tgt (Lateral)	270.16	Slot	0.00	0.00	0.00

Survey tool program

From (usft)	To (usft)	Survey/Plan	Survey Tool
7,200.00	8,148.83	Rev B0 (Lateral)	MWD
8,148.83	17,340.75	Rev B0 (Lateral)	MWD

Casing Details

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
8,147.88	7,825.00	7" Casing Pt.	7	8-3/4

Formation Details

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
7,659.48	7,626.00	Sharon Springs			
7,759.95	7,696.00	Niobrara			
7,889.72	7,766.00	Niobrara "B"			
8,025.06	7,811.00	Niobrara "C"			
16,517.53	7,886.00	Niobrara "D"			

Plan Report for Sunset 4-65 21-22 1H - Rev B0 (Lateral)

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	0.00	0.00	Polygon
Sunset 4-65 21-22 1H_SB	0.00	0.00	0.00	Polygon
Sunset 4-65 21-22 1H_Rev B0_BHL Tgt (Late	7,892.00	27.00	-9,761.43	Point

Directional Difficulty Index

Average Dogleg over Survey:	0.88 °/100usft	Maximum Dogleg over Survey:	10.00 °/100usft at 8,147.88 usft
Net Tortousity applicable to Plans:	0.88 °/100usft	Directional Difficulty Index:	6.631

Audit Info

North Reference Sheet for Sec. 22-T4S-R65W - Sunset 4-65 21-22 1H - Plan B (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 @ 5782.00usft (H&P 280). 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: 1,675,427.06 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 17,340.81usft
the Bottom Hole Displacement is 9,761.46usft in the Direction of 270.16° (True).

Magnetic Convergence at surface is: -7.90° (31 December 2013, , BGGM2013)

