

# Whiting Oil and Gas Corporation

Weld County, CO

Sec. 29-T10N-R57W

Horsetail #29F-3205A

Plan A

Plan: Rev A0

## Sperry Drilling Services

### Proposal Report

06 November, 2013

Well Coordinates: 1,542,760.38 N, 3,476,854.12 E (40° 48' 37.96" N, 103° 46' 38.28" W)

Ground Level: 4,700.30 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 Horsetail #29F-3205A

RKB = 22' @ 4722.30usft (Frontier 26)

N

True

API - US Survey Feet - Custom

**HALLIBURTON**

Project: Weld County, CO  
Site: Sec. 29-T10N-R57W  
Well: Horsetail #29F-3205A  
Wellbore: Plan A  
Plan: Rev A0

Whiting Oil and Gas Corporation



SECTION DETAILS										
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	
3	700.00	4.00	200.00	699.84	-6.56	-2.39	2.00	200.00	6.63	
4	4968.02	4.00	200.00	4957.46	-286.32	-104.21	0.00	0.00	289.68	
5	5749.84	90.00	200.00	5442.00	-774.59	-281.93	11.00	0.00	783.66	
6	5824.84	90.00	200.00	5442.00	-845.07	-307.58	0.00	0.00	854.96	
7	6542.64	90.00	178.47	5442.00	-1549.41	-422.07	3.00	-90.00	1562.76	
8	12654.40	90.00	178.47	5442.00	-7658.97	-258.45	0.00	0.00	7663.33	Horsetail #29F-3205A_Rev A0_BHL Tgt

Plan: Rev A0 (Horsetail #29F-3205A/Plan A)

Created By: Kansa B. Becker

Date: 15:05, November 06 2013

Checked: \_\_\_\_\_

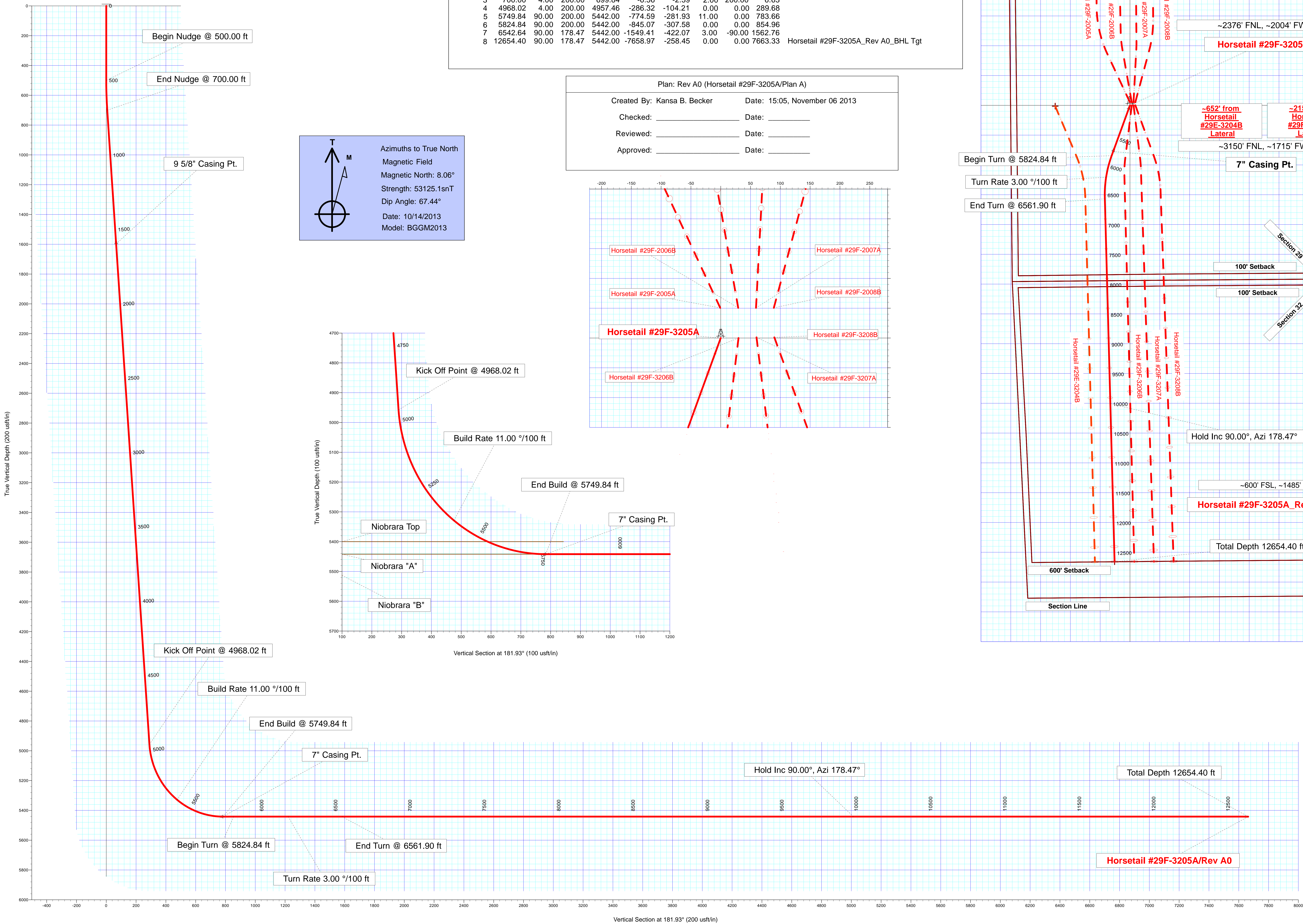
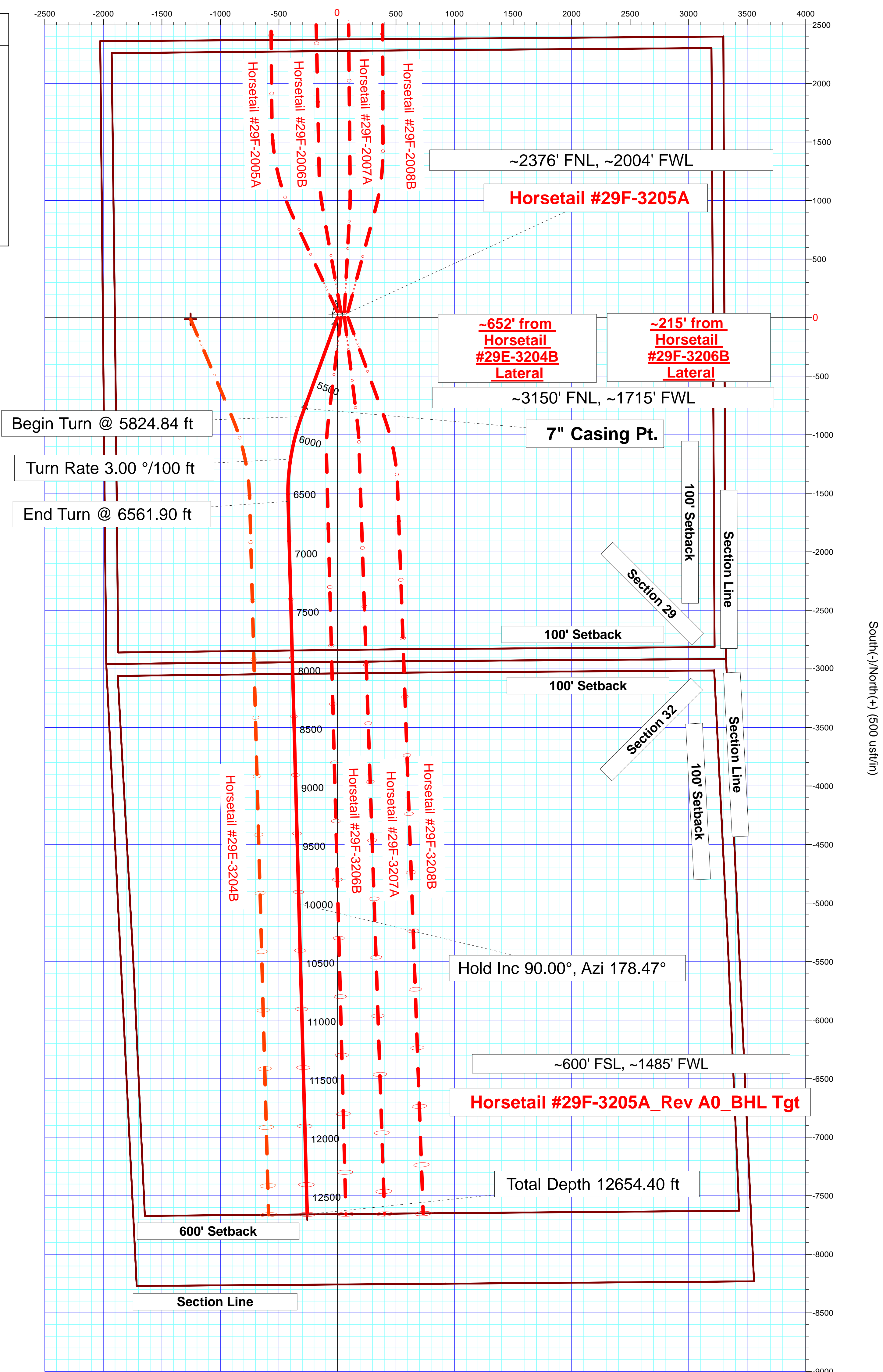
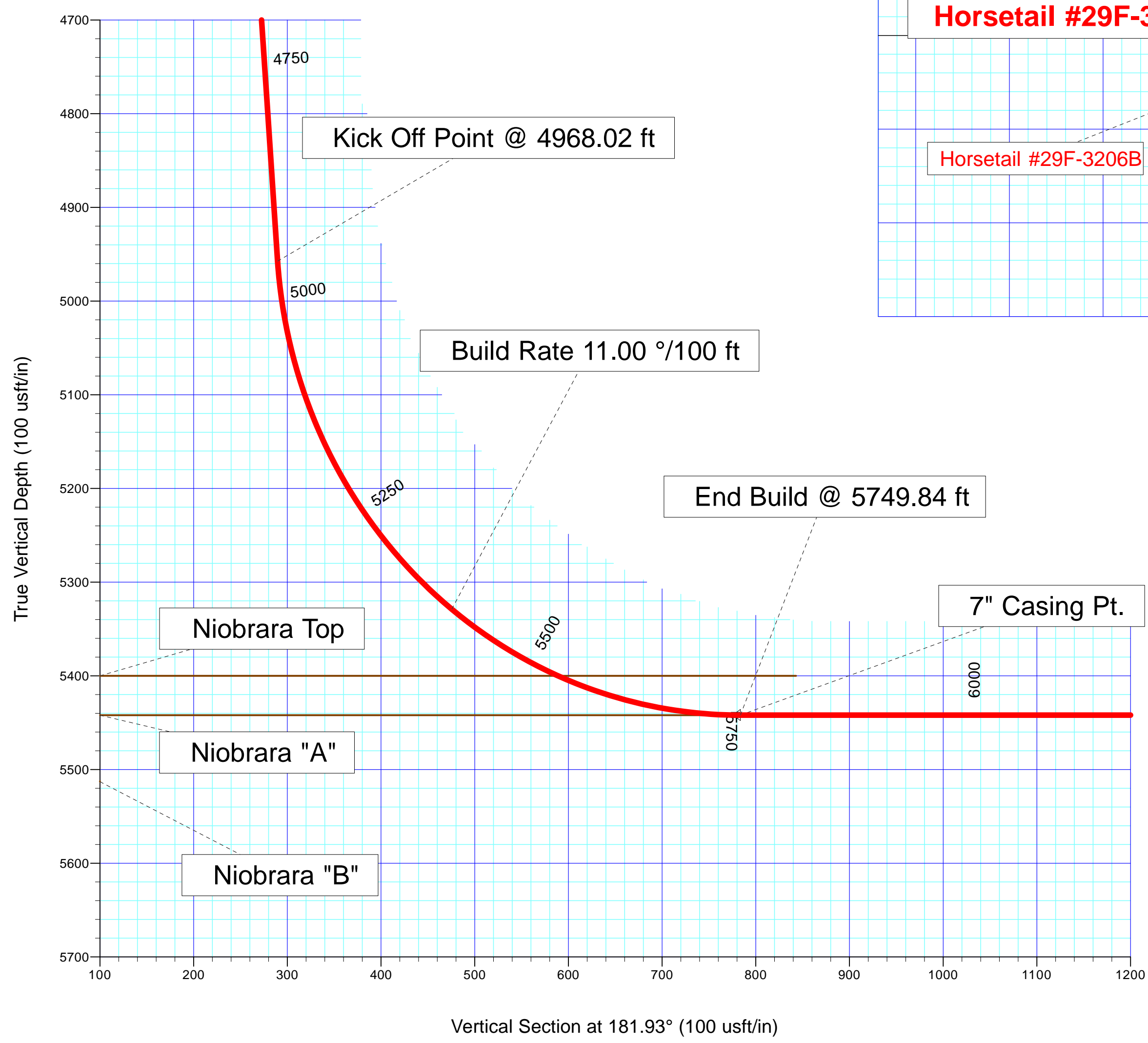
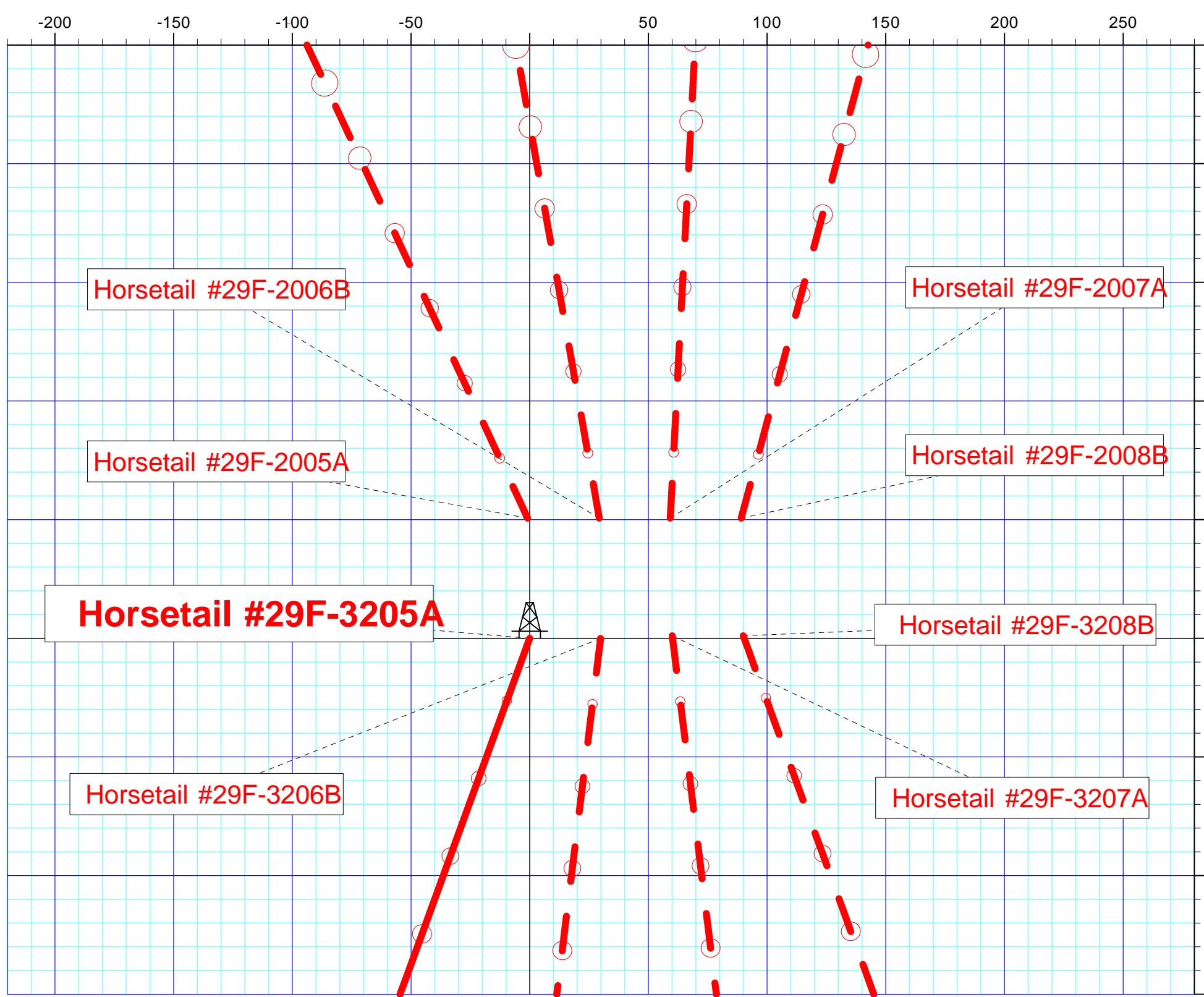
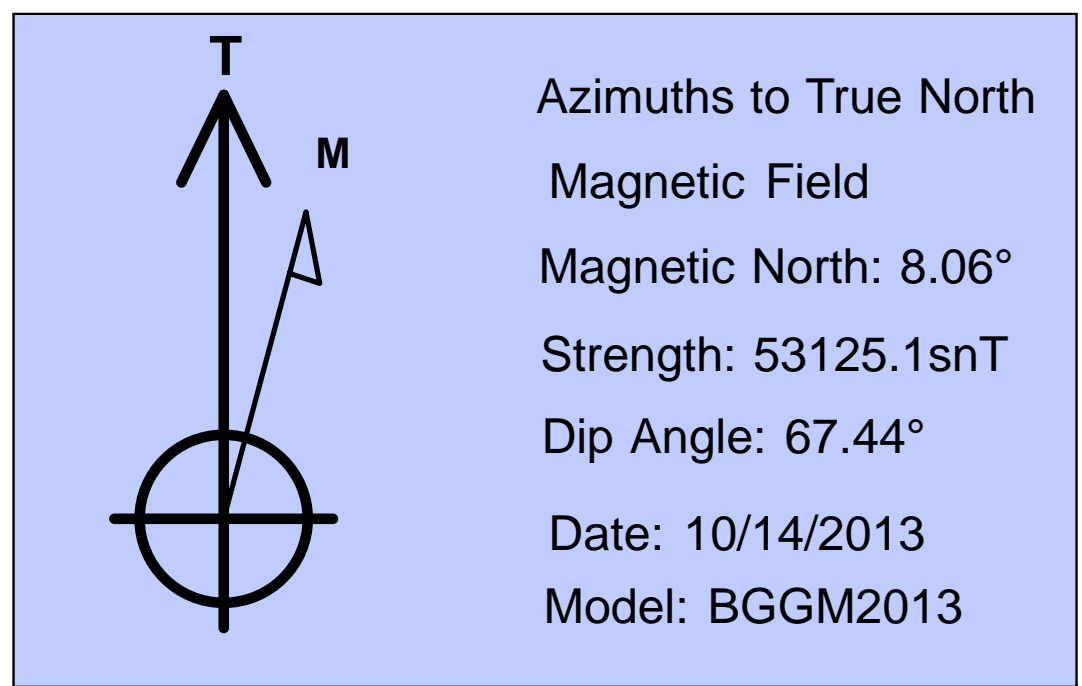
Date: \_\_\_\_\_

Reviewed: \_\_\_\_\_

Date: \_\_\_\_\_

Approved: \_\_\_\_\_

Date: \_\_\_\_\_



**Plan Report for Horsetail #29F-3205A - Rev A0**

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
<b>Begin Nudge @ 500.00 ft</b>										
600.00	2.00	200.00	599.98	-1.64	-0.60	1.66	2.00	2.00	0.00	200.00
700.00	4.00	200.00	699.84	-6.56	-2.39	6.63	2.00	2.00	0.00	0.00
<b>End Nudge @ 700.00 ft</b>										
800.00	4.00	200.00	799.59	-13.11	-4.77	13.27	0.00	0.00	0.00	0.00
900.00	4.00	200.00	899.35	-19.67	-7.16	19.90	0.00	0.00	0.00	0.00
1,000.00	4.00	200.00	999.11	-26.22	-9.54	26.53	0.00	0.00	0.00	0.00
1,100.00	4.00	200.00	1,098.86	-32.78	-11.93	33.16	0.00	0.00	0.00	0.00
1,200.00	4.00	200.00	1,198.62	-39.33	-14.32	39.79	0.00	0.00	0.00	0.00
1,300.00	4.00	200.00	1,298.38	-45.89	-16.70	46.42	0.00	0.00	0.00	0.00
1,400.00	4.00	200.00	1,398.13	-52.44	-19.09	53.06	0.00	0.00	0.00	0.00
1,500.00	4.00	200.00	1,497.89	-59.00	-21.47	59.69	0.00	0.00	0.00	0.00
1,600.00	4.00	200.00	1,597.65	-65.55	-23.86	66.32	0.00	0.00	0.00	0.00
<b>9 5/8" Casing Pt.</b>										
1,700.00	4.00	200.00	1,697.40	-72.11	-26.24	72.95	0.00	0.00	0.00	0.00
1,800.00	4.00	200.00	1,797.16	-78.66	-28.63	79.58	0.00	0.00	0.00	0.00
1,900.00	4.00	200.00	1,896.91	-85.22	-31.02	86.21	0.00	0.00	0.00	0.00
2,000.00	4.00	200.00	1,996.67	-91.77	-33.40	92.85	0.00	0.00	0.00	0.00
2,100.00	4.00	200.00	2,096.43	-98.33	-35.79	99.48	0.00	0.00	0.00	0.00
2,200.00	4.00	200.00	2,196.18	-104.88	-38.17	106.11	0.00	0.00	0.00	0.00
2,300.00	4.00	200.00	2,295.94	-111.44	-40.56	112.74	0.00	0.00	0.00	0.00
2,400.00	4.00	200.00	2,395.70	-117.99	-42.95	119.37	0.00	0.00	0.00	0.00
2,500.00	4.00	200.00	2,495.45	-124.55	-45.33	126.00	0.00	0.00	0.00	0.00
2,600.00	4.00	200.00	2,595.21	-131.10	-47.72	132.64	0.00	0.00	0.00	0.00
2,700.00	4.00	200.00	2,694.97	-137.66	-50.10	139.27	0.00	0.00	0.00	0.00
2,800.00	4.00	200.00	2,794.72	-144.21	-52.49	145.90	0.00	0.00	0.00	0.00
2,900.00	4.00	200.00	2,894.48	-150.77	-54.87	152.53	0.00	0.00	0.00	0.00
3,000.00	4.00	200.00	2,994.23	-157.32	-57.26	159.16	0.00	0.00	0.00	0.00
3,100.00	4.00	200.00	3,093.99	-163.88	-59.65	165.80	0.00	0.00	0.00	0.00
3,200.00	4.00	200.00	3,193.75	-170.43	-62.03	172.43	0.00	0.00	0.00	0.00
3,300.00	4.00	200.00	3,293.50	-176.99	-64.42	179.06	0.00	0.00	0.00	0.00
3,400.00	4.00	200.00	3,393.26	-183.54	-66.80	185.69	0.00	0.00	0.00	0.00
3,500.00	4.00	200.00	3,493.02	-190.10	-69.19	192.32	0.00	0.00	0.00	0.00
3,600.00	4.00	200.00	3,592.77	-196.65	-71.58	198.95	0.00	0.00	0.00	0.00
3,700.00	4.00	200.00	3,692.53	-203.21	-73.96	205.59	0.00	0.00	0.00	0.00
3,800.00	4.00	200.00	3,792.29	-209.76	-76.35	212.22	0.00	0.00	0.00	0.00
3,900.00	4.00	200.00	3,892.04	-216.32	-78.73	218.85	0.00	0.00	0.00	0.00
4,000.00	4.00	200.00	3,991.80	-222.87	-81.12	225.48	0.00	0.00	0.00	0.00
4,100.00	4.00	200.00	4,091.56	-229.43	-83.50	232.11	0.00	0.00	0.00	0.00
4,200.00	4.00	200.00	4,191.31	-235.98	-85.89	238.74	0.00	0.00	0.00	0.00
4,300.00	4.00	200.00	4,291.07	-242.54	-88.28	245.38	0.00	0.00	0.00	0.00
4,400.00	4.00	200.00	4,390.82	-249.09	-90.66	252.01	0.00	0.00	0.00	0.00
4,500.00	4.00	200.00	4,490.58	-255.65	-93.05	258.64	0.00	0.00	0.00	0.00
4,600.00	4.00	200.00	4,590.34	-262.20	-95.43	265.27	0.00	0.00	0.00	0.00
4,700.00	4.00	200.00	4,690.09	-268.76	-97.82	271.90	0.00	0.00	0.00	0.00
4,800.00	4.00	200.00	4,789.85	-275.31	-100.21	278.53	0.00	0.00	0.00	0.00
4,900.00	4.00	200.00	4,889.61	-281.87	-102.59	285.17	0.00	0.00	0.00	0.00
4,968.02	4.00	200.00	4,957.46	-286.32	-104.21	289.68	0.00	0.00	0.00	0.00
<b>Kick Off Point @ 4968.02 ft</b>										
5,000.00	7.52	200.00	4,989.27	-289.34	-105.31	292.73	11.00	11.00	0.00	0.00
5,100.00	18.52	200.00	5,086.55	-310.47	-113.00	314.11	11.00	11.00	0.00	0.00
5,200.00	29.52	200.00	5,177.76	-348.66	-126.90	352.74	11.00	11.00	0.00	0.00

**Plan Report for Horsetail #29F-3205A - Rev A0**

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 (°)
5,300.00	40.52	200.00	5,259.53	-402.50	-146.50	407.21	11.00	11.00	0.00	0.00
5,400.00	51.52	200.00	5,328.86	-470.02	-171.07	475.52	11.00	11.00	0.00	0.00
<b>Build Rate 11.00 °/100 ft</b>										
5,500.00	62.52	200.00	5,383.22	-548.72	-199.72	555.14	11.00	11.00	0.00	0.00
5,539.24	66.83	200.00	5,400.00	-582.04	-211.85	588.86	11.00	11.00	0.00	0.00
<b>Niobrara Top</b>										
5,600.00	73.52	200.00	5,420.59	-635.72	-231.38	643.17	11.00	11.00	0.00	0.00
5,700.00	84.52	200.00	5,439.61	-727.83	-264.91	736.35	11.00	11.00	0.00	0.00
5,749.84	90.00	200.00	5,442.00	-774.59	-281.93	783.66	11.00	11.00	0.00	0.00
<b>End Build @ 5749.84 ft - Niobrara "A" - 7" Casing Pt.</b>										
5,800.00	90.00	200.00	5,442.00	-821.73	-299.08	831.35	0.00	0.00	0.00	0.00
5,824.84	90.00	200.00	5,442.00	-845.07	-307.58	854.96	0.00	0.00	0.00	0.00
<b>Begin Turn @ 5824.84 ft</b>										
5,900.00	90.00	197.75	5,442.00	-916.19	-331.89	926.86	3.00	0.00	-3.00	-90.00
6,000.00	90.00	194.75	5,442.00	-1,012.18	-359.86	1,023.74	3.00	0.00	-3.00	-90.00
6,100.00	90.00	191.75	5,442.00	-1,109.51	-382.77	1,121.79	3.00	0.00	-3.00	-90.00
6,200.00	90.00	188.75	5,442.00	-1,207.90	-400.55	1,220.73	3.00	0.00	-3.00	-90.00
<b>Turn Rate 3.00 °/100 ft</b>										
6,300.00	90.00	185.75	5,442.00	-1,307.09	-413.17	1,320.29	3.00	0.00	-3.00	-90.00
6,400.00	90.00	182.75	5,442.00	-1,406.81	-420.57	1,420.19	3.00	0.00	-3.00	-90.00
6,500.00	90.00	179.75	5,442.00	-1,506.77	-422.74	1,520.17	3.00	0.00	-3.00	-90.00
6,542.64	90.00	178.47	5,442.00	-1,549.41	-422.07	1,562.76	3.00	0.00	-3.00	-90.00
6,561.90	90.00	178.47	5,442.00	-1,568.66	-421.56	1,581.98	0.00	0.00	0.00	0.00
<b>End Turn @ 6561.90 ft</b>										
6,600.00	90.00	178.47	5,442.00	-1,606.75	-420.54	1,620.02	0.00	0.00	0.00	0.00
6,700.00	90.00	178.47	5,442.00	-1,706.71	-417.86	1,719.83	0.00	0.00	0.00	0.00
6,800.00	90.00	178.47	5,442.00	-1,806.68	-415.18	1,819.65	0.00	0.00	0.00	0.00
6,900.00	90.00	178.47	5,442.00	-1,906.64	-412.51	1,919.47	0.00	0.00	0.00	0.00
7,000.00	90.00	178.47	5,442.00	-2,006.60	-409.83	2,019.28	0.00	0.00	0.00	0.00
7,100.00	90.00	178.47	5,442.00	-2,106.57	-407.15	2,119.10	0.00	0.00	0.00	0.00
7,200.00	90.00	178.47	5,442.00	-2,206.53	-404.47	2,218.92	0.00	0.00	0.00	0.00
7,300.00	90.00	178.47	5,442.00	-2,306.50	-401.80	2,318.74	0.00	0.00	0.00	0.00
7,400.00	90.00	178.47	5,442.00	-2,406.46	-399.12	2,418.55	0.00	0.00	0.00	0.00
7,500.00	90.00	178.47	5,442.00	-2,506.42	-396.44	2,518.37	0.00	0.00	0.00	0.00
7,600.00	90.00	178.47	5,442.00	-2,606.39	-393.77	2,618.19	0.00	0.00	0.00	0.00
7,700.00	90.00	178.47	5,442.00	-2,706.35	-391.09	2,718.00	0.00	0.00	0.00	0.00
7,800.00	90.00	178.47	5,442.00	-2,806.32	-388.41	2,817.82	0.00	0.00	0.00	0.00
7,900.00	90.00	178.47	5,442.00	-2,906.28	-385.73	2,917.64	0.00	0.00	0.00	0.00
8,000.00	90.00	178.47	5,442.00	-3,006.25	-383.06	3,017.45	0.00	0.00	0.00	0.00
8,100.00	90.00	178.47	5,442.00	-3,106.21	-380.38	3,117.27	0.00	0.00	0.00	0.00
8,200.00	90.00	178.47	5,442.00	-3,206.17	-377.70	3,217.09	0.00	0.00	0.00	0.00
8,300.00	90.00	178.47	5,442.00	-3,306.14	-375.03	3,316.91	0.00	0.00	0.00	0.00
8,400.00	90.00	178.47	5,442.00	-3,406.10	-372.35	3,416.72	0.00	0.00	0.00	0.00
8,500.00	90.00	178.47	5,442.00	-3,506.07	-369.67	3,516.54	0.00	0.00	0.00	0.00
8,600.00	90.00	178.47	5,442.00	-3,606.03	-366.99	3,616.36	0.00	0.00	0.00	0.00
8,700.00	90.00	178.47	5,442.00	-3,705.99	-364.32	3,716.17	0.00	0.00	0.00	0.00
8,800.00	90.00	178.47	5,442.00	-3,805.96	-361.64	3,815.99	0.00	0.00	0.00	0.00
8,900.00	90.00	178.47	5,442.00	-3,905.92	-358.96	3,915.81	0.00	0.00	0.00	0.00
9,000.00	90.00	178.47	5,442.00	-4,005.89	-356.28	4,015.62	0.00	0.00	0.00	0.00
9,100.00	90.00	178.47	5,442.00	-4,105.85	-353.61	4,115.44	0.00	0.00	0.00	0.00
9,200.00	90.00	178.47	5,442.00	-4,205.82	-350.93	4,215.26	0.00	0.00	0.00	0.00
9,300.00	90.00	178.47	5,442.00	-4,305.78	-348.25	4,315.08	0.00	0.00	0.00	0.00
9,400.00	90.00	178.47	5,442.00	-4,405.74	-345.58	4,414.89	0.00	0.00	0.00	0.00
9,500.00	90.00	178.47	5,442.00	-4,505.71	-342.90	4,514.71	0.00	0.00	0.00	0.00
9,600.00	90.00	178.47	5,442.00	-4,605.67	-340.22	4,614.53	0.00	0.00	0.00	0.00
9,700.00	90.00	178.47	5,442.00	-4,705.64	-337.54	4,714.34	0.00	0.00	0.00	0.00
9,800.00	90.00	178.47	5,442.00	-4,805.60	-334.87	4,814.16	0.00	0.00	0.00	0.00
9,900.00	90.00	178.47	5,442.00	-4,905.56	-332.19	4,913.98	0.00	0.00	0.00	0.00
10,000.00	90.00	178.47	5,442.00	-5,005.53	-329.51	5,013.79	0.00	0.00	0.00	0.00



**Plan Report for Horsetail #29F-3205A - Rev A0**

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 (°)
<b>Hold Inc 90.00°, Azi 178.47°</b>										
10,100.00	90.00	178.47	5,442.00	-5,105.49	-326.84	5,113.61	0.00	0.00	0.00	0.00
10,200.00	90.00	178.47	5,442.00	-5,205.46	-324.16	5,213.43	0.00	0.00	0.00	0.00
10,300.00	90.00	178.47	5,442.00	-5,305.42	-321.48	5,313.25	0.00	0.00	0.00	0.00
10,400.00	90.00	178.47	5,442.00	-5,405.39	-318.80	5,413.06	0.00	0.00	0.00	0.00
10,500.00	90.00	178.47	5,442.00	-5,505.35	-316.13	5,512.88	0.00	0.00	0.00	0.00
10,600.00	90.00	178.47	5,442.00	-5,605.31	-313.45	5,612.70	0.00	0.00	0.00	0.00
10,700.00	90.00	178.47	5,442.00	-5,705.28	-310.77	5,712.51	0.00	0.00	0.00	0.00
10,800.00	90.00	178.47	5,442.00	-5,805.24	-308.09	5,812.33	0.00	0.00	0.00	0.00
10,900.00	90.00	178.47	5,442.00	-5,905.21	-305.42	5,912.15	0.00	0.00	0.00	0.00
11,000.00	90.00	178.47	5,442.00	-6,005.17	-302.74	6,011.96	0.00	0.00	0.00	0.00
11,100.00	90.00	178.47	5,442.00	-6,105.13	-300.06	6,111.78	0.00	0.00	0.00	0.00
11,200.00	90.00	178.47	5,442.00	-6,205.10	-297.39	6,211.60	0.00	0.00	0.00	0.00
11,300.00	90.00	178.47	5,442.00	-6,305.06	-294.71	6,311.42	0.00	0.00	0.00	0.00
11,400.00	90.00	178.47	5,442.00	-6,405.03	-292.03	6,411.23	0.00	0.00	0.00	0.00
11,500.00	90.00	178.47	5,442.00	-6,504.99	-289.35	6,511.05	0.00	0.00	0.00	0.00
11,600.00	90.00	178.47	5,442.00	-6,604.96	-286.68	6,610.87	0.00	0.00	0.00	0.00
11,700.00	90.00	178.47	5,442.00	-6,704.92	-284.00	6,710.68	0.00	0.00	0.00	0.00
11,800.00	90.00	178.47	5,442.00	-6,804.88	-281.32	6,810.50	0.00	0.00	0.00	0.00
11,900.00	90.00	178.47	5,442.00	-6,904.85	-278.65	6,910.32	0.00	0.00	0.00	0.00
12,000.00	90.00	178.47	5,442.00	-7,004.81	-275.97	7,010.13	0.00	0.00	0.00	0.00
12,100.00	90.00	178.47	5,442.00	-7,104.78	-273.29	7,109.95	0.00	0.00	0.00	0.00
12,200.00	90.00	178.47	5,442.00	-7,204.74	-270.61	7,209.77	0.00	0.00	0.00	0.00
12,300.00	90.00	178.47	5,442.00	-7,304.70	-267.94	7,309.59	0.00	0.00	0.00	0.00
12,400.00	90.00	178.47	5,442.00	-7,404.67	-265.26	7,409.40	0.00	0.00	0.00	0.00
12,500.00	90.00	178.47	5,442.00	-7,504.63	-262.58	7,509.22	0.00	0.00	0.00	0.00
12,600.00	90.00	178.47	5,442.00	-7,604.60	-259.90	7,609.04	0.00	0.00	0.00	0.00
12,654.40	90.00	178.47	5,442.00	-7,658.97	-258.45	7,663.33	0.00	0.00	0.00	0.00
<b>Total Depth 12654.40 ft</b>										

**Plan Annotations**

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
500.00	500.00	0.00	0.00	Begin Nudge @ 500.00 ft
700.00	699.84	-6.56	-2.39	End Nudge @ 700.00 ft
4,968.02	4,957.46	-286.32	-104.21	Kick Off Point @ 4968.02 ft
5,400.00	5,328.86	-470.02	-171.07	Build Rate 11.00 °/100 ft
5,749.84	5,442.00	-774.59	-281.93	End Build @ 5749.84 ft
5,824.84	5,442.00	-845.07	-307.58	Begin Turn @ 5824.84 ft
6,200.00	5,442.00	-1,207.90	-400.55	Turn Rate 3.00 °/100 ft
6,561.90	5,442.00	-1,568.66	-421.56	End Turn @ 6561.90 ft
10,000.00	5,442.00	-5,005.53	-329.51	Hold Inc 90.00°, Azi 178.47°
12,654.40	5,442.00	-7,658.97	-258.45	Total Depth 12654.40 ft

**Vertical Section Information**

Angle Type	Target	Azimuth (°)	Origin Type	Origin		Start TVD (usft)
				+N/_S (usft)	+E/-W (usft)	
Target	Horsetail #29F-3205A_Rev A0_BHL Tgt	181.93	Slot	0.00	0.00	0.00

**Survey tool program**

From (usft)	To (usft)	Survey/Plan	Survey Tool
0.00	1,600.00	Rev A0	MWD+IFR1+MS+sag

**Plan Report for Horsetail #29F-3205A - Rev A0****Survey tool program**

From (usft)	To (usft)	Survey/Plan	Survey Tool
1,600.00	5,749.84	Rev A0	MWD+IFR1+MS+sag
5,749.84	12,654.40	Rev A0	MWD+IFR1+MS+sag

**Casing Details**

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
1,600.00	1,597.65	9 5/8" Casing Pt.	9-5/8	13-1/2
5,749.84	5,442.00	7" Casing Pt.	7	8-3/4

**Formation Details**

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
5,539.24	5,400.00	Niobrara Top			
5,749.84	5,442.00	Niobrara "A"			

**Targets associated with this wellbore**

Target Name	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Shape
Horsetail #29 section 32	-9.90	-13.09	-1,254.84	Polygon
Horsetail #29 section 29	-9.90	-13.10	-1,254.84	Polygon
Horsetail #29 section 29 setback	-9.90	-13.10	-1,254.84	Polygon
Horsetail #29 section 32 setback	-9.90	-13.09	-1,254.84	Polygon
Horsetail #29F-3205A_Rev A0_BHL Tgt	5,442.00	-7,658.97	-258.45	Point

**Directional Difficulty Index**

Average Dogleg over Survey:	0.88 °/100usft	Maximum Dogleg over Survey:	11.00 °/100usft at 5,749.84 usft
Net Tortousity applicable to Plans:	0.88 °/100usft	Directional Difficulty Index:	6.387

**Audit Info**

# North Reference Sheet for Sec. 29-T10N-R57W - Horsetail #29F-3205A - Plan A

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

Vertical Depths are relative to RKB = 22' @ 4722.30usft (Frontier 26). Northing and Easting are relative to Horsetail #29F-3205A

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: 1.00000453

Grid Coordinates of Well: 1,542,760.38 usft N, 3,476,854.12 usft E

Geographical Coordinates of Well: 40° 48' 37.96" N, 103° 46' 38.28" W

Grid Convergence at Surface is: 1.11°

Based upon Minimum Curvature type calculations, at a Measured Depth of 12,654.40usft

the Bottom Hole Displacement is 7,663.33usft in the Direction of 181.93° ( True).

Magnetic Convergence at surface is: -6.95° (14 October 2013, , BGGM2013)

