

Conoco Phillips Company

Arapahoe County, Colorado

Sec. 2-T5S-R65W

State Massive-1H (Re-Stake)

Plan A (Lateral)

Plan: Rev A0

Sperry Drilling Services

Proposal Report

07 July, 2014

Well Coordinates: 1,662,532.18 N, 3,246,700.19 E (39° 38' 57.05" N, 104° 37' 25.96" W)

Ground Level: 5,854.00 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 State Massive-1H (Re-Stake)

KB 24 ft @ 5878.00usft (H&P 280)

N

True

API - US Survey Feet - Custom

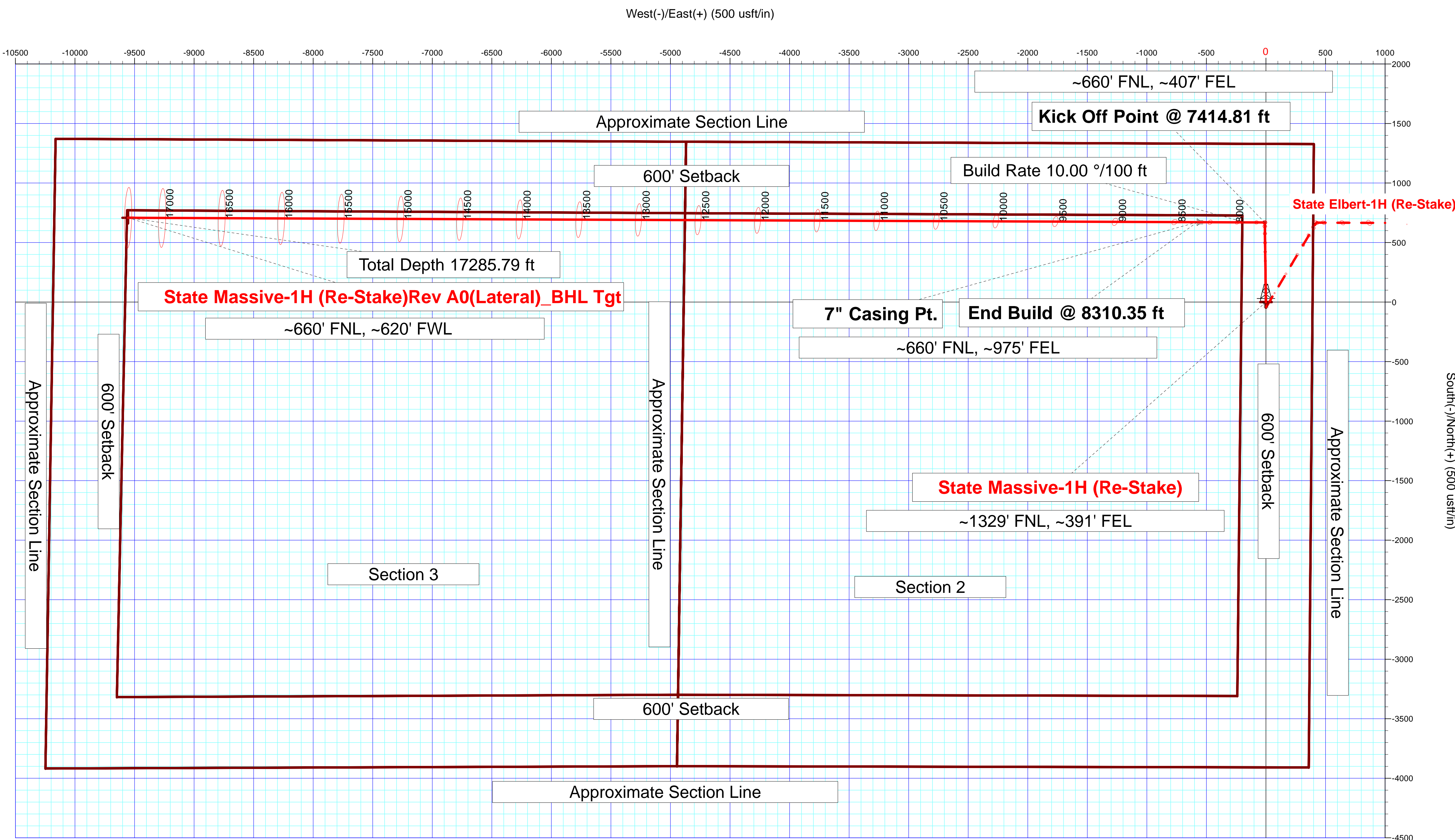
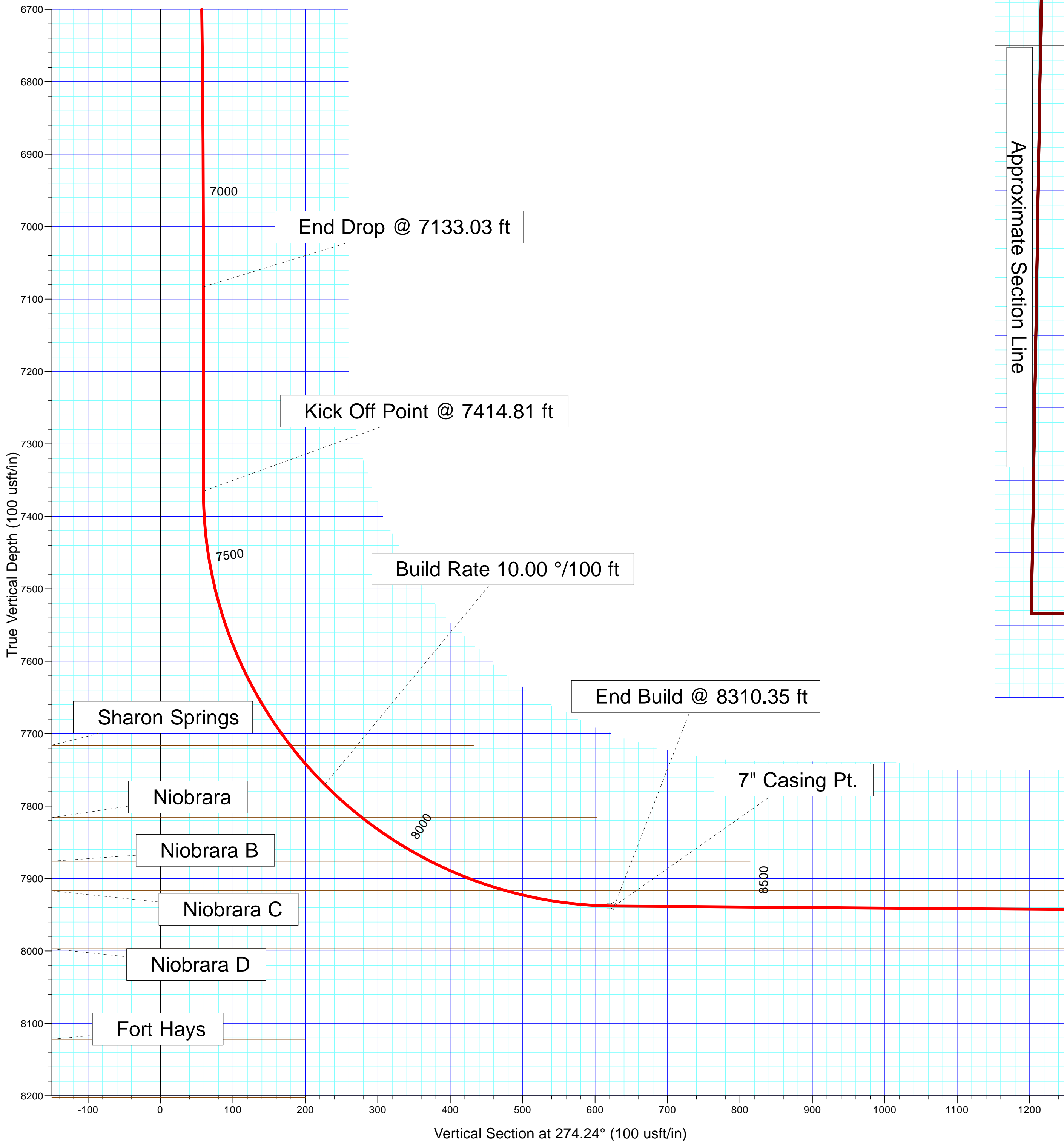
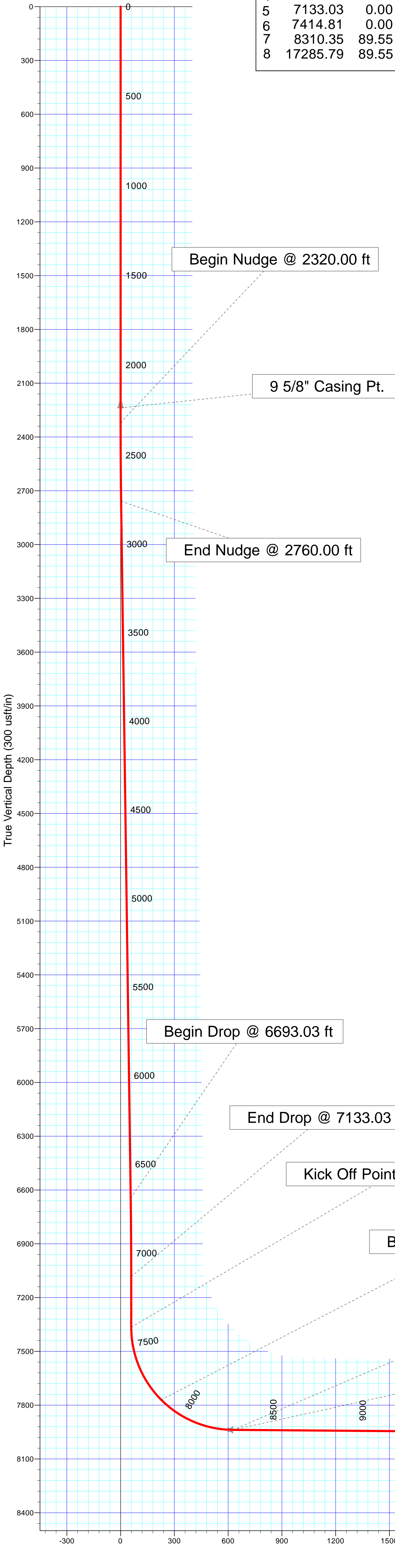
HALLIBURTON

Project: Arapahoe County, Colorado
Site: Sec. 2-T5S-R65W
Well: State Massive-1H (Re-Stake)
Wellbore: Plan A (Lateral)
Plan: Rev A0

Conoco Phillips Company



SECTION DETAILS										
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	2320.00	0.00	0.00	2320.00	0.00	0.00	0.00	0.00	0.00	
3	2760.00	8.80	359.15	2758.27	33.72	-0.50	2.00	359.15	2.99	
4	6693.03	8.80	359.15	6645.00	635.35	-9.43	0.00	0.00	56.36	
5	7133.03	0.00	0.00	7083.27	669.07	-9.93	2.00	180.00	59.35	
6	7414.81	0.00	0.00	7365.06	669.07	-9.93	0.00	0.00	59.35	
7	8310.35	89.55	270.23	7938.00	671.39	-578.41	10.00	270.23	626.45	
8	17285.79	89.55	270.23	8008.00	708.06	-9553.51	0.00	0.00	9579.71	State Massive-1H (Re-Stake)Rev A0(Lateral)_BHL Tgt



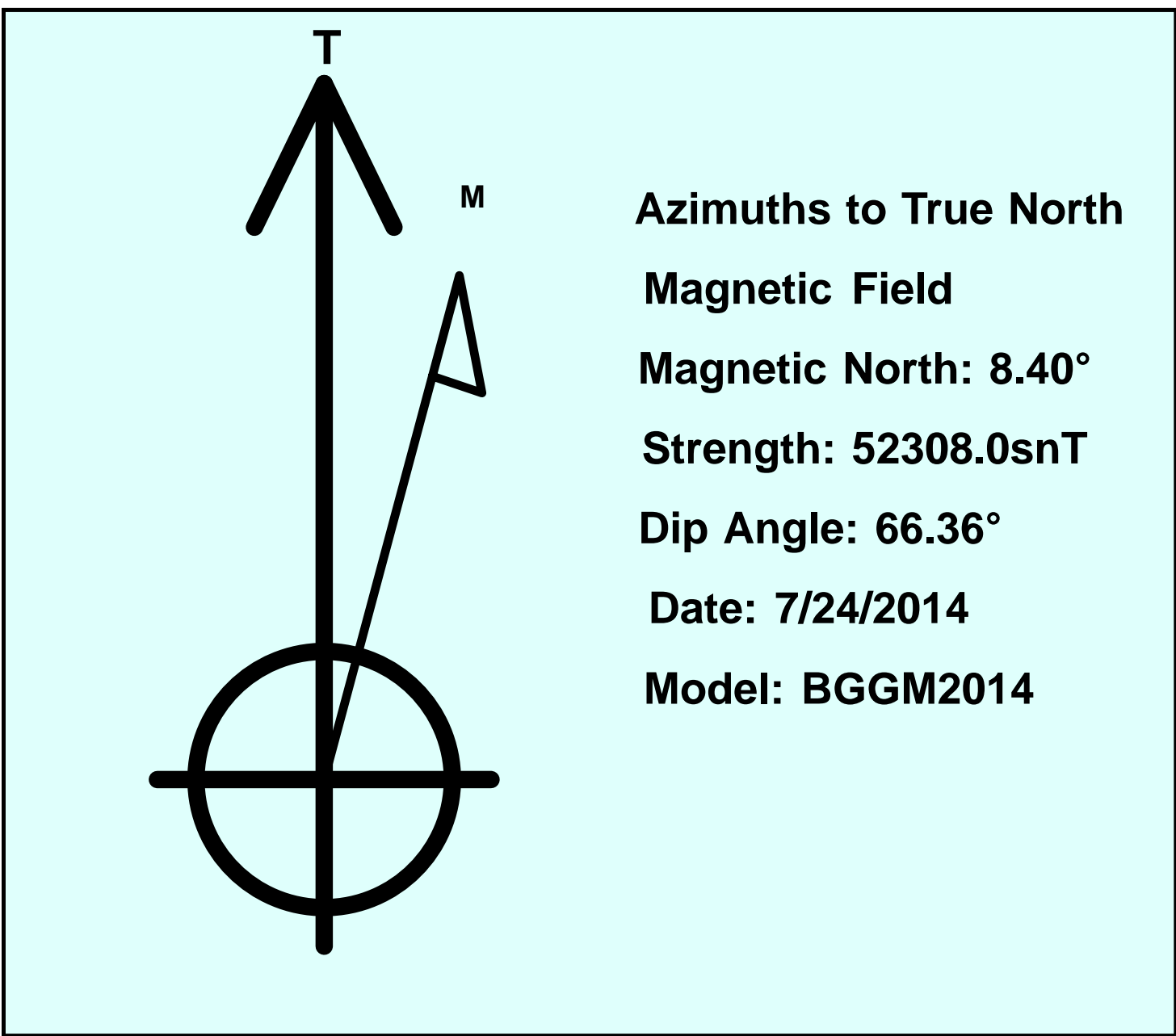
Plan: Rev A0 (State Massive-1H (Re-Stake)/Plan A (Lateral))

Created By: Kansa B. Becker Date: 15:18, July 07 2014

Checked: _____ Date: _____

Reviewed: _____ Date: _____

Approved: _____ Date: _____



Plan Report for State Massive-1H (Re-Stake) - 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
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
1,888.00	0.00	0.00	1,888.00	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
2,038.00	0.00	0.00	2,038.00	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
2,238.00	0.00	0.00	2,238.00	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
2,320.00	0.00	0.00	2,320.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Begin Nudge @ 2320.00 ft										
2,400.00	1.60	359.15	2,399.99	1.12	-0.02	0.10	2.00	2.00	0.00	359.15
2,500.00	3.60	359.15	2,499.88	5.65	-0.08	0.50	2.00	2.00	0.00	0.00
2,600.00	5.60	359.15	2,599.55	13.67	-0.20	1.21	2.00	2.00	0.00	0.00
2,700.00	7.60	359.15	2,698.89	25.16	-0.37	2.23	2.00	2.00	0.00	0.00
2,760.00	8.80	359.15	2,758.27	33.72	-0.50	2.99	2.00	2.00	0.00	0.00
End Nudge @ 2760.00 ft										
2,800.00	8.80	359.15	2,797.80	39.84	-0.59	3.53	0.00	0.00	0.00	0.00
2,900.00	8.80	359.15	2,896.62	55.14	-0.82	4.89	0.00	0.00	0.00	0.00
3,000.00	8.80	359.15	2,995.45	70.43	-1.04	6.25	0.00	0.00	0.00	0.00
3,100.00	8.80	359.15	3,094.27	85.73	-1.27	7.60	0.00	0.00	0.00	0.00
3,200.00	8.80	359.15	3,193.09	101.03	-1.50	8.96	0.00	0.00	0.00	0.00
3,300.00	8.80	359.15	3,291.92	116.32	-1.73	10.32	0.00	0.00	0.00	0.00
3,400.00	8.80	359.15	3,390.74	131.62	-1.95	11.68	0.00	0.00	0.00	0.00
3,500.00	8.80	359.15	3,489.56	146.92	-2.18	13.03	0.00	0.00	0.00	0.00
3,600.00	8.80	359.15	3,588.38	162.21	-2.41	14.39	0.00	0.00	0.00	0.00
3,700.00	8.80	359.15	3,687.21	177.51	-2.63	15.75	0.00	0.00	0.00	0.00
3,800.00	8.80	359.15	3,786.03	192.81	-2.86	17.10	0.00	0.00	0.00	0.00
3,900.00	8.80	359.15	3,884.85	208.10	-3.09	18.46	0.00	0.00	0.00	0.00
4,000.00	8.80	359.15	3,983.68	223.40	-3.31	19.82	0.00	0.00	0.00	0.00
4,100.00	8.80	359.15	4,082.50	238.70	-3.54	21.17	0.00	0.00	0.00	0.00
4,200.00	8.80	359.15	4,181.32	253.99	-3.77	22.53	0.00	0.00	0.00	0.00
4,300.00	8.80	359.15	4,280.14	269.29	-4.00	23.89	0.00	0.00	0.00	0.00
4,400.00	8.80	359.15	4,378.97	284.59	-4.22	25.25	0.00	0.00	0.00	0.00
4,500.00	8.80	359.15	4,477.79	299.89	-4.45	26.60	0.00	0.00	0.00	0.00
4,600.00	8.80	359.15	4,576.61	315.18	-4.68	27.96	0.00	0.00	0.00	0.00
4,700.00	8.80	359.15	4,675.44	330.48	-4.90	29.32	0.00	0.00	0.00	0.00

Plan Report for State Massive-1H (Re-Stake) - 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 (°)
4,800.00	8.80	359.15	4,774.26	345.78	-5.13	30.67	0.00	0.00	0.00	0.00
4,900.00	8.80	359.15	4,873.08	361.07	-5.36	32.03	0.00	0.00	0.00	0.00
5,000.00	8.80	359.15	4,971.90	376.37	-5.58	33.39	0.00	0.00	0.00	0.00
5,100.00	8.80	359.15	5,070.73	391.67	-5.81	34.74	0.00	0.00	0.00	0.00
5,200.00	8.80	359.15	5,169.55	406.96	-6.04	36.10	0.00	0.00	0.00	0.00
5,300.00	8.80	359.15	5,268.37	422.26	-6.26	37.46	0.00	0.00	0.00	0.00
5,400.00	8.80	359.15	5,367.20	437.56	-6.49	38.81	0.00	0.00	0.00	0.00
5,500.00	8.80	359.15	5,466.02	452.85	-6.72	40.17	0.00	0.00	0.00	0.00
5,600.00	8.80	359.15	5,564.84	468.15	-6.95	41.53	0.00	0.00	0.00	0.00
5,700.00	8.80	359.15	5,663.66	483.45	-7.17	42.89	0.00	0.00	0.00	0.00
5,800.00	8.80	359.15	5,762.49	498.75	-7.40	44.24	0.00	0.00	0.00	0.00
5,900.00	8.80	359.15	5,861.31	514.04	-7.63	45.60	0.00	0.00	0.00	0.00
6,000.00	8.80	359.15	5,960.13	529.34	-7.85	46.96	0.00	0.00	0.00	0.00
6,100.00	8.80	359.15	6,058.95	544.64	-8.08	48.31	0.00	0.00	0.00	0.00
6,200.00	8.80	359.15	6,157.78	559.93	-8.31	49.67	0.00	0.00	0.00	0.00
6,300.00	8.80	359.15	6,256.60	575.23	-8.53	51.03	0.00	0.00	0.00	0.00
6,400.00	8.80	359.15	6,355.42	590.53	-8.76	52.38	0.00	0.00	0.00	0.00
6,500.00	8.80	359.15	6,454.25	605.82	-8.99	53.74	0.00	0.00	0.00	0.00
6,600.00	8.80	359.15	6,553.07	621.12	-9.22	55.10	0.00	0.00	0.00	0.00
6,693.03	8.80	359.15	6,645.00	635.35	-9.43	56.36	0.00	0.00	0.00	0.00
Begin Drop @ 6693.03 ft										
6,700.00	8.66	359.15	6,651.89	636.41	-9.44	56.45	2.00	-2.00	0.00	180.00
6,800.00	6.66	359.15	6,751.00	649.74	-9.64	57.64	2.00	-2.00	0.00	180.00
6,900.00	4.66	359.15	6,850.50	659.60	-9.79	58.51	2.00	-2.00	0.00	180.00
7,000.00	2.66	359.15	6,950.29	665.98	-9.88	59.08	2.00	-2.00	0.00	180.00
7,100.00	0.66	359.15	7,050.25	668.88	-9.92	59.34	2.00	-2.00	0.00	180.00
7,133.03	0.00	0.00	7,083.27	669.07	-9.93	59.35	2.00	-2.00	2.57	180.00
End Drop @ 7133.03 ft										
7,200.00	0.00	0.00	7,150.25	669.07	-9.93	59.35	0.00	0.00	0.00	0.00
7,300.00	0.00	0.00	7,250.25	669.07	-9.93	59.35	0.00	0.00	0.00	0.00
7,400.00	0.00	0.00	7,350.25	669.07	-9.93	59.35	0.00	0.00	0.00	0.00
7,414.81	0.00	0.00	7,365.06	669.07	-9.93	59.35	0.00	0.00	0.00	0.00
Kick Off Point @ 7414.81 ft										
7,500.00	8.52	270.23	7,449.93	669.10	-16.25	65.66	10.00	10.00	-105.38	-89.77
7,600.00	18.52	270.23	7,547.04	669.19	-39.59	88.95	10.00	10.00	0.00	0.00
7,700.00	28.52	270.23	7,638.62	669.35	-79.45	128.70	10.00	10.00	0.00	0.00
7,792.52	37.77	270.23	7,716.00	669.56	-129.98	179.11	10.00	10.00	0.00	0.00
Sharon Springs										
7,800.00	38.52	270.23	7,721.88	669.58	-134.60	183.72	10.00	10.00	0.00	0.00
7,865.00	45.02	270.23	7,770.33	669.76	-177.87	226.89	10.00	10.00	0.00	0.00
Build Rate 10.00 °/100 ft										
7,900.00	48.52	270.23	7,794.30	669.86	-203.37	252.32	10.00	10.00	0.00	0.00
7,933.91	51.91	270.23	7,816.00	669.97	-229.42	278.31	10.00	10.00	0.00	0.00
Niobrara										
8,000.00	58.52	270.23	7,853.68	670.19	-283.67	332.43	10.00	10.00	0.00	0.00
8,045.76	63.10	270.23	7,876.00	670.35	-323.61	372.27	10.00	10.00	0.00	0.00
Niobrara B										
8,100.00	68.52	270.23	7,898.22	670.55	-373.06	421.61	10.00	10.00	0.00	0.00
8,159.14	74.43	270.23	7,917.00	670.78	-429.12	477.52	10.00	10.00	0.00	0.00
Niobrara C										
8,200.00	78.52	270.23	7,926.55	670.94	-468.83	517.14	10.00	10.00	0.00	0.00
8,300.00	88.52	270.23	7,937.83	671.35	-568.07	616.13	10.00	10.00	0.00	0.00
8,310.35	89.55	270.23	7,938.00	671.39	-578.42	626.46	10.00	10.00	0.00	0.00
End Build @ 8310.35 ft - 7" Casing Pt.										
8,400.00	89.55	270.23	7,938.70	671.76	-668.06	715.89	0.00	0.00	0.00	0.00
8,500.00	89.55	270.23	7,939.48	672.17	-768.06	815.64	0.00	0.00	0.00	0.00
8,600.00	89.55	270.23	7,940.26	672.58	-868.05	915.39	0.00	0.00	0.00	0.00
8,700.00	89.55	270.23	7,941.04	672.98	-968.05	1,015.14	0.00	0.00	0.00	0.00

Plan Report for State Massive-1H (Re-Stake) - 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 (°)
8,800.00	89.55	270.23	7,941.82	673.39	-1,068.05	1,114.90	0.00	0.00	0.00	0.00
8,900.00	89.55	270.23	7,942.60	673.80	-1,168.04	1,214.65	0.00	0.00	0.00	0.00
9,000.00	89.55	270.23	7,943.38	674.21	-1,268.04	1,314.40	0.00	0.00	0.00	0.00
9,100.00	89.55	270.23	7,944.16	674.62	-1,368.04	1,414.16	0.00	0.00	0.00	0.00
9,200.00	89.55	270.23	7,944.94	675.03	-1,468.03	1,513.91	0.00	0.00	0.00	0.00
9,300.00	89.55	270.23	7,945.72	675.44	-1,568.03	1,613.66	0.00	0.00	0.00	0.00
9,400.00	89.55	270.23	7,946.50	675.84	-1,668.02	1,713.41	0.00	0.00	0.00	0.00
9,500.00	89.55	270.23	7,947.28	676.25	-1,768.02	1,813.17	0.00	0.00	0.00	0.00
9,600.00	89.55	270.23	7,948.06	676.66	-1,868.02	1,912.92	0.00	0.00	0.00	0.00
9,700.00	89.55	270.23	7,948.84	677.07	-1,968.01	2,012.67	0.00	0.00	0.00	0.00
9,800.00	89.55	270.23	7,949.62	677.48	-2,068.01	2,112.43	0.00	0.00	0.00	0.00
9,900.00	89.55	270.23	7,950.40	677.89	-2,168.00	2,212.18	0.00	0.00	0.00	0.00
10,000.00	89.55	270.23	7,951.18	678.30	-2,268.00	2,311.93	0.00	0.00	0.00	0.00
10,100.00	89.55	270.23	7,951.96	678.70	-2,368.00	2,411.68	0.00	0.00	0.00	0.00
10,200.00	89.55	270.23	7,952.74	679.11	-2,467.99	2,511.44	0.00	0.00	0.00	0.00
10,300.00	89.55	270.23	7,953.52	679.52	-2,567.99	2,611.19	0.00	0.00	0.00	0.00
10,400.00	89.55	270.23	7,954.30	679.93	-2,667.98	2,710.94	0.00	0.00	0.00	0.00
10,500.00	89.55	270.23	7,955.08	680.34	-2,767.98	2,810.70	0.00	0.00	0.00	0.00
10,600.00	89.55	270.23	7,955.86	680.75	-2,867.98	2,910.45	0.00	0.00	0.00	0.00
10,700.00	89.55	270.23	7,956.64	681.16	-2,967.97	3,010.20	0.00	0.00	0.00	0.00
10,800.00	89.55	270.23	7,957.42	681.56	-3,067.97	3,109.95	0.00	0.00	0.00	0.00
10,900.00	89.55	270.23	7,958.20	681.97	-3,167.97	3,209.71	0.00	0.00	0.00	0.00
11,000.00	89.55	270.23	7,958.98	682.38	-3,267.96	3,309.46	0.00	0.00	0.00	0.00
11,100.00	89.55	270.23	7,959.76	682.79	-3,367.96	3,409.21	0.00	0.00	0.00	0.00
11,200.00	89.55	270.23	7,960.54	683.20	-3,467.95	3,508.96	0.00	0.00	0.00	0.00
11,300.00	89.55	270.23	7,961.32	683.61	-3,567.95	3,608.72	0.00	0.00	0.00	0.00
11,400.00	89.55	270.23	7,962.10	684.01	-3,667.95	3,708.47	0.00	0.00	0.00	0.00
11,500.00	89.55	270.23	7,962.88	684.42	-3,767.94	3,808.22	0.00	0.00	0.00	0.00
11,600.00	89.55	270.23	7,963.66	684.83	-3,867.94	3,907.98	0.00	0.00	0.00	0.00
11,700.00	89.55	270.23	7,964.44	685.24	-3,967.93	4,007.73	0.00	0.00	0.00	0.00
11,800.00	89.55	270.23	7,965.22	685.65	-4,067.93	4,107.48	0.00	0.00	0.00	0.00
11,900.00	89.55	270.23	7,966.00	686.06	-4,167.93	4,207.23	0.00	0.00	0.00	0.00
12,000.00	89.55	270.23	7,966.78	686.47	-4,267.92	4,306.99	0.00	0.00	0.00	0.00
12,100.00	89.55	270.23	7,967.56	686.87	-4,367.92	4,406.74	0.00	0.00	0.00	0.00
12,200.00	89.55	270.23	7,968.34	687.28	-4,467.92	4,506.49	0.00	0.00	0.00	0.00
12,300.00	89.55	270.23	7,969.12	687.69	-4,567.91	4,606.25	0.00	0.00	0.00	0.00
12,400.00	89.55	270.23	7,969.90	688.10	-4,667.91	4,706.00	0.00	0.00	0.00	0.00
12,500.00	89.55	270.23	7,970.68	688.51	-4,767.90	4,805.75	0.00	0.00	0.00	0.00
12,600.00	89.55	270.23	7,971.46	688.92	-4,867.90	4,905.50	0.00	0.00	0.00	0.00
12,700.00	89.55	270.23	7,972.24	689.33	-4,967.90	5,005.26	0.00	0.00	0.00	0.00
12,800.00	89.55	270.23	7,973.02	689.73	-5,067.89	5,105.01	0.00	0.00	0.00	0.00
12,900.00	89.55	270.23	7,973.80	690.14	-5,167.89	5,204.76	0.00	0.00	0.00	0.00
13,000.00	89.55	270.23	7,974.58	690.55	-5,267.88	5,304.52	0.00	0.00	0.00	0.00
13,100.00	89.55	270.23	7,975.35	690.96	-5,367.88	5,404.27	0.00	0.00	0.00	0.00
13,200.00	89.55	270.23	7,976.13	691.37	-5,467.88	5,504.02	0.00	0.00	0.00	0.00
13,300.00	89.55	270.23	7,976.91	691.78	-5,567.87	5,603.77	0.00	0.00	0.00	0.00
13,400.00	89.55	270.23	7,977.69	692.19	-5,667.87	5,703.53	0.00	0.00	0.00	0.00
13,500.00	89.55	270.23	7,978.47	692.59	-5,767.86	5,803.28	0.00	0.00	0.00	0.00
13,600.00	89.55	270.23	7,979.25	693.00	-5,867.86	5,903.03	0.00	0.00	0.00	0.00
13,700.00	89.55	270.23	7,980.03	693.41	-5,967.86	6,002.79	0.00	0.00	0.00	0.00
13,800.00	89.55	270.23	7,980.81	693.82	-6,067.85	6,102.54	0.00	0.00	0.00	0.00
13,900.00	89.55	270.23	7,981.59	694.23	-6,167.85	6,202.29	0.00	0.00	0.00	0.00
14,000.00	89.55	270.23	7,982.37	694.64	-6,267.85	6,302.04	0.00	0.00	0.00	0.00
14,100.00	89.55	270.23	7,983.15	695.05	-6,367.84	6,401.80	0.00	0.00	0.00	0.00
14,200.00	89.55	270.23	7,983.93	695.45	-6,467.84	6,501.55	0.00	0.00	0.00	0.00
14,300.00	89.55	270.23	7,984.71	695.86	-6,567.83	6,601.30	0.00	0.00	0.00	0.00
14,400.00	89.55	270.23	7,985.49	696.27	-6,667.83	6,701.05	0.00	0.00	0.00	0.00
14,500.00	89.55	270.23	7,986.27	696.68	-6,767.83	6,800.81	0.00	0.00	0.00	0.00
14,600.00	89.55	270.23	7,987.05	697.09	-6,867.82	6,900.56	0.00	0.00	0.00	0.00
14,700.00	89.55	270.23	7,987.83	697.50	-6,967.82	7,000.31	0.00	0.00	0.00	0.00

Plan Report for State Massive-1H (Re-Stake) - 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 (°)
14,800.00	89.55	270.23	7,988.61	697.91	-7,067.81	7,100.07	0.00	0.00	0.00	0.00
14,900.00	89.55	270.23	7,989.39	698.31	-7,167.81	7,199.82	0.00	0.00	0.00	0.00
15,000.00	89.55	270.23	7,990.17	698.72	-7,267.81	7,299.57	0.00	0.00	0.00	0.00
15,100.00	89.55	270.23	7,990.95	699.13	-7,367.80	7,399.32	0.00	0.00	0.00	0.00
15,200.00	89.55	270.23	7,991.73	699.54	-7,467.80	7,499.08	0.00	0.00	0.00	0.00
15,300.00	89.55	270.23	7,992.51	699.95	-7,567.79	7,598.83	0.00	0.00	0.00	0.00
15,400.00	89.55	270.23	7,993.29	700.36	-7,667.79	7,698.58	0.00	0.00	0.00	0.00
15,500.00	89.55	270.23	7,994.07	700.76	-7,767.79	7,798.34	0.00	0.00	0.00	0.00
15,600.00	89.55	270.23	7,994.85	701.17	-7,867.78	7,898.09	0.00	0.00	0.00	0.00
15,700.00	89.55	270.23	7,995.63	701.58	-7,967.78	7,997.84	0.00	0.00	0.00	0.00
15,800.00	89.55	270.23	7,996.41	701.99	-8,067.78	8,097.59	0.00	0.00	0.00	0.00
15,875.36	89.55	270.23	7,997.00	702.30	-8,143.13	8,172.76	0.00	0.00	0.00	0.00
Niobrara D										
15,900.00	89.55	270.23	7,997.19	702.40	-8,167.77	8,197.35	0.00	0.00	0.00	0.00
16,000.00	89.55	270.23	7,997.97	702.81	-8,267.77	8,297.10	0.00	0.00	0.00	0.00
16,100.00	89.55	270.23	7,998.75	703.22	-8,367.76	8,396.85	0.00	0.00	0.00	0.00
16,200.00	89.55	270.23	7,999.53	703.62	-8,467.76	8,496.61	0.00	0.00	0.00	0.00
16,300.00	89.55	270.23	8,000.31	704.03	-8,567.76	8,596.36	0.00	0.00	0.00	0.00
16,400.00	89.55	270.23	8,001.09	704.44	-8,667.75	8,696.11	0.00	0.00	0.00	0.00
16,500.00	89.55	270.23	8,001.87	704.85	-8,767.75	8,795.86	0.00	0.00	0.00	0.00
16,600.00	89.55	270.23	8,002.65	705.26	-8,867.74	8,895.62	0.00	0.00	0.00	0.00
16,700.00	89.55	270.23	8,003.43	705.67	-8,967.74	8,995.37	0.00	0.00	0.00	0.00
16,800.00	89.55	270.23	8,004.21	706.08	-9,067.74	9,095.12	0.00	0.00	0.00	0.00
16,900.00	89.55	270.23	8,004.99	706.48	-9,167.73	9,194.87	0.00	0.00	0.00	0.00
17,000.00	89.55	270.23	8,005.77	706.89	-9,267.73	9,294.63	0.00	0.00	0.00	0.00
17,100.00	89.55	270.23	8,006.55	707.30	-9,367.73	9,394.38	0.00	0.00	0.00	0.00
17,200.00	89.55	270.23	8,007.33	707.71	-9,467.72	9,494.13	0.00	0.00	0.00	0.00
17,285.79	89.55	270.23	8,008.00	708.06	-9,553.51	9,579.71	0.00	0.00	0.00	0.00
Total Depth 17285.79 ft										

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
2,320.00	2,320.00	0.00	0.00	Begin Nudge @ 2320.00 ft
2,760.00	2,758.27	33.72	-0.50	End Nudge @ 2760.00 ft
6,693.03	6,645.00	635.35	-9.43	Begin Drop @ 6693.03 ft
7,133.03	7,083.27	669.07	-9.93	End Drop @ 7133.03 ft
7,414.81	7,365.06	669.07	-9.93	Kick Off Point @ 7414.81 ft
7,865.00	7,770.33	669.76	-177.87	Build Rate 10.00 °/100 ft
8,310.35	7,938.00	671.39	-578.41	End Build @ 8310.35 ft
17,285.79	8,008.00	708.06	-9,553.51	Total Depth 17285.79 ft

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin		Start TVD (usft)
				+N/-S (usft)	+E/-W (usft)	
Target	State Massive-1H (Re-Stake)Rev A0(Lateral)_BHL Tgt	274.24	Slot	0.00	0.00	0.00

Survey tool program

From (usft)	To (usft)	Survey/Plan	Survey Tool
0.00	2,238.00	Rev A0	NS-GYRO-MS
2,238.00	8,310.35	Rev A0	MWD

Plan Report for State Massive-1H (Re-Stake) - Rev A0

Survey tool program

From (usft)	To (usft)	Survey/Plan	Survey Tool
8,310.35	17,285.79	Rev A0	MWD

Casing Details

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
2,238.00	2,238.00	9 5/8" Casing Pt.	9-5/8	13-1/2
8,310.35	7,938.00	7" Casing Pt.	7	8-3/4

Formation Details

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,888.00	1,888.00	Fox Hills			
2,038.00	2,038.00	Pierre Shale			
2,238.00	2,238.00	Surface Casing			
7,792.52	7,716.00	Sharon Springs			
7,933.91	7,816.00	Niobrara			
8,045.76	7,876.00	Niobrara B			
8,159.14	7,917.00	Niobrara C			
15,875.36	7,997.00	Niobrara D			

Targets associated with this wellbore

Target Name	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Shape
State Massive-1H (Re-Stake)_SL	0.00	0.00	0.00	Polygon
State Massive-1H (Re-Stake)_SB	0.00	0.00	0.00	Polygon
State Massive-1H (Re-Stake)Rev A0(Lateral)_E	8,008.00	708.06	-9,553.51	Point

Directional Difficulty Index

Average Dogleg over Survey:	0.62 °/100usft	Maximum Dogleg over Survey:	10.00 °/100usft at 8,310.35 usft
Net Tortousity applicable to Plans:	0.62 °/100usft	Directional Difficulty Index:	6.610

Audit Info

North Reference Sheet for Sec. 2-T5S-R65W - State Massive-1H (Re-Stake) - 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 @ 5878.00usft (H&P 280). Northing and Easting are relative to State Massive-1H (Re-Stake)
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: 0.99998161

Grid Coordinates of Well: 1,662,532.18 usft N, 3,246,700.19 usft E
Geographical Coordinates of Well: 39° 38' 57.05" N, 104° 37' 25.96" W
Grid Convergence at Surface is: 0.55°

Based upon Minimum Curvature type calculations, at a Measured Depth of 17,285.79usft
the Bottom Hole Displacement is 9,579.71usft in the Direction of 274.24° (True).
Magnetic Convergence at surface is: -7.85° (24 July 2014, , BGGM2014)

