



ConocoPhillips

Arapahoe County, Colorado

State Massive 5-65 2-3 2CH

Design A

Ground Level: 5823.90
Surface Location Latitude: 39° 38' 51.060 N
Surface Location Longitude: 104° 37' 25.820 W
North Reference: True
25' RKB @ 5848.90ft (25' RKB)

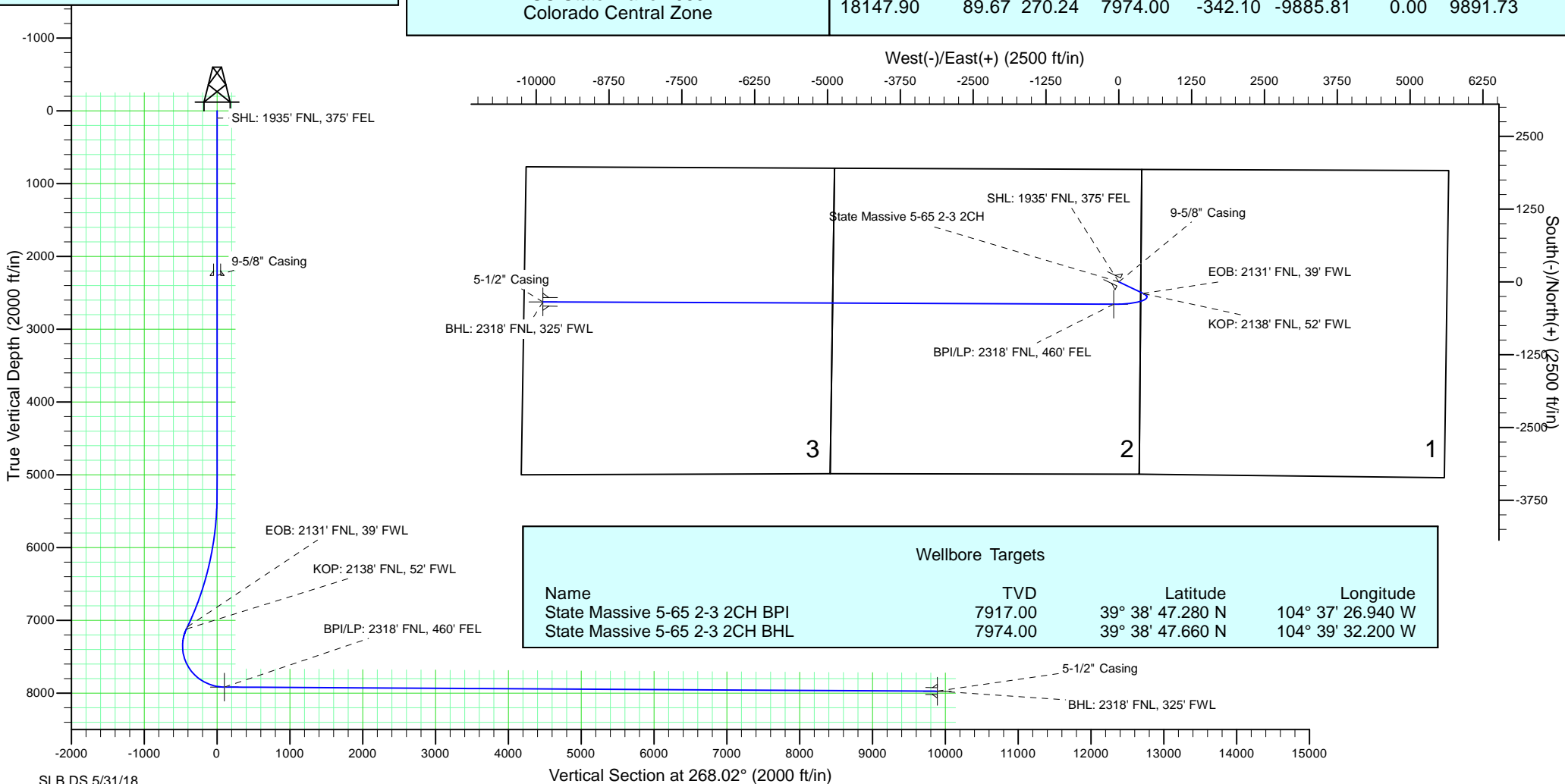
North American Datum 1983
GRS 1980
US State Plane 1983
Colorado Central Zone

Well Profile Data

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	Vsect
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5277.10	0.00	0.00	5277.10	0.00	0.00	0.00	0.00
7166.80	28.35	115.38	7090.66	-196.31	413.78	1.50	-406.74
7198.15	28.35	115.38	7118.25	-202.69	427.22	0.00	-419.96
8349.45	89.67	270.24	7917.00	-382.46	-87.61	10.00	100.78
18147.90	89.67	270.24	7974.00	-342.10	-9885.81	0.00	9891.73

Casing Depths

TVD	MD	Name	Size
2263.00	2263.00	9-5/8" Casing	9-5/8
7974.00	18147.90	5-1/2" Casing	5-1/2



ConocoPhillips RBU Gold Data

Niobrara Central Zone

State Massive

State Massive 5-65 2-3 2CH

State Massive 5-65 2-3 2CH

Plan: Design A

Standard Planning Report

31 May, 2018



ConocoPhillips

Arapahoe County, Colorado

State Massive 5-65 2-3 2CH

Design A

Ground Level: 5823.90
Surface Location Latitude: 39° 38' 51.060 N
Surface Location Longitude: 104° 37' 25.820 W
North Reference: True
25' RKB @ 5848.90ft (25' RKB)

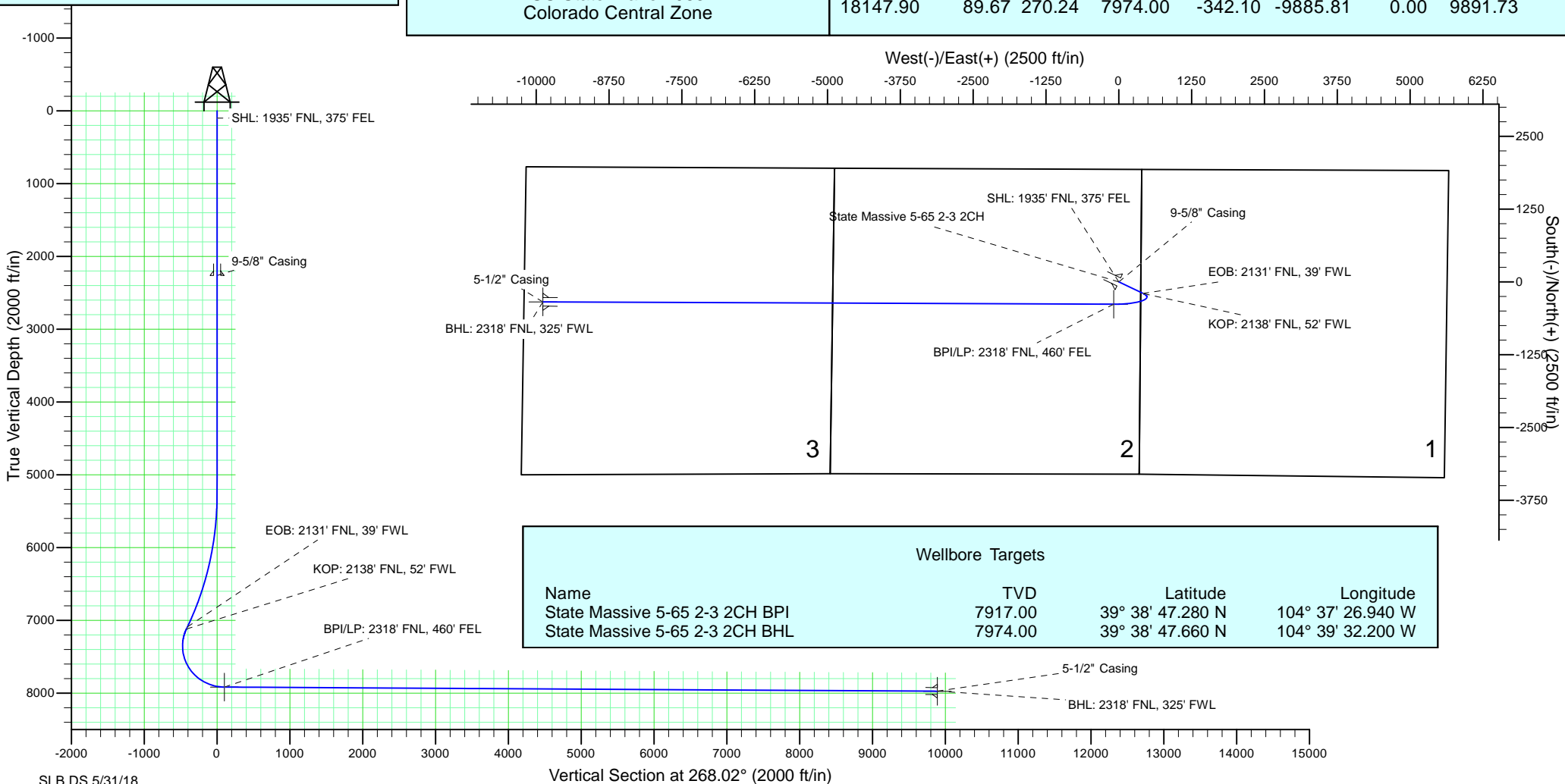
North American Datum 1983
GRS 1980
US State Plane 1983
Colorado Central Zone

Well Profile Data

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	Vsect
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5277.10	0.00	0.00	5277.10	0.00	0.00	0.00	0.00
7166.80	28.35	115.38	7090.66	-196.31	413.78	1.50	-406.74
7198.15	28.35	115.38	7118.25	-202.69	427.22	0.00	-419.96
8349.45	89.67	270.24	7917.00	-382.46	-87.61	10.00	100.78
18147.90	89.67	270.24	7974.00	-342.10	-9885.81	0.00	9891.73

Casing Depths

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2263.00	2263.00	9-5/8" Casing	9-5/8
7974.00	18147.90	5-1/2" Casing	5-1/2



ConocoPhillips

Planning Report

Database:	EDT 14 Central Planning	Local Co-ordinate Reference:	Well State Massive 5-65 2-3 2CH
Company:	ConocoPhillips RBU Gold Data	TVD Reference:	25' RKB @ 5848.90ft (25' RKB)
Project:	Niobrara Central Zone	MD Reference:	25' RKB @ 5848.90ft (25' RKB)
Site:	State Massive	North Reference:	True
Well:	State Massive 5-65 2-3 2CH	Survey Calculation Method:	Minimum Curvature
Wellbore:	State Massive 5-65 2-3 2CH		
Design:	Design A		

Project	Niobrara Central Zone, Colorado Central Zone, FIPS Zone: 0502		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Central Zone		Using geodetic scale factor

Site	State Massive, T5S-R65W Sec 2		
Site Position:		Northing:	1,663,805.184 usft
From:	Lat/Long	Easting:	3,236,525.188 usft
Position Uncertainty:	0.00 ft	Slot Radius:	13-3/16 "
		Latitude:	39° 39' 10.580 N
		Longitude:	104° 39' 35.888 W
		Grid Convergence:	0.53 °

Well	State Massive 5-65 2-3 2CH		
Well Position	+N-S	-1,973.15 ft	Northing: 1,661,926.228 usft
	+E-W	10,174.19 ft	Easting: 3,246,716.982 usft
Position Uncertainty		2.00 ft	Wellhead Elevation: 5,823.90 ft
			Ground Level: 5,823.90 ft

Wellbore	State Massive 5-65 2-3 2CH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2017	12/1/2018	8.13	66.27	51,828.88027698

Design	Design A			
Audit Notes:				
Version:	0	Phase:	PLAN	Tie On Depth: 0.00
Vertical Section:	Depth From (TVD) (ft)	+N-S (ft)	+E-W (ft)	Direction (°)
	0.00	0.00	0.00	268.02

Plan Survey Tool Program	Date	5/31/2018		
Depth From (ft)	Depth To (ft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	2,263.00	Design A (State Massive 5-65 2-3 2CH)	Gyro-BM-MS Gyro - bat/mem drop m/s
2	2,263.00	5,277.10	Design A (State Massive 5-65 2-3 2CH)	MWD+IFR_No SAG MWD + IFR (No SAG) corre
3	5,277.10	7,166.82	Design A (State Massive 5-65 2-3 2CH)	MWD+IFR_No SAG MWD + IFR (No SAG) corre
4	7,166.82	7,198.15	Design A (State Massive 5-65 2-3 2CH)	MWD+IFR_No SAG MWD + IFR (No SAG) corre
5	7,198.15	8,349.45	Design A (State Massive 5-65 2-3 2CH)	MWD+IFR_No SAG MWD + IFR (No SAG) corre
6	8,349.45	18,147.90	Design A (State Massive 5-65 2-3 2CH)	MWD+IFR_No SAG MWD + IFR (No SAG) corre

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Planning Report

Database:	EDT 14 Central Planning	Local Co-ordinate Reference:	Well State Massive 5-65 2-3 2CH
Company:	ConocoPhillips RBU Gold Data	TVD Reference:	25' RKB @ 5848.90ft (25' RKB)
Project:	Niobrara Central Zone	MD Reference:	25' RKB @ 5848.90ft (25' RKB)
Site:	State Massive	North Reference:	True
Well:	State Massive 5-65 2-3 2CH	Survey Calculation Method:	Minimum Curvature
Wellbore:	State Massive 5-65 2-3 2CH		
Design:	Design A		

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
5,277.10	0.00	0.00	5,277.10	0.00	0.00	0.00	0.00	0.00	0.00	
7,166.80	28.35	115.38	7,090.66	-196.31	413.78	1.50	1.50	0.00	115.38	
7,198.15	28.35	115.38	7,118.25	-202.69	427.22	0.00	0.00	0.00	0.00	
8,349.45	89.67	270.24	7,917.00	-382.46	-87.61	10.00	5.33	13.45	152.01	State Massive 5-65
18,147.90	89.67	270.24	7,974.00	-342.10	-9,885.81	0.00	0.00	0.00	0.00	State Massive 5-65

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Planning Report

Database:	EDT 14 Central Planning	Local Co-ordinate Reference:	Well State Massive 5-65 2-3 2CH
Company:	ConocoPhillips RBU Gold Data	TVD Reference:	25' RKB @ 5848.90ft (25' RKB)
Project:	Niobrara Central Zone	MD Reference:	25' RKB @ 5848.90ft (25' RKB)
Site:	State Massive	North Reference:	True
Well:	State Massive 5-65 2-3 2CH	Survey Calculation Method:	Minimum Curvature
Wellbore:	State Massive 5-65 2-3 2CH		
Design:	Design A		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
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
SHL: 1935' FNL, 375' FEL									
200.00	0.00	0.00	200.00	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
400.00	0.00	0.00	400.00	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
600.00	0.00	0.00	600.00	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
800.00	0.00	0.00	800.00	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
1,000.00	0.00	0.00	1,000.00	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
1,200.00	0.00	0.00	1,200.00	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
1,400.00	0.00	0.00	1,400.00	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
1,600.00	0.00	0.00	1,600.00	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
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00
1,891.00	0.00	0.00	1,891.00	0.00	0.00	0.00	0.00	0.00	0.00
Fox Hills Top									
1,900.00	0.00	0.00	1,900.00	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
2,063.00	0.00	0.00	2,063.00	0.00	0.00	0.00	0.00	0.00	0.00
Pierre Top - Fox Hills Base									
2,100.00	0.00	0.00	2,100.00	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
2,263.00	0.00	0.00	2,263.00	0.00	0.00	0.00	0.00	0.00	0.00
Surface Casing - 9-5/8" Casing									
2,300.00	0.00	0.00	2,300.00	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
2,500.00	0.00	0.00	2,500.00	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
2,700.00	0.00	0.00	2,700.00	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
2,900.00	0.00	0.00	2,900.00	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
3,100.00	0.00	0.00	3,100.00	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
3,300.00	0.00	0.00	3,300.00	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
3,500.00	0.00	0.00	3,500.00	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
3,700.00	0.00	0.00	3,700.00	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
3,900.00	0.00	0.00	3,900.00	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
4,100.00	0.00	0.00	4,100.00	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
4,300.00	0.00	0.00	4,300.00	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
4,500.00	0.00	0.00	4,500.00	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

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Planning Report

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Company:	ConocoPhillips RBU Gold Data	TVD Reference:	25' RKB @ 5848.90ft (25' RKB)
Project:	Niobrara Central Zone	MD Reference:	25' RKB @ 5848.90ft (25' RKB)
Site:	State Massive	North Reference:	True
Well:	State Massive 5-65 2-3 2CH	Survey Calculation Method:	Minimum Curvature
Wellbore:	State Massive 5-65 2-3 2CH		
Design:	Design A		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
4,700.00	0.00	0.00	4,700.00	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
4,900.00	0.00	0.00	4,900.00	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
5,100.00	0.00	0.00	5,100.00	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
5,277.10	0.00	0.00	5,277.10	0.00	0.00	0.00	0.00	0.00	0.00
5,300.00	0.34	115.38	5,300.00	-0.03	0.06	-0.06	1.50	1.50	0.00
5,400.00	1.84	115.38	5,399.98	-0.85	1.79	-1.76	1.50	1.50	0.00
5,500.00	3.34	115.38	5,499.87	-2.79	5.87	-5.77	1.50	1.50	0.00
5,600.00	4.84	115.38	5,599.62	-5.85	12.32	-12.11	1.50	1.50	0.00
5,700.00	6.34	115.38	5,699.14	-10.02	21.13	-20.77	1.50	1.50	0.00
5,800.00	7.84	115.38	5,798.37	-15.32	32.29	-31.74	1.50	1.50	0.00
5,900.00	9.34	115.38	5,897.24	-21.72	45.79	-45.01	1.50	1.50	0.00
6,000.00	10.84	115.38	5,995.69	-29.23	61.62	-60.57	1.50	1.50	0.00
6,100.00	12.34	115.38	6,093.65	-37.85	79.78	-78.42	1.50	1.50	0.00
6,200.00	13.84	115.38	6,191.05	-47.56	100.24	-98.54	1.50	1.50	0.00
6,300.00	15.34	115.38	6,287.82	-58.36	123.01	-120.91	1.50	1.50	0.00
6,400.00	16.84	115.38	6,383.90	-70.24	148.05	-145.53	1.50	1.50	0.00
6,500.00	18.34	115.38	6,479.22	-83.20	175.36	-172.38	1.50	1.50	0.00
6,600.00	19.84	115.38	6,573.71	-97.22	204.91	-201.43	1.50	1.50	0.00
6,700.00	21.34	115.38	6,667.32	-112.29	236.69	-232.66	1.50	1.50	0.00
6,800.00	22.84	115.38	6,759.97	-128.41	270.67	-266.07	1.50	1.50	0.00
6,900.00	24.34	115.38	6,851.61	-145.57	306.83	-301.61	1.50	1.50	0.00
7,000.00	25.84	115.38	6,942.17	-163.75	345.14	-339.27	1.50	1.50	0.00
7,100.00	27.34	115.38	7,031.59	-182.94	385.59	-379.03	1.50	1.50	0.00
7,166.80	28.35	115.38	7,090.66	-196.31	413.78	-406.74	1.50	1.50	0.00
7,166.82	28.35	115.38	7,090.67	-196.31	413.78	-406.75	0.00	0.00	0.00
EOB: 2131' FNL, 39' FWL									
7,198.15	28.35	115.38	7,118.25	-202.69	427.22	-419.96	0.00	0.00	0.00
KOP: 2138' FNL, 52' FWL									
7,200.00	28.18	115.56	7,119.87	-203.07	428.01	-420.74	9.99	-8.82	9.93
7,250.00	23.88	121.39	7,164.80	-213.44	447.32	-439.67	10.00	-8.60	11.66
7,300.00	19.89	129.50	7,211.20	-224.13	462.53	-454.50	10.00	-7.99	16.21
7,350.00	16.43	141.15	7,258.72	-235.05	473.53	-465.12	10.00	-6.92	23.30
7,400.00	13.90	157.76	7,306.99	-246.12	480.24	-471.44	10.00	-5.05	33.22
7,450.00	12.88	179.03	7,355.66	-257.26	482.61	-473.43	10.00	-2.05	42.53
7,500.00	13.70	200.62	7,404.35	-268.38	480.62	-471.05	10.00	1.64	43.18
7,550.00	16.08	217.84	7,452.70	-279.39	474.29	-464.34	10.00	4.76	34.45
7,600.00	19.46	230.00	7,500.32	-290.22	463.65	-453.34	10.00	6.76	24.30
7,650.00	23.40	238.44	7,546.87	-300.78	448.80	-438.13	10.00	7.89	16.88
7,700.00	27.68	244.48	7,591.98	-310.99	429.85	-418.84	10.00	8.55	12.08
7,750.00	32.15	248.98	7,635.31	-320.77	406.94	-395.60	10.00	8.94	9.01
7,800.00	36.74	252.48	7,676.54	-330.05	380.24	-368.60	10.00	9.19	7.00
7,850.00	41.42	255.29	7,715.34	-338.75	349.96	-338.04	10.00	9.35	5.63
7,900.00	46.15	257.63	7,751.43	-346.82	316.34	-304.15	10.00	9.47	4.67
7,950.00	50.92	259.62	7,784.53	-354.19	279.61	-267.20	10.00	9.55	3.98
8,000.00	55.73	261.35	7,814.39	-360.80	240.07	-227.45	10.00	9.61	3.47
8,001.09	55.83	261.39	7,815.00	-360.93	239.18	-226.56	10.00	9.63	3.26
Niobrara Top									
8,050.00	60.55	262.90	7,840.78	-366.60	198.02	-185.22	10.00	9.65	3.09
8,100.00	65.39	264.30	7,863.49	-371.55	153.77	-140.83	10.00	9.68	2.81
8,150.00	70.24	265.60	7,882.36	-375.61	107.67	-94.61	10.00	9.71	2.60

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Planning Report

Database:	EDT 14 Central Planning	Local Co-ordinate Reference:	Well State Massive 5-65 2-3 2CH
Company:	ConocoPhillips RBU Gold Data	TVD Reference:	25' RKB @ 5848.90ft (25' RKB)
Project:	Niobrara Central Zone	MD Reference:	25' RKB @ 5848.90ft (25' RKB)
Site:	State Massive	North Reference:	True
Well:	State Massive 5-65 2-3 2CH	Survey Calculation Method:	Minimum Curvature
Wellbore:	State Massive 5-65 2-3 2CH		
Design:	Design A		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
8,200.00	75.11	266.83	7,897.25	-378.75	60.05	-46.92	10.00	9.72	2.45
8,244.23	79.41	267.86	7,907.00	-380.75	16.97	-3.79	10.00	9.74	2.34
C Chalk Top									
8,250.00	79.97	268.00	7,908.03	-380.95	11.30	1.89	10.00	9.74	2.30
8,300.00	84.85	269.13	7,914.63	-382.19	-38.24	51.43	10.00	9.74	2.27
8,349.45	89.67	270.24	7,917.00	-382.46	-87.61	100.79	10.00	9.75	2.23
BPI/LP: 2318' FNL, 460' FEL									
8,400.00	89.67	270.24	7,917.29	-382.26	-138.16	151.30	0.00	0.00	0.00
8,500.00	89.67	270.24	7,917.88	-381.84	-238.16	251.22	0.00	0.00	0.00
8,600.00	89.67	270.24	7,918.46	-381.43	-338.16	351.15	0.00	0.00	0.00
8,700.00	89.67	270.24	7,919.04	-381.02	-438.15	451.07	0.00	0.00	0.00
8,800.00	89.67	270.24	7,919.62	-380.61	-538.15	550.99	0.00	0.00	0.00
8,900.00	89.67	270.24	7,920.20	-380.20	-638.15	650.92	0.00	0.00	0.00
9,000.00	89.67	270.24	7,920.78	-379.79	-738.15	750.84	0.00	0.00	0.00
9,100.00	89.67	270.24	7,921.37	-379.37	-838.14	850.76	0.00	0.00	0.00
9,200.00	89.67	270.24	7,921.95	-378.96	-938.14	950.69	0.00	0.00	0.00
9,300.00	89.67	270.24	7,922.53	-378.55	-1,038.14	1,050.61	0.00	0.00	0.00
9,400.00	89.67	270.24	7,923.11	-378.14	-1,138.14	1,150.53	0.00	0.00	0.00
9,500.00	89.67	270.24	7,923.69	-377.73	-1,238.13	1,250.46	0.00	0.00	0.00
9,600.00	89.67	270.24	7,924.27	-377.31	-1,338.13	1,350.38	0.00	0.00	0.00
9,700.00	89.67	270.24	7,924.86	-376.90	-1,438.13	1,450.30	0.00	0.00	0.00
9,800.00	89.67	270.24	7,925.44	-376.49	-1,538.13	1,550.23	0.00	0.00	0.00
9,900.00	89.67	270.24	7,926.02	-376.08	-1,638.12	1,650.15	0.00	0.00	0.00
10,000.00	89.67	270.24	7,926.60	-375.67	-1,738.12	1,750.07	0.00	0.00	0.00
10,100.00	89.67	270.24	7,927.18	-375.25	-1,838.12	1,850.00	0.00	0.00	0.00
10,200.00	89.67	270.24	7,927.77	-374.84	-1,938.12	1,949.92	0.00	0.00	0.00
10,300.00	89.67	270.24	7,928.35	-374.43	-2,038.11	2,049.84	0.00	0.00	0.00
10,400.00	89.67	270.24	7,928.93	-374.02	-2,138.11	2,149.77	0.00	0.00	0.00
10,500.00	89.67	270.24	7,929.51	-373.61	-2,238.11	2,249.69	0.00	0.00	0.00
10,600.00	89.67	270.24	7,930.09	-373.19	-2,338.11	2,349.61	0.00	0.00	0.00
10,700.00	89.67	270.24	7,930.67	-372.78	-2,438.10	2,449.54	0.00	0.00	0.00
10,800.00	89.67	270.24	7,931.26	-372.37	-2,538.10	2,549.46	0.00	0.00	0.00
10,900.00	89.67	270.24	7,931.84	-371.96	-2,638.10	2,649.38	0.00	0.00	0.00
11,000.00	89.67	270.24	7,932.42	-371.55	-2,738.10	2,749.31	0.00	0.00	0.00
11,100.00	89.67	270.24	7,933.00	-371.14	-2,838.09	2,849.23	0.00	0.00	0.00
11,200.00	89.67	270.24	7,933.58	-370.72	-2,938.09	2,949.15	0.00	0.00	0.00
11,300.00	89.67	270.24	7,934.16	-370.31	-3,038.09	3,049.08	0.00	0.00	0.00
11,400.00	89.67	270.24	7,934.75	-369.90	-3,138.09	3,149.00	0.00	0.00	0.00
11,500.00	89.67	270.24	7,935.33	-369.49	-3,238.08	3,248.92	0.00	0.00	0.00
11,600.00	89.67	270.24	7,935.91	-369.08	-3,338.08	3,348.85	0.00	0.00	0.00
11,700.00	89.67	270.24	7,936.49	-368.66	-3,438.08	3,448.77	0.00	0.00	0.00
11,800.00	89.67	270.24	7,937.07	-368.25	-3,538.07	3,548.69	0.00	0.00	0.00
11,900.00	89.67	270.24	7,937.65	-367.84	-3,638.07	3,648.62	0.00	0.00	0.00
12,000.00	89.67	270.24	7,938.24	-367.43	-3,738.07	3,748.54	0.00	0.00	0.00
12,100.00	89.67	270.24	7,938.82	-367.02	-3,838.07	3,848.46	0.00	0.00	0.00
12,200.00	89.67	270.24	7,939.40	-366.60	-3,938.06	3,948.39	0.00	0.00	0.00
12,300.00	89.67	270.24	7,939.98	-366.19	-4,038.06	4,048.31	0.00	0.00	0.00
12,400.00	89.67	270.24	7,940.56	-365.78	-4,138.06	4,148.23	0.00	0.00	0.00
12,500.00	89.67	270.24	7,941.14	-365.37	-4,238.06	4,248.16	0.00	0.00	0.00
12,600.00	89.67	270.24	7,941.73	-364.96	-4,338.05	4,348.08	0.00	0.00	0.00
12,700.00	89.67	270.24	7,942.31	-364.54	-4,438.05	4,448.00	0.00	0.00	0.00
12,800.00	89.67	270.24	7,942.89	-364.13	-4,538.05	4,547.93	0.00	0.00	0.00
12,900.00	89.67	270.24	7,943.47	-363.72	-4,638.05	4,647.85	0.00	0.00	0.00
13,000.00	89.67	270.24	7,944.05	-363.31	-4,738.04	4,747.77	0.00	0.00	0.00

ConocoPhillips

Planning Report

Database:	EDT 14 Central Planning	Local Co-ordinate Reference:	Well State Massive 5-65 2-3 2CH
Company:	ConocoPhillips RBU Gold Data	TVD Reference:	25' RKB @ 5848.90ft (25' RKB)
Project:	Niobrara Central Zone	MD Reference:	25' RKB @ 5848.90ft (25' RKB)
Site:	State Massive	North Reference:	True
Well:	State Massive 5-65 2-3 2CH	Survey Calculation Method:	Minimum Curvature
Wellbore:	State Massive 5-65 2-3 2CH		
Design:	Design A		

Planned Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
13,100.00	89.67	270.24	7,944.64	-362.90	-4,838.04	4,847.70	0.00	0.00	0.00	
13,200.00	89.67	270.24	7,945.22	-362.49	-4,938.04	4,947.62	0.00	0.00	0.00	
13,300.00	89.67	270.24	7,945.80	-362.07	-5,038.04	5,047.55	0.00	0.00	0.00	
13,400.00	89.67	270.24	7,946.38	-361.66	-5,138.03	5,147.47	0.00	0.00	0.00	
13,500.00	89.67	270.24	7,946.96	-361.25	-5,238.03	5,247.39	0.00	0.00	0.00	
13,600.00	89.67	270.24	7,947.54	-360.84	-5,338.03	5,347.32	0.00	0.00	0.00	
13,700.00	89.67	270.24	7,948.13	-360.43	-5,438.03	5,447.24	0.00	0.00	0.00	
13,800.00	89.67	270.24	7,948.71	-360.01	-5,538.02	5,547.16	0.00	0.00	0.00	
13,900.00	89.67	270.24	7,949.29	-359.60	-5,638.02	5,647.09	0.00	0.00	0.00	
14,000.00	89.67	270.24	7,949.87	-359.19	-5,738.02	5,747.01	0.00	0.00	0.00	
14,100.00	89.67	270.24	7,950.45	-358.78	-5,838.02	5,846.93	0.00	0.00	0.00	
14,200.00	89.67	270.24	7,951.03	-358.37	-5,938.01	5,946.86	0.00	0.00	0.00	
14,300.00	89.67	270.24	7,951.62	-357.95	-6,038.01	6,046.78	0.00	0.00	0.00	
14,400.00	89.67	270.24	7,952.20	-357.54	-6,138.01	6,146.70	0.00	0.00	0.00	
14,500.00	89.67	270.24	7,952.78	-357.13	-6,238.01	6,246.63	0.00	0.00	0.00	
14,600.00	89.67	270.24	7,953.36	-356.72	-6,338.00	6,346.55	0.00	0.00	0.00	
14,700.00	89.67	270.24	7,953.94	-356.31	-6,438.00	6,446.47	0.00	0.00	0.00	
14,800.00	89.67	270.24	7,954.52	-355.89	-6,538.00	6,546.40	0.00	0.00	0.00	
14,900.00	89.67	270.24	7,955.11	-355.48	-6,638.00	6,646.32	0.00	0.00	0.00	
15,000.00	89.67	270.24	7,955.69	-355.07	-6,737.99	6,746.24	0.00	0.00	0.00	
15,100.00	89.67	270.24	7,956.27	-354.66	-6,837.99	6,846.17	0.00	0.00	0.00	
15,200.00	89.67	270.24	7,956.85	-354.25	-6,937.99	6,946.09	0.00	0.00	0.00	
15,300.00	89.67	270.24	7,957.43	-353.84	-7,037.99	7,046.01	0.00	0.00	0.00	
15,400.00	89.67	270.24	7,958.01	-353.42	-7,137.98	7,145.94	0.00	0.00	0.00	
15,500.00	89.67	270.24	7,958.60	-353.01	-7,237.98	7,245.86	0.00	0.00	0.00	
15,600.00	89.67	270.24	7,959.18	-352.60	-7,337.98	7,345.78	0.00	0.00	0.00	
15,700.00	89.67	270.24	7,959.76	-352.19	-7,437.98	7,445.71	0.00	0.00	0.00	
15,800.00	89.67	270.24	7,960.34	-351.78	-7,537.97	7,545.63	0.00	0.00	0.00	
15,900.00	89.67	270.24	7,960.92	-351.36	-7,637.97	7,645.55	0.00	0.00	0.00	
16,000.00	89.67	270.24	7,961.51	-350.95	-7,737.97	7,745.48	0.00	0.00	0.00	
16,100.00	89.67	270.24	7,962.09	-350.54	-7,837.97	7,845.40	0.00	0.00	0.00	
16,200.00	89.67	270.24	7,962.67	-350.13	-7,937.96	7,945.32	0.00	0.00	0.00	
16,300.00	89.67	270.24	7,963.25	-349.72	-8,037.96	8,045.25	0.00	0.00	0.00	
16,400.00	89.67	270.24	7,963.83	-349.30	-8,137.96	8,145.17	0.00	0.00	0.00	
16,500.00	89.67	270.24	7,964.41	-348.89	-8,237.96	8,245.09	0.00	0.00	0.00	
16,600.00	89.67	270.24	7,965.00	-348.48	-8,337.95	8,345.02	0.00	0.00	0.00	
16,700.00	89.67	270.24	7,965.58	-348.07	-8,437.95	8,444.94	0.00	0.00	0.00	
16,800.00	89.67	270.24	7,966.16	-347.66	-8,537.95	8,544.86	0.00	0.00	0.00	
16,900.00	89.67	270.24	7,966.74	-347.24	-8,637.95	8,644.79	0.00	0.00	0.00	
17,000.00	89.67	270.24	7,967.32	-346.83	-8,737.94	8,744.71	0.00	0.00	0.00	
17,100.00	89.67	270.24	7,967.90	-346.42	-8,837.94	8,844.63	0.00	0.00	0.00	
17,200.00	89.67	270.24	7,968.49	-346.01	-8,937.94	8,944.56	0.00	0.00	0.00	
17,300.00	89.67	270.24	7,969.07	-345.60	-9,037.94	9,044.48	0.00	0.00	0.00	
17,400.00	89.67	270.24	7,969.65	-345.19	-9,137.93	9,144.40	0.00	0.00	0.00	
17,500.00	89.67	270.24	7,970.23	-344.77	-9,237.93	9,244.33	0.00	0.00	0.00	
17,600.00	89.67	270.24	7,970.81	-344.36	-9,337.93	9,344.25	0.00	0.00	0.00	
17,700.00	89.67	270.24	7,971.39	-343.95	-9,437.93	9,444.17	0.00	0.00	0.00	
17,800.00	89.67	270.24	7,971.98	-343.54	-9,537.92	9,544.10	0.00	0.00	0.00	
17,900.00	89.67	270.24	7,972.56	-343.13	-9,637.92	9,644.02	0.00	0.00	0.00	
18,000.00	89.67	270.24	7,973.14	-342.71	-9,737.92	9,743.94	0.00	0.00	0.00	
18,100.00	89.67	270.24	7,973.72	-342.30	-9,837.91	9,843.87	0.00	0.00	0.00	
18,147.90	89.67	270.24	7,974.00	-342.10	-9,885.81	9,891.73	0.00	0.00	0.00	
BHL: 2318' FNL, 325' FWL - 5-1/2" Casing										

ConocoPhillips

Planning Report

Database:	EDT 14 Central Planning	Local Co-ordinate Reference:	Well State Massive 5-65 2-3 2CH
Company:	ConocoPhillips RBU Gold Data	TVD Reference:	25' RKB @ 5848.90ft (25' RKB)
Project:	Niobrara Central Zone	MD Reference:	25' RKB @ 5848.90ft (25' RKB)
Site:	State Massive	North Reference:	True
Well:	State Massive 5-65 2-3 2CH	Survey Calculation Method:	Minimum Curvature
Wellbore:	State Massive 5-65 2-3 2CH		
Design:	Design A		

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
State Massive 5-65 2- - plan hits target center - Point	0.00	0.00	7,917.00	-382.46	-87.61	1,661,542.944	3,246,633.067	39° 38' 47.280 N	104° 37' 26.940 W
State Massive 5-65 2- - plan hits target center - Point	0.00	0.00	7,974.00	-342.10	-9,885.81	1,661,488.807	3,236,835.132	39° 38' 47.660 N	104° 39' 32.200 W

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")	
2,263.00	2,263.00	9-5/8" Casing	9-5/8	12-1/4	
18,147.90	7,974.00	5-1/2" Casing	5-1/2	8-1/2	

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,891.00	1,891.00	Fox Hills Top		0.00	
2,063.00	2,063.00	Pierre Top - Fox Hills Base		0.00	
2,263.00	2,263.00	Surface Casing		0.00	
8,001.09	7,815.00	Niobrara Top		0.00	
8,244.23	7,907.00	C Chalk Top		0.00	

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
100.00	100.00	0.00	0.00	SHL: 1935' FNL, 375' FEL	
7,166.82	7,090.67	-196.31	413.78	EOB: 2131' FNL, 39' FWL	
7,198.15	7,118.25	-202.69	427.22	KOP: 2138' FNL, 52' FWL	
8,349.45	7,917.00	-382.46	-87.61	BPI/LP: 2318' FNL, 460' FEL	
18,147.90	7,974.00	-342.10	-9,885.81	BHL: 2318' FNL, 325' FWL	