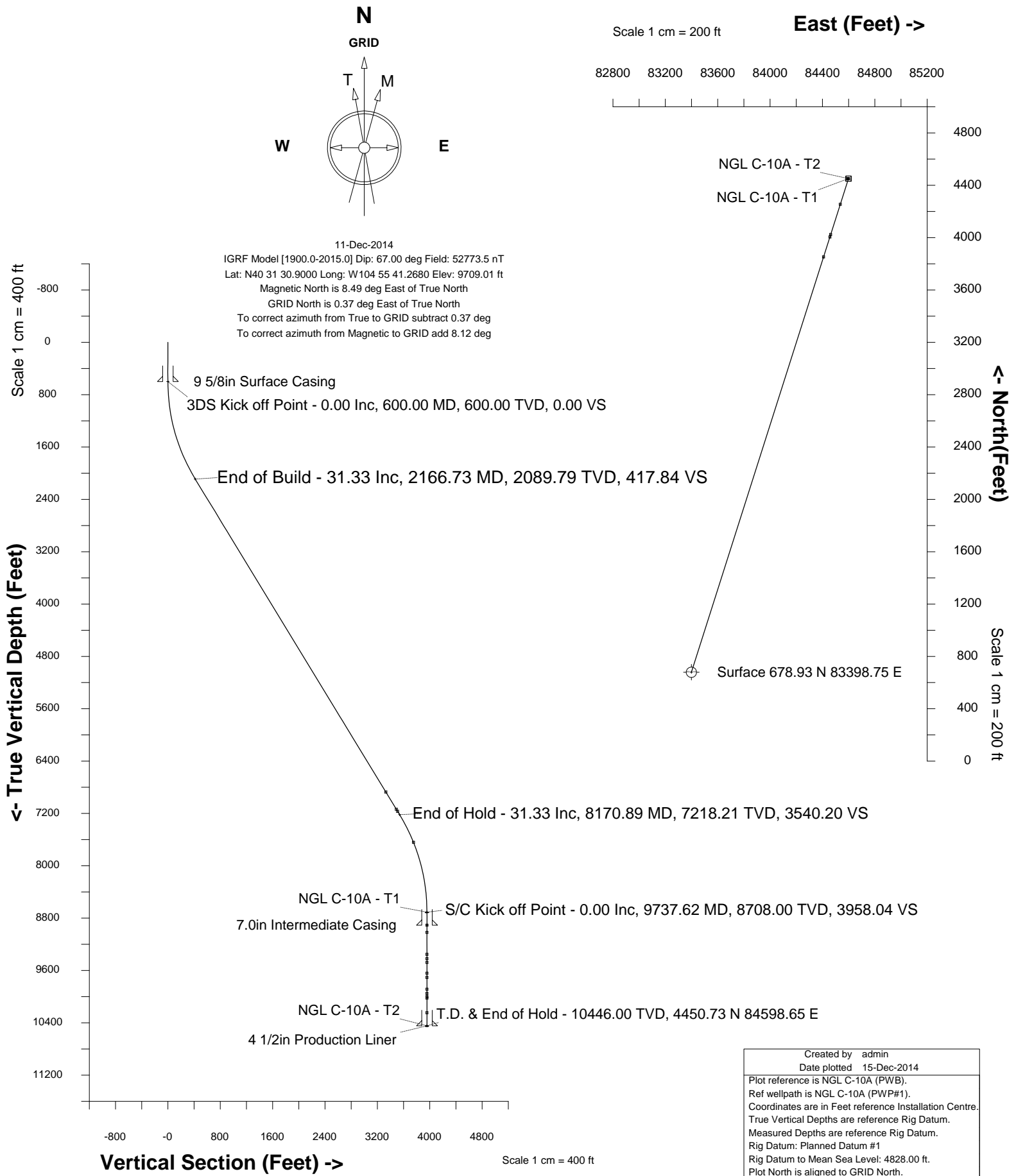




NGL WATER SOLUTIONS DJ

Location Windsor
Field Wattenberg
Installation NGL C-10A

Slot NGL C-10A
Well NGL C-10A
Wellbore NGL C-10A (PWB)





SYSDRILL
Wellpath Report
Wellbore: NGL C-10A (PWB)
Wellpath: NGL C-10A (PWP#1)

Wellbore

Name	Created	Last Revised
NGL C-10A (PWB)	11-Dec-2014	15-Dec-2014

Well

Name	Government ID	Last Revised
NGL C-10A		11-Dec-2014

Slot

Name	Grid Northing	Grid Easting	Latitude	Longitude	North	East
NGL C-10A	1435380.7747	3242372.2865	40.52525000	-104.62813000	678.93N	83398.75E

Installation

Name	Easting	Northing	Map Name	North Alignment
NGL C-10A	3158976.3520	1434701.8633	NAD83 Based Colorado State Planes, Northern Zone, US Feet	Grid

Field

Name	Easting	Northing	Map Name	North Alignment
Wattenberg	3224065.1116	1343637.7116	SPCS CO North, ft	Grid

Wellpath Report

MD[ft]	Inc[deg]	Azi[deg]	TVD[ft]	North[ft]	East[ft]	Dogleg [deg/100ft]	Vertical Section[ft]	All Station Comments
0.00	0.00	0.000	0.00	0.00N	0.00E		0.00	Rig Datum
20.00	0.00	0.000	20.00	0.00N	0.00E	==>	0.00	Slot Datum
100.00	0.00	0.000	100.00	0.00N	0.00E	==>	0.00	
200.00	0.00	0.000	200.00	0.00N	0.00E	==>	0.00	
300.00	0.00	0.000	300.00	0.00N	0.00E	==>	0.00	
400.00	0.00	0.000	400.00	0.00N	0.00E	==>	0.00	
500.00	0.00	0.000	500.00	0.00N	0.00E	==>	0.00	
580.00	0.00	0.000	580.00	0.00N	0.00E	==>	0.00	
600.00	0.00	17.650	600.00	0.00N	0.00E	==>	0.00	9 5/8in Surface Casing
680.00	1.60	17.650	679.99	1.06N	0.34E	2.00	1.12	
780.00	3.60	17.650	779.88	5.39N	1.71E	2.00	5.65	
880.00	5.60	17.650	879.55	13.03N	4.14E	2.00	13.67	
980.00	7.60	17.650	978.89	23.98N	7.63E	2.00	25.17	
1080.00	9.60	17.650	1077.76	38.23N	12.16E	2.00	40.12	
1180.00	11.60	17.650	1176.05	55.76N	17.74E	2.00	58.51	
1280.00	13.60	17.650	1273.63	76.55N	24.35E	2.00	80.33	
1380.00	15.60	17.650	1370.40	100.57N	31.99E	2.00	105.53	
1480.00	17.60	17.650	1466.23	127.79N	40.65E	2.00	134.10	
1580.00	19.60	17.650	1561.00	158.18N	50.32E	2.00	165.99	
1680.00	21.60	17.650	1654.60	191.71N	60.99E	2.00	201.18	
1780.00	23.60	17.650	1746.92	228.33N	72.64E	2.00	239.60	
1880.00	25.60	17.650	1837.83	267.99N	85.26E	2.00	281.23	
1980.00	27.60	17.650	1927.25	310.66N	98.83E	2.00	326.00	
2080.00	29.60	17.650	2015.04	356.28N	113.34E	2.00	373.87	
2200.00	31.33	17.650	2118.21	414.67N	131.92E	==>	435.15	
2300.00	31.33	17.650	2203.62	464.22N	147.68E	==>	487.15	
2400.00	31.33	17.650	2289.04	513.78N	163.45E	==>	539.15	
2500.00	31.33	17.650	2374.45	563.34N	179.21E	==>	591.16	
2600.00	31.33	17.650	2459.87	612.89N	194.98E	==>	643.16	
2700.00	31.33	17.650	2545.28	662.45N	210.74E	==>	695.16	
2800.00	31.33	17.650	2630.69	712.01N	226.51E	==>	747.17	
2900.00	31.33	17.650	2716.11	761.56N	242.27E	==>	799.17	
3000.00	31.33	17.650	2801.52	811.12N	258.04E	==>	851.17	
3100.00	31.33	17.650	2886.94	860.67N	273.80E	==>	903.18	
3200.00	31.33	17.650	2972.35	910.23N	289.57E	==>	955.18	
3300.00	31.33	17.650	3057.77	959.79N	305.33E	==>	1007.18	
3400.00	31.33	17.650	3143.18	1009.34N	321.10E	==>	1059.19	
3500.00	31.33	17.650	3228.60	1058.90N	336.86E	==>	1111.19	
3600.00	31.33	17.650	3314.01	1108.46N	352.63E	==>	1163.19	
3700.00	31.33	17.650	3399.43	1158.01N	368.39E	==>	1215.20	
3800.00	31.33	17.650	3484.84	1207.57N	384.16E	==>	1267.20	
3900.00	31.33	17.650	3570.25	1257.13N	399.92E	==>	1319.21	
4000.00	31.33	17.650	3655.67	1306.68N	415.69E	==>	1371.21	
4100.00	31.33	17.650	3741.08	1356.24N	431.45E	==>	1423.21	
4200.00	31.33	17.650	3826.50	1405.79N	447.22E	==>	1475.22	
4300.00	31.33	17.650	3911.91	1455.35N	462.98E	==>	1527.22	
4400.00	31.33	17.650	3997.33	1504.91N	478.75E	==>	1579.22	

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Coordinates are from Slot MD's are from Rig and TVD's are from Rig (Planned Datum #1 4828.0ft above Mean Sea Level)
Vertical Section is from 0.00N 0.00E on azimuth 17.650 degrees
Bottom hole distance is 3958.06 Feet on azimuth 17.65 degrees from Wellhead
Calculation method uses Minimum Curvature method
Prepared by Integrated Petroleum Technologies, Inc.
Date Printed: 15-Dec-2014



SYSDRILL
Wellpath Report
Wellbore: NGL C-10A (PWB)
Wellpath: NGL C-10A (PWP#1)

Wellpath Report

MD[ft]	Inc[deg]	Azi[deg]	TVD[ft]	North[ft]	East[ft]	Dogleg [deg/100ft]	Vertical Section[ft]	All Station Comments
4500.00	31.33	17.650	4082.74	1554.46N	494.52E	==>	1631.23	
4600.00	31.33	17.650	4168.16	1604.02N	510.28E	==>	1683.23	
4700.00	31.33	17.650	4253.57	1653.58N	526.05E	==>	1735.23	
4800.00	31.33	17.650	4338.98	1703.13N	541.81E	==>	1787.24	
4900.00	31.33	17.650	4424.40	1752.69N	557.58E	==>	1839.24	
5000.00	31.33	17.650	4509.81	1802.24N	573.34E	==>	1891.24	
5100.00	31.33	17.650	4595.23	1851.80N	589.11E	==>	1943.25	
5200.00	31.33	17.650	4680.64	1901.36N	604.87E	==>	1995.25	
5300.00	31.33	17.650	4766.06	1950.91N	620.64E	==>	2047.25	
5400.00	31.33	17.650	4851.47	2000.47N	636.40E	==>	2099.26	
5500.00	31.33	17.650	4936.89	2050.03N	652.17E	==>	2151.26	
5600.00	31.33	17.650	5022.30	2099.58N	667.93E	==>	2203.27	
5700.00	31.33	17.650	5107.71	2149.14N	683.70E	==>	2255.27	
5800.00	31.33	17.650	5193.13	2198.69N	699.46E	==>	2307.27	
5900.00	31.33	17.650	5278.54	2248.25N	715.23E	==>	2359.28	
6000.00	31.33	17.650	5363.96	2297.81N	730.99E	==>	2411.28	
6100.00	31.33	17.650	5449.37	2347.36N	746.76E	==>	2463.28	
6200.00	31.33	17.650	5534.79	2396.92N	762.52E	==>	2515.29	
6300.00	31.33	17.650	5620.20	2446.48N	778.29E	==>	2567.29	
6400.00	31.33	17.650	5705.62	2496.03N	794.05E	==>	2619.29	
6500.00	31.33	17.650	5791.03	2545.59N	809.82E	==>	2671.30	
6600.00	31.33	17.650	5876.45	2595.14N	825.58E	==>	2723.30	
6700.00	31.33	17.650	5961.86	2644.70N	841.35E	==>	2775.30	
6800.00	31.33	17.650	6047.27	2694.26N	857.11E	==>	2827.31	
6900.00	31.33	17.650	6132.69	2743.81N	872.88E	==>	2879.31	
7000.00	31.33	17.650	6218.10	2793.37N	888.64E	==>	2931.31	
7100.00	31.33	17.650	6303.52	2842.93N	904.41E	==>	2983.32	
7200.00	31.33	17.650	6388.93	2892.48N	920.17E	==>	3035.32	
7300.00	31.33	17.650	6474.35	2942.04N	935.94E	==>	3087.33	
7400.00	31.33	17.650	6559.76	2991.60N	951.70E	==>	3139.33	
7500.00	31.33	17.650	6645.18	3041.15N	967.47E	==>	3191.33	
7600.00	31.33	17.650	6730.59	3090.71N	983.23E	==>	3243.34	
7700.00	31.33	17.650	6816.00	3140.26N	999.00E	==>	3295.34	
7766.73	31.33	17.650	6873.00	3173.33N	1009.52E	==>	3330.04	Niobrara
7800.00	31.33	17.650	6901.42	3189.82N	1014.77E	==>	3347.34	
7900.00	31.33	17.650	6986.83	3239.38N	1030.53E	==>	3399.35	
8000.00	31.33	17.650	7072.25	3288.93N	1046.30E	==>	3451.35	
8074.64	31.33	17.650	7136.00	3325.92N	1058.06E	==>	3490.16	Ft Hayes
8100.00	31.33	17.650	7157.66	3338.49N	1062.06E	==>	3503.35	
8112.10	31.33	17.650	7168.00	3344.49N	1063.97E	==>	3509.65	Codell Ss
8150.89	31.33	17.650	7201.13	3363.71N	1070.08E	==>	3529.82	
8250.89	29.73	17.650	7287.11	3412.35N	1085.56E	2.00	3580.86	
8350.89	27.73	17.650	7374.79	3458.16N	1100.13E	2.00	3628.93	
8450.89	25.73	17.650	7464.10	3501.03N	1113.77E	2.00	3673.92	
8550.89	23.73	17.650	7554.92	3540.90N	1126.45E	2.00	3715.76	
8645.34	21.85	17.650	7642.00	3575.76N	1137.54E	2.00	3752.34	J Ss
8650.89	21.73	17.650	7647.15	3577.72N	1138.17E	2.00	3754.40	
8750.89	19.73	17.650	7740.66	3611.46N	1148.90E	2.00	3789.80	
8850.89	17.73	17.650	7835.36	3642.06N	1158.64E	2.00	3821.92	
8950.89	15.73	17.650	7931.12	3669.50N	1167.36E	2.00	3850.71	
9050.89	13.73	17.650	8027.83	3693.74N	1175.07E	2.00	3876.14	
9150.89	11.73	17.650	8125.36	3714.74N	1181.76E	2.00	3898.19	
9250.89	9.73	17.650	8223.61	3732.49N	1187.40E	2.00	3916.81	
9350.89	7.73	17.650	8322.44	3746.96N	1192.01E	2.00	3932.00	
9450.89	5.73	17.650	8421.75	3758.14N	1195.56E	2.00	3943.72	
9550.89	3.73	17.650	8521.40	3766.00N	1198.06E	2.00	3951.98	
9650.89	1.73	17.650	8621.28	3770.55N	1199.51E	2.00	3956.75	
9800.00	0.00	17.650	8770.38	3771.80N	1199.91E	==>	3958.06	
9900.00	0.00	17.650	8870.38	3771.80N	1199.91E	==>	3958.06	
9937.62	0.00	17.650	8908.00	3771.80N	1199.91E	==>	3958.06	Lyons, 7.0in Intermediate Casing
10000.00	0.00	17.650	8970.38	3771.80N	1199.91E	==>	3958.06	
10046.62	0.00	17.650	9017.00	3771.80N	1199.91E	==>	3958.06	Lower Satanka
10100.00	0.00	17.650	9070.38	3771.80N	1199.91E	==>	3958.06	
10200.00	0.00	17.650	9170.38	3771.80N	1199.91E	==>	3958.06	
10300.00	0.00	17.650	9270.38	3771.80N	1199.91E	==>	3958.06	
10383.62	0.00	17.650	9354.00	3771.80N	1199.91E	==>	3958.06	Wolfcamp
10400.00	0.00	17.650	9370.38	3771.80N	1199.91E	==>	3958.06	
10448.62	0.00	17.650	9419.00	3771.80N	1199.91E	==>	3958.06	Amazon
10500.00	0.00	17.650	9470.38	3771.80N	1199.91E	==>	3958.06	
10506.62	0.00	17.650	9477.00	3771.80N	1199.91E	==>	3958.06	Council Grove
10600.00	0.00	17.650	9570.38	3771.80N	1199.91E	==>	3958.06	
10671.62	0.00	17.650	9642.00	3771.80N	1199.91E	==>	3958.06	Admire

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Vertical Section is from 0.00N 0.00E on azimuth 17.650 degrees
Bottom hole distance is 3958.06 Feet on azimuth 17.65 degrees from Wellhead
Calculation method uses Minimum Curvature method
Prepared by Integrated Petroleum Technologies, Inc.
Date Printed: 15-Dec-2014



SYSDRILL
Wellpath Report
Wellbore: NGL C-10A (PWB)
Wellpath: NGL C-10A (PWP#1)

Wellpath Report

MD[ft]	Inc[deg]	Azi[deg]	TVD[ft]	North[ft]	East[ft]	Dogleg [deg/100ft]	Vertical Section[ft]	All Station Comments
10700.00	0.00	17.650	9670.38	3771.80N	1199.91E	==>	3958.06	
10736.62	0.00	17.650	9707.00	3771.80N	1199.91E	==>	3958.06	Virgil
10800.00	0.00	17.650	9770.38	3771.80N	1199.91E	==>	3958.06	
10900.00	0.00	17.650	9870.38	3771.80N	1199.91E	==>	3958.06	
10915.62	0.00	17.650	9886.00	3771.80N	1199.91E	==>	3958.06	Missourian Carbonate
10980.62	0.00	17.650	9951.00	3771.80N	1199.91E	==>	3958.06	Fountain - Missourian
11000.00	0.00	17.650	9970.38	3771.80N	1199.91E	==>	3958.06	
11030.62	0.00	17.650	10001.00	3771.80N	1199.91E	==>	3958.06	Desmoinesian Carbonate
11050.62	0.00	17.650	10021.00	3771.80N	1199.91E	==>	3958.06	Fountain - Desmoinesian
11100.00	0.00	17.650	10070.38	3771.80N	1199.91E	==>	3958.06	
11200.00	0.00	17.650	10170.38	3771.80N	1199.91E	==>	3958.06	
11275.62	0.00	17.650	10246.00	3771.80N	1199.91E	==>	3958.06	Fountain - Atokan
11300.00	0.00	17.650	10270.38	3771.80N	1199.91E	==>	3958.06	
11400.00	0.00	17.650	10370.38	3771.80N	1199.91E	==>	3958.06	
11475.62	0.00	189.460	10446.00	3771.80N	1199.91E	==>	3958.06	4 1/2in Production Liner

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Calculation method uses Minimum Curvature method
Prepared by Integrated Petroleum Technologies, Inc.
Date Printed: 15-Dec-2014



SYSDRILL
Wellpath Report
Wellbore: NGL C-10A (PWB)
Wellpath: NGL C-10A (PWP#1)

Hole Sections

Diameter [in]	Start MD[ft]	Start TVD[ft]	Start North[ft]	Start East[ft]	End MD[ft]	End TVD[ft]	End North[ft]	End East[ft]	Wellbore
12 1/4	20.00	20.00	0.00N	0.00E	600.00	600.00	0.00N	0.00E	NGL C-10A (PWB)
8 3/4	600.00	600.00	0.00N	0.00E	9937.62	8908.00	3771.80N	1199.91E	NGL C-10A (PWB)
6 1/8	9937.62	8908.00	3771.80N	1199.91E	11475.62	10446.00	3771.80N	1199.91E	NGL C-10A (PWB)

Casings

Name	Top MD[ft]	Top TVD[ft]	Top North[ft]	Top East[ft]	Shoe MD[ft]	Shoe TVD[ft]	Shoe North[ft]	Shoe East[ft]	Wellbore
9 5/8in Surface Casing	20.00	20.00	0.00N	0.00E	600.00	600.00	0.00N	0.00E	NGL C-10A (PWB)
7.0in Intermediate Casing	20.00	20.00	0.00N	0.00E	9937.62	8908.00	3771.80N	1199.91E	NGL C-10A (PWB)
4 1/2in Production Liner	9837.00	8807.38	3771.80N	1199.91E	11475.62	10446.00	3771.80N	1199.91E	NGL C-10A (PWB)

Targets

Name	North[ft]	East[ft]	TVD[ft]	Latitude	Longitude	Easting	Northing	Last Revised
NGL C-10A - T1	3771.80N	1199.91E	8708.00	40.53557000	-104.62368000	3243572.15	1439152.45	2-Jun-2014
NGL C-10A - T2	3771.80N	1199.91E	10446.00	40.53557000	-104.62368000	3243572.15	1439152.45	2-Jun-2014

Formations

Formation Name	MD[ft]	TVD[ft]	Dip Angle[deg]	Dip Azimuth[deg]	Incidence Angle[deg]	Remarks
Niobrara	7766.73	6873.00				
Ft Hayes	8074.64	7136.00				
Codell Ss	8112.10	7168.00				
J Ss	8645.34	7642.00				
Lyons	9937.62	8908.00				
Lower Satanka	10046.62	9017.00				
Wolfcamp	10383.62	9354.00				
Amazon	10448.62	9419.00				
Council Grove	10506.62	9477.00				
Admire	10671.62	9642.00				
Virgil	10736.62	9707.00				
Missourian Carbonate	10915.62	9886.00				
Fountain - Missourian	10980.62	9951.00				
Desmoinesian Carbonate	11030.62	10001.00				
Fountain - Desmoinesian	11050.62	10021.00				
Fountain - Atokan	11275.62	10246.00				

Survey Tool Program

Reference	Survey Name	MD[ft]	TVD[ft]	Survey Tool	Error Model
340178	Planned	11475.62	10446.00	WdW Rate Gyro	Standard

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Bottom hole distance is 3958.06 Feet on azimuth 17.65 degrees from Wellhead
Calculation method uses Minimum Curvature method
Prepared by Integrated Petroleum Technologies, Inc.
Date Printed: 15-Dec-2014



SYSDRILL
Closest Approach + Clearance Factor Summary Report
Wellbore: NGL C-10A (PWB)

Ellipse separations are reported ONLY if BOTH wells have uncertainty data
Only Depth and Magnetic Reference Field error terms are correlated across tie points
Scan limit is calculated on CENTRE to CENTRE distance

Summary data uses Closest Approach clearance calculation for all minima
Hole size/Casings ARE included
Hole size/Casings are NOT subtracted from Centre-Centre distance
Confidence limit of 95.00% / 2.80 SD.

Wellbore		
Name	Created	Last Revised
NGL C-10A (PWB)	11-Dec-2014	15-Dec-2014

Well		
Name	Government ID	Last Revised
NGL C-10A		11-Dec-2014

Slot						
Name	Grid Northing	Grid Easting	Latitude	Longitude	North	East
NGL C-10A	1435380.7747	3242372.2865	40.52525000	-104.62813000	678.93N	83398.75E

Installation					
Name	Easting	Northing	Coord System Name	North Alignment	
NGL C-10A	3158976.3520	1434701.8633	CO83-NF on NORTH AMERICAN DATUM 1983 datum	Grid	

Field				
Name	Easting	Northing	Coord System Name	North Alignment
Wattenberg	3224065.1116	1343637.7116	CO83-NF on NORTH AMERICAN DATUM 1983 datum	Grid

Clearance Summary							
Offset WellName	Separation [ft]	MD[ft]	Diverging From[ft]	Ellipse Separation [ft]	Ellipse MD[ft]	Clearance Factor	Clearance MD[ft]
NGL #C10	52.14	600.00	11475.62	43.03	600.00	5.46	774.59
BOOTH #33-35	185.47	3148.67	3148.67	161.78	3153.20	7.80	3169.61
BOOTH #34-35	246.71	600.00	600.00	238.85	600.00	27.84	1004.25
BOOTH - USX EE #35-8	591.58	6837.43	6837.43	544.48	6844.15	12.48	6942.57
BOOTH USX EE #35-07D	700.05	6141.75	6141.75	650.38	6171.57	13.88	6320.00
BOOTH USX EE #35-17	741.97	8128.80	8128.80	686.24	8140.08	13.22	8271.31
BOOTH #43-35	1084.79	3849.11	3849.11	1056.46	3874.99	35.64	4531.15
BOOTH #24-35	1107.72	600.00	600.00	1099.70	600.00	86.33	2365.80
BOOTH #35-44	1263.02	2677.48	2677.48	1246.27	2710.29	61.36	3957.01
BOOTH #23-35	1327.64	2693.88	2693.88	1306.85	2726.69	52.86	4006.22
BOOTH #44-35	1646.21	1677.61	1677.61	1632.37	1742.44	74.13	4170.26
BOOTH USX EE #35-12D	1966.49	4321.74	4321.74	1913.81	4367.11	35.85	4711.60
BOOTH - USX EE #35-6	2050.52	5680.73	5680.73	2010.33	5728.66	46.00	7155.83
BOOTH USX EE #35-05D	2409.16	4640.25	4640.25	2362.43	4640.25	49.93	4990.47