

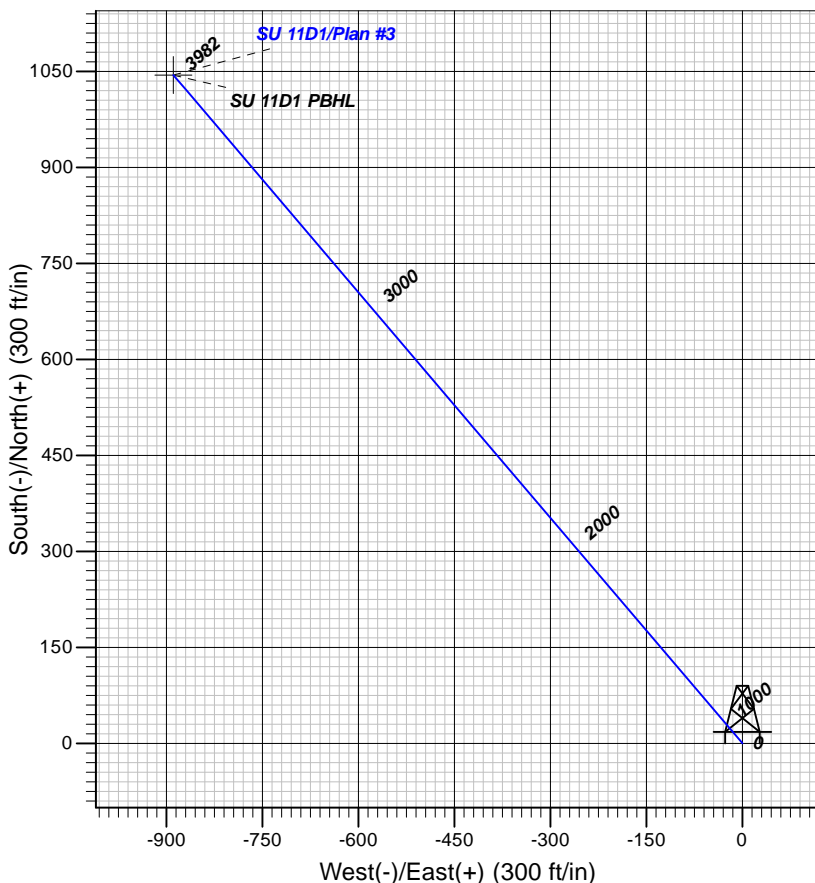
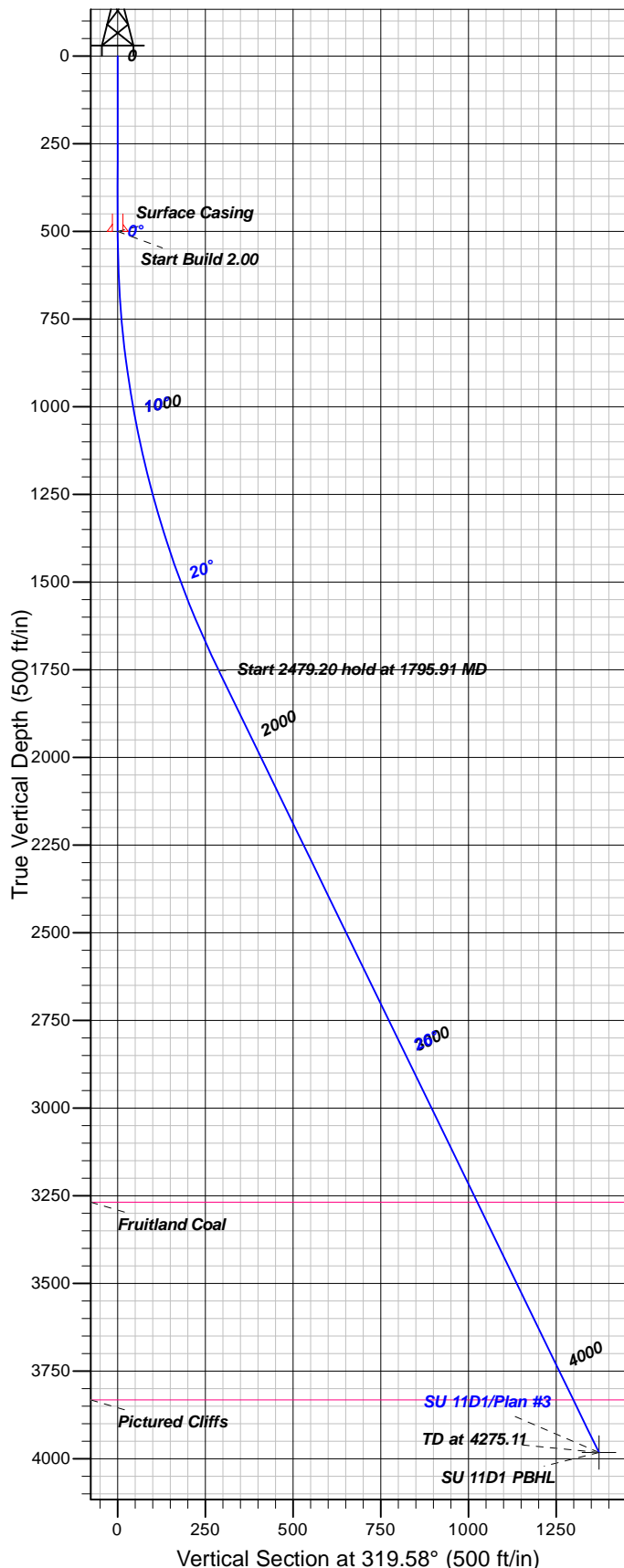
## Well Details: SU 11D1

GL 7214' @ 7214.00ft

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	1150055.68	2326455.97	37.0559119	-107.8082420	

**T M** Azimuths to True North  
 Magnetic North: 9.56°

Magnetic Field  
 Strength: 50454.9snT  
 Dip Angle: 63.63°  
 Date: 2/5/2015  
 Model: IGRF2015



### FORMATION TOP DETAILS

TVDPath	MDPath	Formation
3268.00	3481.26	Fruitland Coal
3832.00	4108.33	Pictured Cliffs

### Plan: Plan #3

11:52, April 08 2015  
 Created By: Janie Collins

PROJECT DETAILS: La Plata County, Colorado NAD27

Geodetic System: US State Plane 1983  
 Datum: North American Datum 1983  
 Ellipsoid: GRS 1980  
 Zone: Colorado Southern Zone

System Datum: Mean Sea Level

### CASING DETAILS

TVD	MD	Name	Size
500.00	500.00	Surface Casing	9.625

### 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	1795.91	25.92	319.58	1752.16	219.36	-186.83	2.00	319.58	288.14	
4	4275.11	25.92	319.58	3982.00	1044.32	-889.46	0.00	0.001371.77		SU 11D1 PBHL

### DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
SU 11D1 PBHL	3982.00	1044.32	-889.46	1151121.65	2325592.59	37.0587800	-107.8112900	Point

- plan hits target center

# **Brammer Engineering**

La Plata County, Colorado NAD27

SU 11 Pad

SU 11D1

OH

Plan: Plan #3

## **Standard Planning Report**

08 April, 2015



<b>Database:</b>	Grand Junction District	<b>Local Co-ordinate Reference:</b>	Well SU 11D1
<b>Company:</b>	Brammer Engineering	<b>TVD Reference:</b>	GL 7214' @ 7214.00ft
<b>Project:</b>	La Plata County, Colorado NAD27	<b>MD Reference:</b>	GL 7214' @ 7214.00ft
<b>Site:</b>	SU 11 Pad	<b>North Reference:</b>	True
<b>Well:</b>	SU 11D1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	Plan #3		

<b>Project</b>	La Plata County, Colorado NAD27		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	Colorado Southern Zone		

<b>Site</b>	SU 11 Pad			
<b>Site Position:</b>		<b>Northing:</b>	1,150,090.59 usft	<b>Latitude:</b> 37.0560200
<b>From:</b>	Lat/Long	<b>Easting:</b>	2,326,635.49 usft	<b>Longitude:</b> -107.8076300
<b>Position Uncertainty:</b>	0.00 ft	<b>Slot Radius:</b>	13.200 in	<b>Grid Convergence:</b> -1.42 °

<b>Well</b>	SU 11D1			
<b>Well Position</b>	<b>+N/-S</b>	-39.34 ft	<b>Northing:</b>	1,150,055.68 usft
	<b>+E/-W</b>	-178.60 ft	<b>Easting:</b>	2,326,455.97 usft
<b>Position Uncertainty</b>		0.00 ft	<b>Wellhead Elevation:</b>	0.00 ft
			<b>Ground Level:</b>	7,214.00 ft

<b>Wellbore</b>	OH				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2015	2/5/2015	9.56	63.63	50,455

<b>Design</b>	Plan #3			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PLAN	<b>Tie On Depth:</b>	0.00
<b>Vertical Section:</b>	<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>
	0.00	0.00	0.00	319.58

<b>Plan Sections</b>										
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	
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,795.91	25.92	319.58	1,752.16	219.36	-186.83	2.00	2.00	0.00	319.58	
4,275.11	25.92	319.58	3,982.00	1,044.32	-889.46	0.00	0.00	0.00	0.00	SU 11D1 PBHL

<b>Database:</b>	Grand Junction District	<b>Local Co-ordinate Reference:</b>	Well SU 11D1
<b>Company:</b>	Brammer Engineering	<b>TVD Reference:</b>	GL 7214' @ 7214.00ft
<b>Project:</b>	La Plata County, Colorado NAD27	<b>MD Reference:</b>	GL 7214' @ 7214.00ft
<b>Site:</b>	SU 11 Pad	<b>North Reference:</b>	True
<b>Well:</b>	SU 11D1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	Plan #3		

## 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
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
<b>Surface Casing</b>									
600.00	2.00	319.58	599.98	1.33	-1.13	1.75	2.00	2.00	0.00
700.00	4.00	319.58	699.84	5.31	-4.52	6.98	2.00	2.00	0.00
800.00	6.00	319.58	799.45	11.95	-10.18	15.69	2.00	2.00	0.00
900.00	8.00	319.58	898.70	21.22	-18.08	27.88	2.00	2.00	0.00
1,000.00	10.00	319.58	997.47	33.13	-28.22	43.52	2.00	2.00	0.00
1,100.00	12.00	319.58	1,095.62	47.66	-40.59	62.60	2.00	2.00	0.00
1,200.00	14.00	319.58	1,193.06	64.78	-55.18	85.10	2.00	2.00	0.00
1,300.00	16.00	319.58	1,289.64	84.49	-71.96	110.98	2.00	2.00	0.00
1,400.00	18.00	319.58	1,385.27	106.74	-90.91	140.21	2.00	2.00	0.00
1,500.00	20.00	319.58	1,479.82	131.53	-112.02	172.77	2.00	2.00	0.00
1,600.00	22.00	319.58	1,573.17	158.81	-135.26	208.60	2.00	2.00	0.00
1,700.00	24.00	319.58	1,665.21	188.55	-160.59	247.67	2.00	2.00	0.00
1,795.91	25.92	319.58	1,752.16	219.36	-186.83	288.14	2.00	2.00	0.00
1,800.00	25.92	319.58	1,755.84	220.72	-187.99	289.93	0.00	0.00	0.00
1,900.00	25.92	319.58	1,845.78	254.00	-216.33	333.64	0.00	0.00	0.00
2,000.00	25.92	319.58	1,935.73	287.27	-244.68	377.35	0.00	0.00	0.00
2,100.00	25.92	319.58	2,025.67	320.55	-273.02	421.06	0.00	0.00	0.00
2,200.00	25.92	319.58	2,115.61	353.82	-301.36	464.77	0.00	0.00	0.00
2,300.00	25.92	319.58	2,205.55	387.10	-329.70	508.47	0.00	0.00	0.00
2,400.00	25.92	319.58	2,295.49	420.37	-358.04	552.18	0.00	0.00	0.00
2,500.00	25.92	319.58	2,385.44	453.65	-386.38	595.89	0.00	0.00	0.00
2,600.00	25.92	319.58	2,475.38	486.92	-414.72	639.60	0.00	0.00	0.00
2,700.00	25.92	319.58	2,565.32	520.20	-443.06	683.31	0.00	0.00	0.00
2,800.00	25.92	319.58	2,655.26	553.47	-471.40	727.02	0.00	0.00	0.00
2,900.00	25.92	319.58	2,745.20	586.75	-499.74	770.73	0.00	0.00	0.00
3,000.00	25.92	319.58	2,835.15	620.02	-528.09	814.43	0.00	0.00	0.00
3,100.00	25.92	319.58	2,925.09	653.30	-556.43	858.14	0.00	0.00	0.00
3,200.00	25.92	319.58	3,015.03	686.57	-584.77	901.85	0.00	0.00	0.00
3,300.00	25.92	319.58	3,104.97	719.85	-613.11	945.56	0.00	0.00	0.00
3,400.00	25.92	319.58	3,194.91	753.12	-641.45	989.27	0.00	0.00	0.00
3,481.26	25.92	319.58	3,268.00	780.16	-664.48	1,024.79	0.00	0.00	0.00
<b>Fruitland Coal</b>									
3,500.00	25.92	319.58	3,284.86	786.40	-669.79	1,032.98	0.00	0.00	0.00
3,600.00	25.92	319.58	3,374.80	819.67	-698.13	1,076.69	0.00	0.00	0.00
3,700.00	25.92	319.58	3,464.74	852.95	-726.47	1,120.40	0.00	0.00	0.00
3,800.00	25.92	319.58	3,554.68	886.23	-754.81	1,164.10	0.00	0.00	0.00
3,900.00	25.92	319.58	3,644.62	919.50	-783.15	1,207.81	0.00	0.00	0.00
4,000.00	25.92	319.58	3,734.56	952.78	-811.50	1,251.52	0.00	0.00	0.00
4,100.00	25.92	319.58	3,824.51	986.05	-839.84	1,295.23	0.00	0.00	0.00
4,108.33	25.92	319.58	3,832.00	988.82	-842.20	1,298.87	0.00	0.00	0.00
<b>Pictured Cliffs</b>									
4,200.00	25.92	319.58	3,914.45	1,019.33	-868.18	1,338.94	0.00	0.00	0.00
4,275.11	25.92	319.58	3,982.00	1,044.32	-889.46	1,371.77	0.00	0.00	0.00
<b>SU 11D1 PBHL</b>									

<b>Database:</b>	Grand Junction District	<b>Local Co-ordinate Reference:</b>	Well SU 11D1
<b>Company:</b>	Brammer Engineering	<b>TVD Reference:</b>	GL 7214' @ 7214.00ft
<b>Project:</b>	La Plata County, Colorado NAD27	<b>MD Reference:</b>	GL 7214' @ 7214.00ft
<b>Site:</b>	SU 11 Pad	<b>North Reference:</b>	True
<b>Well:</b>	SU 11D1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	Plan #3		

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									
SU 11D1 PBHL	0.00	0.00	3,982.00	1,044.32	-889.46	1,151,121.65	2,325,592.59	37.0587800	-107.8112900
- plan hits target center									
- Point									

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)	
500.00	500.00	Surface Casing	9.625	12.250	

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
3,481.26	3,268.00	Fruitland Coal		0.00		
4,108.33	3,832.00	Pictured Cliffs		0.00		