

# **Catamount Energy Partners**

**San Juan Basin  
Archuleta County CO  
Lamke 33-5-29 #1**

**Original Hole**

**Plan: Plan #1**

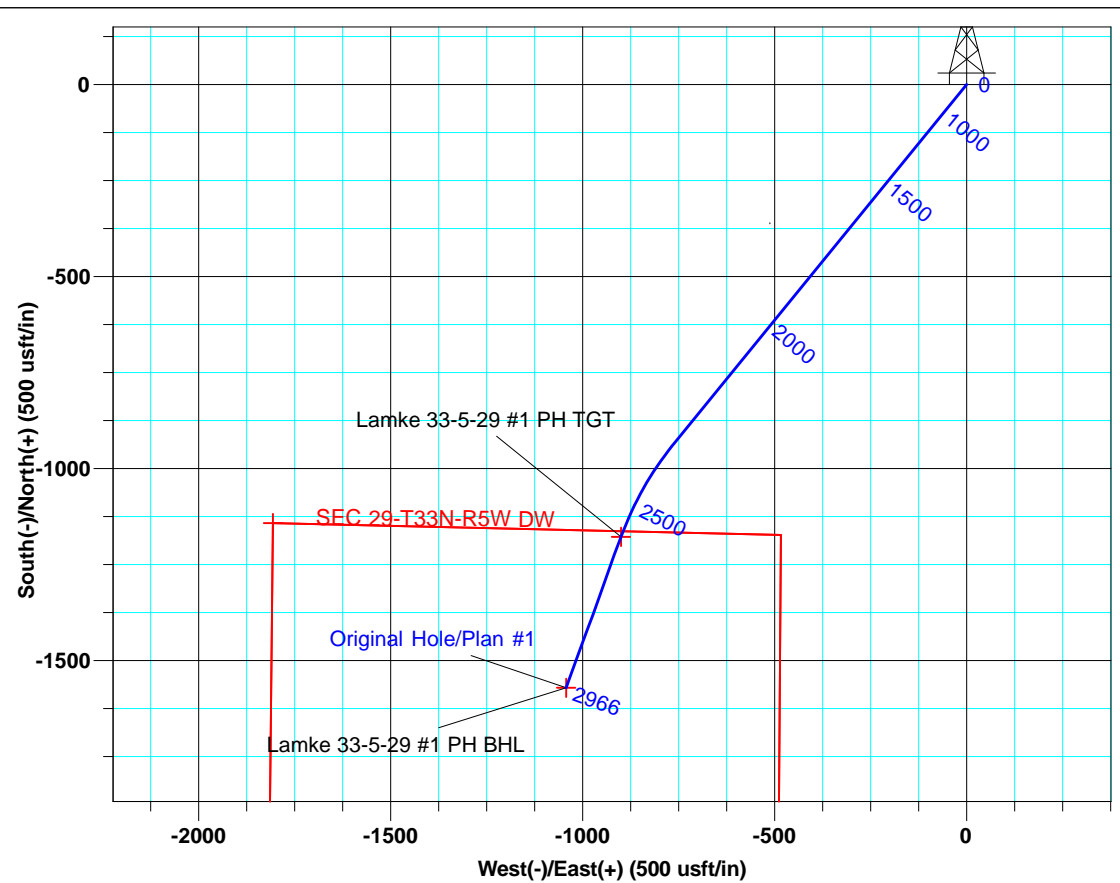
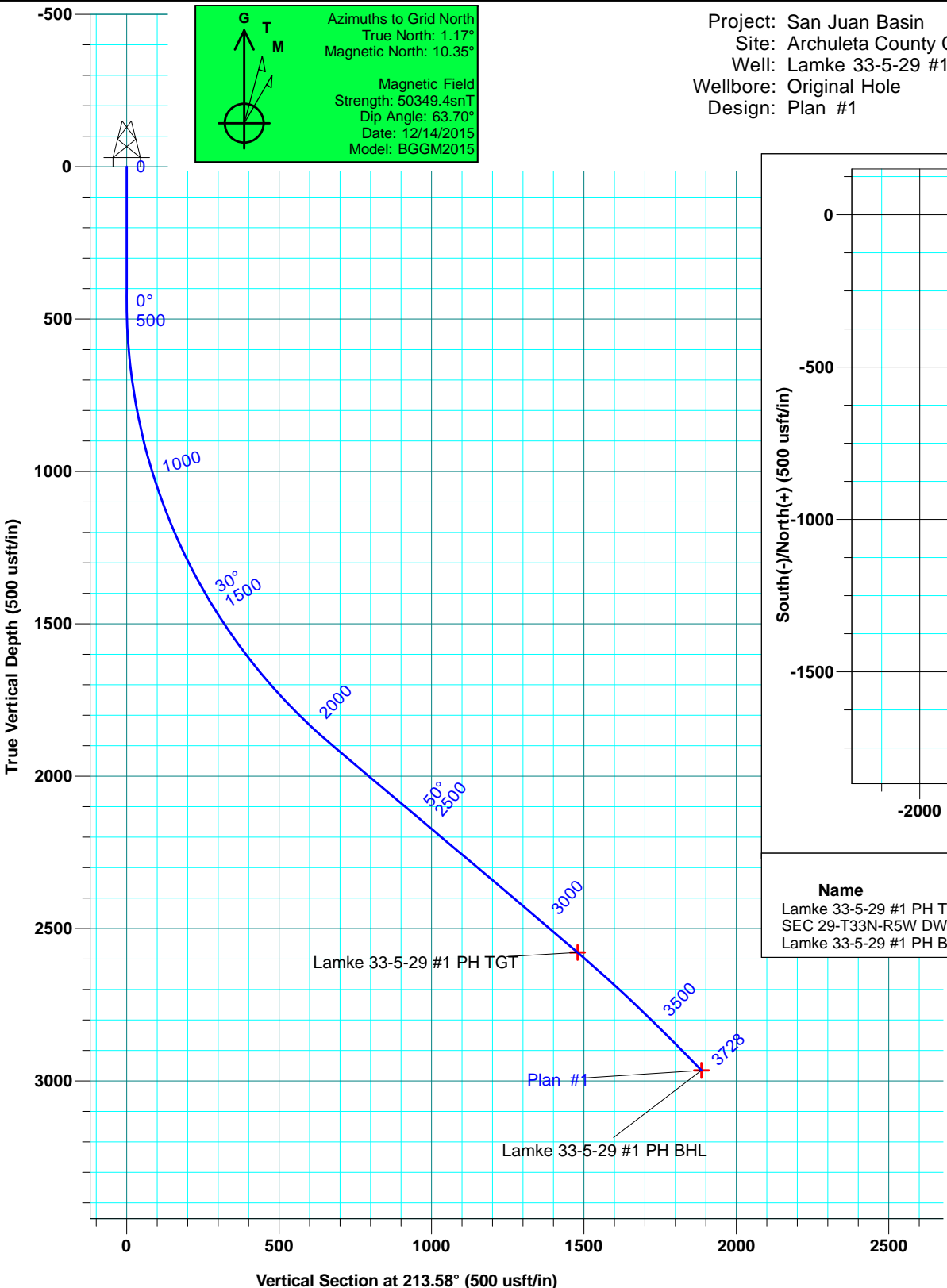
## **Standard Planning Report**

**14 December, 2015**



Azimuths to Grid North  
 True North: 1.17°  
 Magnetic North: 10.35°  
 Magnetic Field  
 Strength: 50349.4snT  
 Dip Angle: 63.70°  
 Date: 12/14/2015  
 Model: BGGM2015

Project: San Juan Basin  
 Site: Archuleta County CO  
 Well: Lamke 33-5-29 #1  
 Wellbore: Original Hole  
 Design: Plan #1



DESIGN TARGET DETAILS					
Name	TVD	+N/-S	+E/-W	Northing	Easting
Lamke 33-5-29 #1 PH TGT	2578.99	-1178.00	-900.00	1151363.67	2442621.08
SEC 29-T33N-R5W DW	2578.99	-1141.54	-1806.09	1151400.13	2441714.96
Lamke 33-5-29 #1 PH BHL	2965.99	-1570.86	-1042.86	1150970.80	2442478.22

WELL DETAILS				Lamke 33-5-29 #1	
6119' GL + 11' KB @ 6129.99usft					
Northing	Easting	Latitude	Longitude		
1152541.71	2443521.11	37° 4' 11.971 N	107° 24' 26.481 W		
SITE DETAILS:				PROJECT DETAILS:	
Archuleta County CO				San Juan Basin	
Site Centre Northing: 1152541.71				Geodetic System: US State Plane 1983	
Easting: 2443521.11				Datum: North American Datum 1983	
Positional Uncertainty: 0.00				Ellipsoid: GRS 1980	
Local North: Grid				Zone: Colorado Southern Zone	
				System Datum: Mean Sea Level	

**ALL AZIMUTHS MUST BE CORRECTED TO GRID NORTH**  
 To convert Magnetic North to Grid, Add 10.35°  
 To convert True North to Grid, Add 1.17°

<b>Database:</b>	Grand Junction District	<b>Local Co-ordinate Reference:</b>	Well Lamke 33-5-29 #1
<b>Company:</b>	Catamount Energy Partners	<b>TVD Reference:</b>	6119' GL + 11' KB @ 6129.99usft
<b>Project:</b>	San Juan Basin	<b>MD Reference:</b>	6119' GL + 11' KB @ 6129.99usft
<b>Site:</b>	Archuleta County CO	<b>North Reference:</b>	Grid
<b>Well:</b>	Lamke 33-5-29 #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Original Hole		
<b>Design:</b>	Plan #1		

<b>Project</b>	San Juan Basin, Southern Colorado, Fruitland Coal HZ		
<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		Using geodetic scale factor

<b>Site</b>	Archuleta County CO		
<b>Site Position:</b>		<b>Northing:</b>	1,152,541.71 usft
<b>From:</b>	Map	<b>Easting:</b>	2,443,521.11 usft
<b>Position Uncertainty:</b>	0.00 usft	<b>Slot Radius:</b>	6-1/8 "
		<b>Latitude:</b>	37° 4' 11.971 N
		<b>Longitude:</b>	107° 24' 26.481 W
		<b>Grid Convergence:</b>	-1.17 °

<b>Well</b>	Lamke 33-5-29 #1, Multi HZ FC Well		
<b>Well Position</b>	<b>+N/-S</b>	0.00 usft	<b>Northing:</b> 1,152,541.71 usft
	<b>+E/-W</b>	0.00 usft	<b>Easting:</b> 2,443,521.11 usft
<b>Position Uncertainty</b>	1.00 usft	<b>Wellhead Elevation:</b>	6,129.99 usft
		<b>Latitude:</b>	37° 4' 11.971 N
		<b>Longitude:</b>	107° 24' 26.481 W
		<b>Ground Level:</b>	6,118.99 usft

<b>Wellbore</b>	Original Hole		
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Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2015	12/14/2015	9.18	63.70	50,349

<b>Design</b>	Plan #1		
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<b>Audit Notes:</b>			
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<b>Version:</b>	<b>Phase:</b>	PLAN	<b>Tie On Depth:</b>	0.00
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Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	213.58

<b>Plan Sections</b>										
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Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
440.00	0.00	0.00	440.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,108.74	50.06	219.18	1,904.37	-530.11	-431.97	3.00	3.00	0.00	219.18	
2,790.76	50.06	219.18	2,342.19	-935.49	-762.30	0.00	0.00	0.00	0.00	
3,157.61	50.06	200.00	2,578.99	-1,178.00	-900.00	4.00	0.00	-5.23	-96.20	Lamke 33-5-29 #1 F
3,727.54	44.36	200.00	2,965.99	-1,570.86	-1,042.99	1.00	-1.00	0.00	180.00	

<b>Database:</b>	Grand Junction District	<b>Local Co-ordinate Reference:</b>	Well Lamke 33-5-29 #1
<b>Company:</b>	Catamount Energy Partners	<b>TVD Reference:</b>	6119' GL + 11' KB @ 6129.99usft
<b>Project:</b>	San Juan Basin	<b>MD Reference:</b>	6119' GL + 11' KB @ 6129.99usft
<b>Site:</b>	Archuleta County CO	<b>North Reference:</b>	Grid
<b>Well:</b>	Lamke 33-5-29 #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Original Hole		
<b>Design:</b>	Plan #1		

Planned Survey									
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)
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
440.00	0.00	0.00	440.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	1.80	219.18	499.99	-0.73	-0.60	0.94	3.00	3.00	0.00
600.00	4.80	219.18	599.81	-5.19	-4.23	6.67	3.00	3.00	0.00
700.00	7.80	219.18	699.20	-13.70	-11.16	17.59	3.00	3.00	0.00
800.00	10.80	219.18	797.87	-26.22	-21.37	33.67	3.00	3.00	0.00
900.00	13.80	219.18	895.57	-42.74	-34.83	54.87	3.00	3.00	0.00
1,000.00	16.80	219.18	992.01	-63.19	-51.49	81.13	3.00	3.00	0.00
1,100.00	19.80	219.18	1,086.94	-87.53	-71.33	112.37	3.00	3.00	0.00
1,200.00	22.80	219.18	1,180.10	-115.69	-94.27	148.52	3.00	3.00	0.00
1,300.00	25.80	219.18	1,271.23	-147.58	-120.26	189.47	3.00	3.00	0.00
1,381.70	28.25	219.18	1,344.00	-176.36	-143.71	226.41	3.00	3.00	0.00
<b>Animas</b>									
1,400.00	28.80	219.18	1,360.08	-183.13	-149.23	235.11	3.00	3.00	0.00
1,500.00	31.80	219.18	1,446.41	-222.24	-181.10	285.32	3.00	3.00	0.00
1,600.00	34.80	219.18	1,529.98	-264.80	-215.78	339.95	3.00	3.00	0.00
1,700.00	37.80	219.18	1,610.57	-310.69	-253.17	398.87	3.00	3.00	0.00
1,800.00	40.80	219.18	1,687.94	-359.78	-293.18	461.90	3.00	3.00	0.00
1,828.00	41.64	219.18	1,709.00	-374.08	-304.83	480.26	3.00	3.00	0.00
<b>Kirtland Shale</b>									
1,900.00	43.80	219.18	1,761.90	-411.95	-335.68	528.87	3.00	3.00	0.00
2,000.00	46.80	219.18	1,832.23	-467.05	-380.58	599.60	3.00	3.00	0.00
2,108.74	50.06	219.18	1,904.37	-530.11	-431.97	680.56	3.00	3.00	0.00
2,200.00	50.06	219.18	1,962.95	-584.35	-476.17	750.20	0.00	0.00	0.00
2,232.79	50.06	219.18	1,984.00	-603.84	-492.05	775.22	0.00	0.00	0.00
<b>Farmington SS</b>									
2,300.00	50.06	219.18	2,027.15	-643.79	-524.60	826.51	0.00	0.00	0.00
2,400.00	50.06	219.18	2,091.34	-703.23	-573.04	902.82	0.00	0.00	0.00
2,500.00	50.06	219.18	2,155.54	-762.67	-621.47	979.13	0.00	0.00	0.00
2,600.00	50.06	219.18	2,219.73	-822.10	-669.91	1,055.44	0.00	0.00	0.00
2,700.00	50.06	219.18	2,283.93	-881.54	-718.34	1,131.75	0.00	0.00	0.00
2,731.27	50.06	219.18	2,304.00	-900.13	-733.49	1,155.61	0.00	0.00	0.00
<b>Lower KS</b>									
2,790.76	50.06	219.18	2,342.19	-935.49	-762.30	1,201.01	0.00	0.00	0.00
2,800.00	50.02	218.70	2,348.13	-941.00	-766.75	1,208.06	4.00	-0.42	-5.19
2,900.00	49.73	213.48	2,412.60	-1,002.75	-811.77	1,284.40	4.00	-0.29	-5.22
3,000.00	49.67	208.23	2,477.30	-1,068.18	-850.86	1,360.53	4.00	-0.06	-5.24
3,100.00	49.85	203.00	2,541.92	-1,136.97	-883.84	1,436.08	4.00	0.18	-5.24
3,157.61	50.06	200.00	2,578.99	-1,178.00	-900.00	1,479.20	4.00	0.36	-5.20
<b>Lamke 33-5-29 #1 PH TGT</b>									
3,157.62	50.06	200.00	2,579.00	-1,178.00	-900.00	1,479.21	0.01	0.00	0.00
<b>Upper FC</b>									
3,200.00	49.64	200.00	2,606.33	-1,208.44	-911.08	1,510.69	1.00	-1.00	0.00
3,273.06	48.91	200.00	2,654.00	-1,260.47	-930.02	1,564.51	1.00	-1.00	0.00
<b>Main FC</b>									
3,300.00	48.64	200.00	2,671.75	-1,279.51	-936.95	1,584.21	1.00	-1.00	0.00
3,333.55	48.30	200.00	2,694.00	-1,303.11	-945.54	1,608.62	1.00	-1.00	0.00
<b>Inter Tongue SS</b>									
3,362.40	48.01	200.00	2,713.24	-1,323.30	-952.89	1,629.51	1.00	-1.00	0.00

<b>Database:</b>	Grand Junction District	<b>Local Co-ordinate Reference:</b>	Well Lamke 33-5-29 #1
<b>Company:</b>	Catamount Energy Partners	<b>TVD Reference:</b>	6119' GL + 11' KB @ 6129.99usft
<b>Project:</b>	San Juan Basin	<b>MD Reference:</b>	6119' GL + 11' KB @ 6129.99usft
<b>Site:</b>	Archuleta County CO	<b>North Reference:</b>	Grid
<b>Well:</b>	Lamke 33-5-29 #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Original Hole		
<b>Design:</b>	Plan #1		

## Planned Survey

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)
<b>SEC 29-T33N-R5W DW</b>									
3,400.00	47.64	200.00	2,738.49	-1,349.49	-962.42	1,656.59	1.00	-1.00	0.00
3,445.08	47.19	200.00	2,769.00	-1,380.68	-973.77	1,688.86	1.00	-1.00	0.00
<b>Intre Tongue Coal</b>									
3,452.44	47.11	200.00	2,774.00	-1,385.74	-975.61	1,694.10	1.00	-1.00	0.00
<b>PC</b>									
3,500.00	46.64	200.00	2,806.51	-1,418.37	-987.48	1,727.84	1.00	-1.00	0.00
3,600.00	45.64	200.00	2,875.81	-1,486.12	-1,012.14	1,797.92	1.00	-1.00	0.00
3,700.00	44.64	200.00	2,946.35	-1,552.72	-1,036.39	1,866.82	1.00	-1.00	0.00
3,727.51	44.36	200.00	2,965.97	-1,570.84	-1,042.98	1,885.56	1.00	-1.00	0.00
<b>Lamke 33-5-29 #1 PH BHL</b>									
3,727.54	44.36	200.00	2,965.99	-1,570.86	-1,042.99	1,885.58	1.00	-1.00	0.00

## Design Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
Lamke 33-5-29 #1 PH	0.00	360.00	2,578.99	-1,178.00	-900.00	1,151,363.67	2,442,621.09	37° 4' 0.144 N	107° 24' 37.286 W
- plan hits target center									
- Point									
Lamke 33-5-29 #1 PH	0.00	360.00	2,965.99	-1,570.86	-1,042.86	1,150,970.80	2,442,478.22	37° 3' 56.232 N	107° 24' 38.949 W
- plan misses target center by 0.13usft at 3727.51usft MD (2965.97 TVD, -1570.84 N, -1042.98 E)									
- Point									

## Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,381.70	1,344.00	Animas		0.00	
1,828.00	1,709.00	Kirtland Shale		0.00	
2,232.79	1,984.00	Farmington SS		0.00	
2,731.27	2,304.00	Lower KS		0.00	
3,157.62	2,579.00	Upper FC		0.00	
3,273.06	2,654.00	Main FC		0.00	
3,333.55	2,694.00	Inter Tongue SS		0.00	
3,445.08	2,769.00	Intre Tongue Coal		0.00	
3,452.44	2,774.00	PC		0.00	