



Scientific Drilling
Rocky Mountain Operations

Company: OXY USA RMAT
Project: Garfield County, CO NAD27
Site: Shell 797-03A Pad



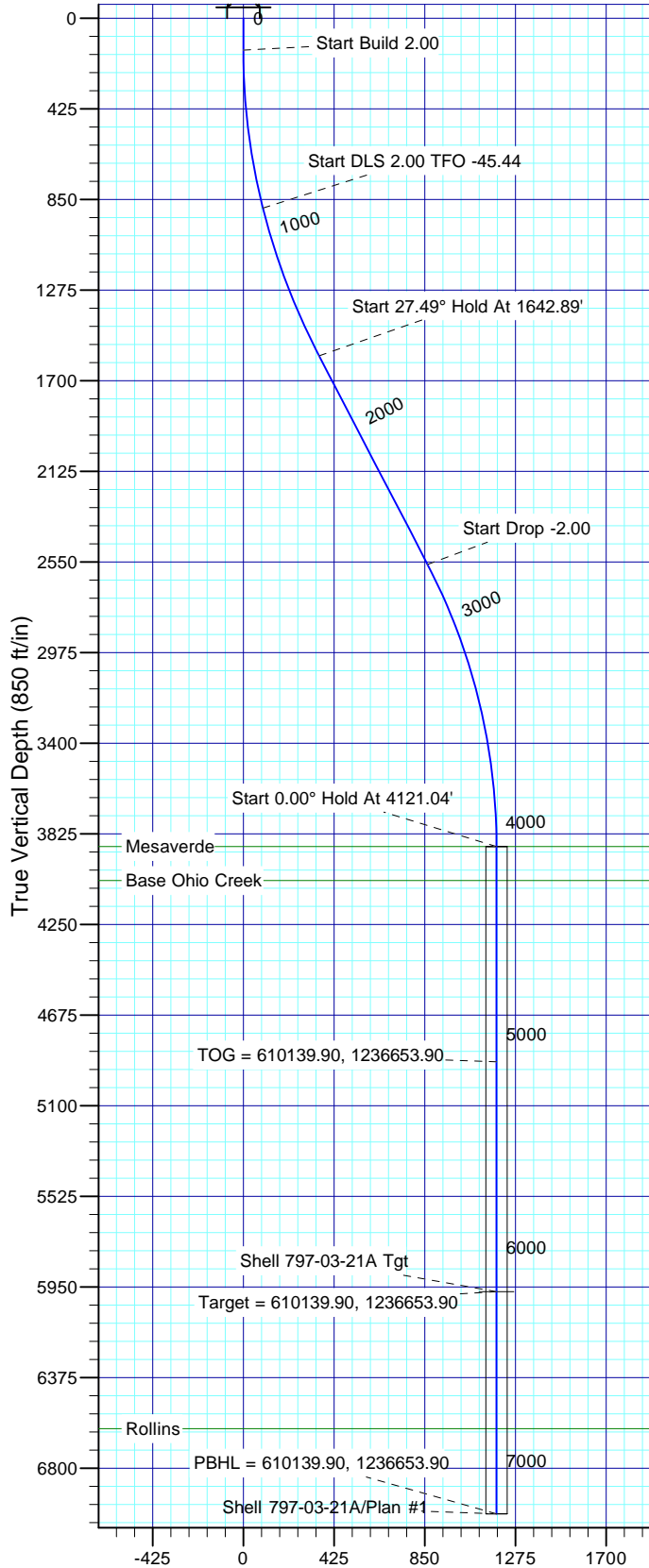
Well Details: Shell 797-03-21A

TVD Reference: GL 6485' & RKB 30' @ 6515.00ft (H&P) Ground Level: 6485.00
+N/-S 0.00 +E/-W 0.00 Northing 610900.70 Easting 1237564.16 Latitude 39° 28' 46.586 N Longitude 108° 12' 5.225 W Slot F

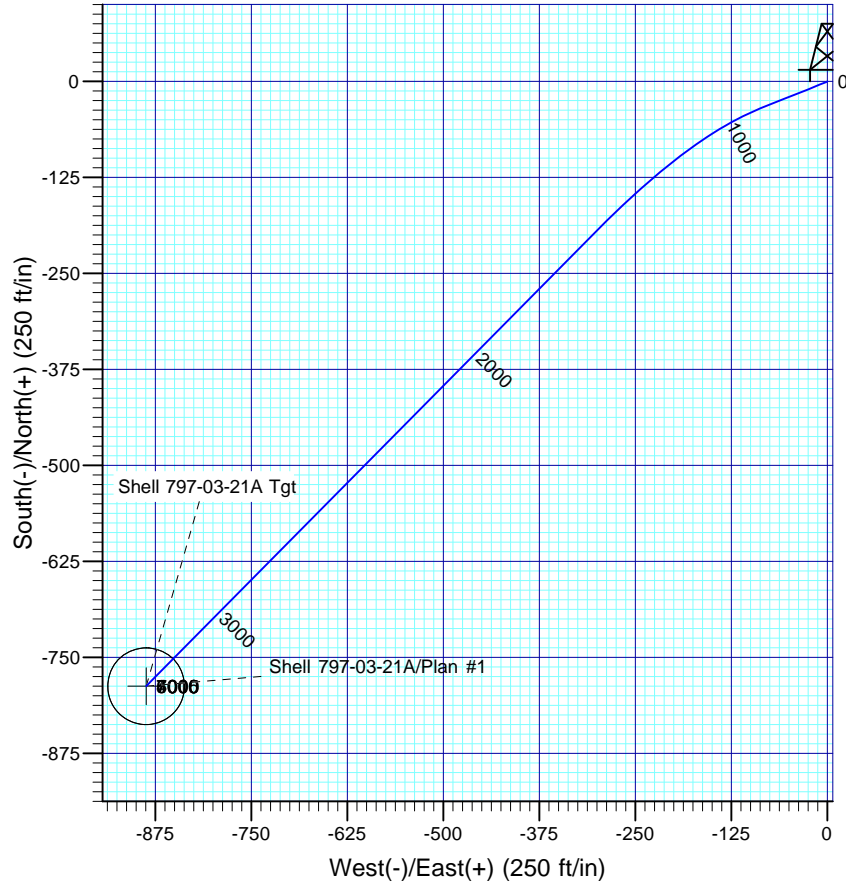


Azimuths to True North
Magnetic North: 10.42°

Magnetic Field
Strength: 52191.8snT
Dip Angle: 65.68°
Date: 08/19/2011
Model: IGRF2010



Vertical Section at 228.41° (850 ft/in)



FORMATION TOP DETAILS

TVDPath	MDPath	Formation
3885.00	4121.04	Mesaverde
4045.00	4281.04	Base Ohio Creek
6615.00	6851.04	Rollins

Plan: Plan #1

13:40, September 09 2011
Created By: Rex Hall

PROJECT DETAILS: Garfield County, CO NAD27

Geodetic System: US State Plane 1927 (Exact solution)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866
Zone: Colorado Central 502

System Datum: Mean Sea Level

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	150.00	0.00	0.00	150.00	0.00	0.00	0.00	0.00	0.00	
3	900.00	15.00	248.00	891.46	-36.57	-90.51	2.00	248.00	91.96	
4	1642.49	27.49	224.69	1583.27	-195.25	-301.28	2.00	-45.44	354.94	Shell 797-03-21A Tgt
5	1642.89	27.49	224.69	1583.63	-195.39	-301.41	2.00	0.00	355.13	
6	2746.33	27.49	224.69	2562.45	-557.52	-659.69	0.00	0.00	863.47	
7	4121.04	0.00	0.00	3885.00	-787.53	-887.25	2.00	180.00	1186.34	
8	6208.54	0.00	0.00	5972.50	-787.53	-887.25	0.00	0.00	1186.34	Shell 797-03-21A Tgt
9	7251.04	0.00	0.00	7015.00	-787.53	-887.25	0.00	0.00	1186.34	

OXY USA RMAT

Garfield County, CO NAD27

Shell 797-03A Pad

Shell 797-03-21A - Slot F

OH

Plan: Plan #1

Standard Planning Report

09 September, 2011

Scientific Drilling International

Planning Report

Database:	Rockies Compass Server	Local Co-ordinate Reference:	Well Shell 797-03-21A - Slot F
Company:	OXY USA RMAT	TVD Reference:	GL 6485' & RKB 30' @ 6515.00ft (H&P)
Project:	Garfield County, CO NAD27	MD Reference:	GL 6485' & RKB 30' @ 6515.00ft (H&P)
Site:	Shell 797-03A Pad	North Reference:	True
Well:	Shell 797-03-21A	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

Project	Garfield County, CO NAD27		
Map System:	US State Plane 1927 (Exact solution)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	Colorado Central 502		

Site		Shell 797-03A Pad			
Site Position:		Northing:	610,902.00 usft	Latitude:	39° 28' 46.610 N
From:	Lat/Long	Easting:	1,237,601.62 usft	Longitude:	108° 12' 4.748 W
Position Uncertainty:	0.00 ft	Slot Radius:	13.200 in	Grid Convergence:	-1.70 °

Well	Shell 797-03-21A - Slot F					
Well Position	+N/-S	-2.41 ft	Northing:	610,900.70 usft	Latitude:	39° 28' 46.586 N
	+E/-W	-37.41 ft	Easting:	1,237,564.16 usft	Longitude:	108° 12' 5.225 W
Position Uncertainty		0.00 ft	Wellhead Elevation:		Ground Level:	6,485.00 ft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	08/19/11	10.42	65.68	52,192

Design	Plan #1			
Audit Notes:				
Version:	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	228.41

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	
150.00	0.00	0.00	150.00	0.00	0.00	0.00	0.00	0.00	0.00	
900.00	15.00	248.00	891.46	-36.57	-90.51	2.00	2.00	0.00	248.00	
1,642.49	27.49	224.69	1,583.27	-195.25	-301.28	2.00	1.68	-3.14	-45.44	Shell 797-03-21A Tgt
1,642.89	27.49	224.69	1,583.63	-195.39	-301.41	2.00	2.00	0.00	0.00	
2,746.33	27.49	224.69	2,562.45	-557.52	-659.69	0.00	0.00	0.00	0.00	
4,121.04	0.00	0.00	3,885.00	-787.53	-887.25	2.00	-2.00	0.00	180.00	
6,208.54	0.00	0.00	5,972.50	-787.53	-887.25	0.00	0.00	0.00	0.00	Shell 797-03-21A Tgt
7,251.04	0.00	0.00	7,015.00	-787.53	-887.25	0.00	0.00	0.00	0.00	

Scientific Drilling International

Planning Report

Database:	Rockies Compass Server	Local Co-ordinate Reference:	Well Shell 797-03-21A - Slot F
Company:	OXY USA RMAT	TVD Reference:	GL 6485' & RKB 30' @ 6515.00ft (H&P)
Project:	Garfield County, CO NAD27	MD Reference:	GL 6485' & RKB 30' @ 6515.00ft (H&P)
Site:	Shell 797-03A Pad	North Reference:	True
Well:	Shell 797-03-21A	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

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
150.00	0.00	0.00	150.00	0.00	0.00	0.00	0.00	0.00	0.00
Start Build 2.00									
200.00	1.00	248.00	200.00	-0.16	-0.40	0.41	2.00	2.00	0.00
300.00	3.00	248.00	299.93	-1.47	-3.64	3.70	2.00	2.00	0.00
400.00	5.00	248.00	399.68	-4.08	-10.11	10.27	2.00	2.00	0.00
500.00	7.00	248.00	499.13	-8.00	-19.80	20.12	2.00	2.00	0.00
600.00	9.00	248.00	598.15	-13.21	-32.70	33.23	2.00	2.00	0.00
700.00	11.00	248.00	696.63	-19.72	-48.80	49.59	2.00	2.00	0.00
800.00	13.00	248.00	794.44	-27.51	-68.08	69.17	2.00	2.00	0.00
900.00	15.00	248.00	891.46	-36.57	-90.51	91.96	2.00	2.00	0.00
Start DLS 2.00 TFO -45.44									
1,000.00	16.46	242.97	987.72	-47.86	-115.13	117.87	2.00	1.46	-5.03
1,100.00	18.03	238.76	1,083.22	-62.32	-140.99	146.81	2.00	1.56	-4.21
1,200.00	19.67	235.22	1,177.86	-79.95	-168.04	178.75	2.00	1.64	-3.54
1,300.00	21.37	232.21	1,271.52	-100.72	-196.26	213.64	2.00	1.70	-3.01
1,400.00	23.12	229.63	1,364.07	-124.60	-225.62	251.45	2.00	1.75	-2.58
1,500.00	24.90	227.40	1,455.42	-151.57	-256.07	292.13	2.00	1.78	-2.23
1,600.00	26.71	225.45	1,545.45	-181.59	-287.58	335.62	2.00	1.81	-1.95
1,642.49	27.49	224.69	1,583.27	-195.25	-301.28	354.94	2.00	1.83	-1.78
1,642.89	27.49	224.69	1,583.63	-195.39	-301.41	355.13	2.00	2.00	0.00
Start 27.49° Hold At 1642.89'									
1,700.00	27.49	224.69	1,634.29	-214.13	-319.96	381.44	0.00	0.00	0.00
1,800.00	27.49	224.69	1,722.99	-246.95	-352.42	427.50	0.00	0.00	0.00
1,900.00	27.49	224.69	1,811.70	-279.77	-384.89	473.57	0.00	0.00	0.00
2,000.00	27.49	224.69	1,900.41	-312.58	-417.36	519.64	0.00	0.00	0.00
2,100.00	27.49	224.69	1,989.11	-345.40	-449.83	565.71	0.00	0.00	0.00
2,200.00	27.49	224.69	2,077.82	-378.22	-482.30	611.78	0.00	0.00	0.00
2,300.00	27.49	224.69	2,166.52	-411.04	-514.77	657.85	0.00	0.00	0.00
2,400.00	27.49	224.69	2,255.23	-443.86	-547.24	703.92	0.00	0.00	0.00
2,500.00	27.49	224.69	2,343.94	-476.68	-579.71	749.99	0.00	0.00	0.00
2,600.00	27.49	224.69	2,432.64	-509.50	-612.18	796.05	0.00	0.00	0.00
2,700.00	27.49	224.69	2,521.35	-542.31	-644.64	842.12	0.00	0.00	0.00
2,746.33	27.49	224.69	2,562.45	-557.52	-659.69	863.47	0.00	0.00	0.00
Start Drop -2.00									
2,800.00	26.42	224.69	2,610.28	-574.82	-676.80	887.75	2.00	-2.00	0.00
2,900.00	24.42	224.69	2,700.60	-605.33	-706.99	930.58	2.00	-2.00	0.00
3,000.00	22.42	224.69	2,792.35	-633.58	-734.94	970.24	2.00	-2.00	0.00
3,100.00	20.42	224.69	2,885.44	-659.55	-760.63	1,006.69	2.00	-2.00	0.00
3,200.00	18.42	224.69	2,979.74	-683.18	-784.01	1,039.86	2.00	-2.00	0.00
3,300.00	16.42	224.69	3,075.15	-704.46	-805.06	1,069.74	2.00	-2.00	0.00
3,400.00	14.42	224.69	3,171.55	-723.37	-823.77	1,096.27	2.00	-2.00	0.00
3,500.00	12.42	224.69	3,268.81	-739.86	-840.09	1,119.43	2.00	-2.00	0.00
3,600.00	10.42	224.69	3,366.83	-753.94	-854.01	1,139.19	2.00	-2.00	0.00
3,700.00	8.42	224.69	3,465.47	-765.58	-865.53	1,155.52	2.00	-2.00	0.00
3,800.00	6.42	224.69	3,564.63	-774.76	-874.61	1,168.41	2.00	-2.00	0.00
3,900.00	4.42	224.69	3,664.18	-781.47	-881.25	1,177.84	2.00	-2.00	0.00
4,000.00	2.42	224.69	3,764.00	-785.71	-885.45	1,183.79	2.00	-2.00	0.00
4,100.00	0.42	224.69	3,863.96	-787.48	-887.19	1,186.27	2.00	-2.00	0.00
4,121.04	0.00	0.00	3,885.00	-787.53	-887.25	1,186.34	2.00	-2.00	643.07
Start 0.00° Hold At 4121.04' - Mesaverde									
4,200.00	0.00	0.00	3,963.96	-787.53	-887.25	1,186.34	0.00	0.00	0.00

Scientific Drilling International

Planning Report

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Company:	OXY USA RMAT	TVD Reference:	GL 6485' & RKB 30' @ 6515.00ft (H&P)
Project:	Garfield County, CO NAD27	MD Reference:	GL 6485' & RKB 30' @ 6515.00ft (H&P)
Site:	Shell 797-03A Pad	North Reference:	True
Well:	Shell 797-03-21A	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

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)	
4,281.04	0.00	0.00	4,045.00	-787.53	-887.25	1,186.34	0.00	0.00	0.00	
Base Ohio Creek										
4,300.00	0.00	0.00	4,063.96	-787.53	-887.25	1,186.34	0.00	0.00	0.00	
4,400.00	0.00	0.00	4,163.96	-787.53	-887.25	1,186.34	0.00	0.00	0.00	
4,500.00	0.00	0.00	4,263.96	-787.53	-887.25	1,186.34	0.00	0.00	0.00	
4,600.00	0.00	0.00	4,363.96	-787.53	-887.25	1,186.34	0.00	0.00	0.00	
4,700.00	0.00	0.00	4,463.96	-787.53	-887.25	1,186.34	0.00	0.00	0.00	
4,800.00	0.00	0.00	4,563.96	-787.53	-887.25	1,186.34	0.00	0.00	0.00	
4,900.00	0.00	0.00	4,663.96	-787.53	-887.25	1,186.34	0.00	0.00	0.00	
5,000.00	0.00	0.00	4,763.96	-787.53	-887.25	1,186.34	0.00	0.00	0.00	
5,100.00	0.00	0.00	4,863.96	-787.53	-887.25	1,186.34	0.00	0.00	0.00	
5,131.04	0.00	0.00	4,895.00	-787.53	-887.25	1,186.34	0.00	0.00	0.00	
TOG = 610139.90, 1236653.90										
5,200.00	0.00	0.00	4,963.96	-787.53	-887.25	1,186.34	0.00	0.00	0.00	
5,300.00	0.00	0.00	5,063.96	-787.53	-887.25	1,186.34	0.00	0.00	0.00	
5,400.00	0.00	0.00	5,163.96	-787.53	-887.25	1,186.34	0.00	0.00	0.00	
5,500.00	0.00	0.00	5,263.96	-787.53	-887.25	1,186.34	0.00	0.00	0.00	
5,600.00	0.00	0.00	5,363.96	-787.53	-887.25	1,186.34	0.00	0.00	0.00	
5,700.00	0.00	0.00	5,463.96	-787.53	-887.25	1,186.34	0.00	0.00	0.00	
5,800.00	0.00	0.00	5,563.96	-787.53	-887.25	1,186.34	0.00	0.00	0.00	
5,900.00	0.00	0.00	5,663.96	-787.53	-887.25	1,186.34	0.00	0.00	0.00	
6,000.00	0.00	0.00	5,763.96	-787.53	-887.25	1,186.34	0.00	0.00	0.00	
6,100.00	0.00	0.00	5,863.96	-787.53	-887.25	1,186.34	0.00	0.00	0.00	
6,200.00	0.00	0.00	5,963.96	-787.53	-887.25	1,186.34	0.00	0.00	0.00	
6,208.54	0.00	0.00	5,972.50	-787.53	-887.25	1,186.34	0.00	0.00	0.00	
Target = 610139.90, 1236653.90										
6,300.00	0.00	0.00	6,063.96	-787.53	-887.25	1,186.34	0.00	0.00	0.00	
6,400.00	0.00	0.00	6,163.96	-787.53	-887.25	1,186.34	0.00	0.00	0.00	
6,500.00	0.00	0.00	6,263.96	-787.53	-887.25	1,186.34	0.00	0.00	0.00	
6,600.00	0.00	0.00	6,363.96	-787.53	-887.25	1,186.34	0.00	0.00	0.00	
6,700.00	0.00	0.00	6,463.96	-787.53	-887.25	1,186.34	0.00	0.00	0.00	
6,800.00	0.00	0.00	6,563.96	-787.53	-887.25	1,186.34	0.00	0.00	0.00	
6,851.04	0.00	0.00	6,615.00	-787.53	-887.25	1,186.34	0.00	0.00	0.00	
Rollins										
6,900.00	0.00	0.00	6,663.96	-787.53	-887.25	1,186.34	0.00	0.00	0.00	
7,000.00	0.00	0.00	6,763.96	-787.53	-887.25	1,186.34	0.00	0.00	0.00	
7,100.00	0.00	0.00	6,863.96	-787.53	-887.25	1,186.34	0.00	0.00	0.00	
7,200.00	0.00	0.00	6,963.96	-787.53	-887.25	1,186.34	0.00	0.00	0.00	
7,251.04	0.00	0.00	7,015.00	-787.53	-887.25	1,186.34	0.00	0.00	0.00	
PBHL = 610139.90, 1236653.90										

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude	
Shell 797-03-21A Tgt	0.00	0.00	5,972.50	-787.53	-887.25	610,139.90	1,236,653.89	39° 28' 38.802 N	108° 12' 16.541 W	
- hit/miss target										
- Shape										
- plan hits target center										
- Circle (radius 50.00)										

Scientific Drilling International

Planning Report

Database:	Rockies Compass Server	Local Co-ordinate Reference:	Well Shell 797-03-21A - Slot F
Company:	OXY USA RMAT	TVD Reference:	GL 6485' & RKB 30' @ 6515.00ft (H&P)
Project:	Garfield County, CO NAD27	MD Reference:	GL 6485' & RKB 30' @ 6515.00ft (H&P)
Site:	Shell 797-03A Pad	North Reference:	True
Well:	Shell 797-03-21A	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
4,121.04	3,885.00	Mesaverde		0.00	
4,281.04	4,045.00	Base Ohio Creek		0.00	
6,851.04	6,615.00	Rollins		0.00	

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
150.00	150.00	0.00	0.00	Start Build 2.00	
900.00	891.46	-36.57	-90.51	Start DLS 2.00 TFO -45.44	
1,642.89	1,583.63	-195.39	-301.41	Start 27.49° Hold At 1642.89'	
2,746.33	2,562.45	-557.52	-659.69	Start Drop -2.00	
4,121.04	3,885.00	-787.53	-887.25	Start 0.00° Hold At 4121.04'	
5,131.04	4,895.00	-787.53	-887.25	TOG = 610139.90, 1236653.90	
6,208.54	5,972.50	-787.53	-887.25	Target = 610139.90, 1236653.90	
7,251.04	7,015.00	-787.53	-887.25	PBHL = 610139.90, 1236653.90	