



Scientific Drilling
Rocky Mountain Operations

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



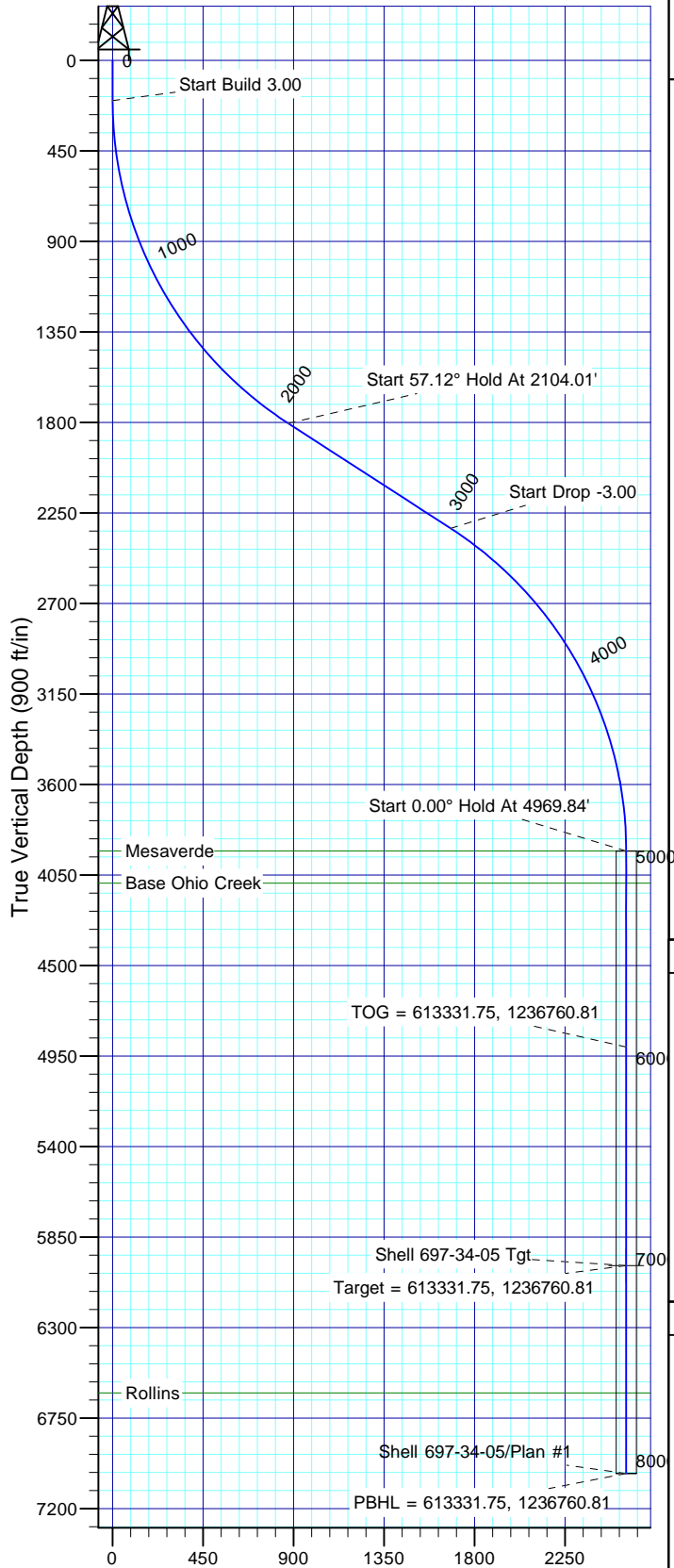
Well Details: Shell 697-34-05

TVD Reference: GL 6485' & RKB 30' @ 6515.00ft (H&P) Ground Level: 6485.00
+N/-S 0.00 +E/-W 0.00 Northing 610909.94 Easting 1237571.29 Latitude 39° 28' 46.679 N Longitude 108° 12' 5.138 W Slot H

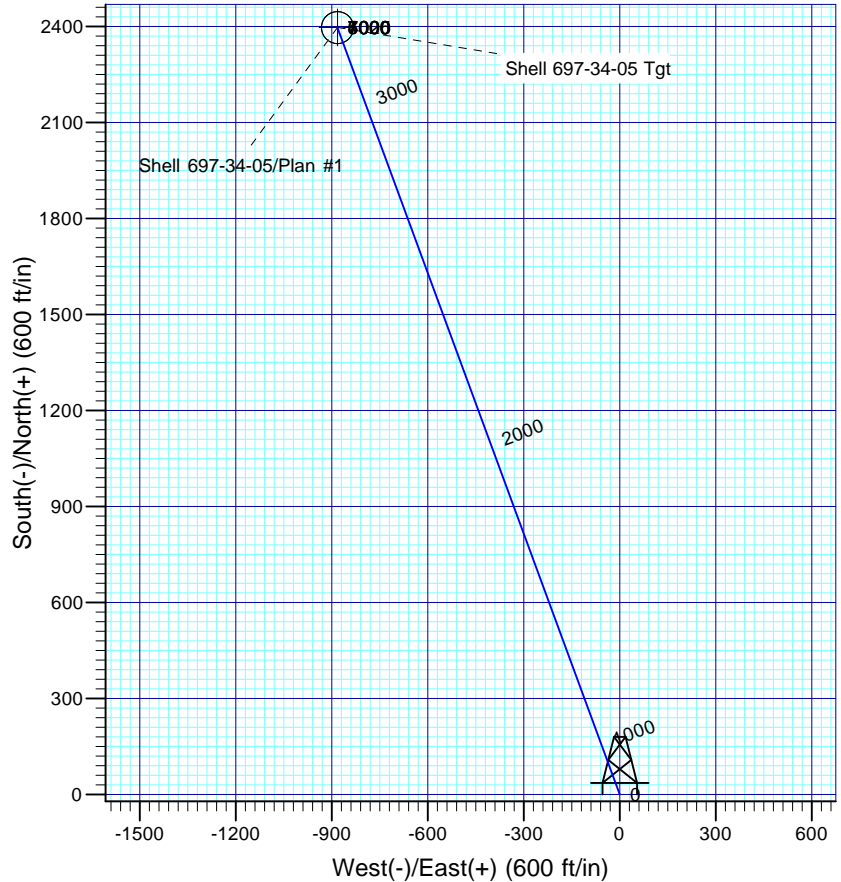


Azimuths to True North
Magnetic North: 10.42°

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



Vertical Section at 339.79° (900 ft/in)



FORMATION TOP DETAILS

TVDPath	MDPath	Formation
3930.00	4969.84	Mesaverde
4090.00	5129.84	Base Ohio Creek
6625.00	7664.84	Rollins

Plan: Plan #1

12:51, 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	200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	
3	2104.01	57.12	339.79	1803.92	819.30	-301.56	3.00	339.79	873.04	
4	3065.84	57.12	339.79	2326.08	1577.34	-580.57	0.00	0.00	0.00	
5	4969.84	0.00	0.00	3930.00	2396.65	-882.13	3.00	180.00	2553.83	
6	7031.09	0.00	0.00	5991.25	2396.65	-882.13	0.00	0.00	2553.83	Shell 697-34-05 Tgt
7	8064.84	0.00	0.00	7025.00	2396.65	-882.13	0.00	0.00	2553.83	

OXY USA RMAT

Garfield County, CO NAD27

Shell 797-03A Pad

Shell 697-34-05 - Slot H

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 697-34-05 - Slot H
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 697-34-05	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 697-34-05 - Slot H					
Well Position	+N/-S	7.04 ft	Northing:	610,909.94 usft	Latitude:	39° 28' 46.679 N
	+E/-W	-30.56 ft	Easting:	1,237,571.28 usft	Longitude:	108° 12' 5.138 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	339.79

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	
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,104.01	57.12	339.79	1,803.92	819.30	-301.56	3.00	3.00	0.00	339.79	
3,065.84	57.12	339.79	2,326.08	1,577.34	-580.57	0.00	0.00	0.00	0.00	
4,969.84	0.00	0.00	3,930.00	2,396.65	-882.13	3.00	-3.00	0.00	180.00	
7,031.09	0.00	0.00	5,991.25	2,396.65	-882.13	0.00	0.00	0.00	0.00	Shell 697-34-05 Tgt
8,064.84	0.00	0.00	7,025.00	2,396.65	-882.13	0.00	0.00	0.00	0.00	

Scientific Drilling International

Planning Report

Database:	Rockies Compass Server	Local Co-ordinate Reference:	Well Shell 697-34-05 - Slot H
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 697-34-05	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
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
Start Build 3.00									
300.00	3.00	339.79	299.95	2.46	-0.90	2.62	3.00	3.00	0.00
400.00	6.00	339.79	399.63	9.82	-3.61	10.46	3.00	3.00	0.00
500.00	9.00	339.79	498.77	22.07	-8.12	23.51	3.00	3.00	0.00
600.00	12.00	339.79	597.08	39.17	-14.42	41.74	3.00	3.00	0.00
700.00	15.00	339.79	694.31	61.07	-22.48	65.08	3.00	3.00	0.00
800.00	18.00	339.79	790.18	87.72	-32.29	93.48	3.00	3.00	0.00
900.00	21.00	339.79	884.43	119.04	-43.82	126.85	3.00	3.00	0.00
1,000.00	24.00	339.79	976.81	154.95	-57.03	165.12	3.00	3.00	0.00
1,100.00	27.00	339.79	1,067.06	195.35	-71.90	208.16	3.00	3.00	0.00
1,200.00	30.00	339.79	1,154.93	240.12	-88.38	255.87	3.00	3.00	0.00
1,300.00	33.00	339.79	1,240.18	289.15	-106.43	308.12	3.00	3.00	0.00
1,400.00	36.00	339.79	1,322.59	342.30	-125.99	364.75	3.00	3.00	0.00
1,500.00	39.00	339.79	1,401.91	399.42	-147.01	425.62	3.00	3.00	0.00
1,600.00	42.00	339.79	1,477.95	460.36	-169.44	490.56	3.00	3.00	0.00
1,700.00	45.00	339.79	1,550.47	524.96	-193.22	559.38	3.00	3.00	0.00
1,800.00	48.00	339.79	1,619.30	593.02	-218.27	631.91	3.00	3.00	0.00
1,900.00	51.00	339.79	1,684.24	664.37	-244.53	707.95	3.00	3.00	0.00
2,000.00	54.00	339.79	1,745.11	738.82	-271.93	787.27	3.00	3.00	0.00
2,100.00	57.00	339.79	1,801.74	816.15	-300.40	869.68	3.00	3.00	0.00
2,104.01	57.12	339.79	1,803.92	819.30	-301.56	873.04	3.00	3.00	0.00
Start 57.12° Hold At 2104.01'									
2,200.00	57.12	339.79	1,856.03	894.96	-329.40	953.65	0.00	0.00	0.00
2,300.00	57.12	339.79	1,910.32	973.77	-358.41	1,037.64	0.00	0.00	0.00
2,400.00	57.12	339.79	1,964.61	1,052.58	-387.42	1,121.62	0.00	0.00	0.00
2,500.00	57.12	339.79	2,018.90	1,131.39	-416.43	1,205.60	0.00	0.00	0.00
2,600.00	57.12	339.79	2,073.19	1,210.21	-445.44	1,289.58	0.00	0.00	0.00
2,700.00	57.12	339.79	2,127.47	1,289.02	-474.45	1,373.56	0.00	0.00	0.00
2,800.00	57.12	339.79	2,181.76	1,367.83	-503.45	1,457.54	0.00	0.00	0.00
2,900.00	57.12	339.79	2,236.05	1,446.64	-532.46	1,541.52	0.00	0.00	0.00
3,000.00	57.12	339.79	2,290.34	1,525.46	-561.47	1,625.50	0.00	0.00	0.00
3,065.84	57.12	339.79	2,326.08	1,577.34	-580.57	1,680.79	0.00	0.00	0.00
Start Drop -3.00									
3,100.00	56.10	339.79	2,344.88	1,604.11	-590.42	1,709.32	3.00	-3.00	0.00
3,200.00	53.10	339.79	2,402.81	1,680.59	-618.57	1,790.82	3.00	-3.00	0.00
3,300.00	50.10	339.79	2,464.92	1,754.13	-645.64	1,869.17	3.00	-3.00	0.00
3,400.00	47.10	339.79	2,531.05	1,824.51	-671.54	1,944.17	3.00	-3.00	0.00
3,500.00	44.10	339.79	2,601.02	1,891.54	-696.21	2,015.60	3.00	-3.00	0.00
3,600.00	41.10	339.79	2,674.62	1,955.05	-719.59	2,083.28	3.00	-3.00	0.00
3,700.00	38.10	339.79	2,751.67	2,014.86	-741.60	2,147.00	3.00	-3.00	0.00
3,800.00	35.10	339.79	2,831.95	2,070.80	-762.19	2,206.61	3.00	-3.00	0.00
3,900.00	32.10	339.79	2,915.24	2,122.72	-781.30	2,261.94	3.00	-3.00	0.00
4,000.00	29.10	339.79	3,001.30	2,170.48	-798.88	2,312.83	3.00	-3.00	0.00
4,100.00	26.10	339.79	3,089.92	2,213.94	-814.88	2,359.15	3.00	-3.00	0.00
4,200.00	23.10	339.79	3,180.83	2,253.00	-829.25	2,400.76	3.00	-3.00	0.00
4,300.00	20.10	339.79	3,273.80	2,287.53	-841.97	2,437.56	3.00	-3.00	0.00
4,400.00	17.10	339.79	3,368.57	2,317.46	-852.98	2,469.45	3.00	-3.00	0.00
4,500.00	14.10	339.79	3,464.88	2,342.68	-862.26	2,496.33	3.00	-3.00	0.00
4,600.00	11.10	339.79	3,562.46	2,363.15	-869.80	2,518.13	3.00	-3.00	0.00
4,700.00	8.10	339.79	3,661.05	2,378.79	-875.55	2,534.80	3.00	-3.00	0.00

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Planning Report

Database:	Rockies Compass Server	Local Co-ordinate Reference:	Well Shell 697-34-05 - Slot H
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 697-34-05	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)
4,800.00	5.10	339.79	3,760.38	2,389.56	-879.52	2,546.29	3.00	-3.00	0.00
4,900.00	2.10	339.79	3,860.17	2,395.45	-881.69	2,552.56	3.00	-3.00	0.00
4,969.84	0.00	0.00	3,930.00	2,396.65	-882.13	2,553.83	3.00	-3.00	0.00
Start 0.00° Hold At 4969.84' - Mesaverde									
5,000.00	0.00	0.00	3,960.16	2,396.65	-882.13	2,553.83	0.00	0.00	0.00
5,100.00	0.00	0.00	4,060.16	2,396.65	-882.13	2,553.83	0.00	0.00	0.00
5,129.84	0.00	0.00	4,090.00	2,396.65	-882.13	2,553.83	0.00	0.00	0.00
Base Ohio Creek									
5,200.00	0.00	0.00	4,160.16	2,396.65	-882.13	2,553.83	0.00	0.00	0.00
5,300.00	0.00	0.00	4,260.16	2,396.65	-882.13	2,553.83	0.00	0.00	0.00
5,400.00	0.00	0.00	4,360.16	2,396.65	-882.13	2,553.83	0.00	0.00	0.00
5,500.00	0.00	0.00	4,460.16	2,396.65	-882.13	2,553.83	0.00	0.00	0.00
5,600.00	0.00	0.00	4,560.16	2,396.65	-882.13	2,553.83	0.00	0.00	0.00
5,700.00	0.00	0.00	4,660.16	2,396.65	-882.13	2,553.83	0.00	0.00	0.00
5,800.00	0.00	0.00	4,760.16	2,396.65	-882.13	2,553.83	0.00	0.00	0.00
5,900.00	0.00	0.00	4,860.16	2,396.65	-882.13	2,553.83	0.00	0.00	0.00
5,944.84	0.00	0.00	4,905.00	2,396.65	-882.13	2,553.83	0.00	0.00	0.00
TOG = 613331.75, 1236760.81									
6,000.00	0.00	0.00	4,960.16	2,396.65	-882.13	2,553.83	0.00	0.00	0.00
6,100.00	0.00	0.00	5,060.16	2,396.65	-882.13	2,553.83	0.00	0.00	0.00
6,200.00	0.00	0.00	5,160.16	2,396.65	-882.13	2,553.83	0.00	0.00	0.00
6,300.00	0.00	0.00	5,260.16	2,396.65	-882.13	2,553.83	0.00	0.00	0.00
6,400.00	0.00	0.00	5,360.16	2,396.65	-882.13	2,553.83	0.00	0.00	0.00
6,500.00	0.00	0.00	5,460.16	2,396.65	-882.13	2,553.83	0.00	0.00	0.00
6,600.00	0.00	0.00	5,560.16	2,396.65	-882.13	2,553.83	0.00	0.00	0.00
6,700.00	0.00	0.00	5,660.16	2,396.65	-882.13	2,553.83	0.00	0.00	0.00
6,800.00	0.00	0.00	5,760.16	2,396.65	-882.13	2,553.83	0.00	0.00	0.00
6,900.00	0.00	0.00	5,860.16	2,396.65	-882.13	2,553.83	0.00	0.00	0.00
7,000.00	0.00	0.00	5,960.16	2,396.65	-882.13	2,553.83	0.00	0.00	0.00
7,031.09	0.00	0.00	5,991.25	2,396.65	-882.13	2,553.83	0.00	0.00	0.00
Target = 613331.75, 1236760.81									
7,100.00	0.00	0.00	6,060.16	2,396.65	-882.13	2,553.83	0.00	0.00	0.00
7,200.00	0.00	0.00	6,160.16	2,396.65	-882.13	2,553.83	0.00	0.00	0.00
7,300.00	0.00	0.00	6,260.16	2,396.65	-882.13	2,553.83	0.00	0.00	0.00
7,400.00	0.00	0.00	6,360.16	2,396.65	-882.13	2,553.83	0.00	0.00	0.00
7,500.00	0.00	0.00	6,460.16	2,396.65	-882.13	2,553.83	0.00	0.00	0.00
7,600.00	0.00	0.00	6,560.16	2,396.65	-882.13	2,553.83	0.00	0.00	0.00
7,664.84	0.00	0.00	6,625.00	2,396.65	-882.13	2,553.83	0.00	0.00	0.00
Rollins									
7,700.00	0.00	0.00	6,660.16	2,396.65	-882.13	2,553.83	0.00	0.00	0.00
7,800.00	0.00	0.00	6,760.16	2,396.65	-882.13	2,553.83	0.00	0.00	0.00
7,900.00	0.00	0.00	6,860.16	2,396.65	-882.13	2,553.83	0.00	0.00	0.00
8,000.00	0.00	0.00	6,960.16	2,396.65	-882.13	2,553.83	0.00	0.00	0.00
8,064.84	0.00	0.00	7,025.00	2,396.65	-882.13	2,553.83	0.00	0.00	0.00
PBHL = 613331.75, 1236760.81									

Scientific Drilling International

Planning Report

Database:	Rockies Compass Server	Local Co-ordinate Reference:	Well Shell 697-34-05 - Slot H
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 697-34-05	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

Design Targets									
Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	(°)	(°)	(ft)	(ft)	(ft)	(usft)	(usft)		
- Shape									
Shell 697-34-05 Tgt	0.00	0.00	5,991.25	2,396.65	-882.13	613,331.75	1,236,760.81	39° 29' 10.367 N	108° 12' 16.389 W
- plan hits target center									
- Circle (radius 50.00)									

Formations					
Measured Depth	Vertical Depth	Name	Lithology	Dip	Dip Direction
(ft)	(ft)			(°)	(°)
4,969.84	3,930.00	Mesaverde		0.00	
5,129.84	4,090.00	Base Ohio Creek		0.00	
7,664.84	6,625.00	Rollins		0.00	

Plan Annotations				
Measured Depth	Vertical Depth	Local Coordinates		Comment
(ft)	(ft)	+N/-S (ft)	+E/-W (ft)	
200.00	200.00	0.00	0.00	Start Build 3.00
2,104.01	1,803.92	819.30	-301.56	Start 57.12° Hold At 2104.01'
3,065.84	2,326.08	1,577.34	-580.57	Start Drop -3.00
4,969.84	3,930.00	2,396.65	-882.13	Start 0.00° Hold At 4969.84'
5,944.84	4,905.00	2,396.65	-882.13	TOG = 613331.75, 1236760.81
7,031.09	5,991.25	2,396.65	-882.13	Target = 613331.75, 1236760.81
8,064.84	7,025.00	2,396.65	-882.13	PBHL = 613331.75, 1236760.81