



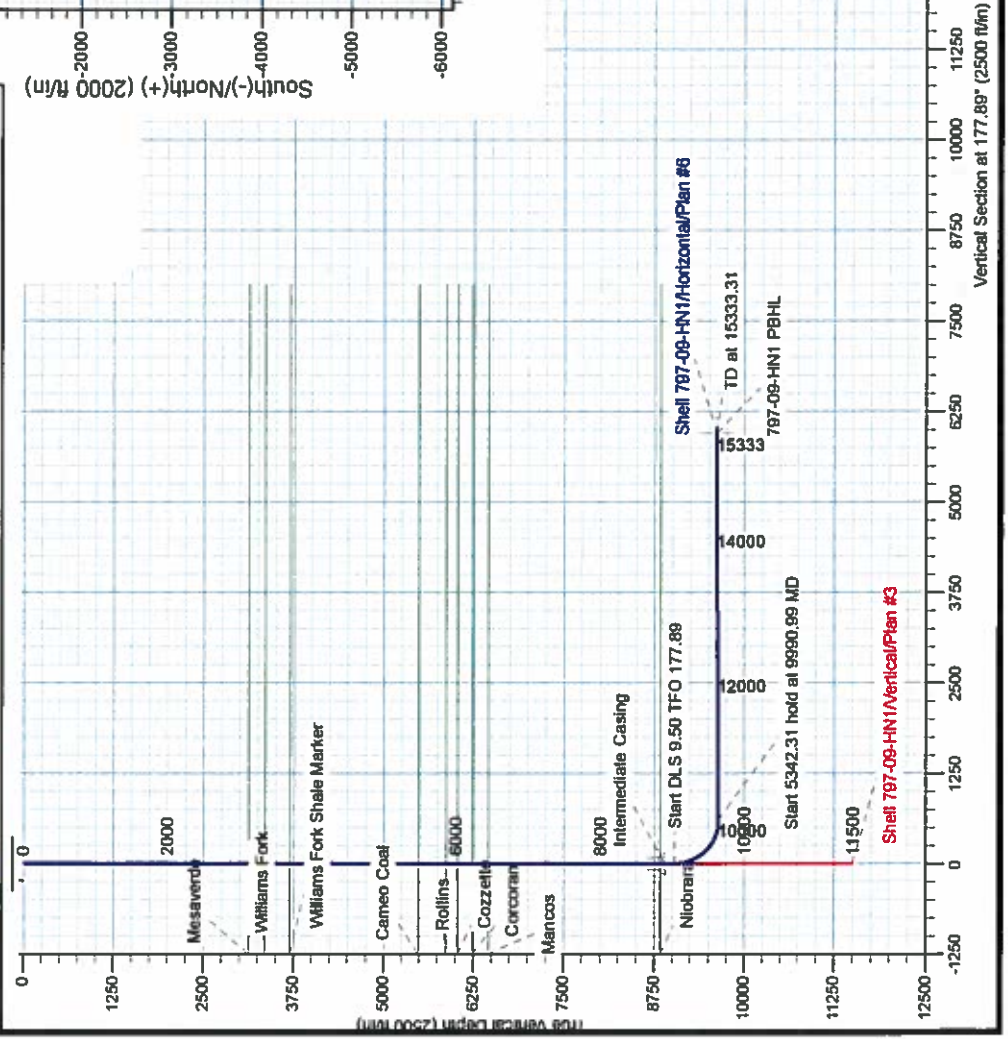
Project: Garfield County, CO NAD27
Site: Shell 797-09A Pad
Well: Shell 797-09-HN1
Wellbore: Horizontal
Design: Plan #6

WELL DETAILS: Shell 797-09-HN1

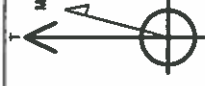
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.00	0.00	606361.83	1230738.63	39° 27' 59.730 N	108° 13' 30.500 W

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	9039.90	0.00	0.00	9039.90	0.00	0.00	0.00	0.00	0.00	
3	9990.99	90.35	177.89	9843.00	-606.43	22.32	9.50	177.89	606.84	
4	15333.31	90.35	177.89	9810.00	-5945.02	218.85	0.00	0.00	5949.05	797-09-HN1 PBHL



Scientific Drilling



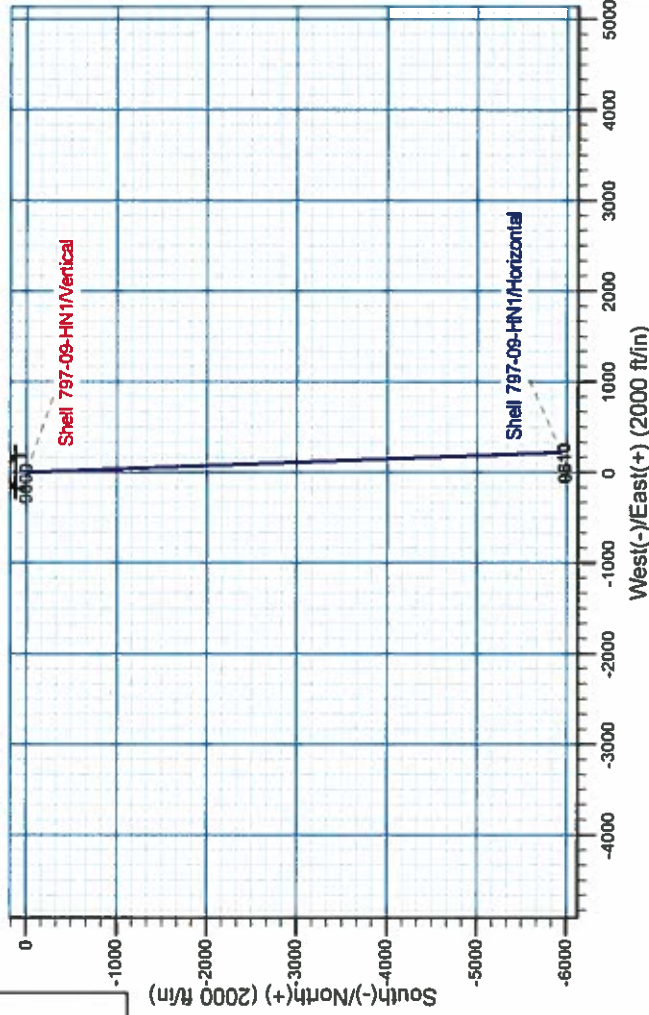
Azimuths to True North
Magnetic North: 10.21°
Magnetic Field
Strength: 51655.40
Declination: 10.21°
Date: 10/18/2013
Model: BGGA2013

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
Local North: True

Plan: Plan #6 (Shell 797-09-HN1/Horizontal)

Created By: Janie Collins Date: 12:03, October 16 2013



PROJECT DETAILS: Garfield County, CO NAD83

Geodetic System: US State Plane 1983 (Exact solution)
Datum: NAD 1983 (NADCON CONUS)
Ellipsoid: Clarke 1866
Zone: Colorado Central 502
System Datum: Mean Sea Level
Local North: True

Northing	Easting	Latitude	Longitude
1606370.793	2230577.980	39° 27' 59.65"	108° 13' 32.80"



OXY USA RMAT

Garfield County, CO NAD27

Shell 797-09A Pad

Shell 797-09-HN1

Horizontal

Plan: Plan #6

Standard Planning Report

16 October, 2013



Scientific Drilling



Database:	Grand Junction District	Local Co-ordinate Reference:	Well Shell 797-09-HN1
Company:	OXY USA RMAT	TVD Reference:	GL 5918' @ RKB 16' @ 5934.00ft
Project:	Garfield County, CO NAD27	MD Reference:	GL 5918' @ RKB 16' @ 5934.00ft
Site:	Shell 797-09A Pad	North Reference:	True
Well:	Shell 797-09-HN1	Survey Calculation Method:	Minimum Curvature
Wellbore:	Horizontal		
Design:	Plan #6		

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 797-09A Pad			
Site Position:		Northing:	606,375.02 usft	Latitude:	39° 27' 59.862 N
From:	Map	Easting:	1,230,744.36 usft	Longitude:	108° 13' 30.432 W
Position Uncertainty:	0.00 ft	Slot Radius:	13.200 in	Grid Convergence:	-1.72 °

Well	Shell 797-09-HN1					
Well Position	+N/-S	-13.35 ft	Northing:	606,361.83 usft	Latitude:	39° 27' 59.730 N
	+E/-W	-5.33 ft	Easting:	1,230,738.63 usft	Longitude:	108° 13' 30.500 W
Position Uncertainty		0.00 ft	Wellhead Elevation:		Ground Level:	5,918.00 ft

Wellbore	Horizontal				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2013	10/16/2013	10.21	65.60	51,896

Design	Plan #6			
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	177.89

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	
9,039.90	0.00	0.00	9,039.90	0.00	0.00	0.00	0.00	0.00	0.00	
9,990.99	90.35	177.89	9,643.00	-606.43	22.32	9.50	9.50	18.70	177.89	
15,333.31	90.35	177.89	9,610.00	-5,945.02	218.85	0.00	0.00	0.00	0.00	797-09-HN1 PBHL



Database:	Grand Junction District	Local Co-ordinate Reference:	Well Shell 797-09-HN1
Company:	OXY USA RMAT	TVD Reference:	GL 5918' @ RKB 16' @ 5934.00ft
Project:	Garfield County, CO NAD27	MD Reference:	GL 5918' @ RKB 16' @ 5934.00ft
Site:	Shell 797-09A Pad	North Reference:	True
Well:	Shell 797-09-HN1	Survey Calculation Method:	Minimum Curvature
Wellbore:	Horizontal		
Design:	Plan #6		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Buid 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
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00	0.00	0.00
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00
1,900.00	0.00	0.00	1,900.00	0.00	0.00	0.00	0.00	0.00	0.00
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00
2,100.00	0.00	0.00	2,100.00	0.00	0.00	0.00	0.00	0.00	0.00
2,200.00	0.00	0.00	2,200.00	0.00	0.00	0.00	0.00	0.00	0.00
2,300.00	0.00	0.00	2,300.00	0.00	0.00	0.00	0.00	0.00	0.00
2,400.00	0.00	0.00	2,400.00	0.00	0.00	0.00	0.00	0.00	0.00
2,500.00	0.00	0.00	2,500.00	0.00	0.00	0.00	0.00	0.00	0.00
2,600.00	0.00	0.00	2,600.00	0.00	0.00	0.00	0.00	0.00	0.00
2,700.00	0.00	0.00	2,700.00	0.00	0.00	0.00	0.00	0.00	0.00
2,800.00	0.00	0.00	2,800.00	0.00	0.00	0.00	0.00	0.00	0.00
2,900.00	0.00	0.00	2,900.00	0.00	0.00	0.00	0.00	0.00	0.00
3,000.00	0.00	0.00	3,000.00	0.00	0.00	0.00	0.00	0.00	0.00
3,100.00	0.00	0.00	3,100.00	0.00	0.00	0.00	0.00	0.00	0.00
3,125.00	0.00	0.00	3,125.00	0.00	0.00	0.00	0.00	0.00	0.00
Mesaverde									
3,200.00	0.00	0.00	3,200.00	0.00	0.00	0.00	0.00	0.00	0.00
3,300.00	0.00	0.00	3,300.00	0.00	0.00	0.00	0.00	0.00	0.00
3,353.00	0.00	0.00	3,353.00	0.00	0.00	0.00	0.00	0.00	0.00
Williams Fork									
3,400.00	0.00	0.00	3,400.00	0.00	0.00	0.00	0.00	0.00	0.00
3,500.00	0.00	0.00	3,500.00	0.00	0.00	0.00	0.00	0.00	0.00
3,600.00	0.00	0.00	3,600.00	0.00	0.00	0.00	0.00	0.00	0.00
3,699.00	0.00	0.00	3,699.00	0.00	0.00	0.00	0.00	0.00	0.00
Williams Fork Shale Marker									
3,700.00	0.00	0.00	3,700.00	0.00	0.00	0.00	0.00	0.00	0.00
3,800.00	0.00	0.00	3,800.00	0.00	0.00	0.00	0.00	0.00	0.00
3,900.00	0.00	0.00	3,900.00	0.00	0.00	0.00	0.00	0.00	0.00
4,000.00	0.00	0.00	4,000.00	0.00	0.00	0.00	0.00	0.00	0.00
4,100.00	0.00	0.00	4,100.00	0.00	0.00	0.00	0.00	0.00	0.00
4,200.00	0.00	0.00	4,200.00	0.00	0.00	0.00	0.00	0.00	0.00
4,300.00	0.00	0.00	4,300.00	0.00	0.00	0.00	0.00	0.00	0.00
4,400.00	0.00	0.00	4,400.00	0.00	0.00	0.00	0.00	0.00	0.00
4,500.00	0.00	0.00	4,500.00	0.00	0.00	0.00	0.00	0.00	0.00
4,600.00	0.00	0.00	4,600.00	0.00	0.00	0.00	0.00	0.00	0.00



Database:	Grand Junction District	Local Co-ordinate Reference:	Well Shell 797-09-HN1
Company:	OXY USA RMAT	TVD Reference:	GL 5918' @ RKB 16' @ 5934.00ft
Project:	Garfield County, CO NAD27	MD Reference:	GL 5918' @ RKB 16' @ 5934.00ft
Site:	Shell 797-09A Pad	North Reference:	True
Well:	Shell 797-09-HN1	Survey Calculation Method:	Minimum Curvature
Wellbore:	Horizontal		
Design:	Plan #6		

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)
4,700.00	0.00	0.00	4,700.00	0.00	0.00	0.00	0.00	0.00	0.00
4,800.00	0.00	0.00	4,800.00	0.00	0.00	0.00	0.00	0.00	0.00
4,900.00	0.00	0.00	4,900.00	0.00	0.00	0.00	0.00	0.00	0.00
5,000.00	0.00	0.00	5,000.00	0.00	0.00	0.00	0.00	0.00	0.00
5,100.00	0.00	0.00	5,100.00	0.00	0.00	0.00	0.00	0.00	0.00
5,200.00	0.00	0.00	5,200.00	0.00	0.00	0.00	0.00	0.00	0.00
5,300.00	0.00	0.00	5,300.00	0.00	0.00	0.00	0.00	0.00	0.00
5,400.00	0.00	0.00	5,400.00	0.00	0.00	0.00	0.00	0.00	0.00
5,486.00	0.00	0.00	5,486.00	0.00	0.00	0.00	0.00	0.00	0.00
Cameo Coal									
5,500.00	0.00	0.00	5,500.00	0.00	0.00	0.00	0.00	0.00	0.00
5,600.00	0.00	0.00	5,600.00	0.00	0.00	0.00	0.00	0.00	0.00
5,700.00	0.00	0.00	5,700.00	0.00	0.00	0.00	0.00	0.00	0.00
5,800.00	0.00	0.00	5,800.00	0.00	0.00	0.00	0.00	0.00	0.00
5,870.00	0.00	0.00	5,870.00	0.00	0.00	0.00	0.00	0.00	0.00
Rollins									
5,900.00	0.00	0.00	5,900.00	0.00	0.00	0.00	0.00	0.00	0.00
6,000.00	0.00	0.00	6,000.00	0.00	0.00	0.00	0.00	0.00	0.00
6,029.00	0.00	0.00	6,029.00	0.00	0.00	0.00	0.00	0.00	0.00
Cozzette									
6,100.00	0.00	0.00	6,100.00	0.00	0.00	0.00	0.00	0.00	0.00
6,200.00	0.00	0.00	6,200.00	0.00	0.00	0.00	0.00	0.00	0.00
6,231.00	0.00	0.00	6,231.00	0.00	0.00	0.00	0.00	0.00	0.00
Corcoran									
6,300.00	0.00	0.00	6,300.00	0.00	0.00	0.00	0.00	0.00	0.00
6,400.00	0.00	0.00	6,400.00	0.00	0.00	0.00	0.00	0.00	0.00
6,454.00	0.00	0.00	6,454.00	0.00	0.00	0.00	0.00	0.00	0.00
Mancos									
6,500.00	0.00	0.00	6,500.00	0.00	0.00	0.00	0.00	0.00	0.00
6,600.00	0.00	0.00	6,600.00	0.00	0.00	0.00	0.00	0.00	0.00
6,700.00	0.00	0.00	6,700.00	0.00	0.00	0.00	0.00	0.00	0.00
6,800.00	0.00	0.00	6,800.00	0.00	0.00	0.00	0.00	0.00	0.00
6,900.00	0.00	0.00	6,900.00	0.00	0.00	0.00	0.00	0.00	0.00
7,000.00	0.00	0.00	7,000.00	0.00	0.00	0.00	0.00	0.00	0.00
7,100.00	0.00	0.00	7,100.00	0.00	0.00	0.00	0.00	0.00	0.00
7,200.00	0.00	0.00	7,200.00	0.00	0.00	0.00	0.00	0.00	0.00
7,300.00	0.00	0.00	7,300.00	0.00	0.00	0.00	0.00	0.00	0.00
7,400.00	0.00	0.00	7,400.00	0.00	0.00	0.00	0.00	0.00	0.00
7,500.00	0.00	0.00	7,500.00	0.00	0.00	0.00	0.00	0.00	0.00
7,600.00	0.00	0.00	7,600.00	0.00	0.00	0.00	0.00	0.00	0.00
7,700.00	0.00	0.00	7,700.00	0.00	0.00	0.00	0.00	0.00	0.00
7,800.00	0.00	0.00	7,800.00	0.00	0.00	0.00	0.00	0.00	0.00
7,900.00	0.00	0.00	7,900.00	0.00	0.00	0.00	0.00	0.00	0.00
8,000.00	0.00	0.00	8,000.00	0.00	0.00	0.00	0.00	0.00	0.00
8,100.00	0.00	0.00	8,100.00	0.00	0.00	0.00	0.00	0.00	0.00
8,200.00	0.00	0.00	8,200.00	0.00	0.00	0.00	0.00	0.00	0.00
8,300.00	0.00	0.00	8,300.00	0.00	0.00	0.00	0.00	0.00	0.00
8,400.00	0.00	0.00	8,400.00	0.00	0.00	0.00	0.00	0.00	0.00
8,500.00	0.00	0.00	8,500.00	0.00	0.00	0.00	0.00	0.00	0.00
8,600.00	0.00	0.00	8,600.00	0.00	0.00	0.00	0.00	0.00	0.00
8,700.00	0.00	0.00	8,700.00	0.00	0.00	0.00	0.00	0.00	0.00
8,800.00	0.00	0.00	8,800.00	0.00	0.00	0.00	0.00	0.00	0.00
8,833.00	0.00	0.00	8,833.00	0.00	0.00	0.00	0.00	0.00	0.00



Database:	Grand Junction District	Local Co-ordinate Reference:	Well Shell 797-09-HN1
Company:	OXY USA RMAT	TVD Reference:	GL 5918' @ RKB 16' @ 5934.00ft
Project:	Garfield County, CO NAD27	MD Reference:	GL 5918' @ RKB 16' @ 5934.00ft
Site:	Shell 797-09A Pad	North Reference:	True
Well:	Shell 797-09-HN1	Survey Calculation Method:	Minimum Curvature
Wellbore:	Horizontal		
Design:	Plan #6		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Bulld Rate (°/100ft)	Turn Rate (°/100ft)
Niobrara									
8,900.00	0.00	0.00	8,900.00	0.00	0.00	0.00	0.00	0.00	0.00
Intermediate Casing									
9,000.00	0.00	0.00	9,000.00	0.00	0.00	0.00	0.00	0.00	0.00
9,039.90	0.00	0.00	9,039.90	0.00	0.00	0.00	0.00	0.00	0.00
9,100.00	5.71	177.89	9,099.90	-2.99	0.11	2.99	9.50	9.50	0.00
9,200.00	15.21	177.89	9,198.13	-21.11	0.78	21.13	9.50	9.50	0.00
9,300.00	24.71	177.89	9,292.01	-55.18	2.03	55.22	9.50	9.50	0.00
9,400.00	34.21	177.89	9,378.98	-104.28	3.84	104.35	9.50	9.50	0.00
9,500.00	43.71	177.89	9,456.65	-167.04	6.15	167.15	9.50	9.50	0.00
9,600.00	53.21	177.89	9,522.89	-241.75	8.90	241.91	9.50	9.50	0.00
9,700.00	62.71	177.89	9,575.88	-326.36	12.01	326.58	9.50	9.50	0.00
9,800.00	72.21	177.89	9,614.17	-418.56	15.41	418.84	9.50	9.50	0.00
9,900.00	81.71	177.89	9,636.71	-515.80	18.99	516.15	9.50	9.50	0.00
9,990.99	90.35	177.89	9,643.00	-606.43	22.32	606.84	9.50	9.50	0.00
10,000.00	90.35	177.89	9,642.95	-615.43	22.66	615.84	0.00	0.00	0.00
10,100.00	90.35	177.89	9,642.33	-715.36	26.33	715.84	0.00	0.00	0.00
10,200.00	90.35	177.89	9,641.71	-815.29	30.01	815.84	0.00	0.00	0.00
10,300.00	90.35	177.89	9,641.09	-915.22	33.69	915.84	0.00	0.00	0.00
10,400.00	90.35	177.89	9,640.48	-1,015.15	37.37	1,015.84	0.00	0.00	0.00
10,500.00	90.35	177.89	9,639.86	-1,115.08	41.05	1,115.84	0.00	0.00	0.00
10,600.00	90.35	177.89	9,639.24	-1,215.01	44.73	1,215.83	0.00	0.00	0.00
10,700.00	90.35	177.89	9,638.62	-1,314.94	48.41	1,315.83	0.00	0.00	0.00
10,800.00	90.35	177.89	9,638.00	-1,414.87	52.09	1,415.83	0.00	0.00	0.00
10,900.00	90.35	177.89	9,637.39	-1,514.80	55.76	1,515.83	0.00	0.00	0.00
11,000.00	90.35	177.89	9,636.77	-1,614.73	59.44	1,615.83	0.00	0.00	0.00
11,100.00	90.35	177.89	9,636.15	-1,714.66	63.12	1,715.82	0.00	0.00	0.00
11,200.00	90.35	177.89	9,635.53	-1,814.59	66.80	1,815.82	0.00	0.00	0.00
11,300.00	90.35	177.89	9,634.92	-1,914.52	70.48	1,915.82	0.00	0.00	0.00
11,400.00	90.35	177.89	9,634.30	-2,014.45	74.16	2,015.82	0.00	0.00	0.00
11,500.00	90.35	177.89	9,633.68	-2,114.38	77.84	2,115.82	0.00	0.00	0.00
11,600.00	90.35	177.89	9,633.06	-2,214.31	81.52	2,215.81	0.00	0.00	0.00
11,700.00	90.35	177.89	9,632.44	-2,314.24	85.19	2,315.81	0.00	0.00	0.00
11,800.00	90.35	177.89	9,631.83	-2,414.18	88.87	2,415.81	0.00	0.00	0.00
11,900.00	90.35	177.89	9,631.21	-2,514.11	92.55	2,515.81	0.00	0.00	0.00
12,000.00	90.35	177.89	9,630.59	-2,614.04	96.23	2,615.81	0.00	0.00	0.00
12,100.00	90.35	177.89	9,629.97	-2,713.97	99.91	2,715.80	0.00	0.00	0.00
12,200.00	90.35	177.89	9,629.36	-2,813.90	103.59	2,815.80	0.00	0.00	0.00
12,300.00	90.35	177.89	9,628.74	-2,913.83	107.27	2,915.80	0.00	0.00	0.00
12,400.00	90.35	177.89	9,628.12	-3,013.76	110.95	3,015.80	0.00	0.00	0.00
12,500.00	90.35	177.89	9,627.50	-3,113.69	114.62	3,115.80	0.00	0.00	0.00
12,600.00	90.35	177.89	9,626.89	-3,213.62	118.30	3,215.80	0.00	0.00	0.00
12,700.00	90.35	177.89	9,626.27	-3,313.55	121.98	3,315.79	0.00	0.00	0.00
12,800.00	90.35	177.89	9,625.65	-3,413.48	125.66	3,415.79	0.00	0.00	0.00
12,900.00	90.35	177.89	9,625.03	-3,513.41	129.34	3,515.79	0.00	0.00	0.00
13,000.00	90.35	177.89	9,624.41	-3,613.34	133.02	3,615.79	0.00	0.00	0.00
13,100.00	90.35	177.89	9,623.80	-3,713.27	136.70	3,715.79	0.00	0.00	0.00
13,200.00	90.35	177.89	9,623.18	-3,813.20	140.38	3,815.78	0.00	0.00	0.00
13,300.00	90.35	177.89	9,622.56	-3,913.13	144.05	3,915.78	0.00	0.00	0.00
13,400.00	90.35	177.89	9,621.94	-4,013.06	147.73	4,015.78	0.00	0.00	0.00
13,500.00	90.35	177.89	9,621.33	-4,112.99	151.41	4,115.78	0.00	0.00	0.00
13,600.00	90.35	177.89	9,620.71	-4,212.92	155.09	4,215.78	0.00	0.00	0.00
13,700.00	90.35	177.89	9,620.09	-4,312.85	158.77	4,315.77	0.00	0.00	0.00
13,800.00	90.35	177.89	9,619.47	-4,412.78	162.45	4,415.77	0.00	0.00	0.00



Database:	Grand Junction District	Local Co-ordinate Reference:	Well Shell 797-09-HN1
Company:	OXY USA RMAT	TVD Reference:	GL 5918' @ RKB 16' @ 5934.00ft
Project:	Garfield County, CO NAD27	MD Reference:	GL 5918' @ RKB 16' @ 5934.00ft
Site:	Shell 797-09A Pad	North Reference:	True
Well:	Shell 797-09-HN1	Survey Calculation Method:	Minimum Curvature
Wellbore:	Horizontal		
Design:	Plan #6		

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)
13,900.00	90.35	177.89	9,618.85	-4,512.71	166.13	4,515.77	0.00	0.00	0.00
14,000.00	90.35	177.89	9,618.24	-4,612.64	169.80	4,615.77	0.00	0.00	0.00
14,100.00	90.35	177.89	9,617.62	-4,712.57	173.48	4,715.77	0.00	0.00	0.00
14,200.00	90.35	177.89	9,617.00	-4,812.50	177.16	4,815.76	0.00	0.00	0.00
14,300.00	90.35	177.89	9,616.38	-4,912.44	180.84	4,915.76	0.00	0.00	0.00
14,400.00	90.35	177.89	9,615.77	-5,012.37	184.52	5,015.76	0.00	0.00	0.00
14,500.00	90.35	177.89	9,615.15	-5,112.30	188.20	5,115.76	0.00	0.00	0.00
14,600.00	90.35	177.89	9,614.53	-5,212.23	191.88	5,215.76	0.00	0.00	0.00
14,700.00	90.35	177.89	9,613.91	-5,312.16	195.56	5,315.76	0.00	0.00	0.00
14,800.00	90.35	177.89	9,613.29	-5,412.09	199.23	5,415.75	0.00	0.00	0.00
14,900.00	90.35	177.89	9,612.68	-5,512.02	202.91	5,515.75	0.00	0.00	0.00
15,000.00	90.35	177.89	9,612.06	-5,611.95	206.59	5,615.75	0.00	0.00	0.00
15,100.00	90.35	177.89	9,611.44	-5,711.88	210.27	5,715.75	0.00	0.00	0.00
15,200.00	90.35	177.89	9,610.82	-5,811.81	213.95	5,815.75	0.00	0.00	0.00
15,300.00	90.35	177.89	9,610.21	-5,911.74	217.63	5,915.74	0.00	0.00	0.00
15,333.31	90.35	177.89	9,610.00	-5,945.02	218.85	5,949.05	0.00	0.00	0.00
797-09-HN1 PBHL - 28-10H PBHL									

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
797-09-HN1 PBHL - plan hits target center - Point	0.00	0.00	9,610.00	-5,945.02	218.85	600,412.93	1,230,779.08	39° 27' 0.970 N	108° 13' 27.710 W

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)
8,900.00	8,900.00	Intermediate Casing		

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,125.00	3,125.00	Mesaverde		0.00	
3,353.00	3,353.00	Williams Fork		0.00	
3,699.00	3,699.00	Williams Fork Shale Marker		0.00	
5,486.00	5,486.00	Cameo Coal		0.00	
5,870.00	5,870.00	Rollins		0.00	
6,029.00	6,029.00	Cozzette		0.00	
6,231.00	6,231.00	Corcoran		0.00	
6,454.00	6,454.00	Mancos		0.00	
8,833.00	8,833.00	Niobrara		0.00	



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Project:	Garfield County, CO NAD27	MD Reference:	GL 5918' @ RKB 16' @ 5934.00ft
Site:	Shell 797-09A Pad	North Reference:	True
Well:	Shell 797-09-HN1	Survey Calculation Method:	Minimum Curvature
Wellbore:	Horizontal		
Design:	Plan #6		