

OXY

PRD NM DIRECTIONAL PLANS (NAD 1983)

Mesa Verde 16-9 Federal Com

Mesa Verde 16-9 Federal Com 2H

WB00

Plan: Permitting Plan

Standard Planning Report

16 August, 2017

Oxy Planning Report

Database:	HOPSPP	Local Co-ordinate Reference:	Well Mesa Verde 16-9 Federal Com 2H
Company:	ENGINEERING DESIGNS	TVD Reference:	DATUM @ 3594.70ft
Project:	PRD NM DIRECTIONAL PLANS (NAD 1983)	MD Reference:	DATUM @ 3594.70ft
Site:	Mesa Verde 16-9 Federal Com	North Reference:	Grid
Well:	Mesa Verde 16-9 Federal Com 2H	Survey Calculation Method:	Minimum Curvature
Wellbore:	WB00		
Design:	Permitting Plan		

Project	PRD NM DIRECTIONAL PLANS (NAD 1983)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		Using geodetic scale factor

Site		Mesa Verde 16-9 Federal Com			
Site Position:		Northing:	441,084.70 usft	Latitude:	32° 12' 39.428296 N
From:	Map	Easting:	742,092.66 usft	Longitude:	103° 41' 3.215673 W
Position Uncertainty:	0.00 ft	Slot Radius:	13.200 in	Grid Convergence:	0.35 °

Well	Mesa Verde 16-9 Federal Com 2H					
Well Position	+N-S	0.24 ft	Northing:	441,084.94 usft	Latitude:	32° 12' 39.428878 N
	+E-W	30.00 ft	Easting:	742,122.66 usft	Longitude:	103° 41' 2.866476 W
Position Uncertainty		0.00 ft	Wellhead Elevation:	0 00 ft	Ground Level:	3,568.20 ft

Wellbore	WB00				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	8/16/2017	6.83	59.95	48,088

Design	Permitting Plan			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD)	+N-S (ft)	+E-W (ft)	Direction (°)
	0.00	0.00	0.00	359.66

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	
8,258.00	0.00	0.00	8,258.00	0.00	0.00	0.00	0.00	0.00	0.00	
8,757.84	10.00	178.24	8,755.31	-43.47	1.34	2.00	2.00	0.00	178.24	
9,409.15	10.00	178.24	9,396.73	-156.48	4.81	0.00	0.00	0.00	0.00	
9,908.99	0.00	359.63	9,894.04	-199.96	6.15	2.00	-2.00	0.00	180.00	MV_16-9_Federal_
10,805.99	89.70	359.63	10,466.99	369.99	2.46	10.00	10.00	0.00	-0.37	
20,570.22	89.71	359.63	10,517.00	10,133.88	-60.68	0.00	0.00	0.00	0.00	MV_16-9_Federal_

Oxy Planning Report

Database: HOPSPP
Company: ENGINEERING DESIGNS
Project: PRD NM DIRECTIONAL PLANS (NAD 1983)
Site: Mesa Verde 16-9 Federal Com
Well: Mesa Verde 16-9 Federal Com 2H
Wellbore: WB00
Design: Permitting Plan

Local Co-ordinate Reference:
TVD Reference:
MD Reference:
North Reference:
Survey Calculation Method:

Well Mesa Verde 16-9 Federal Com 2H
 DATUM @ 3594.70ft
 DATUM @ 3594.70ft
 Grid
 Minimum Curvature

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
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
3,200.00	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
3,400.00	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
3,700.00	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
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

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5,400.00	0.00	0.00	5,400.00	0.00	0.00	0.00	0.00	0.00	0.00
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
5,900.00	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
6,100.00	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
6,300.00	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
6,500.00	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
8,258.00	0.00	0.00	8,258.00	0.00	0.00	0.00	0.00	0.00	0.00
8,300.00	0.84	178.24	8,300.00	-0.31	0.01	-0.31	2.00	2.00	0.00
8,400.00	2.84	178.24	8,399.94	-3.52	0.11	-3.52	2.00	2.00	0.00
8,500.00	4.84	178.24	8,499.71	-10.21	0.31	-10.21	2.00	2.00	0.00
8,600.00	6.84	178.24	8,599.19	-20.38	0.63	-20.38	2.00	2.00	0.00
8,700.00	8.84	178.24	8,698.25	-34.01	1.05	-34.02	2.00	2.00	0.00
8,757.84	10.00	178.24	8,755.31	-43.47	1.34	-43.48	2.00	2.00	0.00
8,800.00	10.00	178.24	8,796.83	-50.79	1.56	-50.80	0.00	0.00	0.00
8,900.00	10.00	178.24	8,895.31	-68.14	2.10	-68.15	0.00	0.00	0.00
9,000.00	10.00	178.24	8,993.79	-85.49	2.63	-85.51	0.00	0.00	0.00
9,100.00	10.00	178.24	9,092.27	-102.84	3.16	-102.86	0.00	0.00	0.00
9,200.00	10.00	178.24	9,190.75	-120.19	3.70	-120.21	0.00	0.00	0.00
9,300.00	10.00	178.24	9,289.24	-137.55	4.23	-137.57	0.00	0.00	0.00
9,400.00	10.00	178.24	9,387.72	-154.90	4.76	-154.92	0.00	0.00	0.00
9,409.15	10.00	178.24	9,396.73	-156.48	4.81	-156.51	0.00	0.00	0.00
9,500.00	8.18	178.24	9,486.43	-170.83	5.25	-170.86	2.00	-2.00	0.00
9,600.00	6.18	178.24	9,585.65	-183.32	5.64	-183.35	2.00	-2.00	0.00
9,700.00	4.18	178.24	9,685.23	-192.34	5.92	-192.38	2.00	-2.00	0.00
9,800.00	2.18	178.24	9,785.07	-197.89	6.09	-197.92	2.00	-2.00	0.00
9,900.00	0.18	178.24	9,885.05	-199.95	6.15	-199.98	2.00	-2.00	0.00
9,908.99	0.00	359.63	9,894.04	-199.96	6.15	-199.99	2.00	-2.00	0.00
10,000.00	9.10	359.63	9,984.66	-192.75	6.10	-192.78	10.00	10.00	0.00
10,100.00	19.10	359.63	10,081.53	-168.42	5.95	-168.45	10.00	10.00	0.00
10,200.00	29.10	359.63	10,172.70	-127.63	5.68	-127.67	10.00	10.00	0.00
10,300.00	39.10	359.63	10,255.40	-71.64	5.32	-71.67	10.00	10.00	0.00

Oxy Planning Report

Database: HOPSPP
Company: ENGINEERING DESIGNS
Project: PRD NM DIRECTIONAL PLANS (NAD 1983)
Site: Mesa Verde 16-9 Federal Com
Well: Mesa Verde 16-9 Federal Com 2H
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TVD Reference: DATUM @ 3594.70ft
MD Reference: DATUM @ 3594.70ft
North Reference: Grid
Survey Calculation Method: Minimum Curvature

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)
10,400.00	49.10	359.63	10,327.12	-2.14	4.87	-2.17	10.00	10.00	0.00
10,500.00	59.10	359.63	10,385.68	78.76	4.35	78.73	10.00	10.00	0.00
10,600.00	69.10	359.63	10,429.30	168.60	3.77	168.58	10.00	10.00	0.00
10,700.00	79.10	359.63	10,456.66	264.65	3.15	264.63	10.00	10.00	0.00
10,800.00	89.10	359.63	10,466.93	363.99	2.50	363.97	10.00	10.00	0.00
10,805.99	89.70	359.63	10,466.99	369.99	2.46	369.97	10.00	10.00	0.00
10,900.00	89.70	359.63	10,467.48	463.99	1.86	463.97	0.00	0.00	0.00
11,000.00	89.70	359.63	10,468.01	563.99	1.21	563.97	0.00	0.00	0.00
11,100.00	89.70	359.63	10,468.53	663.98	0.56	663.97	0.00	0.00	0.00
11,200.00	89.70	359.63	10,469.05	763.98	-0.08	763.97	0.00	0.00	0.00
11,300.00	89.70	359.63	10,469.57	863.98	-0.73	863.97	0.00	0.00	0.00
11,400.00	89.70	359.63	10,470.10	963.97	-1.38	963.96	0.00	0.00	0.00
11,500.00	89.70	359.63	10,470.62	1,063.97	-2.02	1,063.96	0.00	0.00	0.00
11,600.00	89.70	359.63	10,471.14	1,163.97	-2.67	1,163.96	0.00	0.00	0.00
11,700.00	89.70	359.63	10,471.66	1,263.96	-3.32	1,263.96	0.00	0.00	0.00
11,800.00	89.70	359.63	10,472.18	1,363.96	-3.96	1,363.96	0.00	0.00	0.00
11,900.00	89.70	359.63	10,472.70	1,463.96	-4.61	1,463.96	0.00	0.00	0.00
12,000.00	89.70	359.63	10,473.23	1,563.95	-5.26	1,563.96	0.00	0.00	0.00
12,100.00	89.70	359.63	10,473.75	1,663.95	-5.90	1,663.95	0.00	0.00	0.00
12,200.00	89.70	359.63	10,474.27	1,763.95	-6.55	1,763.95	0.00	0.00	0.00
12,300.00	89.70	359.63	10,474.79	1,863.94	-7.20	1,863.95	0.00	0.00	0.00
12,400.00	89.70	359.63	10,475.31	1,963.94	-7.84	1,963.95	0.00	0.00	0.00
12,500.00	89.70	359.63	10,475.83	2,063.93	-8.49	2,063.95	0.00	0.00	0.00
12,600.00	89.70	359.63	10,476.35	2,163.93	-9.14	2,163.95	0.00	0.00	0.00
12,700.00	89.70	359.63	10,476.87	2,263.93	-9.78	2,263.95	0.00	0.00	0.00
12,800.00	89.70	359.63	10,477.38	2,363.92	-10.43	2,363.94	0.00	0.00	0.00
12,900.00	89.70	359.63	10,477.90	2,463.92	-11.08	2,463.94	0.00	0.00	0.00
13,000.00	89.70	359.63	10,478.42	2,563.92	-11.72	2,563.94	0.00	0.00	0.00
13,100.00	89.70	359.63	10,478.94	2,663.91	-12.37	2,663.94	0.00	0.00	0.00
13,200.00	89.70	359.63	10,479.46	2,763.91	-13.02	2,763.94	0.00	0.00	0.00
13,300.00	89.70	359.63	10,479.98	2,863.91	-13.66	2,863.94	0.00	0.00	0.00
13,400.00	89.70	359.63	10,480.49	2,963.90	-14.31	2,963.94	0.00	0.00	0.00
13,500.00	89.70	359.63	10,481.01	3,063.90	-14.96	3,063.94	0.00	0.00	0.00
13,600.00	89.70	359.63	10,481.53	3,163.90	-15.61	3,163.93	0.00	0.00	0.00
13,700.00	89.70	359.63	10,482.05	3,263.89	-16.25	3,263.93	0.00	0.00	0.00
13,800.00	89.70	359.63	10,482.56	3,363.89	-16.90	3,363.93	0.00	0.00	0.00
13,900.00	89.70	359.63	10,483.08	3,463.89	-17.55	3,463.93	0.00	0.00	0.00
14,000.00	89.70	359.63	10,483.59	3,563.88	-18.19	3,563.93	0.00	0.00	0.00
14,100.00	89.70	359.63	10,484.11	3,663.88	-18.84	3,663.93	0.00	0.00	0.00
14,200.00	89.70	359.63	10,484.63	3,763.88	-19.49	3,763.93	0.00	0.00	0.00
14,300.00	89.70	359.63	10,485.14	3,863.87	-20.13	3,863.92	0.00	0.00	0.00
14,400.00	89.70	359.63	10,485.66	3,963.87	-20.78	3,963.92	0.00	0.00	0.00
14,500.00	89.70	359.63	10,486.17	4,063.87	-21.43	4,063.92	0.00	0.00	0.00
14,600.00	89.71	359.63	10,486.69	4,163.86	-22.07	4,163.92	0.00	0.00	0.00
14,700.00	89.71	359.63	10,487.20	4,263.86	-22.72	4,263.92	0.00	0.00	0.00
14,800.00	89.71	359.63	10,487.72	4,363.86	-23.37	4,363.92	0.00	0.00	0.00
14,900.00	89.71	359.63	10,488.23	4,463.85	-24.01	4,463.92	0.00	0.00	0.00
15,000.00	89.71	359.63	10,488.74	4,563.85	-24.66	4,563.92	0.00	0.00	0.00
15,100.00	89.71	359.63	10,489.26	4,663.85	-25.31	4,663.91	0.00	0.00	0.00
15,200.00	89.71	359.63	10,489.77	4,763.84	-25.95	4,763.91	0.00	0.00	0.00
15,300.00	89.71	359.63	10,490.28	4,863.84	-26.60	4,863.91	0.00	0.00	0.00
15,400.00	89.71	359.63	10,490.80	4,963.84	-27.25	4,963.91	0.00	0.00	0.00
15,500.00	89.71	359.63	10,491.31	5,063.83	-27.89	5,063.91	0.00	0.00	0.00
15,600.00	89.71	359.63	10,491.82	5,163.83	-28.54	5,163.91	0.00	0.00	0.00

Oxy Planning Report

Database: HOPSPP
Company: ENGINEERING DESIGNS
Project: PRD NM DIRECTIONAL PLANS (NAD 1983)
Site: Mesa Verde 16-9 Federal Com
Well: Mesa Verde 16-9 Federal Com 2H
Wellbore: WB00
Design: Permitting Plan

Local Co-ordinate Reference: Well Mesa Verde 16-9 Federal Com 2H
TVD Reference: DATUM @ 3594.70ft
MD Reference: DATUM @ 3594.70ft
North Reference: Grid
Survey Calculation Method: Minimum Curvature

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)
15,700.00	89.71	359.63	10,492.33	5,263.83	-29.19	5,263.91	0.00	0.00	0.00
15,800.00	89.71	359.63	10,492.85	5,363.82	-29.83	5,363.90	0.00	0.00	0.00
15,900.00	89.71	359.63	10,493.36	5,463.82	-30.48	5,463.90	0.00	0.00	0.00
16,000.00	89.71	359.63	10,493.87	5,563.82	-31.13	5,563.90	0.00	0.00	0.00
16,100.00	89.71	359.63	10,494.38	5,663.81	-31.77	5,663.90	0.00	0.00	0.00
16,200.00	89.71	359.63	10,494.89	5,763.81	-32.42	5,763.90	0.00	0.00	0.00
16,300.00	89.71	359.63	10,495.40	5,863.81	-33.07	5,863.90	0.00	0.00	0.00
16,400.00	89.71	359.63	10,495.91	5,963.80	-33.71	5,963.90	0.00	0.00	0.00
16,500.00	89.71	359.63	10,496.42	6,063.80	-34.36	6,063.90	0.00	0.00	0.00
16,600.00	89.71	359.63	10,496.93	6,163.79	-35.01	6,163.89	0.00	0.00	0.00
16,700.00	89.71	359.63	10,497.44	6,263.79	-35.65	6,263.89	0.00	0.00	0.00
16,800.00	89.71	359.63	10,497.95	6,363.79	-36.30	6,363.89	0.00	0.00	0.00
16,900.00	89.71	359.63	10,498.46	6,463.78	-36.95	6,463.89	0.00	0.00	0.00
17,000.00	89.71	359.63	10,498.97	6,563.78	-37.59	6,563.89	0.00	0.00	0.00
17,100.00	89.71	359.63	10,499.48	6,663.78	-38.24	6,663.89	0.00	0.00	0.00
17,200.00	89.71	359.63	10,499.99	6,763.77	-38.89	6,763.89	0.00	0.00	0.00
17,300.00	89.71	359.63	10,500.50	6,863.77	-39.53	6,863.88	0.00	0.00	0.00
17,400.00	89.71	359.63	10,501.01	6,963.77	-40.18	6,963.88	0.00	0.00	0.00
17,500.00	89.71	359.63	10,501.52	7,063.76	-40.83	7,063.88	0.00	0.00	0.00
17,600.00	89.71	359.63	10,502.02	7,163.76	-41.47	7,163.88	0.00	0.00	0.00
17,700.00	89.71	359.63	10,502.53	7,263.76	-42.12	7,263.88	0.00	0.00	0.00
17,800.00	89.71	359.63	10,503.04	7,363.75	-42.77	7,363.88	0.00	0.00	0.00
17,900.00	89.71	359.63	10,503.55	7,463.75	-43.41	7,463.88	0.00	0.00	0.00
18,000.00	89.71	359.63	10,504.05	7,563.75	-44.06	7,563.88	0.00	0.00	0.00
18,100.00	89.71	359.63	10,504.56	7,663.74	-44.71	7,663.87	0.00	0.00	0.00
18,200.00	89.71	359.63	10,505.07	7,763.74	-45.35	7,763.87	0.00	0.00	0.00
18,300.00	89.71	359.63	10,505.57	7,863.74	-46.00	7,863.87	0.00	0.00	0.00
18,400.00	89.71	359.63	10,506.08	7,963.73	-46.65	7,963.87	0.00	0.00	0.00
18,500.00	89.71	359.63	10,506.58	8,063.73	-47.29	8,063.87	0.00	0.00	0.00
18,600.00	89.71	359.63	10,507.09	8,163.73	-47.94	8,163.87	0.00	0.00	0.00
18,700.00	89.71	359.63	10,507.59	8,263.72	-48.59	8,263.87	0.00	0.00	0.00
18,800.00	89.71	359.63	10,508.10	8,363.72	-49.23	8,363.87	0.00	0.00	0.00
18,900.00	89.71	359.63	10,508.60	8,463.72	-49.88	8,463.86	0.00	0.00	0.00
19,000.00	89.71	359.63	10,509.11	8,563.71	-50.53	8,563.86	0.00	0.00	0.00
19,100.00	89.71	359.63	10,509.61	8,663.71	-51.17	8,663.86	0.00	0.00	0.00
19,200.00	89.71	359.63	10,510.12	8,763.71	-51.82	8,763.86	0.00	0.00	0.00
19,300.00	89.71	359.63	10,510.62	8,863.70	-52.47	8,863.86	0.00	0.00	0.00
19,400.00	89.71	359.63	10,511.12	8,963.70	-53.11	8,963.86	0.00	0.00	0.00
19,500.00	89.71	359.63	10,511.63	9,063.70	-53.76	9,063.86	0.00	0.00	0.00
19,600.00	89.71	359.63	10,512.13	9,163.69	-54.41	9,163.86	0.00	0.00	0.00
19,700.00	89.71	359.63	10,512.63	9,263.69	-55.05	9,263.85	0.00	0.00	0.00
19,800.00	89.71	359.63	10,513.14	9,363.69	-55.70	9,363.85	0.00	0.00	0.00
19,900.00	89.71	359.63	10,513.64	9,463.68	-56.35	9,463.85	0.00	0.00	0.00
20,000.00	89.71	359.63	10,514.14	9,563.68	-57.00	9,563.85	0.00	0.00	0.00
20,100.00	89.71	359.63	10,514.64	9,663.68	-57.64	9,663.85	0.00	0.00	0.00
20,200.00	89.71	359.63	10,515.14	9,763.67	-58.29	9,763.85	0.00	0.00	0.00
20,300.00	89.71	359.63	10,515.65	9,863.67	-58.94	9,863.85	0.00	0.00	0.00
20,400.00	89.71	359.63	10,516.15	9,963.67	-59.58	9,963.85	0.00	0.00	0.00
20,500.00	89.71	359.63	10,516.65	10,063.66	-60.23	10,063.84	0.00	0.00	0.00
20,570.22	89.71	359.63	10,517.00	10,133.88	-60.68	10,134.07	0.00	0.00	0.00

Oxy Planning Report

Database: HOPSP
Company: ENGINEERING DESIGNS
Project: PRD NM DIRECTIONAL PLANS (NAD 1983)
Site: Mesa Verde 16-9 Federal Com
Well: Mesa Verde 16-9 Federal Com 2H
Wellbore: WB00
Design: Permitting Plan

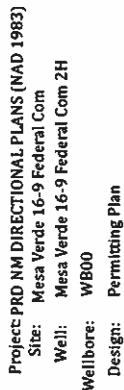
Local Co-ordinate Reference: Well Mesa Verde 16-9 Federal Com 2H
TVD Reference: DATUM @ 3594.70ft
MD Reference: DATUM @ 3594.70ft
North Reference: Grid
Survey Calculation Method: Minimum Curvature

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
MV_16-9_Federal_Co - plan hits target center - Point	0.00	0.00	9,894.04	-199.96	6.15	440,884.99	742,128.81	32° 12' 37.449915 N	103° 41' 2.808951
MV_16-9_Federal_Co - plan hits target center - Point	0.00	0.00	10,517.00	10,133.88	-60.68	451,218.35	742,061.98	32° 14' 19.706918 N	103° 41' 2.860082

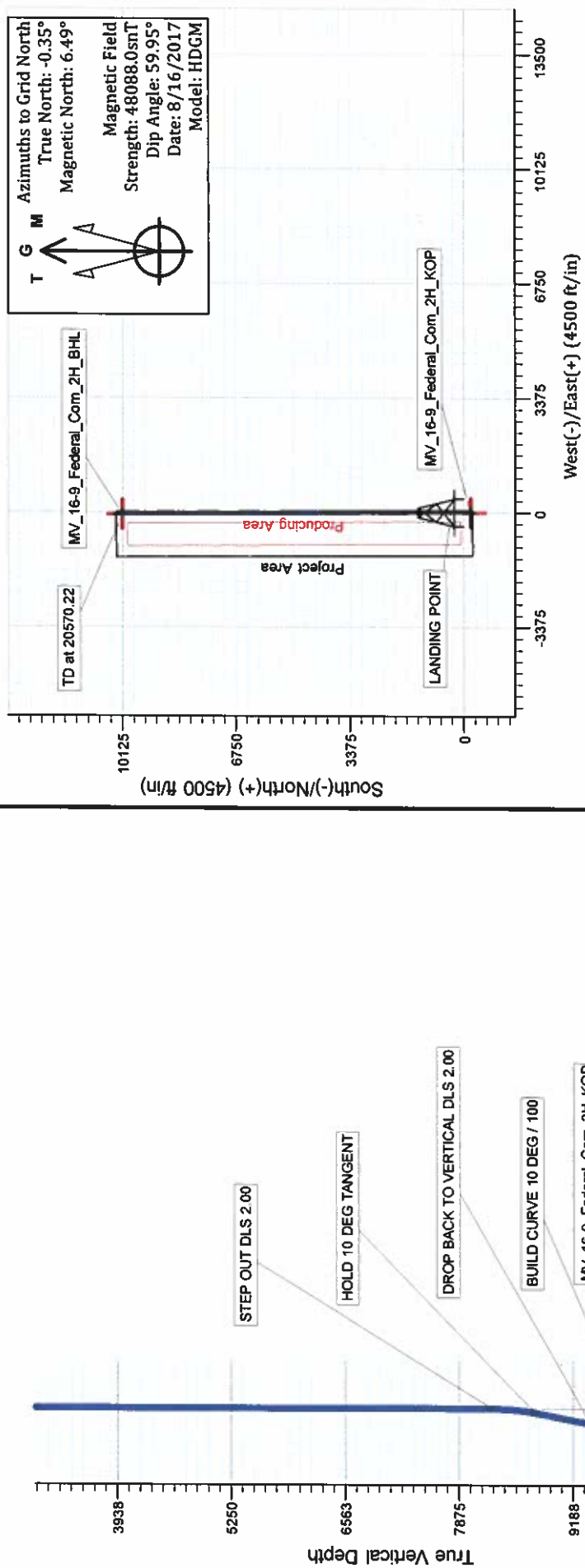
Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
8,258.00	8,258.00	0.00	0.00	STEP OUT DLS 2.00
8,757.84	8,755.31	-43.47	1.34	HOLD 10 DEG TANGENT
9,409.15	9,396.73	-156.48	4.81	DROP BACK TO VERTICAL DLS 2.00
9,908.99	9,894.04	-199.96	6.15	BUILD CURVE 10 DEG / 100
10,805.99	10,466.99	369.99	2.46	LANDING POINT
20,570.22	10,517.00	10,133.88	-60.68	TD at 20570.22



Project PRD NM DIRECTIONAL PLANS (NAD 1983)

Ground Level: 3568.20
Easting 742122.66
Latitude 32° 12' 39.428878 N
DATUM @ 3594.70ft



PROJECT DETAILS: NM DIRECTIONAL PLANS (NAD 1983)

Geodetic System:	US State Plane 1983
Datum:	North American Datum 1983
Ellipsoid:	GRS 1980
Zone:	New Mexico Eastern Zone
System Datum:	Mean Sea Level

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N-S	+E/-W	Dleg	TFace	VSect	Target	Annotation
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
2	8258.00	0.00	0.00	8258.00	0.00	0.00	0.00	0.00	0.00		STEP OUT DLS 2.00
3	8757.84	10.00	178.24	8755.31	-43.47	1.34	2.00	178.24	-43.48		HOLD 10 DEG TANGENT
4	9409.15	10.00	178.24	9396.73	-156.48	4.81	0.00	0.00	-156.51		DROP BACK TO VERTICAL DLS 2.00
5	9908.99	0.00	359.63	9894.04	-199.96	6.15	2.00	180.00	-199.99		BUILD CURVE 10 DEG / 100
6	10805.99	89.70	359.63	10466.99	369.99	2.46	10.00	-0.37	369.97		LANDING POINT
7	20570.22	89.71	359.63	10517.00	10133.88	-60.68	0.00	0.00	10134.07		TD at 20570.22

OXY USA Inc.
Mesa Verde 16-9 Federal Com

Below is a summary that describes the general operational steps to drill and complete the well.

- Drill 17-1/2" hole x 13-3/8" casing for surface section. Cement to surface.
- Drill 12-1/4" hole x 9-5/8" casing for intermediate section. Cement to surface.
- Drill 8-1/2" hole x 5-1/2" liner for production section. Cement to top of liner, 100' inside 7-5/8" shoe.
- Release drilling rig from location.
- Move in workover rig and run a 5-1/2" 20# P110 DQX tie-back frack string and seal assembly (see connection specs below). Tie into liner hanger Polished Bore Receptacle (PBR) with seal assembly.
- Pump hydraulic fracture job.
- Flowback and produce well.

When a decision is made to develop a secondary bench from this wellbore, a workover rig will be moved to location. The workover rig will then retrieve the tie-back frack string and seal assembly before temporarily abandoning the initial lateral.

General well schematic:

