

OXY

PRD NM DIRECTIONAL PLANS (NAD 1983)

Mesa Verde 16-9 Federal Com

Mesa Verde 16-9 Federal Com 1H

WB00

Plan: Permitting Plan

Standard Planning Report

15 August, 2017

Oxy Planning Report

Database:	HOPSP	Local Co-ordinate Reference:	Well Mesa Verde 16-9 Federal Com 1H
Company:	ENGINEERING DESIGNS	TVD Reference:	Default @ 3595.80ft
Project:	PRD NM DIRECTIONAL PLANS (NAD 1983)	MD Reference:	Default @ 3595.80ft
Site:	Mesa Verde 16-9 Federal Com	North Reference:	Grid
Well:	Mesa Verde 16-9 Federal Com 1H	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	
From:		Easting:		742,092.66 usft	
Position Uncertainty:		Slot Radius:		Grid Convergence:	
Map		0.00 ft		13.200 in	
				32° 12' 39.428296 N	
				103° 41' 3.215673 W	
				0.35 °	

Well	Mesa Verde 16-9 Federal Com 1H					
Well Position	+N/-S	0.00 ft	Northing:	441,084.70 usft	Latitude:	32° 12' 39.428296 N
	+E/-W	0.00 ft	Easting:	742,092.66 usft	Longitude:	103° 41' 3.215673 W
Position Uncertainty		0.00 ft	Wellhead Elevation:	0.00 ft	Ground Level:	3,569.30 ft

Wellbore	WB00				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	8/15/2017	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	355.20

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	
4,795.00	0.00	0.00	4,795.00	0.00	0.00	0.00	0.00	0.00	0.00	
5,295.03	10.00	255.25	5,292.50	-11.08	-42.09	2.00	2.00	0.00	255.25	
9,461.38	10.00	255.25	9,395.54	-195.32	-741.77	0.00	0.00	0.00	0.00	
9,961.42	0.00	359.63	9,893.04	-206.40	-783.87	2.00	-2.00	0.00	180.00	MV_16-9_Fed_Com
10,859.42	89.80	359.63	10,465.99	364.55	-787.56	10.00	10.00	0.00	-0.37	
20,622.93	89.67	359.63	10,511.00	10,127.75	-850.69	0.00	0.00	0.00	180.00	MV_16-9_Fed_Com

Oxy Planning Report

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Company:	ENGINEERING DESIGNS	TVD Reference:	Default @ 3595.80ft
Project:	PRD NM DIRECTIONAL PLANS (NAD 1983)	MD Reference:	Default @ 3595.80ft
Site:	Mesa Verde 16-9 Federal Com	North Reference:	Grid
Well:	Mesa Verde 16-9 Federal Com 1H	Survey Calculation Method:	Minimum Curvature
Wellbore:	WB00		
Design:	Permitting Plan		

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
4,795.00	0.00	0.00	4,795.00	0.00	0.00	0.00	0.00	0.00	0.00
4,800.00	0.10	255.25	4,800.00	0.00	0.00	0.00	2.00	2.00	0.00
4,900.00	2.10	255.25	4,899.98	-0.49	-1.86	-0.33	2.00	2.00	0.00
5,000.00	4.10	255.25	4,999.83	-1.87	-7.09	-1.27	2.00	2.00	0.00
5,100.00	6.10	255.25	5,099.42	-4.13	-15.69	-2.80	2.00	2.00	0.00
5,200.00	8.10	255.25	5,198.65	-7.28	-27.64	-4.94	2.00	2.00	0.00

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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)
5,295.03	10.00	255.25	5,292.50	-11.08	-42.09	-7.52	2.00	2.00	0.00
5,300.00	10.00	255.25	5,297.39	-11.30	-42.93	-7.67	0.00	0.00	0.00
5,400.00	10.00	255.25	5,395.87	-15.73	-59.72	-10.67	0.00	0.00	0.00
5,500.00	10.00	255.25	5,494.35	-20.15	-76.51	-13.67	0.00	0.00	0.00
5,600.00	10.00	255.25	5,592.83	-24.57	-93.31	-16.67	0.00	0.00	0.00
5,700.00	10.00	255.25	5,691.31	-28.99	-110.10	-19.67	0.00	0.00	0.00
5,800.00	10.00	255.25	5,789.79	-33.41	-126.90	-22.67	0.00	0.00	0.00
5,900.00	10.00	255.25	5,888.27	-37.83	-143.69	-25.68	0.00	0.00	0.00
6,000.00	10.00	255.25	5,986.75	-42.26	-160.48	-28.68	0.00	0.00	0.00
6,100.00	10.00	255.25	6,085.23	-46.68	-177.28	-31.68	0.00	0.00	0.00
6,200.00	10.00	255.25	6,183.71	-51.10	-194.07	-34.68	0.00	0.00	0.00
6,300.00	10.00	255.25	6,282.20	-55.52	-210.86	-37.68	0.00	0.00	0.00
6,400.00	10.00	255.25	6,380.68	-59.94	-227.66	-40.68	0.00	0.00	0.00
6,500.00	10.00	255.25	6,479.16	-64.37	-244.45	-43.68	0.00	0.00	0.00
6,600.00	10.00	255.25	6,577.64	-68.79	-261.24	-46.68	0.00	0.00	0.00
6,700.00	10.00	255.25	6,676.12	-73.21	-278.04	-49.68	0.00	0.00	0.00
6,800.00	10.00	255.25	6,774.60	-77.63	-294.83	-52.68	0.00	0.00	0.00
6,900.00	10.00	255.25	6,873.08	-82.05	-311.63	-55.68	0.00	0.00	0.00
7,000.00	10.00	255.25	6,971.56	-86.48	-328.42	-58.68	0.00	0.00	0.00
7,100.00	10.00	255.25	7,070.04	-90.90	-345.21	-61.68	0.00	0.00	0.00
7,200.00	10.00	255.25	7,168.52	-95.32	-362.01	-64.68	0.00	0.00	0.00
7,300.00	10.00	255.25	7,267.00	-99.74	-378.80	-67.69	0.00	0.00	0.00
7,400.00	10.00	255.25	7,365.48	-104.16	-395.59	-70.69	0.00	0.00	0.00
7,500.00	10.00	255.25	7,463.96	-108.59	-412.39	-73.69	0.00	0.00	0.00
7,600.00	10.00	255.25	7,562.44	-113.01	-429.18	-76.69	0.00	0.00	0.00
7,700.00	10.00	255.25	7,660.92	-117.43	-445.97	-79.69	0.00	0.00	0.00
7,800.00	10.00	255.25	7,759.40	-121.85	-462.77	-82.69	0.00	0.00	0.00
7,900.00	10.00	255.25	7,857.88	-126.27	-479.56	-85.69	0.00	0.00	0.00
8,000.00	10.00	255.25	7,956.36	-130.69	-496.35	-88.69	0.00	0.00	0.00
8,100.00	10.00	255.25	8,054.85	-135.12	-513.15	-91.69	0.00	0.00	0.00
8,200.00	10.00	255.25	8,153.33	-139.54	-529.94	-94.69	0.00	0.00	0.00
8,300.00	10.00	255.25	8,251.81	-143.96	-546.74	-97.69	0.00	0.00	0.00
8,400.00	10.00	255.25	8,350.29	-148.38	-563.53	-100.69	0.00	0.00	0.00
8,500.00	10.00	255.25	8,448.77	-152.80	-580.32	-103.69	0.00	0.00	0.00
8,600.00	10.00	255.25	8,547.25	-157.23	-597.12	-106.70	0.00	0.00	0.00
8,700.00	10.00	255.25	8,645.73	-161.65	-613.91	-109.70	0.00	0.00	0.00
8,800.00	10.00	255.25	8,744.21	-166.07	-630.70	-112.70	0.00	0.00	0.00
8,900.00	10.00	255.25	8,842.69	-170.49	-647.50	-115.70	0.00	0.00	0.00
9,000.00	10.00	255.25	8,941.17	-174.91	-664.29	-118.70	0.00	0.00	0.00
9,100.00	10.00	255.25	9,039.65	-179.34	-681.08	-121.70	0.00	0.00	0.00
9,200.00	10.00	255.25	9,138.13	-183.76	-697.88	-124.70	0.00	0.00	0.00
9,300.00	10.00	255.25	9,236.61	-188.18	-714.67	-127.70	0.00	0.00	0.00
9,400.00	10.00	255.25	9,335.09	-192.60	-731.46	-130.70	0.00	0.00	0.00
9,461.38	10.00	255.25	9,395.54	-195.32	-741.77	-132.54	0.00	0.00	0.00
9,500.00	9.23	255.25	9,433.62	-196.96	-748.01	-133.66	2.00	-2.00	0.00
9,600.00	7.23	255.25	9,532.58	-200.60	-761.85	-136.13	2.00	-2.00	0.00
9,700.00	5.23	255.25	9,631.99	-203.36	-772.34	-138.01	2.00	-2.00	0.00
9,800.00	3.23	255.25	9,731.71	-205.24	-779.47	-139.28	2.00	-2.00	0.00
9,900.00	1.23	255.25	9,831.63	-206.23	-783.23	-139.95	2.00	-2.00	0.00
9,961.42	0.00	359.63	9,893.04	-206.40	-783.87	-140.06	2.00	-2.00	0.00
10,000.00	3.86	359.63	9,931.60	-205.10	-783.88	-138.77	10.00	10.00	0.00
10,100.00	13.86	359.63	10,030.28	-189.72	-783.97	-123.44	10.00	10.00	0.00
10,200.00	23.86	359.63	10,124.79	-157.44	-784.18	-91.25	10.00	10.00	0.00
10,300.00	33.86	359.63	10,212.26	-109.24	-784.49	-43.19	10.00	10.00	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 1H
Wellbore: WB00
Design: Permitting Plan

Local Co-ordinate Reference: Well Mesa Verde 16-9 Federal Com 1H
TVD Reference: Default @ 3595.80ft
MD Reference: Default @ 3595.80ft
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	43.86	359.63	10,290.03	-46.58	-784.90	19.28	10.00	10.00	0.00
10,500.00	53.86	359.63	10,355.74	28.63	-785.39	94.27	10.00	10.00	0.00
10,600.00	63.86	359.63	10,407.39	114.11	-785.94	179.50	10.00	10.00	0.00
10,700.00	73.86	359.63	10,443.41	207.26	-786.54	272.37	10.00	10.00	0.00
10,800.00	83.86	359.63	10,462.71	305.25	-787.18	370.07	10.00	10.00	0.00
10,859.42	89.80	359.63	10,465.99	364.55	-787.56	429.19	10.00	10.00	0.00
10,900.00	89.80	359.63	10,466.14	405.13	-787.82	469.65	0.00	0.00	0.00
11,000.00	89.80	359.63	10,466.49	505.13	-788.47	569.35	0.00	0.00	0.00
11,100.00	89.80	359.63	10,466.84	605.12	-789.11	669.05	0.00	0.00	0.00
11,200.00	89.80	359.63	10,467.20	705.12	-789.76	768.75	0.00	0.00	0.00
11,300.00	89.79	359.63	10,467.55	805.12	-790.41	868.45	0.00	0.00	0.00
11,400.00	89.79	359.63	10,467.92	905.12	-791.05	968.15	0.00	0.00	0.00
11,500.00	89.79	359.63	10,468.28	1,005.11	-791.70	1,067.85	0.00	0.00	0.00
11,600.00	89.79	359.63	10,468.64	1,105.11	-792.35	1,167.55	0.00	0.00	0.00
11,700.00	89.79	359.63	10,469.01	1,205.11	-792.99	1,267.25	0.00	0.00	0.00
11,800.00	89.79	359.63	10,469.38	1,305.11	-793.64	1,366.95	0.00	0.00	0.00
11,900.00	89.79	359.63	10,469.75	1,405.10	-794.29	1,466.65	0.00	0.00	0.00
12,000.00	89.79	359.63	10,470.13	1,505.10	-794.93	1,566.36	0.00	0.00	0.00
12,100.00	89.78	359.63	10,470.50	1,605.10	-795.58	1,666.06	0.00	0.00	0.00
12,200.00	89.78	359.63	10,470.88	1,705.09	-796.23	1,765.76	0.00	0.00	0.00
12,300.00	89.78	359.63	10,471.26	1,805.09	-796.87	1,865.46	0.00	0.00	0.00
12,400.00	89.78	359.63	10,471.64	1,905.09	-797.52	1,965.16	0.00	0.00	0.00
12,500.00	89.78	359.63	10,472.03	2,005.09	-798.17	2,064.86	0.00	0.00	0.00
12,600.00	89.78	359.63	10,472.42	2,105.08	-798.81	2,164.56	0.00	0.00	0.00
12,700.00	89.78	359.63	10,472.81	2,205.08	-799.46	2,264.26	0.00	0.00	0.00
12,800.00	89.77	359.63	10,473.20	2,305.08	-800.11	2,363.96	0.00	0.00	0.00
12,900.00	89.77	359.63	10,473.59	2,405.07	-800.75	2,463.66	0.00	0.00	0.00
13,000.00	89.77	359.63	10,473.99	2,505.07	-801.40	2,563.36	0.00	0.00	0.00
13,100.00	89.77	359.63	10,474.39	2,605.07	-802.05	2,663.06	0.00	0.00	0.00
13,200.00	89.77	359.63	10,474.79	2,705.07	-802.69	2,762.76	0.00	0.00	0.00
13,300.00	89.77	359.63	10,475.20	2,805.06	-803.34	2,862.46	0.00	0.00	0.00
13,400.00	89.77	359.63	10,475.60	2,905.06	-803.99	2,962.16	0.00	0.00	0.00
13,500.00	89.77	359.63	10,476.01	3,005.06	-804.63	3,061.86	0.00	0.00	0.00
13,600.00	89.76	359.63	10,476.42	3,105.05	-805.28	3,161.56	0.00	0.00	0.00
13,700.00	89.76	359.63	10,476.83	3,205.05	-805.93	3,261.26	0.00	0.00	0.00
13,800.00	89.76	359.63	10,477.25	3,305.05	-806.57	3,360.96	0.00	0.00	0.00
13,900.00	89.76	359.63	10,477.67	3,405.05	-807.22	3,460.66	0.00	0.00	0.00
14,000.00	89.76	359.63	10,478.09	3,505.04	-807.87	3,560.36	0.00	0.00	0.00
14,100.00	89.76	359.63	10,478.51	3,605.04	-808.51	3,660.06	0.00	0.00	0.00
14,200.00	89.76	359.63	10,478.93	3,705.04	-809.16	3,759.76	0.00	0.00	0.00
14,300.00	89.75	359.63	10,479.36	3,805.03	-809.81	3,859.46	0.00	0.00	0.00
14,400.00	89.75	359.63	10,479.79	3,905.03	-810.45	3,959.16	0.00	0.00	0.00
14,500.00	89.75	359.63	10,480.22	4,005.03	-811.10	4,058.86	0.00	0.00	0.00
14,600.00	89.75	359.63	10,480.66	4,105.02	-811.75	4,158.56	0.00	0.00	0.00
14,700.00	89.75	359.63	10,481.09	4,205.02	-812.39	4,258.26	0.00	0.00	0.00
14,800.00	89.75	359.63	10,481.53	4,305.02	-813.04	4,357.96	0.00	0.00	0.00
14,900.00	89.75	359.63	10,481.97	4,405.01	-813.69	4,457.66	0.00	0.00	0.00
15,000.00	89.75	359.63	10,482.41	4,505.01	-814.33	4,557.36	0.00	0.00	0.00
15,100.00	89.74	359.63	10,482.86	4,605.01	-814.98	4,657.06	0.00	0.00	0.00
15,200.00	89.74	359.63	10,483.31	4,705.01	-815.62	4,756.76	0.00	0.00	0.00
15,300.00	89.74	359.63	10,483.75	4,805.00	-816.27	4,856.46	0.00	0.00	0.00
15,400.00	89.74	359.63	10,484.21	4,905.00	-816.92	4,956.16	0.00	0.00	0.00
15,500.00	89.74	359.63	10,484.66	5,005.00	-817.56	5,055.86	0.00	0.00	0.00
15,600.00	89.74	359.63	10,485.12	5,104.99	-818.21	5,155.56	0.00	0.00	0.00

Oxy Planning Report

Database:	HOPSPP	Local Co-ordinate Reference:	Well Mesa Verde 16-9 Federal Com 1H
Company:	ENGINEERING DESIGNS	TVD Reference:	Default @ 3595 80ft
Project:	PRD NM DIRECTIONAL PLANS (NAD 1983)	MD Reference:	Default @ 3595 80ft
Site:	Mesa Verde 16-9 Federal Com	North Reference:	Grid
Well:	Mesa Verde 16-9 Federal Com 1H	Survey Calculation Method:	Minimum Curvature
Wellbore:	WB00		
Design:	Permitting Plan		

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	89.74	359.63	10,485.58	5,204.99	-818.86	5,255.26	0.00	0.00	0.00
15,800.00	89.74	359.63	10,486.04	5,304.99	-819.50	5,354.96	0.00	0.00	0.00
15,900.00	89.73	359.63	10,486.50	5,404.98	-820.15	5,454.66	0.00	0.00	0.00
16,000.00	89.73	359.63	10,486.97	5,504.98	-820.80	5,554.36	0.00	0.00	0.00
16,100.00	89.73	359.63	10,487.44	5,604.98	-821.44	5,654.06	0.00	0.00	0.00
16,200.00	89.73	359.63	10,487.91	5,704.97	-822.09	5,753.76	0.00	0.00	0.00
16,300.00	89.73	359.63	10,488.38	5,804.97	-822.74	5,853.46	0.00	0.00	0.00
16,400.00	89.73	359.63	10,488.85	5,904.97	-823.38	5,953.16	0.00	0.00	0.00
16,500.00	89.73	359.63	10,489.33	6,004.96	-824.03	6,052.86	0.00	0.00	0.00
16,600.00	89.72	359.63	10,489.81	6,104.96	-824.68	6,152.56	0.00	0.00	0.00
16,700.00	89.72	359.63	10,490.29	6,204.96	-825.32	6,252.26	0.00	0.00	0.00
16,800.00	89.72	359.63	10,490.78	6,304.95	-825.97	6,351.96	0.00	0.00	0.00
16,900.00	89.72	359.63	10,491.26	6,404.95	-826.62	6,451.66	0.00	0.00	0.00
17,000.00	89.72	359.63	10,491.75	6,504.95	-827.26	6,551.36	0.00	0.00	0.00
17,100.00	89.72	359.63	10,492.24	6,604.94	-827.91	6,651.06	0.00	0.00	0.00
17,200.00	89.72	359.63	10,492.73	6,704.94	-828.56	6,750.76	0.00	0.00	0.00
17,300.00	89.72	359.63	10,493.23	6,804.94	-829.20	6,850.46	0.00	0.00	0.00
17,400.00	89.71	359.63	10,493.73	6,904.94	-829.85	6,950.16	0.00	0.00	0.00
17,500.00	89.71	359.63	10,494.23	7,004.93	-830.50	7,049.86	0.00	0.00	0.00
17,600.00	89.71	359.63	10,494.73	7,104.93	-831.14	7,149.56	0.00	0.00	0.00
17,700.00	89.71	359.63	10,495.24	7,204.92	-831.79	7,249.26	0.00	0.00	0.00
17,800.00	89.71	359.63	10,495.74	7,304.92	-832.44	7,348.96	0.00	0.00	0.00
17,900.00	89.71	359.63	10,496.25	7,404.92	-833.08	7,448.66	0.00	0.00	0.00
18,000.00	89.71	359.63	10,496.76	7,504.91	-833.73	7,548.36	0.00	0.00	0.00
18,100.00	89.70	359.63	10,497.28	7,604.91	-834.38	7,648.06	0.00	0.00	0.00
18,200.00	89.70	359.63	10,497.79	7,704.91	-835.02	7,747.76	0.00	0.00	0.00
18,300.00	89.70	359.63	10,498.31	7,804.90	-835.67	7,847.46	0.00	0.00	0.00
18,400.00	89.70	359.63	10,498.83	7,904.90	-836.32	7,947.16	0.00	0.00	0.00
18,500.00	89.70	359.63	10,499.36	8,004.90	-836.96	8,046.86	0.00	0.00	0.00
18,600.00	89.70	359.63	10,499.88	8,104.89	-837.61	8,146.56	0.00	0.00	0.00
18,700.00	89.70	359.63	10,500.41	8,204.89	-838.26	8,246.26	0.00	0.00	0.00
18,800.00	89.70	359.63	10,500.94	8,304.89	-838.90	8,345.96	0.00	0.00	0.00
18,900.00	89.69	359.63	10,501.47	8,404.88	-839.55	8,445.66	0.00	0.00	0.00
19,000.00	89.69	359.63	10,502.01	8,504.88	-840.20	8,545.36	0.00	0.00	0.00
19,100.00	89.69	359.63	10,502.54	8,604.88	-840.84	8,645.06	0.00	0.00	0.00
19,200.00	89.69	359.63	10,503.08	8,704.87	-841.49	8,744.76	0.00	0.00	0.00
19,300.00	89.69	359.63	10,503.62	8,804.87	-842.14	8,844.46	0.00	0.00	0.00
19,400.00	89.69	359.63	10,504.17	8,904.87	-842.78	8,944.16	0.00	0.00	0.00
19,500.00	89.69	359.63	10,504.71	9,004.86	-843.43	9,043.86	0.00	0.00	0.00
19,600.00	89.69	359.63	10,505.26	9,104.86	-844.08	9,143.56	0.00	0.00	0.00
19,700.00	89.68	359.63	10,505.81	9,204.86	-844.72	9,243.26	0.00	0.00	0.00
19,800.00	89.68	359.63	10,506.36	9,304.85	-845.37	9,342.96	0.00	0.00	0.00
19,900.00	89.68	359.63	10,506.92	9,404.85	-846.02	9,442.66	0.00	0.00	0.00
20,000.00	89.68	359.63	10,507.48	9,504.84	-846.66	9,542.36	0.00	0.00	0.00
20,100.00	89.68	359.63	10,508.04	9,604.84	-847.31	9,642.06	0.00	0.00	0.00
20,200.00	89.68	359.63	10,508.60	9,704.84	-847.96	9,741.76	0.00	0.00	0.00
20,300.00	89.68	359.63	10,509.16	9,804.83	-848.60	9,841.46	0.00	0.00	0.00
20,400.00	89.67	359.63	10,509.73	9,904.83	-849.25	9,941.16	0.00	0.00	0.00
20,500.00	89.67	359.63	10,510.30	10,004.83	-849.89	10,040.86	0.00	0.00	0.00
20,600.00	89.67	359.63	10,510.87	10,104.82	-850.54	10,140.55	0.00	0.00	0.00
20,622.93	89.67	359.63	10,511.00	10,127.75	-850.69	10,163.42	0.00	0.00	0.00

Oxy Planning Report

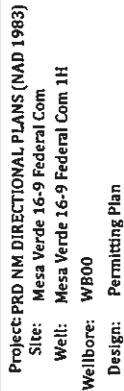
Database:	HOPSPP	Local Co-ordinate Reference:	Well Mesa Verde 16-9 Federal Com 1H
Company:	ENGINEERING DESIGNS	TVD Reference:	Default @ 3595.80ft
Project:	PRD NM DIRECTIONAL PLANS (NAD 1983)	MD Reference:	Default @ 3595.80ft
Site:	Mesa Verde 16-9 Federal Com	North Reference:	Grid
Well:	Mesa Verde 16-9 Federal Com 1H	Survey Calculation Method:	Minimum Curvature
Wellbore:	WB00		
Design:	Permitting Plan		

Design Targets

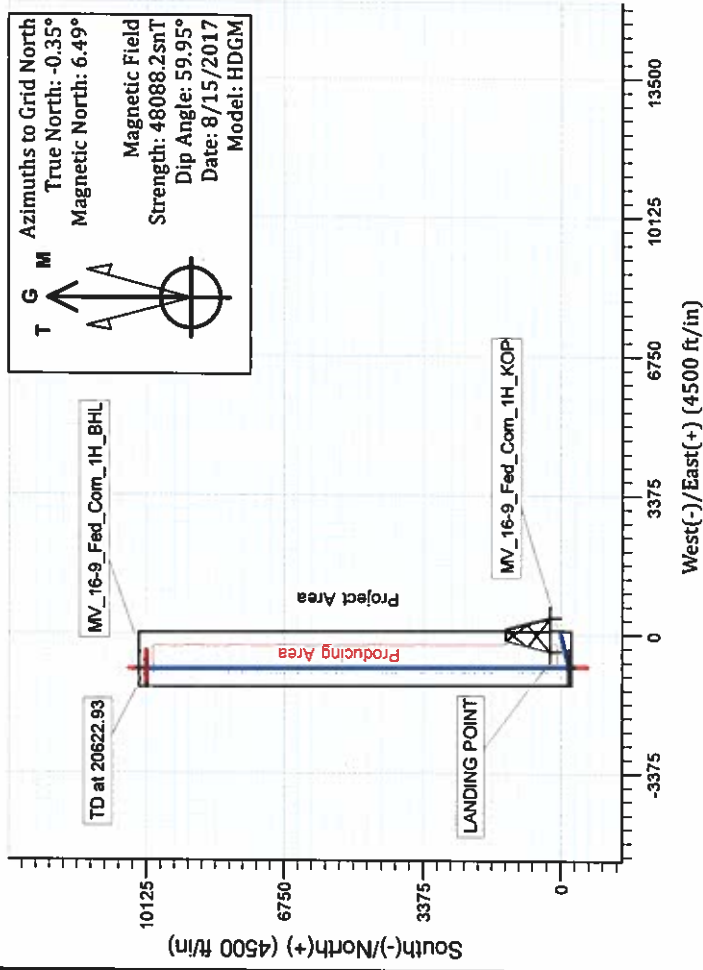
Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
MV_16-9_Fed_Com_1 - plan hits target center - Point	0.00	0.00	9,893.04	-206.40	-783.87	440,878.31	741,308.83	32° 12' 37.432723 N	103° 41' 12.353382
MV_16-9_Fed_Com_1 - plan hits target center - Point	0.00	0.00	10,511.00	10,127.75	-850.69	451,211.98	741,242.01	32° 14' 19.692830 N	103° 41' 12.407344

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
4,795.00	4,795.00	0.00	0.00	STEP OUT DLS 2.00
5,295.03	5,292.50	-11.08	-42.09	HOLD 10 DEG TANGENT
9,461.38	9,395.54	-195.32	-741.77	DROP BACK TO VERTICAL DLS 2.00
9,961.42	9,893.04	-206.40	-783.87	BUILD CURVE 10 DEG / 100
10,859.42	10,465.99	364.55	-787.56	LANDING POINT
20,622.93	10,511.00	10,127.75	-850.69	TD at 20622.93



	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
	0.00	0.00	441084.70	742092.66	32° 12' 39.428296 N	103° 41' 3.215673 W
				Default @ 3595.80ft		
				Ground Level: 3569.30		



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

[illegible]

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:

