

OXY

PRD NM DIRECTIONAL PLANS (NAD 1983)

Mesa Verde 16-9 Federal Com

Mesa Verde 16-9 Federal Com 3H

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 3H
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 3H	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 3H			
Well Position	+N/-S	0.48 ft	Northing:	441,085.18 usft
	+E/-W	60.00 ft	Easting:	742,152.66 usft
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	+E/-W	Direction
	(ft)	(ft)	(ft)	(°)
	0.00	0.00	0.00	4.79

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	
4,090.00	0.00	0.00	4,090.00	0.00	0.00	0.00	0.00	0.00	0.00	
4,589.96	10.00	101.87	4,587.42	-8.95	42.58	2.00	2.00	0.00	101.87	
9,480.44	10.00	101.87	9,403.62	-183.60	873.58	0.00	0.00	0.00	0.00	
9,980.39	0.00	359.63	9,901.04	-192.55	916.16	2.00	-2.00	0.00	180.00	MV_16-9_Federal_
10,877.39	89.70	359.63	10,473.99	377.40	912.48	10.00	10.00	0.00	-0.37	
20,641.27	89.71	359.63	10,524.00	10,140.94	849.34	0.00	0.00	0.00	0.00	MV_16-9_Federal_

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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 3H	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
4,090.00	0.00	0.00	4,090.00	0.00	0.00	0.00	0.00	0.00	0.00
4,100.00	0.20	101.87	4,100.00	0.00	0.02	0.00	2.00	2.00	0.00
4,200.00	2.20	101.87	4,199.97	-0.43	2.07	-0.26	2.00	2.00	0.00
4,300.00	4.20	101.87	4,299.81	-1.58	7.53	-0.95	2.00	2.00	0.00
4,400.00	6.20	101.87	4,399.40	-3.45	16.40	-2.07	2.00	2.00	0.00
4,500.00	8.20	101.87	4,498.60	-6.02	28.66	-3.61	2.00	2.00	0.00
4,589.96	10.00	101.87	4,587.42	-8.95	42.58	-5.36	2.00	2.00	0.00
4,600.00	10.00	101.87	4,597.31	-9.31	44.29	-5.58	0.00	0.00	0.00
4,700.00	10.00	101.87	4,695.79	-12.88	61.28	-7.72	0.00	0.00	0.00
4,800.00	10.00	101.87	4,794.28	-16.45	78.28	-9.86	0.00	0.00	0.00
4,900.00	10.00	101.87	4,892.76	-20.02	95.27	-12.00	0.00	0.00	0.00
5,000.00	10.00	101.87	4,991.24	-23.59	112.26	-14.14	0.00	0.00	0.00
5,100.00	10.00	101.87	5,089.72	-27.16	129.25	-16.28	0.00	0.00	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)
5,200.00	10.00	101.87	5,188.20	-30.74	146.24	-18.42	0.00	0.00	0.00
5,300.00	10.00	101.87	5,286.68	-34.31	163.24	-20.56	0.00	0.00	0.00
5,400.00	10.00	101.87	5,385.16	-37.88	180.23	-22.70	0.00	0.00	0.00
5,500.00	10.00	101.87	5,483.64	-41.45	197.22	-24.84	0.00	0.00	0.00
5,600.00	10.00	101.87	5,582.12	-45.02	214.21	-26.99	0.00	0.00	0.00
5,700.00	10.00	101.87	5,680.61	-48.59	231.20	-29.13	0.00	0.00	0.00
5,800.00	10.00	101.87	5,779.09	-52.16	248.20	-31.27	0.00	0.00	0.00
5,900.00	10.00	101.87	5,877.57	-55.73	265.19	-33.41	0.00	0.00	0.00
6,000.00	10.00	101.87	5,976.05	-59.31	282.18	-35.55	0.00	0.00	0.00
6,100.00	10.00	101.87	6,074.53	-62.88	299.17	-37.69	0.00	0.00	0.00
6,200.00	10.00	101.87	6,173.01	-66.45	316.16	-39.83	0.00	0.00	0.00
6,300.00	10.00	101.87	6,271.49	-70.02	333.16	-41.97	0.00	0.00	0.00
6,400.00	10.00	101.87	6,369.97	-73.59	350.15	-44.11	0.00	0.00	0.00
6,500.00	10.00	101.87	6,468.45	-77.16	367.14	-46.25	0.00	0.00	0.00
6,600.00	10.00	101.87	6,566.93	-80.73	384.13	-48.39	0.00	0.00	0.00
6,700.00	10.00	101.87	6,665.42	-84.30	401.12	-50.53	0.00	0.00	0.00
6,800.00	10.00	101.87	6,763.90	-87.88	418.12	-52.67	0.00	0.00	0.00
6,900.00	10.00	101.87	6,862.38	-91.45	435.11	-54.81	0.00	0.00	0.00
7,000.00	10.00	101.87	6,960.86	-95.02	452.10	-56.95	0.00	0.00	0.00
7,100.00	10.00	101.87	7,059.34	-98.59	469.09	-59.09	0.00	0.00	0.00
7,200.00	10.00	101.87	7,157.82	-102.16	486.09	-61.23	0.00	0.00	0.00
7,300.00	10.00	101.87	7,256.30	-105.73	503.08	-63.37	0.00	0.00	0.00
7,400.00	10.00	101.87	7,354.78	-109.30	520.07	-65.52	0.00	0.00	0.00
7,500.00	10.00	101.87	7,453.26	-112.87	537.06	-67.66	0.00	0.00	0.00
7,600.00	10.00	101.87	7,551.75	-116.44	554.05	-69.80	0.00	0.00	0.00
7,700.00	10.00	101.87	7,650.23	-120.02	571.05	-71.94	0.00	0.00	0.00
7,800.00	10.00	101.87	7,748.71	-123.59	588.04	-74.08	0.00	0.00	0.00
7,900.00	10.00	101.87	7,847.19	-127.16	605.03	-76.22	0.00	0.00	0.00
8,000.00	10.00	101.87	7,945.67	-130.73	622.02	-78.36	0.00	0.00	0.00
8,100.00	10.00	101.87	8,044.15	-134.30	639.01	-80.50	0.00	0.00	0.00
8,200.00	10.00	101.87	8,142.63	-137.87	656.01	-82.64	0.00	0.00	0.00
8,300.00	10.00	101.87	8,241.11	-141.44	673.00	-84.78	0.00	0.00	0.00
8,400.00	10.00	101.87	8,339.59	-145.01	689.99	-86.92	0.00	0.00	0.00
8,500.00	10.00	101.87	8,438.07	-148.59	706.98	-89.06	0.00	0.00	0.00
8,600.00	10.00	101.87	8,536.56	-152.16	723.97	-91.20	0.00	0.00	0.00
8,700.00	10.00	101.87	8,635.04	-155.73	740.97	-93.34	0.00	0.00	0.00
8,800.00	10.00	101.87	8,733.52	-159.30	757.96	-95.48	0.00	0.00	0.00
8,900.00	10.00	101.87	8,832.00	-162.87	774.95	-97.62	0.00	0.00	0.00
9,000.00	10.00	101.87	8,930.48	-166.44	791.94	-99.76	0.00	0.00	0.00
9,100.00	10.00	101.87	9,028.96	-170.01	808.93	-101.91	0.00	0.00	0.00
9,200.00	10.00	101.87	9,127.44	-173.58	825.93	-104.05	0.00	0.00	0.00
9,300.00	10.00	101.87	9,225.92	-177.16	842.92	-106.19	0.00	0.00	0.00
9,400.00	10.00	101.87	9,324.40	-180.73	859.91	-108.33	0.00	0.00	0.00
9,480.44	10.00	101.87	9,403.62	-183.60	873.58	-110.05	0.00	0.00	0.00
9,500.00	9.61	101.87	9,422.90	-184.28	876.84	-110.46	2.00	-2.00	0.00
9,600.00	7.61	101.87	9,521.76	-187.36	891.48	-112.30	2.00	-2.00	0.00
9,700.00	5.61	101.87	9,621.10	-189.73	902.75	-113.72	2.00	-2.00	0.00
9,800.00	3.61	101.87	9,720.77	-191.38	910.61	-114.71	2.00	-2.00	0.00
9,900.00	1.61	101.87	9,820.66	-192.32	915.06	-115.27	2.00	-2.00	0.00
9,980.39	0.00	359.63	9,901.04	-192.55	916.16	-115.41	2.00	-2.00	0.00
10,000.00	1.95	359.63	9,920.64	-192.21	916.16	-115.08	10.00	10.00	0.00
10,100.00	11.96	359.63	10,019.78	-180.11	916.08	-103.02	10.00	10.00	0.00
10,200.00	21.96	359.63	10,115.31	-150.98	915.89	-74.01	10.00	10.00	0.00
10,300.00	31.96	359.63	10,204.33	-105.70	915.60	-28.91	10.00	10.00	0.00

Oxy Planning Report

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Company: ENGINEERING DESIGNS
Project: PRD NM DIRECTIONAL PLANS (NAD 1983)
Site: Mesa Verde 16-9 Federal Com
Well: Mesa Verde 16-9 Federal Com 3H
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 3H
 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)
10,400.00	41.96	359.63	10,284.13	-45.65	915.21	30.90	10.00	10.00	0.00
10,500.00	51.96	359.63	10,352.30	27.35	914.74	103.60	10.00	10.00	0.00
10,600.00	61.96	359.63	10,406.75	111.07	914.20	186.98	10.00	10.00	0.00
10,700.00	71.96	359.63	10,445.83	202.97	913.61	278.52	10.00	10.00	0.00
10,800.00	81.96	359.63	10,468.37	300.27	912.98	375.42	10.00	10.00	0.00
10,877.39	89.70	359.63	10,473.99	377.40	912.48	452.24	10.00	10.00	0.00
10,900.00	89.70	359.63	10,474.11	400.00	912.33	474.75	0.00	0.00	0.00
11,000.00	89.70	359.63	10,474.63	500.00	911.68	574.35	0.00	0.00	0.00
11,100.00	89.70	359.63	10,475.16	600.00	911.04	673.94	0.00	0.00	0.00
11,200.00	89.70	359.63	10,475.68	699.99	910.39	773.53	0.00	0.00	0.00
11,300.00	89.70	359.63	10,476.20	799.99	909.74	873.13	0.00	0.00	0.00
11,400.00	89.70	359.63	10,476.72	899.99	909.10	972.72	0.00	0.00	0.00
11,500.00	89.70	359.63	10,477.25	999.98	908.45	1,072.31	0.00	0.00	0.00
11,600.00	89.70	359.63	10,477.77	1,099.98	907.80	1,171.91	0.00	0.00	0.00
11,700.00	89.70	359.63	10,478.29	1,199.98	907.16	1,271.50	0.00	0.00	0.00
11,800.00	89.70	359.63	10,478.81	1,299.97	906.51	1,371.10	0.00	0.00	0.00
11,900.00	89.70	359.63	10,479.33	1,399.97	905.86	1,470.69	0.00	0.00	0.00
12,000.00	89.70	359.63	10,479.85	1,499.97	905.22	1,570.28	0.00	0.00	0.00
12,100.00	89.70	359.63	10,480.37	1,599.96	904.57	1,669.88	0.00	0.00	0.00
12,200.00	89.70	359.63	10,480.89	1,699.96	903.92	1,769.47	0.00	0.00	0.00
12,300.00	89.70	359.63	10,481.42	1,799.96	903.28	1,869.06	0.00	0.00	0.00
12,400.00	89.70	359.63	10,481.94	1,899.95	902.63	1,968.66	0.00	0.00	0.00
12,500.00	89.70	359.63	10,482.46	1,999.95	901.98	2,068.25	0.00	0.00	0.00
12,600.00	89.70	359.63	10,482.98	2,099.95	901.34	2,167.85	0.00	0.00	0.00
12,700.00	89.70	359.63	10,483.49	2,199.94	900.69	2,267.44	0.00	0.00	0.00
12,800.00	89.70	359.63	10,484.01	2,299.94	900.04	2,367.03	0.00	0.00	0.00
12,900.00	89.70	359.63	10,484.53	2,399.94	899.40	2,466.63	0.00	0.00	0.00
13,000.00	89.70	359.63	10,485.05	2,499.93	898.75	2,566.22	0.00	0.00	0.00
13,100.00	89.70	359.63	10,485.57	2,599.93	898.10	2,665.81	0.00	0.00	0.00
13,200.00	89.70	359.63	10,486.09	2,699.92	897.46	2,765.41	0.00	0.00	0.00
13,300.00	89.70	359.63	10,486.61	2,799.92	896.81	2,865.00	0.00	0.00	0.00
13,400.00	89.70	359.63	10,487.12	2,899.92	896.16	2,964.60	0.00	0.00	0.00
13,500.00	89.70	359.63	10,487.64	2,999.91	895.52	3,064.19	0.00	0.00	0.00
13,600.00	89.70	359.63	10,488.16	3,099.91	894.87	3,163.78	0.00	0.00	0.00
13,700.00	89.70	359.63	10,488.68	3,199.91	894.22	3,263.38	0.00	0.00	0.00
13,800.00	89.70	359.63	10,489.19	3,299.90	893.58	3,362.97	0.00	0.00	0.00
13,900.00	89.70	359.63	10,489.71	3,399.90	892.93	3,462.56	0.00	0.00	0.00
14,000.00	89.70	359.63	10,490.23	3,499.90	892.29	3,562.16	0.00	0.00	0.00
14,100.00	89.70	359.63	10,490.74	3,599.89	891.64	3,661.75	0.00	0.00	0.00
14,200.00	89.70	359.63	10,491.26	3,699.89	890.99	3,761.35	0.00	0.00	0.00
14,300.00	89.70	359.63	10,491.77	3,799.89	890.35	3,860.94	0.00	0.00	0.00
14,400.00	89.70	359.63	10,492.29	3,899.88	889.70	3,960.53	0.00	0.00	0.00
14,500.00	89.70	359.63	10,492.80	3,999.88	889.05	4,060.13	0.00	0.00	0.00
14,600.00	89.70	359.63	10,493.32	4,099.88	888.41	4,159.72	0.00	0.00	0.00
14,700.00	89.71	359.63	10,493.83	4,199.87	887.76	4,259.31	0.00	0.00	0.00
14,800.00	89.71	359.63	10,494.35	4,299.87	887.11	4,358.91	0.00	0.00	0.00
14,900.00	89.71	359.63	10,494.86	4,399.87	886.47	4,458.50	0.00	0.00	0.00
15,000.00	89.71	359.63	10,495.38	4,499.86	885.82	4,558.09	0.00	0.00	0.00
15,100.00	89.71	359.63	10,495.89	4,599.86	885.17	4,657.69	0.00	0.00	0.00
15,200.00	89.71	359.63	10,496.40	4,699.86	884.53	4,757.28	0.00	0.00	0.00
15,300.00	89.71	359.63	10,496.92	4,799.85	883.88	4,856.88	0.00	0.00	0.00
15,400.00	89.71	359.63	10,497.43	4,899.85	883.23	4,956.47	0.00	0.00	0.00
15,500.00	89.71	359.63	10,497.94	4,999.85	882.59	5,056.06	0.00	0.00	0.00
15,600.00	89.71	359.63	10,498.46	5,099.84	881.94	5,155.66	0.00	0.00	0.00

Oxy Planning Report

Database:	HOPSPP	Local Co-ordinate Reference:	Well Mesa Verde 16-9 Federal Com 3H
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 3H	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	89.71	359.63	10,498.97	5,199.84	881.29	5,255.25	0.00	0.00	0.00
15,800.00	89.71	359.63	10,499.48	5,299.84	880.65	5,354.84	0.00	0.00	0.00
15,900.00	89.71	359.63	10,499.99	5,399.83	880.00	5,454.44	0.00	0.00	0.00
16,000.00	89.71	359.63	10,500.51	5,499.83	879.35	5,554.03	0.00	0.00	0.00
16,100.00	89.71	359.63	10,501.02	5,599.83	878.71	5,653.63	0.00	0.00	0.00
16,200.00	89.71	359.63	10,501.53	5,699.82	878.06	5,753.22	0.00	0.00	0.00
16,300.00	89.71	359.63	10,502.04	5,799.82	877.41	5,852.81	0.00	0.00	0.00
16,400.00	89.71	359.63	10,502.55	5,899.82	876.77	5,952.41	0.00	0.00	0.00
16,500.00	89.71	359.63	10,503.06	5,999.81	876.12	6,052.00	0.00	0.00	0.00
16,600.00	89.71	359.63	10,503.57	6,099.81	875.47	6,151.59	0.00	0.00	0.00
16,700.00	89.71	359.63	10,504.08	6,199.81	874.83	6,251.19	0.00	0.00	0.00
16,800.00	89.71	359.63	10,504.59	6,299.80	874.18	6,350.78	0.00	0.00	0.00
16,900.00	89.71	359.63	10,505.10	6,399.80	873.53	6,450.38	0.00	0.00	0.00
17,000.00	89.71	359.63	10,505.61	6,499.80	872.89	6,549.97	0.00	0.00	0.00
17,100.00	89.71	359.63	10,506.12	6,599.79	872.24	6,649.56	0.00	0.00	0.00
17,200.00	89.71	359.63	10,506.63	6,699.79	871.59	6,749.16	0.00	0.00	0.00
17,300.00	89.71	359.63	10,507.14	6,799.79	870.95	6,848.75	0.00	0.00	0.00
17,400.00	89.71	359.63	10,507.65	6,899.78	870.30	6,948.34	0.00	0.00	0.00
17,500.00	89.71	359.63	10,508.15	6,999.78	869.65	7,047.94	0.00	0.00	0.00
17,600.00	89.71	359.63	10,508.66	7,099.77	869.01	7,147.53	0.00	0.00	0.00
17,700.00	89.71	359.63	10,509.17	7,199.77	868.36	7,247.13	0.00	0.00	0.00
17,800.00	89.71	359.63	10,509.68	7,299.77	867.71	7,346.72	0.00	0.00	0.00
17,900.00	89.71	359.63	10,510.18	7,399.76	867.07	7,446.31	0.00	0.00	0.00
18,000.00	89.71	359.63	10,510.69	7,499.76	866.42	7,545.91	0.00	0.00	0.00
18,100.00	89.71	359.63	10,511.20	7,599.76	865.77	7,645.50	0.00	0.00	0.00
18,200.00	89.71	359.63	10,511.70	7,699.75	865.13	7,745.09	0.00	0.00	0.00
18,300.00	89.71	359.63	10,512.21	7,799.75	864.48	7,844.69	0.00	0.00	0.00
18,400.00	89.71	359.63	10,512.72	7,899.75	863.83	7,944.28	0.00	0.00	0.00
18,500.00	89.71	359.63	10,513.22	7,999.74	863.19	8,043.88	0.00	0.00	0.00
18,600.00	89.71	359.63	10,513.73	8,099.74	862.54	8,143.47	0.00	0.00	0.00
18,700.00	89.71	359.63	10,514.23	8,199.74	861.89	8,243.06	0.00	0.00	0.00
18,800.00	89.71	359.63	10,514.74	8,299.73	861.25	8,342.66	0.00	0.00	0.00
18,900.00	89.71	359.63	10,515.24	8,399.73	860.60	8,442.25	0.00	0.00	0.00
19,000.00	89.71	359.63	10,515.75	8,499.73	859.95	8,541.85	0.00	0.00	0.00
19,100.00	89.71	359.63	10,516.25	8,599.72	859.31	8,641.44	0.00	0.00	0.00
19,200.00	89.71	359.63	10,516.76	8,699.72	858.66	8,741.03	0.00	0.00	0.00
19,300.00	89.71	359.63	10,517.26	8,799.72	858.01	8,840.63	0.00	0.00	0.00
19,400.00	89.71	359.63	10,517.77	8,899.71	857.37	8,940.22	0.00	0.00	0.00
19,500.00	89.71	359.63	10,518.27	8,999.71	856.72	9,039.81	0.00	0.00	0.00
19,600.00	89.71	359.63	10,518.77	9,099.71	856.07	9,139.41	0.00	0.00	0.00
19,700.00	89.71	359.63	10,519.28	9,199.70	855.43	9,239.00	0.00	0.00	0.00
19,800.00	89.71	359.63	10,519.78	9,299.70	854.78	9,338.60	0.00	0.00	0.00
19,900.00	89.71	359.63	10,520.28	9,399.70	854.13	9,438.19	0.00	0.00	0.00
20,000.00	89.71	359.63	10,520.78	9,499.69	853.49	9,537.78	0.00	0.00	0.00
20,100.00	89.71	359.63	10,521.29	9,599.69	852.84	9,637.38	0.00	0.00	0.00
20,200.00	89.71	359.63	10,521.79	9,699.69	852.19	9,736.97	0.00	0.00	0.00
20,300.00	89.71	359.63	10,522.29	9,799.68	851.55	9,836.56	0.00	0.00	0.00
20,400.00	89.71	359.63	10,522.79	9,899.68	850.90	9,936.16	0.00	0.00	0.00
20,500.00	89.71	359.63	10,523.29	9,999.68	850.25	10,035.75	0.00	0.00	0.00
20,600.00	89.71	359.63	10,523.79	10,099.67	849.61	10,135.35	0.00	0.00	0.00
20,641.27	89.71	359.63	10,524.00	10,140.94	849.34	10,176.45	0.00	0.00	0.00

Oxy Planning Report

Database:	HOPSPP	Local Co-ordinate Reference:	Well Mesa Verde 16-9 Federal Com 3H
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 3H	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_Federal_Co - plan hits target center - Point	0.00	0.00	9,901.04	-192.55	916.16	440,892.64	743,068.78	32° 12' 37.469303 N	103° 40' 51.867860
MV_16-9_Federal_Co - plan hits target center - Point	0.00	0.00	10,524.00	10,140.94	849.34	451,225.65	743,001.96	32° 14' 19.722798 N	103° 40' 51.915495

Plan Annotations

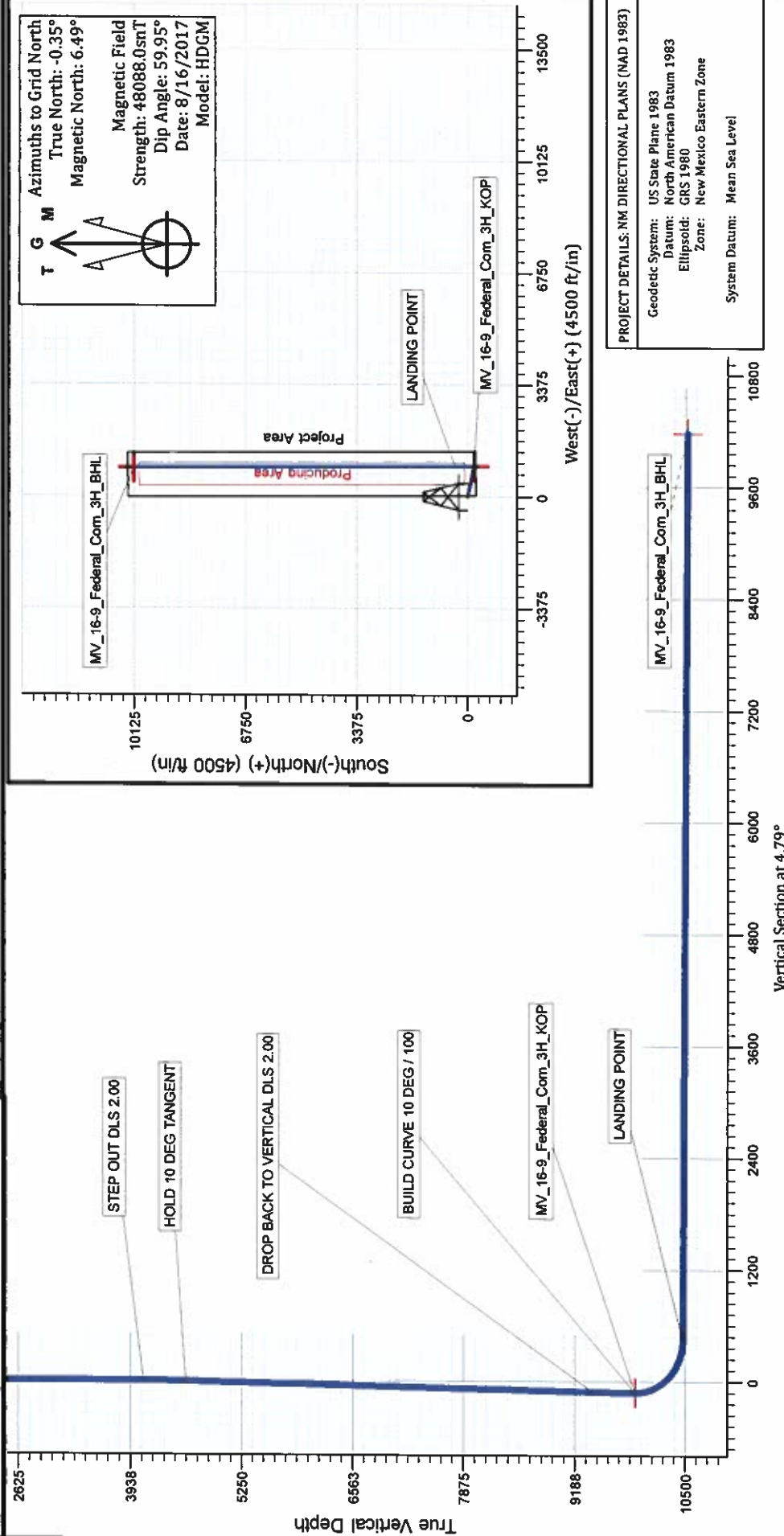
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
4,090.00	4,090.00	0.00	0.00	STEP OUT DLS 2.00
4,589.96	4,587.42	-8.95	42.58	HOLD 10 DEG TANGENT
9,480.44	9,403.62	-183.60	873.58	DROP BACK TO VERTICAL DLS 2.00
9,980.39	9,901.04	-192.55	916.16	BUILD CURVE 10 DEG / 100
10,877.39	10,473.99	377.40	912.48	LANDING POINT
20,641.27	10,524.00	10,140.94	849.34	TD at 20641.27



Project: PRD NM DIRECTIONAL PLANS (NAD 1983)
Site: Mesa Verde 16-9 Federal Com
Well: Mesa Verde 16-9 Federal Com 3H
Wellbore: WB00
Design: Permitting Plan

WELL DETAILS: Mesa Verde 16-9 Federal Com 3H

Ground Level: 3568.20
Easting 742152.66
Datum @ 3594.70ft
Northing 441085.18
+N/-S 0.00
+E/-W 0.00
Latitude 32° 12' 39.429459 N
Longitude 103° 41' 2.517279 W



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	4090.00	0.00	0.00	4090.00	0.00	0.00	0.00	0.00	0.00		
3	4589.96	10.00	101.87	4587.42	-8.95	42.58	2.00	101.87	-5.36		STEP OUT DLS 2.00
4	9480.44	10.00	101.87	9403.62	-183.60	873.58	0.00	0.00	-110.05		HOLD 10 DEG TANGENT
5	9980.39	0.00	359.63	9901.04	-192.55	916.16	2.00	180.00	-115.41		DROP BACK TO VERTICAL DLS 2.00
6	10877.39	89.70	359.63	10473.99	377.40	912.48	10.00	-0.37	452.24		BUILD CURVE 10 DEG / 100
7	20641.27	89.71	359.63	10524.00	10140.94	849.34	0.00	0.00	10176.45		LANDING POINT

TD at 20641.27

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:

