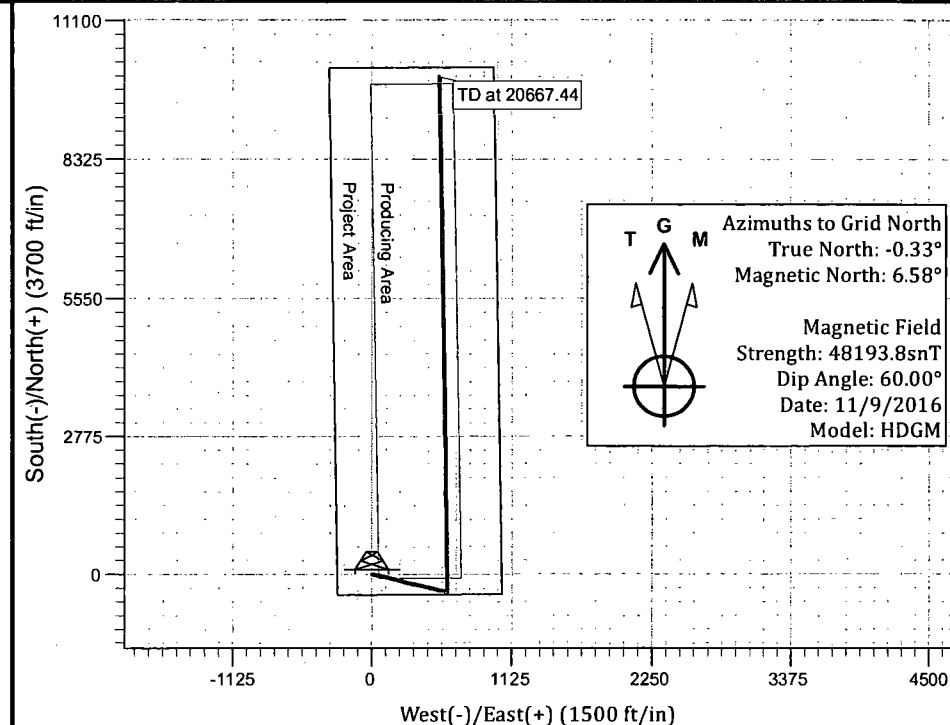
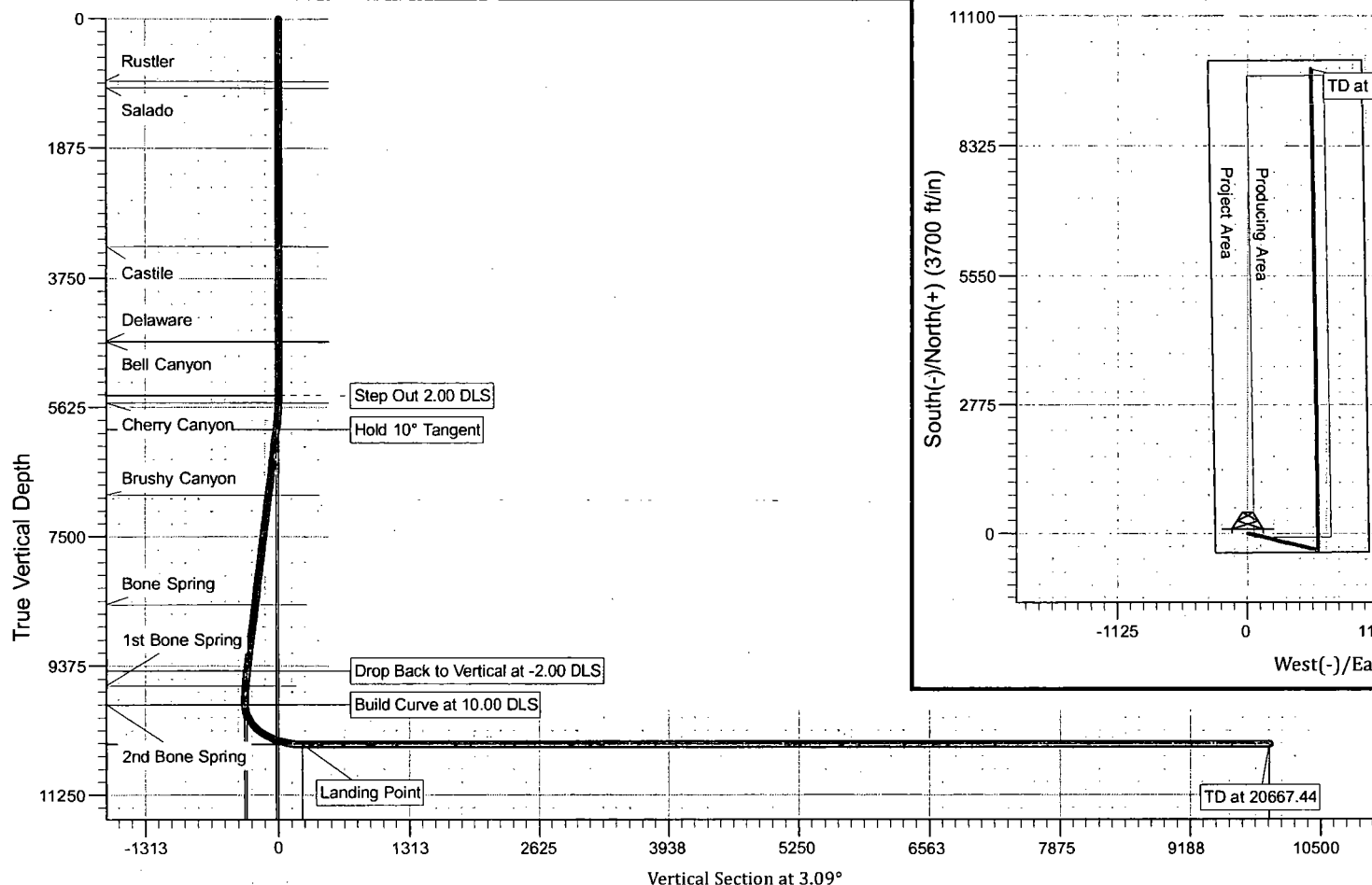




Project: NM DIRECTIONAL PLANS (NAD83)
Site: Mesa Verde 18-7 Fed Com
Well: Mesa Verde 18-7 Fed Com 6H
Wellbore: WB00
Design: Permitting Plan

WELL DETAILS: Mesa Verde 18-7 Fed Com 6H

Ground Level: 3570.10 WELL @ 3596.60ft (Original Well Elev)
+N/-S +E/-W Northing Easting Latitude Longitude
0.00 0.00 441172.47 734537.25 32° 12' 40.739835 N 103° 42' 31.149917 W



PROJECT DETAILS: NM DIRECTIONAL PLANS (NAD83)

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	V Sect	Target	Annotation
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
2	5448.00	0.00	0.00	5448.00	0.00	0.00	0.00	0.00	0.00		Step Out 2.00 DLS
3	5947.77	10.00	121.15	5945.24	-22.49	37.21	2.00	121.15	-20.46		Hold 10° Tangent
4	9503.30	10.00	121.15	9446.80	-341.73	565.36	0.00	0.00	-310.79		Drop Back to Vertical at -2.00 DLS
5	10003.07	0.00	359.64	9944.04	-364.23	602.57	2.00	180.00	-331.25		Build Curve at 10.00 DLS
6	10903.07	90.00	359.64	10517.00	208.72	598.98	10.00	-0.36	240.67		Landing Point
7	20667.44	90.00	359.64	10517.00	9972.90	537.87	0.00	0.00	9987.39		TD at 20667.44

ENGINEERING DESIGNS

PRD NM DIRECTIONAL PLANS (NAD 1983)

Mesa Verde 18-7 Fed Com

Mesa Verde 18-7 Fed Com 6H

WB00

Plan: Permitting Plan

Standard Planning Report

24 March, 2017

HOBBS OCD
NOV 06 2017
RECEIVED

Oxy Planning Report

Database:	HOPSPP	Local Co-ordinate Reference:	Well Mesa Verde 18-7 Fed Com 6H
Company:	ENGINEERING DESIGNS	TVD Reference:	WELL @ 3596.60ft (Original Well Elev)
Project:	PRD NM DIRECTIONAL PLANS (NAD 1983)	MD Reference:	WELL @ 3596.60ft (Original Well Elev)
Site:	Mesa Verde 18-7 Fed Com	North Reference:	Grid
Well:	Mesa Verde 18-7 Fed Com 6H	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 18-7 Fed Com		
Site Position:	From: Map	Northing:	441,014.48 usft
		Easting:	732,669.96 usft
Position Uncertainty:	0.00 ft	Slot Radius:	13.200 in
		Latitude:	32° 12' 39.283315 N
		Longitude:	103° 42' 52.894713 W
		Grid Convergence:	0.33 °

Well:	Mesa Verde 18-7 Fed Com 6H		
Well Position	+N/-S	158.00 ft	Northing:
	+E/-W	1,867.39 ft	Easting:
Position Uncertainty	0.00 ft	Wellhead Elevation:	3,570.10 ft
		Latitude:	32° 12' 40.739835 N
		Longitude:	103° 42' 31.149918 W
		Ground Level:	3,570.10 ft

Wellbore:	WB00		
Magnetics:	Model Name	Sample Date	Declination
	HDGM	11/9/2016	6.92
			Dip Angle
			60.00
			Field Strength
			48,194

Design:	Permitting Plan		
Audit Notes:			
Version:	Phase:	PROTOTYPE	Tie On Depth:
			0.00
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(ft)	(ft)	(ft)
	0.00	0.00	0.00
			Direction
			(°)
			3.09

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	
5,448.00	0.00	0.00	5,448.00	0.00	0.00	0.00	0.00	0.00	0.00	
5,947.77	10.00	121.15	5,945.24	-22.49	37.21	2.00	2.00	0.00	121.15	
9,503.30	10.00	121.15	9,446.80	-341.73	565.36	0.00	0.00	0.00	0.00	
10,003.07	0.00	359.64	9,944.04	-364.23	602.57	2.00	-2.00	0.00	180.00	MV18-7_6H_KOP
10,903.07	90.00	359.64	10,517.00	208.72	598.98	10.00	10.00	0.00	-0.36	
20,667.44	90.00	359.64	10,517.00	9,972.90	537.87	0.00	0.00	0.00	0.00	MV18-7_6H_BHL

Oxy Planning Report

Database:	HOPSP	Local Co-ordinate Reference:	Well Mesa Verde 18-7 Fed Com 6H
Company:	ENGINEERING DESIGNS	TVD Reference:	WELL @ 3596.60ft (Original Well Elev)
Project:	PRD NM DIRECTIONAL PLANS (NAD 1983)	MD Reference:	WELL @ 3596.60ft (Original Well Elev)
Site:	Mesa Verde 18-7 Fed Com	North Reference:	Grid
Well:	Mesa Verde 18-7 Fed Com 6H	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
909.00	0.00	0.00	909.00	0.00	0.00	0.00	0.00	0.00	0.00
Rustler									
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,005.00	0.00	0.00	1,005.00	0.00	0.00	0.00	0.00	0.00	0.00
Salado									
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
3,292.00	0.00	0.00	3,292.00	0.00	0.00	0.00	0.00	0.00	0.00
Castile									
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

Oxy Planning Report

Database:	HOPSP	Local Co-ordinate Reference:	Well Mesa Verde 18-7 Fed Com 6H
Company:	ENGINEERING DESIGNS	TVD Reference:	WELL @ 3596.60ft (Original Well Elev)
Project:	PRD NM DIRECTIONAL PLANS (NAD 1983)	MD Reference:	WELL @ 3596.60ft (Original Well Elev)
Site:	Mesa Verde 18-7 Fed Com	North Reference:	Grid
Well:	Mesa Verde 18-7 Fed Com 6H	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)
4,662.00	0.00	0.00	4,662.00	0.00	0.00	0.00	0.00	0.00	0.00
Delaware									
4,677.00	0.00	0.00	4,677.00	0.00	0.00	0.00	0.00	0.00	0.00
Bell Canyon									
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
5,448.00	0.00	0.00	5,448.00	0.00	0.00	0.00	0.00	0.00	0.00
Step Out 2.00 DLS									
5,500.00	1.04	121.15	5,500.00	-0.24	0.40	-0.22	2.00	2.00	0.00
5,555.03	2.14	121.15	5,555.00	-1.03	1.71	-0.94	2.00	2.00	0.00
Cherry Canyon									
5,600.00	3.04	121.15	5,599.93	-2.09	3.45	-1.90	2.00	2.00	0.00
5,700.00	5.04	121.15	5,699.68	-5.73	9.48	-5.21	2.00	2.00	0.00
5,800.00	7.04	121.15	5,799.12	-11.17	18.48	-10.16	2.00	2.00	0.00
5,900.00	9.04	121.15	5,898.13	-18.41	30.45	-16.74	2.00	2.00	0.00
5,947.77	10.00	121.15	5,945.24	-22.49	37.21	-20.46	2.00	2.00	0.00
Hold 10° Tangent									
6,000.00	10.00	121.15	5,996.68	-27.18	44.97	-24.72	0.00	0.00	0.00
6,100.00	10.00	121.15	6,095.16	-36.16	59.83	-32.89	0.00	0.00	0.00
6,200.00	10.00	121.15	6,193.64	-45.14	74.68	-41.05	0.00	0.00	0.00
6,300.00	10.00	121.15	6,292.12	-54.12	89.53	-49.22	0.00	0.00	0.00
6,400.00	10.00	121.15	6,390.60	-63.10	104.39	-57.38	0.00	0.00	0.00
6,500.00	10.00	121.15	6,489.09	-72.08	119.24	-65.55	0.00	0.00	0.00
6,600.00	10.00	121.15	6,587.57	-81.06	134.10	-73.72	0.00	0.00	0.00
6,700.00	10.00	121.15	6,686.05	-90.03	148.95	-81.88	0.00	0.00	0.00
6,800.00	10.00	121.15	6,784.53	-99.01	163.80	-90.05	0.00	0.00	0.00
6,900.00	10.00	121.15	6,883.02	-107.99	178.66	-98.21	0.00	0.00	0.00
6,913.18	10.00	121.15	6,896.00	-109.18	180.62	-99.29	0.00	0.00	0.00
Brushy Canyon									
7,000.00	10.00	121.15	6,981.50	-116.97	193.51	-106.38	0.00	0.00	0.00
7,100.00	10.00	121.15	7,079.98	-125.95	208.37	-114.54	0.00	0.00	0.00
7,200.00	10.00	121.15	7,178.46	-134.93	223.22	-122.71	0.00	0.00	0.00
7,300.00	10.00	121.15	7,276.94	-143.91	238.08	-130.88	0.00	0.00	0.00
7,400.00	10.00	121.15	7,375.43	-152.89	252.93	-139.04	0.00	0.00	0.00
7,500.00	10.00	121.15	7,473.91	-161.86	267.78	-147.21	0.00	0.00	0.00
7,600.00	10.00	121.15	7,572.39	-170.84	282.64	-155.37	0.00	0.00	0.00
7,700.00	10.00	121.15	7,670.87	-179.82	297.49	-163.54	0.00	0.00	0.00
7,800.00	10.00	121.15	7,769.36	-188.80	312.35	-171.70	0.00	0.00	0.00
7,900.00	10.00	121.15	7,867.84	-197.78	327.20	-179.87	0.00	0.00	0.00
8,000.00	10.00	121.15	7,966.32	-206.76	342.05	-188.04	0.00	0.00	0.00
8,100.00	10.00	121.15	8,064.80	-215.74	356.91	-196.20	0.00	0.00	0.00
8,200.00	10.00	121.15	8,163.28	-224.72	371.76	-204.37	0.00	0.00	0.00
8,300.00	10.00	121.15	8,261.77	-233.69	386.62	-212.53	0.00	0.00	0.00
8,400.00	10.00	121.15	8,360.25	-242.67	401.47	-220.70	0.00	0.00	0.00
8,500.00	10.00	121.15	8,458.73	-251.65	416.33	-228.87	0.00	0.00	0.00
8,530.74	10.00	121.15	8,489.00	-254.41	420.89	-231.37	0.00	0.00	0.00
Bone Spring									

Oxy Planning Report

Database:	HOPSP	Local Co-ordinate Reference:	Well Mesa Verde 18-7 Fed Com 6H
Company:	ENGINEERING DESIGNS	TVD Reference:	WELL @ 3596.60ft (Original Well Elev)
Project:	PRD NM DIRECTIONAL PLANS (NAD 1983)	MD Reference:	WELL @ 3596.60ft (Original Well Elev)
Site:	Mesa Verde 18-7 Fed Com	North Reference:	Grid
Well:	Mesa Verde 18-7 Fed Com 6H	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)
8,600.00	10.00	121.15	8,557.21	-260.63	431.18	-237.03	0.00	0.00	0.00
8,700.00	10.00	121.15	8,655.69	-269.61	446.03	-245.20	0.00	0.00	0.00
8,800.00	10.00	121.15	8,754.18	-278.59	460.89	-253.36	0.00	0.00	0.00
8,900.00	10.00	121.15	8,852.66	-287.57	475.74	-261.53	0.00	0.00	0.00
9,000.00	10.00	121.15	8,951.14	-296.54	490.60	-269.69	0.00	0.00	0.00
9,100.00	10.00	121.15	9,049.62	-305.52	505.45	-277.86	0.00	0.00	0.00
9,200.00	10.00	121.15	9,148.11	-314.50	520.30	-286.03	0.00	0.00	0.00
9,300.00	10.00	121.15	9,246.59	-323.48	535.16	-294.19	0.00	0.00	0.00
9,400.00	10.00	121.15	9,345.07	-332.46	550.01	-302.36	0.00	0.00	0.00
9,500.00	10.00	121.15	9,443.55	-341.44	564.87	-310.52	0.00	0.00	0.00
9,503.30	10.00	121.15	9,446.80	-341.73	565.36	-310.79	0.00	0.00	0.00
Drop Back to Vertical at -2.00 DLS									
9,600.00	8.06	121.15	9,542.30	-349.58	578.34	-317.93	2.00	-2.00	0.00
9,700.00	6.06	121.15	9,641.54	-355.94	588.86	-323.71	2.00	-2.00	0.00
9,720.57	5.65	121.15	9,662.00	-357.03	590.66	-324.70	2.00	-2.00	0.00
1st Bone Spring									
9,800.00	4.06	121.15	9,741.14	-360.51	596.41	-327.86	2.00	-2.00	0.00
9,900.00	2.06	121.15	9,840.99	-363.27	600.98	-330.38	2.00	-2.00	0.00
9,993.03	0.20	121.15	9,934.00	-364.22	602.56	-331.24	2.00	-2.00	0.00
2nd Bone Spring									
10,000.00	0.06	121.15	9,940.97	-364.23	602.57	-331.25	2.00	-2.00	0.00
10,003.07	0.00	359.64	9,944.04	-364.23	602.57	-331.25	2.00	-2.00	0.00
Build Curve at 10.00 DLS									
10,100.00	9.69	359.64	10,040.51	-356.05	602.52	-323.08	10.00	10.00	0.00
10,200.00	19.69	359.64	10,137.12	-330.72	602.36	-297.80	10.00	10.00	0.00
10,300.00	29.69	359.64	10,227.86	-289.00	602.10	-256.15	10.00	10.00	0.00
10,400.00	39.69	359.64	10,309.97	-232.15	601.74	-199.41	10.00	10.00	0.00
10,500.00	49.69	359.64	10,380.97	-161.91	601.30	-129.29	10.00	10.00	0.00
10,600.00	59.69	359.64	10,438.69	-80.41	600.79	-47.94	10.00	10.00	0.00
10,700.00	69.69	359.64	10,481.39	9.88	600.23	42.19	10.00	10.00	0.00
10,800.00	79.69	359.64	10,507.75	106.21	599.63	138.34	10.00	10.00	0.00
10,900.00	89.69	359.64	10,516.99	205.65	599.00	237.61	10.00	10.00	0.00
10,903.07	90.00	359.64	10,517.00	208.72	598.98	240.67	10.00	10.00	0.00
Landing Point									
11,000.00	90.00	359.64	10,517.00	305.65	598.38	337.43	0.00	0.00	0.00
11,100.00	90.00	359.64	10,517.00	405.64	597.75	437.25	0.00	0.00	0.00
11,200.00	90.00	359.64	10,517.00	505.64	597.13	537.07	0.00	0.00	0.00
11,300.00	90.00	359.64	10,517.00	605.64	596.50	636.89	0.00	0.00	0.00
11,400.00	90.00	359.64	10,517.00	705.64	595.87	736.71	0.00	0.00	0.00
11,500.00	90.00	359.64	10,517.00	805.64	595.25	836.52	0.00	0.00	0.00
11,600.00	90.00	359.64	10,517.00	905.64	594.62	936.34	0.00	0.00	0.00
11,700.00	90.00	359.64	10,517.00	1,005.63	594.00	1,036.16	0.00	0.00	0.00
11,800.00	90.00	359.64	10,517.00	1,105.63	593.37	1,135.98	0.00	0.00	0.00
11,900.00	90.00	359.64	10,517.00	1,205.63	592.74	1,235.80	0.00	0.00	0.00
12,000.00	90.00	359.64	10,517.00	1,305.63	592.12	1,335.62	0.00	0.00	0.00
12,100.00	90.00	359.64	10,517.00	1,405.63	591.49	1,435.44	0.00	0.00	0.00
12,200.00	90.00	359.64	10,517.00	1,505.62	590.87	1,535.26	0.00	0.00	0.00
12,300.00	90.00	359.64	10,517.00	1,605.62	590.24	1,635.08	0.00	0.00	0.00
12,400.00	90.00	359.64	10,517.00	1,705.62	589.61	1,734.90	0.00	0.00	0.00
12,500.00	90.00	359.64	10,517.00	1,805.62	588.99	1,834.72	0.00	0.00	0.00
12,600.00	90.00	359.64	10,517.00	1,905.62	588.36	1,934.54	0.00	0.00	0.00
12,700.00	90.00	359.64	10,517.00	2,005.61	587.74	2,034.36	0.00	0.00	0.00
12,800.00	90.00	359.64	10,517.00	2,105.61	587.11	2,134.17	0.00	0.00	0.00
12,900.00	90.00	359.64	10,517.00	2,205.61	586.48	2,233.99	0.00	0.00	0.00

Oxy Planning Report

Database:	HOPSP	Local Co-ordinate Reference:	Well Mesa Verde 18-7 Fed Com 6H
Company:	ENGINEERING DESIGNS	TVD Reference:	WELL @ 3596.60ft (Original Well Elev)
Project:	PRD NM DIRECTIONAL PLANS (NAD 1983)	MD Reference:	WELL @ 3596.60ft (Original Well Elev)
Site:	Mesa Verde 18-7 Fed Com	North Reference:	Grid
Well:	Mesa Verde 18-7 Fed Com 6H	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)
13,000.00	90.00	359.64	10,517.00	2,305.61	585.86	2,333.81	0.00	0.00	0.00
13,100.00	90.00	359.64	10,517.00	2,405.61	585.23	2,433.63	0.00	0.00	0.00
13,200.00	90.00	359.64	10,517.00	2,505.60	584.61	2,533.45	0.00	0.00	0.00
13,300.00	90.00	359.64	10,517.00	2,605.60	583.98	2,633.27	0.00	0.00	0.00
13,400.00	90.00	359.64	10,517.00	2,705.60	583.36	2,733.09	0.00	0.00	0.00
13,500.00	90.00	359.64	10,517.00	2,805.60	582.73	2,832.91	0.00	0.00	0.00
13,600.00	90.00	359.64	10,517.00	2,905.60	582.10	2,932.73	0.00	0.00	0.00
13,700.00	90.00	359.64	10,517.00	3,005.59	581.48	3,032.55	0.00	0.00	0.00
13,800.00	90.00	359.64	10,517.00	3,105.59	580.85	3,132.37	0.00	0.00	0.00
13,900.00	90.00	359.64	10,517.00	3,205.59	580.23	3,232.19	0.00	0.00	0.00
14,000.00	90.00	359.64	10,517.00	3,305.59	579.60	3,332.01	0.00	0.00	0.00
14,100.00	90.00	359.64	10,517.00	3,405.59	578.97	3,431.82	0.00	0.00	0.00
14,200.00	90.00	359.64	10,517.00	3,505.58	578.35	3,531.64	0.00	0.00	0.00
14,300.00	90.00	359.64	10,517.00	3,605.58	577.72	3,631.46	0.00	0.00	0.00
14,400.00	90.00	359.64	10,517.00	3,705.58	577.10	3,731.28	0.00	0.00	0.00
14,500.00	90.00	359.64	10,517.00	3,805.58	576.47	3,831.10	0.00	0.00	0.00
14,600.00	90.00	359.64	10,517.00	3,905.58	575.84	3,930.92	0.00	0.00	0.00
14,700.00	90.00	359.64	10,517.00	4,005.57	575.22	4,030.74	0.00	0.00	0.00
14,800.00	90.00	359.64	10,517.00	4,105.57	574.59	4,130.56	0.00	0.00	0.00
14,900.00	90.00	359.64	10,517.00	4,205.57	573.97	4,230.38	0.00	0.00	0.00
15,000.00	90.00	359.64	10,517.00	4,305.57	573.34	4,330.20	0.00	0.00	0.00
15,100.00	90.00	359.64	10,517.00	4,405.57	572.71	4,430.02	0.00	0.00	0.00
15,200.00	90.00	359.64	10,517.00	4,505.56	572.09	4,529.84	0.00	0.00	0.00
15,300.00	90.00	359.64	10,517.00	4,605.56	571.46	4,629.65	0.00	0.00	0.00
15,400.00	90.00	359.64	10,517.00	4,705.56	570.84	4,729.47	0.00	0.00	0.00
15,500.00	90.00	359.64	10,517.00	4,805.56	570.21	4,829.29	0.00	0.00	0.00
15,600.00	90.00	359.64	10,517.00	4,905.56	569.59	4,929.11	0.00	0.00	0.00
15,700.00	90.00	359.64	10,517.00	5,005.55	568.96	5,028.93	0.00	0.00	0.00
15,800.00	90.00	359.64	10,517.00	5,105.55	568.33	5,128.75	0.00	0.00	0.00
15,900.00	90.00	359.64	10,517.00	5,205.55	567.71	5,228.57	0.00	0.00	0.00
16,000.00	90.00	359.64	10,517.00	5,305.55	567.08	5,328.39	0.00	0.00	0.00
16,100.00	90.00	359.64	10,517.00	5,405.55	566.46	5,428.21	0.00	0.00	0.00
16,200.00	90.00	359.64	10,517.00	5,505.55	565.83	5,528.03	0.00	0.00	0.00
16,300.00	90.00	359.64	10,517.00	5,605.54	565.20	5,627.85	0.00	0.00	0.00
16,400.00	90.00	359.64	10,517.00	5,705.54	564.58	5,727.67	0.00	0.00	0.00
16,500.00	90.00	359.64	10,517.00	5,805.54	563.95	5,827.49	0.00	0.00	0.00
16,600.00	90.00	359.64	10,517.00	5,905.54	563.33	5,927.30	0.00	0.00	0.00
16,700.00	90.00	359.64	10,517.00	6,005.54	562.70	6,027.12	0.00	0.00	0.00
16,800.00	90.00	359.64	10,517.00	6,105.53	562.07	6,126.94	0.00	0.00	0.00
16,900.00	90.00	359.64	10,517.00	6,205.53	561.45	6,226.76	0.00	0.00	0.00
17,000.00	90.00	359.64	10,517.00	6,305.53	560.82	6,326.58	0.00	0.00	0.00
17,100.00	90.00	359.64	10,517.00	6,405.53	560.20	6,426.40	0.00	0.00	0.00
17,200.00	90.00	359.64	10,517.00	6,505.53	559.57	6,526.22	0.00	0.00	0.00
17,300.00	90.00	359.64	10,517.00	6,605.52	558.94	6,626.04	0.00	0.00	0.00
17,400.00	90.00	359.64	10,517.00	6,705.52	558.32	6,725.86	0.00	0.00	0.00
17,500.00	90.00	359.64	10,517.00	6,805.52	557.69	6,825.68	0.00	0.00	0.00
17,600.00	90.00	359.64	10,517.00	6,905.52	557.07	6,925.50	0.00	0.00	0.00
17,700.00	90.00	359.64	10,517.00	7,005.52	556.44	7,025.32	0.00	0.00	0.00
17,800.00	90.00	359.64	10,517.00	7,105.51	555.81	7,125.14	0.00	0.00	0.00
17,900.00	90.00	359.64	10,517.00	7,205.51	555.19	7,224.95	0.00	0.00	0.00
18,000.00	90.00	359.64	10,517.00	7,305.51	554.56	7,324.77	0.00	0.00	0.00
18,100.00	90.00	359.64	10,517.00	7,405.51	553.94	7,424.59	0.00	0.00	0.00
18,200.00	90.00	359.64	10,517.00	7,505.51	553.31	7,524.41	0.00	0.00	0.00
18,300.00	90.00	359.64	10,517.00	7,605.50	552.69	7,624.23	0.00	0.00	0.00

Oxy Planning Report

Database:	HOPSPP	Local Co-ordinate Reference:	Well Mesa Verde 18-7 Fed Com 6H
Company:	ENGINEERING DESIGNS	TVD Reference:	WELL @ 3596.60ft (Original Well Elev)
Project:	PRD NM DIRECTIONAL PLANS (NAD 1983)	MD Reference:	WELL @ 3596.60ft (Original Well Elev)
Site:	Mesa Verde 18-7 Fed Com	North Reference:	Grid
Well:	Mesa Verde 18-7 Fed Com 6H	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)
18,400.00	90.00	359.64	10,517.00	7,705.50	552.06	7,724.05	0.00	0.00	0.00
18,500.00	90.00	359.64	10,517.00	7,805.50	551.43	7,823.87	0.00	0.00	0.00
18,600.00	90.00	359.64	10,517.00	7,905.50	550.81	7,923.69	0.00	0.00	0.00
18,700.00	90.00	359.64	10,517.00	8,005.50	550.18	8,023.51	0.00	0.00	0.00
18,800.00	90.00	359.64	10,517.00	8,105.49	549.56	8,123.33	0.00	0.00	0.00
18,900.00	90.00	359.64	10,517.00	8,205.49	548.93	8,223.15	0.00	0.00	0.00
19,000.00	90.00	359.64	10,517.00	8,305.49	548.30	8,322.97	0.00	0.00	0.00
19,100.00	90.00	359.64	10,517.00	8,405.49	547.68	8,422.79	0.00	0.00	0.00
19,200.00	90.00	359.64	10,517.00	8,505.49	547.05	8,522.60	0.00	0.00	0.00
19,300.00	90.00	359.64	10,517.00	8,605.48	546.43	8,622.42	0.00	0.00	0.00
19,400.00	90.00	359.64	10,517.00	8,705.48	545.80	8,722.24	0.00	0.00	0.00
19,500.00	90.00	359.64	10,517.00	8,805.48	545.17	8,822.06	0.00	0.00	0.00
19,600.00	90.00	359.64	10,517.00	8,905.48	544.55	8,921.88	0.00	0.00	0.00
19,700.00	90.00	359.64	10,517.00	9,005.48	543.92	9,021.70	0.00	0.00	0.00
19,800.00	90.00	359.64	10,517.00	9,105.47	543.30	9,121.52	0.00	0.00	0.00
19,900.00	90.00	359.64	10,517.00	9,205.47	542.67	9,221.34	0.00	0.00	0.00
20,000.00	90.00	359.64	10,517.00	9,305.47	542.04	9,321.16	0.00	0.00	0.00
20,100.00	90.00	359.64	10,517.00	9,405.47	541.42	9,420.98	0.00	0.00	0.00
20,200.00	90.00	359.64	10,517.00	9,505.47	540.79	9,520.80	0.00	0.00	0.00
20,300.00	90.00	359.64	10,517.00	9,605.46	540.17	9,620.62	0.00	0.00	0.00
20,400.00	90.00	359.64	10,517.00	9,705.46	539.54	9,720.44	0.00	0.00	0.00
20,500.00	90.00	359.64	10,517.00	9,805.46	538.92	9,820.25	0.00	0.00	0.00
20,600.00	90.00	359.64	10,517.00	9,905.46	538.29	9,920.07	0.00	0.00	0.00
20,667.44	90.00	359.64	10,517.00	9,972.90	537.87	9,987.39	0.00	0.00	0.00
TD at 20667.44									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
MV18-7_6H_KOP	0.00	0.00	9,944.04	-364.23	602.57	440,808.26	735,139.79	32° 12' 37.101091 N	103° 42' 24.161410
- plan hits target center									
- Point									
MV18-7_6H_BHL	0.00	0.00	10,517.00	9,972.90	537.87	451,144.87	735,075.09	32° 14' 19.390444 N	103° 42' 24.212828
- plan hits target center									
- Point									

Oxy Planning Report

Database:	HOPSP	Local Co-ordinate Reference:	Well Mesa Verde 18-7 Fed Com 6H
Company:	ENGINEERING DESIGNS	TVD Reference:	WELL @ 3596.60ft (Original Well Elev)
Project:	PRD NM DIRECTIONAL PLANS (NAD 1983)	MD Reference:	WELL @ 3596.60ft (Original Well Elev)
Site:	Mesa Verde 18-7 Fed Com	North Reference:	Grid
Well:	Mesa Verde 18-7 Fed Com 6H	Survey Calculation Method:	Minimum Curvature
Wellbore:	WB00		
Design:	Permitting Plan		

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
909.00	909.00	Rustler				
1,005.00	1,005.00	Salado				
3,292.00	3,292.00	Castile				
4,662.00	4,662.00	Delaware				
4,677.00	4,677.00	Bell Canyon				
5,555.03	5,555.00	Cherry Canyon				
6,913.18	6,896.00	Brushy Canyon				
8,530.74	8,489.00	Bone Spring				
9,720.57	9,662.00	1st Bone Spring				
9,993.03	9,934.00	2nd Bone Spring				

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
5,448.00	5,448.00	0.00	0.00	Step Out 2.00 DLS
5,947.77	5,945.24	-22.49	37.21	Hold 10° Tangent
9,503.30	9,446.80	-341.73	565.36	Drop Back to Vertical at -2.00 DLS
10,003.07	9,944.04	-364.23	602.57	Build Curve at 10.00 DLS
10,903.07	10,517.00	208.72	598.98	Landing Point
20,667.44	10,517.00	9,972.90	537.87	TD at 20667.44