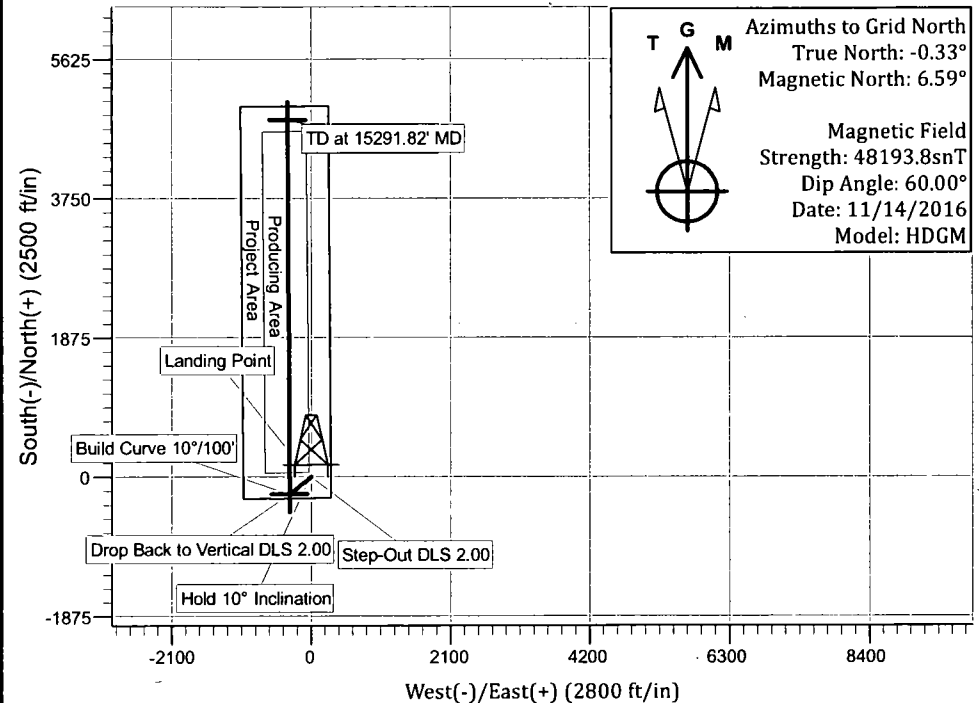
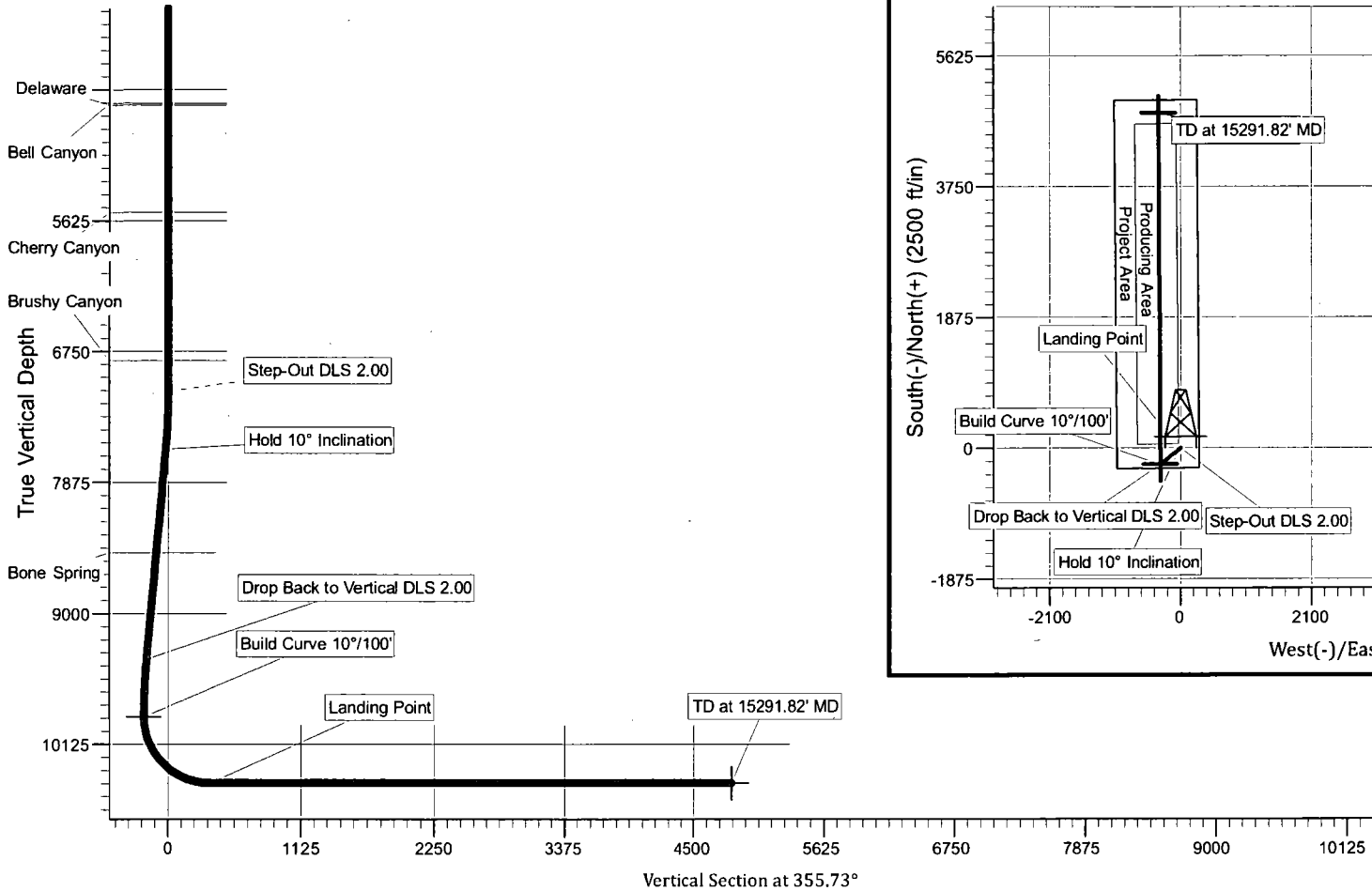




Project: PRD NM DIRECTIONAL PLANS (NAD 1983)
Site: Mesa Verde 18 Fed Com
Well: Mesa Verde 18 Fed Com 3H
Wellbore: WB00
Design: Permitting Plan

WELL DETAILS: Mesa Verde 18 Fed Com 3H

Ground Level: 3571.60 WELL @ 3598.10ft (Original Well Elev)
+N/-S +E/-W Northing Easting Latitude Longitude
0.00 0.00 441014.19 732639.96 32° 12' 39.282154 N 103° 42' 53.243914 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

ANNOTATIONS

TVD	MD	Inc	Azi	+N/-S	+E/-W	Vsect	Departure	Annotation
7092.00	7092.00	0.00	0.00	0.00	0.00	0.00	0.00	Step-Out DLS 2.00
7589.36	7591.89	10.00	234.78	-25.09	-35.54	-22.38	43.50	Hold 10° Inclination
9389.64	9419.94	10.00	234.78	-208.11	-294.82	-185.61	360.87	Drop Back to Vertical DLS 2.00
9887.00	9919.83	0.00	359.68	-233.20	-330.36	-207.98	404.37	Build Curve 10°/100'
10459.96	10819.83	90.00	359.68	339.75	-333.60	363.62	977.33	Landing Point
10460.00	15291.82	90.00	359.68	4811.67	-358.90	4825.03	5449.32	TD at 15291.82' MD

OXY

PRD NM DIRECTIONAL PLANS (NAD 1983)

Mesa Verde 18 Fed Com

Mesa Verde 18 Fed Com 3H

WB00

Plan: Permitting Plan

HOBBS OCD

NOV 13 2017

RECEIVED

Standard Planning Report

14 November, 2016

Oxy Planning Report

Database:	HOPSP	Local Co-ordinate Reference:	Well Mesa Verde 18 Fed Com 3H
Company:	OXY	TVD Reference:	WELL @ 3598.10ft (Original Well Elev)
Project:	PRD NM DIRECTIONAL PLANS (NAD 1983)	MD Reference:	WELL @ 3598.10ft (Original Well Elev)
Site:	Mesa Verde 18 Fed Com	North Reference:	Grid
Well:	Mesa Verde 18 Fed 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 18 Fed Com		
Site Position:		Northing:	441,000.17 usft
From:	Map	Easting:	731,185.03 usft
Position Uncertainty:	0.00 ft	Slot Radius:	13.200 in
		Latitude:	32° 12' 39.225956 N
		Longitude:	103° 43' 10.179359 W
		Grid Convergence:	0.33 °

Well	Mesa Verde 18 Fed Com 3H		
Well Position	+N/-S	14.02 ft	Northing:
	+E/-W	1,455.01 ft	Easting:
Position Uncertainty	0.00 ft	Wellhead Elevation:	3,571.60 ft
		Latitude:	32° 12' 39.282154 N
		Longitude:	103° 42' 53.243914 W
		Ground Level:	3,571.60 ft

Wellbore	WB00		
Magnetics	Model Name	Sample Date	Declination
			(°)
	HDGM	11/14/2016	6.92
			Dip Angle
			(°)
			60.00
			Field Strength
			(nT)
			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
			(°)
			355.73

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	
7,092.00	0.00	0.00	7,092.00	0.00	0.00	0.00	0.00	0.00	0.00	
7,591.89	10.00	234.78	7,589.36	-25.09	-35.54	2.00	2.00	0.00	234.78	
9,419.94	10.00	234.78	9,389.64	-208.11	-294.82	0.00	0.00	0.00	0.00	
9,919.83	0.00	359.68	9,887.00	-233.20	-330.36	2.00	-2.00	0.00	180.00	MV_18_3H_KOP
10,819.83	90.00	359.68	10,459.96	339.75	-333.60	10.00	10.00	0.00	-0.32	
15,291.82	90.00	359.68	10,460.00	4,811.67	-358.90	0.00	0.00	0.00	0.00	MV_18_3H_BHL

Oxy Planning Report

Database:	HOPSPP	Local Co-ordinate Reference:	Well Mesa Verde 18 Fed Com 3H
Company:	OXY	TVD Reference:	WELL @ 3598.10ft (Original Well Elev)
Project:	PRD NM DIRECTIONAL PLANS (NAD 1983)	MD Reference:	WELL @ 3598.10ft (Original Well Elev)
Site:	Mesa Verde 18 Fed Com	North Reference:	Grid
Well:	Mesa Verde 18 Fed 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	
920.57	0.00	0.00	920.57	0.00	0.00	0.00	0.00	0.00	0.00	
Rustler										
1,030.11	0.00	0.00	1,030.11	0.00	0.00	0.00	0.00	0.00	0.00	
Salado										
3,310.43	0.00	0.00	3,310.43	0.00	0.00	0.00	0.00	0.00	0.00	
Castile										
4,617.10	0.00	0.00	4,617.10	0.00	0.00	0.00	0.00	0.00	0.00	
Bell Canyon										
4,632.10	0.00	0.00	4,632.10	0.00	0.00	0.00	0.00	0.00	0.00	
Delaware										
5,554.55	0.00	0.00	5,554.55	0.00	0.00	0.00	0.00	0.00	0.00	
Cherry Canyon										
6,827.51	0.00	0.00	6,827.51	0.00	0.00	0.00	0.00	0.00	0.00	
Brushy Canyon										
7,092.00	0.00	0.00	7,092.00	0.00	0.00	0.00	0.00	0.00	0.00	
Step-Out DLS 2.00										
7,100.00	0.16	234.78	7,100.00	-0.01	-0.01	-0.01	2.00	2.00	0.00	
7,200.00	2.16	234.78	7,199.97	-1.17	-1.66	-1.05	2.00	2.00	0.00	
7,300.00	4.16	234.78	7,299.82	-4.35	-6.17	-3.88	2.00	2.00	0.00	
7,400.00	6.16	234.78	7,399.41	-9.54	-13.51	-8.51	2.00	2.00	0.00	
7,500.00	8.16	234.78	7,498.62	-16.73	-23.70	-14.92	2.00	2.00	0.00	
7,591.89	10.00	234.78	7,589.36	-25.09	-35.54	-22.38	2.00	2.00	0.00	
Hold 10° Inclination										
7,600.00	10.00	234.78	7,597.34	-25.90	-36.69	-23.10	0.00	0.00	0.00	
7,700.00	10.00	234.78	7,695.83	-35.91	-50.87	-32.03	0.00	0.00	0.00	
7,800.00	10.00	234.78	7,794.31	-45.92	-65.06	-40.96	0.00	0.00	0.00	
7,900.00	10.00	234.78	7,892.79	-55.94	-79.24	-49.89	0.00	0.00	0.00	
8,000.00	10.00	234.78	7,991.27	-65.95	-93.42	-58.82	0.00	0.00	0.00	
8,100.00	10.00	234.78	8,089.75	-75.96	-107.61	-67.75	0.00	0.00	0.00	
8,200.00	10.00	234.78	8,188.23	-85.97	-121.79	-76.68	0.00	0.00	0.00	
8,300.00	10.00	234.78	8,286.71	-95.98	-135.97	-85.60	0.00	0.00	0.00	
8,400.00	10.00	234.78	8,385.20	-106.00	-150.16	-94.53	0.00	0.00	0.00	
8,493.28	10.00	234.78	8,477.06	-115.34	-163.39	-102.86	0.00	0.00	0.00	
Bone Spring										
8,500.00	10.00	234.78	8,483.68	-116.01	-164.34	-103.46	0.00	0.00	0.00	
8,600.00	10.00	234.78	8,582.16	-126.02	-178.52	-112.39	0.00	0.00	0.00	
8,700.00	10.00	234.78	8,680.64	-136.03	-192.71	-121.32	0.00	0.00	0.00	
8,800.00	10.00	234.78	8,779.12	-146.05	-206.89	-130.25	0.00	0.00	0.00	
8,900.00	10.00	234.78	8,877.60	-156.06	-221.07	-139.18	0.00	0.00	0.00	
9,000.00	10.00	234.78	8,976.08	-166.07	-235.26	-148.11	0.00	0.00	0.00	
9,100.00	10.00	234.78	9,074.57	-176.08	-249.44	-157.04	0.00	0.00	0.00	
9,200.00	10.00	234.78	9,173.05	-186.09	-263.62	-165.97	0.00	0.00	0.00	
9,300.00	10.00	234.78	9,271.53	-196.11	-277.81	-174.90	0.00	0.00	0.00	
9,400.00	10.00	234.78	9,370.01	-206.12	-291.99	-183.83	0.00	0.00	0.00	
9,419.94	10.00	234.78	9,389.64	-208.11	-294.82	-185.61	0.00	0.00	0.00	
Drop Back to Vertical DLS 2.00										
9,500.00	8.40	234.78	9,468.68	-215.49	-305.27	-192.19	2.00	-2.00	0.00	
9,600.00	6.40	234.78	9,567.84	-222.92	-315.79	-198.81	2.00	-2.00	0.00	
9,700.00	4.40	234.78	9,667.39	-228.34	-323.47	-203.65	2.00	-2.00	0.00	
9,800.00	2.40	234.78	9,767.21	-231.76	-328.31	-206.69	2.00	-2.00	0.00	
9,900.00	0.40	234.78	9,867.17	-233.16	-330.30	-207.95	2.00	-2.00	0.00	
9,919.83	0.00	359.68	9,887.00	-233.20	-330.36	-207.98	2.00	-2.00	0.00	

Oxy Planning Report

Database:	HOPSPP	Local Co-ordinate Reference:	Well Mesa Verde 18 Fed Com 3H
Company:	OXY	TVD Reference:	WELL @ 3598.10ft (Original Well Elev)
Project:	PRD NM DIRECTIONAL PLANS (NAD 1983)	MD Reference:	WELL @ 3598.10ft (Original Well Elev)
Site:	Mesa Verde 18 Fed Com	North Reference:	Grid
Well:	Mesa Verde 18 Fed 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)
Build Curve 10°/100' - MV_18_3H_KOP									
10,000.00	8.02	359.68	9,966.91	-227.60	-330.39	-202.40	10.00	10.00	0.00
10,100.00	18.02	359.68	10,064.22	-205.11	-330.52	-179.95	10.00	10.00	0.00
10,200.00	28.02	359.68	10,156.14	-166.06	-330.74	-140.99	10.00	10.00	0.00
10,300.00	38.02	359.68	10,239.89	-111.64	-331.04	-86.70	10.00	10.00	0.00
10,400.00	48.02	359.68	10,312.91	-43.50	-331.43	-18.73	10.00	10.00	0.00
10,500.00	58.02	359.68	10,372.99	36.28	-331.88	60.86	10.00	10.00	0.00
10,600.00	68.02	359.68	10,418.30	125.28	-332.38	149.65	10.00	10.00	0.00
10,700.00	78.02	359.68	10,447.47	220.79	-332.93	244.95	10.00	10.00	0.00
10,800.00	88.02	359.68	10,459.62	319.93	-333.49	343.84	10.00	10.00	0.00
10,819.83	90.00	359.68	10,459.96	339.75	-333.60	363.62	10.00	10.00	0.00
Landing Point									
10,900.00	90.00	359.68	10,459.96	419.92	-334.05	443.60	0.00	0.00	0.00
11,000.00	90.00	359.68	10,459.96	519.92	-334.62	543.37	0.00	0.00	0.00
11,100.00	90.00	359.68	10,459.96	619.92	-335.18	643.13	0.00	0.00	0.00
11,200.00	90.00	359.68	10,459.96	719.91	-335.75	742.89	0.00	0.00	0.00
11,300.00	90.00	359.68	10,459.96	819.91	-336.31	842.66	0.00	0.00	0.00
11,400.00	90.00	359.68	10,459.96	919.91	-336.88	942.42	0.00	0.00	0.00
11,500.00	90.00	359.68	10,459.96	1,019.91	-337.45	1,042.18	0.00	0.00	0.00
11,600.00	90.00	359.68	10,459.96	1,119.91	-338.01	1,141.95	0.00	0.00	0.00
11,700.00	90.00	359.68	10,459.96	1,219.91	-338.58	1,241.71	0.00	0.00	0.00
11,800.00	90.00	359.68	10,459.96	1,319.91	-339.14	1,341.48	0.00	0.00	0.00
11,900.00	90.00	359.68	10,459.96	1,419.90	-339.71	1,441.24	0.00	0.00	0.00
12,000.00	90.00	359.68	10,459.96	1,519.90	-340.28	1,541.00	0.00	0.00	0.00
12,100.00	90.00	359.68	10,459.96	1,619.90	-340.84	1,640.77	0.00	0.00	0.00
12,200.00	90.00	359.68	10,459.96	1,719.90	-341.41	1,740.53	0.00	0.00	0.00
12,300.00	90.00	359.68	10,459.96	1,819.90	-341.97	1,840.29	0.00	0.00	0.00
12,400.00	90.00	359.68	10,459.96	1,919.90	-342.54	1,940.06	0.00	0.00	0.00
12,500.00	90.00	359.68	10,459.96	2,019.89	-343.10	2,039.82	0.00	0.00	0.00
12,600.00	90.00	359.68	10,459.96	2,119.89	-343.67	2,139.58	0.00	0.00	0.00
12,700.00	90.00	359.68	10,459.96	2,219.89	-344.24	2,239.35	0.00	0.00	0.00
12,800.00	90.00	359.68	10,459.96	2,319.89	-344.80	2,339.11	0.00	0.00	0.00
12,900.00	90.00	359.68	10,459.96	2,419.89	-345.37	2,438.87	0.00	0.00	0.00
13,000.00	90.00	359.68	10,459.96	2,519.89	-345.93	2,538.64	0.00	0.00	0.00
13,100.00	90.00	359.68	10,459.96	2,619.88	-346.50	2,638.40	0.00	0.00	0.00
13,200.00	90.00	359.68	10,459.96	2,719.88	-347.06	2,738.16	0.00	0.00	0.00
13,300.00	90.00	359.68	10,459.96	2,819.88	-347.63	2,837.93	0.00	0.00	0.00
13,400.00	90.00	359.68	10,459.96	2,919.88	-348.20	2,937.69	0.00	0.00	0.00
13,500.00	90.00	359.68	10,459.96	3,019.88	-348.76	3,037.45	0.00	0.00	0.00
13,600.00	90.00	359.68	10,459.96	3,119.88	-349.33	3,137.22	0.00	0.00	0.00
13,700.00	90.00	359.68	10,459.96	3,219.87	-349.89	3,236.98	0.00	0.00	0.00
13,800.00	90.00	359.68	10,459.96	3,319.87	-350.46	3,336.74	0.00	0.00	0.00
13,900.00	90.00	359.68	10,459.96	3,419.87	-351.02	3,436.51	0.00	0.00	0.00
14,000.00	90.00	359.68	10,459.96	3,519.87	-351.59	3,536.27	0.00	0.00	0.00
14,100.00	90.00	359.68	10,459.96	3,619.87	-352.16	3,636.03	0.00	0.00	0.00
14,200.00	90.00	359.68	10,459.96	3,719.87	-352.72	3,735.80	0.00	0.00	0.00
14,300.00	90.00	359.68	10,459.96	3,819.87	-353.29	3,835.56	0.00	0.00	0.00
14,400.00	90.00	359.68	10,459.96	3,919.86	-353.85	3,935.33	0.00	0.00	0.00
14,500.00	90.00	359.68	10,459.96	4,019.86	-354.42	4,035.09	0.00	0.00	0.00
14,600.00	90.00	359.68	10,459.96	4,119.86	-354.98	4,134.85	0.00	0.00	0.00
14,700.00	90.00	359.68	10,459.96	4,219.86	-355.55	4,234.62	0.00	0.00	0.00
14,800.00	90.00	359.68	10,459.96	4,319.86	-356.12	4,334.38	0.00	0.00	0.00
14,900.00	90.00	359.68	10,459.96	4,419.86	-356.68	4,434.14	0.00	0.00	0.00
15,000.00	90.00	359.68	10,459.96	4,519.85	-357.25	4,533.91	0.00	0.00	0.00

Oxy Planning Report

Database:	HOPSP	Local Co-ordinate Reference:	Well Mesa Verde 18 Fed Com 3H
Company:	OXY	TVD Reference:	WELL @ 3598.10ft (Original Well Elev)
Project:	PRD NM DIRECTIONAL PLANS (NAD 1983)	MD Reference:	WELL @ 3598.10ft (Original Well Elev)
Site:	Mesa Verde 18 Fed Com	North Reference:	Grid
Well:	Mesa Verde 18 Fed 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)
15,100.00	90.00	359.68	10,459.96	4,619.85	-357.81	4,633.67	0.00	0.00	0.00
15,200.00	90.00	359.68	10,459.96	4,719.85	-358.38	4,733.43	0.00	0.00	0.00
15,291.82	90.00	359.68	10,460.00	4,811.67	-358.90	4,825.03	0.00	0.00	0.00
TD at 15291.82' MD - MV_18_3H_BHL									

Design Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
MV_18_3H_KOP	0.00	0.00	9,887.00	-233.20	-330.36	440,781.00	732,309.62	32° 12' 36.993416 N	103° 42' 57.104464
- plan hits target center									
- Point									
MV_18_3H_BHL	0.00	0.00	10,460.00	4,811.67	-358.90	445,825.61	732,281.08	32° 13' 26.913972 N	103° 42' 57.099285
- plan hits target center									
- Point									

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
920.57	920.57	Rustler			
1,030.11	1,030.11	Salado			
3,310.43	3,310.43	Castile			
4,617.10	4,617.10	Bell Canyon			
4,632.10	4,632.10	Delaware			
5,554.55	5,554.55	Cherry Canyon			
6,827.51	6,827.51	Brushy Canyon			
8,493.28	8,477.06	Bone Spring			

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
7,092.00	7,092.00	0.00	0.00	Step-Out DLS 2.00
7,591.89	7,589.36	-25.09	-35.54	Hold 10° Inclination
9,419.94	9,389.64	-208.11	-294.82	Drop Back to Vertical DLS 2.00
9,919.83	9,887.00	-233.20	-330.36	Build Curve 10°/100'
10,819.83	10,459.96	339.75	-333.60	Landing Point
15,291.82	10,460.00	4,811.67	-358.90	TD at 15291.82' MD