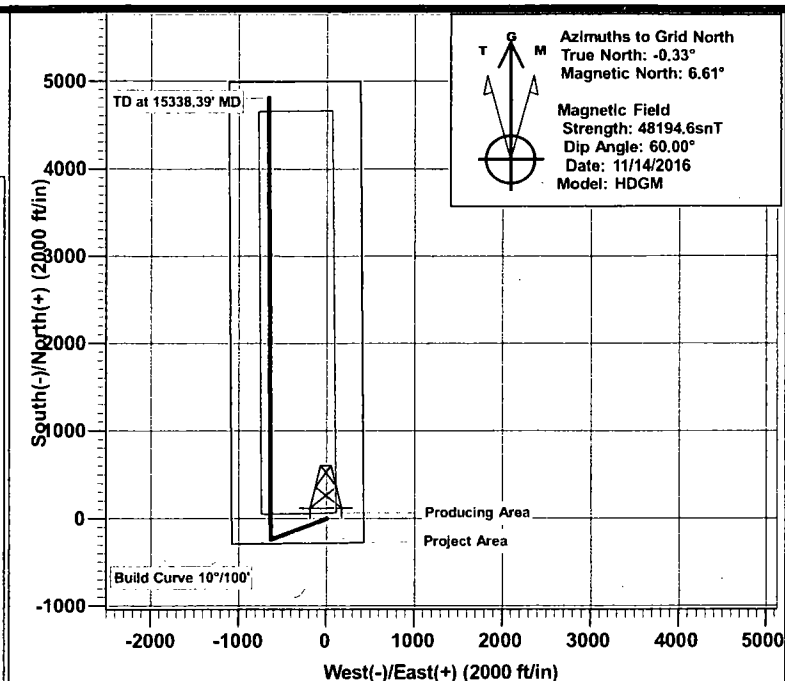
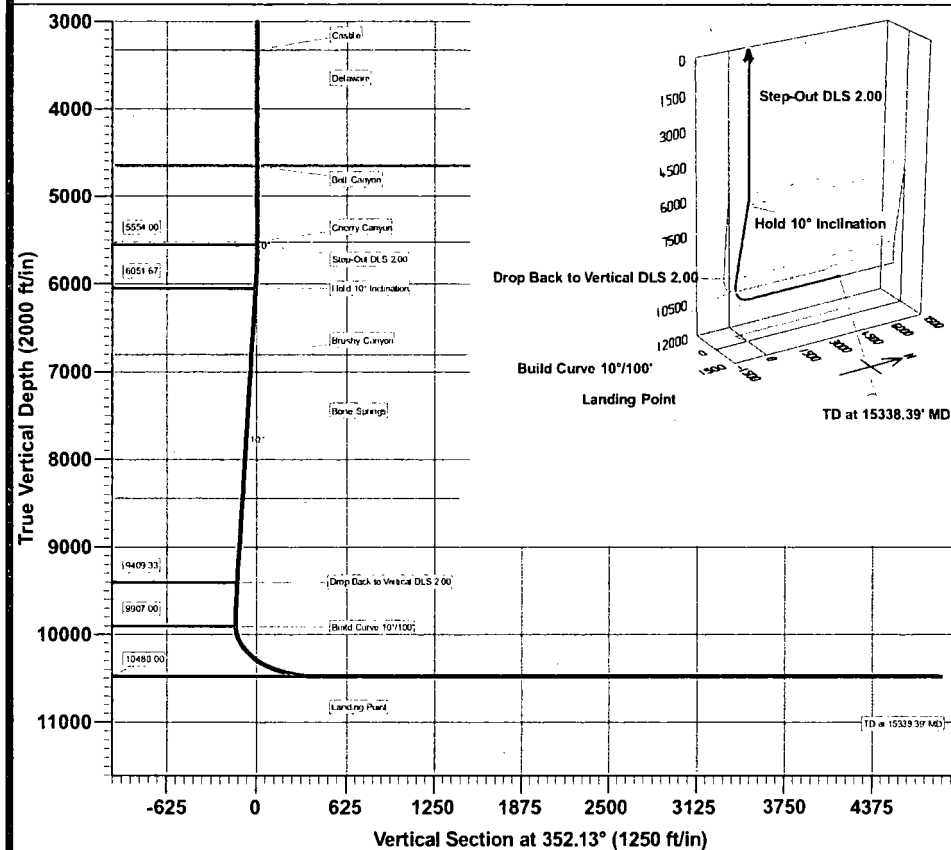




Project: PRD NM DIRECTIONAL PLANS (NAD 1983)
 Site: Mesa Verde 18 Fed Com
 Well: Mesa Verde 18 Fed Com 1H
 Wellbore: WB00
 Design: Permitting Plan



Azimuths to Grid North
 True North: -0.33°
 Magnetic North: 6.61°
 Magnetic Field
 Strength: 48194.6snT
 Dip Angle: 60.00°
 Date: 11/14/2016
 Model: HDGM

WELL DETAILS: Mesa Verde 18 Fed Com 1H

Ground Level: 3572.00
 Northing 441000.17 Easting 731185.03 Latitude 32° 12' 39.225956 N Longitude 103° 43' 10.179359 W

PROJECT DETAILS: PRD NM DIRECTIONAL PLANS (NAD 1983)

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

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	5554.00	0.00	0.00	5554.00	0.00	0.00	0.00	0.00	0.00		Step-Out DLS 2.00
3	6054.21	10.00	249.66	6051.67	-15.14	-40.84	2.00	249.66	-9.41		Hold 10° Inclination
4	9463.71	10.00	249.66	9409.33	-221.00	-596.21	0.00	0.00	-137.31		Drop Back to Vertical DLS 2.00
5	9963.92	0.00	359.68	9907.00	-236.14	-637.05	2.00	180.00	-146.72		Build Curve 10°/100'
6	10863.92	90.00	359.68	10479.96	336.81	-640.22	10.00	-0.32	421.27		Landing Point
7	15338.39	90.00	359.68	10480.00	4811.21	-664.92	0.00	0.00	4856.94		TD at 15338.39' MD

NM OIL CONSERVATION
ARTESIA DISTRICT

NOV 08 2017

RECEIVED

ENGINEERING DESIGNS

PRD NM DIRECTIONAL PLANS (NAD 1983)

Mesa Verde 18 Fed Com

Mesa Verde 18 Fed Com 1H

WB00

HOBBS OCD

NOV 13 2017

Plan: Permitting Plan

RECEIVED

Standard Planning Report

27 December, 2016

Oxy Planning Report

Database:	HOPSPP	Local Co-ordinate Reference:	Well Mesa Verde 18 Fed Com 1H
Company:	ENGINEERING DESIGNS	TVD Reference:	WELL @ 3598.50ft (Original Well Elev)
Project:	PRD NM DIRECTIONAL PLANS (NAD 1983)	MD Reference:	WELL @ 3598.50ft (Original Well Elev)
Site:	Mesa Verde 18 Fed Com	North Reference:	Grid
Well:	Mesa Verde 18 Fed 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 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 1H		
Well Position	+N/-S	0.00 ft	Northing: 441,000.17 usft
	+E/-W	0.00 ft	Easting: 731,185.03 usft
Position Uncertainty	0.00 ft	Wellhead Elevation:	3,572.00 ft
		Latitude:	32° 12' 39.225956 N
		Longitude:	103° 43' 10.179359 W
		Ground Level:	3,572.00 ft

Wellbore	WB00		
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Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	11/14/2016	6.93	60.00	48,195

Design	Permitting Plan		
Audit Notes:			
Version:	Phase:	PROTOTYPE	Tie On Depth: 0.00
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)
	0.00	0.00	0.00
			Direction (°) 352.13

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	
5,554.00	0.00	0.00	5,554.00	0.00	0.00	0.00	0.00	0.00	0.00	
6,054.21	10.00	249.66	6,051.67	-15.14	-40.84	2.00	2.00	0.00	249.66	
9,463.71	10.00	249.66	9,409.33	-221.00	-596.21	0.00	0.00	0.00	0.00	
9,963.92	0.00	359.68	9,907.00	-236.14	-637.05	2.00	-2.00	0.00	180.00	MV_18_1H_KOP
10,863.92	90.00	359.68	10,479.96	336.81	-640.22	10.00	10.00	0.00	-0.32	
15,338.39	90.00	359.68	10,480.00	4,811.21	-664.92	0.00	0.00	0.00	0.00	MV_18_1H_BHL

Oxy Planning Report

Database:	HOPSPP	Local Co-ordinate Reference:	Well Mesa Verde 18 Fed Com 1H
Company:	ENGINEERING DESIGNS	TVD Reference:	WELL @ 3598.50ft (Original Well Elev)
Project:	PRD NM DIRECTIONAL PLANS (NAD 1983)	MD Reference:	WELL @ 3598.50ft (Original Well Elev)
Site:	Mesa Verde 18 Fed Com	North Reference:	Grid
Well:	Mesa Verde 18 Fed 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
945.95	0.00	0.00	945.95	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
1,061.41	0.00	0.00	1,061.41	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
3,300.00	0.00	0.00	3,300.00	0.00	0.00	0.00	0.00	0.00	0.00
3,331.57	0.00	0.00	3,331.57	0.00	0.00	0.00	0.00	0.00	0.00
Castile									
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:	HOPSPP	Local Co-ordinate Reference:	Well Mesa Verde 18 Fed Com 1H
Company:	ENGINEERING DESIGNS	TVD Reference:	WELL @ 3598.50ft (Original Well Elev)
Project:	PRD NM DIRECTIONAL PLANS (NAD 1983)	MD Reference:	WELL @ 3598.50ft (Original Well Elev)
Site:	Mesa Verde 18 Fed Com	North Reference:	Grid
Well:	Mesa Verde 18 Fed 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)	Bulld Rate (°/100ft)	Turn Rate (°/100ft)
4,642.50	0.00	0.00	4,642.50	0.00	0.00	0.00	0.00	0.00	0.00
Delaware									
4,658.00	0.00	0.00	4,658.00	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
5,500.00	0.00	0.00	5,500.00	0.00	0.00	0.00	0.00	0.00	0.00
5,524.50	0.00	0.00	5,524.50	0.00	0.00	0.00	0.00	0.00	0.00
Cherry Canyon									
5,554.00	0.00	0.00	5,554.00	0.00	0.00	0.00	0.00	0.00	0.00
Step-Out DLS 2.00									
5,600.00	0.92	249.66	5,600.00	-0.13	-0.35	-0.08	2.00	2.00	0.00
5,700.00	2.92	249.66	5,699.94	-1.29	-3.49	-0.80	2.00	2.00	0.00
5,800.00	4.92	249.66	5,799.70	-3.67	-9.90	-2.28	2.00	2.00	0.00
5,900.00	6.92	249.66	5,899.16	-7.25	-19.57	-4.51	2.00	2.00	0.00
6,000.00	8.92	249.66	5,998.20	-12.04	-32.49	-7.48	2.00	2.00	0.00
6,054.21	10.00	249.66	6,051.67	-15.14	-40.84	-9.41	2.00	2.00	0.00
Hold 10° Inclination									
6,100.00	10.00	249.66	6,096.77	-17.90	-48.30	-11.12	0.00	0.00	0.00
6,200.00	10.00	249.66	6,195.25	-23.94	-64.59	-14.88	0.00	0.00	0.00
6,300.00	10.00	249.66	6,293.73	-29.98	-80.88	-18.63	0.00	0.00	0.00
6,400.00	10.00	249.66	6,392.20	-36.02	-97.17	-22.38	0.00	0.00	0.00
6,500.00	10.00	249.66	6,490.68	-42.06	-113.46	-26.13	0.00	0.00	0.00
6,600.00	10.00	249.66	6,589.16	-48.09	-129.75	-29.88	0.00	0.00	0.00
6,700.00	10.00	249.66	6,687.64	-54.13	-146.03	-33.63	0.00	0.00	0.00
6,800.00	10.00	249.66	6,786.12	-60.17	-162.32	-37.38	0.00	0.00	0.00
6,817.65	10.00	249.66	6,803.50	-61.24	-165.20	-38.05	0.00	0.00	0.00
Brushy Canyon									
6,900.00	10.00	249.66	6,884.60	-66.21	-178.61	-41.14	0.00	0.00	0.00
7,000.00	10.00	249.66	6,983.08	-72.25	-194.90	-44.89	0.00	0.00	0.00
7,100.00	10.00	249.66	7,081.56	-78.28	-211.19	-48.64	0.00	0.00	0.00
7,200.00	10.00	249.66	7,180.04	-84.32	-227.48	-52.39	0.00	0.00	0.00
7,300.00	10.00	249.66	7,278.52	-90.36	-243.77	-56.14	0.00	0.00	0.00
7,400.00	10.00	249.66	7,377.00	-96.40	-260.06	-59.89	0.00	0.00	0.00
7,500.00	10.00	249.66	7,475.48	-102.44	-276.35	-63.64	0.00	0.00	0.00
7,600.00	10.00	249.66	7,573.96	-108.47	-292.63	-67.40	0.00	0.00	0.00
7,700.00	10.00	249.66	7,672.44	-114.51	-308.92	-71.15	0.00	0.00	0.00
7,800.00	10.00	249.66	7,770.92	-120.55	-325.21	-74.90	0.00	0.00	0.00
7,900.00	10.00	249.66	7,869.40	-126.59	-341.50	-78.65	0.00	0.00	0.00
8,000.00	10.00	249.66	7,967.88	-132.63	-357.79	-82.40	0.00	0.00	0.00
8,100.00	10.00	249.66	8,066.36	-138.66	-374.08	-86.15	0.00	0.00	0.00
8,200.00	10.00	249.66	8,164.84	-144.70	-390.37	-89.90	0.00	0.00	0.00
8,300.00	10.00	249.66	8,263.32	-150.74	-406.66	-93.66	0.00	0.00	0.00
8,400.00	10.00	249.66	8,361.80	-156.78	-422.94	-97.41	0.00	0.00	0.00
8,482.97	10.00	249.66	8,443.50	-161.79	-436.46	-100.52	0.00	0.00	0.00
Bone Springs									
8,500.00	10.00	249.66	8,460.27	-162.81	-439.23	-101.16	0.00	0.00	0.00

Oxy Planning Report

Database:	HOPSPP	Local Co-ordinate Reference:	Well Mesa Verde 18 Fed Com 1H
Company:	ENGINEERING DESIGNS	TVD Reference:	WELL @ 3598.50ft (Original Well Elev)
Project:	PRD NM DIRECTIONAL PLANS (NAD 1983)	MD Reference:	WELL @ 3598.50ft (Original Well Elev)
Site:	Mesa Verde 18 Fed Com	North Reference:	Grid
Well:	Mesa Verde 18 Fed 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)
8,600.00	10.00	249.66	8,558.75	-168.85	-455.52	-104.91	0.00	0.00	0.00
8,700.00	10.00	249.66	8,657.23	-174.89	-471.81	-108.66	0.00	0.00	0.00
8,800.00	10.00	249.66	8,755.71	-180.93	-488.10	-112.41	0.00	0.00	0.00
8,900.00	10.00	249.66	8,854.19	-186.97	-504.39	-116.16	0.00	0.00	0.00
9,000.00	10.00	249.66	8,952.67	-193.00	-520.68	-119.92	0.00	0.00	0.00
9,100.00	10.00	249.66	9,051.15	-199.04	-536.97	-123.67	0.00	0.00	0.00
9,200.00	10.00	249.66	9,149.63	-205.08	-553.26	-127.42	0.00	0.00	0.00
9,300.00	10.00	249.66	9,248.11	-211.12	-569.54	-131.17	0.00	0.00	0.00
9,400.00	10.00	249.66	9,346.59	-217.16	-585.83	-134.92	0.00	0.00	0.00
9,463.71	10.00	249.66	9,409.33	-221.00	-596.21	-137.31	0.00	0.00	0.00
Drop Back to Vertical DLS 2.00									
9,500.00	9.28	249.66	9,445.11	-223.12	-601.91	-138.62	2.00	-2.00	0.00
9,600.00	7.28	249.66	9,544.06	-228.12	-615.41	-141.73	2.00	-2.00	0.00
9,700.00	5.28	249.66	9,643.46	-231.92	-625.66	-144.09	2.00	-2.00	0.00
9,800.00	3.28	249.66	9,743.17	-234.51	-632.66	-145.71	2.00	-2.00	0.00
9,900.00	1.28	249.66	9,843.09	-235.89	-636.38	-146.56	2.00	-2.00	0.00
9,963.92	0.00	359.68	9,907.00	-236.14	-637.05	-146.72	2.00	-2.00	0.00
Build Curve 10°/100'									
10,000.00	3.61	359.68	9,943.06	-235.01	-637.06	-145.59	10.00	10.00	0.00
10,100.00	13.61	359.68	10,041.81	-220.06	-637.14	-130.77	10.00	10.00	0.00
10,200.00	23.61	359.68	10,136.46	-188.19	-637.32	-99.18	10.00	10.00	0.00
10,300.00	33.61	359.68	10,224.14	-140.37	-637.58	-51.77	10.00	10.00	0.00
10,400.00	43.61	359.68	10,302.18	-78.05	-637.93	10.01	10.00	10.00	0.00
10,500.00	53.61	359.68	10,368.22	-3.12	-638.34	84.28	10.00	10.00	0.00
10,600.00	63.61	359.68	10,420.24	82.13	-638.81	168.80	10.00	10.00	0.00
10,700.00	73.61	359.68	10,456.67	175.12	-639.32	260.98	10.00	10.00	0.00
10,800.00	83.61	359.68	10,476.40	273.02	-639.86	358.04	10.00	10.00	0.00
10,863.92	90.00	359.68	10,479.96	336.81	-640.22	421.27	10.00	10.00	0.00
Landing Point									
10,900.00	90.00	359.68	10,479.96	372.89	-640.42	457.04	0.00	0.00	0.00
11,000.00	90.00	359.68	10,479.96	472.89	-640.97	556.18	0.00	0.00	0.00
11,100.00	90.00	359.68	10,479.96	572.89	-641.52	655.31	0.00	0.00	0.00
11,200.00	90.00	359.68	10,479.96	672.89	-642.07	754.44	0.00	0.00	0.00
11,300.00	90.00	359.68	10,479.96	772.88	-642.62	853.57	0.00	0.00	0.00
11,400.00	90.00	359.68	10,479.96	872.88	-643.18	952.71	0.00	0.00	0.00
11,500.00	90.00	359.68	10,479.96	972.88	-643.73	1,051.84	0.00	0.00	0.00
11,600.00	90.00	359.68	10,479.96	1,072.88	-644.28	1,150.97	0.00	0.00	0.00
11,700.00	90.00	359.68	10,479.96	1,172.88	-644.83	1,250.10	0.00	0.00	0.00
11,800.00	90.00	359.68	10,479.96	1,272.88	-645.39	1,349.24	0.00	0.00	0.00
11,900.00	90.00	359.68	10,479.96	1,372.88	-645.94	1,448.37	0.00	0.00	0.00
12,000.00	90.00	359.68	10,479.96	1,472.87	-646.49	1,547.50	0.00	0.00	0.00
12,100.00	90.00	359.68	10,479.96	1,572.87	-647.04	1,646.64	0.00	0.00	0.00
12,200.00	90.00	359.68	10,479.96	1,672.87	-647.59	1,745.77	0.00	0.00	0.00
12,300.00	90.00	359.68	10,479.96	1,772.87	-648.15	1,844.90	0.00	0.00	0.00
12,400.00	90.00	359.68	10,479.96	1,872.87	-648.70	1,944.03	0.00	0.00	0.00
12,500.00	90.00	359.68	10,479.96	1,972.87	-649.25	2,043.17	0.00	0.00	0.00
12,600.00	90.00	359.68	10,479.96	2,072.86	-649.80	2,142.30	0.00	0.00	0.00
12,700.00	90.00	359.68	10,479.96	2,172.86	-650.36	2,241.43	0.00	0.00	0.00
12,800.00	90.00	359.68	10,479.96	2,272.86	-650.91	2,340.57	0.00	0.00	0.00
12,900.00	90.00	359.68	10,479.96	2,372.86	-651.46	2,439.70	0.00	0.00	0.00
13,000.00	90.00	359.68	10,479.96	2,472.86	-652.01	2,538.83	0.00	0.00	0.00
13,100.00	90.00	359.68	10,479.96	2,572.86	-652.56	2,637.96	0.00	0.00	0.00
13,200.00	90.00	359.68	10,479.96	2,672.86	-653.12	2,737.10	0.00	0.00	0.00

Oxy Planning Report

Database:	HOPSPP	Local Co-ordinate Reference:	Well Mesa Verde 18 Fed Com 1H
Company:	ENGINEERING DESIGNS	TVD Reference:	WELL @ 3598.50ft (Original Well Elev)
Project:	PRD NM DIRECTIONAL PLANS (NAD 1983)	MD Reference:	WELL @ 3598.50ft (Original Well Elev)
Site:	Mesa Verde 18 Fed Com	North Reference:	Grid
Well:	Mesa Verde 18 Fed Com 1H	Survey Calculation Method:	Minimum Curvature
Wellbore:	WB00		
Design:	Permitting Plan		

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
5,554.00	5,554.00	0.00	0.00	Step-Out DLS 2.00
6,054.21	6,051.67	-15.14	-40.84	Hold 10° Inclination
9,463.71	9,409.33	-221.00	-596.21	Drop Back to Vertical DLS 2.00
9,963.92	9,907.00	-236.14	-637.05	Build Curve 10°/100'
10,863.92	10,479.96	336.81	-640.22	Landing Point
15,338.39	10,480.00	4,811.21	-664.92	TD at 15338.39' MD

Oxy Planning Report

Database:	HOPSPP	Local Co-ordinate Reference:	Well Mesa Verde 18 Fed Com 1H
Company:	ENGINEERING DESIGNS	TVD Reference:	WELL @ 3598.50ft (Original Well Elev)
Project:	PRD NM DIRECTIONAL PLANS (NAD 1983)	MD Reference:	WELL @ 3598.50ft (Original Well Elev)
Site:	Mesa Verde 18 Fed Com	North Reference:	Grid
Well:	Mesa Verde 18 Fed 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)
13,300.00	90.00	359.68	10,479.96	2,772.85	-653.67	2,836.23	0.00	0.00	0.00
13,400.00	90.00	359.68	10,479.96	2,872.85	-654.22	2,935.36	0.00	0.00	0.00
13,500.00	90.00	359.68	10,479.96	2,972.85	-654.77	3,034.50	0.00	0.00	0.00
13,600.00	90.00	359.68	10,479.96	3,072.85	-655.33	3,133.63	0.00	0.00	0.00
13,700.00	90.00	359.68	10,479.96	3,172.85	-655.88	3,232.76	0.00	0.00	0.00
13,800.00	90.00	359.68	10,479.96	3,272.85	-656.43	3,331.89	0.00	0.00	0.00
13,900.00	90.00	359.68	10,479.96	3,372.84	-656.98	3,431.03	0.00	0.00	0.00
14,000.00	90.00	359.68	10,479.96	3,472.84	-657.53	3,530.16	0.00	0.00	0.00
14,100.00	90.00	359.68	10,479.96	3,572.84	-658.09	3,629.29	0.00	0.00	0.00
14,200.00	90.00	359.68	10,479.96	3,672.84	-658.64	3,728.42	0.00	0.00	0.00
14,300.00	90.00	359.68	10,479.96	3,772.84	-659.19	3,827.56	0.00	0.00	0.00
14,400.00	90.00	359.68	10,479.96	3,872.84	-659.74	3,926.69	0.00	0.00	0.00
14,500.00	90.00	359.68	10,479.96	3,972.84	-660.29	4,025.82	0.00	0.00	0.00
14,600.00	90.00	359.68	10,479.96	4,072.83	-660.85	4,124.96	0.00	0.00	0.00
14,700.00	90.00	359.68	10,479.96	4,172.83	-661.40	4,224.09	0.00	0.00	0.00
14,800.00	90.00	359.68	10,479.96	4,272.83	-661.95	4,323.22	0.00	0.00	0.00
14,900.00	90.00	359.68	10,479.96	4,372.83	-662.50	4,422.35	0.00	0.00	0.00
15,000.00	90.00	359.68	10,479.96	4,472.83	-663.06	4,521.49	0.00	0.00	0.00
15,100.00	90.00	359.68	10,479.96	4,572.83	-663.61	4,620.62	0.00	0.00	0.00
15,200.00	90.00	359.68	10,479.96	4,672.82	-664.16	4,719.75	0.00	0.00	0.00
15,300.00	90.00	359.68	10,479.96	4,772.82	-664.71	4,818.89	0.00	0.00	0.00
15,338.39	90.00	359.68	10,480.00	4,811.21	-664.92	4,856.94	0.00	0.00	0.00

TD at 15338.39' MD

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_1H_KOP	0.00	0.00	9,907.00	-236.14	-637.05	440,764.04	730,548.01	32° 12' 36.925266 N	103° 43' 17.609536 W
- plan hits target center									
- Point									
MV_18_1H_BHL	0.00	0.00	10,480.00	4,811.21	-664.92	445,811.13	730,520.14	32° 13' 26.870364 N	103° 43' 17.599506 W
- plan hits target center									
- Point									

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
945.95	945.95	Rustler		0.00	
1,061.41	1,061.41	Salado		0.00	
3,331.57	3,331.57	Castile		0.00	
4,642.50	4,642.50	Delaware		0.00	
4,658.00	4,658.00	Bell Canyon		0.00	
5,524.50	5,524.50	Cherry Canyon		0.00	
6,817.65	6,803.50	Brushy Canyon		0.00	
8,482.97	8,443.50	Bone Springs		0.00	