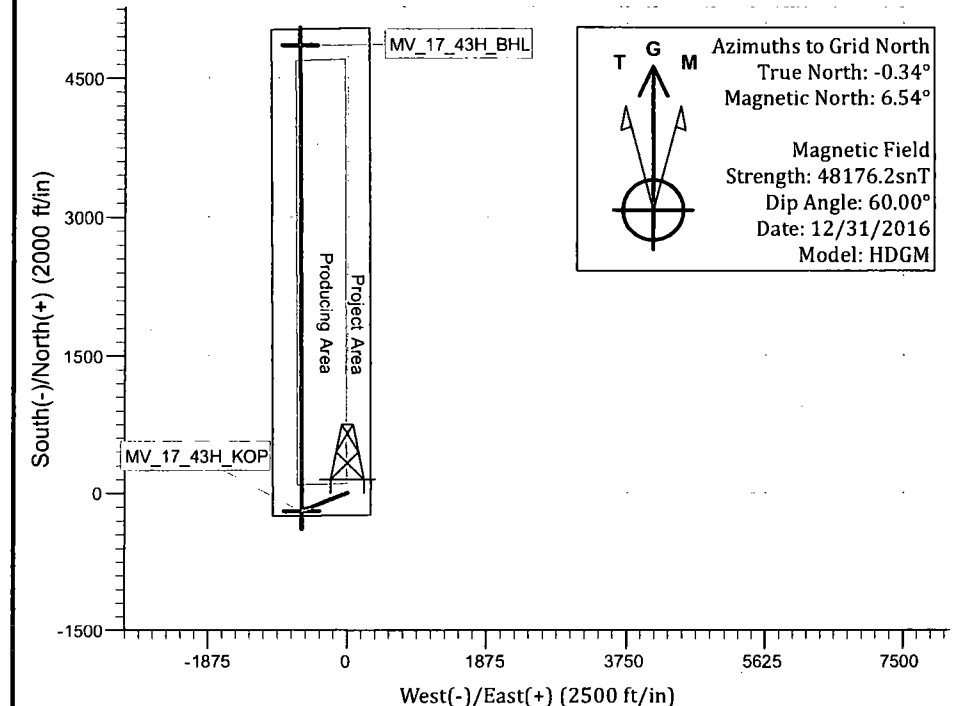
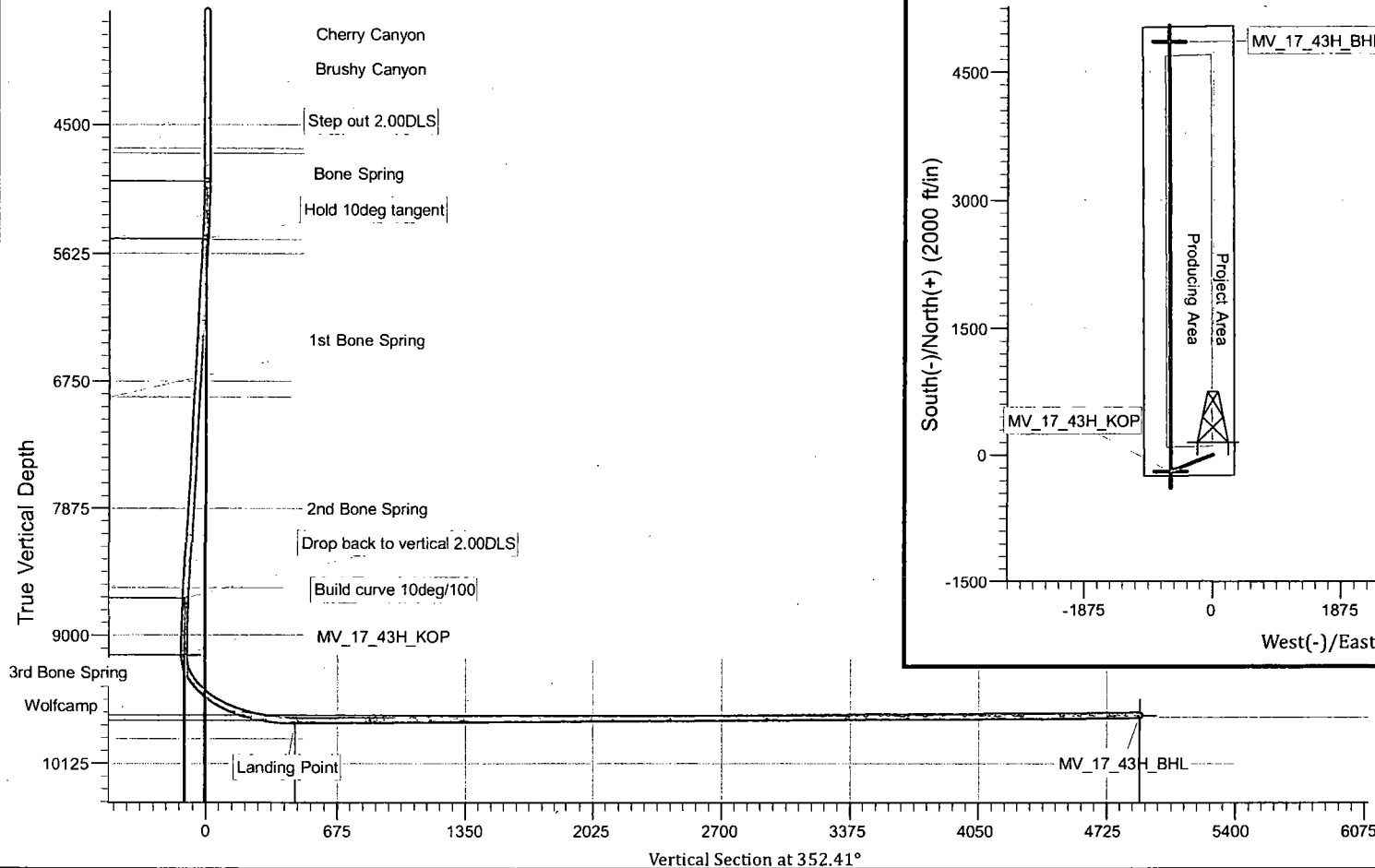




Project: DIRECTIONAL PLANS (NAD83)
Site: Mesa Verde 17 Fed Com
Well: Mesa Verde 17 Fed Com 43H
Wellbore: WB00
Design: Permitting Plan

WELL DETAILS: Mesa Verde 17 Fed Com 43H

Ground Level: 3557.70
+N/-S +E/-W Northing Easting Latitude Longitude
0.00 0.00 441045.88 739223.84 32° 12' 39.214368 N 103° 41' 36.609545 W
Default @ 3584.20ft



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	VFace	Target	Annotation
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
2	4995.00	0.00	0.00	4995.00	0.00	0.00	0.00	0.00	0.00		Step out 2.00DLS
3	5495.39	10.01	252.31	5492.85	-13.25	-41.53	2.00	252.31	-7.65		Hold 10deg tangent
4	8725.88	10.01	252.31	8674.19	-183.86	-576.38	0.00	0.00	-106.13		Drop back to vertical 2.00DLS
5	9226.28	0.00	359.67	9172.04	-197.11	-617.91	2.00	180.00	-113.78		Build curve 10deg/100
6	10131.28	90.50	359.67	9744.98	380.84	-621.21	10.00	-0.33	459.55		Landing Point
7	14604.88	90.65	359.67	9700.00	4854.14	-646.75	0.00	0.00	4897.04		TD at 14604

OXY USA Inc. - Mesa Verde 17 Federal Com #43H

1. Geologic Formations

TVD of target	9745'	Pilot Hole Depth	N/A
MD at TD:	14604'	Deepest Expected fresh water:	869'

Delaware Basin

Formation	TVD - RKB	Expected Fluids
Rustler	869	
Salado	1194	
Lamar/Delaware	4707	Oil/Gas
Bell Canyon	4751	Water/Oil/Gas
Cherry Canyon	5501	Oil/Gas
Brushy Canyon	6891	Oil/Gas
Bone Spring	8583	Oil/Gas
1st Bone Spring	9714	Oil/Gas
2nd Bone Spring	9904	Oil/Gas

*H2S, water flows, loss of circulation, abnormal pressures, etc.

2. Casing Program

Hole Size (in)	Casing Interval		Csg. Size (in)	Weight (lbs)	Grade	Conn.	Buoyant Buoyant			
	From (ft)	To (ft)					SF Collapse	SF Burst	Body SF Tension	Joint SF Tension
17.5	0	920	13.375	54.5	J55	BTC	4.47	1.31	2.42	2.59
12.25	0	4758	9.625	36	J55	BTC	3.09	1.22	1.67	1.91
8.5	0	14604	5.5	20	P-110	DQX	1.58	1.58	2.16	2.41

All casing strings will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.h

*Oxy requests the option to set casing shallower yet still below the salts if losses or hole conditions require this. Cement volumes may be adjusted if casing is set shallower.

	Y or N
Is casing new? If used, attach certification as required in Onshore Order #1	Y
Does casing meet API specifications? If no, attach casing specification sheet.	Y
Is premium or uncommon casing planned? If yes attach casing specification sheet.	Y
Does the above casing design meet or exceed BLM's minimum standards? If not provide justification (loading assumptions, casing design criteria).	Y
Will the intermediate pipe be kept at a minimum 1/3 fluid filled to avoid approaching the collapse pressure rating of the casing?	Y
Is well located within Capitan Reef?	N
If yes, does production casing cement tie back a minimum of 50' above the Reef?	
Is well within the designated 4 string boundary.	

OXY

PRD NM DIRECTIONAL PLANS (NAD 1983)

Messa Verde 17 Fed Com

Mesa Verde 17 Fed Com 43H

WB00

Plan: Permitting Plan

Standard Planning Report

01 February, 2017

HOBBS OCD

NOV 06 2017

RECEIVED

Oxy

Planning Report

Database:	HOPSPP	Local Co-ordinate Reference:	Site Mesa Verde 17 Fed Com
Company:	ENGINEERING DESIGNS	TVD Reference:	Default @ 3584.20ft
Project:	PRD NM DIRECTIONAL PLANS (NAD 1983)	MD Reference:	Default @ 3584.20ft
Site:	Mesa Verde 17 Fed Com	North Reference:	Grid
Well:	Mesa Verde 17 Fed Com 43H	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 17 Fed Com				
Site Position:	Northing:	441,045.88 usft	Latitude:	32° 12' 39.214368 N	
From:	Easting:	739,223.84 usft	Longitude:	103° 41' 36.609545 W	
Position Uncertainty:	0.00 ft	Slot Radius:	13.200 in	Grid Convergence:	0.34 °

Well	Mesa Verde 17 Fed Com 43H					
Well Position	+N/-S	0.00 ft	Northing:	441,045.88 usft	Latitude:	32° 12' 39.214368 N
	+E/-W	0.00 ft	Easting:	739,223.84 usft	Longitude:	103° 41' 36.609545 W
Position Uncertainty	0.00 ft	Wellhead Elevation:	0.00 ft	Ground Level:	3,557.70 ft	

Wellbore	WB00				
Magnetics	Model Name	Sample Date	Declination	Dip Angle	Field Strength
	HDGM	12/31/2016	(°)	(°)	(nT)
			6.88	60.00	48,176

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	352.41

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	
4,995.00	0.00	0.01	4,995.00	0.00	0.00	0.00	0.00	0.00	0.01	
5,495.39	10.01	252.31	5,492.85	-13.25	-41.53	2.00	2.00	0.00	252.31	
8,725.88	10.01	252.31	8,674.19	-183.86	-576.38	0.00	0.00	0.00	0.00	
9,226.28	0.00	359.67	9,172.04	-197.11	-617.91	2.00	-2.00	0.00	180.00	MV_17_43H_KOP
10,131.28	90.50	359.67	9,744.98	380.84	-621.21	10.00	10.00	0.00	-0.33	
14,604.88	90.65	359.67	9,700.00	4,854.14	-646.75	0.00	0.00	0.00	0.00	MV_17_43H_BHL

Oxy Planning Report

Database: HOPSP
Company: ENGINEERING DESIGNS
Project: PRD NM DIRECTIONAL PLANS (NAD 1983)
Site: Mesa Verde 17 Fed Com
Well: Mesa Verde 17 Fed Com 43H
Wellbore: WB00
Design: Permitting Plan

Local Co-ordinate Reference: Site Mesa Verde 17 Fed Com
TVD Reference: Default @ 3584.20ft
MD Reference: Default @ 3584.20ft
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)
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
4,800.00	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
4,995.00	0.00	0.01	4,995.00	0.00	0.00	0.00	0.00	0.00	0.00
5,000.00	0.10	252.31	5,000.00	0.00	0.00	0.00	2.00	2.00	0.00
5,100.00	2.10	252.31	5,099.98	-0.58	-1.83	-0.34	2.00	2.00	0.00
5,200.00	4.10	252.31	5,199.83	-2.23	-6.98	-1.29	2.00	2.00	0.00

Oxy Planning Report

Database: HOPSP
Company: ENGINEERING DESIGNS
Project: PRD NM DIRECTIONAL PLANS (NAD 1983)
Site: Mesa Verde 17 Fed Com
Well: Mesa Verde 17 Fed Com 43H
Wellbore: WB00
Design: Permitting Plan

Local Co-ordinate Reference: Site Mesa Verde 17 Fed Com
TVD Reference: Default @ 3584.20ft
MD Reference: Default @ 3584.20ft
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)	Buird Rate (°/100ft)	Turn Rate (°/100ft)
5,300.00	6.10	252.31	5,299.42	-4.93	-15.45	-2.85	2.00	2.00	0.00
5,400.00	8.10	252.31	5,398.65	-8.69	-27.23	-5.01	2.00	2.00	0.00
5,495.39	10.01	252.31	5,492.85	-13.25	-41.53	-7.65	2.00	2.00	0.00
5,500.00	10.01	252.31	5,497.39	-13.49	-42.29	-7.79	0.00	0.00	0.00
5,600.00	10.01	252.31	5,595.87	-18.77	-58.85	-10.84	0.00	0.00	0.00
5,700.00	10.01	252.31	5,694.35	-24.05	-75.40	-13.88	0.00	0.00	0.00
5,800.00	10.01	252.31	5,792.82	-29.33	-91.96	-16.93	0.00	0.00	0.00
5,900.00	10.01	252.31	5,891.30	-34.62	-108.52	-19.98	0.00	0.00	0.00
6,000.00	10.01	252.31	5,989.78	-39.90	-125.07	-23.03	0.00	0.00	0.00
6,100.00	10.01	252.31	6,088.26	-45.18	-141.63	-26.08	0.00	0.00	0.00
6,200.00	10.01	252.31	6,186.74	-50.46	-158.19	-29.13	0.00	0.00	0.00
6,300.00	10.01	252.31	6,285.22	-55.74	-174.74	-32.18	0.00	0.00	0.00
6,400.00	10.01	252.31	6,383.69	-61.02	-191.30	-35.22	0.00	0.00	0.00
6,500.00	10.01	252.31	6,482.17	-66.30	-207.86	-38.27	0.00	0.00	0.00
6,600.00	10.01	252.31	6,580.65	-71.59	-224.41	-41.32	0.00	0.00	0.00
6,700.00	10.01	252.31	6,679.13	-76.87	-240.97	-44.37	0.00	0.00	0.00
6,800.00	10.01	252.31	6,777.61	-82.15	-257.52	-47.42	0.00	0.00	0.00
6,900.00	10.01	252.31	6,876.09	-87.43	-274.08	-50.47	0.00	0.00	0.00
7,000.00	10.01	252.31	6,974.57	-92.71	-290.64	-53.51	0.00	0.00	0.00
7,100.00	10.01	252.31	7,073.04	-97.99	-307.19	-56.56	0.00	0.00	0.00
7,200.00	10.01	252.31	7,171.52	-103.27	-323.75	-59.61	0.00	0.00	0.00
7,300.00	10.01	252.31	7,270.00	-108.56	-340.31	-62.66	0.00	0.00	0.00
7,400.00	10.01	252.31	7,368.48	-113.84	-356.86	-65.71	0.00	0.00	0.00
7,500.00	10.01	252.31	7,466.96	-119.12	-373.42	-68.76	0.00	0.00	0.00
7,600.00	10.01	252.31	7,565.44	-124.40	-389.98	-71.81	0.00	0.00	0.00
7,700.00	10.01	252.31	7,663.91	-129.68	-406.53	-74.85	0.00	0.00	0.00
7,800.00	10.01	252.31	7,762.39	-134.96	-423.09	-77.90	0.00	0.00	0.00
7,900.00	10.01	252.31	7,860.87	-140.24	-439.64	-80.95	0.00	0.00	0.00
8,000.00	10.01	252.31	7,959.35	-145.53	-456.20	-84.00	0.00	0.00	0.00
8,100.00	10.01	252.31	8,057.83	-150.81	-472.76	-87.05	0.00	0.00	0.00
8,200.00	10.01	252.31	8,156.31	-156.09	-489.31	-90.10	0.00	0.00	0.00
8,300.00	10.01	252.31	8,254.78	-161.37	-505.87	-93.15	0.00	0.00	0.00
8,400.00	10.01	252.31	8,353.26	-166.65	-522.43	-96.19	0.00	0.00	0.00
8,500.00	10.01	252.31	8,451.74	-171.93	-538.98	-99.24	0.00	0.00	0.00
8,600.00	10.01	252.31	8,550.22	-177.21	-555.54	-102.29	0.00	0.00	0.00
8,700.00	10.01	252.31	8,648.70	-182.49	-572.10	-105.34	0.00	0.00	0.00
8,725.88	10.01	252.31	8,674.19	-183.86	-576.38	-106.13	0.00	0.00	0.00
8,800.00	8.53	252.31	8,747.33	-187.49	-587.75	-108.22	2.00	-2.00	0.00
8,900.00	6.53	252.31	8,846.47	-191.47	-600.23	-110.52	2.00	-2.00	0.00
9,000.00	4.53	252.31	8,946.00	-194.40	-609.40	-112.21	2.00	-2.00	0.00
9,100.00	2.53	252.31	9,045.80	-196.26	-615.26	-113.29	2.00	-2.00	0.00
9,200.00	0.53	252.31	9,145.76	-197.07	-617.79	-113.75	2.00	-2.00	0.00
9,226.28	0.00	359.67	9,172.04	-197.11	-617.91	-113.78	2.00	-2.00	0.00
9,300.00	7.37	359.67	9,245.56	-192.37	-617.94	-109.08	10.00	10.00	0.00
9,400.00	17.37	359.67	9,343.11	-170.97	-618.06	-87.85	10.00	10.00	0.00
9,500.00	27.37	359.67	9,435.47	-132.96	-618.28	-50.14	10.00	10.00	0.00
9,600.00	37.37	359.67	9,519.82	-79.49	-618.58	2.90	10.00	10.00	0.00
9,700.00	47.37	359.67	9,593.61	-12.18	-618.97	69.67	10.00	10.00	0.00
9,800.00	57.37	359.67	9,654.58	66.92	-619.42	148.14	10.00	10.00	0.00
9,900.00	67.37	359.67	9,700.89	155.40	-619.92	235.91	10.00	10.00	0.00
10,000.00	77.37	359.67	9,731.14	250.58	-620.47	330.33	10.00	10.00	0.00
10,100.00	87.37	359.67	9,744.40	349.57	-621.03	428.53	10.00	10.00	0.00
10,131.28	90.50	359.67	9,744.98	380.84	-621.21	459.55	10.00	10.00	0.00
10,200.00	90.50	359.67	9,744.38	449.56	-621.60	527.72	0.00	0.00	0.00

Oxy

Planning Report

Database: HOPSPP
Company: ENGINEERING DESIGNS
Project: PRD NM DIRECTIONAL PLANS (NAD 1983)
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Well: Mesa Verde 17 Fed Com 43H
Wellbore: WB00
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Local Co-ordinate Reference: Site Mesa Verde 17 Fed Com
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MD Reference: Default @ 3584.20ft
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)
10,300.00	90.51	359.67	9,743.50	549.55	-622.17	626.91	0.00	0.00	0.00
10,400.00	90.51	359.67	9,742.61	649.55	-622.74	726.10	0.00	0.00	0.00
10,500.00	90.51	359.67	9,741.72	749.54	-623.31	825.30	0.00	0.00	0.00
10,600.00	90.52	359.67	9,740.82	849.54	-623.89	924.49	0.00	0.00	0.00
10,700.00	90.52	359.67	9,739.92	949.53	-624.46	1,023.68	0.00	0.00	0.00
10,800.00	90.52	359.67	9,739.01	1,049.52	-625.03	1,122.88	0.00	0.00	0.00
10,900.00	90.53	359.67	9,738.09	1,149.52	-625.60	1,222.07	0.00	0.00	0.00
11,000.00	90.53	359.67	9,737.17	1,249.51	-626.17	1,321.27	0.00	0.00	0.00
11,100.00	90.53	359.67	9,736.24	1,349.51	-626.74	1,420.46	0.00	0.00	0.00
11,200.00	90.54	359.67	9,735.31	1,449.50	-627.31	1,519.65	0.00	0.00	0.00
11,300.00	90.54	359.67	9,734.37	1,549.50	-627.88	1,618.85	0.00	0.00	0.00
11,400.00	90.54	359.67	9,733.43	1,649.49	-628.45	1,718.04	0.00	0.00	0.00
11,500.00	90.55	359.67	9,732.48	1,749.48	-629.02	1,817.23	0.00	0.00	0.00
11,600.00	90.55	359.67	9,731.52	1,849.48	-629.60	1,916.43	0.00	0.00	0.00
11,700.00	90.55	359.67	9,730.56	1,949.47	-630.17	2,015.62	0.00	0.00	0.00
11,800.00	90.56	359.67	9,729.59	2,049.46	-630.74	2,114.81	0.00	0.00	0.00
11,900.00	90.56	359.67	9,728.61	2,149.46	-631.31	2,214.01	0.00	0.00	0.00
12,000.00	90.56	359.67	9,727.63	2,249.45	-631.88	2,313.20	0.00	0.00	0.00
12,100.00	90.57	359.67	9,726.65	2,349.44	-632.45	2,412.39	0.00	0.00	0.00
12,200.00	90.57	359.67	9,725.65	2,449.44	-633.02	2,511.59	0.00	0.00	0.00
12,300.00	90.57	359.67	9,724.66	2,549.43	-633.59	2,610.78	0.00	0.00	0.00
12,400.00	90.58	359.67	9,723.65	2,649.42	-634.16	2,709.97	0.00	0.00	0.00
12,500.00	90.58	359.67	9,722.64	2,749.42	-634.73	2,809.16	0.00	0.00	0.00
12,600.00	90.58	359.67	9,721.62	2,849.41	-635.30	2,908.36	0.00	0.00	0.00
12,700.00	90.59	359.67	9,720.60	2,949.40	-635.88	3,007.55	0.00	0.00	0.00
12,800.00	90.59	359.67	9,719.57	3,049.40	-636.45	3,106.74	0.00	0.00	0.00
12,900.00	90.59	359.67	9,718.54	3,149.39	-637.02	3,205.93	0.00	0.00	0.00
13,000.00	90.60	359.67	9,717.50	3,249.38	-637.59	3,305.13	0.00	0.00	0.00
13,100.00	90.60	359.67	9,716.46	3,349.38	-638.16	3,404.32	0.00	0.00	0.00
13,200.00	90.60	359.67	9,715.40	3,449.37	-638.73	3,503.51	0.00	0.00	0.00
13,300.00	90.61	359.67	9,714.35	3,549.36	-639.30	3,602.70	0.00	0.00	0.00
13,400.00	90.61	359.67	9,713.28	3,649.35	-639.87	3,701.90	0.00	0.00	0.00
13,500.00	90.61	359.67	9,712.21	3,749.35	-640.44	3,801.09	0.00	0.00	0.00
13,600.00	90.62	359.67	9,711.14	3,849.34	-641.01	3,900.28	0.00	0.00	0.00
13,700.00	90.62	359.67	9,710.06	3,949.33	-641.58	3,999.47	0.00	0.00	0.00
13,800.00	90.62	359.67	9,708.97	4,049.33	-642.16	4,098.66	0.00	0.00	0.00
13,900.00	90.63	359.67	9,707.87	4,149.32	-642.73	4,197.86	0.00	0.00	0.00
14,000.00	90.63	359.67	9,706.78	4,249.31	-643.30	4,297.05	0.00	0.00	0.00
14,100.00	90.63	359.67	9,705.67	4,349.30	-643.87	4,396.24	0.00	0.00	0.00
14,200.00	90.64	359.67	9,704.56	4,449.29	-644.44	4,495.43	0.00	0.00	0.00
14,300.00	90.64	359.67	9,703.44	4,549.29	-645.01	4,594.62	0.00	0.00	0.00
14,400.00	90.65	359.67	9,702.32	4,649.28	-645.58	4,693.81	0.00	0.00	0.00
14,500.00	90.65	359.67	9,701.19	4,749.27	-646.15	4,793.01	0.00	0.00	0.00
14,600.00	90.65	359.67	9,700.06	4,849.26	-646.72	4,892.20	0.00	0.00	0.00
14,604.88	90.65	359.67	9,700.00	4,854.14	-646.75	4,897.04	0.00	0.00	0.00

Oxy

Planning Report

Database:	HOPSP	Local Co-ordinate Reference:	Site Messa Verde 17 Fed Com
Company:	ENGINEERING DESIGNS	TVD Reference:	Default @ 3584.20ft
Project:	PRD NM DIRECTIONAL PLANS (NAD 1983)	MD Reference:	Default @ 3584.20ft
Site:	Messa Verde 17 Fed Com	North Reference:	Grid
Well:	Messa Verde 17 Fed Com 43H	Survey Calculation Method:	Minimum Curvature
Wellbore:	WB00		
Design:	Permitting Plan		

Design Targets									
Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	(°)	(°)	(ft)	(ft)	(ft)	(usft)	(usft)		
- Shape									
MV_17_43H_KOP	0.00	0.00	9,172.04	-197.11	-617.91	440,848.78	738,605.96	32° 12' 37.300310 N	103° 41' 43.814878
- plan hits target center									
- Point									
MV_17_43H_BHL	0.00	0.00	9,700.00	4,854.14	-646.75	445,899.79	738,577.12	32° 13' 27.284073 N	103° 41' 43.801623
- plan hits target center									
- Point									

Formations							
Measured Depth	Vertical Depth	Name	Lithology	Dip	Dip Direction		
(ft)	(ft)			(°)	(°)		
869.00	-2,715.20	Delaware					
1,194.00	-2,390.20	Bell Canyon					
2,585.20	0.00	Wolfcamp					
2,585.20	0.00	Strawn					
2,585.20	0.00	Formation 12					
2,585.20	0.00	Formation 13					
4,707.00	1,122.80	Cherry Canyon					
4,751.00	1,166.80	Brushy Canyon					
5,503.67	1,916.80	Bone Spring					
6,915.14	3,306.80	1st Bone Spring					
8,633.29	4,998.80	2nd Bone Spring					
9,936.95	6,129.80	3rd Bone Spring					

Plan Annotations					
Measured Depth	Vertical Depth	Local Coordinates			
(ft)	(ft)	+N/-S	+E/-W	Comment	
(ft)	(ft)	(ft)	(ft)		
4,995.00	4,995.00	0.00	0.00	Step out 2.00DLS	
5,495.39	5,492.85	-13.25	-41.53	Hold 10deg tangent	
8,725.88	8,674.19	-183.86	-576.38	Drop back to vertical 2.00DLS	
9,226.28	9,172.04	-197.11	-617.91	Build curve 10deg/100	
10,131.28	9,744.98	380.84	-621.21	Landing Point	
14,604.88	9,700.00	4,854.14	-646.75	TD at 14604	