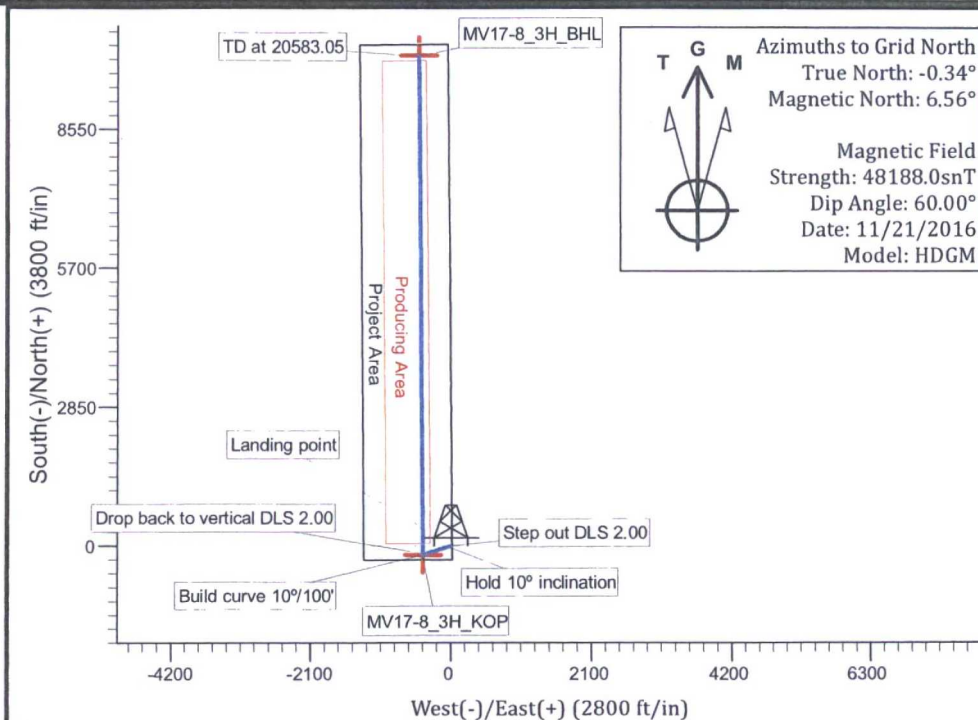
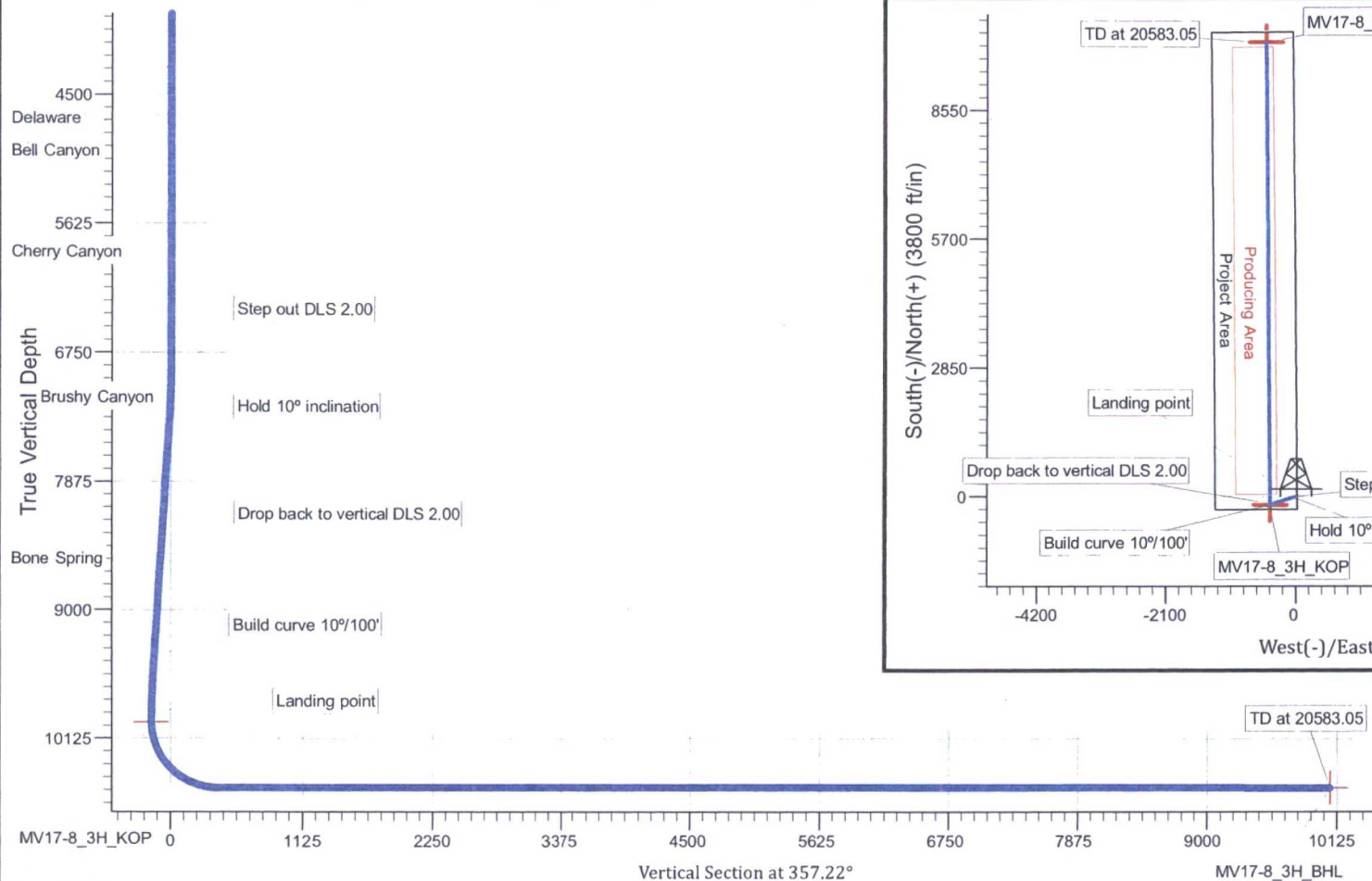




Project: PRD NM DIRECTIONAL PLANS (NAD 1983)
Site: Mesa Verde 17-8 Fed Com
Well: Mesa Verde 17-8 Fed Com 3H
Wellbore: WB00
Design: Permitting Plan

WELL DETAILS: Mesa Verde 17-8 Fed Com 3H

Ground Level: 3559.90 WELL @ 3586.40ft (Original Well Elev)
+N/-S +E/-W Northing Easting Latitude Longitude
0.00 0.00 441074.18 738203.68 32° 12' 39.554348 N 103° 41' 48.481592 W



Azimuths to Grid North
True North: -0.34°
Magnetic North: 6.56°
Magnetic Field
Strength: 48188.0snT
Dip Angle: 60.00°
Date: 11/21/2016
Model: HDGM

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
6855.00	6855.00	0.00	0.00	0.00	0.00	0.00	0.00	Step out DLS 2.00
7352.32	7354.85	10.00	246.43	-17.39	-39.87	-15.44	43.50	Hold 10° inclination
9485.72	9521.14	10.00	246.43	-167.76	-384.56	-148.89	419.56	Drop back to vertical DLS 2.00
9983.04	10021.00	0.00	359.64	-185.15	-424.43	-164.32	463.06	Build curve 10°/100'
10556.00	10921.00	90.00	359.64	387.80	-428.02	408.12	1036.01	Landing point
10556.00	20583.05	90.00	359.64	10049.66	-488.57	10061.53	10698.06	TD at 20583.05

OXY

PRD NM DIRECTIONAL PLANS (NAD 1983)

Mesa Verde 17-8 Fed Com

Mesa Verde 17-8 Fed Com 3H

WB00

Plan: Permitting Plan

Standard Planning Report

21 November, 2016

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Oxy

Planning Report

Database: HOPSPP
Company: OXY
Project: PRD NM DIRECTIONAL PLANS (NAD 1983)
Site: Mesa Verde 17-8 Fed Com
Well: Mesa Verde 17-8 Fed Com 3H
Wellbore: WB00
Design: Permitting Plan

Local Co-ordinate Reference: Well Mesa Verde 17-8 Fed Com 3H
TVD Reference: WELL @ 3586.40ft (Original Well Elev)
MD Reference: WELL @ 3586.40ft (Original Well Elev)
North Reference: Grid
Survey Calculation Method: Minimum Curvature

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 17-8 Fed Com		
Site Position:		Northing:	441,093.32 usft
From:	Map	Easting:	739,872.60 usft
Position Uncertainty:	0.00 ft	Slot Radius:	13.200 in
		Latitude:	32° 12' 39.645531 N
		Longitude:	103° 41' 29.055109 W
		Grid Convergence:	0.34 °

Well	Mesa Verde 17-8 Fed Com 3H		
Well Position	+N/-S	-19.14 ft	Northing: 441,074.18 usft
	+E/-W	-1,669.00 ft	Easting: 738,203.68 usft
Position Uncertainty	0.00 ft	Wellhead Elevation:	3,559.90 ft
		Latitude:	32° 12' 39.554348 N
		Longitude:	103° 41' 48.481592 W
		Ground Level:	3,559.90 ft

Wellbore	WB00		
Magnetics	Model Name	Sample Date	Declination (°)
	HDGM	11/21/2016	6.90
		Dip Angle (°)	60.00
		Field Strength (nT)	48,188

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 (°) 357.22

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	
6,855.00	0.00	0.00	6,855.00	0.00	0.00	0.00	0.00	0.00	0.00	
7,354.85	10.00	246.43	7,352.32	-17.39	-39.87	2.00	2.00	0.00	246.43	
9,521.14	10.00	246.43	9,485.72	-167.76	-384.56	0.00	0.00	0.00	0.00	
10,021.00	0.00	359.64	9,983.04	-185.15	-424.43	2.00	-2.00	0.00	180.00	MV17-8_3H_KOP
10,921.00	90.00	359.64	10,556.00	387.80	-428.02	10.00	10.00	0.00	-0.36	
20,583.05	90.00	359.64	10,556.00	10,049.66	-488.57	0.00	0.00	0.00	0.00	MV17-8_3H_BHL

Oxy

Planning Report

Database: HOPSPP
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TVD Reference: WELL @ 3586.40ft (Original Well Elev)
MD Reference: WELL @ 3586.40ft (Original Well Elev)
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
918.00	0.00	0.00	918.00	0.00	0.00	0.00	0.00	0.00	0.00
Rustler									
1,006.00	0.00	0.00	1,006.00	0.00	0.00	0.00	0.00	0.00	0.00
Salado									
3,299.00	0.00	0.00	3,299.00	0.00	0.00	0.00	0.00	0.00	0.00
Castile									
4,669.00	0.00	0.00	4,669.00	0.00	0.00	0.00	0.00	0.00	0.00
Delaware									
4,684.00	0.00	0.00	4,684.00	0.00	0.00	0.00	0.00	0.00	0.00
Bell Canyon									
5,542.00	0.00	0.00	5,542.00	0.00	0.00	0.00	0.00	0.00	0.00
Cherry Canyon									
6,855.00	0.00	0.00	6,855.00	0.00	0.00	0.00	0.00	0.00	0.00
Step out DLS 2.00									
6,900.00	0.90	246.43	6,900.00	-0.14	-0.32	-0.13	2.00	2.00	0.00
6,911.00	1.12	246.43	6,911.00	-0.22	-0.50	-0.19	2.00	2.00	0.00
Brushy Canyon									
7,000.00	2.90	246.43	6,999.94	-1.47	-3.36	-1.30	2.00	2.00	0.00
7,100.00	4.90	246.43	7,099.70	-4.19	-9.60	-3.72	2.00	2.00	0.00
7,200.00	6.90	246.43	7,199.17	-8.30	-19.02	-7.36	2.00	2.00	0.00
7,300.00	8.90	246.43	7,298.21	-13.79	-31.62	-12.24	2.00	2.00	0.00
7,354.85	10.00	246.43	7,352.32	-17.39	-39.87	-15.44	2.00	2.00	0.00
Hold 10° inclination									
7,400.00	10.00	246.43	7,396.78	-20.53	-47.05	-18.22	0.00	0.00	0.00
7,500.00	10.00	246.43	7,495.26	-27.47	-62.96	-24.38	0.00	0.00	0.00
7,600.00	10.00	246.43	7,593.75	-34.41	-78.88	-30.54	0.00	0.00	0.00
7,700.00	10.00	246.43	7,692.23	-41.35	-94.79	-36.70	0.00	0.00	0.00
7,800.00	10.00	246.43	7,790.71	-48.29	-110.70	-42.86	0.00	0.00	0.00
7,900.00	10.00	246.43	7,889.19	-55.23	-126.61	-49.02	0.00	0.00	0.00
8,000.00	10.00	246.43	7,987.67	-62.17	-142.52	-55.18	0.00	0.00	0.00
8,100.00	10.00	246.43	8,086.15	-69.11	-158.43	-61.34	0.00	0.00	0.00
8,200.00	10.00	246.43	8,184.64	-76.05	-174.35	-67.50	0.00	0.00	0.00
8,300.00	10.00	246.43	8,283.12	-83.00	-190.26	-73.66	0.00	0.00	0.00
8,400.00	10.00	246.43	8,381.60	-89.94	-206.17	-79.82	0.00	0.00	0.00
8,500.00	10.00	246.43	8,480.08	-96.88	-222.08	-85.98	0.00	0.00	0.00
8,522.26	10.00	246.43	8,502.00	-98.42	-225.62	-87.35	0.00	0.00	0.00
Bone Spring									
8,600.00	10.00	246.43	8,578.56	-103.82	-237.99	-92.14	0.00	0.00	0.00
8,700.00	10.00	246.43	8,677.04	-110.76	-253.90	-98.30	0.00	0.00	0.00
8,800.00	10.00	246.43	8,775.53	-117.70	-269.82	-104.46	0.00	0.00	0.00
8,900.00	10.00	246.43	8,874.01	-124.64	-285.73	-110.62	0.00	0.00	0.00
9,000.00	10.00	246.43	8,972.49	-131.58	-301.64	-116.78	0.00	0.00	0.00
9,100.00	10.00	246.43	9,070.97	-138.52	-317.55	-122.94	0.00	0.00	0.00
9,200.00	10.00	246.43	9,169.45	-145.47	-333.46	-129.10	0.00	0.00	0.00
9,300.00	10.00	246.43	9,267.93	-152.41	-349.37	-135.26	0.00	0.00	0.00
9,400.00	10.00	246.43	9,366.42	-159.35	-365.29	-141.42	0.00	0.00	0.00
9,500.00	10.00	246.43	9,464.90	-166.29	-381.20	-147.58	0.00	0.00	0.00
9,521.14	10.00	246.43	9,485.72	-167.76	-384.56	-148.89	0.00	0.00	0.00
Drop back to vertical DLS 2.00									
9,600.00	8.42	246.43	9,563.56	-172.80	-396.13	-153.36	2.00	-2.00	0.00
9,700.00	6.42	246.43	9,662.72	-177.97	-407.96	-157.95	2.00	-2.00	0.00
9,800.00	4.42	246.43	9,762.26	-181.74	-416.62	-161.30	2.00	-2.00	0.00

Oxy

Planning Report

Database: HOPSPP
Company: OXY
Project: PRD NM DIRECTIONAL PLANS (NAD 1983)
Site: Mesa Verde 17-8 Fed Com
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TVD Reference: WELL @ 3586.40ft (Original Well Elev)
MD Reference: WELL @ 3586.40ft (Original Well Elev)
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)
9,900.00	2.42	246.43	9,862.08	-184.13	-422.09	-163.41	2.00	-2.00	0.00
10,000.00	0.42	246.43	9,962.04	-185.12	-424.36	-164.29	2.00	-2.00	0.00
10,021.00	0.00	359.64	9,983.04	-185.15	-424.43	-164.32	2.00	-2.00	0.00
Build curve 10°/100' - MV17-8_3H_KOP									
10,100.00	7.90	359.64	10,061.79	-179.71	-424.46	-158.89	10.00	10.00	0.00
10,200.00	17.90	359.64	10,159.15	-157.41	-424.60	-136.61	10.00	10.00	0.00
10,300.00	27.90	359.64	10,251.15	-118.55	-424.85	-97.78	10.00	10.00	0.00
10,400.00	37.90	359.64	10,335.00	-64.30	-425.19	-43.58	10.00	10.00	0.00
10,500.00	47.90	359.64	10,408.16	3.68	-425.61	24.34	10.00	10.00	0.00
10,600.00	57.90	359.64	10,468.41	83.34	-426.11	103.93	10.00	10.00	0.00
10,700.00	67.90	359.64	10,513.90	172.24	-426.67	192.76	10.00	10.00	0.00
10,800.00	77.90	359.64	10,543.27	267.70	-427.27	288.13	10.00	10.00	0.00
10,900.00	87.90	359.64	10,555.61	366.81	-427.89	387.15	10.00	10.00	0.00
10,921.00	90.00	359.64	10,556.00	387.80	-428.02	408.12	10.00	10.00	0.00
Landing point									
11,000.00	90.00	359.64	10,556.00	466.80	-428.52	487.06	0.00	0.00	0.00
11,100.00	90.00	359.64	10,556.00	566.80	-429.14	586.97	0.00	0.00	0.00
11,200.00	90.00	359.64	10,556.00	666.80	-429.77	686.88	0.00	0.00	0.00
11,300.00	90.00	359.64	10,556.00	766.79	-430.40	786.79	0.00	0.00	0.00
11,400.00	90.00	359.64	10,556.00	866.79	-431.02	886.70	0.00	0.00	0.00
11,500.00	90.00	359.64	10,556.00	966.79	-431.65	986.61	0.00	0.00	0.00
11,600.00	90.00	359.64	10,556.00	1,066.79	-432.28	1,086.52	0.00	0.00	0.00
11,700.00	90.00	359.64	10,556.00	1,166.79	-432.90	1,186.43	0.00	0.00	0.00
11,800.00	90.00	359.64	10,556.00	1,266.78	-433.53	1,286.34	0.00	0.00	0.00
11,900.00	90.00	359.64	10,556.00	1,366.78	-434.16	1,386.25	0.00	0.00	0.00
12,000.00	90.00	359.64	10,556.00	1,466.78	-434.78	1,486.16	0.00	0.00	0.00
12,100.00	90.00	359.64	10,556.00	1,566.78	-435.41	1,586.07	0.00	0.00	0.00
12,200.00	90.00	359.64	10,556.00	1,666.78	-436.04	1,685.98	0.00	0.00	0.00
12,300.00	90.00	359.64	10,556.00	1,766.77	-436.66	1,785.89	0.00	0.00	0.00
12,400.00	90.00	359.64	10,556.00	1,866.77	-437.29	1,885.80	0.00	0.00	0.00
12,500.00	90.00	359.64	10,556.00	1,966.77	-437.92	1,985.71	0.00	0.00	0.00
12,600.00	90.00	359.64	10,556.00	2,066.77	-438.54	2,085.63	0.00	0.00	0.00
12,700.00	90.00	359.64	10,556.00	2,166.77	-439.17	2,185.54	0.00	0.00	0.00
12,800.00	90.00	359.64	10,556.00	2,266.76	-439.80	2,285.45	0.00	0.00	0.00
12,900.00	90.00	359.64	10,556.00	2,366.76	-440.42	2,385.36	0.00	0.00	0.00
13,000.00	90.00	359.64	10,556.00	2,466.76	-441.05	2,485.27	0.00	0.00	0.00
13,100.00	90.00	359.64	10,556.00	2,566.76	-441.68	2,585.18	0.00	0.00	0.00
13,200.00	90.00	359.64	10,556.00	2,666.76	-442.30	2,685.09	0.00	0.00	0.00
13,300.00	90.00	359.64	10,556.00	2,766.75	-442.93	2,785.00	0.00	0.00	0.00
13,400.00	90.00	359.64	10,556.00	2,866.75	-443.56	2,884.91	0.00	0.00	0.00
13,500.00	90.00	359.64	10,556.00	2,966.75	-444.18	2,984.82	0.00	0.00	0.00
13,600.00	90.00	359.64	10,556.00	3,066.75	-444.81	3,084.73	0.00	0.00	0.00
13,700.00	90.00	359.64	10,556.00	3,166.75	-445.44	3,184.64	0.00	0.00	0.00
13,800.00	90.00	359.64	10,556.00	3,266.74	-446.06	3,284.55	0.00	0.00	0.00
13,900.00	90.00	359.64	10,556.00	3,366.74	-446.69	3,384.46	0.00	0.00	0.00
14,000.00	90.00	359.64	10,556.00	3,466.74	-447.32	3,484.37	0.00	0.00	0.00
14,100.00	90.00	359.64	10,556.00	3,566.74	-447.94	3,584.28	0.00	0.00	0.00
14,200.00	90.00	359.64	10,556.00	3,666.74	-448.57	3,684.19	0.00	0.00	0.00
14,300.00	90.00	359.64	10,556.00	3,766.73	-449.20	3,784.10	0.00	0.00	0.00
14,400.00	90.00	359.64	10,556.00	3,866.73	-449.82	3,884.01	0.00	0.00	0.00
14,500.00	90.00	359.64	10,556.00	3,966.73	-450.45	3,983.92	0.00	0.00	0.00
14,600.00	90.00	359.64	10,556.00	4,066.73	-451.08	4,083.84	0.00	0.00	0.00
14,700.00	90.00	359.64	10,556.00	4,166.73	-451.70	4,183.75	0.00	0.00	0.00
14,800.00	90.00	359.64	10,556.00	4,266.73	-452.33	4,283.66	0.00	0.00	0.00

Oxy

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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)
14,900.00	90.00	359.64	10,556.00	4,366.72	-452.96	4,383.57	0.00	0.00	0.00
15,000.00	90.00	359.64	10,556.00	4,466.72	-453.58	4,483.48	0.00	0.00	0.00
15,100.00	90.00	359.64	10,556.00	4,566.72	-454.21	4,583.39	0.00	0.00	0.00
15,200.00	90.00	359.64	10,556.00	4,666.72	-454.84	4,683.30	0.00	0.00	0.00
15,300.00	90.00	359.64	10,556.00	4,766.72	-455.46	4,783.21	0.00	0.00	0.00
15,400.00	90.00	359.64	10,556.00	4,866.71	-456.09	4,883.12	0.00	0.00	0.00
15,500.00	90.00	359.64	10,556.00	4,966.71	-456.72	4,983.03	0.00	0.00	0.00
15,600.00	90.00	359.64	10,556.00	5,066.71	-457.34	5,082.94	0.00	0.00	0.00
15,700.00	90.00	359.64	10,556.00	5,166.71	-457.97	5,182.85	0.00	0.00	0.00
15,800.00	90.00	359.64	10,556.00	5,266.71	-458.60	5,282.76	0.00	0.00	0.00
15,900.00	90.00	359.64	10,556.00	5,366.70	-459.22	5,382.67	0.00	0.00	0.00
16,000.00	90.00	359.64	10,556.00	5,466.70	-459.85	5,482.58	0.00	0.00	0.00
16,100.00	90.00	359.64	10,556.00	5,566.70	-460.48	5,582.49	0.00	0.00	0.00
16,200.00	90.00	359.64	10,556.00	5,666.70	-461.11	5,682.40	0.00	0.00	0.00
16,300.00	90.00	359.64	10,556.00	5,766.70	-461.73	5,782.31	0.00	0.00	0.00
16,400.00	90.00	359.64	10,556.00	5,866.69	-462.36	5,882.22	0.00	0.00	0.00
16,500.00	90.00	359.64	10,556.00	5,966.69	-462.99	5,982.14	0.00	0.00	0.00
16,600.00	90.00	359.64	10,556.00	6,066.69	-463.61	6,082.05	0.00	0.00	0.00
16,700.00	90.00	359.64	10,556.00	6,166.69	-464.24	6,181.96	0.00	0.00	0.00
16,800.00	90.00	359.64	10,556.00	6,266.69	-464.87	6,281.87	0.00	0.00	0.00
16,900.00	90.00	359.64	10,556.00	6,366.68	-465.49	6,381.78	0.00	0.00	0.00
17,000.00	90.00	359.64	10,556.00	6,466.68	-466.12	6,481.69	0.00	0.00	0.00
17,100.00	90.00	359.64	10,556.00	6,566.68	-466.75	6,581.60	0.00	0.00	0.00
17,200.00	90.00	359.64	10,556.00	6,666.68	-467.37	6,681.51	0.00	0.00	0.00
17,300.00	90.00	359.64	10,556.00	6,766.68	-468.00	6,781.42	0.00	0.00	0.00
17,400.00	90.00	359.64	10,556.00	6,866.67	-468.63	6,881.33	0.00	0.00	0.00
17,500.00	90.00	359.64	10,556.00	6,966.67	-469.25	6,981.24	0.00	0.00	0.00
17,600.00	90.00	359.64	10,556.00	7,066.67	-469.88	7,081.15	0.00	0.00	0.00
17,700.00	90.00	359.64	10,556.00	7,166.67	-470.51	7,181.06	0.00	0.00	0.00
17,800.00	90.00	359.64	10,556.00	7,266.67	-471.13	7,280.97	0.00	0.00	0.00
17,900.00	90.00	359.64	10,556.00	7,366.66	-471.76	7,380.88	0.00	0.00	0.00
18,000.00	90.00	359.64	10,556.00	7,466.66	-472.39	7,480.79	0.00	0.00	0.00
18,100.00	90.00	359.64	10,556.00	7,566.66	-473.01	7,580.70	0.00	0.00	0.00
18,200.00	90.00	359.64	10,556.00	7,666.66	-473.64	7,680.61	0.00	0.00	0.00
18,300.00	90.00	359.64	10,556.00	7,766.66	-474.27	7,780.52	0.00	0.00	0.00
18,400.00	90.00	359.64	10,556.00	7,866.65	-474.89	7,880.43	0.00	0.00	0.00
18,500.00	90.00	359.64	10,556.00	7,966.65	-475.52	7,980.35	0.00	0.00	0.00
18,600.00	90.00	359.64	10,556.00	8,066.65	-476.15	8,080.26	0.00	0.00	0.00
18,700.00	90.00	359.64	10,556.00	8,166.65	-476.77	8,180.17	0.00	0.00	0.00
18,800.00	90.00	359.64	10,556.00	8,266.65	-477.40	8,280.08	0.00	0.00	0.00
18,900.00	90.00	359.64	10,556.00	8,366.64	-478.03	8,379.99	0.00	0.00	0.00
19,000.00	90.00	359.64	10,556.00	8,466.64	-478.65	8,479.90	0.00	0.00	0.00
19,100.00	90.00	359.64	10,556.00	8,566.64	-479.28	8,579.81	0.00	0.00	0.00
19,200.00	90.00	359.64	10,556.00	8,666.64	-479.91	8,679.72	0.00	0.00	0.00
19,300.00	90.00	359.64	10,556.00	8,766.64	-480.53	8,779.63	0.00	0.00	0.00
19,400.00	90.00	359.64	10,556.00	8,866.63	-481.16	8,879.54	0.00	0.00	0.00
19,500.00	90.00	359.64	10,556.00	8,966.63	-481.79	8,979.45	0.00	0.00	0.00
19,600.00	90.00	359.64	10,556.00	9,066.63	-482.41	9,079.36	0.00	0.00	0.00
19,700.00	90.00	359.64	10,556.00	9,166.63	-483.04	9,179.27	0.00	0.00	0.00
19,800.00	90.00	359.64	10,556.00	9,266.63	-483.67	9,279.18	0.00	0.00	0.00
19,900.00	90.00	359.64	10,556.00	9,366.63	-484.29	9,379.09	0.00	0.00	0.00
20,000.00	90.00	359.64	10,556.00	9,466.62	-484.92	9,479.00	0.00	0.00	0.00
20,100.00	90.00	359.64	10,556.00	9,566.62	-485.55	9,578.91	0.00	0.00	0.00
20,200.00	90.00	359.64	10,556.00	9,666.62	-486.17	9,678.82	0.00	0.00	0.00

Oxy

Planning Report

Database: HOPSPP
Company: OXY
Project: PRD NM DIRECTIONAL PLANS (NAD 1983)
Site: Mesa Verde 17-8 Fed Com
Well: Mesa Verde 17-8 Fed Com 3H
Wellbore: WB00
Design: Permitting Plan

Local Co-ordinate Reference: Well Mesa Verde 17-8 Fed Com 3H
TVD Reference: WELL @ 3586.40ft (Original Well Elev)
MD Reference: WELL @ 3586.40ft (Original Well Elev)
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)
20,300.00	90.00	359.64	10,556.00	9,766.62	-486.80	9,778.73	0.00	0.00	0.00
20,400.00	90.00	359.64	10,556.00	9,866.62	-487.43	9,878.64	0.00	0.00	0.00
20,500.00	90.00	359.64	10,556.00	9,966.61	-488.05	9,978.56	0.00	0.00	0.00
20,583.05	90.00	359.64	10,556.00	10,049.66	-488.57	10,061.53	0.00	0.00	0.00

TD at 20583.05 - MV17-8_3H_BHL

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
MV17-8_3H_KOP - plan hits target center - Point	0.00	0.00	9,983.04	-185.15	-424.43	440,889.04	737,779.27	32° 12' 37.747144 N	103° 41' 53.434189
MV17-8_3H_BHL - plan hits target center - Point	0.00	0.00	10,556.00	10,049.66	-488.57	451,123.35	737,715.13	32° 14' 19.024041 N	103° 41' 53.476567

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
918.00	917.70	Rustler			
1,006.00	1,005.70	Salado			
3,299.00	3,298.70	Castile			
4,669.00	4,668.70	Delaware			
4,684.00	4,683.70	Bell Canyon			
5,542.00	5,541.70	Cherry Canyon			
6,911.00	6,910.70	Brushy Canyon			
8,522.26	8,501.70	Bone Spring			

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
6,855.00	6,855.00	0.00	0.00	Step out DLS 2.00
7,354.85	7,352.32	-17.39	-39.87	Hold 10° inclination
9,521.14	9,485.72	-167.76	-384.56	Drop back to vertical DLS 2.00
10,021.00	9,983.04	-185.15	-424.43	Build curve 10°/100'
10,921.00	10,556.00	387.80	-428.02	Landing point
20,583.05	10,556.00	10,049.66	-488.57	TD at 20583.05