



Project: GRAND VALLEY
Site: CASCADE CREEK 609-33 PAD
Well: CASCADE CREEK 697-09-29B
Wellbore: CASCADE CREEK 697-09-29B
Design: Plan 2

OXY USA MID-CON

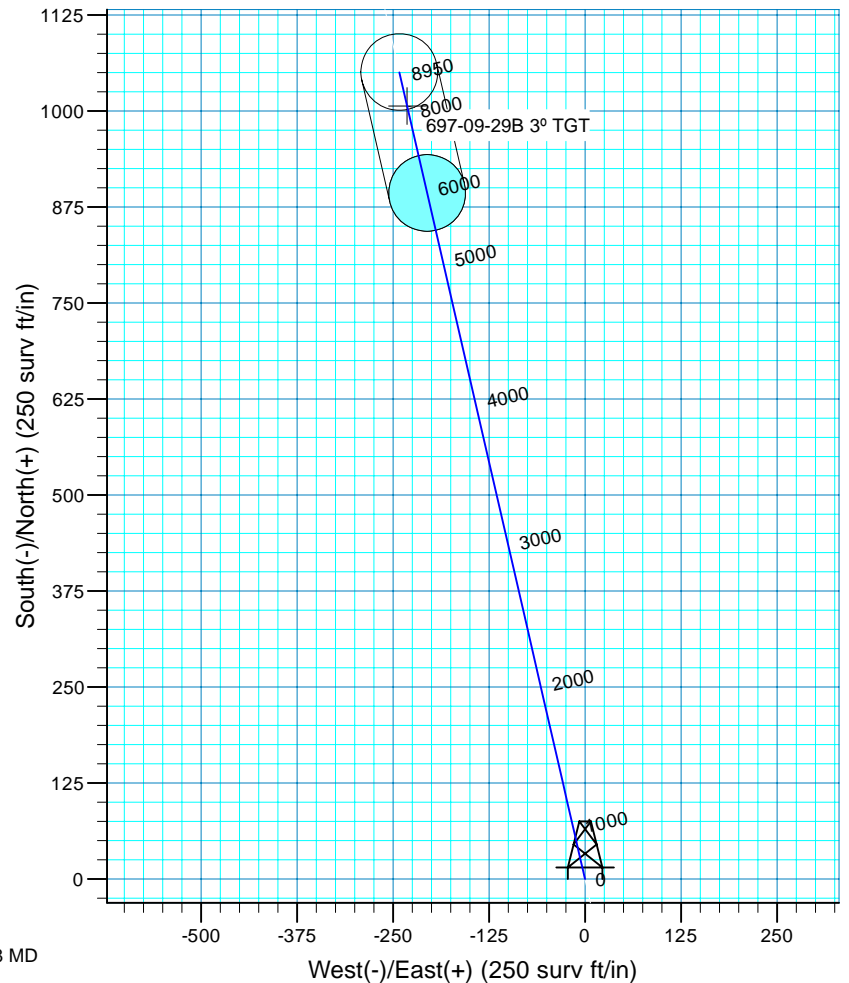
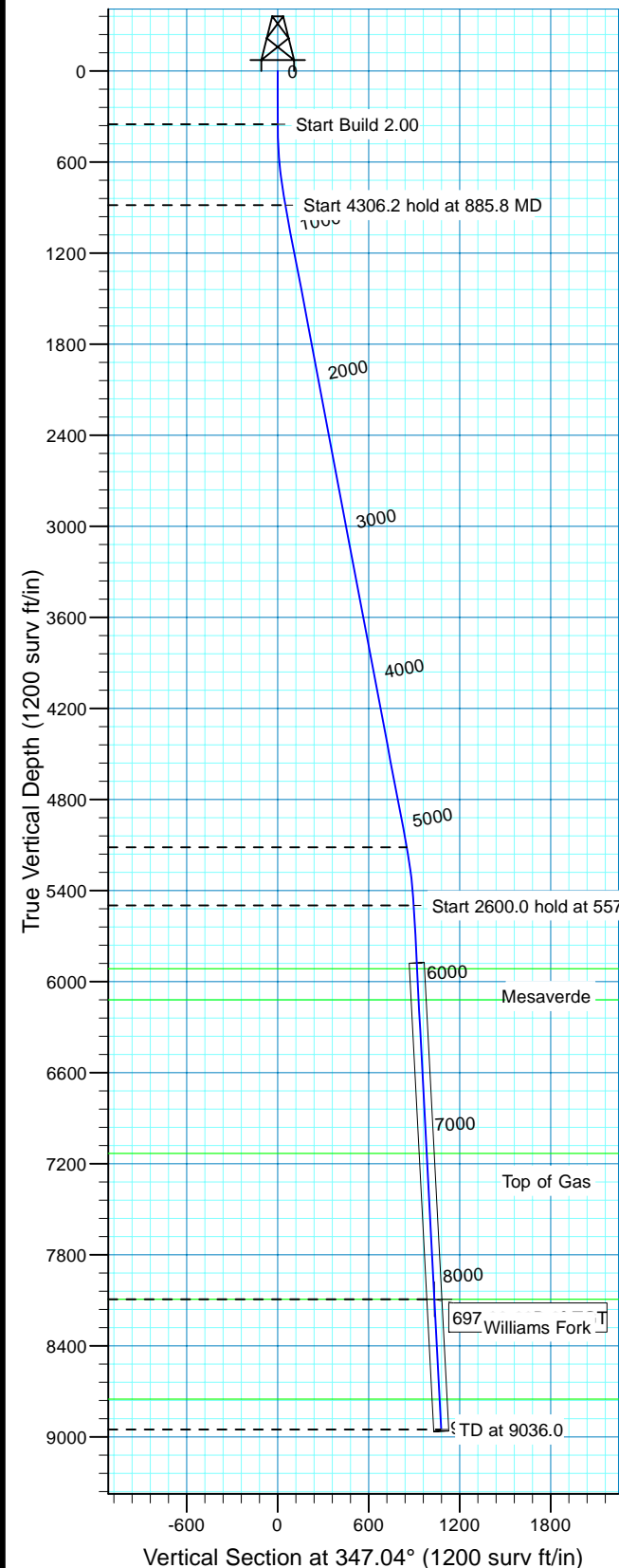
WELL DETAILS: CASCADE CREEK 697-09-29B

WELL @ 8410.0surv ft (Original Well Elev) 8380.0
+N/-S +E/-W Northing Easting Latitude Longitude Slot
0.0 0.0 631279.10 1232479.84 39° 32' 6.412 N 108° 13' 17.825 W WCC#697-09-29B



Azimuths to True North
Magnetic North: 10.53°

Magnetic Field
Strength: 52332.0snT
Dip Angle: 65.76°
Date: 9/2/2010
Model: IGRF200510



FORMATION TOP DETAILS

TVDPath	MDPath	Formation
5915.0	5996.8	Mesaverde
6120.0	6202.1	Ohio Creek
7131.0	7214.5	Top of Gas
8092.5	8177.3	Williams Fork
8750.0	8835.7	Rollins

CASCADE CREEK 697-09-29B/CASCADE CREEK 697-09-29B

Created By: Ron Bevans Date: 2010-07-09

PROJECT DETAILS: GRAND VALLEY

Geodetic System: US State Plane 1927 (Exact solution)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866
Zone: Colorado Central 502

System Datum: Mean Sea Level
Local North: True

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	Vsect	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.0	
350.0	0.00	0.00	350.0	0.0	0.0	0.00	0.0	
885.8	10.72	347.04	882.7	48.7	-11.2	2.00	50.0	
5192.0	10.72	347.04	5113.8	829.0	-190.8	0.00	850.7	
5577.8	3.00	347.04	5496.6	873.9	-201.1	2.00	896.7	
8177.8	3.00	347.04	8093.0	1006.5	-231.6	0.00	1032.9	697-09-29B 3° TGT
9036.0	3.00	347.04	8950.0	1050.3	-241.7	0.00	1077.7	

OXY USA MID-CON

GRAND VALLEY

CASCADE CREEK 609-33 PAD

CASCADE CREEK 697-09-29B - Slot CC#697-09-29B

CASCADE CREEK 697-09-29B

Plan: Plan 2

Standard Planning Report - Geographic

03 September, 2010

OXY
Planning Report - Geographic

Database:	HOPSPP	Local Co-ordinate Reference:	Well CASCADE CREEK 697-09-29B - Slot CC#697-09-29B
Company:	OXY USA MID-CON	TVD Reference:	WELL @ 8410.0surv ft (Original Well Elev)
Project:	GRAND VALLEY	MD Reference:	WELL @ 8410.0surv ft (Original Well Elev)
Site:	CASCADE CREEK 609-33 PAD	North Reference:	True
Well:	CASCADE CREEK 697-09-29B	Survey Calculation Method:	Minimum Curvature
Wellbore:	CASCADE CREEK 697-09-29B		
Design:	Plan 2		

Project	GRAND VALLEY, NORTH AMERICA		
Map System:	US State Plane 1927 (Exact solution)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	Colorado Central 502		

Site	CASCADE CREEK 609-33 PAD		
Site Position:		Northing:	0.00 surv ft
From:	None	Easting:	0.00 surv ft
Position Uncertainty:	0.0 surv ft	Slot Radius:	0.000 in
		Latitude:	0° 0' 0.000 N
		Longitude:	0° 0' 0.000 E
		Grid Convergence:	0.00 °

Well	CASCADE CREEK 697-09-29B - Slot CC#697-09-29B		
Well Position	+N/-S	0.0 surv ft	Northing: 631,279.11 surv ft
	+E/-W	0.0 surv ft	Easting: 1,232,479.84 surv ft
Position Uncertainty	0.0 surv ft	Wellhead Elevation:	30.0 surv ft
		Latitude:	39° 32' 6.412 N
		Longitude:	108° 13' 17.825 W
		Ground Level:	8,380.0 surv ft

Wellbore	CASCADE CREEK 697-09-29B				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	User Defined	9/2/2010	0.00	0.00	0

Design	Plan 2				
Audit Notes:					
Version:	2	Phase:	PLAN	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction	
	(surv ft)	(surv ft)	(surv ft)	(°)	
	0.0	0.0	0.0	347.04	

Plan Sections										
Measured Depth	Inclination	Azimuth	Vertical Depth	+N/-S	+E/-W	Dogleg Rate	Build Rate	Turn Rate	TFO	Target
(surv ft)	(°)	(°)	(surv ft)	(surv ft)	(surv ft)	(°/100ft)	(°/100ft)	(°/100ft)	(°)	
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
350.0	0.00	0.00	350.0	0.0	0.0	0.00	0.00	0.00	0.00	
885.8	10.72	347.04	882.7	48.7	-11.2	2.00	2.00	0.00	347.04	
5,192.0	10.72	347.04	5,113.8	829.0	-190.8	0.00	0.00	0.00	0.00	
5,577.8	3.00	347.04	5,496.6	873.9	-201.1	2.00	-2.00	0.00	180.00	
8,177.8	3.00	347.04	8,093.0	1,006.5	-231.6	0.00	0.00	0.00	0.00	697-09-29B 0° TGT
9,036.0	3.00	347.04	8,950.0	1,050.3	-241.7	0.00	0.00	0.00	0.00	

OXY
Planning Report - Geographic

Database:	HOPSP	Local Co-ordinate Reference:	Well CASCADE CREEK 697-09-29B - Slot CC#697-09-29B
Company:	OXY USA MID-CON	TVD Reference:	WELL @ 8410.0surv ft (Original Well Elev)
Project:	GRAND VALLEY	MD Reference:	WELL @ 8410.0surv ft (Original Well Elev)
Site:	CASCADE CREEK 609-33 PAD	North Reference:	True
Well:	CASCADE CREEK 697-09-29B	Survey Calculation Method:	Minimum Curvature
Wellbore:	CASCADE CREEK 697-09-29B		
Design:	Plan 2		

Planned Survey										
Measured Depth (surv ft)	Inclination (°)	Azimuth (°)	Vertical Depth (surv ft)	+N/-S (surv ft)	+E/-W (surv ft)	Map Northing (surv ft)	Map Easting (surv ft)	Latitude	Longitude	
0.0	0.00	0.00	0.0	0.0	0.0	631,279.11	1,232,479.84	39° 32' 6.412 N	108° 13' 17.825 W	
100.0	0.00	0.00	100.0	0.0	0.0	631,279.11	1,232,479.84	39° 32' 6.412 N	108° 13' 17.825 W	
200.0	0.00	0.00	200.0	0.0	0.0	631,279.11	1,232,479.84	39° 32' 6.412 N	108° 13' 17.825 W	
300.0	0.00	0.00	300.0	0.0	0.0	631,279.11	1,232,479.84	39° 32' 6.412 N	108° 13' 17.825 W	
350.0	0.00	0.00	350.0	0.0	0.0	631,279.11	1,232,479.84	39° 32' 6.412 N	108° 13' 17.825 W	
400.0	1.00	347.04	400.0	0.4	-0.1	631,279.54	1,232,479.75	39° 32' 6.416 N	108° 13' 17.826 W	
500.0	3.00	347.04	499.9	3.8	-0.9	631,282.96	1,232,479.07	39° 32' 6.449 N	108° 13' 17.836 W	
600.0	5.00	347.04	599.7	10.6	-2.4	631,289.80	1,232,477.71	39° 32' 6.517 N	108° 13' 17.856 W	
700.0	7.00	347.04	699.1	20.8	-4.8	631,300.05	1,232,475.67	39° 32' 6.617 N	108° 13' 17.886 W	
800.0	9.00	347.04	798.2	34.4	-7.9	631,313.70	1,232,472.96	39° 32' 6.751 N	108° 13' 17.926 W	
885.8	10.72	347.04	882.7	48.7	-11.2	631,328.11	1,232,470.10	39° 32' 6.893 N	108° 13' 17.968 W	
900.0	10.72	347.04	896.6	51.3	-11.8	631,330.70	1,232,469.58	39° 32' 6.918 N	108° 13' 17.975 W	
1,000.0	10.72	347.04	994.9	69.4	-16.0	631,348.94	1,232,465.96	39° 32' 7.097 N	108° 13' 18.028 W	
1,100.0	10.72	347.04	1,093.1	87.5	-20.1	631,367.17	1,232,462.33	39° 32' 7.276 N	108° 13' 18.082 W	
1,200.0	10.72	347.04	1,191.4	105.6	-24.3	631,385.41	1,232,458.71	39° 32' 7.456 N	108° 13' 18.135 W	
1,300.0	10.72	347.04	1,289.7	123.7	-28.5	631,403.65	1,232,455.08	39° 32' 7.635 N	108° 13' 18.188 W	
1,400.0	10.72	347.04	1,387.9	141.9	-32.6	631,421.89	1,232,451.46	39° 32' 7.814 N	108° 13' 18.241 W	
1,500.0	10.72	347.04	1,486.2	160.0	-36.8	631,440.13	1,232,447.83	39° 32' 7.993 N	108° 13' 18.294 W	
1,600.0	10.72	347.04	1,584.4	178.1	-41.0	631,458.37	1,232,444.21	39° 32' 8.172 N	108° 13' 18.348 W	
1,700.0	10.72	347.04	1,682.7	196.2	-45.2	631,476.60	1,232,440.58	39° 32' 8.351 N	108° 13' 18.401 W	
1,800.0	10.72	347.04	1,780.9	214.4	-49.3	631,494.84	1,232,436.96	39° 32' 8.530 N	108° 13' 18.454 W	
1,900.0	10.72	347.04	1,879.2	232.5	-53.5	631,513.08	1,232,433.33	39° 32' 8.709 N	108° 13' 18.507 W	
2,000.0	10.72	347.04	1,977.4	250.6	-57.7	631,531.32	1,232,429.71	39° 32' 8.888 N	108° 13' 18.561 W	
2,100.0	10.72	347.04	2,075.7	268.7	-61.8	631,549.56	1,232,426.08	39° 32' 9.068 N	108° 13' 18.614 W	
2,200.0	10.72	347.04	2,174.0	286.8	-66.0	631,567.80	1,232,422.46	39° 32' 9.247 N	108° 13' 18.667 W	
2,300.0	10.72	347.04	2,272.2	305.0	-70.2	631,586.03	1,232,418.83	39° 32' 9.426 N	108° 13' 18.720 W	
2,400.0	10.72	347.04	2,370.5	323.1	-74.3	631,604.27	1,232,415.21	39° 32' 9.605 N	108° 13' 18.773 W	
2,500.0	10.72	347.04	2,468.7	341.2	-78.5	631,622.51	1,232,411.58	39° 32' 9.784 N	108° 13' 18.827 W	
2,600.0	10.72	347.04	2,567.0	359.3	-82.7	631,640.75	1,232,407.96	39° 32' 9.963 N	108° 13' 18.880 W	
2,700.0	10.72	347.04	2,665.2	377.4	-86.9	631,658.99	1,232,404.33	39° 32' 10.142 N	108° 13' 18.933 W	
2,800.0	10.72	347.04	2,763.5	395.6	-91.0	631,677.23	1,232,400.70	39° 32' 10.321 N	108° 13' 18.986 W	
2,900.0	10.72	347.04	2,861.8	413.7	-95.2	631,695.46	1,232,397.08	39° 32' 10.500 N	108° 13' 19.040 W	
3,000.0	10.72	347.04	2,960.0	431.8	-99.4	631,713.70	1,232,393.45	39° 32' 10.680 N	108° 13' 19.093 W	
3,100.0	10.72	347.04	3,058.3	449.9	-103.5	631,731.94	1,232,389.83	39° 32' 10.859 N	108° 13' 19.146 W	
3,200.0	10.72	347.04	3,156.5	468.1	-107.7	631,750.18	1,232,386.20	39° 32' 11.038 N	108° 13' 19.199 W	
3,300.0	10.72	347.04	3,254.8	486.2	-111.9	631,768.42	1,232,382.58	39° 32' 11.217 N	108° 13' 19.253 W	
3,400.0	10.72	347.04	3,353.0	504.3	-116.0	631,786.65	1,232,378.95	39° 32' 11.396 N	108° 13' 19.306 W	
3,500.0	10.72	347.04	3,451.3	522.4	-120.2	631,804.89	1,232,375.33	39° 32' 11.575 N	108° 13' 19.359 W	
3,600.0	10.72	347.04	3,549.5	540.5	-124.4	631,823.13	1,232,371.70	39° 32' 11.754 N	108° 13' 19.412 W	
3,700.0	10.72	347.04	3,647.8	558.7	-128.6	631,841.37	1,232,368.08	39° 32' 11.933 N	108° 13' 19.465 W	
3,800.0	10.72	347.04	3,746.1	576.8	-132.7	631,859.61	1,232,364.45	39° 32' 12.112 N	108° 13' 19.519 W	
3,900.0	10.72	347.04	3,844.3	594.9	-136.9	631,877.85	1,232,360.83	39° 32' 12.291 N	108° 13' 19.572 W	
4,000.0	10.72	347.04	3,942.6	613.0	-141.1	631,896.08	1,232,357.20	39° 32' 12.471 N	108° 13' 19.625 W	
4,100.0	10.72	347.04	4,040.8	631.1	-145.2	631,914.32	1,232,353.58	39° 32' 12.650 N	108° 13' 19.678 W	
4,200.0	10.72	347.04	4,139.1	649.3	-149.4	631,932.56	1,232,349.95	39° 32' 12.829 N	108° 13' 19.732 W	
4,300.0	10.72	347.04	4,237.3	667.4	-153.6	631,950.80	1,232,346.33	39° 32' 13.008 N	108° 13' 19.785 W	
4,400.0	10.72	347.04	4,335.6	685.5	-157.7	631,969.04	1,232,342.70	39° 32' 13.187 N	108° 13' 19.838 W	
4,500.0	10.72	347.04	4,433.8	703.6	-161.9	631,987.28	1,232,339.08	39° 32' 13.366 N	108° 13' 19.891 W	
4,600.0	10.72	347.04	4,532.1	721.8	-166.1	632,005.51	1,232,335.45	39° 32' 13.545 N	108° 13' 19.944 W	
4,700.0	10.72	347.04	4,630.4	739.9	-170.2	632,023.75	1,232,331.83	39° 32' 13.724 N	108° 13' 19.998 W	
4,800.0	10.72	347.04	4,728.6	758.0	-174.4	632,041.99	1,232,328.20	39° 32' 13.903 N	108° 13' 20.051 W	
4,900.0	10.72	347.04	4,826.9	776.1	-178.6	632,060.23	1,232,324.58	39° 32' 14.083 N	108° 13' 20.104 W	
5,000.0	10.72	347.04	4,925.1	794.2	-182.8	632,078.47	1,232,320.95	39° 32' 14.262 N	108° 13' 20.157 W	
5,100.0	10.72	347.04	5,023.4	812.4	-186.9	632,096.71	1,232,317.33	39° 32' 14.441 N	108° 13' 20.211 W	

OXY
Planning Report - Geographic

Database:	HOPSP	Local Co-ordinate Reference:	Well CASCADE CREEK 697-09-29B - Slot CC#697-09-29B
Company:	OXY USA MID-CON	TVD Reference:	WELL @ 8410.0surv ft (Original Well Elev)
Project:	GRAND VALLEY	MD Reference:	WELL @ 8410.0surv ft (Original Well Elev)
Site:	CASCADE CREEK 609-33 PAD	North Reference:	True
Well:	CASCADE CREEK 697-09-29B	Survey Calculation Method:	Minimum Curvature
Wellbore:	CASCADE CREEK 697-09-29B		
Design:	Plan 2		

Planned Survey										
Measured Depth (surv ft)	Inclination (°)	Azimuth (°)	Vertical Depth (surv ft)	+N/-S (surv ft)	+E/-W (surv ft)	Map Northing (surv ft)	Map Easting (surv ft)	Latitude	Longitude	
5,192.0	10.72	347.04	5,113.8	829.0	-190.8	632,113.49	1,232,313.99	39° 32' 14.606 N	108° 13' 20.260 W	
5,200.0	10.56	347.04	5,121.6	830.5	-191.1	632,114.93	1,232,313.70	39° 32' 14.620 N	108° 13' 20.264 W	
5,300.0	8.56	347.04	5,220.2	846.7	-194.8	632,131.22	1,232,310.47	39° 32' 14.780 N	108° 13' 20.311 W	
5,400.0	6.56	347.04	5,319.4	859.5	-197.8	632,144.11	1,232,307.90	39° 32' 14.906 N	108° 13' 20.349 W	
5,500.0	4.56	347.04	5,418.9	868.9	-199.9	632,153.61	1,232,306.02	39° 32' 15.000 N	108° 13' 20.377 W	
5,577.8	3.00	347.04	5,496.6	873.9	-201.1	632,158.64	1,232,305.02	39° 32' 15.049 N	108° 13' 20.391 W	
5,600.0	3.00	347.04	5,518.7	875.0	-201.3	632,159.78	1,232,304.79	39° 32' 15.060 N	108° 13' 20.395 W	
5,700.0	3.00	347.04	5,618.6	880.1	-202.5	632,164.91	1,232,303.77	39° 32' 15.111 N	108° 13' 20.410 W	
5,800.0	3.00	347.04	5,718.4	885.2	-203.7	632,170.05	1,232,302.75	39° 32' 15.161 N	108° 13' 20.425 W	
5,900.0	3.00	347.04	5,818.3	890.3	-204.9	632,175.18	1,232,301.73	39° 32' 15.211 N	108° 13' 20.440 W	
5,996.8	3.00	347.04	5,915.0	895.3	-206.0	632,180.15	1,232,300.74	39° 32' 15.260 N	108° 13' 20.454 W	
Mesaverde										
6,000.0	3.00	347.04	5,918.1	895.4	-206.0	632,180.31	1,232,300.71	39° 32' 15.262 N	108° 13' 20.455 W	
6,100.0	3.00	347.04	6,018.0	900.5	-207.2	632,185.45	1,232,299.69	39° 32' 15.312 N	108° 13' 20.470 W	
6,200.0	3.00	347.04	6,117.9	905.6	-208.4	632,190.58	1,232,298.67	39° 32' 15.363 N	108° 13' 20.485 W	
6,202.1	3.00	347.04	6,120.0	905.7	-208.4	632,190.69	1,232,298.65	39° 32' 15.364 N	108° 13' 20.485 W	
Ohio Creek										
6,300.0	3.00	347.04	6,217.7	910.7	-209.6	632,195.71	1,232,297.65	39° 32' 15.413 N	108° 13' 20.500 W	
6,400.0	3.00	347.04	6,317.6	915.8	-210.7	632,200.84	1,232,296.63	39° 32' 15.463 N	108° 13' 20.514 W	
6,500.0	3.00	347.04	6,417.5	920.9	-211.9	632,205.98	1,232,295.61	39° 32' 15.514 N	108° 13' 20.529 W	
6,600.0	3.00	347.04	6,517.3	926.0	-213.1	632,211.11	1,232,294.59	39° 32' 15.564 N	108° 13' 20.544 W	
6,700.0	3.00	347.04	6,617.2	931.1	-214.3	632,216.24	1,232,293.57	39° 32' 15.615 N	108° 13' 20.559 W	
6,800.0	3.00	347.04	6,717.1	936.2	-215.4	632,221.38	1,232,292.55	39° 32' 15.665 N	108° 13' 20.574 W	
6,900.0	3.00	347.04	6,816.9	941.3	-216.6	632,226.51	1,232,291.53	39° 32' 15.715 N	108° 13' 20.589 W	
7,000.0	3.00	347.04	6,916.8	946.4	-217.8	632,231.64	1,232,290.51	39° 32' 15.766 N	108° 13' 20.604 W	
7,100.0	3.00	347.04	7,016.6	951.5	-219.0	632,236.78	1,232,289.48	39° 32' 15.816 N	108° 13' 20.619 W	
7,200.0	3.00	347.04	7,116.5	956.6	-220.1	632,241.91	1,232,288.46	39° 32' 15.867 N	108° 13' 20.634 W	
7,214.5	3.00	347.04	7,131.0	957.4	-220.3	632,242.66	1,232,288.32	39° 32' 15.874 N	108° 13' 20.637 W	
Top of Gas										
7,300.0	3.00	347.04	7,216.4	961.7	-221.3	632,247.04	1,232,287.44	39° 32' 15.917 N	108° 13' 20.649 W	
7,400.0	3.00	347.04	7,316.2	966.8	-222.5	632,252.18	1,232,286.42	39° 32' 15.968 N	108° 13' 20.664 W	
7,500.0	3.00	347.04	7,416.1	971.9	-223.6	632,257.31	1,232,285.40	39° 32' 16.018 N	108° 13' 20.679 W	
7,600.0	3.00	347.04	7,516.0	977.0	-224.8	632,262.44	1,232,284.38	39° 32' 16.068 N	108° 13' 20.694 W	
7,700.0	3.00	347.04	7,615.8	982.1	-226.0	632,267.58	1,232,283.36	39° 32' 16.119 N	108° 13' 20.709 W	
7,800.0	3.00	347.04	7,715.7	987.2	-227.2	632,272.71	1,232,282.34	39° 32' 16.169 N	108° 13' 20.724 W	
7,900.0	3.00	347.04	7,815.5	992.3	-228.3	632,277.84	1,232,281.32	39° 32' 16.220 N	108° 13' 20.739 W	
8,000.0	3.00	347.04	7,915.4	997.4	-229.5	632,282.98	1,232,280.30	39° 32' 16.270 N	108° 13' 20.754 W	
8,100.0	3.00	347.04	8,015.3	1,002.5	-230.7	632,288.11	1,232,279.28	39° 32' 16.320 N	108° 13' 20.769 W	
8,177.3	3.00	347.04	8,092.5	1,006.5	-231.6	632,292.08	1,232,278.49	39° 32' 16.359 N	108° 13' 20.781 W	
Williams Fork										
8,177.8	3.00	347.04	8,093.0	1,006.5	-231.6	632,292.10	1,232,278.49	39° 32' 16.360 N	108° 13' 20.781 W	
697-09-29B 0° TGT										
8,200.0	3.00	347.04	8,115.1	1,007.6	-231.9	632,293.24	1,232,278.26	39° 32' 16.371 N	108° 13' 20.784 W	
8,300.0	3.00	347.04	8,215.0	1,012.7	-233.0	632,298.38	1,232,277.24	39° 32' 16.421 N	108° 13' 20.799 W	
8,400.0	3.00	347.04	8,314.9	1,017.8	-234.2	632,303.51	1,232,276.22	39° 32' 16.472 N	108° 13' 20.814 W	
8,500.0	3.00	347.04	8,414.7	1,022.9	-235.4	632,308.64	1,232,275.20	39° 32' 16.522 N	108° 13' 20.829 W	
8,600.0	3.00	347.04	8,514.6	1,028.0	-236.6	632,313.77	1,232,274.18	39° 32' 16.572 N	108° 13' 20.844 W	
8,700.0	3.00	347.04	8,614.4	1,033.1	-237.7	632,318.91	1,232,273.16	39° 32' 16.623 N	108° 13' 20.859 W	
8,800.0	3.00	347.04	8,714.3	1,038.2	-238.9	632,324.04	1,232,272.14	39° 32' 16.673 N	108° 13' 20.874 W	
8,835.7	3.00	347.04	8,750.0	1,040.1	-239.3	632,325.88	1,232,271.77	39° 32' 16.691 N	108° 13' 20.879 W	
Rollins										
8,900.0	3.00	347.04	8,814.2	1,043.3	-240.1	632,329.17	1,232,271.12	39° 32' 16.724 N	108° 13' 20.889 W	
9,000.0	3.00	347.04	8,914.0	1,048.4	-241.3	632,334.31	1,232,270.10	39° 32' 16.774 N	108° 13' 20.904 W	

OXY
Planning Report - Geographic

Database:	HOPSPP	Local Co-ordinate Reference:	Well CASCADE CREEK 697-09-29B - Slot CC#697-09-29B
Company:	OXY USA MID-CON	TVD Reference:	WELL @ 8410.0surv ft (Original Well Elev)
Project:	GRAND VALLEY	MD Reference:	WELL @ 8410.0surv ft (Original Well Elev)
Site:	CASCADE CREEK 609-33 PAD	North Reference:	True
Well:	CASCADE CREEK 697-09-29B	Survey Calculation Method:	Minimum Curvature
Wellbore:	CASCADE CREEK 697-09-29B		
Design:	Plan 2		

Planned Survey										
Measured Depth (surv ft)	Inclination (°)	Azimuth (°)	Vertical Depth (surv ft)	+N/-S (surv ft)	+E/-W (surv ft)	Map Northing (surv ft)	Map Easting (surv ft)	Latitude	Longitude	
9,036.0	3.00	347.04	8,950.0	1,050.3	-241.7	632,336.16	1,232,269.73	39° 32' 16.792 N	108° 13' 20.909 W	

Design Targets										
Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (surv ft)	+N/-S (surv ft)	+E/-W (surv ft)	Northing (surv ft)	Easting (surv ft)	Latitude	Longitude	
697-09-29B 0° TGT - plan hits target center - Circle (radius 50.0)	0.00	347.04	8,093.0	1,006.5	-231.6	632,292.10	1,232,278.49	39° 32' 16.360 N	108° 13' 20.781 W	

Formations							
Measured Depth (surv ft)	Vertical Depth (surv ft)	Name	Lithology	Dip (°)	Dip Direction (°)		
5,996.8	5,915.0	Mesaverde		0.00			
6,202.1	6,120.0	Ohio Creek		0.00			
7,214.5	7,131.0	Top of Gas		0.00			
8,177.3	8,092.5	Williams Fork		0.00			
8,835.7	8,750.0	Rollins		0.00			