



1001 17<sup>th</sup> Street  
Suite 1600  
Denver, CO 80202  
May 1, 2018

**Unocal 23-9D Well Details**

<b>API Number</b>	05-045-076380000	
<b>Spud Date</b>	12/20/2000	
<b>GL Elevation</b>	5,794'	
<b>PBTD</b>	8,060' MD	
<b>Conductor</b>	16" OD, 84 lb/ft, set at 55' inside 17 1/2" OH	
<b>Surface Casing</b>	8 5/8" OD, 24 lb/ft, J-55, set at 1,172' inside 12 1/4" OH	
<b>Surface Casing Properties</b>	<b>ID</b>	8.097"
	<b>Drift ID</b>	7.972"
	<b>Collapse</b>	1,370 psi
	<b>Burst</b>	2,950 psi
	<b>Joint Yield Strength</b>	244,000 lb
	<b>Capacity</b>	.0637 bbl/ft
	<b>Annular Capacity</b>	.0735 bbl/ft
<b>Production Casing</b>	4 1/2" OD, 11.6 lb/ft, N-80 set at 8,062' inside 7 7/8" OH	
<b>Production Casing Properties</b>	<b>ID</b>	4.000"
	<b>Drift ID</b>	3.875"
	<b>Collapse</b>	6,350 psi
	<b>Burst</b>	7,780 psi
	<b>Joint Yield Strength</b>	223,000 lb
	<b>Capacity</b>	.0155 bbl/ft
	<b>Annular Capacity</b>	.0406 bbl/ft
<b>Tubing</b>	2 3/8" OD, 4.7 lb/ft, J-55, set at 7,330'	
<b>Perforations</b>	<b>Stage 4</b>	5,276' to 5,651' Williams Fork
	<b>Stage 3</b>	5,922' to 6,380' Williams Fork
	<b>Stage 2</b>	6,586' to 7,062' Williams Fork
	<b>Stage 1</b>	7,265' to 7,754' Williams Fork



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## Appendix A

### **Procedure**

1. Notify the COGCC at least 48 hours before plugging operations commence. Ensure proper ground disturbance forms have been completed, one call for utility identification has been done and proper paper work is on location.
2. Hold a pre-job safety meeting. Discuss all aspects of the procedure with any involved personnel. Identify and address any safety concerns before the job begins.
3. MIRU workover unit. Kill well. ND wellhead, NU BOP.
4. TOOH with 2 3/8" tubing (set at 7,330').
5. RIH with 4 1/2" 11.6# CIBP to 5,201', 75' above top perf at 5,276'. Set CIBP & ROH w/ wireline.
6. Pressure test casing to 500 psi.
7. Dump bail 12 sacks (1.4 bbls.) of Class G neat cement (15.8 lb/gal, 1.15 cu-ft/sx) on top of CIBP at 5,201'. Estimated TOC at 5,051' (150' cement cap).
8. TIH with tubing to 4,430'. Mix and pump balance plug of 12 sacks of Class G neat cement to fill casing with 155' cement. Estimated TOC at 4,275' (approx. 150' above Williams Fork top at 4,425'). TOOH with tubing.
9. RU wireline. RIH with perf gun to 2,917' and perforate casing with 4 holes. ROH with wireline.
10. TIH with tubing to 2,917'. Mix and pump balance plug of 52 sacks of Class G neat cement to fill casing and annulus with 150' cement. Estimated TOC at 2,767' (approx. 150' above Fort Union top). TOOH with tubing.
11. RU wireline. RIH with perf gun to 1,222' (approx. 50' below surface casing shoe at 1,172') and perforate casing with 4 holes. ROH with wireline.
12. TIH with tubing to 1,222'. Mix and pump balance plug of 68 sacks of Class G neat cement to fill casing and annulus with 150' cement. Estimated TOC at 1,072' (approx. 100' above surface casing shoe).
13. TOOH with tubing and spot 75' of Class G neat cement to surface (6 sacks)
14. Perform top job with cement between 8 5/8" and 4 1/2" casing to surface. Spot 75' (16 sacks) into annulus.



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15. RDMO workover unit and ND BOP.

16. Dig down around wellhead and cut off 4 feet below ground level. Top off with cement if needed.

17. Weld information plate to casing stub with ¼" weep hole, take GPS readings of well information plate for regulatory agencies. Inscribe information plate with:

Sec 9 T6S R96W Unocal 23-9D 05-045-07638

18. Back fill hole and release equipment. RDMO