



1001 17th Street
 Suite 1600
 Denver, CO 80202
 May 1, 2018

Unocal 23-9D Well Details

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