P&A Procedure

1. MOB M42 to Greenleaf 3N-2HZ OH.
2. PU 13.5" tricone bit, bit sub and TIH with 5" DP
3. Stage in hole and establish circulation every ~275' (3 times before hitting bottom). Slowly bring up pumps, do not bring up to max strokes, just enough to establish circulation. Circulate 1 BU.
4. Tag bottom, bring up pumps to max circulation rate and C&C the hole. Min 2 BU. Monitor hole conditions. May have to reduce strokes due to losses.
5. TOOH and L/D 13.5" bit
6. TIH with open ended 5" DP. Do not tag bottom (possibly stick DP). TIH 10' off bottom to 1,044'.
7. C&C another bottoms up. Rig up cementers and verify volumes/displacements/pump time. Ensure job can be performed in 1 hr. Cement thickening time is generally 2 hrs (confirm).
8. Pump 1st cement balanced plug
    a. 14.2 ppg type 3 cement
    b. Volumes and displacement are shown in table below
    c. Slightly under displace cement to account for u-tubing
9. TOOH slowly (~45 FPM) to 550'
10. Pump 2nd cement balanced plug
    a. 14.2 ppg type 3 cement
    b. Volumes and displacement are shown in table below

Plug #	Top (ft)	Bottom (ft)	Length of Plug (ft)	Cement Volume (bbls)	Cement Volume w/excess (bbls)	Cement Volume (sacks)	Displacment Depth (ft) - Top of Cement plug w/ DP in Hole	Displacement Volume (bbl) - Cut 2 bbls short
Plug 1 (15% excess)	550	1044	494	87	101	379	452	8.0
Plug 2 (25% excess)	0	550	550	97	122	459	-166	0.0

*negative value on plug #2 is a function of excess volume being pumped.

11. TOOH slowly (~45 FPM) to surface
12. Perform top job if necessary. Cement must be to surface per COGCC
13. RDMO to Greenleaf 30N-2HZ. Spudding next on this furthest west surface hole will allow ample time for the cement to set on this P&A should anything happen on the 29C or 3N-2HZR wells next to the P&A. We are 11.6' and 18.3' away from those proposed SHL respectively.

Brian Peterson – Engineer

(720) 929-6812.