

Attachment - C-103

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Repaired leak in 7-5/8" casing as follows:

1. Pulled tubing and flow valves. Reran with 5-1/2" hookwall packer set at 3753'.
2. Pressured 5-1/2" casing above packer with 500# for 30 minutes. There was no drop in pressure.
3. Pumped in 7-5/8" bradenhead and broke circulation on 10-3/4" bradenhead in 2 minutes; injection rate 2 barrels per minute at 25#.
4. Pumped 250 sacks 4% Gel cement down 7-5/8" - 5-1/2" annulus. With 40 sacks pumped in, cement circulated out 10-3/4" bradenhead. Circulated approximately 10 sacks out.
5. Closed bradenhead on 10-3/4" and squeezed remaining 200 sacks down 7-5/8" - 5-1/2" annulus. There was no pressure after pump stopped. Waited 30 minutes. Pumped 125 sacks 4% Gel cement in 7-5/8" bradenhead. There was no pressure after pump stopped. Waited 30 minutes. Pumped 125 sacks 4% Gel cement into 7-5/8" bradenhead at 350#. After setting 10 minutes, pressure bled off to approximately 100#.
6. Waited on cement.
7. Pressured 7-5/8" bradenhead with 500# for 30 minutes. No drop in pressure. Pressured 10-3/4" bradenhead with 500# for 30 minutes. No drop in pressure.
8. Pulled tubing. Reran with 9 Merla Type "A" flow valves.
9. Returned well to production.