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COLO. OIL &amp; GAS CONS. COMM.

SUPPLEMENTAL COMPLETION OPERATIONS RECORD  
STATE No. 1-16

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Explanation of Operations commencing 8/25/67. This well was initially completed 8/12/67 pumping 150 B/D clean from perforations 4774-4788 and intermittent perforations 4707-4764. About one week later it started showing water and on 8/24/67 showed a 62% water cut.

Casing above 4600 tested dry.

Swab test of perforations 4774-4788 showed 40 to 70% water 13,250 ppm Chloride.

Swab test of perforations 4707-4764 showed 35-40% water 14,500 ppm Chloride.

With Baker Retrievmatic cementer set at 4768 pumped water down tubing and blow on annulus showed that bond around blank section 4764 to 4774 had broken down.

Cemented through retainer at 4768 with 50 sax cement. Found top of cement at 4630 and drilled same out to 4750. Bailing test showed 6 gallons of fluid per 30 minutes weeping into hole.

Reperforated 4707, 09, 11, 13, 15, 19, 21, 25, 26, 27, 28, 29, 32, 34, 36, 38, 40, 41, 42, 43, 44, 45, 47 and treated same with 1000 gallons 15% MCA.

Swab test of perforations 4707 to 4747 after 1000 gallon MCA treatment averaged 4 B/hr. cut 11-13%.

Treated perforations 4707 to 4747 with 5000 gallons 15% HCl.

Swab test of perforations 4707 to 4747 after 5000 gallon acid treatment averaged 1.7 B/hr. at end. Cut 5%.

Drilled out cement to 4767 $\frac{1}{2}$  and then swabbed at 1.8 B/hr. rate with water cut of 3%.

Perforated 12 holes 4748 to 4759.

Swab test of perforations 4707 to 4759 averaged 4.5 B/hr. cut 3%.



Treated with 500 gallons 15% MCA spotted on bottom perforations.

Swab test of perforations 4707 to 4759 after 500 gallon MCA averaged 2.7 B/hr. cut 4 to 9% water.

Treated perforations 4707-4759 with 13,020 gallons 15% HCl.

Swab test of perforations 4707 to 4759 after 13,020 gallon acid treatment averaged 8.4 B/hr. from bottom with water cuts 30 to 40%. 43,758 ppm Chloride.

Perforated 4647 to 4655, 4659 to 4667, 4668 to 4673 and 4677 to 4687. (35 holes).

With retrievable plug at 4697 treated perforations 4647 to 4687 with 1500 gallons 15% MCA.

Swab test of perforations 4647 to 4687 after 1500 MCA averaged 1.7 B/hr. (14 hrs.) cuts  $6\frac{1}{2}$  to 8%.

Perforated 4566, 68, 70, 78, 80, 82, 84, 88, 90, 92, 94, 96, 98, 4610, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34 (26 holes).

Treated all perforations 4566 to 4687 with 15,000 gallons 12.8% MCl.

Swab test of all perforations 4566 to 4687 after 15,000 gallons 12.8% acid averaged 3 B/hr.,  $2\frac{1}{2}$ % cut, (last 3 hrs).

Pulled bridge plug set at 4697 and reset at 4642. Had considerable blow when pulled plug at 4697 - also had 47 B too much fluid in hole on displacement of following acid treatment. Both these facts indicate effective bond between 4687 and 4707 (and probably to 4725).

With bridge plug at 4642 attempted to treat perforations 4566 to 4634 with 1500 gallons 15% MCA. Hole loaded 47 B short indicating fluid fillups from below when pulled bridge plug from 4697. When hole loaded pressure went to 500 psi and then broke to vacuum and displacement went in at 0 pressure.

Swab tested perforations 4566 to 4634 60 hours at 10 B/hr., Fluid level at 3150, water cuts to 55%. Reset plug at 4642 and swabbed with same result.





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Set bridge plug at 4605 and swabbed perforations 4566 to 4598 essentially dry - indicating bond 4598 to 4610 probably O.K.

After pulling bridge plug - thus opening all perforations to 4759 - set tubing on packer at 4640 and got blow on annulus when pumped fluid down tubing. This indicates bond 4634 to 4647 NOT effective

Then set tubing on packer at 4697 and pumped fluid down same and had no blow on annulus - thus further confirming bond 4687 to 4707 (or 4725) is O.K.

With tubing on packer at 4697 swabbed perforations 4707 to 4759 at 11.7 B/hr., could not lower fluid level below 2800, water cuts to 50%.

Pump test of all perforations 4566 to 4764 commenced September 22, 1967.



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31. PERFORATION RECORD

<u>Interval</u>	<u>Size</u>	<u>No.</u>
4707, 9, 11, 13, 15, 19, 21, 25, 26, 27, 28, 29, 32, 34, 36, 38, 40, 41, 42, 43, 44, 45, 47	0.50"	23
4748-4759	0.50"	12
4647-55 & 4659-67 & 4668-73 & 4677-87	0.50"	35
4566, 68, 70, 78, 80, 82, 84, 88, 90, 92, 94, 96, 98, 4610, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34	0.50"	26

32. TREATMENT RECORD

<u>Depth Interval</u>	<u>Treatment</u>
4768	50 sx - fillup to 4630
4707-4747	1000 gal 15% MCA
4707-4747	5000 gal 15% HCl
4748-4759	500 gal 15% MCA
4707-4759	13,020 gal 15% MCA
4647-4687	1500 gal 15% MCA
4566-4687	15,000 gal 12.8% HCl
4566-4634	1500 gal 15% MCA