

3:19-21



Memo

| | | | |
|------------------------|---------------------------|-------------|-----------------|
| Post-It® Fax Note 7671 | | Date 4/1/97 | # of pages 1 |
| To | Tim Carr | From | Rodney Reynolds |
| Co./Dept | KGS | Co. | TORP |
| Phone # | cc: Paul Gerlach + Saibal | Phone # | 4-4491 |
| Fax # | 4-5317 | Fax # | 4-4967 |

To: Paul Willhite
 Don Green
 Shapour Vossoughi

From: Rodney Reynolds

CC: Tim Carr
 Paul Gerlach
 Saibal Bhattacharya

Date: April 1, 1997

Re: Wellbore flowing pressures in the Schaben Field

I am in receipt of a copy of the recent fluid level data acquired by Ritchie Exploration on the wells they operate in the Schaben Field. From my experience as a production engineer, I am familiar with how this data is acquired, the instruments used to acquire this data, the accuracy limitations associated with these instruments, and how to interpret the data. My evaluation of the data indicates that of the 23 wells on which data was received, 15 of the wells are operating in a pumped off condition. This is the general practice of the oil industry, especially when dealing with marginal production. However, occasionally situations dictate that backpressure be held against the formation in wells that have high productivity, produce excessive amounts of water, to assist in reducing lifting costs, or in some instances may assist in maintaining some percentage in oil cut. I also spoke with Danny Biggs (production superintendent) and Jack Gurley (petroleum engineer) for Pickrell Drilling Company, concerning fluid levels on their wells. They indicated that they have not recently shot fluid levels, but in general they try to pump the wells off, however they have a few large water producers they cannot pump off. They said its time to shoot fluid levels and they will supply a copy of the results to me.

I have also compared the recently acquired fluid level data to the fluid level information acquired from the historic information contained in the well files, on which TORP based the model and simulation. The recent data correlates with the data we used, with 2 exceptions. The recent data indicates the Moore B-6 is carrying approx. 200' fluid above the perforations and the well files indicated it to be pumped off and the Moore D-4 which Ritchie field personnel indicated to me had "a lot of fluid in the hole" and the recent data indicates it is pumped off.

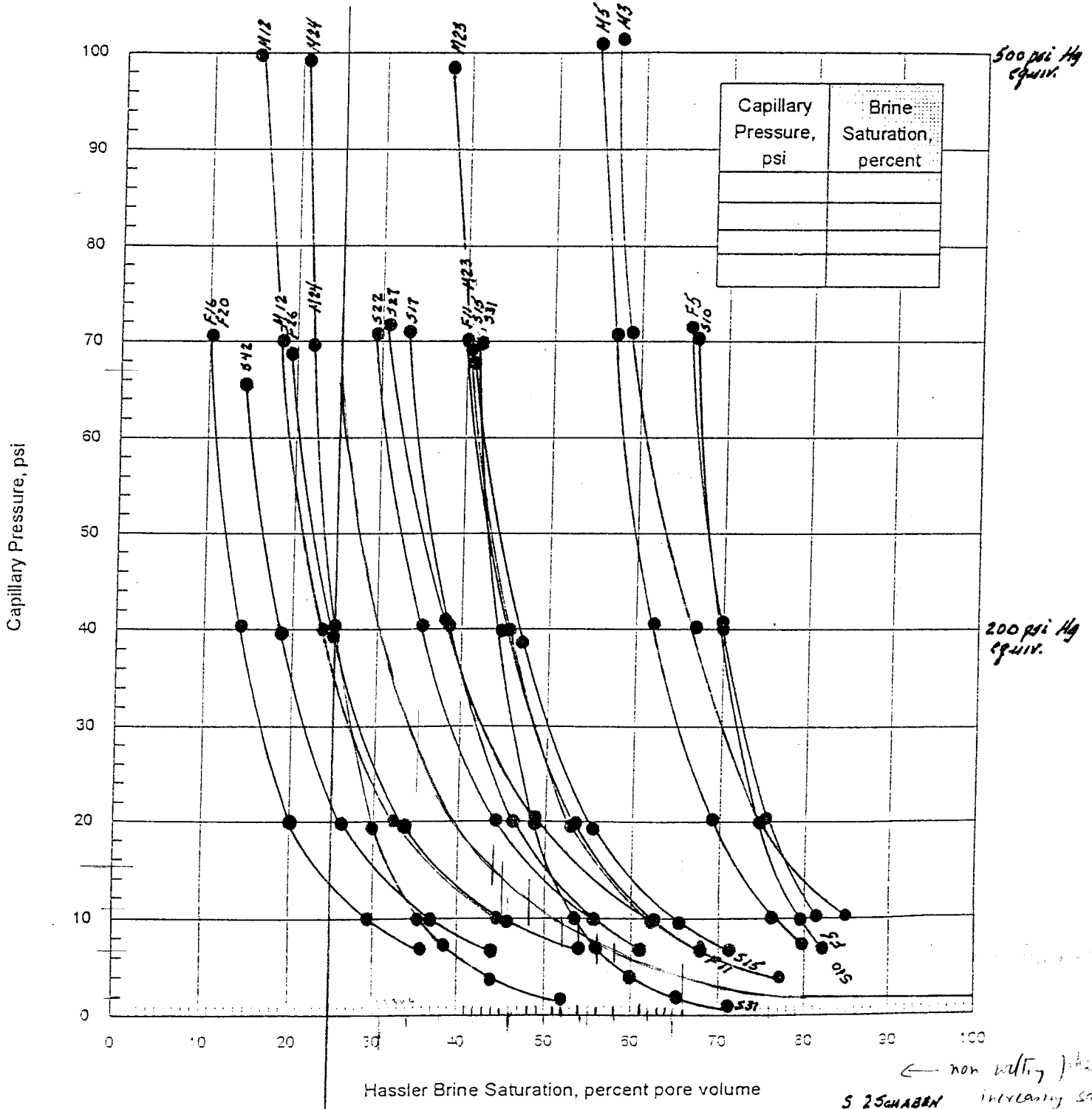
CENTRIFUGE CAPILLARY PRESSURE

Air Displacing Brine System
Ambient Conditions

Well: Ritchie
Field: Schaben
Location: Ness County, Kansas

Sample ID:
Depth, ft.:
Permeability to Air, md:
Porosity, percent:

(C160) = 13500 psi (lab)



S 25 SHABEN
F 1 F03
M 4 170028

15-135

30-19-21
29-1-22

Total dissi
solids

| Name | Interval | Vis. | Oil gr. | B= FVF | K | Phi | C | Skin | Final pr. | Temp | Water Sp gr. | Chlorides | Sulfates | Calcium | Magnesium | Kh/Vis. |
|------------|-----------|------|----------|---------|------|-------|------------------|------|-----------|------|--------------|-----------|----------|---------|-----------|---------|
| To | From | cp | | | md | | vol/vol/psi*10^6 | | | F | | | | | | |
| Moore B5 | 4395 | 4405 | 3 | | 1.2 | 0.15 | 10 | 6.87 | 1375 | 118 | | 590166 | | | | |
| Moore B1 | 4430 | 4440 | 3 | | 1.2 | 30 | 0.15 | 10 | 5.41 | 1382 | 1.029 | 25800 | 2500 | 2140 | 300 | |
| | 4313 | 4325 | | 39 @ 60 | | | | | | 119 | | | | | | |
| | 4380 | 4396 | | | | | | | | 116 | | | | | | |
| | 4330 | 4396 | | | | | | | | 116 | | | | | | |
| | 4396 | 4410 | 2.5 | 42.6 | 1.2 | 115 | 0.15 | 12 | -3.96 | 665 | | | | | | |
| | 4410 | 4420 | 2.5 | | 1.2 | 13.65 | 0.15 | 10 | 2.02 | 1397 | | | | | | |
| | 4420 | 4430 | 2.5 | | 1.2 | 87 | 0.15 | 12 | -2.91 | 1413 | | | | | | |
| | 4430 | 4440 | | | | | | | | 118 | | | | | | |
| Moore B4 | 4402 | 4412 | 3 | | 1.2 | 11.45 | 0.15 | 10 | 0.353 | 1273 | | | | | | |
| | 4412 | 4422 | 3 | | 1.2 | 216 | 0.15 | 10 | 20.8 | 1377 | | | | | | |
| | 4393 | 4402 | | | | | | | | 118 | | | | | | |
| Moore B6 | 4415 | 4427 | | | | | | | | 112 | | | | | | |
| | 4427 | 4437 | | | | | | | | 112 | | | | | | |
| | 4437 | 4447 | | 39 @ 60 | | | | | | 118 | | | | | | |
| Moore C2 | Prod. Int | | | 38 | | | | | | | | | | | | |
| | 4304 | 4319 | | | | | | | | 110 | | | | | | |
| Moore C3 | DST 7 | | | | | | | | | | | | | | | 21.75 |
| | DST 6 | | | | | 3.45 | | | | | | | | | | 9.19 |
| Moore D1 | 4392 | | 28 @ 77F | | | | | | | | | 25000 | | | | |
| | 4366 | 4383 | 3 | | 1.2 | 1.17 | 0.15 | 10 | 0.727 | 1405 | | | | | | |
| | 4383 | 4398 | 3 | 40.5-60 | 1.2 | 28 | 0.17 | 10 | 2.49 | 1377 | | | | | | |
| | 4398 | 4410 | 3 | | 1.2 | 13.8 | 0.13 | 10 | 3.195 | 1407 | | | | | | |
| Moore D2 | 4365 | 4386 | 2.5 | | 1.2 | | | 10 | 0.5 | 1340 | | | | | | |
| | 4386 | 4393 | | | | | | | | 118 | | | | | | |
| Moore D3 | 4400 | 4410 | | | | | | | | 119 | | | | | | |
| | 4381 | 4388 | | | | | | | | 118 | | | | | | |
| | 4388 | 4400 | 3 | | 1.15 | 21.1 | 0.15 | 10 | 8.08 | 1383 | | | | | | |
| | 4400 | 4410 | 3 | | 1.15 | 100 | 0.15 | 10 | 11.65 | 1372 | | | | | | |
| Moore D4 | 4408 | 4418 | | | | | | | | 112 | | | | | | |
| | 4418 | 4428 | | 36 | | | | | | 112 | | | | | | |
| | 4428 | 4436 | | 38 | | | | | | 112 | | | | | | |
| Foos A2 | 4409 | 4414 | | 36 @ 60 | | | | | | 115 | 1.035 | 29200 | 3250 | 2000 | 250 | |
| | 4401 | 4409 | | | | | | | | 115 | | | | | | |
| Humburg A2 | | | | | | | | | | | 1.04 | 29201 | 5000 | 1222 | 793 | |
| | 4391 | 4401 | 3 | | 1.2 | 17.3 | 0.15 | 10 | 0.695 | 1370 | | | | | | |
| | 4401 | 4411 | 3 | | 1.2 | 20.4 | 0.15 | 10 | | 1275 | | | | | | |
| | 4295 | 4310 | | | | | | | | 110 | | | | | | |
| Borger A1 | 4405 | 4422 | | 38 @ 60 | | | | | | 115 | | | | | | |
| | 4308 | 4323 | | | | | | | | 115 | | | | | | |
| Borger A2 | 4398 | 4410 | 3 | | 1.2 | | 0.15 | 10 | 0.435 | 1389 | | | | | | |
| | 4389 | 4398 | 3 | | 1.2 | 9.6 | 0.15 | 10 | 1.7 | 1456 | | | | | | |
| | 4369 | 4378 | | | | | | | | 100 | | | | | | |

= 30740

25000

↓
Avg.
1.035

