

INTER-DEPARTMENTAL MEMORANDUM

FROM G.E. Johnson,

District Petroleum Engineer,

PROVINCE
OF
MANITOBA

DATE 76 03 02

TO H.C. Foster,

Director.

SUBJECT EAST ROUTLEDGE UNIT No. 1 SUBSURFACE PRESSURE SURVEYS

The use of an acoustic well sounder to calculate bottom hole pressure is subject to a large percentage of error. For example:

Assume well A has a static fluid level of 1000'. There is no way of knowing whether this fluid is 100% oil or 100% water, even though well head cuts are taken. If the fluid column is all oil the bottom hole pressure would be 380# plus gas column weight and casing pressure.

If the fluid column is all water, the pressure would be (assuming 80,000 p.p.m. chloride) 502# plus gas column weight and casing pressure. This leaves a possible error of 122# per 1000' of fluid.

The last survey run October 5th and 8th, 1974, showed all casings to be full of fluid. If this is the case, the sonalog would not work.

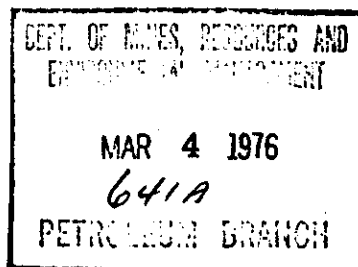
In 1974 all wells had been shut in for at least a week and in only one (1-10-9-25) had static pressure been reached.

Reading pressures in 48, 72, or even 96 hours will only give relative pressures and not true static bottom hole pressure. With three or more readings, true bottom hole pressure could be interpolated with a reasonable degree of accuracy.

A relative survey based on wells being shut in the same length of time would be of more advantage than a pressure survey where the fluid density is "guessed at".

RECOMMENDATIONS : ?

/bep



G.E. Johnson
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District Petroleum Engineer.

Howard Armstrong Perforating Ltd.

VIRIDEN, MAN.

SUBSURFACE PRESSURE SURVEY

Date: Oct. 5 to Oct. 8, 1974

Pool Routledge

Datum -630

Well Name	Location	Time Press. Meas'd	Date	Shut-in Period Hours	Tubing Press. psig	Casing Press. psig	Fluid Level feet	Fluid Grad. psi-ft	Gas Grad. psi-ft	Temp. at Run Depth of	Run Depth ft-KB	Datum Depth ft-KB	Press. at Datum psig	Gauge No.	Remarks
Median Routledge # 1-10-9-25 WPM.		1.03 pm Oct. 5 11.08 am " 8	5 8	188.5 258.6	78.8 78.8	- -	Full "	- .433	- -	- -	2010 2010	- -	949.3 949.3	32140N	Shut in Sept. 27/74, 4.30 pm.
Median Routledge # 4-11-9-25 WPM.		2.17 pm Oct. 5 11.45 am " 8	5 8	218.7 288.2	13.8 14.9	- -	Full "	- .476	- -	- -	2081 2081	- -	999.9 1005.0	32140N	Shut in Sept. 26/74, 11.30 am.
Median Routledge # 13-11-9-25 WPM.		3.21 pm Oct. 5 12.26 pm " 8	5 8	2693.3 2762.4	84.0 85.0	- -	Full "	- .503	- -	- -	2076 2076	- -	1119.8 1130.1	32140N	Shut in June 15/74, 10.00 am.
Median Routledge # 1-14-9-25 WPM.		4.02 pm Oct. 5 1.32 pm " 8	5 8	194.0 263.5	63.4 64.4	- -	Full "	- .438	- -	- -	2032 2032	- -	950.3 953.4	32140N	Shut in Sept. 27/74, 2.00 pm.
Median Routledge # 8-14-9-25 WPM.		4.43 pm Oct. 5 2.09 pm " 8	5 8	222.7 292.2	57.2 63.4	- -	Full "	- .416	- -	- -	2071 2071	- -	915.2 925.6	32140N	Shut in Sept. 26/74, 10.00 am.
Median Routledge # 5-13-9-25 WPM.		5.22 pm Oct. 5 2.52 pm " 8	5 8	198.3 267.8	0.0 0.0	- -	Full "	- .444	- -	- -	2040 2040	- -	900.8 904.9	32140N	Shut in Sept. 27/74, 11.00 am.

all calculated E.H. Pressures at centre of lowest perforated zone on:

- # 1-10-9-25 WPM = 978.7 psi.
- # 4-11-9-25 WPM = 1005.0 psi.
- # 13-11-9-25 WPM = 1143.2 psi.
- # 1-14-9-25 WPM = 979.9 psi.
- # 8-14-9-25 WPM = 925.6 psi.
- # 5-13-9-25 WPM = 927.3 psi.