W. H. Holm #69M

Your PROFS Note of 6/22/92 (J Block)

On April 16, 1992, a half-day seminar entitled "Layered (No-Crossflow) Reservoir Behavior" was given at the insistence of Bartlesville management in terms of technology transfer. We, the Reservoir Group, have been working in this area for the past 5 to 6 years and have come to recognize the tremendous impact this technology has on Phillips present and future worldwide operations. The layered no-crossflow reservoir is the NORM, not the exception, and must be examined in all development projects.

Some of the managers present at this seminar were John Mihm, Colin Wilkinson, Allyn Risley, Mark McElroy, Gary Hoover, Rick Mott, Bill Byrd, and numerous other geologists, geophysicists, and engineers. Numerous field examples with diverse geological environments (including even shale reservoirs) were illustrated along with the Phillips Ghost River Gas Field Project recently put on production with rather disastrous results. A 7 year plateau forecast lasted only 1 year with no gas in place or deliverability reductions required. This performance could have been forecast using layered no-crossflow technology.

The layered no-crossflow presentation was also made at the June 3 Exploration Managers Meeting in Bartlesville and was scheduled for (but cancelled because of extenuating circumstances) Whitmire's E&P Planning Conference of June 10. Its cancellation resulted in a private presentation for our overseas managers, Knut Am, and Kirby Hedrick. The Ghost River case history was the primary focus of this presentation mainly illustrating the different production forecasts obtained with conventional risking of gas-in-place and that of a layered no-crossflow forecast. Kirby Hedrick's first question was its possible relevance to J Block. I pointed out that you routinely run a no-crossflow case and a sealing fault case. You need to run a case that includes "both" sealing faults and layered no-crossflow. This would then be a true "risk" case and a realistic case. That this would be a realistic case is, of course, the main point of contention.

As pointed out in your PROFS note of 1/24/92, we have had this discussion before (Fax copy of PROFS included). Performance data on numerous fields we have examined is overwhelming to the point again where we (Phillips Petroleum Company) must look at the layered no-crossflow reservoir to be the NORM, repeat NORM. One must "prove" faults are leaking and shales are discontinuous, i.e., crossflow will exist in any given reservoir. Even with sealing faults and no-crossflow assumptions, reservoir layer properties and fault block volumes can be such that the forecast results are not necessarily disastrous.

I am faxing you an article relevant to this discussion, "Lesson Learned in North Sea Oil Field Development," B. Van Oort, Journal of Canadian Pet. Tech., Nov. - Dec. 1988. (You may already have a copy, but the copied recipients of this note may not.)

For your information, we were trying to set up a video conference simultaneously with Woking and Stavanger to make our April 16 presentation; this apparently can't be done. My personal choice would be a visit to Woking and Stavanger in person sometime in the near future.

There is a good side to this layered no-crossflow technology that is currently being very successfully exploited by our Borger office to both increase production and reserves by going back and mechanically restimulating all high and low permeability layers. You could contact Elliott Hough for details.

Again, these presentations were universal and were not singling out any specific office. By the way, Mr. Silas will get his presentation tomorrow.

.cc J. F. Griggs
S. A. Siemens
M. N. McElroy
D. J. Ebbs
D. A. Brown