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ProTECHNOLOGY



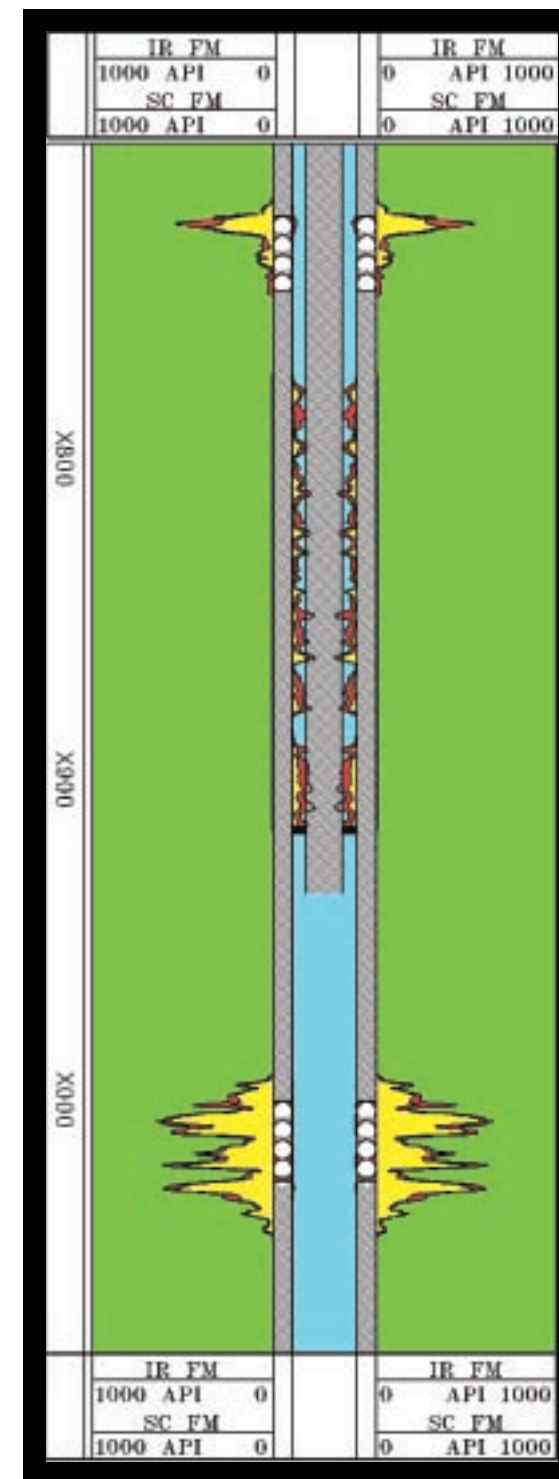
A REGULAR TECHNICAL REVIEW FOR CLIENTS OF PROTECHNICS, A CORE LABORATORIES COMPANY

## Tracers REVEAL MORE Than Formation Placement

In this Wilcox producer in South Texas, the operator ran in the hole with tubing and set the packer at approximately X915 ft. in order to isolate a previously treated up hole interval from the new interval to be fraced approximately 300 ft. below. Despite pressure testing the packer, the SpectraScan® image reveals a significant accumulation of Ir-192 (Red) and Sc-46 (Yellow) traced proppant both in the casing / tubing annulus as well as in the uphole perforated interval. Despite being pressure tested prior to the treatment, it is quite evident that the packer did indeed leak. This information could help the operator make a more informed decision regarding the need for future pressure testing well above anticipated treating pressures. Additionally, if the condition of the casing is suspect, casing inspection logs could be employed prior to running tubing to determine optimal packer placement.

## Another Addition to the CORE LABORATORIES' Reservoir Optimization Family

HOUSTON (1 AUGUST, 2001) — CORE LABORATORIES (NYSE: "CLB") recently announced its purchase of Tesco Corporation's Gris Gun business. Gris Gun supplies wellbore perforating gun systems and other related completion products to the energy industry. The Gris Gun technology, high quality products, and presence throughout Canada with Core's existing completion products will significantly enhance Core Laboratories' ability to serve the marketplace.



THE COMPLETION IMAGING COMPANY

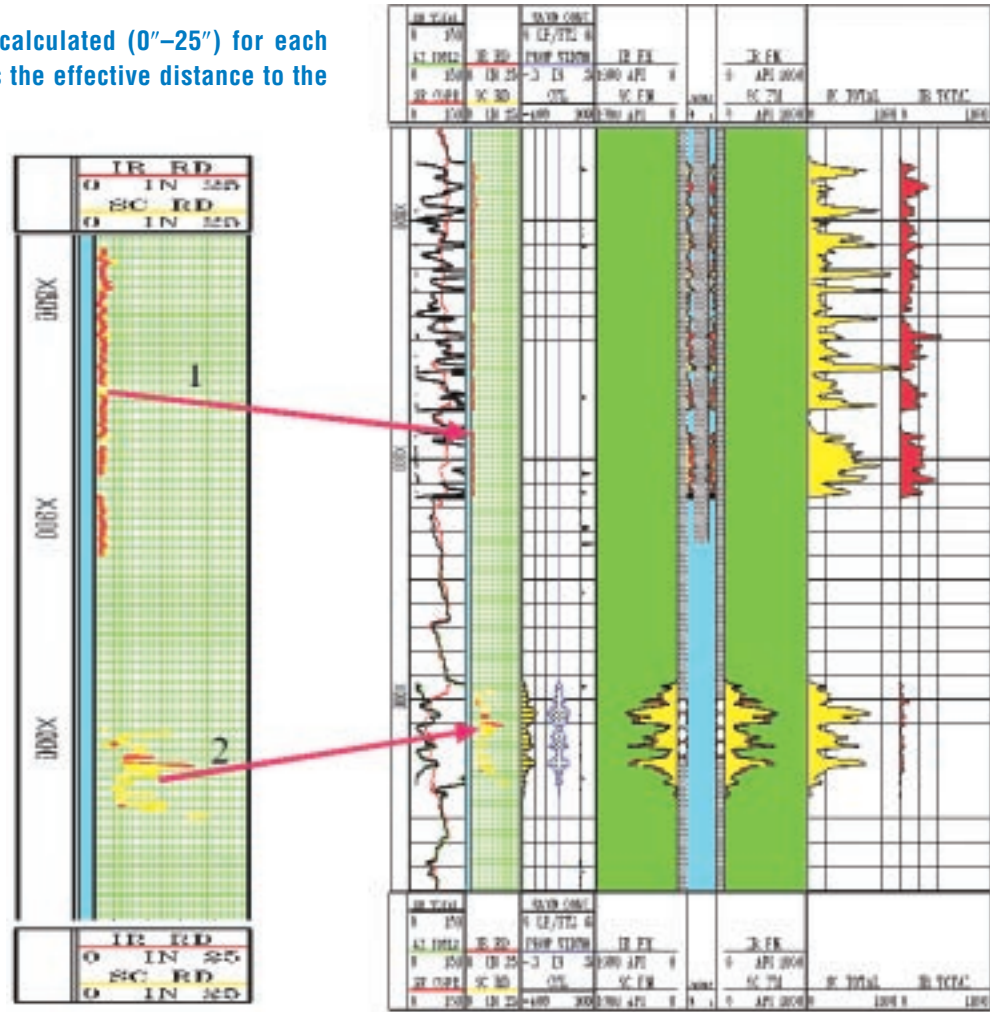
Tracer technology is employed in over 300 completions in a typical month. Our technical staff spends a great deal of time interpreting and making recommendations to our customers based on the resulting SpectraScan® images. As a result of all of those completion image reviews, we've put together in a series, some of the more frequently asked questions regarding tracer diagnostics.

**Here's this month's question:**

**Q:** What is the depth of investigation of Zero Wash® tracers? (How far into the formation can your SpectraScan® Imager see?)

**A:** While there is some variance in the depth of investigation of tracers due to rock properties; as a general rule Zero Wash® tracers can be detected and differentiated from inside the wellbore to up to 25 inches into the formation. The SpectraScan® Imager is the only multi-spectral gamma ray logging tool that provides a relative distance curve with each image.

Relative distance is calculated (0"-25") for each isotope used. This is the effective distance to the Zero@Wash particles detected at each depth and is very useful in performing completion diagnostics. Since gamma ray counts vary as the inverse square of the distance, it is important to know if a large increase in isotope count rate is a function of the traced medium residing closer to the SpectraScan® tool (as in Example 1) where the traced material is actually inside the wellbore or if the increase is due to more propant concentration in the formation as in Example 2.



**PROTECHNICS PEOPLE**

**David Nichol** — is our most recent addition in Aberdeen, Scotland as an engineer/chemist and will be handling field service operations throughout Europe, Africa and the Middle East.

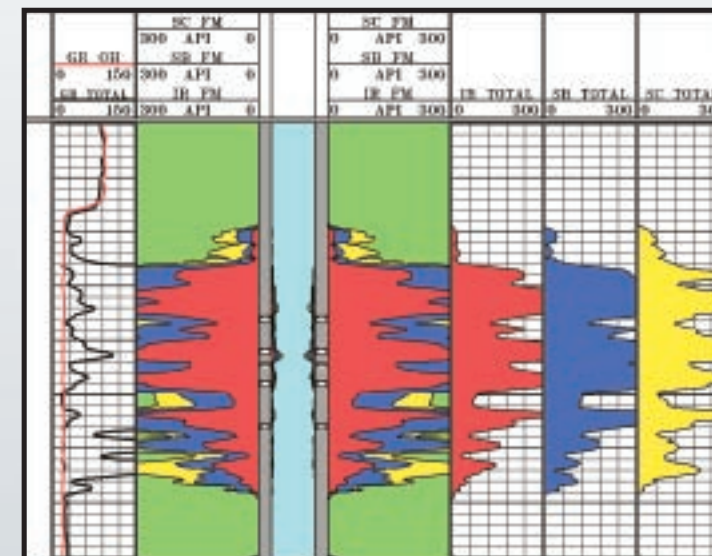
**Steven Hodges** — Has recently joined ProTechnics as a logging engineer in our Farmington, New Mexico office.

**John Parker** — is our newest field service representative in Kilgore, Texas.

**The Tortuous Path Less Taken**

**THE ANSWER**

**IMAGE 1** depicts near-wellbore tortuosity and/or multiple fracturing. This is evidenced by the classic tracer "signature" showing the almost equal presence of all three tracers throughout the stimulated interval that is commonly associated with tortuosity. In a more typical example you would see the early and middle tracer counts attenuated due to their displacement away from the wellbore by the highest bulk density slurry at the tail end of the frac job. Judging from the responses to this quiz, this is an issue that might not be as clearly understood as some other topics that have been recently covered. Feel free to contact us with any comments or questions you might have and be sure to look for more on the topic of near-wellbore tortuosity in the future.



**Image 1**

- Pad:** 10,000 gallons traced with 8 mCi of Sc-46 ZW
- 1-4 ppg:** total of 30,900 lbs. of bauxite traced with 15 mCi of Sb-124 ZW
- 4-6 ppg:** total of 39,000 lbs. of bauxite traced with 18 mCi of Ir-192 ZW

Congratulations to the winners of the most recent **ProTechnology Quiz**. We hope you enjoy your meal compliments of the "Best Little Service Company in the World."

Doug Storts — Williford Energy Company  
 Kevin Weller — Inland Resources Inc.  
 Tammie Jones — Goldston Oil Corp

Scott Landon — Marathon Oil Company  
 John Lafitte — Amerada Hess

The **ProTechnology Quiz** is a continuing series of SpectraScan® imaging examples aimed at the dissemination of information for the optimization of well completion practices in various reservoirs around the world.

**Join us in New Orleans**

Join us in New Orleans 30 September – 3 October for the 2001 Society of Petroleum Engineers Annual Technical Conference and Exhibition "Your Portal to the Future." We will look forward to seeing you in Booth #2347.

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