

PROTECHNOLOGY

Solutions for Improved Well Performance



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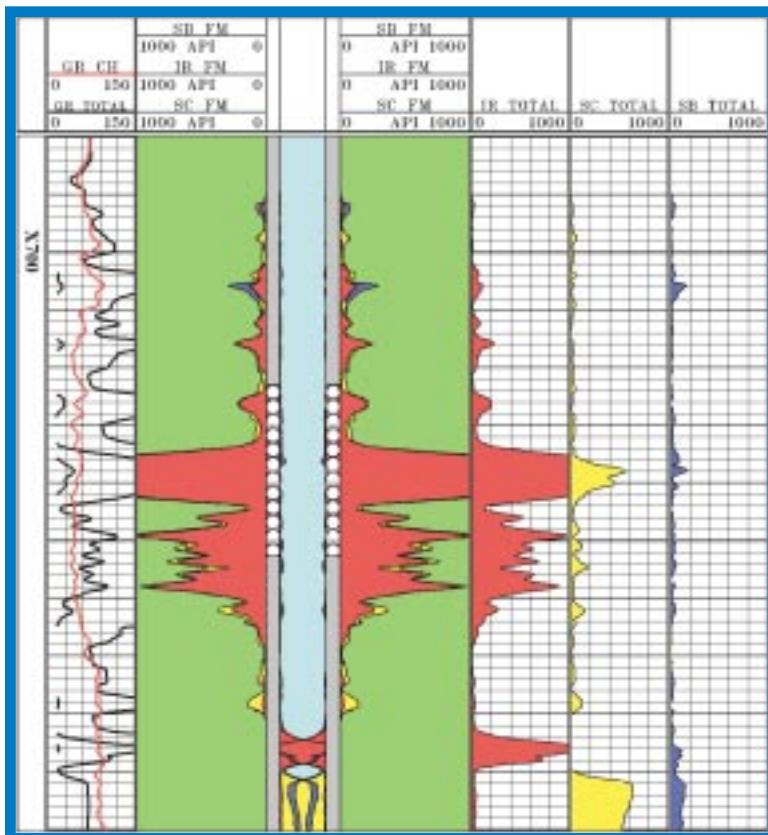
A REGULAR TECHNICAL REVIEW FOR CLIENTS OF PROTECHNICS, A CORE LABORATORIES COMPANY

DOES YOUR FLUID SYSTEM “STACK UP”?

A critical aspect of every fracturing treatment is the ability of the chosen fluid system to efficiently transport the proppant down hole, through the perforations and out into the pay zone. Because of the numerous fluid systems in use today; whether they be a borate or zirconate system, crosslinked or linear; without the proper performance of the gel system the chances of successfully stimulating a given formation are slim at best. For this reason, the ability to evaluate fluid performance both during and after the job is a valuable tool in the effort to optimize fracture stimulation techniques.

Zero Wash® tracers in addition to their most commonly recognized diagnostic utility are also an effective method of identifying proppant fall-out during stimulation treatments. The SpectraScan Image below shows clearly the layering effect of the proppant in the rathole. As can be seen in the image below, the tracer

used in the sand-laden fluid at the end of the job has settled on top of the second isotope used in the earlier sand-laden stages of the job. This clearly illustrates that the proppant wasn't effectively “turning the corner” through the perforations during the job. This observation was corroborated by Q. A. reports from the service company that reflected very poor crosslinking characteristics of the frac gel during the treatment.



Pad: 11,500 gallons traced with 2 mCi of Sb-124 LZW

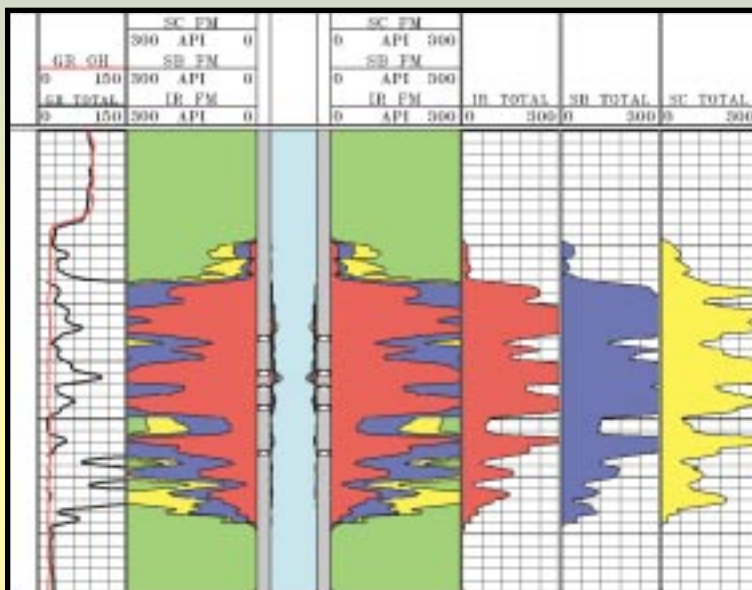
1-2 ppg: total of 5,000 lbs. of 16/30 RCS traced with 5 mCi of Sb-124 ZW

3-4 ppg: total of 28,000 lbs. of 16/30 RCS traced with 11 mCi of Sc-46 ZW

5-6 ppg: total of 35,000 lbs. of 16/30 RCS traced with 18 mCi of Ir-192 ZW

THE TORTUOUS PATH LESS TAKEN PROTECHNOLOGY QUIZ

Formations, with natural or induced fractures, introduce an added level of complexity in the design and successful execution of fracture stimulation treatments. Many techniques have been employed to “plug off” or “fill up” these microfractures in the near-wellbore in order to divert the majority of the sand-laden fluid out into the formation via the major hydraulic fractures to achieve the designed height and extension of the treatment. The use of patented Zero Wash® tracers to identify these phenomena has proven beneficial in the optimization of treatment designs. Below are two SpectraScan Images that reflect the results of treatments traced with one isotope in the pad fluid, another in the first half of the sand-laden fluid and followed by a third isotope in the last half of the sand-laden fluid. Can you identify the image that depicts the phenomena of near-wellbore tortuosity/multiple fracturing and explain why? Go to the “ProTechnology Quiz” link on our homepage and submit your answer. [www.protechnics.com]



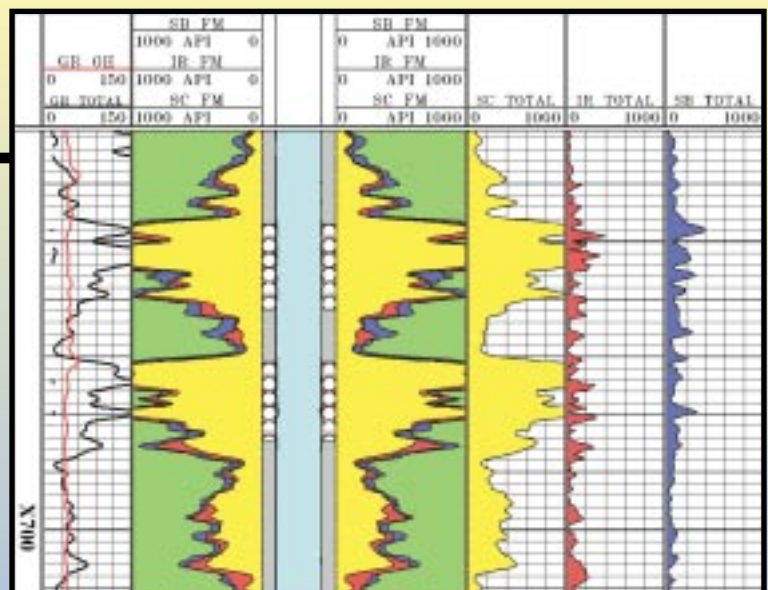
Can you identify the image that depicts the phenomena of near-wellbore tortuosity/multiple fracturing and explain why? Go to the “ProTechnology Quiz” link on our homepage and submit your answer. [www.protechnics.com]

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

Image 2

- Pad:** 56,000 gallons traced with 22 mCi of Sb-124 ZWLD
- 1-4 ppg:** total of 78,000 lbs of 20/40 white sand traced with 31 mCi of Ir-192 ZW
- 5-6 ppg:** total of 122,000 lbs. of 20/40 white sand traced with 49 mCi of Sc-46 ZW



PROTECHNICS PEOPLE

Kelly Bryson has joined ProTechnics in our Oklahoma City, Oklahoma office as a field service representative.

Juan Sanchez is our newest edition in Alice, Texas. Juan has also joined as a field service representative.

Robert Rodriguez has joined the Midland, Texas office as a field service representative.

Brent Dech has joined ProTechnics as a logging engineer and will be handling both on and offshore duties out of Lafayette, Louisiana.

Alma Rosales has joined ProTechnics in Houston as a data technician.

Ken Boone joined ProTechnics in Houston in March as a Senior Sales Engineer. Ken has over twenty years experience in both stimulation and coiled tubing services.

Michael McCown has been named ProTechnics' laboratory manager. Michael has over 25 years experience in numerous analytical disciplines including ultra-trace analysis, mass spectrometry, and gas chromatography. Michael holds a B.S. Chemistry and Physics, and an M.S. and Sc.D. in Analytical Chemistry.

Darshan Gad is our newest electrical design engineer on staff. Darshan is involved in optimizing our current systems and designing our new technology developments.



Forced Closure...A Tale of Two Wells

THE ANSWER

ProTechnics would like to thank all of our valued customers and friends that sent in answers to our inaugural ProTechnology Quiz. The response was much greater than anticipated. As mentioned in the January issue; this was the first in a continued series of SpectraScan imaging examples aimed at disseminating information for the purpose of optimizing well completion practices in various reservoirs around the world.

Among the many responses we received, most of the correct answers pointed out that the proppant settling in well #2 was a result of the well being shut in for a period of time immediately after the fracture stimulation treatment. In this example, this is certainly the case. However, it has been documented many times over with the help of tracer technology that the lack of proppant directly adjacent to the perforations is as much if not more a result of proppant settling/flowback across the perforated interval. Once again thank you for your responses. Congratulations to our 10 winners — they were awarded gift certificates to go out and eat a steak and celebrate their vast tracer knowledge.

Join us in Denver

ProTechnics will be exhibiting in booth #1095 along with other divisions of Core Laboratories at the American Association of Petroleum Geologists (A.A.P.G.) show in Denver, Colorado June 3 – 6, 2001. We hope to see you there.

TO CONTACT US

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