Paper No. 48

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

BAKER HUGHES INCORPORATED
and
BAKER HUGHES OILFIELD OPERATIONS, INC.,
Petitioners

v.

PACKERS PLUS ENERGY SERVICES, INC.
Patent Owner

Case IPR2016-00596
Patent 7,134,505

PETITIONERS' SUR-SURREPLY

On page 4 of its Surreply, Rapid Completions LLC ("RC") cites to the second deposition of Petitioners' expert, Dr. Daneshy (Ex. 2053), as supporting the highlighted contention below:

> Moreover, Ellis's description of the screenout problem is entirely consistent with Mr. McGowen's testimony regarding a POSITA's views in 2001. Mr. McGowen explained that a POSITA in 2001 would have believed that initiating multiple fractures too close together would influence the stress field in the formation and create complex fracture geometries known as "near wellbore tortuosity." Resp. at 17. This tortuosity was believed to result in reduced production and screenouts. Ex. 2034 at 25; Ex. 2039 at 2. **To avoid these problems in multi-stage fracturing jobs a POSITA would space the perforations far enough apart to avoid fracture complexity ("reduced density perforations")**. Ex. 2034 at 25; Ex. 2039 at 2; **Ex. 2053 at 89:11-22**. Thus, Mr. McGowen explained that a POSITA would not attempt open hole multistage because the lack of casing prevents a POSITA from controlling the fracture initiation points.

RC cites lines 11-22 of page 89 of Dr. Daneshy's deposition as if that testimony concerns perforation-spacing/density or otherwise supports RC's argument that a POSITA would not have attempted open-hole muti-stage fracturing because the lack of casing prevents a POSITA from controlling the fracture initiation points.

It does not. Instead, as the testimony reveals, Dr. Daneshy was merely asked whether, prior to 2001, a person of skill in the art would try and avoid "complex

fractures." He responded, "Yes, when we fractured vertical wells, we did not want to create complex fractures." Ex. 2053 at 89:11-22. Dr. Daneshy was not asked in any subsequent questioning whether the pre-2001 desire not to create "complex fractures" "when we fractured vertical wells" was one that required the use of any particular perforation spacing or density in casing.

Moreover, when Dr. Daneshy used the term "complex" in his page 89 testimony, which RC then re-used in its cited questions, Dr. Daneshy explained that the term was one that the industry uses today to refer to the result—today—of creating "a hundred fractures every 50 feet" or "20, 30, 40 of these together":

> **Q**.· I thought you had said that a person of ordinary skill in the art's expectations of how a fracture behaves has changed between the time before 2001, well before it, and today.· I still don't understand -- can you explain what change has occurred in those expectations?
>
> MR. GARRETT:· Same objections [form, FRE 611(b), relevance].
>
> **A**.· The details of how we fracture wells.· Today in horizontal wells, when you put a hundred fractures every 50 feet, these single fractures every 50 feet do not look like that because these fractures are so close to each other.· That tells you what a fracture, single fracture – that's why I modified what you said.· That's what a single fracture would have looked like.· When you put 20, 30, 40 of these together, then they don't look like that.
>
> **Q**.· What do they look like?
>
> MR. GARRETT:· Same objections.

> **A**.· Today the industry uses the term "**complex**" because they don't really know what it looks like.

Ex. 2053 at 87:4-23 (emphasis added). RC did not ask Dr. Daneshy, and Dr. Daneshy did not testify about, whether such "complex" fractures resulted in the "reduced production and screenouts" that RC characterized as "[t]hese problems" in the highlighted sentence above.

Furthermore, Dr. Daneshy testified about fracture spacing—which is the concept RC is arguing drives perforation spacing (*see* POR at 17; Ex. 2034 at 24:20-25:10) in the highlighted sentence above—and explained that, while there may have been a handful of experts in the entire world who would have appreciated the issue of close fractures potentially growing into each other, a POSITA likely would **not** have. Ex. 2053 at 73:8-75:15.

May 2, 2017

/Mark T. Garrett/
Mark T. Garrett

CERTIFICATE OF SERVICE

Pursuant to 37 C.F.R. § 42.6(e), the undersigned certifies that on May 2, 2017, a complete copy of PETITIONERS' SUR-SURREPLY was served on Patent Owner's Exclusive Licensee via email (by consent), as follows:

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