

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

WEATHERFORD INTERNATIONAL, LLC;
WEATHERFORD/LAMB, INC.;
WEATHERFORD US, LP; and
WEATHERFORD ARTIFICIAL LIFT
SYSTEMS, LLC

Petitioners

v.

PACKERS PLUS ENERGY SERVICES, INC.,

Patent Owner

Inter Partes Review
of U.S. Patent 7,134,505

EXHIBIT 1035
REPLY DECLARATION OF VIKRAM RAO

1. My name is Vikram Rao. I am over the age of twenty-one years, of sound mind, and capable of making the statements set forth in this Reply Declaration. I am competent to testify about the matters set forth herein. All the facts and statements contained herein are within my personal knowledge and/or within my field of expertise, and they are true and correct to the best of my knowledge.

2. I initially submitted a Declaration at the request of Edell, Shapiro & Finnan LLC in this *inter partes* review (“IPR”), which is Exhibit 1007. I have been asked to review the Declarations of Harold McGowen (Exhibits 2051 and 2081) and to respond to specific points raised by Patent Owner in the Patent Owner Response (Paper 32) and by Mr. McGowen in his two Declarations regarding the validity of U.S. Patent No. 7,134,505 (“505 Patent”). This Reply Declaration contains a summary of and the supporting explanations for my opinions on the specific topics requested. Because my task as provided by counsel was limited to opining on certain specific issues, I have not attempted in this Reply Declaration to provide a comprehensive assessment of the Patent Owner Response or Mr. McGowen’s two Declarations.

I. The Problems Reported by Thomson Would Not Be Alarming to a POSITA

3. At page 32 of 94 of Exhibit 2051, Mr. McGowen highlights a number of “problems” that Thomson *et al.*, encountered during their work. However, in Weatherford International LLC et al.

my view a person of ordinary skill in the art (POSITA) at the time of the alleged invention would not have seen these as reasons to avoid using Thomson's ball drop system. To the contrary, he or she would have realized that it is common to have issues in any oil and gas job, especially when working offshore and using new technology. A POSITA would have also realized that Thomson was able to overcome these problems, avoid potential situations and ultimately successfully use the ball drop system in a fracturing operation.

4. For example, the first "problem" Mr. McGowen identifies was a concern that was raised before the job was even run about prematurely shearing the shear screws on the PBR/seal assembly. The authors provided a solution to the problem and ran the job without incident. Ex. 1003 at 3. A POSITA would not have found the anticipation of a problem and solution developed before the job was run followed by no problems during the actual job related to the problem "alarming." That is a normal part of the job of an engineer designing downhole systems. Every other "problem" that Mr. McGowen identifies relates to the failure of the pump out plug on M1 and the cycle plug on M3. Ex. 1003 at 3-4. Not only did the authors of Thomson address these issues as they arose as described in the paper, but also the authors suggest the use of new "disappearing" plugs as "a more reliable and cost effective solution to the tailpipe plug." Ex. 1003 at 5. A POSITA would have known how to select downhole tools for various applications and

would not have considered Thomson's disclosed issues with plugs a significant enough concern to preclude use of the system.

5. As Thomson states, the "successful installation of four multiple packer/MSAF completions in chalk formation in the North Sea proved that the system was not only feasible but highly efficient, both from an operational standpoint and from a reservoir treatment standpoint." Ex. 1003 at 5. Thus, the problems reported by Thomson would not have led a POSITA to avoid using the Thomson system in a cased hole well or an open hole well.

II. Casing and Cementing Were Not Required for Multistage Fracturing

6. At page 26 of 94 of Exhibit 2051, Mr. McGowen states that in 2001, the conventional wisdom "was that horizontal boreholes should be cased, cemented, and perforated to facilitate effective fracturing." However, Mr. McGowen's theory that horizontal boreholes should be cased and cemented ignores the fact that the decision of whether to case a wellbore or leave it open hole is a complicated decision that is dictated by many different factors.

7. The most important consideration in this determination is the mineral composition of the formation itself. In Canadian litigation involving Canadian Patent 2,412,072, which has the same specification and virtually identical claims to the '505 Patent, Packers Plus and Rapid Completions relied upon the testimony of their expert Dr. Jennifer Miskimins. Dr. Miskimins relied upon a 1991 article by

4 Weatherford International LLC et al.

C.M. Kim & H.H. Abass, “Hydraulic Fracture Initiation From Horizontal Wellbores: Laboratory Experiments,” *Rock Mechanics As A Multidisciplinary Science*, pp. 231-240 (Jean-Claude Roegiers ed., CRC Press 1991) (“Kim and Abass”) (Ex. 1043). Kim and Abass explain in their article that “an openhole completion would be preferred if the formation rock is competent enough to maintain the wellbore in stable condition during the life of the well.” Exhibit 1043 at 15. Thus certain formations, such as the very consolidated shale formations of the Bakken, lent themselves to being completed as open holes. In others, such as when working offshore, or where the rock is unstable, casing would have been preferred. Other relevant factors that would have been considered included the condition of the hole (primarily rugosity), whether there are regulations preventing comingling of production from different zones, and the diameter of the lateral (*i.e.*, whether it can easily accommodate casing).

8. Mr. McGowen also opines at pages 27-29 of 94 of Exhibit 2051 that various concerns about fracture initiation, spacing, and geometry resulted in a perceived need for cementing, casing, and perforations to control fracture initiation. The Kim and Abass article proves that such views were not accepted in the industry because it expressly asserts a preference for open hole completions for fracturing in appropriate formations. Exhibit 1043 at 15. It was not accepted “conventional wisdom” in the industry that casing and cementing were necessary

Explore Litigation Insights

Docket Alarm provides insights to develop a more informed litigation strategy and the peace of mind of knowing you're on top of things.

Real-Time Litigation Alerts



Keep your litigation team up-to-date with **real-time alerts** and advanced team management tools built for the enterprise, all while greatly reducing PACER spend.

Our comprehensive service means we can handle Federal, State, and Administrative courts across the country.

Advanced Docket Research



With over 230 million records, Docket Alarm's cloud-native docket research platform finds what other services can't. Coverage includes Federal, State, plus PTAB, TTAB, ITC and NLRB decisions, all in one place.

Identify arguments that have been successful in the past with full text, pinpoint searching. Link to case law cited within any court document via Fastcase.

Analytics At Your Fingertips



Learn what happened the last time a particular judge, opposing counsel or company faced cases similar to yours.

Advanced out-of-the-box PTAB and TTAB analytics are always at your fingertips.

API

Docket Alarm offers a powerful API (application programming interface) to developers that want to integrate case filings into their apps.

LAW FIRMS

Build custom dashboards for your attorneys and clients with live data direct from the court.

Automate many repetitive legal tasks like conflict checks, document management, and marketing.

FINANCIAL INSTITUTIONS

Litigation and bankruptcy checks for companies and debtors.

E-DISCOVERY AND LEGAL VENDORS

Sync your system to PACER to automate legal marketing.