UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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NATIONAL OILWELL VARCO, L.P.,
Petitioner,

v.

TECHNICAL INDUSTRIES, INC.,
Patent Owner.

_____

Case IPR2017-00699
Patent 7,401,518 B2

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Before J. JOHN LEE, MINN CHUNG, and JACQUELINE T. HARLOW,
Administrative Patent Judges.

HARLOW, *Administrative Patent Judge.*

DECISION
Institution of *Inter Partes* Review
37 C.F.R. § 42.108

I.   INTRODUCTION

National Oilwell Varco, L.P. ("Petitioner") filed a Petition requesting an *inter partes* review of claims 1–20 of U.S. Patent No. 7,401,518 B2 (Ex. 1001, "the '518 patent"). Paper 5 ("Pet.").[1] Technical Industries, Inc. ("Patent Owner") filed a Preliminary Response. Paper 9 ("Prelim. Resp."). We have authority to determine whether to institute an *inter partes* review under 35 U.S.C. § 314, which provides that an *inter partes* review may not be instituted unless the information presented in the petition "shows that there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition."

For the reasons set forth below, we institute an *inter partes* review of claims 1–20 of the '518 patent.

A. Related Matters

The '518 patent is asserted in *Technical Industries, Inc. v. National Oilwell Varco, L.P.*, Case No. 6:15-cv-02744 (W.D. La.). Pet. 4; Paper 5, 2.

B. The '518 Patent

The '518 patent, titled "Method for Inspection of Metal Tubular Goods," issued July 22, 2008, from U.S. Patent Application No. 11/849,287, filed September 1, 2007. Ex. 1001, at [54], [45], [21], [22]. The '518 patent is a continuation of U.S. Patent Application No. 10/548,731, filed on March

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[1] Petitioner filed its Petition on January 17, 2017 (Paper 2), and subsequently filed a Corrected Petition on February 3, 2017 (Paper 5). All citations are to the Corrected Petition (Paper 5).

8, 2004, and now issued as U.S. Patent No. 7,263,887.[2] *Id*. at [63]. The

'518 patent claims priority to U.S. Provisional Patent Application

No. 60/452,907, filed March 7, 2003. *Id*. at [60].

The '518 patent describes a method for evaluating the condition of

tubular metal goods by collecting and analyzing data concerning tubular

wall thickness. *Id*. at 1:15–20. In particular, the '518 patent discloses the

use of ultrasonic technology to acquire wall thickness data, in association

with three-dimensional positional data, for discrete sections of the wall of a

metal tubular good, "so that the wall of a metal tubular (or portions thereof)

can be displayed, imaged, examined and utilized in simulative/comparative

programs as a three-dimensional object." *Id*. at 1:25–32.

The '518 patent acknowledges that the use of ultrasonic technology to

inspect a metal tubular by determining wall thickness at a position on the

tubular was known in the art prior to the time of invention. *Id*. at 2:46–64.

The '518 patent purports to improve upon prior art methods for identifying

defects in metal tubular walls by teaching the use of ultrasonic inspection

data not only to identify wall defects, but to use "three-dimensional data as

to both the defect and the remainder of the tubular" to evaluate, with

"mathematical precision," how such a defect might impact tubular

performance. *Id*. at 2:64–3:9. In this regard, the '518 patent explains that

data representing "wall thickness of each incremental section of a tubular

and the location of that section can be used in computations which predict

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[2] U.S. Patent No. 7,263,887 B2 is the subject of IPR2017-00648.

the actual effect on the tubular to various stressors, including tensile, bending, collapse and burst forces, aging, etc." *Id*. at 8:64–9:7. The '518 patent does not describe how such calculations might be performed, but rather, states that three-dimensional wall thickness data may be "used in mathematical calculations predicting performance of the tubular under certain conditions," as well as in "engineering calculations and/or programs which predict response of the tubular to various stressors[.]" *Id*. at 3:29–35.

C. Illustrative Claim

Each of the challenged claims depends, directly or indirectly, from claim 1, which is reproduced below and is illustrative of the claimed subject matter.

> 1.   Method for collection and storage of information representing wall thickness of tubular goods, comprising:
>
> > a.   selecting a section of the wall of a tubular good about which information representing wall thickness is to be acquired and then stored in a format readable by computer means;
> >
> > b.   determining number and spacing of discrete portions within said section of the wall of said tubular good which will produce information representing wall thickness of said section of the wall of said tubular good having desired resolution;
> >
> > c.   at each of said discrete portions, causing said ultrasonic detection means to determine the thickness of the wall of said tubular good;
> >
> > d.   at each of said discrete portions, determining the longitudinal position of said ultrasonic detection means along the axis of said tubular good;

e.   at each of said discrete portions, determining the circumferential position of said ultrasonic detection means about the circumference of said tubular good; and,

f.   at each of said discrete portions making a computer readable recording of said wall thickness, longitudinal and circumferential positions in an associated relationship.

Ex. 1001, 9:36–60. Claims 2–20 impose further limitations concerning: the number (claims 2, 7, 12) or spacing (claims 3, 8, 13, 17) of discrete portions for which wall thickness measurements are taken; the use, by a computer, of "at least some of the information contained in said computer readable recording to compute the effect of stressors on the wall of said tubular good" (claims 4, 6, 9, 11, 14, 16, 18, 20); and the use, by a computer, of "at least some of the information contained in said computer readable recording to display wall of the tubular good in virtual three-dimensional form" (claims 5, 10, 15, 19). *Id.* at 9:61–12:8.

D. Prior Art Relied Upon

Petitioner relies upon the following prior art references (Pet. 5–6):

| Kiefer | US 5,641,909 | June 24, 1997 | (Ex. 1003) |
| Lam | US 2003/0033880 A1 | Feb. 20, 2003 | (Ex. 1004) |

Assanelli, et al., *Collapse Behavior of Casings: Measurement Techniques, Numerical Analyses and Full Scale Testing*, 1998 SPE/ATW Risk Based Design of Wall Casing and Tubing Conference (1998) (Ex. 1005).

Petitioner also relies on the Declaration of John P. Rodgers, Ph.D. (Ex. 1007).

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