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Paper 16
Entered: January 12, 2018

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

HALLIBURTON ENERGY SERVICES, INC.,
Petitioner,

v.

SCHLUMBERGER TECHNOLOGY CORP.,
Patent Owner.

Case IPR2017-01567
Patent 7,934,556 B2

Before HYUN J. JUNG, JEREMY M. PLENZLER, and JAMES J. MAYBERRY, *Administrative Patent Judges.*

JUNG, *Administrative Patent Judge.*

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

I. INTRODUCTION

Halliburton Energy Services, Inc. ("Petitioner") filed a Petition (Paper 2, "Pet."), requesting institution of an *inter partes* review of claims 1–3, 5, 7, 12, and 13 of U.S. Patent No. 7,934,556 B2 (Ex. 1001, "the '556 patent"). Schlumberger Technology Corp. ("Patent Owner") filed a Preliminary Response (Paper 13[1], "Prelim. Resp."). Under 35 U.S.C. § 314, an *inter partes* review may not be instituted "unless . . . there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition."

Upon consideration of the Petition and Preliminary Response and for the reasons explained below, we determine that Petitioner has shown that there is a reasonable likelihood that it would prevail with respect to at least one of the challenged claims. As such, we exercise our discretion to extend review to all claims challenged and on all presented challenges, and thus, institute an *inter partes* review of claims 1–3, 5, 7, 12, and 13 of the '556 patent.

A. Related Proceedings

The parties indicate that there are no related judicial proceedings. Pet. 2; Paper 3, 1. The '556 patent is also the subject of Case IPR2017-01774 and related to patents at issue in Cases IPR2017-01569, IPR2017-01570, IPR2017-01571, IPR2017-01572, IPR2017-01773, IPR2017-01778, and IPR2017-01779.

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[1] A confidential Preliminary Response was filed within three months from the mailing date of the Notice of Filing Date Accorded to Petition (Paper 6). The publicly available version of the Preliminary Response (Paper 13) was filed ten days later. Citations to the Preliminary Response are to the publicly available version.

B. The '556 Patent (Ex. 1001)

The '556 patent relates to a "method . . . for treating a subterranean formation using diversion." Ex. 1001, 1:14–15. Figure 1 of the '556 patent is reproduced below.

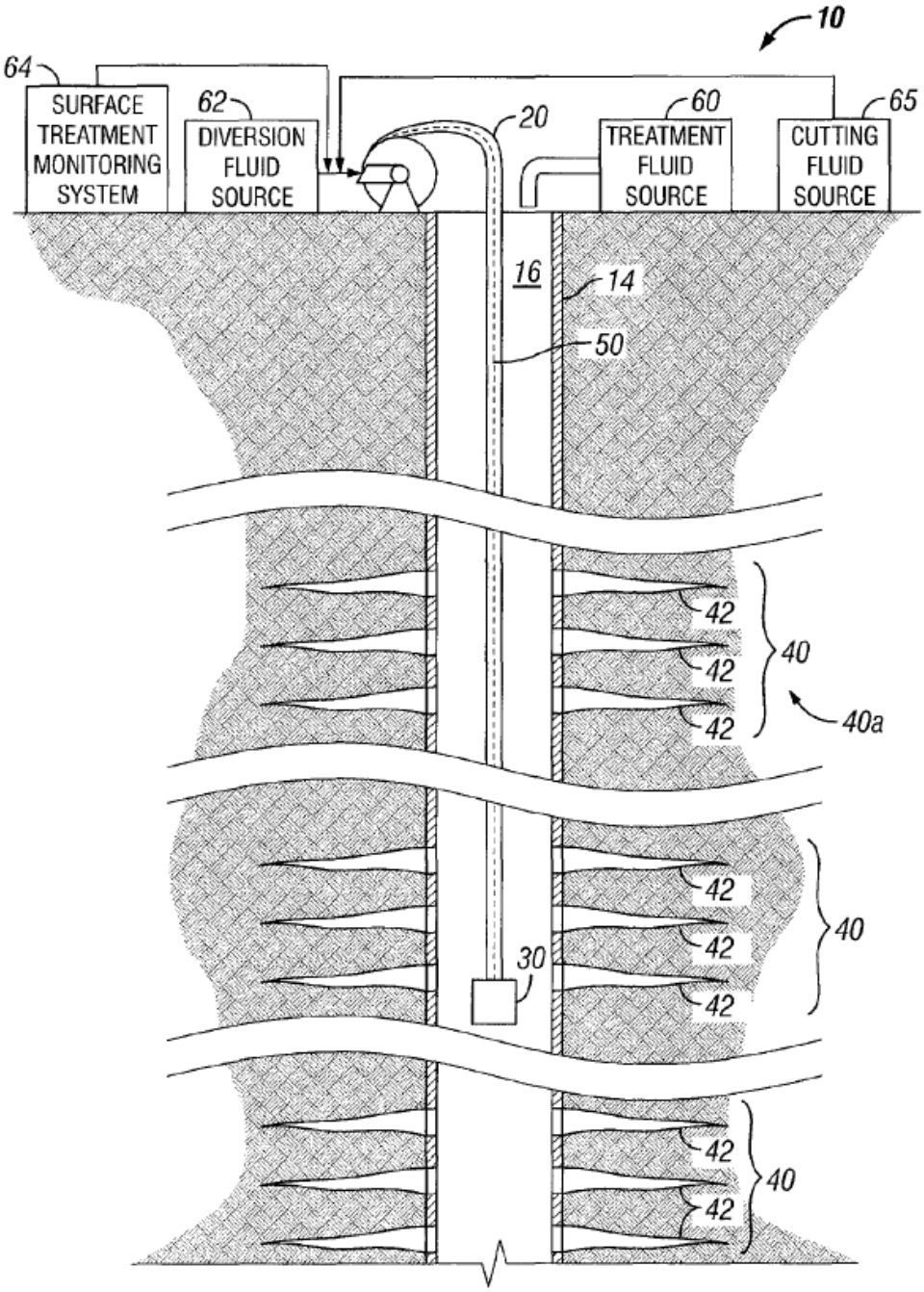

FIG. 1

Figure 1 is a schematic diagram of a well according to an embodiment. *Id.* at 3:20–21. Well 10 includes wellbore 12 that intersects one or more subterranean formations and targets zones of interest, such as exemplary zone 40. *Id.* at 3:44–47. Coiled tubing string 20 extends into wellbore 12, and includes bottom hole assembly ("BHA") 30 at the lower end of coiled tubing string 20. *Id.* at 3:53–56. Figure 1 also shows well 10 when fluid connectivity between wellbore 12 and zones 40 has been established by perforations 42. *Id.* at 3:63–65. "[P]erforation of the zones 40 may be performed by, for example, jetting subs, as well as other conventional perforation devices, such as tubing or wireline-conveyed shaped charge-based perforating guns, sliding sleeves, or TAP valves, for example." *Id.* at 4:1–5.

Well 10 can include treatment fluid source 60 for introducing treatment fluid into well 10 and diversion fluid source 62 for delivering diversion fluid to the central passageway of coiled tubing string 20. *Id.* at 4:15–16, 4:22, 4:28–31. Well 10 can also include surface treatment monitoring system 64 to monitor one or more parameters of the well so that delivery of treatment fluid or diversion agent can be regulated based on the monitored parameter. *Id.* at 4:34–41.

Target intervals 40 are treated by establishing fluid connectivity between wellbore 12 and target zones 40. *Id.* at 4:57–60. Coiled tubing string 20 is deployed into wellbore 12. *Id.* at 5:47–49. An apparatus or system for measuring or monitoring at least one parameter that is indicative of treatment may then be deployed into wellbore 12. *Id.* at 5:60–63, 6:36–38, 7:6–7. For example, a "hydraulic fracturing monitoring system, which is capable of detecting and monitoring microseisms in the subterranean

formation that results from the hydraulic fracturing may be deployed." *Id.* at 6:1–4. Afterwards, treatment of target zone 40 begins, such as by pumping treatment fluid. *Id.* at 6:38–41. According to the '556 patent, "treatment fluid may be any suitable treatment fluid known in the art." *Id.* at 6:49–50. When treatment is concluded, coiled tubing string 20 is positioned so that BHA 30 is at a location for pumping of a diversion agent into an interval of wellbore 12 for diversion. *Id.* at 7:50–54. One or more parameters can be monitored in well 10 to determine or confirm placement of the diversion agent. *Id.* at 8:16–20. The '556 patent states that "diversion agent" is used to refer to "mechanical devices, chemical fluid systems, combinations thereof, and methods of use for blocking flow into or out of a particular zone or a given set of perforations." *Id.* at 2:30–34.

C. Illustrative Claim

The '556 patent has 13 claims, of which Petitioner challenges claims 1–3, 5, 7, 12, and 13. Of the challenged claims, claims 1, 12, and 13 are independent, and claim 1 is reproduced below:

> 1. A method, comprising:
>
> establishing fluid connectivity between a wellbore and a first target zone, and between the wellbore and a second target zone, wherein the first target zone and second target zone comprise zones for treatment within a subterranean formation intersected by a wellbore, wherein the second target zone is above the first target zone;
>
> positioning a coiled tubing into the wellbore;
>
> performing a first treatment step on the first target zone, wherein the first treatment step comprises contacting a treated zone with a treatment fluid;
>
> performing a second treatment step on the first target zone, wherein the second treatment step comprises introducing a diversion agent comprising a degradable material to the treated zone;

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