

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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PETROLEUM GEO-SERVICES INC.,  
Petitioner,

v.

WESTERNGECO LLC,  
Patent Owner.

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Case IPR2014-01478  
Patent 7,293,520 B2

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Before SCOTT A. DANIELS, BEVERLY M. BUNTING,  
and BARBARA A. PARVIS, *Administrative Patent Judges*.

DANIELS, *Administrative Patent Judge*.

DECISION

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

## I. INTRODUCTION

### A. Background

Petroleum Geo-Services (“Petitioner”) filed a Petition to institute an *inter partes* review of claims 1–3, 5–20, and 22–34 of U.S. Patent No. 7,293,520 B2 (“the ’520 patent”). Paper 1 (“Pet.”). WesternGeco LLC (“Patent Owner”) timely filed a Preliminary Response. Paper 11 (“Prelim. Resp.”).

We have authority to determine whether to institute an *inter partes* review under 35 U.S.C. § 314; 37 C.F.R. § 42.4(a). Upon consideration of the Petition and the Preliminary Response, we determine that Petitioner has established a reasonable likelihood of prevailing on certain claims challenged in the Petition. Accordingly, we institute an *inter partes* review for claims 1, 5, 13–17, 20, 22, and 30–34 and of the ’520 patent.

### B. Additional Proceedings

Petitioner states that related lawsuits involving the ’520 patent presently asserted against Petitioner are:

1. *WesternGeco LLC v. Petroleum Geo-Services, Inc. et al.*, 4:13-cv-03037, (the “PGS lawsuit”) (S.D. Tex.);
2. *WesternGeco LLC v. ION Geophysical Corp. et al.*, 4:09-cv-01827 (the “ION lawsuit”), (S.D. Tex); and
3. *WesternGeco LLC v. ION Geophysical Corp.*, 13-1527 (Fed. Cir.).

Pet. 1–2. Patent Owner identifies proceedings in Paper 7, 1–2.

Petitioner previously filed *Petroleum Geo-Services, Inc. v. WesternGeco LLC*, IPR2014-00689, (“the first PGS IPR”) upon which we instituted an *inter partes* review of claims 1, 2, 18, and 19 of the ’520 patent. Claims 1, 2, 6, 18, 19, and 23 of the ’520 patent are also challenged in *ION*

IPR2014-01478

Patent 7,293,520 B2

*Geophysical Corporation and ION International S.a.r.l., v. WesternGeco LLC*, IPR2015-00565 (“the ION IPR”).<sup>1</sup>

Petitioner also has concurrently filed three additional petitions challenging the patentability of claims 16–23 of U.S. Patent No. 7,080,607 B2 (“the ’607 patent”); claim 4 of U.S. Patent No. 7,162,967 B2 (“the ’967 patent”); and claims 1–4, 10, 20–21, 26–29, 35, 39, and 45–47 of U.S. Patent No. 6,691,038 B2 (“the ’038 patent”).<sup>2</sup> See IPR2014-01475; IPR2014-01476; IPR2014-01477.

*C. The ’520 Patent*

The ’520 patent (Ex. 1001), titled “CONTROL SYSTEM FOR POSITIONING OF A MARINE SEISMIC STREAMERS,” generally relates to a system for improving marine seismic survey techniques by more effectively controlling the movement and positioning of marine seismic streamers towed in an array behind a boat. Ex. 1001, col. 1, ll. 24–36. As illustrated in Figure 1 of the ’520 patent, reproduced below, labeled Prior Art, a seismic source, for example, air gun 14, is towed by boat 10 producing acoustic signals, which are reflected off the earth below. *Id.* at col. 1, ll. 36–41. The reflected signals are received by hydrophones (no

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<sup>1</sup> ION filed a pending Motion for Joinder under 35 U.S.C. § 315(c) and 37 C.F.R. § 42.122(b) (Paper 4) to join IPR2015-00565 with the first PGS IPR, IPR2014-00689.

<sup>2</sup> The ’520, ’607, and ’967 patents each issued as continuations of Application No. 09/787,723, filed July 2, 2001, now U.S. Patent No. 6,932,017, which was in turn a 35 U.S.C. § 371 national stage filing from Patent Cooperation Treaty application number PCT/IB99/01590, filed September 28, 1999, claiming foreign priority under 35 U.S.C. § 119 from Great Britain patent application number 9821277.3, filed October 1, 1998. See Ex. 1001, col. 1, ll. 7–16.

IPR2014-01478

Patent 7,293,520 B2

reference number) attached to streamers 12, and the signals “digitized and processed to build up a representation of the subsurface geology.” *Id.*

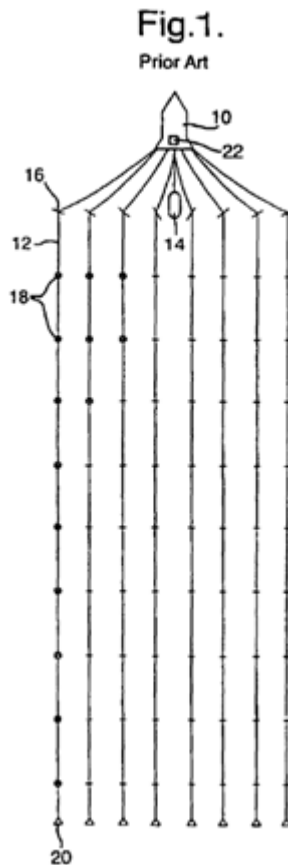


Figure 1, reproduced above, depicts an array of seismic streamers 12 towed behind the vessel. The '520 patent explains that in order to obtain accurate survey data, it is necessary to control the positioning of the streamers, both vertically in the water column, as well as horizontally against ocean currents and forces, which can cause the normally linear streamers to bend and undulate and, in some cases, become entangled with one another. *Id.* at col. 1, l. 42–col. 2, l. 25.

As depicted by Figure 1, each streamer 12 is maintained in a generally linear arrangement behind the boat by deflector 16 which horizontally positions the end of each streamer nearest the vessel. *Id.* at col. 1, ll. 43–45.

IPR2014-01478

Patent 7,293,520 B2

Drag buoy 20 at the end of each streamer farthest from the vessel creates tension along the streamer to maintain the linear arrangement.

Additionally, to control the position and linear shape of the streamer, a plurality of streamer positioning devices, called “birds” 18, are attached along the length of each streamer.<sup>3</sup> The birds are horizontally and vertically steerable and control the shape and position of the streamer in both vertical (depth) and horizontal directions. *Id.* at col. 3, ll. 53–61. The bird’s job is usually to maintain the streamers in their linear and parallel arrangement, because, when the streamers are horizontally out of position, the efficiency of the seismic data collection is compromised. *Id.* at col. 2, ll. 14–17. The most important task of the birds, however, is to keep the streamers from tangling. *Id.* at col. 4, ll. 4–5.

The invention described in the ‘520 patent relies on global control system 22 located on, or near the vessel, and local control system 36 on or near each bird, to control the birds on each streamer and maintain the streamers in their particular linear and parallel arrangement. *Id.* at col. 3, ll. 62–66, col. 10, ll. 17–20. The global control system is provided with a model (desired) position representation of each streamer in the towed streamer array, and also receives (actual) position information from each of the birds. *Id.* at col. 4, ll. 21–23. The global control system uses the desired and actual position of the birds to “regularly calculate updated desired vertical and horizontal forces the birds should impart on the seismic streamers 12 to move them from their actual positions to their desired positions.” *Id.* at col. 4, ll. 37–40. The local control system implements the

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<sup>3</sup> Although the term “streamer positioning device” may be inclusive of other structures besides a “bird,” unless otherwise noted in this Decision, we use the terms “birds” and “streamer positioning devices” interchangeably.

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