IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

PETROLEUM GEO-SERVICES INC.
Petitioner
v.

WESTERNGECO LLC
Patent Owner

CASE IPR: Unassigned
Patent 7,293,520 B2

DECLARATION OF DR. JACK H. COLE, PhD.

1

TABLE OF CONTENTS

I, Dr. Jack Cole, hereby state the following:

I. INTRODUCTION

1.   Petroleum Geo-Services, Inc. ("PGS") has retained me to provide consulting services related to the filing of a Petition for *Inter Partes Review* of U.S. Patent No. 7,293,520 B2 ("the '520 Patent") (Ex. 1001). All opinions presented in this report are my own.

2.   PGS has asked me to provide an opinion as to whether or not a person of ordinary skill in the art ("POSA") would have been able, by the applicable priority date, to implement certain claims of the '520 Patent relating to control systems. This report describes my opinions and the reasons for them. In reaching my opinion, I have relied on my extensive expertise in the control systems field and the materials in the table below. I have attached the list of materials that I relied on in this report as Appendix A.

3.   I have reached the opinions in this report on the basis of the materials and information currently available to me. I reserve the right to modify my opinions, including to supplement my opinions in light of information that becomes available to me. I also reserve the right to continue my investigation and analysis, including concerning materials that have not yet been produced.

II. QUALIFICATIONS

4.   I am a Design and Controls Engineer. I am currently the President of my own independent research company and a member of the graduate faculty at the University of Arkansas. I have worked continuously in the field of control systems design for over 45 years, since 1963, and seismic survey methods, including marine seismic surveys, for over 31 years, since 1982. I have extensive research and development experience in academic, national laboratory, and industrial environments.

5.   I have obtained the following degrees from Oklahoma State University: a bachelor's of science in Mechanical Engineering (with a Petroleum Option) in 1958; a Master's degree in Mechanical Engineering, with a Fluid Power Control Specialty in 1963; and a Ph.D. in Mechanical Engineering with a Control Systems emphasis in 1968.

6.   I worked for various companies between the time that I graduated from college and the time I completed my Ph.D. program. From 1959 to 1963, I worked for American Airlines as a design engineer. From 1963 to 1964, I worked at General Dynamics, where my responsibilities included working on hydraulic flight-control systems, including wing sweep actuation. From 1964 to 1968, I worked in advanced engineering for Rockwell Corporation.

7.   After completing my Ph.D. program in 1968, I became a Professor of Mechanical Engineering at the University of Arkansas. My research and teaching focused on control systems. Courses I taught include: Systems Dynamics I and II, Control Theory, Fluid Power Control, Fluid Mechanics, Fluid Logic, Dynamic Systems, Machine Element Design, Design Stress Analysis, and Kinematics. I introduced five new elective courses that supported the establishment of a Fluid Power Design and Controls Education Research program. In addition, I developed an Interdepartmental Design and Controls Program that enabled Mechanical Engineering students to specialize in design and controls at the Ph.D. level by taking courses in the Electrical Engineering Department and the Engineering Science Department. I also established a robotics laboratory and helped obtain a micro-computer development system for use in embedded controls projects. I included several Master's students in my funded research, one of whom conducted a computer-aided analysis of the hydrodynamic drag forces on various turbine flow meter blade (hydrofoil) shapes.

8.   During my time at the University of Arkansas, I spent most of my summers as a Visiting Scientist at the Idaho National Laboratory (INL) and Argonne National Laboratory working on advanced instrument design for experimental nuclear reactors.   In 1975, I took a 15 month leave of absence to serve as a Branch Manager for the INL's prime contractor's Reactor Instrument

DOCKET ALARM

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.

fastcase®
Smarter legal research.