Steve Barrett
Senior Vice President
Oceaneering International Inc.

Before the
House Committee on Science, Space, and Technology
Environment Subcommittee Hearing

on
"Ocean Exploration: Diving to New Depths and Discoveries"

June 5, 2019

Chairwoman Fletcher, Ranking Member Marshall, and Members of the Committee, thank you for holding this very timely and important hearing, and for the opportunity to provide one perspective on the future of ocean exploration. I am very excited to be here today and to represent the Oceaneering International team, and to share a seat at this table with some truly incredible co-panelists. Dr. Wiener's tremendous work as Communications Director at the Schmidt Ocean Institute continues to set the bar for getting ocean exploration to the forefront of the public. Dr Bell's aggressive work to promote ocean exploration is a cornerstone of our industry and the academic world, and continues to set the example for others to join and emulate. And David Lang's innovative approach with OpenROV and now Sofar Ocean Technologies, and his engagement in ocean exploration and new ideas, are bringing a new generation of ocean explorers to our world. Together, they are bringing us to "new depths and discoveries."

I want to focus my remarks today on how Oceaneering's history of innovation and technology development is helping to shape the future of ocean exploration, particularly in the commercial ocean energy service and defense undersea sectors. My remarks intend to highlight how Oceaneering continues to leverage technology, innovation, and expertise from its maritime, space, and robotics industry portfolios across both the commercial and defense domains to better support current and future ocean exploration. This testimony will include specific examples of current product development and concepts of operation that support and promote sustainability and environmental stewardship of the oceans.

I think Oceaneering's mission – solving the unsolvable, is reflective of the theme of today's hearing. As a partner and collaborator, we strive to connect "what's needed with what's next" to solve the toughest challenges in the toughest environments, in and above our world. Certainly, "diving to new depths and discoveries" is a theme that is central to our core mission and is squarely in our wheelhouse. Our experience and our innovative portfolio of technologies continue to safely and reliably improve performance across the maritime and space domains.

So, what does Oceaneering bring to this table?

It brings over 50 years of rich history supporting ocean exploration and literally “diving to new depths,” pushing the limits of ROV and mixed-gas diving technology and capabilities while setting new records. Not only did the forward-looking Oceaneering team bring undersea mobile robotics into the mainstream in the offshore oil and gas industry, but Oceaneering also applied this cutting-edge technology in the commercial and defense ocean search and recovery business.

What began with two professional divers forming a Gulf of Mexico diving company has transformed from a small regional company into a global provider of engineered product and services.

Increasing demands for services, paced by innovation and incremental technological improvements made by a growing cadre of engineers and operators, help fuel the oil and gas industry’s exploration and expansion into deeper and deeper depths.

Along the way, Oceaneering has become the builder and operator of the world’s largest premiere fleet of work class ROVs for offshore oilfield services – a fleet that has quickly expanded into supporting U.S. Department of Defense undersea maritime operations. The capabilities and versatility of Oceaneering’s ROVs were put to the test on the world stage during the 2010 Deepwater Horizon / Macondo oil spill; numerous ROVs were employed to provide critical, real-time, “eyes-on” assessments of the damage and to help facilitate resolution of this crisis.

More recently, Oceaneering has made significant investments to support the offshore renewable energy business to a point where a significant number of our ROV assets are engaged in renewable energy projects. Additionally, this technology, and the concepts of operations, equipment, and expertise have been shared with ocean exploration non-profit organizations, and have been the catalyst for enduring partnerships and ever-expanding ocean exploration.

These partnerships and shared ocean exploration interests have been showcased in numerous high-profile events, including:

- The recovery of the Liberty Bell 7 Space Capsule piloted by astronaut Gus Grissom from over 14,000 feet of water
- The recovery of the CSS Hunley, a Confederate submarine lost off the coast of Charleston, South Carolina, during the Civil War
- Surveying, filming, and often locating historical vessels of interest including the *Titanic*, the German battleship known as the *Bismarck*, the British battleship known as the HMS *Hood*, and numerous other ships and submarines
- Locating and recovering numerous commercial aircraft lost over the ocean, including TWA Flight 800 and Itavia Flight 870
- The record-setting recovery of a U.S. military helicopter in over 16,000 feet of water

Over time, Oceaneering’s “solving the unsolvable” approach in the oil and gas industry and defense sectors has been expanded into the commercial sector, government space operations, theme park rides, and robotic solutions industries.

So, what’s on the horizon?

Oceaneering's history of innovation, which has enabled work to be accomplished in the most complex and dynamic environments, continues to advance.

Perhaps the most exciting and important innovations have occurred with our remote-operation and autonomous technologies for both propelled ROVs and autonomous underwater *v*ehicles (or AUVs). Innovations in sensor capability, communications, high-density power systems, and advanced software controls have enabled remote ROV oilfield operations to be controlled remotely for over a month at a time. We have developed all electric battery powered work class ROVs that can be deployed subsea for extended periods doing inspection and maintenance work supported on by a communications buoy on the water surface. These innovations and technologies generate the subsea resident and autonomous capabilities that mitigate the needs for support vessel and on-site controls. Later this year, Oceaneering will deploy its new Freedom AUV, which is effectively an undersea deepwater drone, capable of inspection and intervention tasks for subsea assets. Inspecting long subsea pipelines via autonomous missions while incorporating a hovering capability significantly enhances the types and quality of inspections performed. These underwater vehicle developments and innovations expand the availability and capability to perform more regular and more comprehensive under water inspections and interventions that will yield greater assurances for the integrity of offshore assets.

These types of efforts – improved endurance, remote operation of assets, precision control, mitigation of vessel and personnel on station time, and improved asset integrity – all contribute to the broader goal of sustainability and better stewardship of the ocean environment. However, more equipment developments and technological innovations are needed to be able to cost effectively and sustainably deploy under water robots and sensors capable of ocean exploration necessary to dive to new depths and discoveries.

Finally, critical to enabling "Diving to New Depths and Discoveries" will be expanding current relationships and partnerships, and also forging new ones, that will continue to leverage our collective capabilities and strengths. Expanding levels of effort like the NOAA's Ocean Exploration and Research program, along with its live streaming events, will continue to put ocean exploration into our homes, excite our children and encourage the STEM programs that we desperately and ultimately need in order to support our industry.

These exciting developments across the spectrum of ocean exploration are a key foundation to our collective challenge of reaching "new depths and discoveries." Having robust commercial sector partners and participants such as Oceaneering, provides a "force multiplier" that complements the tremendous work of doctors Wiener and Bell, and of innovative new players in this arena like David Lang and Sofar Ocean Technologies. We all have critical roles to play. With your committee's support, we look forward to our future in supporting ocean exploration.

Chairwoman Fletcher, I look forward to an engaging discussion with you and the committee, and to answering any questions that you and your committee may have.