

## **h1 Global Response Group Tackles Offshore Oil Spills Through Innovative, Robotic Engineering Solutions**

Opening blurb: Global Response Group (GRG) Founder Myron Sullivan II, of British Columbia, Canada, says the recent oil spill brings to the forefront the need for energy industry entrepreneurs to provide innovative engineering recovery and cleanup solutions.

For Twitter:

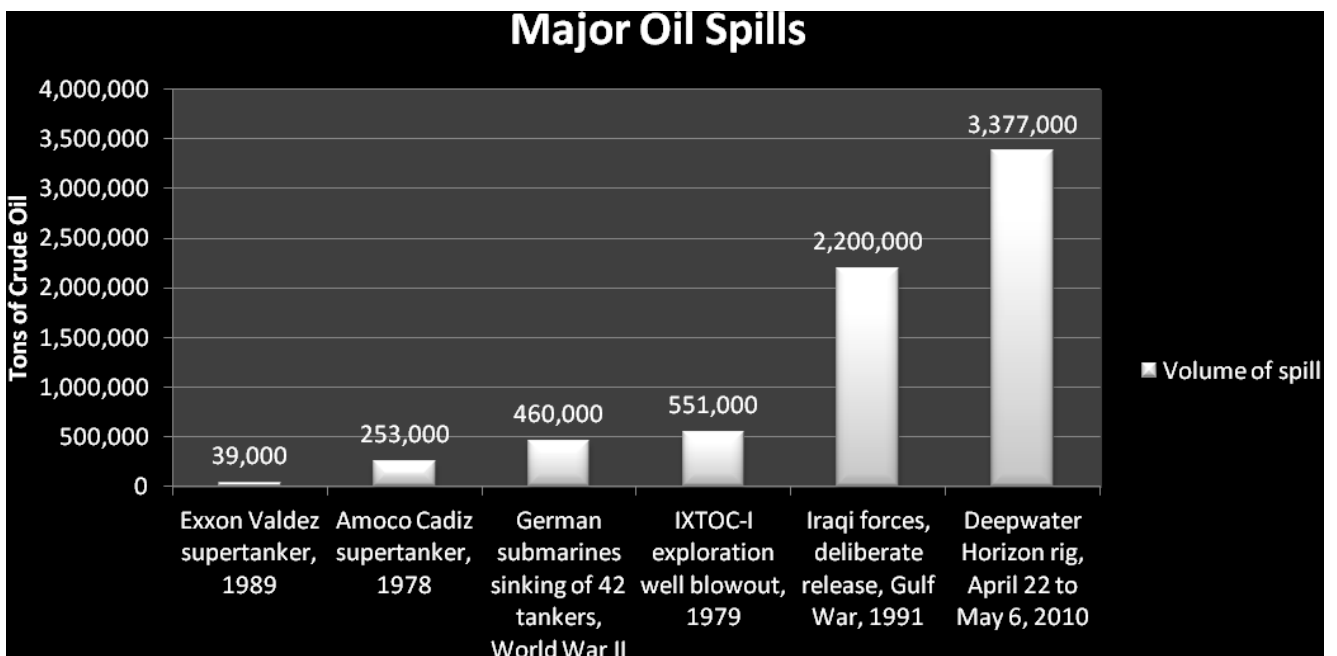
1. There are currently 1,224 offshore oil rigs stationed throughout the world (567 of which were drilling as of August 1).
2. University of Phoenix alum Myron Sullivan has developed a robot-controlled oil spill containment system using satellite technology.
3. UOPX alum Myron Sullivan's AEROS System can separate 1.8 M gallons of oil and seawater in only 10 hours after an oil spill.

***By Marissa Yaremich, Knowledge Network Writer***

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Environmental disasters can have a crushing impact upon society, the economy, and the planet. A crude oil spill like the P incident that occurred in the Gulf of Mexico in April can damage potentially damage seabeds or other terrains, kill wildlife, <sup>1</sup> affect human health, and cause poor air quality,<sup>2</sup> among causing many other problems. Past oil spills have proven that economic and societal devastation also occurs. For example, tourism plummeted 35% in southwest Alaska, causing \$300 million of economic harm following the infamous March 1989 *Exxon Valdez* disaster —then the nation's largest oil spill disaster in recorded history up to that time.<sup>3</sup>

This year, the United States has faced similar concerns as energy company powerhouse, BP continues to address the April 20 Deepwater Horizon oil rig explosion. This environmental catastrophe surpassed *Exxon Valdez* as the nation's largest oil spill, with a reported tens of thousands of barrels of oil per day gushing into the Gulf of Mexico.<sup>4</sup> This spill threatens to be even more costly than the *Exxon Valdez* disaster as there are now 1,600 miles of the Gulf's United States coastline and an associated \$20 billion tourism industry at stake.<sup>5</sup>



**Sources:**

Gale Encyclopedia of Science, Gale, 2004.

PBS Newshour, <http://www.pbs.org/newshour/rundown/2010/05/how-much-oil-has-spilled-in-the-gulf-of-mexico.html>, retrieved June 10, 2010.

*Graph Created by Sheila Bodell*

The serious nature and unexpectedness of offshore oil spills forces societies to seek the best possible means to contain an oil flow and quickly clean up the pollution. Many response

techniques are utilized when these events occur, including mechanical containment (e.g. absorbent products), chemical dispersants and biological methods (e.g., hydrocarbon-eating microbes), and physical methods (such as evaporation).<sup>6</sup> Yet this latest oil spill stirs a lingering question for industry insiders: Are these methods sufficiently effective?

Global Response Group (GRG) President and Chief Executive Officer Myron Sullivan II, of British Columbia, Canada, says the latest environmental calamity certainly brings to the forefront the immediate need for industry entrepreneurs and the public to willingly explore innovative engineering solutions that can be implemented in the event of a large offshore oil spill.

“To date, there has not been any oil spill emergency response system ever designed or built that is capable of rapidly containing and recovering a large offshore oil spill,” says Sullivan, a 2008 graduate of University of Phoenix’s Master of Business Administration program.

“That is, until the GRG AEROS<sup>7</sup> Airborne Robotic Oil Spill Recovery System©®. The patented AEROS System©® was conceived and engineered to win the war against oil spills,” adds Sullivan, a former Canadian Diplomatic Corps Services foreign affairs officer and vice president of finance and administration for Italian-Venezuelan petrochemical and oil refinery designer and builder Formiconi Lei Group

The AEROS System©®, which is unmanned and utilizes a combination of satellite, global positioning system, and telemetry technologies, employs “existing military C130 Hercules and similar aircraft to deliver the AEROS System by parachute to offshore oil spill sites up to 20 times faster than current conventional ship-borne systems,” according to GRG.<sup>9</sup>

“Time is of the essence in responding to environmental disasters so the rapid response of the AEROS® System is one critically important advantage over other currently available clean up and recovery solutions,” emphasizes Sullivan. “The other big advantage,” he adds, “is that AEROS® is engineered to quickly *and* effectively win the battle once it is deployed at the site of a large marine oil spill.”



University of Phoenix alum Myron Sullivan II, who serves as chairman of Global Response Group (GRG), is the founder of the AEROS project: an unmanned, satellite-controlled oil spill containment and recovery system receiving international attention.

*Photo and image courtesy of Myron Sullivan II*



### **Myron Sullivan II: Entrepreneur, Engineer and Inventor of an Innovative Oil Spill Recovery System**

Having grown up in a family of inventors, Sullivan says he learned the value of the entrepreneurial spirit at a young age and harnessed it over the years to come up with the AEROS® project.

Allured by the engineering field, a young Sullivan, chock full of motivation and ideas, decided to hone his technological adeptness by pursuing bachelor's degrees at the University of British Columbia (1967, economics) and the National Autonomous University of Mexico (1972, english). The Vancouver native says that his work as a vice consul and trade commissioner for the Canadian government, and later as a senior executive of several international companies and as owner of his own businesses, helped to align him with global organizations and international business markets focused on developing petrochemical, industrial, and other engineering solutions throughout the world.

When the *Exxon Valdez* spill occurred in March 1989, it opened Sullivan's eyes to the many inadequacies and delayed reactions beleaguering the oil industry's cleanup and recovery efforts.

"I became very knowledgeable very quickly about the world's oil spill recovery capabilities—or I should say incapacities—to respond to large, offshore oil spills," Sullivan says.

A naturally creative man fluent in five languages, Sullivan found that the problem-plagued response to the *Exxon Valdez* spill also inspired what he calls his "entrepreneurial vision." As he commuted by boat each week to British Columbia's Gulf Islands, just north of the San Juan Islands, for business, Sullivan recalls that he would visualize various cleanup and recovery apparatuses floating on the ocean as part of a fast-moving attack solution during a large oil spill like *Exxon Valdez*. His mental explorations, he says, ignored all he knew about politics and instead searched to produce some type of revolutionary, technologically advanced

engineering solutions that could protect the environment much more effectively than he believes typically occurs during major offshore oil spills.

His daydreams would eventually become the Canadian and United States-based GRG's AEROS® system.

“Containing an oil spill is not rocket science,” says Sullivan, who invented and patented the high-tech, unmanned AEROS® system between 1989 and 1990.

“The trick was to design a rapid-response system that can literally contain and pick up millions of gallons of spilled oil and quickly separate that oil from the water,” he says. “I realized from my engineering background that there is a difference in the specific gravity of the molecules, and that [the oil and water] can be easily separated via centrifugal forces. But this oil spill recovery is pointless unless the response is deployed and activated *quickly*.”

For the past two decades, Sullivan has worked with scientists, engineers and industry insiders to design the \$10 million-plus AEROS system to become what it is today: a patented rapid, robotic-controlled oil recovery and containment system that relies on intranet- and Internet-based, real-time satellite remote sensing, GPS and telemetry technologies to “identify and locate with precise coordinates (longitude and latitude) -offshore marine oil spills.”<sup>10</sup>

Sullivan notes that GRG has yet to physically implement AEROS during a real-time disaster. However, he says, technologically and theoretically the AEROS System's satellite remote sensing system could, via a satellite service providers, monitor the Earth's surface in real time and detect the early stages of an offshore oil spill as small as approximately the equivalent of 1,000 surface gallons. The provider would then synthesize and transmit the satellite data (such as the location, size of the spill, and identity of the vessel and its owner) to GRG's Command

and Control Center (GRGCC), which would determine the need for a GRG/AEROS©® emergency response. After several additional, streamlined verification procedures with associated companies and government authorities, Sullivan says GRG CCC's would communicate via satellite deployment instructions to the nearest AEROS©® emergency response base where the aircraft and other technology is stationed.



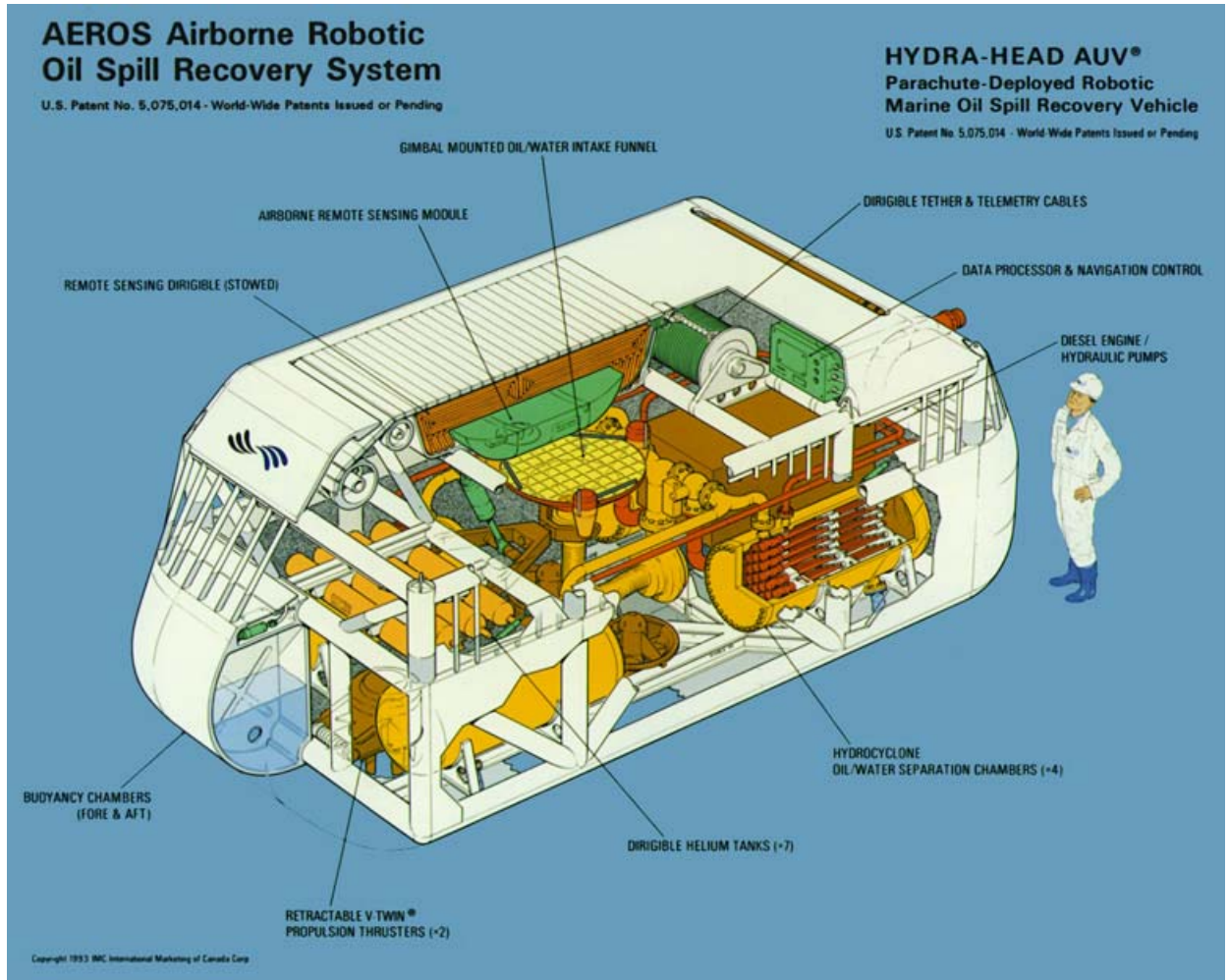
*Image Courtesy of Global Response Group (GRG)*

All responding aircraft would then, upon arrival at the spill site, parachute in different GRG technologies, including numerous AEROS©® Hydrahead AUV, a self-propelled system which separates the oil and water and pumps the captured, separated oil into large floating oil bags, that Sullivan calls “Sea Slugs,” and the recovered crude oil is later retrieved by responding barges.<sup>11</sup> The speed of this capture is what is important, says Sullivan, noting that each AEROS©® Hydrahead AUV is engineered to PROCESS up to and in excess of 2,000 gallons of oil and seawater per minute (2,000 GPM).

“Late responses have been the *most* problematic element of oil spill recovery because crude oil disperses over the surface of the ocean very quickly and high winds, as well as ocean currents, can make it disperse even quicker,” says Sullivan. “The only way to step it up is if you

get there on time to start the battle in this war against oil spills. Barges and other methods can take up to several days to arrive at the scene whereas the AEROS system can respond, be deployed, and become operation very quickly at any time of the day or night that a spill occurs.”

Other components of the AEROS©® technology, including the AEROS AUV Boom Tugs, he adds, would supplement the AEROS System to facilitate the cleanup. In addition, Sullivan says, GRG is announce GRG has developed what he says is the world’s first and only amphibious, multi-purpose oil recovery vehicle called the GRG MuskoX System that cleans up coastlines, mud flats and beaches by capturing oil and traverses rough seas as an emergency personnel evacuation vehicle when helicopters cannot navigate a particular area. Sullivan says the public can view its related graphics, engineering design drawings and operating data and performance parameters at [www.savageview.com/GRG](http://www.savageview.com/GRG) and [www.grg.savagekey.net](http://www.grg.savagekey.net). “AEROS©® essentially represents many different technology components that have been used for years, but I engineered them into a self-propelled, two-stage solution that has never been done before,” says Sullivan, noting that GRG has built several operational demonstration models that have attracted international attention. He notes that GRG is currently building an operational model of the GRG MuskoX System that it will demonstrate live before the end of August on its website: [www.globalresponsegroup.com](http://www.globalresponsegroup.com)



*Image Courtesy of Global Response Group (GRG)*

To date, Sullivan claims he's discussed strategic alliances with three Fortune 100 companies interested in the GRG AEROS® high-tech system. Sullivan has also been negotiating the potential sale of the MuskoX and AEROS® systems with the Chinese government prior to the Dalian, China oil spill that occurred on July 16 near the Yellow Sea. If the Chinese government finds AEROS® suitable to its oil industry needs than it would be GRG's first signed contract to activate the AEROS® system on a stand-by basis.

According to Sullivan, any confirmed agreement with the Chinese government to use the AEROS©® System would constitute as the first signed joint venture contract to establish a GRG AEROS©® emergency response air base. This would be a USD \$800,000,000 joint venture, he notes.

Any such agreement, in Sullivan's opinion, "would make China the world's number one country in environmental disaster response capabilities for both oil spill SPILLS and forest fires" since the AEROS©® System is also capable of attacking forest fires with the overall intention of combating global warming.

### **Educational Advice: A Classroom Environment Can Help Save the Environment**

Sullivan says he's kept his high-tech solution somewhat under wraps until recently as he is a businessman driven by perfection and troubleshooting what best serves the environment. He also learned through the course of his AEROS©® development that he needed to enhance his education to be on par with the Ph.D.s and other advanced degree-holding individuals his company encounters while pitching GRG's products.

"I needed business courses to study modern business techniques as they related to the development and management of global companies, as well as multi-cultural corporate situations, updated marketing techniques, securities regulations and, since my company is made to be a global public service, insight into corporate structuring, manufacturing plant design, financing public companies, and marketing were really important to me," says Sullivan, who began the master's degree program at University of Phoenix in 2005.

. As a result, Sullivan believes his strategic and leadership skills are now up to speed, allowing him to better communicate GRG's objectives and business models to foreign entities and interested investors.

“It was a lot of fun to be able to learn modern technologies and apply them to what I am used to doing from an engineering perspective,” says Sullivan. “I truly believe my effectiveness and knowledge was multiplied many times by taking these University of Phoenix courses, especially online.”

Though oil spills have disastrous effects upon the environment, Sullivan says that, in the long run, they can motivate and bring about positive change.

“There is always a seed of change and improvement that can come from an environmental disaster,” he says, noting that his exposure to disasters has led him to constantly explore new solutions for global problems, including forest fires and global warming.

He advises students entering University of Phoenix's new environmental studies program, or other similar education programs, to harness the knowledge they can glean from recent disasters, such as the BP oil spill, “to find remedies to help the world in the future.”

To learn more about GRG, visit [www.globalresponse.com](http://www.globalresponse.com) or its sister websites [www.grg.savagekey.net](http://www.grg.savagekey.net) or [www.savageview.com/grg](http://www.savageview.com/grg).

Knowledge Network Research Manager Sheila Bodell contributed to this article.

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<sup>1</sup> U.S. Fish and Wildlife Service. (December 2004). *Effects of oil spills on wildlife and habitat*. Retrieved July 19, 2010, from <http://alaska.fws.gov/media/unalaska/Oil%20Spill%20Fact%20Sheet.pdf>.

<sup>2</sup> Centers for Disease Control and Prevention. (2010). *Oil spill response: Information for coastal residents*. Retrieved July 19, 2010, from [http://www.cdc.gov/nceh/oil\\_spill/information\\_residents.htm](http://www.cdc.gov/nceh/oil_spill/information_residents.htm).

<sup>3</sup> Lyon, S., and Weiss, D. (April 30, 2010). *Oil spills by the number: The devastating consequences of Exxon Valdez and BP Gulf*. Center for American Progress. Retrieved July 24, 2010, from [http://www.americanprogress.org/issues/2010/04/oil\\_numbers.html](http://www.americanprogress.org/issues/2010/04/oil_numbers.html).

<sup>4</sup> Deepwater Horizon Incident Joint Information Center. (June 15, 2010). *Press release: U.S. scientific team draws on new data, multiple scientific methodologies to reach updated estimate of oil flows from BP's well*. Retrieved July 7, 2010, from <http://www.deepwaterhorizonresponse.com/go/doc/2931/661583/>.

<sup>5</sup> U.S. Environmental Protection Agency (EPA). (2010). *General facts about the Gulf of Mexico*. Retrieved July 6, 2010, from <http://www.epa.gov/gmpo/about/facts.html>.

<sup>6</sup> U.S. Environmental Protection Agency. (2010). *Emergency management: oil spill response techniques*. Retrieved July 23, 2010, from <http://www.epa.gov/osweroe1/content/learning/oiltech.htm>.

<sup>7</sup> U.S. Patent and Trademark Office. (2010). *U.S. Patent 5,075,014*. Retrieved July 7, 2010, from <http://patft.uspto.gov/netacgi/nph-Parser?Sect1=PTO1&Sect2=HITOFF&d=PALL&p=1&u=%2Fnetacgi%2FPTO%2Fsrchnum.htm&r=1&f=G&l=50&s1=5,075,014.PN.&OS=PN/5,075,014&RS=PN/5,075,014>.

<sup>9</sup> [www.globalresponsegroup.com](http://www.globalresponsegroup.com). (2010). *The AEROS System*. Retrieved July 20, 2010, from [http://www.globalresponsegroup.com/solutions/aeros\\_system.php](http://www.globalresponsegroup.com/solutions/aeros_system.php).

<sup>10</sup> Sullivan, M., & The Global Response Group (GRG) Corporation. (2009). *Development & Implementation of a New Technology Known as the AEROS System (Airborne Robotic Oil Spill Recovery System) – Improving the State-of-the-Art of Offshore Oil spill Emergency Response*. Paper presented at the Nigeria Annual Conference and Exhibition, Abuja, Nigeria (p. 2). Society of Petroleum Engineers Inc.; SPE #128341; p. 2. Retrieved from <http://www.onepetro.org/mslib/servlet/onepetropreview?id=SPE-128341-MS&soc=SPE>

<sup>11</sup> [www.globalresponsegroup.com](http://www.globalresponsegroup.com) (2010). *AEROS Hydrahead AUV*. Retrieved July 7, 2010, from [http://www.globalresponsegroup.com/technology/hydrahead\\_auv.php](http://www.globalresponsegroup.com/technology/hydrahead_auv.php).

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Sullivan, M., & The Global Response Group (GRG) Corporation. (2009). Development & Implementation of a New Technology Known as the AEROS System (Airborne Robotic Oil Spill Recovery System) – Improving the State-of-the-Art of Offshore Oil spill Emergency Response. Paper presented at the Nigeria Annual Conference and Exhibition, Abuja, Nigeria (p. 2). Society of Petroleum Engineers Inc.; SPE #128341; p. 2. Retrieved from <http://www.onepetro.org/mslib/servlet/onepetroreview?id=SPE-128341-MS&soc=SPE>