

JERRY A. HENKENER
Engineering Consultant

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Mr. Henkener has an extensive background in design, systems engineering, fabrication and program management related to Offshore and Subsea equipment for both the government and private industry. He has conducted and managed a wide variety of projects dealing with manned and unmanned submersibles and remotely operated work tools involving the use of manipulators, teleoperators, ROV's, AUV's, and robotic components. His experience has been with applications that involve operations, inspection, maintenance and repair in harsh environments such as subsea, high voltage transmission, and nuclear. Mr. Henkener has considerable experienced with fabrication techniques and processes related to high strength steel and titanium pressure vessels.

Education

BS Mechanical Engineering The Ohio State University 1961

Professional Chronology

Columbus Electric Manufacturing Company: Design Engineer, 1964-5;

Battelle Memorial Institute, Product Development Section: Research Engineer, 1965-9; Equipment Development and Marine Equipment Sections: Research Engineer, Project Engineer, and Associate Section Manager, 1969-77;

AMTEK, Offshore Research and Engineering Division: systems engineer, 1977-1979;

Battelle Memorial Institute: Special Projects Manager, 1979-1980;

Southwest Research Institute: Group Leader, 1980-1981; Section Manager, 1981-1994; Staff Engineer, 1994-2015; retired in 2015

Engineering Consultant; 2015-present

Past Project Experience

Lead engineer on the design and fabrication of the titanium hull structure for the upgraded ALVIN submersible. The new replacement hull will increase the ALVIN depth rating from 4500 MSW to 6500 MSW and provide other improvements. The replacement titanium hull is being dual certified by both ABS and NAVSEA.

Lead engineer on the hull and frame structure development for the new US Navy submarine rescue vehicle, PRMS. The PRMS hull development effort also included inputs to the life support system design and technical responsibility for the submarine mate able transfer skirt. The PRMS is an operational and certified US Navy asset.

Co-investigative engineer with Professor M. L. Nuckols in the development and application of liquid and aerogel super-insulation materials to the thermal protection environment of US Navy divers. The development resulted in a patented insulating fluid and the demonstration of prototype gloves and super-insulation garment liners for use in dry suits. Thermal protective garments with super-insulation material have been demonstrated and are in production.

Managed a program to develop a safety device to protect an installed natural gas well valve from potential failure due to badly corroded appurtenances.

Managed a program to develop a backpack diver cooling system using the cooling and heating characteristics of a matched pair of Metal Hydrides. A prototype system was developed for U.S. Navy salvage divers operating in warm contaminated waters.

Lead engineer for the development of a special ultra deep water ROV umbilical for a commercial offshore company. The umbilical development included analysis and testing of two prototype umbilical sections for simulated drum heating, pressure, temperature, and a variety of dynamic loading conditions.

Lead engineer on a major commercial program to design, fabricate and test large subsea pressure housings for fiber optic communications. The housings were designed for minimum weight and deep operating depths using HY-100 material, protective over pressure devices and special protective coatings for long-term life in the seawater environment.

Managed a major, multi-million dollar program to design, fabricate and test titanium pressure vessels for use as control housings and ballast tanks in an autonomous underwater vehicle. Pressure vessels were optimized for minimum in-water weight with integral tee stiffeners designed using finite element analysis.

Managed the development of subsea components for a fiber optic communications system, which interfaced with a manned submersible for subsea installation and replacement. The fiber optic system components included both cables and connectors. The system was used with satellite wells in deep water oil production and resulted in a patented underwater bullnose connector that was demonstrated to be suitable for remote installation using an ROV.

Military Service

Mr. Henkener served as an Officer on active duty on a Destroyer and was discharged in 1969 from the U.S. Naval Reserve as a Lieutenant. He has been a NAUI qualified Scuba diver since September 1967. He graduated from the U.S. Naval School of Diving and Salvage in August 1969 having completed the 4-month Diving and Salvage Officer Training Course as a civilian, and was recognized by the Supervisor of Diving in 1977 for his many contributions to the U.S. Navy's diving equipment and operational improvements. He has held security clearances as a Naval Officer and as an Engineer.

Papers and Patents

Mr. Henkener has authored papers on the "Design of Compressed Air Breathing Systems," "Oil Mist Contamination in Lubricated Compressed Air Systems," "A Systems Approach to the Design of Shipboard Gas Systems," "Design of an Underwater System to Detect Oil-Water Interfaces in Sunken Tankers," "Robotic Maintenance of Overhead Transmission Lines," "Help in the High Lines," "Deepwater Tests of Wet Mated Electrical and Hydraulic Connectors," and "Development of a Deepwater Installation and Maintenance Concept for Subsea Production Systems." Mr. Henkener annually presented papers on the status of the ALVIN replacement hull at Underwater Intervention from 2006 through 2013. Mr. Henkener gave a presentation at UI-2014 on SwRI involvement with ALVIN and he authored the lead article for the winter 2014 issue of Technology Today entitled "Southwest Research Institute and ALVIN: a 50-year Relationship."

Mr. Henkener holds patents on a low-bounce snap-acting switch, a machine to mark hot steel plate, an undersea harvesting system, a fiber optic subsea bullnose connector, a low cost deep water efficient buoyancy material, and a liquid insulating medium for diving applications.