

MAY 20 2008

**Subject: Deep Submergence Systems - Scope of Certification (DSS-SOC) -  
Lessons Learned**

Dear Valued Supplier:

In 1982, five divers lost their lives when a vacuum in a lockout chamber was inadvertently drawn onboard USS GRAYBACK (SSG 574). This accident was the result of operator error, faulty equipment and inadequate design. This accident led to the redesign of diving systems to ensure a vacuum could not be drawn and required safety analysis during design for all systems, certification of all material within the Scope of Certification (SOC) and the development of NAVSEA SS800-AG-MAN-010/P-9290, Deep Submergence Systems Scope of Certification (DSS-SOC) Program.

Deep Submergence Systems (DSS) are those systems and components which, when working together, provide the capability for manned operations. The Scope of Certification of a DSS is comprised of those systems, subsystems and components and the associated maintenance and operating procedures necessary to provide maximum reasonable assurance that DSS personnel are not imperiled during systems operations.

The following is a list of DSS-SOC Safety Concerns:

- Toxic Off-gassing
- Implodable Volumes
- Explodable Volumes
- Certification of Correct Material
- Certification of Testing
- Maintenance of Certification
- Cleanliness

DSS-SOC materials procured by Electric Boat can be identified by Electric Boat Standard Clause 12-34. Although no test reports or certifications are required by Standard Clause 12-34, other Standard Clauses requiring test reports and/or certifications are invoked in the Purchase Order. A Certificate of Conformance (Standard Clause 12-4) is normally invoked in the Purchase Order and will require a signed and dated Certificate that all materials provided meet the drawing, specification and purchase order requirements. Purchase Orders for Level I material which are also DSS-SOC may not be identified by Standard Clause 12-34, as all of the required Objective Quality Evidence (OQE) is invoked in the Level I part number and certification of the part is controlled by the Level I certification.


Some DSS-SOC materials and components require special cleaning per MIL-STD-1622 for diver's air systems. Special care must be taken for these parts to ensure that the parts are properly cleaned, packaged and identified. Failure to maintain cleanliness, package

or to properly tag the packages may result in rejection of the parts and return for proper cleaning, packaging and identification. Cleaning per MIL-STD-1622 is invoked by either Electric Boat Standard Clauses 76-9BM or 76-9MB. Cleaning per MIL-STD-1330 for Oxygen cleaning may be substituted in the Purchase Order and is invoked by Electric Boat Standard Clause 76-9FN.

Special testing is required of certain DSS-SOC material and components that have implodable or explodable volumes. These items require testing to ensure that they will not implode or explode during compression and decompression cycles, which may cause sudden changes in the pressure within the DSS. The Electric Boat Purchase Order will specify when testing is required and define the applicable requirements for the OQE.

Some DSS-SOC components require Certification of Testing, which requires the Manufacturer to provide a certification that all required testing has been performed and the results were satisfactory. This requirement is invoked by Electric Boat Standard Clause 12-36.

In general, DSS-SOC material or components require certification and may require special testing or cleaning, as defined by the Purchase Order. The lives of the US Navy Divers depend on the care, handling and certification of DSS-SOC materials and components.



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