



DEPARTMENT OF THE NAVY

NAVAL SEA SYSTEMS COMMAND
WASHINGTON, D.C. 20362

IN REPLY REFER TO

NAVSEAINST 3900.8
Ser 55W54/109
20 Mar 85

NAVSEA INSTRUCTION 3900.8

From: Commander, Naval Sea Systems Command
To: All Offices Reporting Directly To COMNAVSEA

Subj: HUMAN FACTORS IN THE NAVAL SEA SYSTEMS COMMAND

Ref: (a) NAVMATINST 3900.9A of 9 Apr 84, Human Factors in Naval Material
(b) NAVSEAINST 5000.5 of 19 Jun 84, Ship Project Directives Systems; implementation of
(c) MIL-STD 1472C of 2 May 81, Human Engineering Design Criteria for Military Systems, Equipment, and Facilities
(d) MIL-H-46855B of 31 Jan 79, Human Engineering Requirements for Military Systems, Equipment, and Facilities
(e) OPNAVINST 5310.19 of 17 May 82, Preliminary Shipboard Manpower Document
(f) OPNAVINST 1000.16E of 2 Mar 81, Manual of Navy Total Force Manpower
(g) OPNAVINST 1500.8K of 26 Nov 83, Navy Training Plan
(h) OPNAVINST 9640.1 of 13 Oct 79, Shipboard Habitability Program

1. Purpose. To establish Naval Sea Systems Command (NAVSEA) policy and responsibilities for incorporating human factors requirements into the acquisition of naval ships, ship systems and equipment.
2. Policy. Human factors shall be fully considered in all ship, ship systems, subsystems, equipment, and software development and acquisition programs, and applicable to all phases of design and acquisition under the responsibility of COMNAVSEA.
3. Discussion. By reference (a), the Chief of Naval Material (CHNAVMAT) established policy to incorporate human factors requirements into the acquisition of naval materials, and assigned NAVSEA responsibility for integrating human factors into total ship and ship system engineering programs. Human factors are defined as the activities required to integrate the human operator and maintainer into a total ship platform, system, or equipment. Human factors are subdivided into three major categories: 1) manpower, personnel and training which is concerned with the prediction, requirements, selection, training, and assignment of personnel to operate and maintain total ship

NAVSEAINST 3900.8
20 Mar 85

platform, systems, and equipment; 2) life support engineering which is concerned with the design, safety, personnel protection, and environmental control; and 3) human engineering which is concerned with the design, test and evaluation of total ship platform, systems, and equipment to ensure they can be effectively operated and maintained.

4. Action. The following actions shall be carried out to ensure that the ships, systems, and equipment developed and acquired by NAVSEA can be effectively operated and maintained by the fleet.

a. Ship and System Acquisition Program Managers shall:

(1) Identify human factors requirements in their acquisition plans and ensure that sufficient resources are available to satisfy these requirements. These requirements start with program initiation and continue through the test and evaluation phase to confirm that the ship and its systems, subsystems, and equipment can be effectively operated and maintained by the associated personnel.

(2) Prepare detailed human factors program plans in advance of system design and development and update throughout the acquisition process in accordance with reference (a).

(3) Designate an individual responsible for coordinating human factors efforts; ensuring that human factors are adequately addressed in the design, construction, test and evaluation of the ship or system being acquired; and, supporting the human factors elements in design reviews and Logistics Review Group Audits.

(4) Require, through Ship Project Directives as defined in reference (b), that systems being developed for NAVSEA by other Systems Commands be developed in accordance with the policy and procedures of this instruction, and that all human factors requirements, including manpower, training, human engineering, and life support be accurately identified and met.

b. Deputy Commander for Ship Design and Engineering (SEA 05) shall:

(1) Ensure that Hull, Mechanical, and Electrical (HM&E) systems and equipment are designed in accordance with the human engineering requirements of references (c) and (d) and designed to match the performance capabilities and limitations of the personnel who will be available to operate, control, maintain, and manage them.

(2) Ensure that the human engineering design criteria and requirements of references (c) and (d) are satisfied in integrating all systems and equipment into total ship platform design.

(3) Develop and document ship manpower and training requirements in accordance with references (e) through (g). Develop Ship Manpower Documents, Operations Station Booklets, and Training Plans to ensure adequate numbers and types of personnel are available and trained to effectively operate the ship and that the systems are operated effectively in accordance with their design.

(4) Ensure that manpower and training requirements are identified, documented, and given prime consideration in the design of total ships and HM&E systems and equipment.

(5) Verify that the manpower and training requirements for all shipboard systems and equipment are accurate.

(6) Ensure that the shipboard habitability and environmental control requirements of reference (h) are met in total ship designs.

(7) Ensure that lessons learned from similar ships, systems, and equipment in operational use are documented and addressed early in design to prevent recurring deficiencies in human engineering, manpower, training, and life support.

(8) Designate a single point-of-contact for each ship acquisition program to interface with the acquisition program manager, coordinate the directorate's human factors efforts, and ensure that the directorate's responsibilities are carried out.

c. Deputy Commander for Weapons and Combat Systems (SEA 06)
shall:

(1) Ensure that weapons and combat systems are designed to match the performance capabilities and limitations of the personnel who will be available to operate, control, maintain, and manage them.

(2) Ensure that the human engineering design criteria and requirements of references (c) and (d) are satisfied in integrating all systems and equipments into the weapons and combat systems design.

(3) Ensure that early manpower and training trade-off studies are conducted, documented, and used to influence the design of weapons and combat systems in order to minimize manning and training costs.

(4) Ensure that lessons learned from similar weapons and combat systems and equipment in operational use are documented and addressed early in design to prevent recurring deficiencies in human engineering, manpower, training, and life support.

NAVSEAINST 3900.8
20 Mar 85

(5) Designate a single point-of-contact for each weapon and combat system to interface with the acquisition program manager, coordinate the directorate's human factors efforts, and ensure that the directorate's human factors responsibilities are carried out.

d. Deputy Commander for Nuclear Propulsion (SEA 08). In accordance with Presidential Executive Order 12344 of February 1982, as codified in Public Law 98-525 dated 19 October 1984, and as delineated in the NAVSEA Organization Manual, the Deputy Commander for Nuclear Propulsion, SEA 08, is responsible for all technical matters pertaining to nuclear propulsion of U. S. Naval ships and craft, including all aspects of integration of the nuclear plant into the ship system. Accordingly, the provisions of this instruction as they pertain to naval nuclear propulsion matters under the cognizance of SEA 08 shall be applied as determined to be appropriate by SEA 08. Moreover, SEA 08 will be consulted in the application of these provisions to areas which may affect the nuclear propulsion plant or associated nuclear support facilities.


J. H. WEBBER
Vice Commander

Copy to: (2 copies each unless shown)
SNDL A4A CHNAVMAT (MAT 08D4)
C37F3 NAVMATDATASYSGRU
FT88 EDOSCOL
NAVSEA Special List Y2
SEA 09B334 (100)