DEPARTMENT OF THE NAVY
NAVAL SEA SYSTEMS COMMAND
2531 JEFFERSON DAVIS HWY
ARLINGTON VA 22242-5160

IN REPLY REFER TO

NAVSEAINST 3540.4
Ser 00P/060
17 Mar 99

NAVSEA INSTRUCTION 3540.4

From: Commander, Naval Sea Systems Command

Subj: ENGINEERING DUTY OFFICER NAVAL NUCLEAR PROPULSION PROGRAM

1. Purpose. To state the objectives and requirements of the Engineering Duty (ED) Officer Naval Nuclear Propulsion (NNP) Program and to assign responsibilities concerning its conduct.

2. Cancellation. NAVSEAINST 3540.3 of 5 Apr 85.

3. Background. Engineering Duty Officers assigned to the Naval Nuclear Propulsion Program are provided with the opportunity for direct practice of engineering disciplines through involvement with naval nuclear propulsion plant research, development, design, acquisition, specification, construction, inspection, installation, certification, testing, overhaul, refueling, operating practices and procedures, maintenance, and ultimate inactivation and disposition. This includes responsibilities associated with ensuring naval nuclear reactor plant safety and with the control of radiation and radioactivity associated with these plants. Engineering Duty Officers possessing superior technical potential are personally selected by the Director, Naval Nuclear Propulsion Program to participate in this program.

4. Objective. The objective of the Engineering Duty Officer Naval Nuclear Propulsion Program is to build and maintain a cadre of ED Officers experienced in the wide range of highly specialized engineering fields associated with naval nuclear propulsion plant design, operation, and support. Specific goals are to:

a. Maintain the effectiveness of the Naval Nuclear Propulsion Program to carry out the responsibilities assigned by Presidential Executive Order 12344 of February 1, 1982 as codified in PL 98-525.

b. Provide a cadre of officers who are qualified to assume the leadership of the Headquarters Organization and Field Offices within the Naval Nuclear Propulsion Program up to and including the rank of Captain (O-6).

c. Develop expertise among individual ED Officers and establish them as technical leaders in selected fields. The Naval Nuclear Propulsion Program emphasizes the development of specific technical expertise through utilization of technical discipline.

5. Program Requirements

a. All Engineering Duty Officers must successfully complete the following requirements within approximately two years after assignment to this Program unless provided a waiver from the Director, Naval Nuclear Propulsion Program:

(1) Propulsion plant design training course taught at the Naval Nuclear Propulsion Program headquarters. Considerable evening and week end study is assigned and written examinations are administered.

(2) Naval Nuclear Propulsion Plant prototype indoctrination.

(3) Bettis Reactor Engineering School. This is a very demanding and comprehensive power plant design curriculum. The certificate awarded upon successful completion of this school is equivalent to a Masters of Nuclear Engineering degree. Courses taught at the school include:

- Advanced Mathematics
- Engineering Statistics
- Applied Nuclear Physics
- Reactor Theory
- Reactor Plant Dynamics, Control and Safeguards
- Heat Transfer and Fluid Flow
- Materials
- Radiological Fundamentals and Shielding Design
- Applied Structural Mechanics
- Integrated Reactor Plant Development
- Reactor and Power Plant Design. This is a design course in which students, working in groups of approximately three, complete the preliminary design of both the steam plant and the reactor plant, including the nuclear core, of a nuclear powered ship. Design tools developed by the Naval Nuclear Propulsion Program are utilized. The group must successfully defend their design to engineers and scientists who do design work on existing and new naval nuclear propulsion plants at the Bettis laboratory.

(4) Shipyard indoctrination.

(5) Post Bettis Reactor Engineering School Seminar Series. Explores in greater depth than any prior training the basis for Program methods. The classes last about 30 weeks. Senior NR personnel, including some field personnel, provide the training.

b. The following requirements must be fulfilled by an Engineering Duty Officer participating in the Naval Nuclear Propulsion Program prior to achieving the 144X designator:

(1) Successful completion of the Naval Nuclear Propulsion Program headquarters training program described in 5.a. above unless waived by the Director, Naval Nuclear Propulsion Program.

(2) Service within the Naval Nuclear Propulsion Program for a period of at least five years.

(3) A positive recommendation from the Director, Naval Nuclear Propulsion Program.

c. Engineering Duty Officers participating in the Naval Nuclear Propulsion Program will be assigned duties and responsibilities by the Director in accordance with the Program's needs. These officers frequently become experts in highly complex, specialized areas of naval nuclear propulsion. No additional assignments, other than assignment to the Naval Nuclear Propulsion Program, are required to make it possible for promotion of an Engineering Duty Officer up to and including the rank of Captain (O-6).

6. Responsibilities

a. The Deputy Commander, Naval Nuclear Propulsion Program, Naval Sea Systems Command, who is also the Director, Naval Nuclear Propulsion Program, OP-00N, as a sponsor, is responsible for the following:

(1) Defining the various elements of the program.

(2) Selecting the candidates for entry into the Naval Nuclear Propulsion Program.

(3) Ensuring that Engineering Duty Officers participating in this program complete the required training specified in paragraph 5.a. above.

(4) Providing a positive recommendation for Engineering Duty Officers to achieve the 144X designation when appropriate.

(5) Assigning Engineering Duty Officers to billets which will enhance their capabilities and best meet the needs of the Program and the Navy.

(6) Maintaining records of each participant's status in the Naval Nuclear Propulsion Program.

b. The Officer Community Manager for Engineering Duty Officers (SEA 00P/OP-131U) is responsible for ensuring that appropriate OPNAV, NAVPERSCOM and NAVSEA instructions include documentation of the Engineering Duty Officer Naval Nuclear Propulsion Program.

G. P. NANOS, JR.

DISTRIBUTION:

SNDL	A5	COMNAVPERSCOM (NPC 445)
	FKP	COMNAVSEASYSCOM Shore Activities
	SEA 08	DIR NAVAL NUCLEAR PROPULSION PROGRAM

Copy to:

SNDL	A3	CNO (N4, N6, N86, N87, N88, N00N, N09B)
	FB30	NAVSHIPREPFAC
	FF8	Inspection and Survey Board
	FF38	USNA
	FF42	NAVPGSCOL
	FKA1B	COMSPAWARSYSCOM
	FKA1B1	COMSPAWARSYSCOM Shore Activities
	FKA8F	DIRSSP Activities
	FT88	EDOSCOL (10)

DEFENSE PRINTING DETACHMENT
1401 SOUTH FERN ST
ARLINGTON VA 22202-2889

SEA 09A1 (5 copies)
NAVSEA 00PZ (50 copies)