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DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
WASHINGTON D C 20390

NAVFACINST 5450.[illegible]
FAC 0[illegible]2/RPC:dcg
1 NOV 1972

NAVFAC INSTRUCTION 5450.62D

From: Commander, Naval Facilities Engineering Command
To: Officer in Charge, Naval Nuclear Power Unit, Fort Belvoir

Subj: Naval Nuclear Power Unit, Fort Belvoir, Virginia; promulgation of command relationships, mission, tasks and functions of

Ref: (a) NAVMATINST 5100.[illegible] MAT 0[illegible] of [illegible] Apr 19[illegible]

Encl: (1) Tasks and Functions of the Naval Nuclear Power Unit

1. Purpose. This Instruction sets forth the command relationships, mission, tasks and functions for the Naval Nuclear Power Unit, Fort Belvoir, Virginia.

2. Cancellation. This Instruction cancels and supersedes NAVFAC Instruction 5450.62C of 21 August 197[illegible].

3. Mission. The Naval Nuclear Power Unit is established to provide [illegible] support, technical services and nuclear qualified personnel for [illegible] nuclear shore systems as directed by the Commander, Naval Facilities Engineering Command. Nuclear shore systems include nuclear shore power plants, radioisotopic power generators and other nuclear applications [illegible] under the cognizance of the Commander, Naval Facilities Engineering Command. In addition, new responsibilities for [illegible] technical advice and assistance to Naval Material Command [illegible], Fleet operating forces, and other components of the Navy for [illegible] support are assigned as part of this Command's [illegible] of reference (a).

4. [illegible]. The official title and complete [illegible] of the activity are as follows:

Naval Nuclear Power Unit (NAVNUPWRU)
Fort Belvoir, Virginia

Mailing Address:

Officer in Charge
Naval Nuclear Power Unit
P. O. Box 96
Fort Belvoir, Virginia 22060

[illegible]

[illegible] 5 [illegible] 372 [illegible]

5. [illegible]. The Naval Nuclear Power Unit is a field activity of the Naval Facilities Engineering Command in an active operational status with an Officer in Charge.

6. Command Relationships. The Naval Nuclear Power Unit is under the military command of, and receives primary support from, the Commander, Naval Facilities Engineering Command, and is subject to the Area Coordination of the Commandant, Naval District Washington.

7. Mission. To provide field services for the Naval Facilities Engineering Command in acquisition, operation and support of nuclear shore systems; provide radiological affairs support to fleet units and Naval shore activities under the command of the Chief of Naval Material; and perform related training and personnel management functions and other assigned tasks.

8. Tasks and Functions. The specific tasks and functions assigned to the Naval Nuclear Power Unit in the accomplishment of its mission shall include, but are not necessarily limited to, those detailed in enclosure (1).

9. Action. The Naval Nuclear Power Unit, in the accomplishment of its mission, will perform the tasks and functions required.

10. [illegible]. [illegible] modification in the Naval Nuclear [illegible] command relationships, mission, tasks and functions will be [illegible] to the Commander, Naval Facilities Engineering Command for [illegible]. Such proposals will [illegible] the reasons for modifications, and [illegible] increase of [illegible] force and any improvement in admin- [illegible] which will result therefrom.

C. [illegible]
Assistant [illegible] for
Engineering and Design

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[illegible], Washington Navy Yard, Supply and Fiscal Dept.,
Code [illegible], Washington, D. C. [illegible] ([illegible])

<u>TASKS AND [illegible]</u>

a. Represents the Naval Facilities Engineering Command in technical, [illegible], administrative, and personnel liaison with the Army Engineer [illegible] and other DOD agencies at the field activity level.

b. Monitors the acquisition and performance of nuclear shore systems; [illegible] approval or review authority on system modifications, contractual matters, and manual changes, as delegated by the Commander, Naval Facilities Engineering Command.

c. Provides primary support and technical direction to the Officer in Charge of nuclear reactor shore power plants or users of other nuclear [illegible] systems when specifically assigned by the Commander, Naval Facilities Engineering Command.

d. Reviews operating data and reports, test results, and special reports for identification of health, safety, engineering and operational [illegible] relating to the operation of nuclear shore systems.

e. Conducts safety analyses on proposed nuclear shore systems' [illegible], system modifications, procedural changes, and manual changes; and provides appropriate justification for Command Headquarters review and [illegible].

f. [illegible] as necessary to implement tasks approved or directed [illegible] Naval Facilities Engineering Command.

g. [illegible] covering the operating experience, [illegible] evaluations, for nuclear shore systems.

h. [illegible] for the acquisition of nuclear shore systems [illegible] supplies, repair parts, and [illegible] by the [illegible] with Naval Supply Centers and other procurement agencies; procures special material; [illegible] technical guidance on procurements, including the packaging [illegible].

i. Performs maintenance and modifications on nuclear shore systems.

j. Periodically monitors nuclear shore systems operations, including record-keeping, routine and emergency procedures, equipment maintenance, and personnel training to ensure compliance with applicable Federal, Naval, and local radiological safety regulations, criteria or standards.

k. Provides personnel to participate in Naval Facilities Engineering Command inspections of nuclear shore systems, as requested.

l. Performs liaison and participates with field activities of the Army, Air Force and Coast Guard on [illegible] nuclear system operation and maintenance problems.

m. Provides qualified professional engineers and technicians to support the operation and maintenance of nuclear shore systems.

n. Plans personnel requirements for nuclear shore systems and the Radiological Affairs Support Office, recommends to the Bureau of Naval Personnel personnel selection criteria; participates in the selection of personnel; and recommends assignment of trained personnel.

o. Administers Naval personnel assigned to the Army Engineer Power Group for training and support, and other Naval personnel assigned to the Army Engineer School, Fort Belvoir, Virginia.

p. Conducts the program for the qualification and certification of nuclear power plant operators, plant superintendents and officers in charge.

q. Coordinates with the Army and Air Force on the following:

(1) Use of Naval personnel in Army and Air Force plants, including the establishment and maintenance of Naval Nuclear Power Unit Detachments.

(2) Training requirements for Naval personnel in the Army's Nuclear Power Plant Operator's Course and reactor prototypes.

(3) Assignment of instructors and technicians to the Army Engineer Power Group training and engineering organizations.

(4) Use of Army and Air Force personnel in connection with Navy nuclear shore systems.

(5) Establishment of joint standards for the qualification and certification of operation and maintenance personnel.

(6) Qualification of Naval personnel undergoing training in the [illegible] Power Plant Operator's Course and reactor prototypes.

r. Serves as [illegible] in the event of [illegible] situations [illegible] nuclear shore systems; provides immediate [illegible] Commander, Naval Facilities Engineering Command when [illegible] abnormal situation; initiates detailed evaluations of each situation; provides assistance to responsible commands in the event of a nuclear shore system reactor or radiological accident.

s. Maintains centralized Naval Facilities Engineering Command personnel dosimetry and radiation survey records, and reviews and analyzes health physics data upon receipt.

t. Provides technical advice and/or field assistance of a radiological affairs support nature to Naval Commands in accordance with the guidance provided by the Commander, Naval Facilities Engineering Command.

u. Makes periodic radiological affairs support technical assistance visits to Naval Shore Activities under the cognizance of the Chief of Naval Material to evaluate the adequacy of personnel protection programs, including compliance with NAVMED directives, and review personnel monitoring, record-keeping, shielding, instrumentation, environmental monitoring, waste disposal, and emergency procedures.

v. Provides technical services as necessary to assist Naval activities in instituting, maintaining, and managing effective user radiological safety programs under the guidance of the Commander, Naval Facilities Engineering Command.

x. Reviews designs of new facilities being developed for utilizing radioactive material and/or radiation producing equipment when directed by the Commander, Naval Facilities Engineering Command.

y. Conducts safety reviews as directed by the Commander, Naval Facilities Engineering Command, for facilities and procedures for utilization of licensed and non-licensed radioactive materials and for X-ray devices, accelerators, and radiographic units.

z. Performs field evaluation of potential radiological safety problems at the request of field activities or the direction of the Commander, Naval Facilities Engineering Command and prepares and publishes reports with findings, conclusions, and recommendations based on the field evaluations.

BYPRODUCT AND SOURCE MATERIAL

[illegible] element and mass number	Chemical and/or physical form	Maximum amount of radioactivity
A. Strontium 90	A. Strontium titanate contained in LCG-25A thermoelectric generator	A. 125,000 curies in one generator
B. Strontium 90	B. Strontium titanate contained in LCG-25C thermoelectric generator	B. 375,000 curies total, not exceeding 125,000 curies in each generator
C. Strontium 90	C. Strontium titanate contained in MW-3000 thermoelectric generator	C. 25,000 curies in each generator
D. Strontium 90	D. Strontium titanate contained in URIPS-P1 thermoelectric generators	D. 164,000 curies total, not exceeding 8,200 curies in each generator
E. Strontium 90	E. Strontium titanate contained in TRACS-25A thermoelectric generator	E. 1,250,000 curies total, not exceeding 125,000 curies in each generator
F. Strontium 90	F. Strontium titanate contained in Sentinel 25C thermoelectric generators	F. 2,500,000 curies total, not exceeding 125,000 curies in each generator
G. Strontium 90	G. Strontium titanate contained in Sentinel 25D thermoelectric	G. 1,250,000 curies total, not exceeding 125,000 curies in each generator
[illegible]	H. Strontium titanate contained in Sentinel 25E thermoelectric generators	H. 1,250,000 curies total, not exceeding 125,000 curies in each generator
[illegible]	I. Strontium titanate contained in Sentinel 8 thermoelectric generators	I. 400,000 curies total, not exceeding 40,000 curies in each generator
J. Strontium 90	J. Strontium titanate contained in SNAP-21 thermoelectric generators	J. 330,000 curies total, not exceeding 33,000 curies in each generator

Enclosure (2)

Material (Element and mass number)	Chemical and/or physical form	Maximum amount of radioactivity
Uranium depleted in the isotope Uranium 235	K. Metal shielding contained in SNAP-21 thermoelectric generators	K. 2,700 pounds total, with 270 pounds in each generator
Strontium 90	L. Strontium titanate contained in MIIITRACS-101A thermoelectric generators	L. 16,800 curies total, not exceeding 2,800 curies in each generator
Uranium depleted in the isotope Uranium 235	M. Metal shielding contained in MIIITRACS-101A thermoelectric generators	M. 1,500 pounds total, not exceeding 250 pounds in each generator
Strontium 90	N. Strontium titanate contained in SNAP-7F thermoelectric generator	N. 31,000 curies in each generator
Strontium 90	O. Strontium titanate contained in Sentinel-[illegible] thermoelectric generators	O. 2,500,000 curies total not exceeding 125,000 curies in each generator
Strontium 90	P. Strontium titanate contained in Sentinel-[illegible] thermoelectric generators	P. 3,700,000 curies total, not exceeding 370,000 curies in each generator
Strontium 90	Q. Strontium titanate contained in Model [illegible] radioisotopic thermoelectric generators	Q. 83,000 curies total, not exceeding 8,300 curies in each generator
Uranium depleted in the isotope Uranium 235	R. Metal shielding contained in Model [illegible] radioisotopic thermoelectric generators	R. 1,800 pounds total, with approximately 180 pounds in each generator
Strontium 90	S. Strontium titanate contained in Model URIPS 8A, 8B radioisotopic thermoelectric generator	S. 227,400 curies total, not exceeding 56,850 curies in each generator

[illegible] (Element and mass number)	Chemical and/or physical form	Maximum amount of radioactivity
T. Uranium, depleted in isotope Uranium 235	T. Metal shielding contained in Model URIPS-8 radioisotopic thermoelectric generators	T. 1880 pounds total, with approximately 470 pou in each generator
U. Strontium 90	U. Strontium Titanate contained in Model SNAP-23A radioisotopic thermoelectric generator	U. 165,000 curies total, not exceeding 165,000 curies in one generator
V. Uranium, depleted in isotope Uranium 235	V. Metal shielding contained in Model SNAP-23A radioisotopic thermoelectric generator	V. 650 pounds total, with approximately 641 pound in each generator

REFERENCE DOCUMENTS FOR CHEMICAL AND PHYSICAL FORM

A. NAVFAC application dated July 22, 1966 License No. 08-11817-01
Martin Co. application dated Oct 28, 1965;
supplements dated January 1[illegible], April 1, and July 21, 1966
(License No. 19-1[illegible]-34, Docket No.

B. Martin Co. application to amend License No. 19-1[illegible]-34 dated Aug 16, 1967;
supplements dated September 1 and September 15, 1967
NAVFAC application dated 26 September 1968 License Nos. 08-11817-2,3, and 5

C. Martin Co. submittal dated May 4, 1966;
application dated June 10, 1966; supplements dated July 22 and August 16, 1966
(License No. 19-1398-34, Docket No. 71-9030)

D. NAVFAC letter 19 August 1967 (License No. 8-11817-[illegible])
[illegible] - GENERAL Corp. letter dated 1 May 19[illegible]
[illegible] dated August 6, 1968
[illegible] AN-1619 "Safety Analysis, Underwater Radioisotope Power Source"
([illegible]), May 1968 (License No. 4-647-3)

E. Nuclear Materials and Equipment Corporation (NUMEC) application dated
[illegible] 23, 1968 (License No. 37-4436-7)

[illegible], Inc. [illegible] Martin Co.) application dated 10 September 1969
(License No. 19-1398-34)

[illegible], Inc. application dated December 16, 1968; supplements dated
[illegible] 1968 and January 19, [illegible] (License No. 19-1398-34)

[illegible] application dated November 5, 1965
(License No. 19-1398-34)

[illegible] Radiological Defense Lab. letters 7 December 1967; April 26 and
August 1, 1968 (License No. [illegible]-457-03)
NAVFAC application dated 22 October 1969 (License No. 8-11817-13)

Enclosure (3)

L & M NUMEC letter dated July 17, 1967; supplement dated August 28, 1967

N Nuclear Safety Evaluation of the Modified SNAP-7E Undersea Acoustic Beacon MND-3241-2, March 20, 1964

Safety Evaluation of Proposed SNAP-7E Modification Procedure in Support of Application for Amendment to License No. 19-1398-21, MND P-3058 (Martin Co.)

Safety Analysis of a Ten-Watt Sr-90 Fuel Generator for Deep Sea Application MND-P-2976 Martin Co, Feb 1962

O Isotopes, Inc. application dated March 27, 1970 (License No. 19-1398-34)

P Isotopes, Inc. application dated August 19, 1971; Supplements dated September 21, October 22, November 30, December 20, 1972 and January 19, 1973 (License No. 19-1398-34)

NAVFAC letter Serial [illegible] dated October 25, 1972 and NAVFAC letter Serial 270 dated August 29, 1973 (License No. 8-11[illegible]-13)

Q & R General Atomic application dated August 18, 1971; supplements dated November 9, 1971, March [illegible], April 17, July 7, October 13, 1972, March 16 and June 19, 1973 (California License No. 0145-[illegible], NRC Docket No. 71-6703)

[illegible] Nuclear Systems Application dated February 18, 1971
Naval Nuclear Power Unit letter dated December 10, 1971
NAVFAC letter May 30, 1973 and March 4, 1974
NNPU letter June 1[illegible], 1974

[illegible] Nuclear Development Corporation (HNDC) License Application [illegible] SNAP-23A Radioisotope Power Generator as revised June 28, 1974

[illegible] Document, License Application for Shipping of SNAP-23A Radioisotope Power Generator (Supplemental Data)

HNDC letter HN-125[illegible] August 29, 1974

NAVFAC letter Ser 514 dated November 25, 1974

TRAINING AND EXPERIENCE OF
WILLIAM J. MORRIS

Item 8 - Training

B.S. Chemical Engineering, University of Wisconsin 1969
Oct 1969 - Basic Radiological Health PHS
Nov 1969 - Occupational Radiation Protection PHS
[illegible] 1970 - Reactor Hazards and Safety Evaluation PHS

[illegible] - present - attended the following courses at Catholic University

Nuclear Properties and Interactions
Nuclear Radiation Detection Lab
Principles of Radiological Physics and Radiation Protection
Radiation Safety and Dosimetry
Introduction to Radiobiology
Environmental Workshop on Nuclear Power

[illegible] Experience

[illegible] - 1970 - National Bureau of Standards - experience included radiation and contamination surveys at linear accelerator, research reactor, and laboratories, [illegible] of all incoming [illegible], instrument calibration, and environmental [illegible].

[illegible] - [illegible] - Naval Research Laboratory - experience included monitoring reactor shutdown [illegible] calibration facilities, x-ray diffraction machines, electron microscopes, [illegible], cyclotron facilities, and hot cell facilities. Reactor shutdown included [illegible] contamination, area surveys, and fuel transfer.

[illegible] Naval Facilities Engineering Command - experience included [illegible] radioisotope power generators (3000 to 150,000 curies [illegible] of health physics procedures at PM-3A; review of license applications for isotope radiography; gas chromatography, instrument calibration and other miscellaneous applications.

Experience included one inspection trip to the PM-3A reactor at McMurdo Sound, Antarctica.

Encl (4)

Isotope	Maximum Amount	Location	Duration	Use
Co-60	5 Ci	NBS	1 yr	Instrument
Cs-137	120 Ci	NBS	1 yr	Calib.
Am-Be	40 mCi	NBS	1 yr	
[illegible]	1 μCi	NBS	2 yrs	Standards
Y-[illegible]	"	NBS & NRL	"	for Lab.
Sr-[illegible]	"		"	Counting
Y-90	"		"	
K-40	"		"	
[illegible]	"		"	
La-140	"		"	
H^3	1 mCi	NBS	1 yr	Monitoring Calibration
Pu-238	2g	NAVFAC		Radiation Safety Evaluation
[illegible]		NAVFAC		Radiation Safety Evaluation
		NAVFAC		Radiation Safety Evaluation
[illegible]	125,[illegible] Ci			
[illegible] Ci	100,[illegible] Ci			
Sentinel 100F	350,000 Ci			
Sentinel 25D	106,050 Ci			
Sentinel 25F	107,000 Ci			