



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**
WASHINGTON, D.C. 20555-0001

March 18, 2021

Mr. Erhard W. Koehler
Senior Technical Advisor, N.S. *Savannah*
U.S. Department of Transportation
Maritime Administration (MAR-640.2)
1200 New Jersey Avenue, SE
W25-209/212
Washington, DC 20590-0001

SUBJECT: NUCLEAR SHIP *SAVANNAH* - ISSUANCE OF AMENDMENT 18 TO REVISE
THE TECHNICAL SPECIFICATIONS TO REMOVE REDUNDANT REPORTING
AND CONTROL REQUIREMENTS AND ELIMINATE THE REQUIREMENT FOR
A DRAFT HULL STRIPE

Dear Mr. Koehler:

By application dated September 4, 2020 (Agencywide Documents Access and Management System [ADAMS] Accession No. ML20255A084), the United States Maritime Administration (MARAD), requested U.S. Nuclear Regulatory Commission (NRC) approval of an Amendment revising the Nuclear Ship *SAVANNAH* (NSS) Technical Specifications.

The proposed amendment would revise the Technical Specifications to (1) remove a redundant environmental sampling reporting requirement, (2) remove a redundant access control requirement, and (3) remove a hull striping requirement that is not required and is inconsistent with active decommissioning ship conditions.

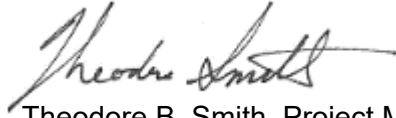
The NRC staff has completed its review of the proposed amendment to your license. The amendment approving the proposed changes is provided in Enclosure 1. Enclosure 2 contains the NRC staff's associated safety evaluation. The NRC staff has determined that this action is subject to a categorical exclusion pursuant to 10 CFR 51.22, and therefore did not further evaluate environmental impacts.

A notice of issuance of amendment has been forwarded to the Office of *Federal Register* for publication.

In accordance with 10 CFR 2.390 of the NRC's "Agency Rules of Practice and Procedure," a copy of this letter will be available electronically for inspection in the Publicly Available Records component of NRC's ADAMS. ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html>.

If you have any questions, please contact me at 301-415-3017, or via e-mail at theodore.smith@nrc.gov.

Sincerely,

A handwritten signature in dark ink, appearing to read "Theodore B. Smith", with a long horizontal flourish extending to the right.

Theodore B. Smith, Project Manager
Reactor Decommissioning Branch
Division of Decommissioning, Uranium Recovery
and Waste Programs
Office of Nuclear Material Safety
and Safeguards

Docket Nos. 50-238

Enclosures:

1. Amendment No. 18 to NS-1
2. Safety Evaluation

cc: w/enclosures: Distribution

E. Koehler

- 3 -

SUBJECT: ISSUANCE OF AMENDMENT 18 TO REVISE THE TECHNICAL SPECIFICATIONS TO REMOVE REDUNDANT REPORTING AND CONTROL REQUIREMENTS AND ELIMINATE THE REQUIREMENT FOR A DRAFT HULL STRIPE Dated: March 18, 2021

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ADAMS Accession No.: ML21067A665

*via email

OFFICE	DUWP	OGC	DUWP/BC	DUWP
NAME	TSmith*	AGendelman*	BWatson*	TSmith
DATE	3/5/2021	3/17/2021	3/9/2021	3/17/2021

OFFICIAL RECORD COPY

ENCLOSURE 1

AMENDMENT NO. 18 TO LICENSE NO. NS-1

UNITED STATES MARITIME ADMINISTRATION

NUCLEAR SHIP SAVANNAH

DOCKET NO. 50-238



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**
WASHINGTON, D.C. 20555-0001

UNITED STATES MARITIME ADMINISTRATION
DOCKET NO. 50-238
NUCLEAR SHIP SAVANNAH
AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 18
License No. NS-1

1. The Nuclear Regulatory Commission (the Commission or the NRC) has found that:
 - A. The application for a license amendment filed by the United States Maritime Administration (MARAD, the licensee), dated September 4, 2020, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and applicable portions of the Commission's regulations set forth in 10 CFR Chapter I, and all required notifications to other agencies or bodies have been duly made;
 - B. The facility will operate in conformity with the license, as amended, the provisions of the Act, and the applicable rules and regulations of the Commission;
 - C. There is reasonable assurance (i) that the activities authorized by this amended license can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with applicable portions of the Commission's regulations set forth in 10 CFR Chapter I;
 - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public;
 - E. The issuance of this amendment is in accordance with 10 CFR Part 51, of the Commission's regulations and all applicable requirements have been satisfied.

Amendment 18
March 18, 2021

2. Accordingly, the license is hereby amended as indicated in the attachment to this license amendment, and Facility Operating License No. NS-1 is hereby amended as follows.

Paragraph 2.C.(3) of Facility Operating License No. NS-1 is hereby amended to read:

Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 18, are hereby incorporated in the license. The licensee shall maintain the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of its date of issuance and shall be implemented within 60 days.

FOR THE NUCLEAR REGULATORY COMMISSION



Bruce A. Watson, CHP, Chief
Reactor Decommissioning Branch
Division of Decommissioning, Uranium Recovery
and Waste Programs
Office of Nuclear Material Safety
and Safeguards

Attachment:
Change to Facility
Operating License No. NS-1

Date of Issuance: March 18, 2021

ATTACHMENT TO LICENSE AMENDMENT NO. 18

TO FACILITY OPERATING LICENSE NO. NS-1

DOCKET NO. 50-238

Replace the following page of the Technical Specifications with the attached revised page. Revised pages are identified by amendment number and contains marginal lines indicating the area of change.

Technical Specifications

Remove

5
9
10

Insert

5
9
10

N.S. *SAVANNAH*

Technical Specifications
Docket No. 50-238

Appendix A to
Facility License No. NS-1

U.S. Department of Transportation
Maritime Administration

- d. Quarterly Inspections of Physical Barriers and Intrusion Alarms;
- e. Licensee Event Reports (LER);
- f. Records of Safety Review-Committee Meetings;
- g. File of Annual Reports to the NRC; and
- h. Drawings, prints, layouts and specifications for the ship.

3.3 Radiological Criteria, Access Control and Security

3.3.1 Radiological Controlled Areas

3.3.1.1 Radiological Controlled Areas are "Restricted areas" as defined in 10 CFR 20 and in the radiation protection program developed in accordance with 10 CFR 20.

3.3.1.2 All entries into Radiological Controlled Areas shall be in accordance with the licensee's radiation protection program.

3.3.2 Access Control and Security

3.3.2.1 The license holder shall control all access to the vessel through assignment of designated personnel with appropriate administrative procedures and physical security provisions.

3.3.2.2 Visitors shall be escorted by MARAD's designated personnel.

3.3.2.3 Security for the vessel shall be provided by the license holder at all times.

3.4 Reports and Notice of Ship Movement

3.4.1 The Senior Technical Advisor, U.S. Maritime Administration, Washington, D.C. shall make the following reports:

3.4.2 Annual Report

3.4.2.1 Prior to March 1 of each year, a written annual report shall be submitted to the NRC in accordance with 10 CFR 50.4. The report shall include the following:

- a. The status of the facility;
- b. The summary of results of the radiological surveys and monitoring station dosimeter readings;
- c. DELETED;

- 3.6.4 These reviews may be accomplished and concurred with by members of the Committee without a formal meeting.
- 3.6.5 The Committee shall be convened by the Chairman and shall meet annually to review and discuss events of the preceding period. The Committee will meet when necessary to review evaluations of Reportable Events per Technical Specification 3.4.3.1.
- 3.6.6 Written minutes of all meetings shall be prepared and distributed to all Committee members.

3.7 Ship Access Control and Surveillance

Applicability Applies to routine access control and surveillance of the ship.

Objective To prevent unauthorized entry into Radiological Controlled Areas by manning or securing their entrances and to determine change in radiation levels or integrity of the ship. An entrance is secured by bolting, welding, locking via a chain and/or hasp, or preventing access via an equivalent method.

3.7.1 Access Control

3.7.1.1 DELETED.

3.7.1.2 All Radiological Controlled Areas entrances will be manned or secured.

3.7.1.3 All Radiological Controlled Area entrances will be posted with appropriate caution and warning signs.

3.7.1.4 All entrances to the ship not in use will be secured at all times.

3.7.1.5 The B Deck Reactor Compartment entrance at Frame 122, the C Deck Door to the Cold Chemistry Laboratory and the D Deck Containment Vessel Door shall be either:

a) Manned or

b) Locked from the outside and fitted with an intrusion alarm that alerts a security monitoring station.

3.7.1.6 MARAD trained personnel will patrol the vessel at least once during a twenty-four (24) hour period.

3.7.1.7 Deviations from the above access control conditions will be in accordance with appropriate parts of Section 3 of these Technical Specifications, Administrative Controls.

3.7.2 Surveillance

3.7.2.1 Periodically and at least once a quarter, MARAD's designated personnel will inspect the Radiological Controlled Area entrances to verify they are properly secured and test the intrusion alarm in Technical Specification 3.7.1.5.

3.7.2.2 Radiological surveys of the ship will be performed at least annually and as necessary to support ship activities in accordance with 10 CFR 20.

3.7.2.3 DELETED.

3.7.2.4 DELETED.

3.7.3 Vessel and System Maintenance

3.7.3.1 The ship's draft will be monitored and recorded daily as an indication of hull integrity. Unexpected changes in the draft are indications of compromised integrity, such as water in-leakage or flooding. If there is an unexpected change in draft, the ship will be surveyed to determine the cause of the draft change. If leakage or flooding is the cause, the ship pumped out, and repairs made as may be required, including dry-docking if determined necessary, in order to assure that the integrity of the hull is maintained.

3.7.3.2 A cathodic protection system will be provided and properly maintained to protect the underwater areas of the vessel's hull to minimize corrosion damage to the hull.

3.7.3.3 An underwater inspection of the hull will be conducted at least every four (4) years. The vessel will be dry-docked if the inspection determines that such action is necessary due to localized severe pitting, underwater plate thinning in excess of 40 percent, or other damage that would require corrective action and/or removal of the vessel to an off-site ship repair facility.

3.7.3.4 An inspection will be conducted at least annually by MARAD's designated personnel to determine any degradation of the primary, auxiliary and secondary systems.

ENCLOSURE 2

SAFETY EVALUATION
UNITED STATES MARITIME ADMINISTRATION
NUCLEAR SHIP SAVANNAH
DOCKET NO. 50-238



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY
THE OFFICE OF NUCLEAR MATERIAL SAFETY AND SAFEGUARDS
RELATED TO THE N.S. SAVANNAH
AMENDMENT NO. 18 TO FACILITY LICENSE NO. NS-1
DOCKET NO. 50-238

1.0 INTRODUCTION

By application dated September 4, 2020 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML20255A084), the United States Maritime Administration (MARAD), requested approval of a proposed license amendment revising the Nuclear Ship SAVANNAH (NSS) Facility Operating License NS-1 Technical Specifications (TS). MARAD is requesting a revision to the TS to (1) remove a redundant environmental sampling reporting requirement, (2) remove a redundant access control requirement, and (3) remove a hull striping requirement that is no longer required and inconsistent with active decommissioning ship conditions.

2.0 BACKGROUND

The NSS has been shut down since 1970 and was defueled in 1971. In 1976, the license was changed to a possession-only license (41 FR 21706), and on April 23, 2018, Amendment Number 15 was issued to allow dismantlement and disposal (i.e., active decommissioning) (ADAMS Accession No. ML18081A134). Presently, the ship is scheduled to remain at the Canton Marine Terminals in Baltimore under a long-term lay berth contract.

3.0 REGULATORY EVALUATION

3.1 Proposed Deletion of TS 3.4.2.1 c:

TS 3.4.2.1 requires submission of annual report which shall include site status, a summary of radiological survey results and monitoring station readings, a description of the principal maintenance performed, any unauthorized entries into radiologically controlled areas (RCAs), any degradation of radioactive material control boundaries, and occupational exposures, and a summary of environmental sample analysis survey results. The summary of environmental survey results is nearly identical to the requirement of TS 2.5.1, which requires annual reporting of the results analyses of all radiological environmental samples and all environmental radiation results taken during the previous calendar year pursuant to the Offsite Dose Calculation Manual (ODCM).

The effective duplication of requirements inadvertently resulted from license amendment 17, which revised and consolidated the existing custom-formatted TS into a format consistent with the Standard TS for nuclear power plants, as provided in the NUREG series 1430 – 1434,

“Standard Technical Specifications.” The TS changes retained 1 programmatic control for radioactive effluents and radiological environmental monitoring in the TS, but moved procedural details from the TS into the ODCM or the licensee’s Process Control Program. Since the scope of TS 3.4.1.2 c is the same as TS 2.5.1, it is redundant and can be deleted with no impact to the TS effectiveness.

NRC staff review has determined that the proposed change is administrative and does not alter compliance with NRC regulatory requirements.

3.2 Proposed Deletion of TS 3.7.1.1

Currently, this TS requires all containment vessel (CV) entrances to be either manned or secured, in or to control access to the CV. This TS originates from 1976, in license amendment 16, when the NSS was first placed into mothball status. The CV is currently an RCA and requires access controls only while it is an RCA. TS 3.7.1.2 requires controlling access to all RCAs. Since the scope of TS 3.7.1.1 is effectively a subset of the scope of TS 3.7.1.2, and the requirements are identical (i.e. control access), TS 3.7.1.1 is redundant to TS 3.7.1.2 and can be deleted with no impact to the TS effectiveness.

NRC staff review has determined that the proposed change is administrative and does not alter compliance with NRC regulatory requirements.

3.3 Proposed Revision to TS 3.7.3.1

Currently, TS 2.7.3.1 requires painting yellow draft stripes that allow distant observers, such as roving patrols monitoring vessels anchored offshore, to monitor the ship’s draft. The requirement is appropriate for a ship that is in protective storage and whose draft and trim are not expected to change. For example, when the NSS was located at the James River Reserve Fleet at Fort Eustis, VA, the ship was in the middle of an approximately two-mile-wide section of the James River. In this situation, on shore personnel observed the draft level stripes by video camera and a roving river patrol.

During active decommissioning significant changes in the ship’s draft and trim will occur as large reactor and auxiliary system components are dismantled and removed from the ship. Dismantling equipment brought on and off the ship may also result in a change to the ship’s draft. The resulting significant changes in draft and trim would require routinely repainting draft level stripes, which are not needed during active manning and decommissioning.

The ship’s draft will be monitored daily as an indication of hull integrity. Unexpected changes in ship’s draft indicate possible compromised integrity, such as water in-leakage or flooding. If there is an unexpected change in the ship’s draft, the ship shall be surveyed to determine the cause of the draft change. If leakage or flooding is the cause, the ship will be pumped out, and repairs made as may be required, including dry-docking if determined necessary, in order to assure that the integrity of the hull is maintained.

NRC staff review has determined that the proposed change is administrative and as does not alter compliance with NRC regulatory requirements. However, NRC staff determined that the addition of a requirement to record daily draft observations would be appropriate to provide a

means to compare changes in ship's draft to work logs to identify any potential unexpected deviations. Therefore, NRC staff has added language to require recordation of daily draft observations as described in the next section.

4.0 TECHNICAL EVALUATION

In the license amendment request, MARAD indicated that all three proposed changes to the NSS TS are administrative and involve no technical issues, and do not alter compliance with any applicable regulatory requirements or other criteria.

MARAD has proposed changes for the NSS TS, as follows:

- TS 3.4.2.1 c. will be revised to "DELETED."
- TS 3.7.1.1 will be revised to "DELETED."
- TS 3.7.3.1 will be revised to state "The ship's draft will be monitored daily as an indication of hull integrity. Unexpected changes in draft are indications of compromised integrity, such as water in- leakage or flooding. If there is an unexpected change in draft, the ship shall be surveyed to determine the cause of the draft change. If leakage or flooding is the cause, the ship will be pumped out, and repairs made as may be required, including dry-docking if determined necessary, in order to assure that the integrity of the hull is maintained."

NRC staff have determined that observations of the ship's draft should be recorded so that changes could be compared with work activities at a later date to confirm there were no unexpected changes. Accordingly, TS 3.7.3.1 will be revised to "The ship's draft will be monitored and recorded daily as an indication of hull integrity. Unexpected changes in draft are indications of compromised integrity, such as water in- leakage or flooding. If there is an unexpected change in draft, the ship shall be surveyed to determine the cause of the draft change. If leakage or flooding is the cause, the ship will be pumped out, and repairs made as may be required, including dry-docking if determined necessary, in order to assure that the integrity of the hull is maintained."

5.0 ENVIRONMENTAL CONSIDERATION

The amendment includes changes to the license that eliminate redundant requirements and is therefore administrative. NRC staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendment involves no significant hazards consideration (85 FR 194; October 6, 2020), and there has been no public comment on such finding. Accordingly, the amendment meets the eligibility criteria for categorical exclusions set forth in 10 CFR 51.22(c)(9) and 10 CFR 51.22(c)(10)(ii). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of this amendment.

6.0 STATE CONSULTATION

On March 4, 2021, the State of Maryland was notified of the proposed changes to the N.S. *SAVANNAH* license to revise the Technical Specifications associated with effluent and environmental monitoring and reporting requirements. Eva S. Nair, Program Manager, Radiological Health Program, Maryland Department of the Environment, responded on March 5, 2021, with no comments or questions.

7.0 CONCLUSION

The changes proposed by this license amendment would revise the TS to delete TS 3.4.2.1 c. and 3.7.1.1 as they are redundant, and also revise TS 3.7.3.1 to modify the method employed for monitoring the ship's draft in a manner consistent with planned ship decommissioning.

Therefore, the staff concludes, based on the considerations discussed above, that: 1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner; and 2) such activities will be conducted in compliance with the Commission's regulations, and the issuance of the amendment will not be inimical to the common defense and security nor to the health and safety of the public.

Principal Contributor: Theodore B. Smith

Date: March 18, 2021