



U.S. Department of
Transportation

Maritime
Administration

SAVANNAH Technical Staff
Office of Ship Disposal Programs

1200 New Jersey Ave., SE
Washington, DC 20590

Ref: 10 CFR 50.90

October 9, 2007

ATTN: Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, DC 20555

**SUBJECT: Docket No. 50-238; License No. NS-1; N.S. SAVANNAH
License Amendment Request No. 2007-01
Administrative Changes to Clarify Technical Specifications**

**Reference (a) Letter from Mr. John T. Buckley, (NRC) to Erhard W. Koehler (MARAD), dated
January 31, 2007, Issuance of Amendment No. 13 (License Amendment Request
No. 2006-001) for NS SAVANNAH (Docket No. 50-238, License No. NS-1)**

Pursuant to 10 CFR 50.90, the United States Maritime Administration (MARAD) hereby requests approval to amend the Nuclear Ship SAVANNAH (NSS) Facility Operating License, NS-1, by incorporating the enclosed proposed changes into the NSS Technical Specifications (TSs).

The proposed license amendment will modify TS requirements with thirty-nine (39) Proposed Changes that clarify the TS by the following:

- Deleting discussion that is more appropriate in the Final Safety Analysis Report;
- Invoking consistent titles and phrases;
- Deleting duplicate requirements;
- Combining similar requirements into single locations;
- Removing requirements that are more appropriately implemented by invoking current regulations;
- Deleting archaic requirements;
- Invoking requirements consistent with the current ship status and decommissioning schedule;
- Formatting and renumbering as appropriate to implement these changes;
- Revising the requirements to reflect the historical practices;
- Eliminating potential conflicts with the approved Decommissioning Quality Assurance Plan; and,
- Correcting errors introduced in Amendment 13, Reference (a).

The License Amendment Request is provided in four (4) enclosures to this letter. Enclosure 1 is an evaluation of the request. Enclosure 2 provides the existing TS marked up to show the proposed changes. Enclosure 3 provides a retyped version of the proposed TS. Enclosure 4 lists one new Regulatory Commitment supporting the proposed changes.

MARAD has reviewed the proposed changes comparing them to the current license basis in accordance with 10 CFR 50.92 and concludes that they involve no significant hazards consideration.

NHSS01

NHSS

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Pursuant to 10 CFR 50.91(b), a copy of this letter has been forwarded to the Commonwealth of Virginia and the city of Norfolk, Virginia where the ship is currently located. In addition, copies have been provided to the States of Maryland, North Carolina and South Carolina since the NSS could be decommissioned in one of these states. The Review and Audit Committee has reviewed this request.

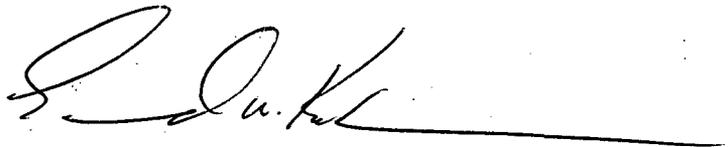
MARAD requests approval of the proposed License Amendment by March 1, 2008, for implementation within 30 days from the date of approval.

If there are any questions or concerns with respect to any issue discussed in this request, please contact me at (202) 366-2631, and/or e-mail me at erhard.koehler@dot.gov.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on October 9, 2007

Respectfully,

A handwritten signature in black ink, appearing to read 'E. W. Koehler', with a long horizontal line extending to the right.

Erhard W. Koehler
Senior Technical Advisor, N.S. SAVANNAH
Office of Ship Disposal Programs

Enclosures (3)

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Enclosures:

1. Evaluation of License Amendment Request with Attachments
2. Proposed Technical Specification Changes (marked-up)
3. Proposed Technical Specification Changes (retyped)
4. List of Regulatory Commitments

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cc:

Electronic copy
NSS ESC
NSS RAC
Division of Atlantic Operations
MAR 615

Hardcopy, cover letter only
MAR-600, 640, 640.2

Hardcopy w/ all enclosures
MAR-100, 640.2 (rf)
USNRC (John T. Buckley, Mark C. Roberts)
USNRC Regional Administrator - NRC Region I
MD Department of the Environment (Roland G. Fletcher; George S. Aburn, Jr.)
NC Department of Environment & Natural Resources (Beverly O. Hall)
SC Department of Health & Environmental Control (Henry Porter; T. Pearce O'Kelley)
VA Department of Emergency Management (Michael M. Cline)
VA Department of Health (Leslie P. Foldesi)

EK/jmo



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**Docket No. 50-238; License No. NS-1; N.S. SAVANNAH
Enclosure 1 to License Amendment Request No. 2007-01
EVALUATION OF LICENSE AMENDMENT REQUEST**

Subject: Administrative Changes to Clarify Technical Specifications

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1. SUMMARY DESCRIPTION

This enclosure describes a request to amend Operating License NS-1 for the Nuclear Ship SAVANNAH (NSS). The proposed changes would revise the Operating License to incorporate thirty nine (39) administrative changes to clarify the TSs by the following:

- Deleting discussion that is more appropriate in the Final Safety Analysis Report (Proposed Change 1);
- Invoking consistent titles and phrases (Proposed Changes 3, 4 and 7);
- Deleting duplicate requirements (Proposed Change 6 and 8);
- Combining similar requirements into single locations (Proposed Changes 9, 10, 18, 23, 29 and 31);
- Removing requirements that are more appropriately implemented by invoking current regulations (Proposed Changes 12, 22 and 37);
- Deleting archaic requirements (Proposed Changes 13 and 14);
- Invoking requirements consistent with the current ship status and decommissioning schedule (Proposed Changes 16, 34, 35 and 38);
- Formatting and renumbering as appropriate to implement these changes (Proposed Changes 2, 5, 11, 15, 17, 19, 21, 26, 30, 32 and 39);
- Revising the requirements to reflect the historical practices (Proposed Change 20);
- Eliminating potential conflicts with the approved Decommissioning Quality Assurance Plan (Proposed Changes 24, 25, 27 and 28); and,
- Correcting errors introduced in Amendment 13, Reference (a), (Proposed Changes 33 and 36).

MARAD requests approval of the proposed License Amendment by March 1, 2008 for implementation within 30 days from the date of approval.

2. DETAILED DESCRIPTION AND TECHNICAL EVALUATION OF PROPOSED CHANGES

Proposed Change 1

MARAD has determined that it is no longer appropriate that any TS should describe plant status. The discussion of the current plant status is described in the Final Safety Analysis Report (FSAR), Revision IV and any change in plant status will be documented in FSAR updates as required by 10 CFR 50.71(e). Similarly, any summary discussion describing administrative procedures that protect public health and safety will be removed from TS 1.0 to eliminate any possibility of conflict with the Decommissioning Quality Assurance Plan.

MARAD proposes revising TS 1.0 to state that NSS has been in a state of protective storage since 1976 when the possession-only license was issued. In addition, MARAD proposes deleting the last sentence in TS 2.1 Radioactive Liquid Waste Release, Applicability.

Proposed Change 2

MARAD has determined that formatting of Applicability, Objective and Specification should be revised.

MARAD proposes revising the format for Applicability, Objective and Specification TSs as shown in Enclosure 2, Proposed TS Changes (marked-up).

Proposed Change 3

MARAD has determined that a single, consistent title, "Radiological Controlled Area(s)," should be used to replace the following titles:

- Controlled areas;

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- Radiation areas;
- Radiation control areas; and,
- Controlled radiation area.

MARAD proposes revising TSs 2.1 Applicability, 2.4 Applicability, 3.1.4(new), 3.1.5(new), 3.3.1, 3.3.1.1(new), 3.3.1.2(new), 3.4.2.g, 3.6.3.c(new), 3.7 Objective, 3.7.1.2, 3.7.1.3 and 3.7.2.1 to use the title, "Radiological Controlled Area(s)" (as appropriate).

Proposed Change 4

MARAD has determined that sentence 2 of "Specification" of TS 2.3 Radioactive Liquid Waste Release Surveillance should be revised to delete the phrase "prescribed by" to make this phrase consistent with similar phrases in "Specifications" TSs 2.1, 2.2 and 2.4.

MARAD proposes revising sentence 2 of "Specification" of TS 2.3 Radioactive Liquid Waste Release Surveillance to state:

Concentrations of radioactive liquid waste shall not exceed 10% of the applicable limits of 10 CFR 20 or other applicable Federal regulations.

Proposed Change 5

MARAD has determined that TS 3.1 is clarified by renumbering its paragraphs as individual Technical Specifications. MARAD proposes renumbering each of these paragraphs as 3.1.1, 3.1.2, 3.1.3, 3.1.4 and creating new 3.1.5 as described in Proposed Changes 9 and 10.

Proposed Change 6

MARAD has determined that paragraph three of TS 3.1 is duplicated in TS 3.7.2.2. Both state that surveys are performed by "an individual who meets or exceeds the qualifications of ANSI N18.1-1971, paragraphs 4.3.2 or 4.5.2." TS 3.1 adds the requirement that laboratory analyses are performed by a similarly qualified individual.

MARAD proposes deleting TS 3.7.2.2 in its entirety and renumbering paragraph three of TS 3.1 as 3.1.3. The new text of TS 3.1.3 is shown in Proposed Change 10.

Proposed Change 7

MARAD has determined that a single, consistent title, "radiological survey(s)," should be used to replace the title "radiation survey."

MARAD proposes revising TSs 3.1.3, 3.4.1.b and 3.6.3.d (new) to use the title, "radiological survey(s)" (as appropriate).

Proposed Change 8

MARAD has determined that TSs 3.1 (paragraph three), 3.7.2.2, 3.7.2.4 and 3.7.2.5 duplicate the periodicity requirements for performing radiological surveys and environmental sampling/surveillance. MARAD has determined that the periodicity for performing each surveillance should be listed one time only.

MARAD proposes revising TSs 3.1 paragraph three to state "3.1.3 Radiological surveys, environmental sampling and surveillance, and laboratory analyses will be the responsibility of MARAD and performed by an individual who meets or exceeds the qualifications of ANSI N18.1-1971, paragraphs 4.3.2 or 4.5.2."

MARAD proposes new TSs 3.7.2.2, 3.7.2.3 and 3.7.2.4 that state:

- 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 Thermoluminescent dosimeters (TLDs) or equivalent monitoring devices shall be placed at strategic locations throughout the vessel to monitor the radiation from reactor generated materials. MARAD shall determine these locations on the vessel and shall require dosimeter readings at least semi-annually.
- 3.7.2.4 Semi-annually, water samples and bottom sediment will be taken adjacent to the ship and analyzed by a qualified laboratory for radioactivity.

Proposed Change 37 provides the basis for revising TS 3.7.2.2 which defines the ship spaces requiring Radiological Surveys.

Proposed Change 9

MARAD has determined that paragraph four of TS 3.1 is clarified by creating separate TSs that describe normal and emergency requirements for entering a Radiological Controlled Area (RCA). In addition, MARAD has noted that the TS 3.1 health physicist requirements for entering an RCA conflict with requirements in paragraph one of TS 3.3.

Paragraph four of TS 3.1 states "MARAD shall have a health physicist on duty or on call within two hours to *provide health physics support* [emphasis added] for radiological emergencies or entry into radiation control areas. In addition to the services of a health physicist, MARAD shall provide an Emergency Radiological Assistance Team in the event of radiological emergencies."

Paragraph one of TS 3.3 states "All entries into radiation control areas by visitors or employees shall be *under the direction of a health physicist* [emphasis added] ..."

MARAD proposes a new TS 3.1.4 that states "MARAD shall have a health physicist on duty or on call to provide health physics support and direction for all entries into Radiological Controlled Areas." This new TS eliminates the conflict of "direction" versus "support" and focuses on non-emergency RCA entry requirements. Proposed Change 10 discusses emergency RCA entry requirements.

Proposed Change 10

MARAD has determined that paragraph four of TS 3.1 is clarified by separating out the normal and emergency requirements for entering an RCA. Proposed Change 9 describes non-emergency requirements.

Emergency entry requirements are contained in both paragraph four of TS 3.1 and in sentence two in paragraph one of TS 3.3. Combining these requirements plus eliminating the conflict of "direction" versus "support," clarifies the Technical Specifications. Finally, paragraph four of TS 3.1 did not explicitly define that the purpose of the Emergency Radiological Assistance Team is to provide health physics direction and support in the event of an on-board emergency such as fire, flooding or intrusion.

MARAD proposes a new TS 3.1.5 that states "MARAD shall have a health physicist on duty or on call within two hours to provide health physics support and direction for radiological emergencies. MARAD shall provide an Emergency Radiological Assistance Team which will provide health physics direction and support in the event of an on-board emergency such as fire, flooding or intrusion. In the event of fire, entry may be made into the effected Radiological Controlled Areas except the reactor containment vessel, without the support and direction of a health physicist."

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Proposed Change 11

MARAD has determined that the format of the list of records in TS 3.2, Records should be revised to establish a consistent format.

MARAD proposes revising the format for TS 3.2, Records as shown in Enclosure 2, Proposed TS Changes (marked-up).

Proposed Change 12

MARAD has determined that the definition of "radiation control area" (i.e., Radiological Controlled Area) contained in TSs 3.3, paragraph 2 and 3.3.1 has not been required or appropriate since the approval of License Amendment 12 (Reference b). Prior to License Amendment 12, certain areas of the vessel were open to the public as a Maritime museum. License Amendment 12 did not explicitly prohibit unescorted public access to the ship, but it did retain the definitions for a "radiation control area" associated with being a museum.

TSs 3.3, paragraph 2 and 3.3.1 define a "radiation control area" as an area of the ship with radiation levels from reactor generated radioactive materials in excess of 0.25mR/hr above natural background as measured at one meter from any surface, and/or surface contamination in excess of those limits prescribed in Table I of NRC Reg. Guide 1.86. These extremely low limits were first required with the issuance of License Amendment 9 (Reference c) which granted conditional unescorted access to the ship and opened the ship to the public as a museum, hotel and restaurant. These low levels were intended to minimize exposure to unescorted members of the public (i.e., visitors). Prior to License Amendment 9, visitors required escorts.

MARAD proposes removing the definition of Radiological Controlled Area from the TSs and defining the phrase in the radiation protection program developed in accordance with 10 CFR 20.1101. Specifically, MARAD proposes revising the title of TS 3.3 to "Radiological Criteria, Access Control and Security." Starting with License Amendment 9, TS 3.3 has addressed each of these items. MARAD proposes the following new Technical Specifications:

3.3.1 Radiological Controlled Areas

3.3.1.1 Radiological Controlled Areas will be defined in the radiation protection program developed in accordance with 10 CFR 20.1101.

Proposed Change 13

MARAD has determined that sentence one of paragraph one of TS 3.3 is clarified by replacing the title "health physics procedures manual" with "radiation protection program" and renumbering the Technical Specification. It states "All entries into radiation control areas by visitors or employees shall be under the direction of a health physicist in accordance with the licensee's health physics procedures manual."

MARAD proposes a new TS 3.3.1.2 that states "All entries into Radiological Controlled Areas shall be in accordance with the licensee's radiation protection program."

Proposed Change 14

Three TSs establish requirements for specific groups of individuals. These TSs are the following:

- 3.3.1 which uses the phrase "employees, contractor personnel, escorted guests and official visitors";
- 3.4.1.g which uses the phrase "visitors or employees"; and,
- 3.5 which uses the phrase "visitors, employees, or maintenance personnel."

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These types of phrases first appeared with the issuance of License Amendment 9 (Reference c) which approved unescorted access to the ship and opened the ship to the public as a museum, hotel and restaurant. When the Possession-only license (Reference d) was issued, all visitors were accompanied "by representatives of the licensee" and were therefore under the same controls as the "representative".

MARAD has implemented procedural controls to ensure visitors are escorted, and therefore has concluded it is no longer necessary to distinguish between any groups of individuals that may access the ship.

MARAD proposes deleting the phrase "by visitors or employers" as shown in the new TS 3.3.1.2 (see Proposed Change 13).

MARAD proposes a new TS 3.4.1.g that deletes the phrase "by visitors or employers" and states "Any unauthorized entry into Radiological Controlled Areas and corrective action taken to improve access control."

Proposed Change 24 discusses the additional changes to TS 3.5 that include removing the phrase "visitors, employees, or maintenance personnel."

Proposed Change 15

MARAD has determined that sentence one of TS 3.3.2 should be numbered.

MARAD proposes numbering this sentence to create a new TS 3.3.2.1 that states, "The license holder shall control all access to the vessel through assignment of designated personnel with appropriate administrative procedures and physical security provisions."

Proposed Change 16

MARAD has determined that the TS requirement to escort visitors should be reestablished. Prior to License Amendment 9 (Reference c), TS 3.3 stated "Any visitor aboard the ship will be accompanied by representatives of the Licensee, or contractor representatives of the Licensee."

In anticipation of activities where Radiological Controlled Areas will routinely be opened, MARAD has implemented procedural controls to ensure visitors are escorted to prevent them from inadvertently entering these areas.

MARAD proposes a new TS 3.3.2.2 that states "Visitors shall be escorted by MARAD's designated personnel."

Proposed Change 17

MARAD has determined that sentence two of paragraph two of TS 3.3.2 should be renumbered.

MARAD proposes renumbering this sentence to create a new TS 3.3.2.3 that states "Security for the vessel shall be provided by the license holder at all times."

Proposed Change 18

MARAD has determined that all TS requirements related to communicating with the NRC should be contained in one section.

MARAD proposes revising the title of TS 3.4 title to "Reports and Notice of Ship Movement."

Proposed Change 19

MARAD has determined that sentence one of TS 3.4 should be numbered as TS 3.4.1. As a result, the current TSs 3.4.1 and 3.4.2 become TSs 3.4.2 and 3.4.3, respectively.

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MARAD proposes numbering sentence one of TS 3.4 as TS 3.4.1 and TSs 3.4.1 and 3.4.2 as TSs 3.4.1 and 3.4.2, respectively.

Proposed Change 20

MARAD has determined that the content requirements for TS 3.4.1 should be revised to require a summary of the results of radiological surveys, monitoring station dosimeter readings and environmental sample analysis surveys. Currently, this TS requires the results of the surveys and readings. Historically, MARAD has only provided summary level detail in the annual report. This change is consistent with past reporting practices. In addition, TS 3.4.1 should be renumbered as 3.4.2 Annual Report and its sentence one should be numbered as 3.4.2.1.

MARAD proposes new TS 3.4.2 that states:

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 the results of the radiological radiation surveys and monitoring station dosimeter readings;
- c. The summary of the results of environmental sample analysis surveys;
- d. The results of quarterly intrusion alarm system checks;
- e. The amount of radioactive materials removed from the N.S. SAVANNAH by releases, discharges, and shipments of radioactive waste material;
- f. A description of the principal maintenance performed on the vessel;
- g. Any unauthorized entry into radiation Radiological Controlled Areas by visitors or employees and corrective action taken to improve access control;
- h. Any degradation of one of the several boundaries which contain the radioactive materials aboard the N.S. SAVANNAH; and
- i. Results of occupational exposure indicated by personal dosimetry.

Proposed Change 21

MARAD has determined that TS 3.4.2 is clarified by renumbering its three sentences as individual TSs.

MARAD proposes renumbering each of these sentences as TSs 3.4.3.1, 3.4.3.2 and 3.4.3.3, respectively.

Proposed Change 22

MARAD has determined that the first three items of TS 3.4.2, Reportable Events can be removed and more appropriately implemented by invoking current regulations which require reports for similar situations.

Currently, these reporting requirements include:

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- a. The entrance of an unauthorized person or persons into any controlled radiation area;
- b. A significant change in the radiation or contamination levels in the vessel;
- c. Any release of radioactive material to the environment in excess of 10% of the limits of applicable sections of 10 CFR 20;

The threshold for 10 CFR 20.2202 which most closely corresponds to TS 3.4.2.a is not concerned with an unauthorized person entering a controlled area. As stated in Health Physics Positions (HPPOS) 236, the NRC understands the intent of this reporting requirement is to notify the NRC when an event "probably is about to cause" or "likely will soon cause" harm to the unauthorized individual. The TS 3.4.2.a requirement was established with the issuance of the Possession-only license (POL) in 1976. At that time, the general area dose rates were such that the licensee staff felt the "likely will soon cause" criterion was met. In 1976, the General Area (GA) dose rates were 100mR/hr in the containment vessel (CV) and a maximum of 45 mR/hr in other spaces. At that level, an unauthorized individual member of public entering the CV would have exceeded their dose limit in an hour. Using the most recent survey results to measure general area dose rates of approximately 4 mR/hr in the CV, an unauthorized individual member of the public would have to gain entry to and remain in the CV undetected for 25 hours.

The Safety Evaluation for the POL includes no discussion of the "new" reportability criteria.

During the ship's operating period, the reportability threshold was significantly higher. For example, the three criteria for reportability related to plant operations were the following:

6.9.B. Any substantial variance disclosed by operation of the facility from performance specifications contained in the Safety Analysis Report or the Technical Specifications shall be reported ...

6.9.D. FAST shall inform the AEC of:

1. any failures of the engineered safety systems or of the components of such systems which render or could threaten to render the systems incapable of performing their intended safety function, or
2. any degradation of one of the several boundaries which are designed to contain the radioactive materials resulting from the fission process.

In comparison to the TS 3.4.2.a radiological event reporting threshold for the NSS, the reporting threshold for 10 CFR 20.2202 is immediate notification if the individual would likely have soon received 25 Rem or 24-hour notification if they would likely have soon received 5 Rem. Therefore, based on current radiological conditions, MARAD proposes the reporting criterion of TS 3.4.2.a can be eliminated and more appropriately implemented by invoking current regulation 10 CFR 20.2202.

The reporting criteria of TS 3.4.2.b to report significant changes in radiation or contamination levels has a corresponding reporting requirement in 10 CFR 20.2203(a)(3)(i) and (ii). These require a report when the either of the following conditions is met:

- (3) Levels of radiation or concentrations of radioactive material in--
 - (i) A restricted area [are found] in excess of any applicable limit in the license; or
 - (ii) An unrestricted area [are found] in excess of 10 times any applicable limit set forth in this part or in the license (whether or not involving exposure of any individual in excess of the limits in § 20.1301).

The similarity to TS 3.4.2.b is in both cases there must have been significant changes in radiation or contamination levels to meet the reporting criteria. Therefore, MARAD proposes the reporting criterion of TS 3.4.2.b can be eliminated and more appropriately implemented by invoking current regulations 10 CFR 20.2203(a)(3)(i) and (ii).

The reporting criteria of TS 3.4.2.c to report any release of radioactive material to the environment in excess of 10% of the limits of applicable sections of 10 CFR 20 is essentially a requirement to report a condition prohibited by TS 2.0. The reporting criterion 10 CFR 50.73(a)(2)(i)(B) requires the licensee to report any condition prohibited by the Technical Specifications. Therefore, MARAD proposes the reporting criterion of TS 3.4.2.c can be eliminated and more appropriately implemented by invoking current regulation 10 CFR 50.73(a)(2)(i)(B).

MARAD proposes deleting TS 3.4.2.a – c and renumbering the remaining two NSS unique event reporting requirements as TSs 3.4.3.1.a and 3.4.3.1.b, respectively.

Proposed Change 23

MARAD has determined that the TSs are clarified if the requirement to provide a written notice of ship movement is relocated from sentence one of paragraph 2 of TS 3.3.2 to section 3.4 of the Technical Specifications. This section will include all TSs related to communicating with the NRC.

MARAD proposes a new TS 3.4.4 that states:

3.4.4 Notice of Ship Movement

- 3.4.4.1** Following 30 days written notice to the U.S. Nuclear Regulatory Commission in accordance with 10 CFR 50.4, the vessel can be towed, berthed, moored or drydocked in any U.S. domestic location having a U.S. Maritime Administration approved Port Operating Plan.

Proposed Change 24

MARAD has determined that it is no longer appropriate that any TS should delineate actions that are specifically addressed by the Decommissioning Quality Assurance Plan. Specifically, TS 3.5 should be revised to eliminate the list of procedures requiring approval and instead require review and approval of procedures and their revisions as required by 3.2.2, 4.3.1 and 7.0 of the Decommissioning Quality Assurance Plan. Each procedure listed in TS 3.5 is listed in 3.2.2 or 4.3.1 of the Decommissioning Quality Assurance Plan.

MARAD proposes a new TS 3.5 that states:

3.5 Procedures and Operating Instructions

- 3.5.1** Activities which are designated as within the scope of the Decommissioning Quality Assurance Plan shall be prescribed by written, reviewed and approved procedures of a type appropriate to the circumstances.
- 3.5.2** Procedures and any subsequent revisions shall be reviewed and approved as required by the Decommissioning Quality Assurance Plan.

Proposed Change 25

MARAD has determined that with the approval of the Decommissioning Quality Assurance Plan, a committee named the "Review and Audit Committee" is no longer appropriate. Section 19 of the Decommissioning Quality Assurance Plan, "Audits" describes the audit process. While

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members of the Review and Audit Committee can be assigned audit duties by the Quality Assurance Manager, the committee is no longer exclusively assigned the responsibility to conduct audits. As part of their review function, they should be required to review the results of the audit.

MARAD proposes that the Review and Audit Committee should be renamed the Safety Review Committee in TSs 3.2.6, 3.6 and 3.6.1. The Decommissioning Quality Assurance Plan will be revised to replace the title "Review and Audit Committee" with "Safety Review Committee."

Proposed Change 26

MARAD has determined that the format of the list of permanent members of the Safety Review Committee in TS 3.6.1 should be revised to establish a consistent format.

MARAD proposes revising the format for TS 3.6.1 as shown in Enclosure 2, Proposed TS Changes (marked-up).

Proposed Change 27

MARAD has determined that with the approval of the Decommissioning Quality Assurance Plan, the Quality Assurance Manager should replace the "individual who meets or exceeds the qualifications of ANSI N18.1-1971, paragraphs 4.3.2" (i.e., the Radiation Safety Officer) as a TS-required member of the Review and Audit Committee in TSs 3.6.1 (permanent member list) and 3.6.2 (the quorum requirement).

The history for the Review and Audit Committee quorum requirement for a health physicist is as follows:

- Starting with the Possession-only License Amendment (Reference d) and until issuance of Amendment 9 (Reference c), an individual with nuclear expertise has been a "quorum required" member of Review and Audit Committee. Specifically, these individuals were the Maritime Administration Washington Project Manager for the NSS (Chairman) and Maritime Administration designated Project Safety and Licensing Representatives.
- With the issuance of Amendment 9 and continuing to the present, the quorum required member became a health physicist.

MARAD proposes revising TS 3.6.1 and 3.6.2 to list the Quality Assurance Manager as a permanent member to the Safety Review Committee and remove the "individual who meets or exceeds the qualifications of ANSI N18.1-1971, paragraphs 4.3.2" from the permanent membership list.

Proposed Change 28

MARAD has determined that with the approval of the Decommissioning Quality Assurance Plan, the requirement in TS 3.6.3 should be deleted to eliminate any potential conflict between the TSs and the Decommissioning Quality Assurance Plan. The TS states:

Members of the Committee shall conduct audits, on-the-spot checks, and evaluations to assure that all work is being done safely and in accordance with established procedures. If a deficiency is discovered, the Senior Technical Advisor, U.S. Maritime Administration, Washington, D.C., is to be notified immediately. The license holder is to take the necessary immediate corrective action, and a written report of the deficiency is to be prepared for review by the Committee.

The Decommissioning Quality Assurance Plan describes the minimum requirements for the corrective action process in Section 17 and the minimum requirements of the audit process in Section 19.

MARAD proposes a new TS 3.6.3 to state "Members of the Committee shall review the following items: ... j. Audits and self assessments to verify the effectiveness of the Decommissioning Quality Assurance Plan; ..." (see Proposed Change 29).

Proposed Change 29

MARAD has determined that the TSs are clarified if all of the items that the Safety Review Committee is required to review are grouped into a new single TS to replace the current TS 3.6.4.

This change includes the following (in addition to the issues described in Proposed Changes 28 and 31):

1. Replace the "Unreviewed Safety Question" in TS 3.6.4.a with "evaluations required by 10 CFR 50.59" since "Unreviewed Safety Question" is no longer used in 10 CFR 50.59;
2. Eliminate potential confusion that "containment system" in TS 3.6.4.b included any containment (e.g., a glove bag) and replace "containment system" with "reactor containment vessel system" to match apparent intent of the SER (Reference d) which focused on controlling access to the containment vessel;
3. Replace the first half of TS 3.6.4.c "substantive changes to radiological surveys" with "evaluations of substantive changes to the results of radiological surveys" since it is more appropriate to review an evaluation of the substantive change than to simply review the substantive change itself;
4. Replace the second half of TS 3.6.4.c "substantive changes to security surveillance procedures with "procedures and revisions per Technical Specification 3.5" to list all procedure review items in a single TS;
5. Replace "reported violations of Technical Specifications" with "evaluations of reported violations of Technical Specifications" since it is more appropriate to review an evaluation of the violation than to simply review that the violation was discovered;
6. Add "evaluations of ship grounding, major flooding or sinking events" ("major flooding" is from the list of reportable events in Technical Specification 3.4.2 and from the list of events requiring a meeting in Technical Specification 3.6.5) to place all review items in a single TS; and,
7. Add "evaluations of deviations allowed by Technical Specification 3.7.1.7" to list all review items in a single TS.

MARAD proposes a new TS 3.6.3 that states:

Members of the Committee shall review all of the following items:

- a. Proposed changes to Technical Specifications;
- b. Evaluations required by 10 CFR 50.59;
- c. Proposed changes or modifications to a Radiological Controlled Area entry alarm system or the reactor containment vessel system;
- d. Evaluations of substantive changes to the results of radiological surveys;
- e. Procedures and revisions per Technical Specification 3.5;
- f. Evaluations of reported violations of Technical Specifications;
- g. Licensee Event Reports;

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- h. Evaluations of ship grounding due to severe weather or abnormal occurrences, major flooding of at least one major compartment or sinking events;
- i. Evaluations of deviations allowed by Technical Specification 3.7.1.7
- j. Audits and self assessments to verify the effectiveness of the Decommissioning Quality Assurance Plan; and,
- k. Annual reports to the NRC.

Proposed Change 30

MARAD has determined that the TSs are clarified if the statement that the Review and Audit Committee review and concurrence can be performed without a formal meeting is moved from sentence two of 3.6.4 to a new TS 3.6.4.

MARAD proposes a new TS 3.6.4 that states:

These reviews may be accomplished and concurred with by members of the Committee without a formal meeting.

Proposed Change 31

MARAD has determined that TS 3.6.5 should be revised to include "major flooding" from the list of reportable events in TS 3.4.2. In License Amendment 8 (Reference d), major flooding was defined as flooding of at least one major ship compartment and noted that the ship was designed to remain afloat with two (2) major compartments flooded. Also, in Amendment 8, grounding events of concern were those related to severe weather or abnormal occurrences.

MARAD proposes a new TS 3.6.5 to state "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 in the event of grounding due to severe weather or abnormal occurrences, major flooding of at least one major ship's compartment or sinking of the vessel. Written minutes of all meetings shall be prepared and distributed to all committee members."

Proposed Change 32

MARAD has determined that the TSs are clarified if the statement that "written minutes of all meetings shall be prepared and distributed to all committee members" is moved from sentence two of 3.6.5 to a new TS 3.6.6.

MARAD proposes a new TS 3.6.6 that states:

Written minutes of all meetings shall be prepared and distributed to all Committee members.

Proposed Change 33

MARAD has determined that the word "areas" was used in License Amendment 13, Reference (a) when "area" is the proper word.

MARAD proposes revising TS 3.7.1.3 to state "All Radiological Controlled Area entrances will be posted with appropriate caution and warning signs."

Proposed Change 34

Given the increased routine activity on the ship, MARAD has determined that it is appropriate to restore a phrase in TS 3.7.1.4 that was deleted in License Amendment 12 (Reference b) without a detailed explanation. Prior to License Amendment 12, TS 3.7.1.4 stated "All entrances to the ship not in use will be secured after normal museum visiting hours." The current TS 3.7.1.4 states "All entrances to the ship not in use will be secured at all times." While the ship was

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layberthed at the James River Reserve Fleet, the phrase "at all times" would have been equally effective to the phrase "after normal work hours." In anticipation of personnel more routinely working on board, the flexibility inherent of the phrase "after normal working hours" is more appropriate.

MARAD proposes revising TS 3.7.1.4 to state "All entrances to the ship not in use will be secured after normal working hours."

Proposed Change 35

MARAD has determined that it is appropriate to allow any MARAD designated personnel, including security personnel, to patrol the vessel at least once during a twenty-four (24) hour period. The current TS limits this patrol to security personnel. MARAD has determined it is unnecessary to limit these patrols to security personnel when other MARAD staff members are equally qualified to perform these patrols.

MARAD proposes revising TS 3.7.1.6 to state "MARAD's designated personnel will patrol the vessel at least once during a twenty-four (24) hour period."

Proposed Change 36

MARAD has determined that the words "to verify" were inadvertently omitted from TS 3.7.2.1 in License Amendment 13, Reference (a). In addition, MARAD has determined the word "Item" should be changed to "Technical Specification."

MARAD proposes revising TS 3.7.2.1 to state "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."

Proposed Change 37

MARAD has determined that because locations requiring Radiological Surveys are defined by 10 CFR 20, the TS 3.7.2.3 list of ship locations requiring Radiological Surveys is no longer appropriate. Surveys in these locations will continue to be performed as required by 10 CFR 20. By relying on the 10 CFR 20 requirements to define areas where surveys are required, there will be no need to update a TS list as new areas requiring surveys are created. The goal of the proposed change is to focus the TS on current regulations rather than a TS list that was correct in its day.

The current list appears to derive from the earliest Health Physics Manual where beta-gamma dose rate surveys were required every eight hours in the following areas while the reactor was critical.

1. Charge Pump Rooms
2. Port Stabilizer Room
3. Machinery Space
4. Forward Control Areas "C" and "D" Decks
5. All areas adjacent to the reactor compartment

The Possession-only License Amendment listed similar locations as controlled area because they contain radioactive systems and components:

In lieu of listing specific areas where surveys are required, MARAD will perform surveys as required by 10 CFR 20.1501(a) which states surveys shall be performed as:

... necessary for the licensee to comply with the regulations in this part; and (2) Are reasonable under the circumstances to evaluate--

- (i) The magnitude and extent of radiation levels; and
- (ii) Concentrations or quantities of radioactive material; and
- (iii) The potential radiological hazards.

Therefore, any ship space that is currently posted as a Radiologically Controlled Area would continue to be surveyed until that space can be released for unrestricted use.

Note that this change effectively combines current TS 3.7.2.2 and 3.7.2.3.

MARAD proposes new TS 3.7.2.2 that, in concert with Proposed Changes 8 and 12, states:

- 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.

Proposed Change 38

MARAD has determined that the annual inspection to evaluate system degradation should specifically include the auxiliary systems in addition to the primary and secondary systems.

MARAD proposes a new TS 3.7.6 which states "An inspection will be conducted at least annually by MARAD's designated personnel to determine any degradation of the primary, auxiliary and secondary systems."

Proposed Change 39

MARAD has determined that the TSs are clarified if all of the items regarding vessel and system maintenance are grouped into a single TS and renumber 3.7.3 through 3.7.6 as appropriate. Also, MARAD has determined the phrase "draft markers" should be "draft marks."

MARAD proposes new TS 3.7.3 that states:

3.7.3 Vessel and System Maintenance

- 3.7.3.1 Two draft level stripes will be painted fore and aft (at the draft marks), one will be just above the water level and the upper stripe will be one foot above the lower. These will be observed daily to check if the draft has increased. Both stripes must always be visible. If the lower stripe is not visible, the ship shall be surveyed and the water leakage located. The source of leakage will be determined, the ship pumped out, and repairs made as may be required, including drydocking 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 drydocked 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.

3. REGULATORY SAFETY ANALYSIS

3.1 Applicable Regulatory Requirements/Criteria

These proposed changes are administrative in nature and do not alter compliance with any applicable regulatory requirements or criteria.

The proposed changes incorporate numerous administrative changes to clarify the TSs by the following:

- Deleting discussion that is more appropriate in the Final Safety Analysis Report (Proposed Change 1);
- Invoking consistent titles and phrases (Proposed Changes 3, 4 and 7);
- Deleting duplicate requirements (Proposed Change 6 and 8);
- Combining similar requirements into single locations (Proposed Changes 9, 10, 18, 23, 29 and 31);
- Removing requirements that are more appropriately implemented by invoking current regulations (Proposed Changes 12, 22 and 37);
- Deleting archaic requirements (Proposed Changes 13 and 14);
- Invoking requirements consistent with the current ship status and decommissioning schedule (Proposed Changes 16, 34, 35 and 38);
- Formatting and renumbering as appropriate to implement these changes (Proposed Changes 2, 5, 11, 15, 17, 19, 21, 26, 30, 32 and 39);
- Revising the requirements to reflect the historical practices (Proposed Change 20);
- Eliminating potential conflicts with the approved Decommissioning Quality Assurance Plan (Proposed Changes 24, 25, 27 and 28); and,
- Correcting errors introduced in Amendment 13, Reference (a), (Proposed Changes 33 and 36).

These changes do not alter the design or licensing basis of any system.

3.2 Precedent

These proposed changes invoke no precedents.

3.3. Proposed Determination of No Significant Hazards Consideration

MARAD has evaluated whether or not a significant hazards consideration is involved with the proposed amendment(s) by focusing on the three standards set forth in 10 CFR 50.92, "Issuance of amendment," as discussed below.

- 1) Does the proposed amendment involve a significant increase in the probability or consequences of an accident previously evaluated?

Response: No.

The proposed changes are administrative and do not involve modification of any plant equipment or affect basic plant operation.

The NSS's reactor is not operational and the level of radioactivity in the NSS has significantly decreased from the levels that existed when the 1976 Possession-only License was issued. No aspect of any of proposed changes is an initiator of any accident previously evaluated. Consequently, the probability of an accident previously evaluated is not significantly increased.

Therefore, the proposed changes do not involve a significant increase in the probability or consequences of an accident previously evaluated.

- 2). Does the proposed amendment create the possibility of a new or different kind of accident from any accident previously evaluated?

Response: No.

All of the proposed changes are administrative and do not involve physical alteration of plant equipment that was not previously allowed by Technical Specifications. These proposed changes do not change the method by which any safety-related system performs its function. As such, no new or different types of equipment will be installed, and the basic operation of installed equipment is unchanged. The methods governing plant operation and testing remain consistent with current safety analysis assumptions.

Therefore, the proposed changes do not create the possibility of a new or different kind of accident from any previously evaluated.

- 3) Does the proposed amendment involve a significant reduction in a margin of safety?

Response: No.

All of the proposed changes are administrative in nature. No margins of safety exist that are relevant to the ship's defueled and partially dismantled reactor. As such, there are no changes being made to safety analysis assumptions, safety limits or safety system settings that would adversely affect plant safety as a result of the proposed changes. The proposed changes involve movement of the ship, changes in the performance of responsibilities and reflect significantly improved radiological conditions since 1976.

Therefore, the proposed changes do not involve a significant reduction in a margin of safety.

Based on the above, MARAD concludes that the proposed amendment(s) present no significant hazards consideration under the standards set forth in 10 CFR 50.92(c), and, accordingly, a finding of "no significant hazards consideration" is justified.

3.4. Conclusions

In conclusion, based on the considerations discussed above, (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

4. ENVIRONMENTAL CONSIDERATION

The proposed amendment request is confined to (i) changes to surety, insurance, and/or indemnity requirements, or (ii) changes to recordkeeping, reporting, or administrative procedures or requirements. Accordingly, the proposed amendment meets the eligibility criterion for categorical exclusion set forth in 10 CFR 51.22(c)(10). Therefore, pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the proposed amendment.

5. REFERENCES

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- a. Letter from Mr. John T. Buckley (NRC) to Erhard W. Koehler (MARAD), dated January 31, 2007, Issuance of Amendment No. 13 (License Amendment Request No. 2006-001) for NS SAVANNAH (Docket No. 50-238, License No. NS-1)
- b. Letter from Mr. Alexander Adams, Jr. (NRC) to Dr. Zelvin Levine (MARAD) and Mr. James H. Flatley (PPDA), dated June 29, 1994, Issuance of Amendment 12 to Amend License No. NS-1 - N.S. SAVANNAH (TAC No. M89505)
- c. Letter from Mr. John F. Stoltz (NRC) to Dr. Zelvin Levine (MARAD) and Mr. J. E. Guerry, Jr (PPDA), dated August 14, 1981, Issuance of Amendment 9 to Amend License No. NS-1 - N.S. SAVANNAH
- d. Letter from Mr. Robert W. Reid (NRC) to U.S. Department of Commerce, Maritime Administration, dated May 19, 1976, No Title [Issuance of Amendment 8, Possession-only License]
- e. Letter from Mr. Darrell G. Eisenhut (NRC) to Mr. J. E. Guerry, Jr (PPDA), dated February 2, 1983, Issuance of Amendment 10 to Amend License No. NS-1 - N.S. SAVANNAH



U.S. Department of
Transportation

**Maritime
Administration**

SAVANNAH Technical Staff
Office of Ship Disposal Programs

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Strikethrough indicates deletions. Underlining indicates additions.

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1.0 GENERAL

The nuclear ship N.S. SAVANNAH is has been in a state of protective storage since 1976 when the possession-only license was issued. ~~All fuel assemblies, radioactive fluids, demineralizer resins and contaminated trash have been removed from the ship. Adequate radiation monitoring, environmental surveillance, access control and security procedures will be established under the possession-only license to ensure that the health and safety of the employees, visitors and the public are not endangered.~~

2.0 RADIOACTIVE RELEASES

2.1 Radioactive Liquid Waste Release

Applicability Applies only to radioactive liquid waste disposal. No radioactive liquids will be produced as a result of any foreseen operations aboard the ship or from the ship's operation. Incidental amounts of liquid may be generated in the unlikely event decontamination is found necessary in Radiological eControlled aAreas. ~~All radioactive liquids have been removed from the primary and auxiliary systems.~~

Objective To assure that liquid radioactive waste releases do not present an undue hazard to the general public or the environment.

Specification Radioactive liquid waste releases shall be as low as reasonably achievable and shall not exceed ten-percent (10%) of limits specified in U.S. Nuclear Regulatory Commission (NRC) (10 CFR 20) or other applicable Federal regulations. Radioactive liquid waste shall be solidified in approved media and may be transferred to a properly licensed burial facility. All solidified liquid waste shall be transferred in accordance with applicable NRC (10 CFR 71) and U.S. Department of Transportation regulations; and the burial facility's license and acceptance criteria.

2.2 Radioactive Airborne Particulate Releases

Applicability Applies only to radioactive airborne particulate releases that may occur due to maintenance requirements such as cutting and welding of contaminated components.

Objective To assure that radioactive airborne particulate releases do not present an undue hazard to the general public or the environment.

Specification No activities shall be conducted that would result in a release of radioactive airborne particulates in excess of 10% of limits specified in 10 CFR 20, Appendix B, or other applicable Federal regulations.

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2.3. Radioactive Liquid Waste Release Surveillance

Applicability	Applies to the surveillance requirements for controlling radioactive liquid waste released to the hydrosphere.
Objective	To verify that liquid radioactive waste discharged to the hydrosphere will not exceed 10% of limits specified in 10 CFR 20 or other applicable Federal regulations.
Specification	Liquid wastes resulting from radiological decontamination shall be analyzed prior to discharge. Concentrations of radioactive liquid waste shall not exceed 10% of the applicable limits of 10 CFR 20 or prescribed by other applicable Federal regulations. Records of analyses and amounts of wastes discharged shall be maintained.

2.4. Solid Radioactive Waste Release

Applicability	Applies only to those solid radioactive wastes generated as the result of general decontamination of <u>Radiological eControlled a</u> Areas, ship surveillance, and entry into <u>Radiological eControlled a</u> Areas.
Objective	To assure that solid radioactive waste presents no undue hazard to the general public or environment.
Specification	All solid radioactive waste shall be maintained in appropriate containers in accordance with 10 CFR 20 and other applicable Federal regulations and secured in locked storage areas. Transfers of solid radioactive waste may be made to a licensed burial facility in accordance with applicable NRC (10 CFR 71) and U.S. Department of Transportation regulations; and the burial facility's license and acceptance criteria.

3.0 ADMINISTRATIVE CONTROLS

3.1 Administrative Responsibility

3.1.1 The N.S. SAVANNAH NS-1 License is held by the Senior Technical Advisor, as the responsible official for the U.S. Maritime Administration, Washington, D.C.

3.1.2 At all times, the custody and responsibility for access control, security, environmental surveillance, radiological monitoring, reporting to the U.S. Nuclear Regulatory Commission and maintenance will be with the Senior Technical Advisor, U.S. Maritime Administration (MARAD), Washington, D.C.

3.1.3 Radiological ~~The annual radiation surveys, semi-annual environmental sampling and surveillance, and laboratory analyses will be the responsibility of MARAD and performed by an individual who meets or exceeds the qualifications of ANSI N18.1-1971, paragraphs 4.3.2 or 4.5.2.~~

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3.1.4 MARAD shall have a health physicist on duty or on call to provide health physics support and direction for all entries into Radiological Controlled Areas.

3.1.5 MARAD shall have a health physicist on duty or on call within two hours to provide health physics support and direction for radiological emergencies. ~~In addition to the services of a health physicist, MARAD shall provide an Emergency Radiological Assistance Team in the event of radiological emergencies which will provide health physics direction and support in the event of an on-board emergency such as fire, flooding or intrusion. In the event of fire, entry may be made into the effected Radiological Controlled Areas except the reactor containment vessel, without the support and direction of a health physicist.~~

3.2 Records

3.2.1 In addition to the records and documents required by applicable regulations, the Senior Technical Advisor, U.S. Maritime Administration, Washington, D.C., and other assigned personnel shall maintain the following records and documents in accordance with the Decommissioning Quality Assurance Plan:

3.2.1a Health Physics Records:

a.(i) Personnel Exposure;

b.(ii) Ship's Radiological Surveys;

e.(iii) Environmental Surveillance and Laboratory Analyses;

3.2.2b. Radioactive Liquid Waste Disposal Log;

3.2.3c. Solid Radioactive Waste Disposal Log;

3.2.4d. Quarterly Inspections of Physical Barriers and Intrusion Alarms;

3.2.5e. Licensee Event Reports (LER);

3.2.6f. Records of Safety Review and ~~Audit~~ Committee Meetings;

3.2.7g. File of Annual Reports to the NRC; and

3.2.8h. Drawings, prints, layouts and specifications for the ship.

3.3 Radiological Criteria, Access Control and Security for Radiation Control Areas

3.3.1 Radiological Controlled Areas

3.3.1.1 Radiological Controlled Areas will be defined in the radiation protection program developed in accordance with 10 CFR 20.1101.

3.3.1.2 All entries into radiation Radiological Controlled Areas by visitors or employees shall be under the direction of a health physicist in accordance with

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~~the licensee's radiation protection program health physics procedures manual. However, in the event of fire, entry may be made into all radiation control areas except the reactor containment vessel, without the direction of a health physicist.~~

~~A radiation control area is defined as an area of the ship with radiation levels from reactor generated radioactive materials in excess of 0.25mR/hr above natural background as measured at one meter from any surface, and/or surface contamination in excess of those limits prescribed in Table I of NRC Reg. Guide 1.86.~~

~~3.3.1 Radiological Criteria for Unrestricted Areas~~

~~An unrestricted area is defined as an area that is accessible to employees, contractor personnel, escorted guests and official visitors. These areas include those areas not previously defined as Radiation Control Areas (Section 3.3). The radiation levels from reactor generated radioactive materials for unrestricted areas shall be less than 5µR/hr above natural background as measured at one meter from any surface. All surfaces shall be decontaminated and maintained at levels less than those prescribed in Table I of NRC Reg. Guide 1.86.~~

~~The radiation levels from reactor generated radioactive materials for all areas of the ship identified as being restricted to only employees, contractor personnel, escorted guests and official visitors shall be less than 5µR/hr above natural background as measured at one meter from any surface except as discussed below. Surface contamination levels shall be less than those prescribed in Table I of NRC Reg. Guide 1.86 in all cases, however. Restricted areas of the ship with radiation levels in excess of 5µR/hr but less than 0.25mR/hr may be entered without health physics supervision under the following conditions:~~

- ~~a. A health physicist has determined that potential exposures to any individual will not exceed five percent of 10 CFR 20.101 exposure limits.~~
- ~~b. The Review and Audit Committee has reviewed and accepted the proposed use of the space.~~

~~Prior to any areas being opened for uncontrolled access, the licensee shall survey the areas for radiation levels with appropriate portable instrumentation and make a contamination survey of the areas in accordance with his established health physics procedures to determine that the areas meet the criteria for access. Records of these surveys shall be maintained for inspection and review by the Review and Audit Committee.~~

~~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 Following 30 days written notice to the U.S. Nuclear Regulatory Commission in accordance with 10 CFR 50.4, the vessel can be towed, berthed, moored or~~

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~~drydocked in any U.S. domestic location having a U.S. Maritime Administration approved Port Operating Plan.~~ 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:

3.4.12 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 the results of the radiological ~~radiation~~ surveys and monitoring station dosimeter readings;
- c. The summary of the results of environmental sample analysis surveys;
- d. The results of quarterly intrusion alarm system checks;
- e. The amount of radioactive materials removed from the N.S. SAVANNAH by releases, discharges, and shipments of radioactive waste material;
- f. A description of the principal maintenance performed on the vessel;
- g. Any unauthorized entry into ~~radiation~~ Radiological Controlled control ~~Areas by visitors or employees~~ and corrective action taken to improve access control;
- h. Any degradation of one of the several boundaries which contain the radioactive materials aboard the N.S. SAVANNAH; and
- i. Results of occupational exposure indicated by personal dosimetry.

3.4.23 Reportable Events

3.4.3.1 In addition to those events that are reportable in accordance with the regulations of the NRC, the following additional events are reportable:

- a. ~~The entrance of an unauthorized person or persons into any controlled radiation areas controlled radiation area;~~
- b. ~~A significant change in the radiation or contamination levels in the vessel;~~
- c. ~~Any release of radioactive material to the environment in excess of 10% of the limits of applicable sections of 10 CFR Part Part 20;~~

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- ad. Any major damage to the vessel due to severe weather conditions or other causes; and
- be. Major floodings or sinking of the vessel.

3.4.3.2 Within four (4) hours of discovery, the U.S. Nuclear Regulatory Commission will be notified of any reportable event, listed above, in accordance with 10 CFR 50.72.

3.4.3.3 Within 60 days of discovery, any reportable event, listed above, will be reported to the U.S. Nuclear Regulatory Commission in accordance with 10 CFR 50.73(d).

3.4.34 Notice of Ship Movement

3.4.4.1 Following 30 days written notice to the U.S. Nuclear Regulatory Commission in accordance with 10 CFR 50.4, the vessel can be towed, berthed, moored or drydocked in any U.S. domestic location having a U.S. Maritime Administration approved Port Operating Plan.

3.5 Procedures and Operating Instructions

3.5.1 Activities which are designated as within the scope of the Decommissioning Quality Assurance Plan shall be prescribed by written, reviewed and approved procedures of a type appropriate to the circumstances.

All modifications and maintenance of the vessel which may affect the safety of visitors, employees, or maintenance personnel shall be carried out in accordance with written procedures that cover the following:

- a. ~~Emergency conditions involving potential or actual release of radioactivity, e.g., fire and flooding;~~
- b. ~~Surveys in controlled areas;~~
- c. ~~Access control; and~~
- d. ~~Radiation protection.~~

3.5.2 ~~These p~~Procedures and any subsequent revisions shall be reviewed and approved as required by the Decommissioning Quality Assurance Plan, by the Senior Technical Advisor, U.S. Maritime Administration, Washington, D.C. or his designated alternate, and the Review and Audit Committee.

3.6 Safety Review and Audit Committee

3.6.1 The Safety Review and Audit Committee shall report to the Senior Technical Advisor. The Committee will consist of at least four members. Membership shall be approved of by the Senior Technical Advisor. In aggregate, the membership experience shall include

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an appropriate balance of both maritime and commercial nuclear (operating and/or decommissioning) expertise. The permanent members include the following:

- a. Senior Technical Advisor;
 - b. Decommissioning Program Manager;
 - c. Facility Site Manager; and,
 - d. Quality Assurance Manager ~~An individual who meets or exceeds the qualifications of ANSI N18.1-1971 paragraphs 4.3.2.~~
- 3.6.2 A two-thirds ($\frac{2}{3}$) majority of the members shall constitute a quorum of which one shall be the Senior Technical Advisor or their designated representative and one shall be the Quality Assurance Manager ~~an individual that meets or exceeds the qualifications of ANSI N18.1-1971, paragraphs 4.3.2.~~
- 3.6.3 Members of the Committee shall ~~conduct audits, on-the-spot checks, and evaluations to assure that all work is being done safely and in accordance with established procedures. If a deficiency is discovered, the Senior Technical Advisor, U.S. Maritime Administration, Washington, D.C., is to be notified immediately. The license holder is to take the necessary immediate corrective action, and a written report of the deficiency is to be prepared for review by the Committee.~~
- ~~3.6.4~~ The Committee will review all of the following items: including the determination of whether any proposed change involves an unreviewed safety question as defined in 10 CFR 50.59. These reviews may be accomplished and concurred with by members of the Committee without a formal meeting.
- a. Proposed changes to Technical Specifications;
 - b. Evaluations required by 10 CFR 50.59;
 - c. Proposed changes or modifications to a Radiological Controlled Area ~~the vessel's controlled radiation area entry alarm system or reactor containment vessel system;~~
 - d. Evaluations of sSubstantive changes to the results of radiological radiation surveys or security surveillance procedures;
 - e. Procedures and revisions per Technical Specification 3.5;
 - f. Evaluation of rReported violations of Technical Specifications;
 - g. Licensee Event Reports; and
 - h. Evaluations of ship grounding due to severe weather or abnormal occurrences, major flooding of at least one major ship's compartment or sinking events;

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- i. Evaluations of deviations allowed by 3.7.1.7
- j. Audits and self assessments to verify the effectiveness of the Decommissioning Quality Assurance Plan; and,
- k. Annual reports to the NRC.

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 in the event of grounding due to severe weather or abnormal occurrences, major flooding of at least one major compartment or sinking of the vessel. ~~Written minutes of all meetings shall be prepared and distributed to all committee members.~~

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 radiation control ~~a~~ 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.

Specification

3.7.1 Access Control

3.7.1.1 The 42 inch containment vessel entrances shall be manned or secured.

3.7.1.2 All Radiological Controlled radiation control ~~a~~ Area entrances will be manned or secured.

3.7.1.3 All Radiological Controlled radiation control ~~a~~ 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~~ after normal working hours.

3.7.1.5 The B Deck Reactor Compartment entrance at Frame 122 will be fitted with an intrusion alarm with audible and visual signals that will alert a manned security guard post.

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3.7.1.6 MARAD's designated Security 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 radiation control Area entrances to verify they are properly secured and test the intrusion alarm in Item 3.7.1.5.

~~3.7.2.2 Radiation surveys of the ship shall be made annually, and environmental surveillance shall be made semi-annually by an individual who meets or qualifications of ANSI N18.1-1971, paragraphs 4.3.2 or 4.5.2.~~

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

a. ~~_____ In unrestricted and restricted employee areas of the ship;~~

b. ~~_____ In the compartment below the containment vessel for radiation levels and water leakage;~~

c. ~~_____ In the Port and Starboard Stabilizer rooms;~~

d. ~~_____ In the Forward control areas;~~

e. ~~_____ In Charge pump rooms;~~

f. ~~_____ In the Hot Chem. Lab. in the control room area; and~~

g. ~~_____ In the accessible areas adjacent to the entries to the controlled areas.~~

3.7.2.34 ~~In addition to the periodic radiological surveys, t~~Thermoluminescent dosimeters (TLDs) or equivalent monitoring devices shall be placed at strategic locations throughout the vessel to monitor the radiation from reactor generated materials. MARAD shall determine these locations on the vessel and shall require dosimeter readings at least semi-annually.

3.7.2.45 Semi-annually, water samples and bottom sediment will be taken adjacent to the ship and analyzed by a qualified laboratory for radioactivity.

3.7.3 Vessel and System Maintenance

3.7.3.1 Two draft level stripes will be painted fore and aft (at the draft markers), one will be just above the water level and the upper stripe will be one foot above the

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lower. These will be observed daily to check if the draft has increased. Both stripes must always be visible. If the lower stripe is not visible, the ship shall be surveyed and the water leakage located. The source of leakage will be determined, the ship pumped out, and repairs made as may be required, including drydocking 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 drydocked 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.



U.S. Department of
Transportation

**Maritime
Administration**

SAVANNAH Technical Staff
Office of Ship Disposal Programs

1200 New Jersey Ave., SE
Washington, DC 20590

Docket No. 50-238; License No. NS-1; N.S. SAVANNAH

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PROPOSED TECHNICAL SPECIFICATION CHANGES (RETYPE)

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1.0 GENERAL

The nuclear ship N.S. SAVANNAH has been in a state of protective storage since 1976 when the possession-only license was issued.

2.0 RADIOACTIVE RELEASES

2.1 Radioactive Liquid Waste Release

Applicability Applies only to radioactive liquid waste disposal. No radioactive liquids will be produced as a result of any foreseen operations aboard the ship or from the ship's operation. Incidental amounts of liquid may be generated in the unlikely event decontamination is found necessary in Radiological Controlled Areas.

Objective To assure that liquid radioactive waste releases do not present an undue hazard to the general public or the environment.

Specification Radioactive liquid waste releases shall be as low as reasonably achievable and shall not exceed ten-percent (10%) of limits specified in U.S. Nuclear Regulatory Commission (NRC) (10 CFR 20) or other applicable Federal regulations. Radioactive liquid waste shall be solidified in approved media and may be transferred to a properly licensed burial facility. All solidified liquid waste shall be transferred in accordance with applicable NRC (10 CFR 71) and U.S. Department of Transportation regulations; and the burial facility's license and acceptance criteria.

2.2 Radioactive Airborne Particulate Releases

Applicability Applies only to radioactive airborne particulate releases that may occur due to maintenance requirements such as cutting and welding of contaminated components.

Objective To assure that radioactive airborne particulate releases do not present an undue hazard to the general public or the environment.

Specification No activities shall be conducted that would result in a release of radioactive airborne particulates in excess of 10% of limits specified in 10 CFR 20, Appendix B, or other applicable Federal regulations.

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2.3 Radioactive Liquid Waste Release Surveillance

- Applicability** Applies to the surveillance requirements for controlling radioactive liquid waste released to the hydrosphere.
- Objective** To verify that liquid radioactive waste discharged to the hydrosphere will not exceed 10% of limits specified in 10 CFR 20 or other applicable Federal regulations.
- Specification** Liquid wastes resulting from radiological decontamination shall be analyzed prior to discharge. Concentrations of radioactive liquid waste shall not exceed 10% of the applicable limits of 10 CFR 20 or other applicable Federal regulations. Records of analyses and amounts of wastes discharged shall be maintained.

2.4 Solid Radioactive Waste Release

- Applicability** Applies only to those solid radioactive wastes generated as the result of general decontamination of Radiological Controlled Areas, ship surveillance, and entry into Radiological Controlled Areas.
- Objective** To assure that solid radioactive waste presents no undue hazard to the general public or environment.
- Specification** All solid radioactive waste shall be maintained in appropriate containers in accordance with 10 CFR 20 and other applicable Federal regulations and secured in locked storage areas. Transfers of solid radioactive waste may be made to a licensed burial facility in accordance with applicable NRC (10 CFR 71) and U.S. Department of Transportation regulations; and the burial facility's license and acceptance criteria.

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3.0 ADMINISTRATIVE CONTROLS

3.1 Administrative Responsibility

3.1.1 The N.S. SAVANNAH NS-1 License is held by the Senior Technical Advisor, as the responsible official for the U.S. Maritime Administration, Washington, D.C.

3.1.2 At all times, the custody and responsibility for access control, security, environmental surveillance, radiological monitoring, reporting to the U.S. Nuclear Regulatory Commission and maintenance will be with the Senior Technical Advisor, U.S. Maritime Administration (MARAD), Washington, D.C.

3.1.3 Radiological surveys, environmental sampling and surveillance, and laboratory analyses will be the responsibility of MARAD and performed by an individual who meets or exceeds the qualifications of ANSI N18.1-1971, paragraphs 4.3.2 or 4.5.2.

3.1.4 MARAD shall have a health physicist on duty or on call to provide health physics support and direction for all entries into Radiological Controlled Areas.

3.1.5 MARAD shall have a health physicist on duty or on call within two hours to provide health physics support and direction for radiological emergencies. MARAD shall provide an Emergency Radiological Assistance Team which will provide health physics direction and support in the event of an on-board emergency such as fire, flooding or intrusion. In the event of fire, entry may be made into the effected Radiological Controlled Areas except the reactor containment vessel, without the support and direction of a health physicist.

3.2 Records

3.2.1 In addition to the records and documents required by applicable regulations, the Senior Technical Advisor, U.S. Maritime Administration, Washington, D.C., and other assigned personnel shall maintain the following records and documents in accordance with the Decommissioning Quality Assurance Plan:

- a Health Physics Records:
 - (i) Personnel Exposure;
 - (ii) Ship's Radiological Surveys;
 - (iii) Environmental Surveillance and Laboratory Analyses;
- b. Radioactive Liquid Waste Disposal Log;
- c. Solid Radioactive Waste Disposal Log;
- d. Quarterly Inspections of Physical Barriers and Intrusion Alarms;
- e. Licensee Event Reports (LER);

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- 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 will be defined in the radiation protection program developed in accordance with 10 CFR 20.1101.
 - 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. The summary of results of environmental sample analysis surveys;
 - d. The results of quarterly intrusion alarm system checks;
 - e. The amount of radioactive materials removed from the N.S. SAVANNAH by releases, discharges, and shipments of radioactive waste material;
 - f. A description of the principal maintenance performed on the vessel;

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- g. Any unauthorized entry into Radiological Controlled Areas and corrective action taken to improve access control;
- h. Any degradation of one of the several boundaries which contain the radioactive materials aboard the N.S. SAVANNAH; and
- i. Results of occupational exposure indicated by personal dosimetry.

3.4.3 Reportable Events

3.4.3.1 In addition to those events that are reportable in accordance with the regulations of the NRC, the following additional events are reportable:

- a. Any major damage to the vessel due to severe weather conditions or other causes; and
- b. Major floodings or sinking of the vessel.

3.4.3.2 Within four (4) hours of discovery, the U.S. Nuclear Regulatory Commission will be notified of any reportable event, listed above, in accordance with 10 CFR 50.72.

3.4.3.3 Within 60 days of discovery, any reportable event, listed above, will be reported to the U.S. Nuclear Regulatory Commission in accordance with 10 CFR 50.73(d).

3.4.4 Notice of Ship Movement

3.4.4.1 Following 30 days written notice to the U.S. Nuclear Regulatory Commission in accordance with 10 CFR 50.4, the vessel can be towed, berthed, moored or drydocked in any U.S. domestic location having a U.S. Maritime Administration approved Port Operating Plan.

3.5 Procedures and Operating Instructions

3.5.1 Activities which are designated as within the scope of the Decommissioning Quality Assurance Plan shall be prescribed by written, reviewed and approved procedures of a type appropriate to the circumstances.

3.5.2 Procedures and any subsequent revisions shall be reviewed and approved as required by the Decommissioning Quality Assurance Plan.

3.6 Safety Review Committee

3.6.1 The Safety Review Committee shall report to the Senior Technical Advisor. The Committee will consist of at least four members. Membership shall be approved of by the Senior Technical Advisor. In aggregate, the membership experience shall include an appropriate balance of both maritime and commercial nuclear (operating and/or decommissioning) expertise. The permanent members include the following:

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- a. Senior Technical Advisor;
- b. Decommissioning Program Manager;
- c. Facility Site Manager; and,
- d. Quality Assurance Manager.

3.6.2 A two-thirds ($\frac{2}{3}$) majority of the members shall constitute a quorum of which one shall be the Senior Technical Advisor or their designated representative and one shall be the Quality Assurance Manager.

3.6.3 Members of the Committee shall review all of the following items:

- a. Proposed changes to Technical Specifications;
- b. Evaluations required by 10 CFR 50.59;
- c. Proposed changes or modifications to a Radiological Controlled Area entry alarm system or reactor containment vessel system;
- d. Evaluations of substantive changes to the results of radiological surveys;
- e. Procedures and revisions per Technical Specification 3.5;
- f. Evaluation of reported violations of Technical Specifications;
- g. Licensee Event Reports;
- h. Evaluations of ship grounding due to severe weather or abnormal occurrences, major flooding of at least one major compartment or sinking events;
- i. Evaluations of deviations allowed by 3.7.1.7
- j. Audits and self assessments to verify the effectiveness of the Decommissioning Quality Assurance Plan; and,
- k. Annual reports to the NRC.

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 in the event of grounding due to severe weather or abnormal occurrences, major flooding of at least one major compartment or sinking of the vessel.

3.6.6 Written minutes of all meetings shall be prepared and distributed to all Committee members.

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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 The 42 inch containment vessel entrances shall be manned or secured.

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 after normal working hours.

3.7.1.5 The B Deck Reactor Compartment entrance at Frame 122 will be fitted with an intrusion alarm with audible and visual signals that will alert a manned security guard post.

3.7.1.6 MARAD's designated 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 Item 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 Thermoluminescent dosimeters (TLDs) or equivalent monitoring devices shall be placed at strategic locations throughout the vessel to monitor the radiation from reactor generated materials. MARAD shall determine these locations on the vessel and shall require dosimeter readings at least semi-annually.

3.7.2.4 Semi-annually, water samples and bottom sediment will be taken adjacent to the ship and analyzed by a qualified laboratory for radioactivity.

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3.7.3 Vessel and System Maintenance

- 3.7.3.1 Two draft level stripes will be painted fore and aft (at the draft marks), one will be just above the water level and the upper stripe will be one foot above the lower. These will be observed daily to check if the draft has increased. Both stripes must always be visible. If the lower stripe is not visible, the ship shall be surveyed and the water leakage located. The source of leakage will be determined, the ship pumped out, and repairs made as may be required, including drydocking 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 drydocked 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.



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Enclosure 4 to License Amendment Request No. 2007-01

LIST OF REGULATORY COMMITMENTS

The following table identifies those actions committed to by MARAD in this document. Any other statements in this submittal are provided for information purposes and are not considered to be regulatory commitments. Please direct questions regarding these commitments to Erhard W. Koehler (202) 366-2631, and/or erhard.koehler@dot.gov.

REGULATORY COMMITMENT	TYPE (Check One)		DUE DATE
	One Time Action	Continuing Action	
The Decommissioning Quality Assurance Plan will be revised to replace the title "Review and Audit Committee" with "Safety Review Committee" following the reduction in commitment review required by 10 CFR 50.54(a)(3).	<input checked="" type="checkbox"/>	<input type="checkbox"/>	March 31, 2008