



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

January 25, 2008

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**

Supplementary Bases for Administrative Changes to Clarify Technical Specifications

- Reference**
- (a) Letter from Mr. Erhard W. Koehler (MARAD) NRC Document Control Desk (NRC) dated October 9, 2007, License Amendment Request No. 2007-001, Administrative Changes to Clarify Technical Specifications
 - (b) Electronic mail from Mr. John T. Buckley, (NRC) to Mr. John C. Wiegand (MARAD), dated December 5, 2007, RE: Summary of Conference Call on 11/27/07 Re: License Amendment 14

In Reference (a), the United States Maritime Administration (MARAD) requested approval to amend the Nuclear Ship SAVANNAH (NSS) Facility Operating License, NS-1. Following a conference call November 27, 2007, the NRC Project Manager forwarded Reference (b), which requested additional clarification of the bases for Proposed Changes 8, 9; 12, 14, 22, 27, 28, 29, 31, 34, 35 and 36. Reference (b) noted these additional clarifications are administrative in nature and do not affect the technical bases for any of the proposed changes.

The supplementary basis for these Proposed Changes is described in Enclosure 1. 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 provides list of commitments associated with Reference (a) that revises the due date for the commitment to revise the Decommissioning Quality Assurance Plan.

MARAD has reviewed the supplementary bases provided in Enclosure 1 and determined they do not affect the conclusions of the original no significant hazards consideration in Reference (a).

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.

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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.kochler@dot.gov.

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

Executed on January 25, 2008.

Respectfully,

A handwritten signature in black ink, appearing to read "Erhard W. Koehler". The signature is fluid and cursive, with a long horizontal stroke at the end.

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

Enclosures (4)

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Enclosures:

1. Clarification of the Bases for Proposed Changes 8, 9, 12, 14, 22, 27, 28, 29, 31, 34, 35 and 36
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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Enclosure 1 to Supplementary Bases for License Amendment Request No. 2007-01

**CLARIFICATION OF THE BASES FOR PROPOSED CHANGES 8, 9, 12, 14, 22, 27, 28,
29, 31, 34, 35 AND 36**

Subject: Administrative Changes to Clarify Technical Specifications

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1. SUMMARY DESCRIPTION

This enclosure describes clarification of the bases for Proposed Changes 8, 9, 12, 14, 22, 27, 28, 29, 31, 34, 35 and 36. These clarifications were developed following a telephone conference between MARAD and NRC on November 27, 2007, Reference (a).

**2. DETAILED DESCRIPTION OF CLARIFICATION OF THE BASES FOR PROPOSED CHANGES
8, 9, 12, 14, 22, 27, 28, 29, 31, 34, 35 and 36**

Proposed Change 8

The intent of Proposed Change 8 is to delete duplicate requirements by listing only once the frequency for performing radiological surveys and environmental sampling/surveillances.

Clarification 1 to Proposed Change 8

During the November 27, 2007 telephone conference (Reference a), MARAD and NRC noted that the qualification requirements for individuals performing laboratory analyses were only correct for radiological issues. With the approval of the Decommissioning Quality Assurance Plan, MARAD will utilize the requirement in Section 11.3 to ensure "Measures shall be established which assure that activities associated with technical services (such as surveillance testing, instrument calibration, laboratory services, etc.) are inspected, when determined appropriate, by qualified personnel." The TS 3.7.2.5 requirement for environmental samples to be "analyzed by a qualified laboratory for radioactivity" is an example where the Decommissioning Quality Assurance Plan applies.

MARAD proposes revising TS 3.1 paragraph three to state "3.1.3 Radiological surveys and environmental sampling 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. Laboratory analyses of environmental samples will be the responsibility of MARAD and reviewed in accordance with the Decommissioning Quality Assurance Plan. In addition, MARAD proposes revising TS 3.7.2.5 to delete the phrase "by a qualified laboratory" since this phrase duplicates the qualification requirements in proposed TS 3.1.3.

Clarification 2 to Proposed Change 8

During Reference (a), MARAD and NRC noted that the sentence "Proposed Change 37 provides the basis for revising TS 3.7.2.2 which defines the ship spaces requiring Radiological Surveys" should have specified TS 3.7.2.3 in Reference (b).

Proposed Change 9

The intent of Proposed Change 9 is to combine similar requirements regarding normal and emergency requirements for entering a Radiological Controlled Area (RCA) into a single location.

Clarification to Proposed Change 9

During Reference (a), MARAD and NRC noted that the two hour criterion for providing health physics support and direction for normal entries is eliminated without any discussion in License Amendment Request (LAR) 2007-001, Reference (b). The two hour criterion was established in the Possession-only License, Reference (c) when the only RCA entries anticipated were those associated with annual surveys. Prior to October 2006, all staff entering RCAs received Radiation Worker training on an "As-Needed and Just in Time" basis.

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One result of increased staffing and support in 2006 is that numerous staff members are now trained as radiation workers. Improvements to the Radiation Protection Program have established routine Radiation Work Permits for supervisory tours and inspections of RCAs. Routine surveys ensure Radiation Workers are aware of expected dose rates and contamination levels to be encountered in these areas. Improved planning and scheduling of activities helps coordinate entries into RCAs with Health Physics support and other shipboard activities. The net effect of these improvements to NSS administrative processes and the Radiation Protection Program is the two hour criterion for providing health physics support and direction for normal entries is no longer necessary.

Proposed Change 12

The intent of Proposed Change 12 is to remove the definition of "radiation control area" and replace it with "Radiological Controlled Area" as defined in the Radiation Protection Program.

Clarification to Proposed Change 12

During Reference (a), MARAD and NRC noted the definition of "Radiological Controlled Area" should be defined in the proposed TS 3.3.1.1.

MARAD proposes the following new Technical Specifications:

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.

Proposed Change 14

The intent of Proposed Change 14 is to eliminate archaic requirements established in License Amendment 9 (Reference d) regarding requirements for specific groups of individuals.

Clarification 1 to Proposed Change 14

During Reference (a), MARAD and NRC noted that the first sentence of Proposed Change 14 in Reference (b) incorrectly states three TSs establish requirements for specific groups of individuals. Actually, four TSs establish these requirements and these are the following:

3.3 which uses the phrase "visitors or employees;"

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."

Clarification 2 to Proposed Change 14

During Reference (a), MARAD and NRC noted that the Reference (b) sentence "MARAD proposes a new TS 3.4.1.g that deletes ..." should have specified TS 3.4.2.1.g.

Proposed Change 22

The intent of Proposed Change 22 is to eliminate the reporting requirements in TS 3.4.2 that are contained in existing regulations 10 CFR Part 20 and 10 CFR 50.73.

Clarification to Proposed Change 22

During Reference (a), MARAD and NRC noted that Proposed Change 22 in Reference (b) is similar to a change requested in Reference (e) and approved in Amendment 13, Reference (f). In

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LAR 2006-001, MARAD requested changes to TS 3.4.2 to make it consistent with the reporting requirements contained in 10 CFR 50.4, 50.72 and 50.73. The Reference (e) request should also have requested deleting the first three items of TS 3.4.2. As described in LAR 2007-001, Reference (b), the reporting criteria contained in 10 CFR Part 20 and 10 CFR 50.73 appropriately encompass and are consistent with these first three reporting criteria of TS 3.4.2.

Proposed Change 27

The intent of Proposed Change 27 is to add the Quality Assurance Manager as a member to the Review and Audit Committee (RAC).

Clarification to Proposed Change 27

During Reference (a), MARAD and NRC noted that the Quality Assurance Manager should be added to the RAC as a member replacing the "individual who meets or exceeds the qualifications of ANSI N18.1-1971, paragraphs 4.3.2" (i.e., the Radiation Safety Officer).

MARAD has determined that with the approval of the Decommissioning Quality Assurance Plan, the Quality Assurance Manager should be added as a TS-required member of the RAC in TS 3.6.1 (permanent member list). As noted in Proposed Change 29, the RAC will review audits and self assessments to verify the effectiveness of the Decommissioning Quality Assurance Plan. In Proposed Change 28, the audit function is transferred from the RAC to personnel assigned the audit function in accordance with the Decommissioning Quality Assurance Plan.

Proposed Change 28

The intent of Proposed Change 28 is to eliminate any potential conflict between Decommissioning Quality Assurance Plan and TS 3.6.3.

Clarification to Proposed Change 28

During Reference (a), MARAD and NRC noted that the first sentence of Proposed Change 28 in Reference (b) incorrectly stated "... TS 3.6.3 should be deleted ..." The sentence should state "... TS 3.6.3 should be revised ..."

Proposed Changes 29 and 31

The intent of Proposed Change 29 is to create a single group of all review items requiring review by the RAC. The intent of Proposed Change 31 is to clarify when the RAC is required to meet.

Clarification to Proposed Change 29 and 31

During Reference (a), MARAD and NRC noted that the markup of proposed Technical Specifications repeated the reporting requirement of proposed TS 3.4.3.1 in Proposed TS 3.6.3.h and Proposed TS 3.6.5. Specifically, the following reporting requirements in Proposed Change 23 should not be repeated:

- 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 flooding or sinking of the vessel.

To eliminate this repetition, MARAD proposes to use the phrase "Evaluations of Reportable Events of Technical Specification 3.4.3.1" instead of "Licensee Event Reports." The proposed TS follows:

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

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- 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. Evaluations of reportable events per Technical Specification 3.4.3.1;
- h. Evaluations of deviations allowed by Technical Specification 3.7.1.7;
- i. Audits and self assessments to verify the effectiveness of the Decommissioning Quality Assurance Plan; and,
- j. Annual reports to the NRC.

- 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 of Technical Specification 3.4.3.1.

Proposed Change 34

The intent of Proposed Change 34 is to revise TS 3.7.1.4 from "All entrances to the ship not in use will be secured at all times" to "... will be secured after normal working hours."

Following Reference (a), MARAD conducted additional research on the history of TS 3.7.1.4 and has concluded the TS is referring to the pier entrance to the ship. Since this entrance is locked or manned (i.e., secured at all times) the current TS already contains the flexibility that Proposed Change 34 was seeking. Therefore, Proposed Change 34 is withdrawn.

Proposed Change 35

The intent of Proposed Change 35 is to allow the security patrol to be performed by any MARAD designated personnel.

Clarification to Proposed Change 35

During Reference (a), MARAD and NRC noted that additional basis for the change was required. As noted in Proposed Change 17, "Security for the vessel shall be provided by the license holder at all times."

The current security function is performed by a security contractor organization approved by MARAD. MARAD personnel train the contractor security personnel on the NSS Security requirements. There are no prerequisites or special skill sets required to perform the security function except that of being knowledgeable of the ship and having completed site specific training. MARAD's intentions are to train the ship's personnel, in addition to training the security contractor personnel, to perform this security function. This training will be the same training that the security contractor receives. The change allows MARAD the flexibility to perform this function without compromising the effectiveness of the TS security patrol.

MARAD has determined that it is appropriate to allow any MARAD trained personnel, including security personnel, to patrol the vessel at least once during a twenty-four (24) hour period. The current TS can be read to infer this patrol is limited to and may only be performed by traditional security personnel. MARAD has determined it is unnecessary to limit these patrols to traditional security personnel when other MARAD trained staff members are available and equally qualified to perform these patrols.

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

Proposed Change 36

The intent of Proposed Change 36 is to correct and clarify the language in TS 3.7.2.1.

Clarification to Proposed Change 36

During Reference (a), MARAD and NRC noted that the markup and retype of the TS in Reference (b) did not change the word "Item" to "Technical Specification" in TS 3.7.2.1. The attached markup and retype of the TS includes this change.

3. REFERENCES

- a. Teleconference between Mr. John T. Buckley (NRC) and Mr. Erhard W. Koehler and members of his staff (MARAD), November 27, 2007, Discussion of License Amendment Request No. 2007-001
- b. Letter from Mr. Erhard W. Koehler (MARAD) NRC Document Control Desk (NRC) dated October 9, 2007, License Amendment Request No. 2007-001, Administrative Changes to Clarify Technical Specifications
- c. 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]
- d. 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
- e. Letter from Mr. Erhard W. Koehler (MARAD) NRC Document Control Desk (NRC) dated December 15, 2006, License Amendment Request No. 2006-001, Response to Request for Additional Information
- f. Letter from Mr. John T. Buckley (NRC) to Mr. 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)
- g. Letter from Mr. Donald J. L. Skovholt (AEC) to Mr. D. L. Crook (MARAD), dated December 20, 1971, Change Number 12 License Number N.S. - 1
- h. 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)



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PROPOSED TECHNICAL SPECIFICATION CHANGES (MARKED-UP)

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 <u>Radiological eControlled aAreas</u> . 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.

2.3 Radioactive Liquid Waste Release Surveillance

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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 aAreas</u> , ship surveillance, and entry into <u>Radiological eControlled aAreas</u> .
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 and 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. Laboratory analyses of environmental samples will be the responsibility of MARAD and reviewed in accordance with the Decommissioning Quality Assurance Plan.

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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;

~~c.(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 are "Restricted areas" as defined in 10 CFR 20 and in the radiation protection program developed in accordance with 10 CFR 20.

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

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~~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 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;~~

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- ~~c. Any release of radioactive material to the environment in excess of 10% of the limits of applicable sections of 10 CFR Part 20;~~
- 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).

3.4.3.4 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 dry-docked 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 pProcedures 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

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- 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 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;
 - d. Quality Assurance Manager; and,
 - e. 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 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;

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- g. Licensee Event Reports; and Evaluations of reportable events per Technical Specification 3.4.3.1;
- h. Evaluations of deviations allowed by Technical Specification 3.7.1.7;
- i. Audits and self assessments to verify the effectiveness of the Decommissioning Quality Assurance Plan; and,
- j. 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 to review evaluations of Reportable Events per Technical Specification 3.4.3.1 in the event of grounding 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~~ 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~~ Area entrances will be manned or secured.

3.7.1.3 All Radiological Controlled ~~radiation control~~ 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 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 trained 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~~ Technical Specification 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 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.



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

Enclosure 3 to License Amendment Request No. 2007-01

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.

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.

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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:

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 and environmental sampling 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. Laboratory analyses of environmental samples will be the responsibility of MARAD and reviewed in accordance with the Decommissioning Quality Assurance Plan.

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

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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);
- 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.

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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;
- 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 flooding 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.

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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 dry-docked 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:

- a. Senior Technical Advisor;
- b. Decommissioning Program Manager;
- c. Facility Site Manager;
- d. Quality Assurance Manager; and,
- e. 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 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 review all of the following items:

- a. Proposed changes to Technical Specifications;
- b. Evaluations required by 10 CFR 50.59;

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- 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. Evaluations of reported violations of Technical Specifications;
- g. Evaluations of reportable events per Technical Specification 3.4.3.1;
- h. Evaluations of deviations allowed by Technical Specification 3.7.1.7;
- i. Audits and self assessments to verify the effectiveness of the Decommissioning Quality Assurance Plan; and,
- j. 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 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 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 at all times.

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- 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 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 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 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 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 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.

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- 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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Maritime
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SAVANNAH Technical Staff
Office of Ship Disposal Programs

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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 Kohler (202) 366-2631, and/or erhard.kochler@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"/>	Thirty days after TS approval