



U.S. Department
of Transportation

**Maritime
Administration**

400 Seventh Street, S.W.
Washington, D.C. 20590

March 15, 2001

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

SUBJECT: Reply to a Notice of Violation
Docket No. 50-238
License No. NS-1 (N.S. SAVANNAH)
Report No. 50-238/2001-201

To Whom it may concern:

In response to the Notice of Violation dated February 15, 2001 referenced above, the U.S. Maritime Administration (MARAD) provides the following response to each of the cited violations contained in the notice.

I. Violation 50-238/2001-201-01 Failure to have a health physicist on call within two hours of the ship and the failure to have an Emergency Radiological Assistance Team available in case of radiological emergency as required by TS Section 3.1.

1) **The reason for the violation.** The violation is the result of an administrative failure to a) amend the Technical Specifications to remove this requirement and b) in the absence of removal, to provide for these services. The N.S. SAVANNAH (NSS) is laid-up in a decommissioned state in MARAD's James River Reserve Fleet (JRRF), at Fort Eustis, Virginia. The ship is moored alongside the decommissioned U.S. Army nuclear power barge STURGIS. NSS radiation health physics services are provided through a reimbursable agreement with the Army to extend their STURGIS health physics contract to include the NSS. The present scope of inspection and survey on the NSS is the same as that previously in place when the NSS was a public museum in Charleston, South Carolina. The two-hour response requirement was apparently a function of that employment. By contrast, the STURGIS has no such requirement¹. The STURGIS contractor, therefore, is too distant to respond within two hours, and further does not have an available Emergency Radiological Assistance Team. MARAD considered the STURGIS scope of inspection to be adequate for the NSS, resulting in the administrative failure.

¹ The STURGIS is not licensed by the NRC, but reference to NRC review of the STURGIS TS is contained in MARAD records.

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- 2) **The corrective steps that have been taken, and the results achieved.** In consideration of the concentration of naval nuclear vessels in the greater Hampton Roads area of Virginia (which includes the JRRF), MARAD is pursuing an agreement with the Norfolk Naval Shipyard (NNSY) to provide emergency incident response to the NSS. NNSY is the Navy's provider of radiation control to nuclear ships in the Hampton Roads area². NNSY has received MARAD's request, and is presently evaluating it. If NNSY concurs, the request will be referred to the Naval Sea Systems Command (NAVSEA) for negotiation.
- 3) **The corrective steps that will be taken to avoid further violations.** MARAD will, within the next twelve (12) months, thoroughly review the TS and propose modifications to the scope of radiological inspection and survey. Our intent is to remove the two-hour response requirement and the emergency radiological assistance team requirement, provided that a Safety Assessment confirms that this approach is reasonable. This would bring the NSS TS into conformance with the STURGIS TS. However, until such time that permanent changes to the TS are prepared, submitted, reviewed and approved by NRC, MARAD will comply with the current TS requirement. If negotiations with NNSY are not successful, MARAD will open negotiations with Newport News Shipbuilding as the next most competent source of these services.
- 4) **The date when full compliance will be achieved.** For the interim step of providing a two-hour response, the date of full compliance is dependent on negotiations with NNSY and NAVSEA. MARAD will work to expedite a successful conclusion to this process. For the permanent corrective action, MARAD will complete this no later than twelve months from the date of the Notice of Violation, i.e., February 15, 2002.

II. Violation 50-238/2001-201-02 Failure to perform and document an adequate annual inspection of the primary and secondary systems to check for degradation as required by TS Section 3.7.6.

- 1) **The reason for the violation.** The violation is the result of an administrative oversight to document the annual inspection. We note that the scope of annual radiological inspections and surveys is unchanged from the NSS' previous employment as a public museum in Charleston, South Carolina. Radiological surveys at that time were provided by the State of South Carolina, Department of Health and Environmental Control (SCDHEC). After a records search by MARAD, we can find only that the documentation of the state of the primary and secondary systems was recorded in the minutes of the annual Review and Audit Committee meetings, and that the basis of that statement was the apparent visual condition of the equipment, piping and

² excluding vessels under construction or overhaul at the Newport News Shipbuilding Co.

structure of the compartments inspected. MARAD annual inspections and surveys also note the apparent visual condition of the equipment, piping and structure of the inspected compartments, but fail to record the condition.

- 2) **The corrective steps that have been taken, and the results achieved.** For Calendar Year 2000 the annual radiation survey records the apparent visual condition of the primary and secondary systems, based on customary visual inspection criteria. MARAD has prepared and issued a written procedure for Inspection and Survey of Primary and Secondary Systems in the Laid-up Condition. This procedure is invoked for the Calendar Year 2001 inspection and survey cycle, and all subsequent years. A copy of the Inspection Procedure is enclosed for reference. The procedure expands on the anecdotal visual inspection techniques previously employed, by including reference to the preservation techniques now employed on the ship³.

MARAD is taking the further preventive measure to extend dehumidification supply and return to the Reactor Compartment. Over the years this is the space that exhibited the greatest deterioration - although the condition is localized and has remained constant for a long-term (approx 10 years)⁴. Before 1994 the ventilation supply and exhaust to this compartment was open, permitting relative humidity to fluctuate. Since 1994, the ventilation supply and exhaust has been blanked, and dehumidification occurred when the compartment was ventilated for the annual radiological survey. Permanent dehumidification of the reactor compartment will substantially reduce the future threat of corrosion-induced degradation to primary and secondary system components located therein.

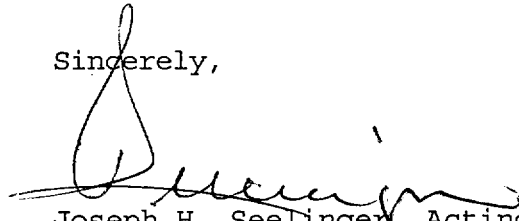
- 3) **The corrective steps that will be taken to avoid further violations.** MARAD will fully implement and document the status of the primary and secondary systems in accordance with the TS requirement, by invoking Inspection Procedure No. LAYUP-IS-002.
- 4) **The date when full compliance will be achieved.** MARAD will comply on an interim basis for Calendar Year 2000, effective with the submittal of the annual facility report to the NRC (March 15, 2001). Full compliance will be effective with the annual facility report for Calendar Year 2001, i.e., March 1, 2002.

³ Since the ship's return to exclusive MARAD custody in 1994, the NSS has been preserved for long-term retention through dehumidification. All exterior accesses, including ventilation supply and exhaust, have been sealed, and the relative humidity within the ship's interior is maintained at 35% or less. This technique virtually eliminates corrosion-induced degradation, and has been successfully employed on MARAD's reserve fleet ships since 1946.

⁴ The deterioration is restricted to ship structure, in the vicinity of drain wells in the after end of the compartment.

I hope that the foregoing response is complete, and adequately addresses the issues raised by the two violations. MARAD remains committed to maintain and preserve the N.S. SAVANNAH, the world's first nuclear powered merchant ship, in full compliance with all applicable NRC regulations and requirements. If you have any questions regarding the foregoing, please contact me directly.

Sincerely,



Joseph H. Seelinger, Acting Director
Office of Ship Operations

Enclosure

E. Koehler/ek/03/15/01
1EK.610-01.022L

cc: MAR-100, 110, 220, 600, 610, 610.1, 611 (rf, wc, ek), 612, 613
MRG-7100, 7600 (mb, rr), 7700

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N.S. SAVANNAH

**PROCEDURE FOR INSPECTION AND SURVEY
OF
PRIMARY AND SECONDARY SYSTEMS IN THE LAID-UP CONDITION**

MARAD PROCEDURE No. LAYUP-IS-002

March 14, 2001

MARAD PROCEDURE No. LAYUP-IS-002**INSPECTION AND SURVEY OF N.S. SAVANNAH PRIMARY AND SECONDARY SYSTEMS IN THE LAID-UP CONDITION**

1.0. SCOPE**1.1 Purpose**

This procedure provides instructions for the inspection of and survey of routinely accessible primary and secondary system components of the decommissioned N.S. SAVANNAH while in the laid-up condition. It is not intended to include inspection and survey within the reactor vessel itself.

1.2 Applicability

The inspections and surveys described in this procedure shall be performed whenever the designated compartments (see 4.1 below) are opened for routine radiological survey, but in no case on less than an annual basis.

2.0 REFERENCES

2.1 Section 3.7.6; N.S. SAVANNAH Technical Specifications, dated May 26, 1994.

3.0 REQUIREMENTS

3.1 All necessary inspection and survey equipment and supplies shall be provided by the MARAD and/or subcontractor personnel performing the inspection and survey.

4.0 PROCEDURE

4.1 Inspections and Surveys of primary and secondary systems shall be conducted in all spaces restricted for radiological control and monitoring. At present these include the following compartments:

- Reactor Compartment
- Port and Starboard Stabilizer Rooms
- Port and Starboard Charge Pump Rooms
- Hot Chemistry Lab

- 4.2 Visually inspect all equipment, components and piping systems for evidence of deterioration or degradation. Sample photographs shall be taken in each space on at least an annual basis.
- 4.3 Measure and record relative humidity levels in each compartment. In the reactor compartment, a minimum of three relative humidity measurements shall be taken.

5.0 **RECORDS**

- 5.1 Results of visual inspections and relative humidity surveys shall be recorded on checksheets and test logs. The original report documents shall be maintained by MARAD. Where inspections or surveys are conducted by a subcontractor, the subcontractor shall maintain the original report document for a minimum of three (3) years. A record copy of each report document, signed and certified as true and accurate by the subcontractor, shall be submitted to MARAD for retention.