



U.S. Department
of Transportation
**Maritime
Administration**

Office of Ship Disposal

1200 New Jersey Ave., SE
Washington, DC 20590

Ref: 10 CFR 50.75(f)(1); 50.82(a)(7) and 50.82(a)(8)(v)-(vii)

March 26, 2018

ATTN: Document Control Desk

U.S. Nuclear Regulatory Commission
Washington, DC 20555

SUBJECT: Docket No. 50-238; License No. NS-1; N.S. SAVANNAH
Submittal of Decommissioning Funds Status Report for Calendar Year (CY) 2017

The Maritime Administration (MARAD) hereby submits Revision 0 of the CY2017 Decommissioning Funds Status Report for the Nuclear Ship *SAVANNAH* (NSS) as Enclosure 1.

This letter contains no commitments.

If you have any questions or concerns, please feel free to contact me at (202) 366-2631, or by email erhard.koehler@dot.gov.

Respectfully,

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

Enclosures

A001
NRR

Docket No. 50-238; License NS-1; N.S. SAVANNAH
Submittal of Decommissioning Funds Status Report for CY2017, Revision 0
March 26, 2018
Enclosures

1. STS-203, Decommissioning Funds Status Report for CY2017

Docket No. 50-238; License NS-1; N.S. SAVANNAH
Submittal of Decommissioning Funds Status Report for CY2017, Revision 0
March 26, 2018

cc:

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MAR-600, 640, 640.2

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MAR-100, 640.2 (rf)
USNRC (Ted Smith, Mark C. Roberts)
USNRC Regional Administrator - NRC Region I
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U.S. Department
of Transportation

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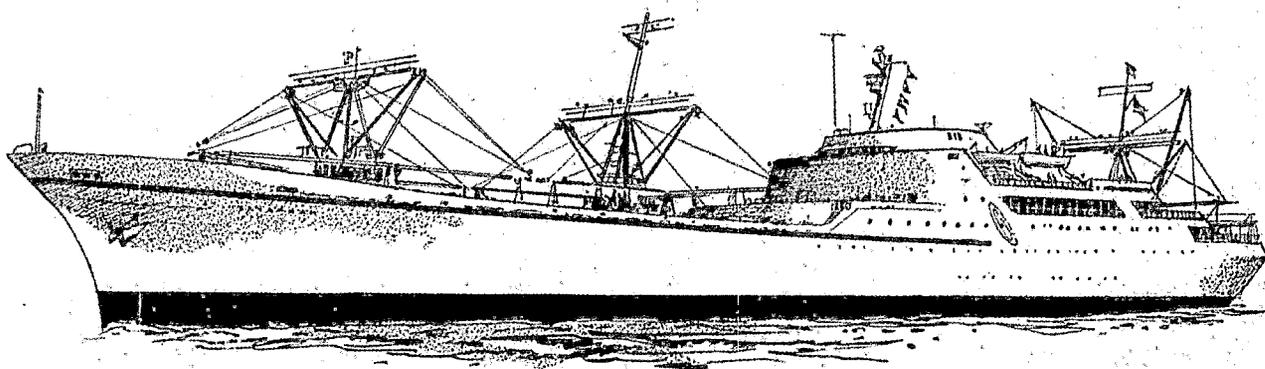
Docket No. 50-238; License No. NS-1; N.S. SAVANNAH

Enclosure 1 to Submittal of Decommissioning Funds Status Report for CY2017

STS - 203, DECOMMISSIONING FUNDS STATUS REPORT FOR CY2017



**U.S. Department of Transportation
Maritime Administration**



N.S. SAVANNAH

**DECOMMISSIONING FUNDS STATUS REPORT
FOR CY2017**

STS - 203
Revision 0

Approved:

Date: March 26, 2018

Manager, N.S. *SAVANNAH* Programs

Prepared by:
TOTE Services, Inc.

Record of Revisions

Revision	Summary of Revisions
0	The original version of the Decommissioning Funds Status Report for CY2017

List of Effective Pages

Page No.	Rev. No.	Page No.	Rev. No.	Page No.	Rev. No.
1	0	2	0	3	0
4	0	5	0	6	0
7	0	8	0	9	0
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1.0 INTRODUCTION

This Decommissioning Funds Status Report is submitted by the Maritime Administration (MARAD) as licensee for the Nuclear Ship *SAVANNAH* (NSS) and covers the calendar year 2017 (CY2017) reporting period. This report incorporates the guidance contained in Regulatory Guide (RG) 1.159, "Assuring the Availability of Funds for Decommissioning Nuclear Reactors," Rev 1, Reference (a). The report is arranged in four sections following this introduction.

In accordance with the requirements of 10 CFR 50.75(f)(1), each power reactor that has already closed is required to report annually the status of its decommissioning funds to the Nuclear Regulatory Commission (NRC) on a CY basis. Section 2.0 of this Decommissioning Funds Status Report includes the seven (7) reports required by 10 CFR 50.75(f)(1).

In accordance with the requirements of 10 CFR 50.82(a)(8)(v)-(vii), each power reactor that has already submitted its site-specific Decommissioning Cost Estimate (DCE) is required to provide a financial assurance status report annually to the NRC on a CY basis. MARAD submitted a summary of its DCE with its Post Shutdown Decommissioning Activities Report (PSDAR), Rev 1, Reference (b). Section 3.0 of this Decommissioning Funds Status Report includes the reports required by 10 CFR 50.82(a)(8)(v)-(vii).

Section 4.0 of this report provides specific information regarding the funds made available to and expended by MARAD during the reporting period.

Finally, Section 5.0 of this report provides information on regulatory commitments made by MARAD that are germane to decommissioning funding.

Because the Federal fiscal year (FY) does not align with the CY, each annual decommissioning funds status report will include information from at least the two FYs that directly provide funds for expenditure during the reporting period. In most years, prior to the submission of the report on (or about) March 31, the President will submit a budget request to the Congress for the upcoming FY. Given that NSS activities are funded on an annual basis, the President's budget request is an early, although not definitive, indicator of future NSS decommissioning funding. Since future funding can impact the decommissioning schedule described in the PSDAR, MARAD includes this public information, to the extent that it may be available, for context and in partial satisfaction of the 10 CFR 50.82(a)(7) requirement to notify the NRC of expected changes to content in the PSDAR.

1.1 DECOMMISSIONING STATUS

The NSS is presently in protective storage. This phase of decommissioning activities is characterized by active surveillance, monitoring and maintenance of the nuclear facilities housed onboard the ship, and custody and maintenance of the ship as the primary physical boundary and protective barrier of the licensed site. Collectively, these are referred to as MARAD's licensed activities, and are reported annually to the NRC. Reference (c) is the most recent Annual Report.

As described in the PSDAR, and elsewhere, the license termination deadline for the NSS is December 3, 2031.¹ Final decommissioning of the NSS nuclear facilities will be performed by the DECON² method.

¹ December 3, 1971 is the de facto date of permanent cessation of operations. On that day, MARAD completed the reactor defueling by tensioning the reactor vessel head with six studs.

² DECON: The equipment, structures, and portions of the facility and site that contain radioactive contaminants are removed or decontaminated to a level that permits termination of the license after cessation of operations, as defined by Regulatory Guide 1.184, Rev. 1, Decommissioning of Nuclear Power Reactors.

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An interim project to bring the NSS into conformance with contemporary NRC SAFSTOR³ criteria (known as “SAFSTOR Preparations”) was described and committed to in the PSDAR, but implementation funding was never appropriated. As described in Reference (c) and elsewhere in this report, \$24M was appropriated to MARAD in FY 2017 to begin decommissioning and license termination activities; this tranche of funds also provides resources for the planned maintenance drydocking, now scheduled for 2019. At a macro level, SAFSTOR Preparations is very similar in scope to the first two years of DECON. Because additional decommissioning funding is subject to future annual appropriations, the \$24M tranche of funds may effectively complete the SAFSTOR preparations scope.

This report addresses the funding status for all decommissioning activities.

1.2 DECOMMISSIONING FUNDING SOURCES

MARAD is a modal agency of the United States Department of Transportation (DOT). It is a Federal licensee as defined by the NRC. As such, funds for decommissioning and termination of the NSS license will be provided by Federal appropriations. The budget process by which such appropriations are requested is deliberative and privileged, and is subject to Executive Branch priorities and direction. Furthermore, the congressional review and authorization / appropriation actions taken on such requests are fully within the purview of the Legislative Branch. MARAD by itself cannot guarantee that decommissioning funds will be requested by the President or authorized and appropriated by the Congress in any given fiscal year.

2.0 STATUS OF DECOMMISSIONING FUNDS ANNUAL REPORT

This section provides a discussion of the seven items required by 10 CFR 50.75(f)(1), and incorporates the guidance contained in RG1.159. The reporting requirements and corresponding MARAD information are provided below.

2.1 The amount of decommissioning funds estimated to be required.

- a) *Current licensed activities require approximately \$3.00 million annually. MARAD plans to dry-dock the NSS in 2019 for regular maintenance during the protective storage period at an estimated cost of \$6.80 million.⁴*
- b) *The revised SAFSTOR project cost estimate is \$13.3 million.*
- c) *The revised site-specific DECON-License Termination cost estimate is \$118.1 million.*

2.2 The amount accumulated to the end of the calendar year preceding the date of the report.

Accumulation of funds is not applicable to the NSS. As a Federal licensee, 10 CFR 50.75(e)(1)(iv) allows funding for decommissioning activities to be obtained by appropriations when necessary.

2.3 A schedule of the annual amounts remaining to be collected.

Annual collection of funds is not applicable to the NSS. As a Federal licensee, 10 CFR 50.75(e)(1)(iv) allows funding for decommissioning activities to be obtained by appropriations when necessary.

³ SAFSTOR: The facility is placed in a safe, stable condition and maintained in that state until it is subsequently decontaminated and dismantled to levels that permit license termination. During SAFSTOR, a facility is left intact, but the fuel has been removed from the reactor vessel and radioactive liquids have been drained from systems and components and then processed, as defined by Regulatory Guide 1.184, Rev. 1, Decommissioning of Nuclear Power Reactors.

⁴ The drydocking cost estimate was escalated to a 2018 basis from the \$4.10 million contract cost for drydocking the NSS in CY 2008. The 2018 cost estimate is adequate for the activity to be performed in 2019.

- 2.4 The assumptions used regarding rates of escalation in decommissioning costs, rates of earnings on decommissioning funds, and rates of other factors used in funding projections.

The 2017 revised site-specific DECON-License Termination cost estimate used 12.5% escalation for disposal of low level radioactive waste (LLRW). Transportation escalation used was 12.9%. Electric Power escalation used was 12.7%. All other industrial task costs were escalated at 2.6%.

Escalation factors were determined referencing NUREG 1307, Revision 16 (Waste Disposal costs) and by direct data from Bureau of Labor Statistics from <http://www.bls.gov/data/>, Series ID for the latest 2017 values available at the time of the calculation:

1. *Wpu0543 (Industrial electric power)*
2. *Wpu0573 (Light fuel oils)*
3. *CIU2010000002101 (Total compensation, private industry, Northeast region).*

Based on the above factors, the simple DECON -License Termination cost estimate escalation rate from 2016 to 2017 was 4.73%. The SAFSTOR project cost estimate was revised by escalating the 2016 estimate at 4.73%. This simple escalation rate is substantially greater than escalation rates experienced over the past several years. Two factors account for this increase: first, the published BLS data for transportation and electricity were positive for the first time in at least four years, where previously negative factors were conservatively addressed by MARAD as zero escalation, and second, the change in waste cost methodology in the most recent version of NUREG 1307. Previous waste escalation by MARAD was between 4.0 and 5.0%; however, the prescriptive nature of the current calculation, coupled with the inability of MARAD to affiliate with any of the established waste compacts, results in the escalation factor increase reported above. Collectively, the change in these three data points increased the decommissioning cost estimate by about \$2.00 million over the multi-year trend

There are no rates of earnings on decommissioning funds.

- 2.5 Any contracts upon which the licensee is relying pursuant to paragraph (e)(1)(v) of this section.

Not applicable because MARAD, as a Federal licensee, is funded per the 10 CFR 50.75(e)(1)(iv) method.

- 2.6 Any modifications occurring to a licensee's current method of providing financial assurance since the last submitted report.

There have been no modifications to MARAD's financial assurance methodology, which is limited to the use of Federal appropriations. Please refer to the response in Section 4.1 below for more information.

- 2.7 Any material changes to trust agreements.

Not applicable because MARAD, as a Federal licensee, is funded per the 10 CFR 50.75(e)(1)(iv) method. Consequently, no trust agreements exist.

3.0 FINANCIAL ASSURANCE STATUS ANNUAL REPORT

This section provides a discussion of the 10 items required by 10 CFR 50.82(a)(8)(v)-(vii). Effective December 17, 2012, Section 50.82 imposed new reporting requirements on licensees who previously submitted to the NRC site-specific DCE. The reporting requirements and corresponding MARAD information are provided below.

3.1 REPORT REQUIRED BY 10 CFR 50.82(A)(8)(V)

(A)

1. The amount spent on decommissioning, both cumulative and over the previous calendar year,

Within the context of protective storage as a phase of decommissioning activities, all the funds spent by MARAD in CY2017 and preceding years (FY2005 - present) have been spent for decommissioning purposes. MARAD's budget requests through FY2019 have continued to provide for a baseline protective storage component of cost. This strategy is designed to provide sufficient resources to MARAD to maintain the NSS if there is a lapse or interruption in funding for decommissioning-license termination.

During the reporting period, MARAD obligated approximately \$2.00 million from the \$24.0 million tranche of decommissioning-license termination funds.

2. The remaining balance of any decommissioning funds, and

Not applicable because MARAD, as a Federal licensee, is funded per the 10 CFR 50.75(e)(1)(iv) method. Although funds appropriated to MARAD's Ship Disposal account are "available until expended," any year-to-year carryover is applied to immediate requirements. No balance is maintained.

3. The amount provided by other financial assurance methods being relied upon;

None. MARAD, as a Federal licensee, relies solely on the 10 CFR 50.75(e)(1)(iv) method.

- (B) An estimate of the costs to complete decommissioning, reflecting any difference between actual and estimated costs for work performed during the year, and the decommissioning criteria upon which the estimate is based;

MARAD's CY2017 site-specific DECON-License Termination cost estimate is \$118.1 million based on escalation from the 2016 estimate (see Section 2.4 above for the escalation basis). This estimate is effective as of December 2017. This estimate does not credit any work performed during the reporting period.

- (C) Any modifications occurring to a licensee's current method of providing financial assurance since the last submitted report; and

There have been no modifications to MARAD's financial assurance methodology, which is limited to the use of Federal appropriations. Please refer to the response in Section 4.1 below for more information.

- (D) Any material changes to trust agreements or financial assurance contracts.

Not applicable because MARAD, as a Federal licensee, relies solely on the 10 CFR 50.75(e)(1)(iv) method.

3.2 REPORT REQUIRED BY 10 CFR 50.82(A)(8)(VI)

If the sum of the balance of any remaining decommissioning funds, plus earnings on such funds calculated at not greater than a two percent real rate of return, together with the amount provided by other financial assurance methods being relied upon, does not cover the estimated cost to complete the decommissioning, the financial assurance status report must include additional financial assurance to cover the estimated cost of completion.

Not applicable to MARAD.

3.3 REPORT REQUIRED BY 10 CFR 50.82(A)(8)(VII)

After submitting its site-specific DCE required by paragraph (a)(4)(i) of this section, the licensee must annually submit to the NRC, by March 31, a report on the status of its funding for managing irradiated fuel.

The final disposition and status of the Atomic Energy Commission's nuclear fuel utilized by the NSS is described in the September 21, 1973, Operations Report and also in Section 1.3.1 of the Final Safety Analysis Report as follows:

Thirty six spent fuel elements (Core I and Ia) were shipped from Galveston, TX to the US Atomic Energy Commission (AEC) - Savannah River Plant, Aiken, SC in nine shipments from October 4 through December 21, 1972 via a lowboy trailer using the Piqua/Elk River Shipping cask.

The 10 CFR 50.82(a)(8)(vii) report must include the following information, current through the end of the previous calendar year:

(A) The amount of funds accumulated to cover the cost of managing the irradiated fuel;

MARAD is storing no irradiated nuclear fuel and, therefore, has no accumulated funds to cover such costs.

(B) The projected cost of managing irradiated fuel until title to the fuel and possession of the fuel is transferred to the Secretary of Energy; and

MARAD is storing no irradiated nuclear fuel and, therefore, has no need to project such costs.

(C) If the funds accumulated do not cover the projected cost, a plan to obtain additional funds to cover the cost.

MARAD is storing no irradiated nuclear fuel and, therefore, has no need to obtain additional funds to cover such cost.

4.0 CY2017 FUNDING

The NSS was maintained in mothballed protective storage throughout CY2017. Approximately \$3.00 million in appropriated, carryover and other prior-year funds were available to MARAD to maintain the NSS during the period. Funds were sourced from within MARAD's Ship Disposal appropriations for FY2017 (January 1 – September 30, 2017) and 2018 (October 1 – December 31, 2017). MARAD operated on continuing resolutions for most of the reporting period, as described in the FY 2017 and 2018 sections below.

4.1 FY2017

The President's FY2017 Budget Request for the Maritime Administration was submitted to the Congress on February 9, 2016. The request for NSS activities included \$3.00 million for the baseline protective storage condition and \$8.00 million to initiate DECON. The FY2017 National Defense Authorization Act authorized NSS activities at the levels in the President's request; however, when appropriations for FY2017 were finalized in May 2017 in the Consolidated Appropriations Act for FY2017, \$24.0 million was provided to MARAD for N.S. SAVANNAH decommissioning and license termination. The increase represented a nominal two-year tranche of funding. FY2017 operations were performed on Continuing Resolutions from October 1 until apportionments against the final appropriation were made available in late June 2017. FY2017 ended on September 30, 2017.

4.2 FY2018

The President's FY2018 Budget Request for the Maritime Administration was effectively a current-services request with respect to the NSS. It included \$3.00 million for protective storage activities, but no decommissioning funds. Decommissioning activities in FY2018 are funded from the FY 2017 appropriation, whose funds are available until expended. FY2018 began on October 1, 2017. FY2018 operations were performed on Continuing Resolutions through the end of the CY2017 reporting period, with protective storage funds provided on a per diem basis calculated against the FY2017 \$3.00 million protective storage appropriation.

4.3 FY2019

The President's FY2019 Budget Request for the Maritime Administration was submitted to the Congress on February 12, 2018. The request for NSS activities includes \$3.00 million for the baseline protective storage condition, and \$25.0 million to continue decommissioning and license termination activities.

5.0 REGULATORY COMMITMENTS REGARDING DECOMMISSIONING FUNDING

There are four (4) recurring commitments regarding decommissioning funding that are reported on in each annual Decommissioning Funds Status Report. The resolution of any one-time commitments will be described as required. The recurring commitments are described in the following sections.

5.1 ANNUAL REQUEST FOR FUNDS

In Reference (d), MARAD made the following regulatory commitment:

Annually, MARAD will request funds specifically for decommissioning. The NRC will be informed of these decommissioning funding requests annually by March 31. [Continuing action]

Each year in its Decommissioning Funds Status Report, MARAD includes a statement regarding the budget requests prepared during the reporting period.

Two budget requests are normally in process during any reporting period. The first is the President's Request that is submitted to the Congress during the first quarter of the reporting period for the FY beginning on October 1st of the reporting period. The second is the deliberative and privileged internal process that begins in April, continues throughout the reporting period, and culminates in the President's Request to Congress in the following year. Although the submission of the outyear (or second) budget request falls outside of the reporting period, it does normally occur prior to the reporting deadline of March 31. As noted in Section 1.0, this outyear request is a reasonable predictor of future decommissioning funding and activity, and publicly available information about the request is included in this report for context.

As noted in Section 4.2, the President's FY 2018 budget request did not include funds for decommissioning-license termination activities; however, because the FY 2017 appropriation included a nominal two-year tranche of decommissioning funds, MARAD considers the commitment to be satisfied for FY 2018. As in prior years, MARAD, OST and OMB remained cognizant of the responsibilities and future funding requirements for DECON, and these obligations were examined and balanced during the budget development cycle.

With respect to the outyear request, as noted in Section 4.3 the President's FY 2019 budget request includes \$25.0 million to continue decommissioning and license termination activities. The commitment is satisfied for FY 2019.

5.2 ANNUAL SUBMITTAL OF NEW ESTIMATE

In Reference (e), MARAD made a regulatory commitment that was subsequently revised as follows:

Submit a new estimate annually by either revising the site specific estimate based on circumstances that affect its underlying assumptions, or by using cost escalation factors no smaller than those in the most recent revision to NUREG 1307.

The CY2017 estimate is provided in Sections 2.1 and 2.4 of this report.

5.3 REVISED DECOMMISSIONING COST ESTIMATE (DCE)

In Reference (e), MARAD made the following regulatory commitment:

The site specific DCE will be revised at least every five (5) years.

The site specific DCE is scheduled for full revision in CY2020.

5.4 CONTENT OF MARAD BUDGET REQUESTS

In Reference (f), MARAD made the following regulatory commitment:

Because the privity of the Federal budgeting process precludes public notification of the content of agency budget requests prior to their submittal to the Congress, MARAD has determined that future 10 CFR 50.82(a)(7) notifications will be submitted under a 10 CFR 2.390 request for withholding.

As described in Reference (f), MARAD received an appropriation of \$24.00 million in FY2017 to commence decommissioning. In general terms, the appropriations provide a two-year tranche of funds to carry out Phase I of the DECON project as described in the PSDAR, Reference (b). Based on the revised Decommissioning Activities Schedule submitted to the NRC in Reference (g), MARAD determined that a 10 CFR 50.82(a)(7) notification (change to the content of the PSDAR) was required. That notification was provided in Reference (f); however, it was not submitted under 10 CFR 2.390 because it was based on publicly-available information.

6.0 TIME REMAINING TO COMPLETE DECOMMISSIONING

As of December 3, 2017, 46 years of protective storage had elapsed; more than 75% of the allowed 60-year protective storage – DECON – license termination period.

7.0 REFERENCES

- a. Regulatory Guide 1.159, *Assuring the Availability of Funds for Decommissioning Nuclear Reactors*, Revision 1, October 2003
- b. Letter from Mr. Erhard W. Koehler (MARAD) to U.S. Nuclear Regulatory Commission (NRC), dated December 11, 2008, *Submittal of Post Shutdown Decommissioning Activities Report*, Revision 1
- c. Letter from Mr. Erhard W. Koehler (MARAD) to U.S. Nuclear Regulatory Commission (NRC), dated February 23, 2018, *Annual Report for CY2017, Revision 0*
- d. Letter from Mr. Erhard W. Koehler (MARAD) to U.S. Nuclear Regulatory Commission, dated March 9, 2011, *Response to Receipt of Decommissioning Funds Status Update for CY 2009*
- e. Letter from Mr. Erhard W. Koehler (MARAD) to U.S. Nuclear Regulatory Commission, dated March 31, 2011, *Submittal of Decommissioning Funds Status Report for CY 2010 and updated Governmental Statement of Intent for Decommissioning Financial Assurance*

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- f. Letter from Mr. Erhard W. Koehler (MARAD) to U.S. Nuclear Regulatory Commission (NRC), dated May 30, 2017, *Availability of Funds for Decommissioning*
- g. Letter from Mr. Erhard W. Koehler (MARAD) to U.S. Nuclear Regulatory Commission, dated June 04, 2010, *Submittal of Decommissioning Funds Status Update for CY 2009 and Governmental Statement of Intent for Decommissioning Financial Assurance*