U.S. Department of Transportation

Maritime Administration

Office of Ship Disposal

1200 New Jersey Ave., SE
Washington, DC 20590

Ref: 10 CFR 50.36(c)(5), 50.54(w), 50.59(d)(2)

February 29, 2016

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

SUBJECT: Docket No. 50-238; License No. NS-1; N.S. *SAVANNAH*
Annual Report for CY2015, Revision 0

Pursuant to Technical Specification 3.4.2, the Maritime Administration (MARAD) is required to submit an annual written report. MARAD hereby submits Revision 0 to the Annual Report for CY2015 as Enclosure (1).

The annual report is also intended to meet the routine reporting requirements for:

- 10 CFR 50.59(d)(2) requires a summary of safety evaluations for activities implemented under 10 CFR 50.59; and,
- 10 CFR 50.54(w) Insurance Annual Report.

This submittal contains no new Regulatory Commitments.

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

Respectfully,

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

Enclosure

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

Office of Ship Disposal

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Office of Ship Disposal

Enclosure

Enclosure:
1. Annual Report for CY2015, Revision 0

cc:

Electronic copy
NSS ESC
NSS SRC

MAR 610, 612, 615

Hardcopy, cover letter only
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
MD Department of the Environment (Roland G. Fletcher; George S. Aburn, Jr.)
VA Department of Emergency Management (Michael M. Cline)
VA Department of Health (Leslie P. Foldesi)

EWK/jmo

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

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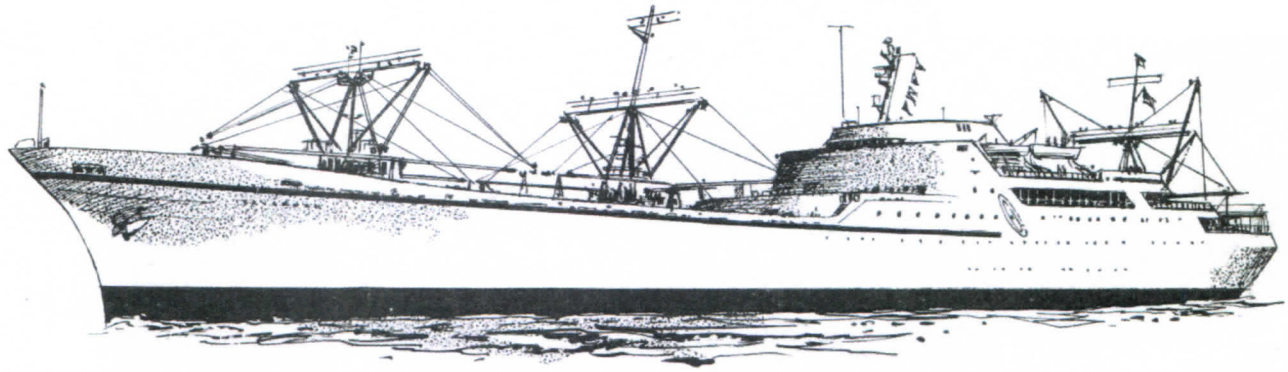
1200 New Jersey Ave., SE
Washington, DC 20590

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

Enclosure 1 to Submittal of Annual Report for CY2015, Revision 0

U.S. Department of Transportation
Maritime Administration



N.S. SAVANNAH

ANNUAL REPORT
2015

STS - 196

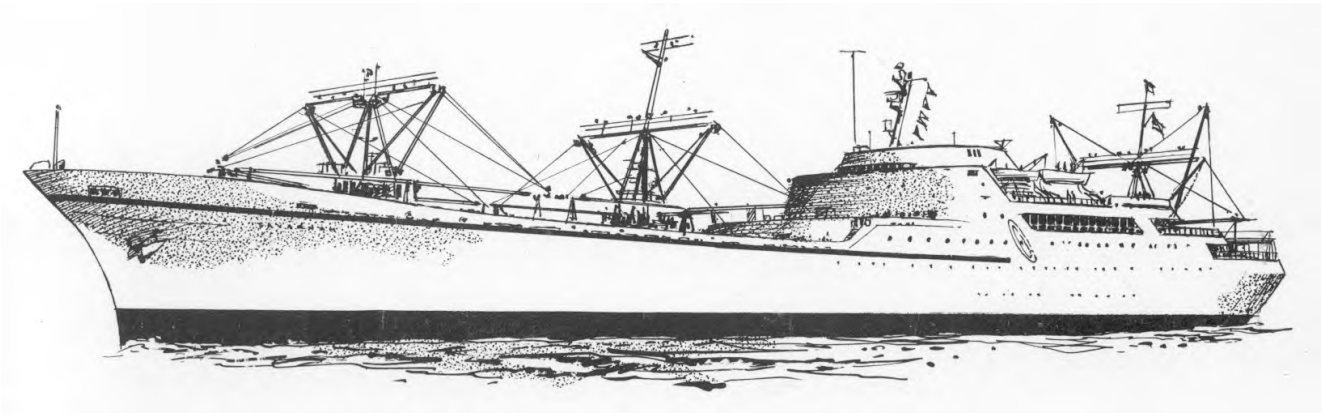
Revision 0

Approved: _____ Date: 02/29/2016

Manager, N.S. *SAVANNAH* Programs

Prepared by:
TOTE Services, Inc.

U.S. Department of Transportation
Maritime Administration



N.S. SAVANNAH

ANNUAL REPORT
2015

STS - 196

Revision 0

Approved: Date:

Manager, N.S. *SAVANNAH* Programs

Prepared by:
TOTE Services, Inc.

RECORD OF REVISIONS

Revision	Summary of Revisions
0	The original version of the 2015 Annual Report License NS-1

LIST OF EFFECTIVE PAGES

Page No.	Rev. No.	Page No.	Rev. No.	Page No.	Rev. No.
1	0	2	0	3	0
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16	0				

Table of Contents

1.0 INTRODUCTION

This Annual Report is submitted by the Maritime Administration (MARAD) as licensee for the Nuclear Ship *SAVANNAH* (NSS) and covers the Calendar Year (CY) 2015 reporting period. This report is arranged into three sections following the introduction. Section 2.0 provides the discussion of the various reporting items required by the Technical Specifications (TSs). Section 3.0 includes other periodic reports required by the NRC, and issues of regulatory significance. Section 4.0 includes facility issues that MARAD believes may be of interest to the NRC.

In accordance with the requirements of TS 3.4.2.1, the written annual report shall be submitted prior to March 1 of the following calendar year, and shall specifically include the nine (9) reporting items listed in that specification. These items are addressed in Sections 2.1 through 2.9 inclusive. In addition, TS 3.6.3 requires the Safety Review Committee (SRC) to review ten (10) items, one of which is this annual report. Section 2.1.3 includes the status of these ten (10) SRC review items.

2.0 ITEMS REQUIRED BY TECHNICAL SPECIFICATIONS

The nine (9) TS 3.4.2.1 items specifically required to be included in the written annual report are as follows:

a. The status of the facility (see 2.1).

b. The results of the radiation surveys and monitoring station dosimeter readings (see 2.2).

c. The results of environmental sample analysis surveys (see 2.3).

d. The results of quarterly intrusion alarm system checks (see 2.4).

e. The amount of radioactive materials removed from the N.S. *SAVANNAH* (NSS) by releases, discharges, and shipments of radioactive waste material (see 2.5).

f. A description of the principal maintenance performed on the vessel (see 2.6).

g. Any unauthorized entry into radiation control areas by visitors or employees and corrective action taken to improve access control (see 2.7).

h. Any degradation of one of the several boundaries which contain the radioactive materials aboard the NSS (see 2.8).

i. Results of occupational exposure indicated by personal dosimetry (see 2.9).

The status of these subject items were reviewed by the Safety Review Committee at its annual meeting on December 8, 2015 and by the Executive Steering Committee members during its concurrence routing prior to submission of this annual report to the NRC.

2.1 TS 3.4.2.1.A. STATUS OF THE FACILITY

During CY 2015, the ship was berthed at Pier 13, Canton Marine Terminal, 4601 Newgate Avenue, Baltimore, MD, and remained "Mothballed" per the requirements of Regulatory Guide (RG) 1.86, "Termination of Operating Licenses for Nuclear Reactors," Reference (a). This 1974 RG describes the now outmoded Mothballing option of protective storage. This state of protective storage was approved in 1976 by Amendment 8 (Possession-Only) to License NS-1, Reference (b).

As described in MARAD's Post Shutdown Decommissioning Activities Report (PSDAR), Rev 1, Reference (c), in 2008 MARAD committed to a project to bring the NSS into conformance with the contemporary NRC SAFSTOR protective storage criteria. Appropriated funding has not yet been provided for that project. In the interim, MARAD has maintained its active retention program of surveillance, monitoring and maintenance of the nuclear facilities housed onboard the ship, and custody,

maintenance and repair of the ship as the primary physical boundary and protective barrier of the licensed site.

2.1.1 LICENSE ACTIVITIES

MARAD completed no significant licensing action in 2015.

2.1.2 ORGANIZATION

In 2015, MARAD made no substantial changes to its licensee organization. The organization continues to be made up of MARAD direct employees, contractors, and consultants.

2.1.3 REVIEW OF OTHER TECHNICAL SPECIFICATION REQUIREMENTS

In accordance with the TS 3.6.3, the Safety Review Committee (SRC) is specifically required to review the following items with or without a formal meeting:

a. *Proposed changes to Technical Specifications*

No changes were proposed to the Technical Specifications in CY 2015.

b. *Evaluations required by 10 CFR 50.59*

Safety Evaluation Screenings were performed as required. No screening determined that a 10 CFR 50.59 Evaluation was required; consequently, none were performed. Additional information regarding 10 CFR 50.59 Evaluations is found in Section 3.1 of this report.

c. *Proposed changes or modifications to a Radiologically Controlled Area entry alarm system or reactor containment vessel system*

The SRC reviewed all changes to alarm systems prior to installation.

There were no changes to the reactor containment vessel system.

d. *Evaluations of substantive changes to the results of radiological surveys*

There were no substantive changes to the results of radiation surveys.

e. *Procedures and revisions per TS 3.5*

Procedures and their revisions were reviewed prior to approval.

f. *Evaluations of reported violations of Technical Specifications*

There were no reportable violations to Technical Specifications in 2015.

g. *Evaluations of reportable events per TS 3.4.3.1*

There were no reportable events in 2015.

h. *Evaluations of deviations allowed by TS 3.7.1.7*

No new Technical Specification Deviations were approved and no existing deviations were revised in 2015.

i. *Audits and self-assessments to verify the effectiveness of the Decommissioning Quality Assurance Plan*

Assessments were performed in the following functional areas in the reporting period:

- QSA-2015-001, Corrective Action Report Open Items in the Comprehensive Action Tracking System (database application)
- QSA-2015-002, Commitment Periodic Review 2015
- QSA-2015-003,Technical Specification 3.7.1.7 Deviations Review 2015
- QSA-2015-004, Procedure Annual Review 2015

j. *Annual reports to the NRC*

During the reporting period, the CY 2014 Annual Report (STS-191) and the CY 2014 Decommissioning Funds Status Report (STS-192) were reviewed prior to their submission to the NRC.

2.1.4 DECOMMISSIONING PLANNING ACTIVITIES

MARAD decommissioning planning during protective storage is generally associated with the development of budget estimates and requests, as described in Reference (d) and similar prior-year reports. MARAD also monitors developments in the decommissioning environment for applicability to future NSS activities. In particular, the recent decommissioning rulemakings and proposed changes to regulations to address lessons learned over the 20 years since the last comprehensive decommissioning rulemaking are of near-term interest to MARAD. In an effort to keep NSS programs and procedures in conformance with contemporary precedents and expectations, MARAD reviewed and compared emergency and other operating plans submitted by licensees entering protective storage, and revised similar NSS plans to suit. In particular, the models for permanently shutdown, fuel removed and fuel moved offsite nuclear power plants are employed for planning purposes.

MARAD's site-specific decommissioning cost estimate (DCE) was revised during CY 2015. Since the DCE is based on presumed methods and practices to perform decommissioning (DECON) activities, coupled with assumptions regarding waste transportation and disposal, site-specific activities, and performance of certain activities in drydock facilities, the opportunity was exercised to review and challenge all existing decommissioning plans and assumptions. That exercise validated MARAD's longstanding approach to NSS DECON, with some improvements based on improved familiarity with plant conditions based on experiences during protective storage.

2.1.5 *SAVANNAH* EMERGENCY RADIOLOGICAL ASSISTANCE TEAM (SERAT)

All SERAT members are located within a 2-hour response radius of the ship's current location.

2.2 TS 3.4.2.1.B. RADIATION SURVEYS AND MONITORING STATION DOSIMETER READINGS

A routine radiological survey program continued to be followed in 2015. Radiological survey measurements were taken in various Radiologically Controlled Areas (RCAs) and non-RCAs. Evaluations of all surveys over the course of the year found no significant changes in 2015. All readings in non-RCAs were insignificant as compared to background radiation levels. The results of the 2015 Radiation Survey Results in RCAs are listed in Appendix A.

2.2.1 MONITORING STATION DOSIMETER RESULTS

Forty-six (46) permanently placed thermo luminescent dosimeter (TLD) monitoring stations are dispersed throughout the non-RCAs of the NSS and in those areas of the NSS that are routinely occupied. Fixed point radiation surveys are performed during TLD change outs. Results from the TLDs from all monitoring stations indicated that readings were insignificant as compared to the background radiation levels. No fixed point radiation dose rate exceeded 5 mR/hr (milli-R/hr).

2.3 TS 3.4.2.1.C. ENVIRONMENTAL SAMPLE ANALYSIS SURVEYS

Environmental water and sediment samples were taken adjacent to the ship at various times during the calendar year as required by TS and potential ship's movement to new piers. The environmental sample results indicate that any changes in the radiological conditions in the environment surrounding NSS are insignificant as compared to the samples taken shortly before the NSS arrived at Pier 13. Therefore, based on the results of the radiological environmental monitoring program, NSS operations did not have any adverse effects on the health and safety of the public or on the environment in 2015.

The results of the 2015 Radiological Environmental Sampling Results are listed in Appendix B.

As part of the decommissioning planning described in section 2.1.4, dose rates surveys were performed at eleven (11) representative locations within a three mile planning radius of Pier 13.

Dose rates were obtained using a Bicron MicroR Meter and a Radiation Alert Inspector EXP. Results of the dose rate measurements were 4 to 15 μRem/hr and are well within the normal deviation of natural background. One set of contact measurements were obtained on the brownstone building surface of the Old Fire House Number 50, and the results were 20 μRem/hr. These dose rates measurements are typical for that type of building material. Complete results can be found in Appendix C, Community Radiation Background Survey Results.

2.4 TS 3.4.2.1.D QUARTERLY INTRUSION ALARM SYSTEM CHECKS

Routine security surveillances were conducted as required by TS 3.7.2.1 and the Key and Seal log was reviewed on a quarterly basis. Other monitored doors were tested.

2.5 TS 3.4.2.1.E. RADIOACTIVE MATERIALS REMOVED BY RELEASES, DISCHARGES AND WASTE SHIPMENTS

No radioactive materials were removed from the ship by any of the methods described below:

2.5.1 RELEASES

There were no releases.

2.5.2 DISCHARGES

There were no discharges.

2.5.3 SHIPMENTS

There were no shipments.

2.6 TS 3.4.2.1.F. PRINCIPAL MAINTENANCE AND RELATED ACTIVITIES

Annually, MARAD's major maintenance activities focus on occupational and visitor safety, TS-required equipment, routine preventative maintenance, repairs and upgrades, preservation of the ship's structural integrity, and restoration of ship systems and equipment necessary for husbanding the ship and for its long-term retention and/or decommissioning. The following significant discrete activities were performed in 2015:

2.6.1 UNDERWATER HULL INSPECTION

TS 3.7.3.3 requires that an underwater inspection of the hull be conducted at least every four years. MARAD performs this inspection annually as part of its hull classification program. The 2015 inspection was the normal diver-based visual examination of the underwater hull surface.

The underwater hull inspection was conducted by Marine Technologies Inc. (Baltimore, MD) on October 27-28, 2015. The survey was performed from pier-side at the Canton Marine Terminal - Pier 13, Baltimore, MD. The first day was the routine scope of inspection; the second day was a focused close-up visual and ultrasonic inspection of six targeted areas. The results of the inspection were satisfactory overall and within expectations. The inspection noted 0.25 to 0.5 inches of easily removable marine growth and intact anti-fouling coating. The coating is in acceptable condition and welds appear in good condition. The observed pitting appears to be pre-existing with no new pitting noted.

2.6.2 CATHODIC PROTECTION SYSTEM

As required by TS 3.7.3.2, the impressed-current cathodic protection system was maintained and tested periodically during CY 2015. The current Original Equipment Manufacturer (OEM) representatives inspected and serviced the system in early 2014, and made recommendations for upgrading the automatic control features of the 1960's vintage equipment. No action has been taken on these recommendations which are discretionary. The upgrades have been added to the work package for the next maintenance drydocking.

2.6.3 ALARM SYSTEM REPAIRS

As reported in Reference (e), repairs to the ship's Siemens (formerly referred to as Hiller) combined fire and smoke detection and internal flooding and intrusion alarm system were completed as expected in early in 2015. The system has operated satisfactorily for the balance of the reporting period.

The Motorola (formerly referred to as TYCO) alarm system provides TS-required intrusion coverage and other redundant intrusion and heat detection. That system Continues to operate satisfactorily.

2.6.4 SOURCE DISCOVERY

During the Cold Chemistry Laboratory housekeeping in July 2015, an installed radioactive source for Channel 11 of the Stack Effluent Radiogas Monitor of the Radiation Monitoring System (RMS) was discovered.

MARAD understands that discovery of this source is not consistent with the entry in Table 1-1 "Chronology of Significant Events" of the Final Safety Analysis Report that on September 24, 1980, the Bureau of Radiological Health, South Carolina Department of Health & Environmental Control certifies all ten remaining radioactive sources have been transferred from the ship to their custody.

A Corrective Action Report was written to record the source and its location. The surface area of the source container was monitored for contamination leakage. None was found.

Subsequent record review and inspection determined the sources for Channels 8, 9 and 10 are also likely still installed in the Stack Effluent Air Particulate and Radiogas Monitors of the RMS. Each source contains an exempt amount of material - listed as 9µCi of Cs137 in an inventory dated January 10, 1970. The same inventory indicated the original strength was measured May 31, 1961 for Channels 8 and 10 sources and July 7, 1961 for Channels 9 and 11 sources. Given that the sources present no hazard to the general public or environment, they

will remain inside the Cold Chemistry Laboratory (designated an RCA) until disposed in accordance with 10CFRPart 20.

2.6.5 DE-POSTING RADIOLOGICALLY CONTROLLED AREAS

The B Deck Fan Room, Health Physics Lab and Hot Chemistry Lab have been cleaned and all potential radioactive material has been evaluated and removed. Based on radiological surveys, the following actions have been taken:

- The B Deck Fan Room posting has been moved to the Cold Chemistry Laboratory door inside of the B Deck Fan Room.
- The Hot Chemistry Lab posting has been removed. The contaminated sink and drain line have been posted as both Contamination Areas and Radioactive Material Areas. Access to these areas has been secured.
- The Health Physics Laboratory posting has been removed. The contaminated sink and drain line have been posted as both Contamination Areas and Radioactive Material Areas. Access to these areas has been secured.

These changes were reviewed and approved by the Safety Review Committee.

2.7 TS 3.4.2.1.G. UNAUTHORIZED ENTRY INTO RADIOLOGICALLY CONTROLLED AREAS (RCAS)

No unauthorized entries were made into any RCAs in 2015.

2.7.1 EVENT DISCUSSION

None

2.7.2 IMPROVEMENTS TO ACCESS CONTROL

None

2.8 TS 3.4.2.1.H. INSPECTION OF PRIMARY, SECONDARY AND AUXILIARY SYSTEMS DEGRADATION

The annual inspection required by TS 3.7.3.4 was conducted from September 22 through 24, 2015. It is documented in SURV TS-A-2-2015, Annual SSC Degradation Inspection. There was no notable change in the condition of the primary, secondary and auxiliary systems since the last inspection in 2014. The water levels in the Forward and Aft Reactor Compartment Lower Level sumps continue to be monitored.

2.9 TS 3.4.2.1.I. SUMMARY OF 2015 OCCUPATIONAL EXPOSURE

As a result of the NSS being in the Mothballed state of protective storage, no individual is expected to receive in one year from sources external to the body, a dose in excess of 10 percent of the limits specified in 10 CFR 20.1201. Thirty-five individuals were monitored with TLD and self-reading dosimetry during their entries into RCAs. All personnel received less than 10 mRem from occupational sources during the monitoring period. Therefore, MARAD has no requirement under 10 CFR 20.1502, "Conditions requiring individual monitoring of external and internal occupational dose," to reasonably anticipate that there is a need to "monitor exposure to radiation and radioactive materials at levels sufficient to demonstrate compliance with the occupational of dose limits." Likewise, MARAD has no requirement under 10 CFR 20.2106, "Records of individual monitoring results," to maintain records of doses when an individual is not required to be monitored.

3.0 OTHER NRC REPORTS

3.1 10 CFR 50.59(D)(2) REPORT OF CHANGES, TESTS OR EXPERIMENTS

The regulations require each power reactor licensee to submit, at intervals not to exceed 24 months, a report containing a brief description of any changes, tests, and experiments, including a summary of the evaluation of each.

No Changes, Tests or Experiments were proposed in 2015 that would require a 10 CFR 50.59 evaluation, and, consequently, no evaluations were completed.

3.2 10 CFR 50.54(W)(3) INSURANCE ANNUAL REPORT

The regulations require each power reactor licensee to obtain insurance available at reasonable costs and on reasonable terms from private sources or to demonstrate to the satisfaction of the NRC that it possesses an equivalent amount of protection covering the licensee's obligation. MARAD adheres to the Federal rules of self-insurance as a matter of established policy.

4.0 SIGNIFICANT MARAD ISSUES

4.1 REMAINING PROTECTIVE STORAGE TIMELINE

As described in Reference (c), and elsewhere, the license termination deadline for the NSS is December 3, 2031,[1] based on the Permanent Cessation of Operations milestone date of December 3, 1971. As of December 3, 2015, 44 years of protective storage had elapsed; almost 75 percent of the allowed 60-year protective storage – DECON - license termination period.

4.2 PUBLIC EVENTS, VISITATION AND TRAINING

Similar to past years, MARAD continued its program of public access and training support during 2015. In addition to several group tours, there were two public open house events. The first was on Sunday, May 17 as part of the Port of Baltimore observance of National Maritime Day, with a concurrent Port Exposition on Pier 13. The event had an estimated attendance of 2,000 persons. The second event was observed over the Labor Day weekend and commemorated the 70th anniversary of the end of World War II. Cooperating with the restored World War II Liberty Ship *John W. Brown* and other area museums and reenactment groups, *SAVANNAH* was open to general public visitation from Friday, September 4 through Sunday, September 6. A total of 353 persons visited the ship. Other controlled-access public events were scheduled throughout the year, and two Science, Technology, Engineering and Mathematics (STEM) related Scout activities were held in October. These were repeats from 2014; first a Nuclear Science Merit Badge workshop for Boy Scouts, timed to coincide with National Nuclear Science Week, and second an all-day international radio communications activity for Cub Scouts participating in the "Jamboree on the Air/Jamboree on the Internet." A Northern Virginia-based Girl Scout troop participated in the merit badge activity. MARAD also participated in the third annual Baltimore "Port Fest", providing STEM presentations and technical tours of the NSS to middle and high school students in Maryland and Pennsylvania.

The NSS was again employed as a training site for various U.S. government agencies and organizational elements during CY 2015. Two classes from the Weapons Intelligence Non Proliferation and Arms Control Center (WINPAC) attended in March and October. The Defense Intelligence Agency employed NSS as one of several exercise sites in the Baltimore metropolitan area in June, with a follow-up exercise in November.

[1] December 3, 1971 is the de facto date of permanent cessation of operations date based on completing the reactor defueling that date by tensioning the reactor vessel head with six studs.

4.3 HISTORIC STEWARDSHIP

MARAD maintained its robust historic stewardship program in 2015. Under the provisions of the National Historic Preservation Act (NHPA) of 1966, as amended, the highest standard of care for historic objects falls upon federal owners of National Historic Landmarks (NHL). The NSS was designated as a NHL in 1991, and is the only directly-owned, managed and maintained NHL property in the Department of Transportation inventory[2]. MARAD maintains a continuous focus on its historic stewardship responsibilities when conducting activities on the NSS site. All work on the ship, whether radiological or not, is sensitive to maintaining the historic fabric and appearance of the ship. MARAD's Federal Preservation Officer (FPO) provides expert advice and guidance to licensee staff in these matters, particularly with respect to the implementation of the Secretary of the Interior's Standards for the Treatment of Historic Properties and Historic Vessel Preservation Projects.

Decommissioning activities are subject to the provisions of the NHPA, and MARAD includes such planning and consultation as is necessary to ensure that decommissioning activities are in compliance with all applicable historic preservation statutory and regulatory requirements, as well as the relevant executive orders.

5.0 REFERENCES

a. Regulatory Guide 1.86, Termination of Operating Licenses for Nuclear Reactors, June 1974

b. 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]

c. 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

d. Letter from Mr. Erhard W. Koehler (MARAD) to U.S. Nuclear Regulatory Commission (NRC) dated April 23, 2015, Submittal of Decommissioning Funds Status Report for CY 2014, Rev 0

e. Letter from Mr. Erhard W. Koehler (MARAD) to U.S. Nuclear Regulatory Commission (NRC) dated February 28, 2015, Submittal of Annual Report for CY 2014, Revision 0.

[2] The NHL Washington (DC) Union Station is owned by the DOT, acting through the Federal Railroad Administration. The station complex, including air rights above the tracks, is managed and maintained by the independent Union Station Redevelopment Corporation, a public-private quasi-governmental entity established in 1983.

APPENDIX A. 2015 RADIATION SURVEY RESULTS IN RADIOLOGICALLY CONTROLLED AREAS

Area	General Area Radiation levels mR/hr (milli-R/hr)	Highest Radiation Level mR/hr (milli-R/hr)	General Area Contamination Level (DPM/100cm^2)	Highest Contamination Level (DPM/100cm^2)
Reactor Compartment Cupola Level	<1.0	<1.0	<1000	<1000
Reactor Compartment Upper Level	<1.0	<1.0	<1000	<1000
Reactor Compartment Forward Middle Level	<1.0	<1.0	<1000	<1000
Reactor Compartment Aft Middle Level	<1.0	<1.0	<1000	<1000
Reactor Compartment Lower Level	<1.0	40 on contact with pipe 8 ft in overhead; 10 @ 30 cm. (A) (B)	<1000	4041 inside drum 4041 inside drum [Historical high value; drum not opened in 2015.] Outside drum surface <1000
Containment Vessel 1st Level	<1.0	<1.0	<1000	<1000
Containment Vessel 2nd Level	<1.0	2.4 near Steam Drum starboard	<1000	<1000
Containment Vessel 3rd Level	<1.0	<1.0	<1000	<1000
Containment Vessel 4th Level	<1.0	<1.0	<1000	<1000
Port Charge Pump Room	<1.0	<1.0	<1000	<1000
Starboard Charge Pump Room	<1.0	<1.0	<1000	<1000
Hot Chemistry Lab	<1.0	<1.0	<1000	<1000
Health Physics Lab	<1.0	<1.0	<1000	<1000
Port Stabilizer Room	<1.0	<1.0	<1000	<1000

Appendix A 2015 Radiation Survey Results in Radiologically Controlled Areas

Area	General Area Radiation levels mR/hr (milli-R/hr)	Highest Radiation Level mR/hr (milli-R/hr)	General Area Contamination Level (DPM/100cm^2)	Highest Contamination Level (DPM/100cm^2)
Port Booster Pump Area	<1.0	<1.0	<1000	<1000
Starboard Stabilizer Room	<1.0	<1.0	<1000	<1000
Stateroom B-1 Rad Waste Storage Area	<1.0	<1.0	<1000	<1000
Fan Room B-Deck	<1.0	<1.0	<1000	<1000
Cold Chemistry Lab Area C-Deck	<1.0	<1.0	<1000	<1000
Sample Room D-Deck	<1.0	3.0 on contact with overhead line (A) (B)	<1000	1137 inside sample sink
Gas Absorber Room D-Deck	<1.0	<1.0	<1000	<1000
Cargo Hold D-Deck	<1.0	<1.0	<1000	<1000
Hold Deck Aft of Reactor space port side	<1.0	<1.0	N/A	N/A

Table Data Notes

(A) Historical High value since 2013

(B) 2015 value

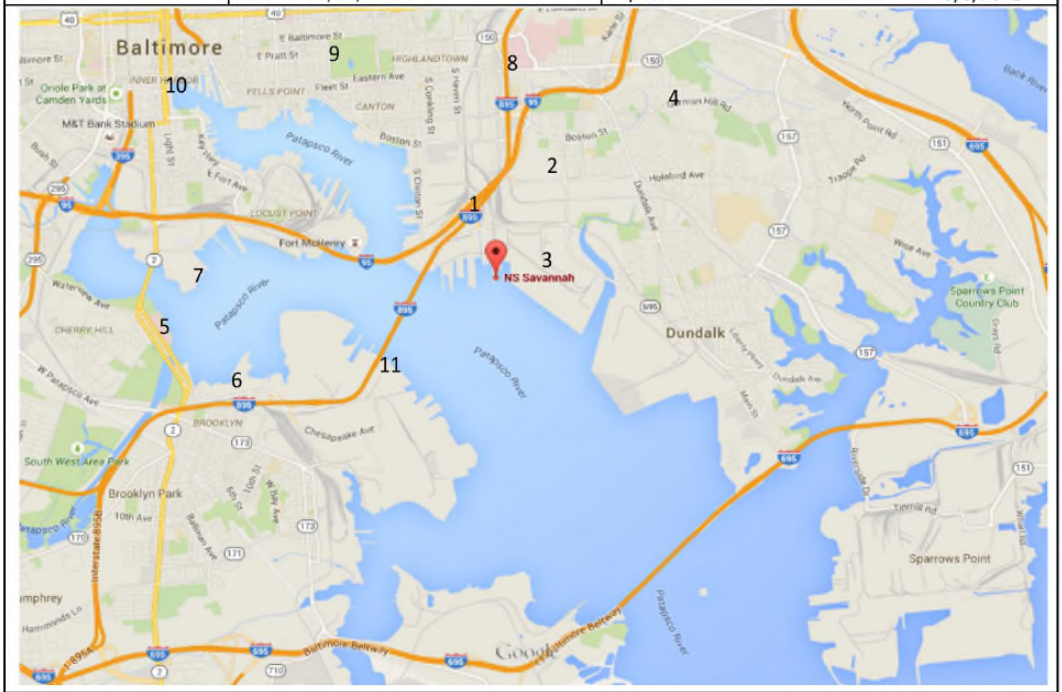
APPENDIX B. 2015 RADIOLOGICAL ENVIRONMENTAL SAMPLING RESULTS

Sample Location	Sample Date	Type of sample	Co-60	Cs-137
Pier #13 Canton Marine Terminal, Baltimore, MD NSS STBD Side (AFT)	03/17/2015	Sediment	6.25E-04 pCi/g	3.57E-02 pCi/g
Pier #13 Canton Marine Terminal, Baltimore, MD NSS STBD Side (FWD)	9/17/2015	Sediment	6.7E-03 pCi/g	1.53-02 pCi/g
Pier #13, Canton Marine Terminal, Baltimore, MD NSS Port Side (FWD)	03/17/2015	Sediment	-1.68E-02 pCi/g	9.63E-03 pCi/g
Pier #13, Canton Marine Terminal, Baltimore, MD NSS Port Side (AFT)	09/17/2015	Sediment	1.93E-03 pCi/g	3.64E-02 pCi/g
Pier #13 Canton Marine Terminal, Baltimore, MD NSS STBD Side (AFT)	03/17/2015	Water	6.09E-01 pCi/L	-1.76E+00 pCi/L
Pier #13 Canton Marine Terminal, Baltimore, MD NSS STBD Side (FWD)	09/17/2015	Water	-1.68E+00 pCi/L	-3.43E+00 pCi/L
Pier #13, Canton Marine Terminal, Baltimore, MD NSS Port Side (FWD)	03/17/2015	Water	2.00E+00 pCi/L	-8.03E-01 pCi/L
Pier #13, Canton Marine Terminal, Baltimore, MD NSS Port Side (AFT)	09/17/2015	Water	-2.21E+00 pCi/L (B)	1.57E+00 pCi/L (B)

APPENDIX C. COMMUNITY RADIATION BACKGROUND SURVEY RESULTS

Community Radiation Background Survey	**N S Savannah** 4601 Newgate Ave Canton Marine Terminal, Pier 13 Baltimore Md.21224	Location: Baltimore, MD Date Completed: 10/14/2015 Time: Various Survey Number: N/A Reason: Background Data

Surveyed by:	Name: Herbert Evans/Art Paynter Date: 10/14/2015	Instrument Bicron Micro-rem	SN B694G	Cal Due: 3/31/2016
Reviewer (RSO/Designee):	Name: Herbert Evans Date: 10/14/2015	Instrument Inspector	SN 21288	Cal Due: 3/6/2016



Background Readings in uR/hr.

#	Microrem	Inspector	#	Microrem	Inspector	#	
1	20/8/8	20/8/8	8	5	N/A		
2	5	15	9	3	N/A		
3	8	9	10	5-7	N/A		
4	4	9	11	5	N/A		
5	4	6					
6	7	11					
7	6	8					

Remarks: Readings are in µRem/hr unless otherwise noted.
Locations 1 -7 surveyed with Microrem and Inspector Instruments

#	Survey Locations
1	In front of the Old Fire House # 50 (S. Newkirk & Holabird Aves) Contact / 18 inches / General Area
2	Across the Street from the New Fire House # 50 (Broening Hwy and Danviile Ave)
3	Parking Lot behind MTA Bldg. # 2320 (Old Power Plant) Point Breeze Area
4	On 49th Street Approx. 75 Ft North of German Hill Road (lot on west side of street)
5	Behind Med Star Harbor Hospital along Middle Branch Trail by the River
6	Along the trails west side of Masonville Cove Environmental Ed Center (1000 Frankfurst Ave)
7	Walmart 2701 Port Covington Drive East Side parking lot along the river
8	JH Bayside Medical Center in front of the Mason F. Lord Memorial Building East Side
9	Patterson Park East side of The Pagoda (East of S Patterson Park Between E Pratt and E Lombard Streets)
10	Inner Harbor Northwest of Water Taxi Landing Number 2 - Harbor Place (NE of 1201 E Coast Greenway)
11	The Vane Bros Company Corporate Headquarters Building along river by benches (2100 Frankfurst Ave)