U.S. Department
of Transportation

**Maritime
Administration**

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

March 4, 2005
1EK.610-05.023L

U.S. Nuclear Regulatory Commission
ATTN: Alexander Adams,
Mail Stop O12-G13
Washington, DC 20555-0001

Subject: License NS-1, Docket No. 50-238; N.S. SAVANNAH Annual Report for CY 2004

Dear Mr. Adams:

This letter constitutes the Maritime Administration's (MARAD) annual report of activities for the Nuclear Ship SAVANNAH (NSS) for Calendar Year 2004. The SAVANNAH remains securely moored at MARAD's James River Reserve Fleet, near Newport News, Virginia. The facility status is substantially unchanged from CY 2003. One violation of the license technical specification remains outstanding; however, significant progress in correcting the conditions of the violation were made during the calendar year, and MARAD expects to notify NRC of its correction in the near future.

As has become routine practice, the report contents are found in the two enclosed documents; a) the minutes of the NSS Review and Audit Committee annual meeting held at the James River Reserve Fleet on February 22, 2004, and b) the NSS Annual (Radiological) Survey prepared by General Health Physics, Inc. Also enclosed is a revised copy of the minutes of the CY 2003 Review and Audit Committee annual meeting. This revised copy corrects several discrepancies noted in the document forwarded with last year's annual report, although the substantive content of the report is unchanged.

This letter report also incorporates MARAD's annual Decommissioning Funding Status Report for CY 2004.

Decommissioning Funding Statement {ref: 10 CFR 50(f)(1)}:

The N.S. SAVANNAH (NSS) and its nuclear reactor are federally owned facilities, represented by the United States Department of Transportation, acting by and through the Maritime Administration. As such, funding for the decommissioning and disposal of the NSS reactor and nuclear systems components and waste must be provided by appropriations from the United States Congress. MARAD maintains no funding reserve, nor does it accumulate or collect funds as described in the CFR reference. At such time as decommissioning and disposal are authorized and funds are appropriated, MARAD will promptly notify the Nuclear Regulatory Commission.

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N.S. SAVANNAH CY 2004 Annual Report
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Notwithstanding the above statement, please be advised that the Maritime Administration appropriations for FY 2005 include funds to commence a multi-year decommissioning effort, with such funding allocated within MARAD's Ship Disposal account. The President's budget request for FY 2006 continues the multi-year plan laid out in FY 2005, with a slight increase to $3M to permit drydocking the SAVANNAH in FY 2006, rather than FY 2007. MARAD expects to submit a license amendment during CY 2005 to request authority to decommission the NSS reactor.

As always, MARAD is most appreciative of the support that NRC extends to the SAVANNAH. Please feel free to contact me at any time if you have any questions regarding MARAD's N.S. SAVANNAH activities.

Sincerely,

Erhard W. Koehler
Senior Technical Advisor, N.S. SAVANNAH

Enclosures

N.S. SAVANNAH CY 2004 Annual Report
License NS-1, Docket No. 50-238
March 4, 2005

E. Koehler\ek\02-28-2005
1EK.610-05.023L

cc: MAR-600, 610 (rf, wc), 610.1, 610.2, 610.3, 610.4, 611 (pg, jw), 612, 613
MRG-7100, 7600 (fh), 7700
General Health Physics (J. Davis)
U.S. Army Humphreys Engineer Center (D. Breeden)
WPI, Inc (Stouky, Bowen)

U.S. Department
of Transportation

**Maritime
Administration**

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

Nuclear Ship

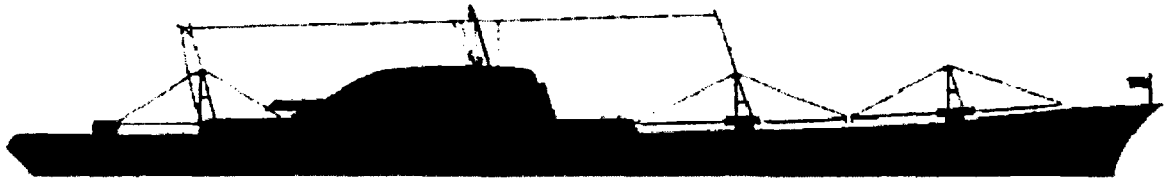
SAVANNAH

**Minutes of the Annual Meeting of the
Review and Audit Committee
Covering Calendar Year 2004**

**James River Reserve Fleet
Fort Eustis, Virginia**

February 22, 2005

**License NS-1
Docket No. 50-238**



Minutes of the Calendar Year 2004 annual meeting of the Nuclear Ship SAVANNAH Review and Audit Committee, held at the James River Reserve Fleet on Tuesday, February 22, 2005.

Members Present:

- Erhard W. Koehler*, Committee Chair, MAR-610
- Fred Hoffmann*, James River Reserve Fleet Program Manager
- John Davis*, General Health Physics, Inc. (rep USACOE) (by e-mail dated 02/19/2005)
- John Wiegand, Project Engineer, MAR-611

I. AGENDA TOPICS

The meeting followed established format and agenda, although no advance discussion agenda was prepared.

II. WELCOME

Mr. Koehler convened the meeting at 1:00pm. A quorum was present (note: John Davis was present by proxy - e-mail report is attached). The meeting was convened for the purpose of discussing those agenda topics within the purview of the members present, and support the annual reporting requirements to the NRC.

Section 3.6 of the NSS Technical Specification (TS) requires the Review and Audit Committee to meet at least annually to review and discuss events of the preceding period. The committee last met on December 17, 2003 (to discuss CY 2003), at the James River Reserve Fleet (JRRF). The minutes of that meeting were briefly reviewed. It was noted that the CY 2003 minutes submitted to the NRC on March 4, 2004 (as part of the CY 2003 Annual Report) were incorrect. The 2004 annual report will include the corrected CY 2003 minutes.

III. DISCUSSION

A. Significant Events of CY 2004:

A number of personnel actions in 2004 resulted in changes to the composition of the committee. Mr. Joseph Seelinger retired from the Maritime Administration and Mr. Erhard Koehler was named Senior Technical Advisor and Committee Chairman. Mr. John Wiegand has been assigned as the Project Engineer, and made a member of the Review and Audit Committee. Mr. Michael Bagley, JRRF Fleet Program Manager (Superintendent) was reassigned to MARAD's Great Lakes Region in August 2004; his position at JRRF and on the committee was filled by Mr. Fred Hoffmann. Similarly, Mr. Bob Rohr, the former JRRF Fleet Operations and Maintenance Officer, was reassigned to the South Atlantic Region marine surveying staff in September 2004. His position on the JRRF staff and the Review & Audit Committee is unfilled.

* Denotes members required for quorum.

The Decommissioning Planning contract issued to WPI has been completed. WPI was awarded a separate contract to develop the SERAT protocol, carry out personnel training and equipment outfitting, and develop and assist in the conduct of practice drills at the James River Reserve Fleet (JRRF). This included assisting MARAD staff with coordinating the agreement with DOE for 24/7, 2-hour response HP services. All activities on this contract will be completed on or about March 15, 2005. MARAD received a proposal in mid 2004 to carry out radiological and environmental characterization of the ship and all nuclear spaces. The proposal received favorable consideration, and efforts to convert the proposal to a contract were in progress at the end of CY 2004 (note - the contract was awarded in February 2005 to WPI).

1. **Decommissioning**

The FY 2005 MARAD appropriation included the first dedicated funds for decommissioning of the SAVANNAH facility. Accordingly, MARAD has continued previous planning efforts to decommission the reactor, with a view towards formally requesting decommissioning authority from NRC sometime in the 4Q FY 2005 or in early FY 2006. MARAD sought advice on characterization from NRC earlier in CY 2004, and based on that is planning to conduct characterization of the ship's nuclear spaces, within the bounds of its existing license and Tech Spec. MARAD staff met with officials from the state of South Carolina to discuss access to the Barnwell waste repository, with particular attention towards that facility's closure to out of state/Atlantic Compact waste in June 2008. Future decommissioning activities remain closely tied to the correction of the outstanding license violation (see next paragraph).

2. **Emergency Preparedness**

MARAD SAR awarded a follow-on contract to WPI to provide training and support to JRRF for implementing the SAVANNAH Emergency Radiological Assistance Team. Initial training and a practice drill were completed in September 2004. Concurrently, MARAD HQ worked with the Department of Energy to arrange an interagency agreement / Reimbursable Agreement for 24/7, 2-hr HP response capability. DOE will provide the service as a pass-through to qualified staff from the Thomas Jefferson National Accelerator Facility (Jefferson Labs) in Newport News, VA. The DOE agreement had not been finalized at the time of the September drills; therefore, WPI staff stood in to represent the Health Physicists. The DOE agreement language was finalized late in 2004, and a follow-up drill, with training for a back-up team, and with Jefferson Labs HP participation is scheduled for

March 8-9, 2005. Upon successful completion of the drill, MARAD will submit its correction notice to NRC.

3. Technical Specification Revisions

None. Although the committee intended to pursue revisions to the Tech Spec in 2004, these were held in abeyance pending completion of the NOV correction.

B. JRRF Activities:

Mr. Fred Hoffmann noted the following for the record:

1. Ship Husbanding and facility integrity

Routine ship husbanding activities in 2004 included continuing dehumidification system monitoring, underwater hull surveys, quarterly structural integrity surveys, and cathodic protection system maintenance. No significant changes to these routine activities were noted, and shipboard conditions remained nominal.

Tank soundings remained unchanged from 2003 and previous years. It was noted, however, that there is an exterior leak in the weather deck in the vicinity of No. 5 Hold, which has allowed water to penetrate the ship. Periodic pumping of the interior is required. This condition will be corrected during the CY. The overall integrity of the facility remains good.

2. Radiation inspections

Radiation inspections including the containment area have been satisfactory, and seals have been changed as required *(no change from CY 2003)*.

3. Security and Surveillance

The remote radio alarm system is tested monthly, and has been functioning satisfactorily. MARAD executes hourly river patrols of the JRRF anchorage, and the US Army - FT Eustis conducts periodic waterborne patrols of the base boundary.

4. Radiation Health Physics Contract

The CY 2005 Reimbursable Agreement to fund the radiation health physics contract with the U.S. Army was completed in December 2004.

5. FY 05 funds

FY 2005 funds for routine license support activities have been allotted to the South Atlantic Region, and purchase orders are being processed normally.

IV. REVIEW OF TECHNICAL SPECIFICATION REQUIREMENTS

In accordance with paragraph 3.6.3 of the TS, the Committee is specifically required to review the following items:

A. Proposed changes to Technical Specifications.

No changes are proposed at this time. Action to revise the Tech Spec was deferred during 2004 in favor of completing the NOV correction. Proposed revisions will be reviewed and completed following the NOV correction.

B. Proposed changes or modifications to the vessel's controlled radiation area entry alarm system or containment system.

No changes were proposed or implemented during CY 2004.

C. Substantive changes to radiation surveys or security surveillance procedures.

1. Radiation Surveys

No changes to the radiation survey protocols were made during CY 2004.

2. Security Surveillance Procedures

Routine security surveillance continued throughout CY 2004, including the following measures:

i. Fixed camera surveillance of the ship's starboard side from shoreside was maintained. The camera monitors the principal access point to the ship 24/7.
ii. JRRF waterborne fleet patrols are maintained on a 24/7 basis. An affirmative check and log of NSS is made regularly.
iii. U.S. Army, Fort Eustis maintains a periodic waterborne patrol of the James River (times vary). This patrol frequency is dependent on the national terrorist threat level.

D. Reported violations of Technical Specifications

No new TS violations were cited during the reporting period. The NRC cited violation of TS section 3.1 remained outstanding during CY 2004, but significant progress towards correcting the condition was made, as described elsewhere herein.

E. License Event Reports

No LER's were noted during the reporting period.

F. Annual reports to the NRC

The CY 2003 annual report was submitted to the NRC on March 1, 2004. Mr. Koehler observed several discrepancies between the various copies of the 2003 Committee meeting minutes,

resulting in a close review of the submitted document. The minutes were corrected, and a conformed copy will be included with the CY 2004 annual report. The CY 2004 full annual report, which includes the radiological survey, decommissioning funding statement, and the minutes of this meeting will be submitted to the NRC upon receipt of the 2004 radiological survey (expected on March 4, 2005).

V. OTHER TOPICS

There was no real discussion of "other" items during the meeting. However, it is noted for the record that a meeting with senior South Atlantic Region staff is scheduled for February 23 to commence planning for the ship's late FY 2005 transfer to a lay berth location, and FY 2006 dry-docking. The Committee briefly reviewed plans to undertake these activities, and approved the general plan.

A. Security Issues

MARAD continued to monitor the NRC watch list as required. Security enhancements are noted in paragraph II.3.b.

B. Other

There are two action items left over from the last annual meeting; 1) A summer meeting to review the Tech. Spec.; and 2) Topside assessment and condition survey of the N/S SAVANNAH. The assessment and survey has been carried forward for action by South Atlantic Region as part of the ship transfer and drydocking activity. The Tech Spec review is carried forward for action by the Senior Technical Advisor.

The meeting was adjourned at 2:15 pm.

#

Koehler, Erhard

From: Erols [ghpd@erols.com]
Sent: Saturday, February 19, 2005 11:48 AM
To: Koehler, Erhard
Subject: Re: N.S. SAVANNAH Activities in CY 2004

The annual survey was compledted in December 2004

There were no significant changers to the radiation levels on the NNS

A visual inspection showed no deteriation in the enclosed spaces

The final report will be completed by March 4 2005.

----- Original Message -----
From: Koehler, Erhard
To: John Davis (ghpd@erols.com)
Cc: Wiegand, John ; Hoffmann, Fred ; Dave Breeden (david.s.breeden@usace.army.mil)
Sent: Thursday, February 17, 2005 10:52 AM
Subject: N.S. SAVANNAH Activities in CY 2004

John:

Per our discussion earlier this week, we will hold the annual meeting of the SAVANNAH Review & Audit Committee on Tuesday afternoon next week (2/22). In reviewing last year's minutes, I did not find any significant action items assigned to GHP. Can you please confirm by reply email:

1. that the CY 2004 annual survey was completed, and when, and finally the date by which you expect to submit the report;

2. that the required physical (visual) inspections of controlled spaces was included in the annual survey; and,

3. that there were no substantive changes to radiation surveys during CY 2004.

I understand that you won't be able to attend via conference call next week, so we will summarize the email response in the meeting minutes, as discussed.

Thanks very much for your cooperation.

VR/Erhard

General Health Physics, Inc
7217 Lockport Pl
Lorton VA 22079
(703) 550 7525
Fax (703) 550 7525

March 5, 2005

Mr. Erhard Koehler
Division Of Ship Maintenance & Repair
Office Of Ship Operations (Mar 611, Rm 2119
U.S. Maritime Administration
Department Of Transportation
Washington DC 20590

Dear Mr. Koehler:

Attached is General Health Physics report on the radiological status of the N.S. Savannah in cy 2004.

Sincerely

John B. Davis

NSS Savanah Annual Survey

Location	uREM/hr	Alpha dpm/100cm ^{2}	Beta dpm/100 cm ^{2}
NAVIGATION BRIDGE			
Pilot House at helm	3.0	13	mda
Bridge Wing port side	3.0	mda	mda
Fire Stat. #1 near chart rm	2.0	mda	mda
Fan rm port side gen. rm	3.5	mda	mda
E.O.G. rm	4.0	mda	mda
BOAT DECK			
Chief Eng. State rm port side	3.5	mda	mda
Cpt. State rm starboard side	2.5	mda	mda
Fire Stat. #2 port side	3.0	mda	mda
Officer's lounge aft	3.5	mda	mda
Hallway floor port side	3.0	mda	mda
Forward state rm starboard side	3.0	mda	42
Hallway floor forward center	3.5	mda	mda
PROMENADE DECK			
Top of reactor hatch	4.0	mda	mda
Starboard side of reactor hatch	4.5	mda	56
Top of Hatch #4	3.5	mda	mda
Between Hatch #3 & #4	3.5	mda	mda
Bow center of deck	3.5	mda	mda
Center of Main Lounge	4.0	mda	mda
Center of Veranda	3.5	11	mda
Fire Stat. #7 starboard side	3.0	mda	mda
Between Veranda & Swimming Pool	4.0	mda	mda
Library	3.5	mda	mda

Location	uREM/hr	Alpha dpm/100cm ^{2}	Beta dpm/100 cm ^{2}
Hallway in front of Main Lounge	3.0	mda	mda
Veranda port side forward	4.0	mda	mda
Bar at Veranda	4.5	mda	mda
REACTOR SPACE			
Hot pipe forward entry hatch	31	x	x
1 meter forward of lab tank	15	x	x
At lab tank	33	x	x
Pipe elbow port side forward	50	x	x
"Hot" pipe near entry hatch	x	mda	mda
Containment vessel middle of catwalk	15	mda	mda
Lab tank surface	7.5	mda	48
Open valve next to lab tank	10	x	x
Containment vessel middle of catwalk	8.0	x	x
Piping at the port side forward catw	9.5	x	x
Middle of catwalk port side	27	mda	mda
Piping at the port side middle of ca	19	mda	mda
Valve handle port side aft	12	x	x
Damp area on floor middle of catwalk	13	16	mda
Containment vessel starboard side af	49	x	x
Inside entry hatch pipe	x	mda	mda
FAN ROOM			
At floor rm center	3.0	x	x
Electric motor	4.5	mda	mda
Control box	2.5	mda	mda
CABIN B1 B2			
On drums of PC's in Cabin B-1	3.5	mda	mda
Average reading of Cabin B-3	4.0	x	x
On floor of Cabin B-1	x	mda	mda
Drum lid in Cabin B-1	x	mda	52

Location	uREM/hr	Alpha dpm/100cm ^{2}	Beta dpm/100 cm ^{2}
STB STABILIZER RM			
At entrance door	3.0	x	x
Average background	4.5	x	x
Catwalk Lower level	x	mda	mda
Catwalk Upper level	x	mda	mda
PORT STABILIZER RM			
At access hatch	3.0	x	x
At catwalk upper level	8.0	x	x
At internally contaminated strainer	28	x	x
Diaphragm valve	32	x	x
Pipe to left of diaphragm valve	65	x	x
Internally contaminated valves	x	mda	mda
Control valve lower deck	x	mda	mda
Volume Chambers	x	mda	46
Elbow diaphragm valve	x	mda	mda
STB CHARGING PUMP RM			
Outside hatch	3.5	x	x
Inside hatch	10	mda	mda
Center of floor	x	mda	mda
Pipe back of pump motor	60	mda	mda
Pipe in back of pump	x	mda	mda
Top of pump	x	mda	mda
Backside of pump	x	mda	mda
Center of floor	21	mda	39
Outside of hatch	x	mda	mda
Air duct at pump	x	mda	mda
Pump motor	x	mda	mda
PORT CHARGING PUMP RM			
Outside door 1m from deck	5.5	x	x
Between pumps	27	x	x

Location	uREM/hr	Alpha dpm/100cm ^{2}	Beta dpm/100 cm ^{2}
Deck at hatch	x	mda	mda
Acccess hatch	x	mda	mda
Deck by pumps	x	mda	mda
Floor between pumps	x	mda	mda
Pump in front of rm	x	mda	mda
	x		
COLD CHEM LAB			
Background in Cold Chem Lab	8	x	x
Ventilation system/lead blanket	49	x	x
Drain (C deck)	240	x	x
Fume hood (D deck)	29	x	x
Top of storage tank	30	x	x
Air sampler (D deck)	36	x	x
Floor under air sampler (D deck)	15	x	x
Ledge of fume hood	60	x	x
Floor in front of ventilation system	11	x	x
Ventilation system	17	x	x
Ledge of fume hood (D deck)	x	mda	mda
Drain (C deck)	x	mda	mda
Floor under air sampler (D deck)	x	mda	mda
Floor front of vent system (C deck)	x	mda	mda
Air Sampler (D deck)	x	mda	mda
Floor under fume hood	x	mda	58
Shelving (C deck)	x	mda	mda
Top of storage tank	x	mda	mda
Valve near floor (D deck)	x	mda	mda
HOT CHEM LAB			
Background in hot chem lab	5.0	x	x
Waste collection tank	11	x	x
Sink	4.0	x	x
Doorway to hot chem lab	3.5	x	x
Under sink	3.5	x	x

Location	uREM/hr	Alpha dpm/100cm ^{2}	Beta dpm/100 cm ^{2}
Sink drain	8.0	mda	mda
Inside waste collection tank	6.0	mda	mda
Fume hood inside	3.5	mda	mda
Floor inside door	4.0	mda	mda
Intake for hood	2.5	mda	mda
CARGO HOLD 2B			
Floor starboard side forward	3.0	mda	mda
Floor starboard side center	3.0	mda	mda
Floor starboard side aft	3.0	mda	mda
Floor aft center	4.0	mda	mda
Floor port side aft	2.5	mda	mda
Floor port side center	4.0	mda	mda
Floor port side forward	3.5	mda	mda
Floor forward center	3.5	mda	mda
CARGO HOLD 2C	2.5	mda	mda
Floor port side center	3.0	mda	mda
Floor port side forward	3.5	mda	mda
Floor forward center	2.5	mda	mda
Floor starboard side forward	2.5	mda	44
Floor starboard side center	3.5	mda	mda
Floor starboard side aft	3.5	mda	mda
Floor aft center	4.0	mda	mda
Floor port side aft	3.5	mda	mda
Floor 1c cargo hold	3.0	mda	mda
CARGO HOLD 2D			
Starboard aft	4.5	mda	mda
Starboard amidships left	2.5	mda	mda
Starboard amidships right	3.0	mda	mda
Starboard bow	3.0	mda	mda
Centerline bow	2.5	mda	mda

Location	uREM/hr	Alpha dpm/100cm ^{2}	Beta dpm/100 cm ^{2}
Port side bow	3.0	mda	mda
Port side amidships	3.0	mda	mda
Port side aft	3.5	mda	mda
Centerline aft	2.5	mda	mda
Average	3.5	x	x
Maximum	4.5	x	x
2 TANK TOP			
Floor forward & starboard of sailboat	2.5	mda	mda
Floor sailboat center port side	3.0	8	mda
Floor sailboat aft starboard	3.0	mda	mda
Floor sailboat center starboard	3.5	mda	mda
CARGO HOLD 3B			
At stairwell entering hold	3.5	mda	mda
Floor center forward	2.5	mda	mda
Floor starboard side forward	4.0	mda	mda
Floor starboard side center	3.0	mda	mdda
Floor starboard side aft	2.5	mda	mda
Floor center aft	2.5	mda	mda
Floor port side aft	3.5	mda	mda
Floor at display center	2.5	mda	mda
Floor port side forward	2.5	mda	mda
Average	3.5	x	x
Maximum	4.0	x	x
CARGO HOLD 3C			
Floor starboard side	3.0	mda	mda
Floor starboard center	2.5	mda	mda
At door starboard aft	3.0	mda	mda
Center aft vent	2.0	mda	38
Floor port side aft	3.5	mda	mda
Floor port side center	3.5	mda	mda

Location	uREM/hr	Alpha dpm/100cm ^{2}	Beta dpm/100 cm ^{2}
Floor starboard forward	3.0	mda	mda
Vent center forward	3.0	mda	mda
Average	3.5	x	x
Maximum	3.0	x	x
CARGO HOLD 3D			
Floor port side forward	3.0	mda	mda
Floor port aft	3.5	mda	mda
Floor center aft	3.0	mda	mda
Floor starboard aft	2.5	mda	46
Floor starboard forward	3.5	mda	mda
Floor forward center	2.5	mda	mda
CARGO HOLD 4B			
Men's restrm	3.0	mda	mda
Floor port side center	3.5	mda	mda
Floor by door to 3B port side	2.5	mda	mda
Floor by handrail port side	3.5	mda	mda
Floor by handrail starboard side for	4.0	14	mda
Floor by handrail starboard side cen	3.5	mda	mda
Floor by handrail starboard side aft	3.0	mda	mda
CARGO HOLD 4C			
Port side aft	4.0	x	x
Centerline aft	11	x	x
Starboard side aft	3.5	x	x
Max. reading along stern bulkhead	16	x	x
Floor at aft center (@ Max. Reading)	4.5	mda	mda
Starboard forward floor	4.0	mda	mda
CARGO HOLD 4D			
Floor at stern bulkhead	3.5	mda	mda
Floor starboard side	3.0	mda	mda

Location	uREM/hr	Alpha dpm/100cm ^{2}	Beta dpm/100 cm ^{2}
Under barrier rope	3.5	8	mda
Floor starboard side forward	2.5	mda	mda
Floor port side forward	3.0	mda	mda
Floor port side center	4.0	mda	mda
Floor port side aft	3.0	mda	mda
4 TANK TOP			
At ladder entering hold forward	3.5	mda	mda
Cylindrical equipment on floor forwa	2.5	mda	mda
Cylindrical equipment-center of hold	3.0	x	x
Average background	3.0	x	x
At wall port side aft	2.5	x	x
Platform center aft	3.0	x	x
Platform starboard side aft	3.5	x	x
At wall starboard side aft	3.0	x	x
Cylindrical equipment on floor forwa	3.5	mda	mda
Floor starboard side forward	2.5	mda	mda
Floor starboard side center	3.0	mda	mda
FLoor starboard side aft	3.5	mda	mda
Floor starboard side aft	3.5	mda	mda
Wall center aft	3.5	mda	mda
Floor port side aft	2.5	mda	56
Floor port side center	3.0	mda	mda
Floor port side forward	3.0	mda	mda

x= No measurement required

MDA for alpha = 6.5 dpm/100 cm2

MDA for beta = 35.0 dpm/100cm2

Location	uREM/hr	Alpha dpm/100cm ^{2}	Beta dpm/100 cm ^{2}

Tld Readings

Badge Number	*Location*	*1st Half (mR)*	*2nd Half (mR)*	*Total (mR)*
0 are	Control	56.0	31.0	87.0
1 are	Pilot House	36.0	35.0	71.0
2 are	Navigation Dk Chart Rm	23.0	27.0	50.0
3 are	Navigation Deck Cabin	23.0	27.0	50.0
4 are	Navigation Dk Sea Cabi	24.0	26.0	50.0
5 are	Navigation DKr Officer L	24.0	26.0	50.0
6 are	Promenade Dk Main Lo	25.0	28.0	53.0
7aqre	Promenade Dk Fire Sta.	22.0	25.0	47.0
8 are	Promenade Dk Purser	24.0	28.0	52.0
9 are	Stb Ventilation Rm At P	23.0	26.0	49.0
10 are	"A" Deck Fire Sta. 15	26.0	26.0	52.0
11 are	"A" Deck Fire Sta 14	27.0	28.0	55.0
12 are	"B" Deck Fire Sta. 20	20.0	24.0	44.0
13 are	"B: Deck Fire Sta. 20A	21.0	25.0	46.0
14 are	"B" Ent. To Reactor Co	22.0	25.0	47.0
15 are	Fan Room Door	22.0	27.0	49.0
16 are	Cabin C-9	21.0	25.0	46.0
17 are	"C" Deck Fire Sta. 31	33.0	33.0	66.0
18 are	"C" Deck Fire Sta. 34	32.0	30.0	62.0
19 are	Cold Chemistry Room D	21.0	25.0	46.0
20 are	Between D&C Dk Fr 96	22.0	26.0	48.0
21 are	Stb Stabilizer Room Do	19.0	21.0	40.0
22 are	"D" Deck Fr 118 Stb	39.0	37.0	76.0
23 are	"D" Deck Fr 118 Port	21.0	25.0	46.0
24 are	Port Stabilizer Room Do	24.0	24.0	48.0
25 are	"B" Deck Hold 4 Aft Port	61.0	23.0	84.0
26 are	"C" Deck Hold 4 Aft Stb	58.0	25.0	83.0
27 are	"C" Deck Fire Sta 28	47.0	24.0	71.0

Badge Number	*Location*	*1st Half (mR)*	*2nd Half (mR)*	*Total (mR)*
28 are	Sturgis Stb Side	25.0	26.0	51.0
29 are	Turbine Viewing Sta Stb	24.0	24.0	48.0
30 are	Turbine Viewing Sta Por	23.0	24.0	47.0
31 are	Control Rm Fwd	43.0	23.0	66.0
32 are	Stb Charging Pump Ro	48.0	22.0	70.0
33 are	Port Charging Pump Ro	49.0	22.0	71.0

Sediment Activity Report 2004

Quarter	*Location*	*Alpha (pCi/g)*	*Alpha LLD*	*Beta (pCi/g)*	*Beta LLD*
1st	Stb Aft	2.56 +/- .75	1.44	17.1 +/- 1.47	1.66
	Stb Fwd	3.33 +/- .82	1.44	9.63 +/-1.05	1.68
2nd	Port Aft	2.71 +/- .77	1.43	13.39 +/- 1.24	1.67
	Port Fwd	2.22 +/- .72	1.43	10.88 +/- 1.01	1.68
3rd	Stb Aft	<LLD	1.43	15.00 +/- 1.31	1.68
	Stb Fwd	3.70 +/- .45	1.44	11.95 +/- 1.77	1.68
4th	Port Aft	2.47 +/- .75	1.44	13.34 +/- 1.22	1.68
	Port Fwd	3.33 +/- .80	1.44	13.06 +/- 1.21	1.68

Water Activity 2004

Quarter	*Location*	*Alpha (pCi/l)*	*Alpha LLD*	*Beta (pCi/l)*	*Beta LLD*
1st	Stb Aft	<LLD	1.61	5.95 +/- 1.98	2.57
	Stb Fwd	<LLD	2.25	6.11 +/- 1.38	1.87
2nd	Port Aft	<LLD	2.25	7.43 +/- 1.89	2.66
	Port Fwd	<LLD	1.73	<LLD	1.91
3rd	Stb Aft	<LLD	5.03	14.14 +/- 6.16	9.61
	Stb Fwd	<LLD	7.51	18.69 +/- 4.73	6.42
4th	Port Aft	<LLD	3.22	4.54 +/- .88	1.14
	Port Fwd	<LLD	0.98	12.42 +/- 2.96	4.12

U.S. Department
of Transportation

**Maritime
Administration**

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

Nuclear Ship

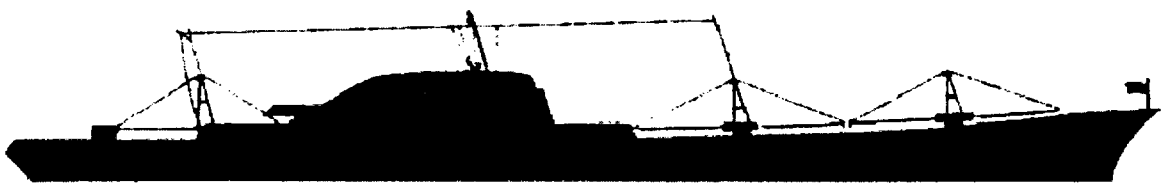
SAVANNAH

**Minutes of the Annual Meeting of the
Review and Audit Committee
Covering Calendar Year 2003**

**James River Reserve Fleet
Fort Eustis, Virginia**

December 17, 2003 (Revised, February 2005)

**License NS-1
Docket No. 50-238**



Minutes of the Calendar Year 2003 annual meeting of the Nuclear Ship SAVANNAH Review and Audit Committee, held at the James River Reserve Fleet on Wednesday, December 17, 2003. These minutes are arranged in the order shown on the meeting agenda (attached for reference). *This document is revised following review and discussion at the CY 2004 Review & Audit Committee meeting (2/22/05).*

I. MEMBERS PRESENT:

- Joseph Seelinger*, Committee Chair, MAR-610
- Erhard Koehler
- Mike Bagley*, Fleet Superintendent, JRRF
- John Davis*
- Robert Rohr,
- John Wiegand, MAR-611†
- Steven Holms†, Resident Inspector (NRC)
- Jon Stouky† (WPI)
- John Bowen† (WPI)

II. AGENDA TOPICS

See attachment 1 for the agenda and agenda topics.

III. WELCOME

Mr. Seelinger convened the meeting at 10:15 am. A quorum was present. The meeting was convened for the purpose of discussing those agenda topics within the purview of the members present, and to support the annual reporting requirements to the NRC.

Section 3.6 of the NSS Technical Specifications (TS) requires the Review and Audit Committee to meet at least annually to review and discuss events of the preceding period. The committee last met on February 26, 2003 (to discuss CY 2002), at the James River Reserve Fleet (JRRF). The minutes of that meeting were briefly reviewed without comment.

IV. DISCUSSION

A. Significant Events of CY 2003:

Mr. Seelinger opened the committee's discussion of significant events following an introduction of all present at the meeting. Mr. Steve Holmes (NRC) presented a brief on his Periodic satisfactory walkover survey report. Mr. Seelinger then turned the meeting over to Mr. Koehler who identified the following significant events:

* denotes members required for quorum.
† Non-members in attendance.

1. **Decommissioning**

MARAD hired WPI as consultant to support MARAD's decommissioning effort. MARAD also briefed the NRC in a public hearing on September 24, 2003 regarding the agency's intentions toward decommissioning activities of the reactor spaces for free and open use upon completion.

2. **Hurricane Isabel**

Hurricane Isabel struck the James River Reserve Fleet, causing some significant physical damage to the fleet facilities, and the movement of numerous vessels. The SAVANNAH and STURGIS, however, were essentially unaffected, except for the loss of electrical power (noted below).

3. **Organization**

A facility inspection was completed by NRC in the latter part of 2003. Among the areas evaluated was MARAD's organization, which was found satisfactory.

4. **Emergency Preparedness**

This is the area where there are violations and this will discussed further when presenting the update to Notice Violations.

5. **Technical Specification Revisions**

The committee will be discussing proposed revisions to the Technical Specifications later in the agenda.

B. JRRF Activities:

Bob Rohr noted the following for the record:

1. **Hurricane Isabel**

The onslaught of Hurricane Isabel brought about a power outage at the Reserve Fleet. An emergency generator was brought aboard the SAVANNAH to continue running dehumidification equipment and maintain electrical power to the alarm system until restoration of shore power. The Motorola remote radio alarm system was disabled during this period driving the necessity for two patrols per hour past the vessel. No on-board inspections were conducted.

2. **NRC Visit**

The James River Reserve fleet hosted NRC Commissioner Merrifield, who toured both the NS SAVANNAH and the STURGIS. In addition, NRC conducted a comprehensive facility inspection in the latter half of 2003.

3. **Underwater hull surveys**

Underwater hull surveys indicate significant hard and soft fouling of the hull; however, the coating system is intact *(no change from CY 2001)*. The most recent survey will be completed later this month (actual completion date was January 12, 2004, credited to CY 2003).

4. **Impressed Current cathodic protection system**

Service visits were discontinued in 2001 with the installation of a hanging anode system. The hanging system is monitored periodically, and hull potential readings are logged and evaluated monthly. Mr. Rohr will verify that quarterly tests of the fixed system were being conducted as recommended last year.

The installed system is over protecting a portion of the hull due to a faulty reference cell and has been turned off. The quarterly check will be maintained to ensure that the basic system, i.e. power available to components, is ok but a new reference cell is needed to do a functional test of the system. A new cell will be installed at the next drydocking.

5. **Tank Soundings**

No changes in tank soundings have been found *(no change from CY 2002)*.

6. **Radiation inspections**

Radiation inspections including the containment area have been satisfactory, and seals have been changed as required *(no change from CY 2002)*.

7. **Security and Surveillance**

The remote radio alarm system is tested monthly, and has been functioning satisfactorily, except as noted in paragraph 1 above. MARAD executes two (2) patrols per hour and the US Army - FT Eustis conducts two waterborne patrols per day.

8. **Radiation Health Physics Contract**

The CY 2003 Reimbursable Agreement to fund the radiation health physics contract with the U.S. Army is in process.

9. **FY 04 funds**

FY 04 will be allotted to the South Atlantic Region, and purchase orders are being processed routinely, pending resolution of FY 2004 Budget Issues (Continuing Resolution).

V. REVIEW OF TECHNICAL SPECIFICATION REQUIREMENTS

In accordance with paragraph 3.6.3 of the TS, the Committee is specifically required to review the following items:

A. Proposed changes to Technical Specifications.

A draft of proposed changes is still in development.

There has been a long-standing desire on the part of the committee membership to review and revise the TS. The committee determined to meet within the next four months to complete a review of the both the current TS (adopted in 1994) and the aborted 1996 revision that was submitted as part of the last license renewal application (1996). Because that renewal action was made unnecessary by changes to the applicable NRC regulations, the TS changes never went into effect. The committee will prepare a license amendment once the proposed TS revisions are finalized.

The contemplated scope of the revision will include the composition of the R&A Committee and its quorum requirements, the scope of radiation surveys, and other ancillary changes due to the cessation of public visitation to the vessel.

B. Proposed changes or modifications to the vessel's controlled radiation area entry alarm system or containment system.

No changes were proposed or implemented during CY 2003.

C. Substantive changes to radiation surveys or security surveillance procedures.

1. <u>Radiation Surveys</u>

No changes to the radiation survey protocols were made during CY 03.

2. <u>Security Surveillance Procedures</u>

Routine security surveillance continued throughout CY 2003, and was augmented by the following measures:

i. A fixed camera surveillance of the ship's starboard side was installed on shore. The camera monitors the principal access point to the ship 24/7.
ii. The frequency of JRRF waterborne fleet patrols have been increased to 24/7 coverage. An affirmative check and log of NSS is made hourly.
iii. U.S. Army, Fort Eustis has instituted a waterborne patrol of the James River 2 times per day (times vary). This patrol may be dependent on the national terrorist threat level.

D. Reported violations of Technical Specifications

No new TS violations were cited during the reporting period. The NRC cited violations of TS sections 3.1 and 3.7.6 on

February 15, 2001. MARAD responded by letter dated March 15, 2001. One violation (of TS 3.7.6) has been corrected, and the other (of TS 3.1) remains in progress.

1. **TS 3.1 Violation Update.**

Our efforts to provide a radiological response team have been hampered by a general lack of waterborne response capability. We sent letters and had folow-up meetings with Dominion Power (Surry Plant), Newport News Industrial (Commercial Nuclear Industrial Support) and Jefferson Laboratories (USDOE, National Accelerator Facility). Dominion Power's response was less than enthusiastic. Newport News Industrial felt hampered by contract commitments with Naval Sea Systems Command (SEA 08). Jefferson Labs is believed to offer the best opportunity to provide health physics coverage because they have the local capability, with a similar response requirement. As a government agency, MARAD can obtain these services from Jeff Labs through an interagency agreement and/or Reimbursable Agreement.

The SERAT effort focuses on the first visit to the ship following an emergency and debriefing of the survey team. Steve Holmes (NRC) made two comments regarding this discussion. 1) Should the NRC respond to an incident, it would be in an oversight capacity, not execution. 2) MARAD would have to turn to Federal Emergency Management Agency (FEMA) for additional outside government assistance. The discussion went on to note that the actual technical violation deals with having a HP (Health Physics) on call and capable of responding within 2-hours of an incident. The current Heath Physics contractor (J. Davis, General Health Physics) cannot meet the time requirement.

MARAD, through WPI, executed procurement actions for outfitting equipment and radiological monitoring devices to support the proposed emergency radiological assistance team. This equipment will be stowed in lockers ashore at the Reserve Fleet Facilities. An additional set of equipment will be stowed aboard the vessel.

E. License Event Reports

No LER's were noted during the reporting period.

F. Annual reports to the NRC

The CY 2002 annual report was submitted to the NRC on March 22, 2001. Mr. Koehler will submit the CY 2003 full annual report, which includes the radiological survey, decommissioning funding statement, and the minutes of this meeting to the NRC on or about March 1, 2004.

VI. OTHER TOPICS

A. Security Issues

MARAD continued to monitor the NRC watch list as required. Security enhancements are noted in paragraph II.3.b.

B. Decommissioning and Decommissioning Funding

1. Decommissioning

MARAD, specifically MAR-610 hired WPI to act as a nuclear services consultant, with an objective to review and update the existing circa 1975 decommissioning plans, and to complete a waste characterization study. MARAD's efforts will continue to focus on disposal via Barnwell.

The representatives from WPI then proceeded to brief the committee on the decommissioning. Mr. Stouky started off by noting that this should not be a difficult decommissioning, given the reactor history. The cost estimates will probably run in the $40M to $50M range compared to $500M for an electrical power industry reactor decommissioning. The unique difference is that this reactor is mobile. There is a requirement to do a series of studies in order to prepare an Environmental Impact Assessment, because the reactor is mobile.

Mr. John Bowen then briefly discussed the decommissioning process and the steps required. This discussion addressed the need for a LICENSE Amendment, because the existing license prohibits decommissioning of the reactor.

Mr. Koehler noted that he had hoped to present the proposed amendment during this meeting for approval, but it is not ready. Efforts to clear the NOV (Notice of Violation) needed to be completed before we can address the LICENSE Amendment. Steve Holmes commented that a simple, straight forward, Technical Specification Amendment should be submitted as soon as it is ready.

2. Funding

Three major evolutions require funding in the FY 2004; routine husbanding and licensing support; dry-docking; and decommissioning.

Funding for husbanding and license support is absorbed within the MARAD NDRF account. These funds are sourced from the National Defense Sealift Fund (NDSF), a DOD appropriation. Funds were available early in FY 2004.

The N/S SAVANNAH is scheduled to complete its next

drydocking in 2004. Based on the ship's good hull condition, and the possibility that dry-docking will be required as part of the decommissioning industrial effort, MARAD has determined to defer the dry-docking. Should MARAD's decommissioning effort fail then we will need to revisit drydocking at the 15-year interval and plan accordingly.

Both the Department of Transportation and OMB supported decommissioning funding for FY 2005. DOT directed that MARAD use a multi-year decommissioning approach, with funds provided from MARAD's Ship Disposal account. MARAD will seek reprogramming authority to provide additional funds in FY 2004 to continue decommissioning activities.

3. Independent Oversight Committee

WPI recommended the creation of an independent oversight committee for the duration of the decommissioning process. This independent committee would include personnel internal and external to the Maritime Administration. The purpose of the committee would be to meet quarterly during critical periods of the decommissioning for decision making purposes. Mr. Holmes recommended that this committee might consider providing Quality Assurance auditing capabilities or at a minimum provide outside feedback to proposed decision making. The members of the committee, as a whole, would have not any vested interest in the project when communicating with the public. Usually this will be a fluid body that changes make-up as the project progresses through the various phases of the decommissioning. The group would operate on a technical basis only, providing outside decommissioning expertise based on individual past experiences. "Another set of eyes". Nuns Jain suggested that this might be a technical advisory group to the audit and review committee.

4. Disposal Status

Mr. John Stouky provided an overview of the Reactor Vessel disposal status at Barnwell, SC. The overview included a basic discussion with the Compact Commission.

C. Other

The following items were discussed:

NRC Inspection Report: NRC's inspection report was presented by Steve Holmes of the NRC. With regard to the documents that the committee operates under, reference was made to the Port Operating Plan. Copies were available to all in attendance. Mr. Holmes also noted that though not required, an emergency

response capability does exist, and can serve the purpose of the Port Operating Plan for fire or security issues. This will provide a "warm and fuzzy"

Technical Specification Revision (see III.1): An interim R&A Committee meeting will be called in early summer. Discussion followed regarding future committee make-up.

Public Inquiries: It was noted there are at least three (3) recent inquiries regarding potential acquisition or use of the ship.

1. **Action Items**

There are two action items left over from the last annual meeting. 1) A summer meeting to review the Tech. Spec.; and 2) Topside assessment and condition survey of the N/S SAVANNAH. The Survey has been carried forward for action by the James River Reserve Fleet. The Tech Spec review is carried forward for action by the Technical Director.

SAR discussion points included procedures unique to the SAVANNAH, the status of contingency plans and emergency response plans, and the possibility of conducting response drills with Fort Eustis. The committee will address these points at the interim meeting, as all points are related to the TS and responsibility is related to committee membership and oversight. SAR raised questions regarding terrorist threat issues impact on the community.

The meeting was adjourned at 2:45 pm in celebration of Joe Seelinger's pending retirement from government service. The committee presented Mr. Seelinger with an engraved piece of the ship's teak caprail, in recognition of his contributions to the SAVANNAH program, including his service onboard the vessel as a licensed Reactor Operator in 1964/65.

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