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UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

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NUCLEAR SHIP SAVANNAH PUBLIC MEETING

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WEDNESDAY,

MARCH 11, 2009

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The meeting convened at 7:00 p.m. at the Canton Marine Terminal, Pier 13, 4601 Newgate Avenue, Baltimore, Maryland, John Buckley presiding.

PRESENT:

John Buckley, Nuclear Regulatory Commission

Mark Roberts, Nuclear Regulatory Commission, Region I

Erhard Koehler, Maritime Administration

C-O-N-T-E-N-T-S

P R O C E E D I N G S

(7:06 p.m.)

WELCOME

MR. BUCKLEY: Thank you very much for coming. I appreciate it.

My name is John Buckley. I'm a project manager with the Nuclear Regulatory Commission. And I'd like to thank everybody for taking their time for coming out tonight to participate in the Post-Shutdown Decommissioning Activities Report for the NS Savannah Public Meeting.

The PSDAR, I will use that acronym often tonight, it's a mouthful to say, so I would rather just say it once and then we'll stick with the acronym if that's okay with folks.

Tonight's meeting is a Category III Public Meeting, which means that the staff is actively seeking public participation and comments on the PSDAR for the nuclear ship Savannah.

There will be a meeting report generated after tonight's meeting. The meeting report will be made part of the public record, and will be publicly available through NRC's agency-wide document access and management system, also a mouthful. The acronym for that is ADAMS, so those are the two acronyms I'll

use tonight, PSDAR and ADAMS.

The public comments will be taken at the end. And both public comments and written comments I received earlier on the PSDAR will be included as part of the public record. Just so folks know that.

The format for tonight's meeting is relatively simple.

PURPOSE OF THE MEETING & FORMAT

MR. BUCKLEY: We have myself, Mark Roberts, NRC Region 1 inspector, and I will speak about the decommissioning process; and Erhard Koehler from Maritime Administration will actually talk about the details of the PSDAR itself.

The Maritime Administration submitted the PSDAR to NRC on December 11th, 2008. And that is the reason we are having this meeting tonight.

The purpose for tonight's meeting will be fourfold. First, I will give you a presentation, a short presentation, on NRC's decommissioning process. Mark Roberts will then speak about the NRC inspection process. Erhard Koehler will give us the details of what's in the PSDAR itself, and then most of the time tonight will be set aside to - for MARAD and for NRC to actually hear public comments.

Those comments will then be considered in

NRC's review of MARAD's submittal.

NRC REGULATORY PROCESS

MR. BUCKLEY: The NRC decommissioning requirements are set out in Title X of the Code of Federal Regulations, Part 50.82. That is the regulation title.

The decommissioning process - and that regulation actually spells out what the different steps in the decommissioning process are. The decommissioning process starts when a licensee makes the decision to permanently cease operations.

Within 30 days the next 30 days the licensee must submit to NRC in writing certification that it has made that decision to cease operations. At that point the licensee the operator must then remove the fuel from the reactor vessel.

And once again the regulations require that the licensee submit a certified - a certification in writing to NRC saying that all the fuel has been removed from the reactor vessel.

Upon making the decision to cease operations, the licensee either prior to ceasing operations, or within the next two years, following that decision, must submit to NRC its PSDAR.

The licensee then has the option of either

going with immediate decommissioning or licensee can put their facility into what is known as a safe store condition.

Decommissioning for a Part 50 license does not actually have to happen for up to 60 years.

Towards the end of the decommissioning process licensees are required to submit to NRC a license termination plan. That plan must be submitted to NRC within at least two years prior to the date that they expect to have their license terminated.

The license termination plan, the requirements for what goes into a license termination plan is also laid out in the requirements. Six things are required. First, the licensee must submit as part of their LTP, license termination plan, they must submit a site characterization report to identify the current radiological status of the facility.

They must also submit - oh, I'm sorry, hang on I got it - it's my fault, I apologize.

Okay, we finished with two things, must submit a site characterization report to lay out what the current radiological status of the facility is; they must submit a description of the planned decommissioning activities; they must submit a schedule for those decommissioning activities; they

must submit a final status survey plan that tell us how they intend to demonstrate that they have met the decommissioning requirements; they must submit a discussion of the final end state of the facility; they must submit an updated cost estimate for those decommissioning activities which remain; then finally they must submit an updated environmental evaluation to evaluate what environmental impacts the remaining decommissioning activities will have.

After the licensee demonstrates that they have satisfactorily met the conditions of the LTP, NRC then terminates the license. 10 CFR 50.82 also provides the general requirements of what must be in the PSDAR. The requirements are quite general, and four things are identified.

First, the PSDAR must have the planned decommissioning activities. It must provide a schedule for those activities. The PSDAR must include a detailed cost estimate to say how much those decommissioning activities will cost. And then finally we need an environmental impact report to evaluate what are the environmental impacts of those decommissioning activities.

In order for licensees to have a better idea, a more detailed understanding of what goes into

the PSDAR, the NRC published in July of 2000 Regulatory Guide 1.185 which is entitled, standard format and content for post-shutdown decommissioning activity report.

This report, this reg guide, actually provides a lot of detail about exactly what the licensee should submit to the NRC.

I'll point out first that the NRC by regulation is not required to officially approve the PSDAR, but in fact the NRC does review the PSDARs to make sure that they do comply with requirements.

However a formal approval letter is not provided.

The review process for the PSDAR is also laid out in the requirements, in the regulations. What it says is, when a licensee submits its PSDAR NRC must notice submittal - must notice receipt of the submittal in the cover register, and request public comments.

NRC must also schedule a public meeting to talk to - to hear comments from the public about what's included in the PSDAR, and that's what we're doing tonight, so tonight we are meeting the second step of the regulatory requirements.

NRC then considers those comments in its

review of the PSDAR, and the staff will use the requirements or the details in Reg Guide 1.185 in our review of that submittal.

Reg Guide 1.185 lays out the criteria the staff has to use in its review of the licensee's submittal. What it says is that the NRC staff will find the PSDAR acceptable if it meets these four criteria.

First, as long as decommissioning can be accomplished as described in the PSDAR, the staff finds that acceptable.

If decommissioning can be completed as described within a 60-year time period, that is also good.

Decommissioning staff has to be able to determine that decommissioning can be completed for the cost estimated in the PSDAR submittal.

And finally decommissioning activities cannot endanger the public health and safety or the environment.

The PSDAR describes the decommissioning activities that the licensee plans to undertake, to bring its license to termination.

However the regulations lay out several requirements or several restrictions on the licensee

in their completion of those decommissioning activities.

First licensees, in this case MARAD, is not allowed to perform any decommissioning activities for a period of 90 days following its submittal. That time period is required by the staff to review the PSDAR, conduct a public meeting and consider those public comments in our review.

Second, the decommissioning activities described and those conducted by MARAD, they cannot preclude unrestricted release of the site at some point in the future.

The third restriction laid out in the requirements is that decommissioning cannot result in significant environmental impacts which were not previously evaluated by the NRC and the applicant.

And finally the last one is that decommissioning cannot result in sufficient funds not being available for decommissioning to finalize the decommissioning activities.

So in completing my remarks about the decommissioning process I would say the following things. NRC does not officially approve PSDARs. However, the NRC will review it and will consider public comments in our evaluation of their submittal.

And that is the presentation I had for tonight. I would be happy to entertain comments you have on the regulatory process. We can wait for comments overall after Erhard completes his discussion of the technical details.

But I would entertain comments now if you want.

(No response.)

Seeing no hands, I will go to Mark Roberts next to talk about NRC's inspection process.

NRC's INSPECTION PROCESS

MR. ROBERTS: Thank you, John.

I was traveling this week and had another presentation at headquarters, so I didn't put together a beautiful PowerPoint like John put together. But I can tell you essentially what our inspection process would be for the NS Savannah.

The NS Savannah is a unique facility. It's one of the only floating sources of - floating power plants. So we have classed this as a Class II research and test reactor for our purposes.

We have inspection procedures to tell us what - the task that we have to do.

One of the requirements that the facility has, or the reactor has, is what they call a technical

specifications, that tells us what some of the activities are that the licensee has to perform. They have to perform so many different inspections and other requirements.

As a Class III test reactor we would inspect them, if they are not doing active decommissioning, at least once every three years, every three-year period, and we write an inspection report about it.

Some of the things that we would look at would be how they met their technical specifications, such as the radiation surveys. They are required to have an annual report they submit to the NRC; we would review that.

Other things we look at are staffing, radiological surveys that they are required to do, any other required what we call surveillances - that is testes to - that are required by the technical specifications.

And one other important thing is such as site security, one of the concerns - I won't say fairly recently - but NRC is very concerned about security of licensed materials, so that is one activity that we would look at.

Once after decommissioning is started we

would get into a different inspection procedure. It's for research and test reactor decommissioning. In that procedure there are all sorts of requirements to look at. Routine decommissioning activities, such as radiation surveys, work controls, all the things that have to do with radiation protection like personal dosimetry, measurements for workers, radiation survey instrumentation use, how areas are labeled, and posted, to make sure that there are what we call communications to people walking around the ship that know where radiation areas or radioactive material areas are.

We would look at training. We will look at waste disposal. And then we would look at the transportation of waste, and as a final activity we would look at what they call the final status survey of the facility.

One major requirement for this procedure is that we be flexible, because the decommissioning activities could take multiple years to complete. I was involved in the Main Yankee decommissioning process that took over a seven-year period. So you had to be flexible as part of when you - if you wanted to see something on a particular time period you had to be flexible because it might not be happening that

week or that month; you might have to put that off.

So typically for a project like this I would set up a routine conference with the licensee, typically radiation safety officer and other staff. And it would depend on the level of activity that they would do. It migh8t be a weekly or biweekly or monthly call to get an idea of where they are in their process.

I would then select activities that I wanted - major activities that I wanted to see, and they would let me know when those things were happening.

Certain major activities that we like to see are things like removal of large components; shipments of - waste shipments; things like that.

One major final activity would be the review of their final status surveys. That is the radiation surveys they employ or they perform to determine that they meet their required criteria for release for unrestricted use. We may consider making our own measurements, what we call confirmatory measurements. We have a contractor that would do that.

And again we would assess our needs based on that.

So basically in summary, until they start active decommissioning, we class them as a decommissioning test reactor, with a low inspection frequency. Once they start active decommissioning we have to be flexible. We move up our schedule to inspect as often as we deem necessary, to make sure that we see the activities, to make sure that the work is being performed safely.

And as a finality we will take a look at their final status surveys, again, to make sure that the work has been completed, and the criteria that we designated in their license termination plan is met.

That's all I have. Thank you.

MR. BUCKLEY: Thanks, Mark.

Erhard Koehler will now give us a discussion of the details of the PSDAR submittal.

CONTENTS OF PSDAR

MR. ROBERTS: Okay. Welcome, everybody. Thank you for coming this evening. We the Maritime Administration appreciate your attendance at this PSDAR public meeting.

For the members of my staff who have sweated a long time for tonight, this is a very important milestone for us, and we very much appreciate - I very much appreciate all the hard work

that they have put in to this project, and are likely to continue to put in for the foreseeable future.

I'd like to just ask the members of the Savannah technical staff or the extended staff to please just stand up for a moment.

(Applause.)

MR. KOEHLER: Yes, you can applaud.

This is an exciting time for the Savannah, not just because we are celebrating a milestone in the decommissioning process, but we are also in the midst of the early portions of the 50th anniversary commemorations of the history of this ship.

Last year we celebrated the 50th anniversary of the keel laying of the NS Savannah. This summer we will be celebrating the 50th anniversary of its christening and launching, Mamie Eisenhower doing the officiating in Camden, New Jersey, on July 21st, 1959.

There is a bit of a gap between 2009 and 2011. The ship was completed in 1960 for the most part for the advisory committee on reactor safeguards took a good due diligent process before allowing the fuel to be loaded and the reactor to go critical in 1961.

We intend to conclude the commemorations

in 2012, on the 50th anniversary of the ship's maiden voyage to Savannah, Georgia. So John, if you will.

Now briefly, I know my role here tonight is to talk about the content of the PSDAR. We are not going to go through the entire report in detail, but we are going to hit some of the highlights, and we will talk just very briefly about the ship.

An overview of the decommissioning of the Savannah, the plans that we have had to date, the activities we plan to conduct in safe store, touch on future decom and license termination. And we have as may have been noted, many of you have noticed on the website, we do have an appendix to the PSDAR that talks to preservation to the nuclear power plant as an alternative to decommissioning. This is a concept for discussion; it is not a proposal at this point. But as an historic property, as a national historic landmark, the Maritime Administration in exercising its stewardship responsibilities under the National Historic Preservation Act, any consideration of the radiological conditions of the plant has considered the possibility of preserving it in lieu of decommissioning it. So we will talk briefly about that.

As Mr. Buckley noted, there is certain

required content of the PSDAR. We have included that in the relevant sections of the document itself, the planned major decommissioning activities; the schedule, estimates, and discussion of the environmental impacts and issues.

We did publish separately an environmental assessment and finding the most significant impacts for decommissioning the nuclear facilities on the Savannah. That report was published in June of 2008, and it was separately submitted to the NRC last fall, in September. It does form the basis for the environmental discussion the PSDAR.

As Mark noted the Savannah is a relatively unique creature in the NRC-regulated world. It is the only NRC-regulated floating nuclear power plant. It is the only mobile nuclear power plant in the NRC-regulated world, so we believe that we have some special issues, things of unique concern to the Savannah that we addressed in the PSDAR.

For context - and this report was widely disseminated - for some context we put in some design history, and also the actions that were taken in the mid-1970s to mothball the plant at that time. We talk a little bit about the options for retention sites for the Savannah when it goes back into protect storage

for an intermediate period.

We have talked about, and the PSDAR will talk about a little bit tonight, the Savannah was first put into protective storage in the 1970s at a time when there was no such history in the nuclear industry to do that. Mothballing was the name of the game in the day. Today it's safe store, and we have evaluated the differences between the two processes in order to come up with a safe store condition for future retention. We talk to that comparison. We will mention some of that tonight.

And then again, finally, the preservation as an alternative.

Briefly the Savannah is a creature of President Eisenhower's visionary Atoms for Peace proposal. Go on, John. It was proposed or announced by the president in 1955, and the program was established as a joint program between the Atomic Energy Commission and the Maritime Administration.

I've put this up, key milestones in the reactor operating history, because these are really the events that are of significance to decommissioning.

First criticality was December 21st, 1961. In Camden, New Jersey, the ACRS, the Advisory

Committee on Reactor Safeguards, permitted the reactor to be operated to only 10 percent power in that heavily populated zone in Camden. So the ship was moved to Yorktown, Virginia, to the Coast Guard training center, where it underwent sea trials, dock trials and sea trials before acceptance by the Maritime Administration in May of 1962.

The reactor was first operated to 100 percent power down in Virginia near Yorktown.

Our present license was first issued in June of 1965. We are currently in amendment 14 of that license.

The final shutdown occurred November 9th, 1970. Over the course of that time from December of `61 to November of 1970 the reactor operated for a total of 2.423 effective full power years. And you can see that that is over an eight-year span that the reactor operated.

Unlike most land side generating stations where you start the reactor up, and you hope to generate a lot and a lot of electricity, the Savannah being a ship cycled the reactor quite often. The ship would depart a port, it would go on a voyage, it would maneuver, it would come into port, it would shut down. It would load cargo, dispatch cargo, then it would

make its next voyage and go to the next port.

So the reactor was continuously cycling. So over that long period of time, over that effectively eight years of operation, the reactor only saw about 2-1/2 full power years.

The defueling was completed on September 29th, 1971. The ship was prepared for mothballing in the mid-1970s, and the possession only license, which is the current form of the license, was issued in 1976.

The restrictions on the license preclude MARAD from reactivating the reactor without the permission of the NRC, and it also precludes MARAD from decommissioning the reactor nuclear facilities without permission of the NRC.

And in summary, today the nuclear ship Savannah is defined as national historic landmark, an international historic mechanical engineering landmark, and a nuclear engineering landmark. It is a significant structure in American and nuclear American history.

In considering decommissioning of the Savannah it is useful to understand what the current condition of the plant is. For the most part the plant, the power plant, is substantially intact. The

only components that were removed in the 1970s were the four primary cooling pumps; the demineralizers, which were part of the primary system purification system, primary water purification; the fuel itself was removed; and most of the primary coolant was removed.

For the most part the balance of the nuclear facilities are intact, and present on the ship.

All of those are to be removed in the decom process, which is the ultimate decommissioning stage for the Savannah. Next.

As I noted the Savannah is a national historic landmark. AS a federal owner of a national historic landmark, the National Historic Preservation Act obligates federal stewards to certain preservation activities, and these are fairly recent amendments to the NHPA.

But John, if you go back just one slide, if you notice in that cutaway view, and also the National Park Services' wonderful drawings that they have done on the back table, all of the components that are to be removed in decommissioning, in decom, were installed into the ship through the existing accesses. It is our intention through a philosophy

that the ship ultimately would be preserved post-decommissioning, to use those accesses to remove the components and the equipment and the piping from the ship without disturbing its underlying fabric.

So again where possible we will undertake all decommissioning activities in a manner that preserves the historic fabric of the ship and makes possible its future preservation. It si not a given that the ship will be preserved in the future; it's not a MARAD mission to preserve the ship in the future. But we are very sensitive to its historic status, and the intention is to do no harm in decommissioning that would prevent its future preservation.

As a federal facility decommissioning funding for the Savannah is provided for by federal appropriations. I will take the opportunity to note that today, March 11th, 2009, nearly six months after the beginning of fiscal year 2009, the Congress has passed the omnibus budget to complete funding for fiscal year 2009. I believe it has been signed. Kevin is telling me that it has been signed.

So for those of us who are feds in the room, congratulations, we have a budget.

It's one thing to know that federal

appropriations are the source of funding to decommission this facility. For those of us who are feds involved in the budgeting process, we must also understand that there is an incumbency on the agency to request those funds. We cannot expect them to simply flow from the Congress like manna. There is a necessity for the Maritime Administration to request these funds to perform the decommissioning. And in the PSDAR we acknowledged this responsibility to actively seek the monies to decommission the facility.

We began seeking such funding in fiscal year 2005. The decision to advance decommissioning of the Savannah was first made in internal discussions in 2002. The Maritime Administrator at the time, Captain William Schubert, received some briefings about the condition of the Savannah, and its relative condition out in the James River reserve fleet. And he made the decision to pursue decommissioning as a solution to the condition.

At that point in time we were approaching the fiscal 2004 budget cycle. We did not make the fiscal 2004 budget cycle, but beginning in fiscal 2005 the agency began requesting funds for decommissioning.

We initially projected an interim funding profile or incremental, rather, I'm sorry, where the

total amount of money required for decommissioning would be spread over several fiscal years, which was principally because the funding was being sought within the agency's operating budget, not as a capital expense. And as a consequence a large expenditure in one fiscal year for the Savannah would have an impact on other agency programs.

So the incremental program was the one that was decided upon, and decided at both the departmental level, the agency level and the Office of Management and Budget.

Those of you who are federal employees and have experienced the appropriations process of the last several years, similar to this year, know that it has not been very stable. This is not the first fiscal year that we have received a budget late in the year. This is in fact probably the third or fourth in a row.

Because of this, because of the instability of the budget process, because of the several fiscal years in which continuing resolutions were passed instead of appropriations, we were not able to successfully receive sufficient monies to commit to decom. So in the course of the fiscal 2008 budget request cycle the decision was made to pull

back and to reassess our options.

That occurred in the calendar year 2006. Throughout the beginning of calendar year 2007 and into 2008 as we pursued top side maintenance of the ship and drydocking, the agency reevaluated its options. And in the spring of 2007 a determination was made to evaluate and to seriously consider a return of the Savannah to protective storage, to safe store, and to defer decom out to the maximum point in time that the regulations allow.

As John noted the regulations require license termination no later than 60 years from permanent cessation of operations. In the case of the Savannah which permanently ceased operations at the conclusion of defueling in December, 1971, we have until September of 2031 to complete the decommissioning process. That is the end of fiscal year 2031.

So there is a period of time if you back out the several years that are required for the decom project prior to 2031, there is a period of time for intermediate or interim protective storage, that the intent is to prepare the Savannah for that new retention period.

We have defined this protective storage as

a new decommissioning activity. It's important, because the Savannah left protective storage when it left the James River Reserve Fleet in anticipation of decom in 2006.

And commitments had been made, meetings had been held, and the NRC understood that we were pursuing a decom path and we had requested appropriations for that process. So MARAD in making the decision sometime later to return the ship to protective storage defined that as a new decommissioning activity, one that should be taken in accordance with contemporary requirements for protective storage, not the mothballing criteria of some 25 years previous.

So in order to undertake this we had to analyze the difference between mothballing and safe storing. Mothballing was first defined in 19743 in a regulatory guide. Several plants have been mothballed in the years preceding the reg guide, but there was no formal guidance until that reg guide was published. There were only a handful of facilities that were mothballed at that time. Most nuclear power plants were being built at that point; they were not being removed from service.

Safe store is defined in the regulatory

guide that defines format and content for the PSDAR as a concept that existed a little bit earlier, but this is the formal guidance that we have.

The way I would describe safe store and mothballing is that mothballing is a very prescriptive cook book type method by which you take a plant out of service and seal it up and make sure that it does not harm to the environment or to the public.

Safe store is very much more a performance based criterion as we understand it. You take an operating facility, and you shut it down, and you scale back your operations to suit a plant that is no longer generating electricity or generating radioactivity, but you maintain your operating profile for the period of protective storage.

In concept they are different. They are different from an intellectual standpoint, although in physical characteristics they are not much different.

The operating procedures or the operating programs and processes that have to be maintained in a safe store environment include quality assurance, radiation protection, security, fire prevention and detection; that is not all inclusive, but those are the major ones as we understand them to be.

I have several slides that talk to some

direct comparisons of mothballing and safe store. This will be in the record. You can see these. These are also in the PSDAR. I think you can skip the next four slides or os.

As we understood and as we came to understand safe store, and to define what would be Savannah's new protective storage condition, we tasked our engineering contractor, Areva Federal Services, to prepare a safe store plan. This would translate the understanding of the differences from mothballing and safe store and define discretely the things that we needed to do to implement safe store.

We took the opportunity to include in that safe store plan several conventional marine type applications that are related to safe store. It is a ship, and because the ship is going to go into retention for some period of time, it has to be made intrinsically safe from a marine standpoint, not just a nuclear standpoint; and we wrap all these together.

Safe store plan includes four major themes or elements: planning and engineering activities; surveys; technical activities; and radiological remediation.

Planning and engineering activities, some of which are in process, most of which will be

completed in the next few months, include an historic site assessment - that actually is complete; developing the DGCLs for residual radioactivity; and engineering plans that implement electrical systems, HVAC, and the safety improvements to the ship.

The principal surveying activity will be a MARSSIM characterization survey. This is a much more detailed and thorough survey than the scoping survey that we performed in 2005, though we don't expect many differences in the results. The characterization survey will be done to a level that will permit it to be used in licensing processes.

The technical activities include making safety improvements to the ship. The ship is now 50 years old. There are certain elements of the ship that have weathered quite well, and there are others that have weathered not quite so well, and we look to make certain improvements to the ship so that it remains safe to the personnel that are embarked onboard and working, and safe for the public that visits the ship over the course of the continued retention period.

We improved the - we intend to rehabilitate and improve ventilation in radiologically controlled areas including the containment. One of

the things that safe store requires is the maintenance of systems that are needed through the retention period and for decommissioning, ventilation being one of them.

In the case of the Savannah and the mothballing process, the ventilation was completely shut down and blanked off. So we really have none. So we will be making those improvements.

And also modifications to electrical systems throughout the ship. The ship is, again, 50 years old. And it's had water damage over the years. It's one of the reasons that the ship was returned to the Maritime Administration in 1994 after a period of uses in a museum in Charleston.

So from an intrinsic safety standpoint electrical conditions on the ship are of high importance, and we intend to take certain steps including the installation of a new shore-powered switchboard to ensure the safety of the ship and its distribution system.

Radiological remediation includes a few items. We intend to drain the remainder of the primary coolant as much as is practicable. We will remove contaminated equipment and piping from outlying areas of the ship.

One of the factors that influenced the 2002 decision to decommission, to pursue decommissioning, is the fact that there are certain portions of the primary system equipment and piping that are adjacent to the shell of the ship. We wish to improve the intrinsic safety of the ship by removing those materials from immediately adjacent to the environment.

Once you are at the skin fo the ship you are at the environment. If there is a breach to the skin of the ship we have a potential release to the environment. So we will remove certain - there are about five pumps and some pipes and valves and things that are in four compartments along the skin of the ship that we would intend to remove as part of the safe store process.

And finally we do hope to reduce the number of radiologically controlled areas inside the ship. There were a number of spaces such as laboratories, the health physics lab in the hospital, which are very minor decontamination in pipe ends, sink drains and such. These are spaces that were defined as radiologically controlled areas when the ship was a museum, and was available for unescorted public access. They no longer meet the tech spec

definition of a radiologically controlled area, but they have not been removed from radiological controls until we decontaminate the piping.

A question that often comes up is, what are you doing in Baltimore of all places. From the previous description you can see that there is a fair amount of work, and I know we have a few volunteers from the John W. Brown in the audience tonight. And the Brownies have gone down over the years and done quite a bit of work in the reserve fleet. Most of their work involves the removal without regard - without - with due regard for the safety of the ship from which they are removing the equipment, but knowing that the equipment they are removing from those ships is never going to be used again except on the John W. Brown. It's a different environment when you're on a retention ship, when you are out there doing work in the middle of the river, it's a fairly onerous environment in which to do this type of work.

So the Savannah has been moved out of the James River Reserve Fleet. It may return there for protective storage when the safe store preparations are complete. That's one of the retention site options. But until the work is complete we don't intend to return the ship to a reserve fleet site,

because that is not a forgiving environment to do this type of work.

So we needed a place to berth the ship. We solicited competitive bids on the East Coast, and we were fortunate to receive the bid in Baltimore. We had some preference for Baltimore, because most of the staff is D.C.-based and in the local environs, and we found that it has substantially improved the capacity of the staff and the proficiency of the staff to manage this facility by having it in our backyards so to speak.

So we are here in Baltimore. We have a labor contract that extends three years. We do not plan any major dismantlement actions, certainly we have to submit a license amendment before we plan to do that.

But this is not necessarily the facility at which we would conduct decommissioning activities. It's not what we contracted for here.

But we are rapidly becoming far more proficient in managing the facility. And we will complete all the detailed decommissioning engineering and planning while the ship is here in Baltimore.

Future decommissioning will be - or final decommissioning will be by the decom method in

accordance with the regulatory requirements as they exist. The intention is to dismantle the nuclear facilities, bring them into our philosophical approach through the existing accesses, and to pursue license termination in accordance with the regulation.

Again that would have to be completed by 2031, 60 years after permanent cessation of operations, understanding that we need roughly five calendar years to complete the project, so that funding would be required no later than fiscal year 2025, is what we've defined in the PSDAR.

John, you gave me 30 minutes on this; I'm not sure how I'm doing, but I think I have some time. Did somebody say 30 seconds?

The final topic that I wish to discuss tonight is the preservation alternative that we proposed in the PSDAR. It is appendix C, it is the last several pages of the report. And this alternative is in consideration of the ship's exceptional significance as a national historic landmark.

The presence of the nuclear facilities on the ship are not the only defining characteristic of the NS Savannah. The Savannah would qualify as an NHL whether it was conventionally powered or not by virtue

of its association with Atoms for Peace, by virtue of its exceptional design, its service history. There are many factors that associate the Savannah with the maritime and nuclear heritage of the United States with or without the nuclear power plant onboard.

Under the National Historic Preservation Act, when you remove a signature element or a defining characteristic, even if it's not the only one, that can be considered an adverse effect. And mitigation of adverse effects is required.

Now we sort of jumped the gun. If our historian, Barbara Voulgaris, was here tonight, she would be pointing a finger at me and saying, you are jumping the gun. We haven't done Section 106 on this project, and you don't know that it's an adverse effect. But intuitively it is very easy to understand that this will be from a 106 perspective an adverse effect to the NS Savannah, one which would require mitigation.

And those of you who had the opportunity to see the fine work that the National Park Service has been doing in documenting the nuclear facilities of the ship, that is the mitigation that will be used in consideration of the adverse effect of decommissioning.

So in a sense we have started decommissioning in a way; it's just not an NRC-regulated activity.

So we have however included preservation as an alternative. It was not a budgeting alternative. This is one that is in recognition of our stewardship responsibilities under the NHPA, as a federal owner of a national historic landmark there are obligations written into the law. And so we believe that it is important to at least consider this and talk about it. It may be ruled out, but at least we will have done due diligence in pursing this concept.

This would not be the first nuclear power plant to be preserved, and I think that this is an important distinction to make. This is not a new idea. Now this would be the first NRC-regulated facility to be preserved, but it is not the first nuclear power plant to be preserved. You will notice here the USS Nautilus which is safely up in Groton, Connecticut, owned, managed, maintained by the U.S. Navy. No longer commissioned, but it is a naval vessel, and it is in the property of the Navy, cared for and interpreted by the Navy.

The Department of Energy has a very

rigorous, vigorous preservation program for the Manhattan Project. And three of their sites, the X-10 Graphite Reactor in Oak Ridge, Tennessee; the Hanford B Reactor in Hanford, Washington, both of which are national historic landmarks; and the Trinity site, which is a national historic site; these are all preserved by the Department of Energy. They are actively maintained, and they are accessible to public visitation.

And then finally the DOE again in public-private partnership sponsored museums and historical foundations at other historic sites that they maintain including most of the national laboratories, the national atomic testing museum is out at Albuquerque, New Mexico. They are reopening I believe in April a brand new facility. The Nevada test sites sponsors the atomic testing museum which is in Las Vegas, if you ever get out to Las Vegas for a convention or just to visit, go out and take a look. It's well worth the time. And the Brookhaven National Lab, the Sandia National Lab, all have museums which are officially sanctioned by and supported by the Department of Energy.

So these are federal preservation initiatives in the nuclear industry.

We have in considering the topic and in opening it up for discussion have identified a few possible licensing paths that might be applicable to this. In 10 CFR 20.1403 and 1404 our license termination rules for license termination under restricted conditions, and license termination under alternate criteria. These demand that the owner - first the principal consideration in these is that the owner has to maintain appropriate institutional controls to safeguard the facility after the license is terminated.

There would have to be some definition as to a role for either MARAD or the federal government maintaining the ship and the license facility if such a path were to be taken.

The third option that we have looked at is maintaining the license. Prior to the current regulations in 50.82 with the PSDAR requirement when it was established in 1996, we were on a 10-year license renewal cycle. So we were a possession-only license beginning in 1976, and the license was renewed periodically on 10-year terms.

Whether that is an option, or whether a new license or some form of the current license, could be maintained, would be a way to maintain

institutional control of a preserved nuclear power plant.

I guess I talked about that. So these are some of the criteria that will be in the slides, and those are available on ADAMS at the end.

One thing we are not quite sure of, and would bear some discussion, is whether maintaining a license would require an amendment to the Atomic Energy Act, or whether any amendment to the Atomic Energy Act for the sole purpose of preserving the Savannah might be something to pursue.

But those are some of the options that we have considered. Rationale for preservation and decommissioning is again based on stewardship responsibilities and obligations imposed on federal owners of historic properties. This has become a very mature process. The last several administrations have had presidential executive orders promoting historic preservation, the later of which, the Preserve America Initiative by President Bush, really imposed the obligations on federal owners of historic properties, and encouraged their adaptive reuse, and encouraged their employment in public-private partnerships of some form to use those historic properties rather than discard them.

So preservation of the nuclear facilities, preservation of the ship, is wholly consistent with the current federal thrust in historic preservation. The two presidential executive orders, the other being Save America's Treasures from the Clinton administration, have both been codified into law now. And there is some funding for them, even for federal entities.

So it has become a very firm program, very firm federal program with support.

We do believe that preservation is quite consistent with the vision of Atoms for Peace, the mission and the purpose of the Savannah project, which is to promote the peaceful use of nuclear power, to promote the merchant marine, and that these missions which were undertaken by the federal government in the form of the Savannah remain relevant to this day.

The nuclear renaissance is certainly something that we are familiar with. Nuclear power is not going away. And the Savannah with a preserved nuclear power plant is certainly an excellent facility to educate the public about nuclear power.

We don't believe that preservation for the purpose of cost avoidance is something that is justifiable. Preservation for cost avoidance does not

relieve MARAD of its obligations or its responsibilities as a possessor of a nuclear power plant.

In situ decommissioning is something that the IAEA has some guidelines on. It's not in the U.S. regulatory scheme, but we also - we have reviewed that, and we don't believe that that is particularly applicable to a floating power plant.

So finally we also believe that preservation if it is to be undertaken should provide means for public access to the facility.

And that concludes my remarks on the PSDAR.

MR. BUCKLEY: Thank you very much, Erhard.

PUBLIC COMMENTS & QUESTION

MR. BUCKLEY: The remainder of tonight's meeting has been set aside to hear members of the public. If you folks have comments on the PSDAR, if you have questions for Erhard regarding the contents of the PSDAR or the licensing process or inspection process, I think the panel members here are happy to entertain any questions you may have.

If you would like to make a comment about the PSDAR itself, please come up, state your name so

we have it for the record, and we would be happy to consider those comments in our review of the MARAD submittal.

Could you state your name for the record? That would be helpful.

MR. KAMPS: My name is Kevin Kamps. I'm with Beyond Nuclear based on Takoma Park, Maryland. And we are a watchdog organization on the nuclear power industry.

And I haven't had a chance to study the PSDAR yet, but I came tonight at the request of Tom Clements, who is with Friends of the Earth in South Carolina, and he has a particular interest in NS Savannah, because he was born in Savannah, Georgia, studied it in elementary school in a textbook I think he said.

And my coworker, Paul Hunter actually built a ship, model ship, NS Savannah when he was a small child. So there is some interest out there.

But there are some concerns. The experience that I bring to decommissioning of nuclear facilities, I acquired at the Big Rock Point nuclear power plant in Michigan. And the concerns that we bring to decommissioning is that there is significant residual radioactivity, for example at the Big Rock

Point facility, even though they spent close to $400 million on decommissioning.

And in fact the sediments of Lake Michigan have never been examined from what is there, even though discharges took place for 35 years.

So the concerns that we have tonight about the proposed preservation would be that if this is going to be encouraging visitation by members of the public, concerns of radiological exposure to those people who visit, and particularly children who are more vulnerable than adults, especially more vulnerable to adult males, which is the reference man that NRC bases its health regulations on.

So that is a tremendous concern that we have about the health of visitors to the ship. We certainly would be concerned about where - if decommissioning activities do take place, where they would take place. So if this is the location, for example, for that decommissioning activity to take place, we are concerned about the workforce in the Port of Baltimore, but also local residents, some of whom are within just a couple or three miles of here.

Another concern that we would like to raise tonight is about this proposed museum that would take place onboard the ship, and the content of the

museum. Towards the end of your talk you talked about Atoms for Peace and you talked about the nuclear renaissance. And there is certainly a significant portion of the American public that does not agree with the premise, and is not supportive of the nuclear renaissance. So the question of - I already mentioned the concern about radiological exposure just in having the museum. But if there is to be one, if there are to be public visitations, the question of balance. And there seems to be some court precedent requiring balance in the creation of such a museum. And I know that a colleague, Kathleen Sullivan, in New Mexico, was able at the Los Alamos Museum, to obtain some measure of balance; that there are alternative views on these subjects; that there are critical perspectives on Atoms for Peace and nuclear power in general.

So those are some of the concerns that we bring tonight. And we will - one last question, I don't know if you can answer it right now, is your openness to written comments and what deadline would be in place for that? Because I think there are a lot of interested parties out there.

MR. BUCKLEY: Written comments have been requested when the Federal Register notice went out.

I have seen several written comments already, and those are being considered and will be evaluated.

You can send in written comments at any time. We can certainly consider those.

The 90-day period which MARAD had to wait before they start any decommissioning activities described in the PSDAR ends very very soon, so your comments would be requested sooner rather than later.

Any other questions or comments?

Yes, please.

MR. MEYER: Good evening. Thank you for this presentation.

My name is Alfred Meyer, and I'm just a concerned citizen.

I was wondering if this fits into the PSDAR proceedings, but I'm curious to know what the total cost of the Savannah has been in its 2-1/2 years of service and what in particular it actually did.

MR. BUCKLEY: Erhard, you are the person to answer both of those questions.

MR. KOEHLER: You will test my powers of recall. The first question was how much did it cost?

MR. MEYER: Total cost of the project from inception to today.

MR. KOEHLER: The - we have a - the ship

cost roughly $80 million to construct. And that was apportioned among the cost of - no, I'm sorry, it's $40 million to construct I believe it was. $40 million to construct.

MR. MEYER: 1950 dollars?

MR. KOEHLER: 1956 probably, because it was authorized in 1956, and it was appropriated in 1956. So I believe it was $40 million to construct, which was split I think $18 million to the Atomic Energy Commission for the nuclear power plant and the fuel and the training; and the balance to the Maritime Administration for construction of the ship.

We have a document, the Program Status Report, it's a one-sheet report, the last of which was updated in 1970, roughly the time, just before, two or three months before the ship was taken out of service, that provided most of the statistics, including the cost. I believe that it was roughly to that date something around $120 million, which would have been then reduced - the total federal expenditure would have been reduced by the value of the revenue earned in cargo services from 1965 to 1970. But roughly on the order, the federal expenditures were roughly $120 million to 1970.

We don't have good data readily available,

good records readily available, for the cost of the defueling or the mothballing process to the mid-`70s. There was a drydocking in 1975. There was some retention cost from 1975 to 1981, and from 1981 to 1994 when the ship was chartered to the state of South Carolina for use as a museum, the full cost of the ship was then borne by the state of South Carolina.

So there is a period of time there of roughly 13, 14 years where there was the only MARAD expenditures were essentially for staff travel to attend the periodic annual meetings, annual reviews, and so forth.

In 1994 the ship was returned to the Maritime Administration for drydocking. The value of the appropriation or the authority that we received to use internal funding for the drydocking, for the return of the ship from Charleston to drydock here in Baltimore, to go the reserve fleet and into retention, was $1.5 million; and I believe that that was authorized - I believe it was fiscal `94.

The ship was then retained in the James River Reserve Fleet from 1994 to 2006, and it's overhead cost was absorbed in the larger operations fo the James River Reserve Fleet. You would have to go in and try and find the line item cost that might have

been attributable to the Savannah, potentially something on the order of about $20,000 a year or something like that. Whatever the per ship cost was for the fleet operations, and that varied because the number of ships in the fleet varied over time, and there was a cost to operate the fleet apportioned among the ships.

From 2005 to date, I would have to go back and check. It's - it's $3 million this year. It was $3 million last year which was fiscal `08. 4.7 the year before that? And then it was a lesser number the year before that.

And the drydocking contract was $4.1 million, and the topside contract at Colonna's Shipyard in August of 2006 was $1 million.

Now your other question, and we will have to do some research and see how well I did, your other question - I have been responsible for the ship since 1993. I did repossess it if you want to use the word, but I took redelivery of the Savannah in 1994, and ran it through the drydocking, and I've been the senior management official for the ship since 2004. So I have some history, and we brought a lot of paper.

Your other question was, what did the ship do? Correct?

MR. MEYER: Yes.

MR. KOEHLER: Okay. Savannah was constructed as a demonstration project, Atoms for Peace, proposed by President Eisenhower. From 1962 to 1965 it operated a demonstration service in support of that vision, in support of that program of Atoms for Peace. It sailed to foreign countries; it sailed to domestic ports. It was open for public visitation. It was built for the public purpose of demonstrating the peaceful application of atomic power. It was built for the purpose fo exploring the issues related to future nuclear powered merchant ships. And there have been three other nuclear powered merchant ships that used the benefit of Savannah's entry into merchant service as a basis for their subsequent operations. So Savannah explored issues such as marine insurance, security for port calls, training of merchant marine officers as nuclear power plant operators; all of the things that would be different in a nuclear merchant ship as opposed to a conventional ship whether it was diesel propelled or steam propelled.

And it did all of those missions quite well. It satisfied all of the declared programmatic objectives for it at a federal cost. But the federal

government made the decisions through a proposal by the president and through an act of Congress to take on this particular project to demonstrate these - to fulfill these public purposes. And the federal government spent the money to do that in the form of the Savannah.

So there are a lot of myths and legends about the Savannah. It's a somewhat misunderstood ship through the lens of time. But when you look at what its declared purposes were; when you look at what the goals and objectives for the program were laid out; it satisfied all of them.

From 1965 to 1970 it did operate in commercial cargo service. It was chartered to a commercial operating company, and it operated in rotation on essential trade routes of the United States with other conventionally powered ships. And there again it operated quite well. The Savannah was never out of service for a reason other than uplands maintenance outage.

So the Savannah was an extremely reliable ship. And it handled cargo reasonably well. You have to remember, one of the myths and legends, one of the knocks about this ship, is the fact that it didn't handle cargo well. That was purely because of the

aesthetic design considerations that took precedence over the ability to handle cargo efficiently.

So where Savannah is often considered a poor cargo ship, that's because it was designed to be done.

The other thing I would also note is that it was not designed to be an economic ship. It was not designed to be profitable in operation. It was designed for the public purpose of exploring issues related to nuclear merchant ship propulsion, and as a consequence - you know the feasibility of a nuclear powered merchant ship only demanded that it be able to carry cargo, not that it make money doing so, and not that it do it efficiently. And it did all of those quite well.

But it did not make money. Ironically had the ship operated into 1974 and the oil crisis, it would have turned a profit even with its built in inefficiencies.

I think you have to stand at a microphone.

MR. MEYER: Thank you very much. I'm wondering if it carried any cargo prior to 1965.

MR. KOEHLER: It carried cargo for the Food for Peace Program. It carried some demonstration cargo on its maiden voyage to Savannah, Georgia. It

carried the newsprint that was used to print the newspapers in Savannah the following day in their nuclear edition.

So it carried - during the period `62 to `63 when it was in its initial demonstration service, it really was intended to show the flag. It was not really in service as a cargo ship. It carried some cargo. We had 400 legal sized file boxes of paper that include cargo manifests, and one of these days we may scan them or give them to the archives and somebody can figure out exactly how much cargo she carried.

But off the top of our heads we haven't read all that. So I apologize I can't answer that one.

MR. MEYER: Thank you.

MR. BUCKLEY: Other comments or questions?

If not, the meeting is adjourned. Before we go, I'd really like to thank Erhard and the other MARAD staff for putting together tonight's meeting venue. I very much appreciate your help.

Thank you for coming.

(Whereupon at 8:17 p.m. the proceeding in the above-entitled matter was adjourned.)