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UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

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ADVISORY COMMITTEE ON REACTOR SAFEGUARDS

(ACRS)

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METALLURGY AND REACTOR FUELS SUBCOMMITTEE

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THURSDAY, MARCH 24, 2016

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ROCKVILLE, MARYLAND

The Subcommittee met at the Nuclear Regulatory Commission, Two White Flint North, Room T2B1, 11545 Rockville Pike, at 8:30 a.m., Ronald G. Ballinger, Chairman, presiding.

COMMITTEE MEMBERS:

RONALD G. BALLINGER, Chairman

CHARLES H. BROWN, JR. Member

MICHAEL L. CORRADINI, Member

DANA A. POWERS, Member

JOY REMPE, Member

PETER RICCARDELLA, Member-at-Large*

GORDON R. SKILLMAN, Member

DESIGNATED FEDERAL OFFICIAL:

CHRISTOPHER L. BROWN

ALSO PRESENT:

KRISTINA BANOVAC, NMSS

JANA BERGMAN, Curtiss-Wright

ALADAR CSONTOS, NMSS

KRIS CUMMINGS, NEI

BOB EINZIGER, NWRTB

DONNA GILMORE*

MATT HISER, RES

ANTHONY HSIA, NMSS

MATT KEENE, Duke Energy

SUZANNE LEBLANG, Entergy

MARVIN LEWIS*

MARK LOMBARD, NMSS

ROD MCCULLUM, NEI

GREG OBERSON, RES

TERRY PICKENS, Xcel Energy

PAUL PLANTE, 3 Yankees

DONALD SHAW, Areva

RICARDO TORRES, NMSS

BRIAN WAKEMAN, Dominion

KEITH WALDROP, EPRI

JIM WILLIAMS, Dominion

JOHN WISE, NMSS

JIM WOOD, Exelon

*Present via telephone

CONTENTS

Opening Remarks and Objectives.....4

Staff Opening Remarks.....6

Summary of Changes in the Draft

NUREG-1927,9 Rev. 1.....8

Industry Presentation on Operations-Focused

Approach to Aging Management.....94

Public Comments.....106

Committee Discussion.....113

1 P R O C E E D I N G S

2 8:30 a.m.

3 CHAIRMAN BALLINGER: The meeting will
4 now come to order. As was yesterday, this is a
5 meeting of the Metallurgy and Reactor Fuels
6 Subcommittee. I'm Ron Ballinger, Chairman of the
7 Subcommittee. ACRS members in attendance are Mike
8 Corradini, Dick Skillman, Dana Powers, Jon Stetkar,
9 in spirit, Charles Brown, and Joy Rempe.
10 Chris Brown of the ACRS staff is the
11 designated federal official. The purpose of this
12 meeting is a continuation of yesterday's, to
13 receive a briefing on the framework for storage and
14 transportation of spent fuel. In particular, we'll
15 hear from ISG, which we did a little bit yesterday,
16 on the spent fuel retrievability updates and
17 licensing of high burnup spent fuel and storage and
18 transportation, as well as NUREG-1927, which is the
19 focus of this morning's meeting.
20 We'll also hear from, I think, NEI on
21 the subject matter mentioned. I don't see EPRI
22 here. Rules for participation in today's meeting
23 were announced as part of the notice of this
24 meeting previous posted in the Federal Register on
25 March 8, 2016. We have received no written

1 comments or requests for time to make oral
2 statements from members of the public. A
3 transcript of the meeting is being kept and will be
4 made available, as stated in the Federal Register.
5 Therefore, we request that participants in this
6 meeting use the microphones located throughout the
7 meeting room when addressing the subcommittee.
8 Participants should first identify
9 themselves, speak with sufficient clarity and
10 volume so that they can be readily heard. Please
11 silence all phones and other beeper things at this
12 time. Today's meeting is open to the public. We
13 have an additional bridge line set up for folks who
14 have requested to call in. The phone line is in
15 listen-in mode at this time and will be opened at
16 the end of today's meeting.
17 Dr. Rempe has been identified as having
18 a conflict of interest and will limit her
19 participation during certain presentations. I
20 should say with regard to the communications part,
21 yesterday somebody sent an email that cautioned us
22 on leaving our mics open during breaks. That's, I
23 suppose, for people around this table and this
24 microphone here, as well as we've received a number
25 of complaints about people that are on the bridge

line who don't mute their phones during the presentations. So there's apparently some crosstalk, which we really can't do anything about. So caution for people on the bridge line, when you're not trying to speak, or when you don't -- please mute your phone. Let's put it that way.

I want to mention again that we have a subcommittee meeting on NUREG-1927 on April 8th, and a subcommittee meeting on high burnup fuel on June 8th, at which time we provided comments and feedback to the staff. We'll now proceed with the meeting. Mark is here? We'll call on Mark Lombard, director, Division of Spent Fuel Management, to give a brief introduction and introduce the presenters.

MR. LOMBARD: Actually, I'm going to turn it over to Mr. Al Csontos to give us opening remarks, if that's okay?

MR. CSONTOS: Okay.

MR. LOMBARD: All right.

CHAIRMAN BALLINGER: The immense presence of Mr. Al.

STAFF OPENING REMARKS

MR. CSONTOS: I just want to thank the subcommittee for letting us come before you to talk

about 1927. Yesterday, we talked about the whole renewal infrastructure. These are the four guides, if you want to say it, or four parts of our framework that are going to be the integral part to our renewals going forward. Today we'll be talking specifically about 1927, Rev. 1. In my 15 years with the NRC, this has been probably the most collaborative process between the public, the industry, ACRS. We've taken a lot of comments.

We took your comments back and changed 1927. We took the public's comments. We took the industry's comments. We've taken all of these comments to update the SRP for renewals. What you'll hear today is what that final SRP looks like. We're hoping to get a letter from you all to go ahead and publish this for final because we have, as you saw yesterday, a bow wave of renewals that are coming before us in the coming years.

This for-guidance framework process here, what we've created, this is going to be the integral part to creating an efficiency gain for doing renewal reviews because we don't have the staff to really have a detailed view of every individual application that comes in. So hopefully, we can get through this in a similar way

to what the renewals did on the reactor side. We couldn't have gotten through this without the -- I call them the four -- I shouldn't say the four horsemen, but we have John Wise, Kris Banovac, Ricardo Torres, and actually Darrell Dunn is not here today. He is the chloride SCC expert. He is at Sandia working with DOE on the next stage of testing for chloride SCC samples. But we have our colleagues from research, who are here to also help out with some of that work. So Kris, I'll turn it over to you.

MS. BANOVAC: Thank you, Al. Let me just pull up the presentation here. Thank you, Al. It's nice to be here again today to talk about the work we've done to prepare a proposed final version of NUREG-1927. In my talk today, I'm going to briefly go over the original requirements, also what led to the development of Revision 1 of NUREG-1927.

Some of this was mentioned yesterday, so I'll go quickly through this. If I'm going too fast, just slow me down. Then I'll step through the various areas and chapters of NUREG-1927 and talk about what we did in the draft Revision 1. This will essentially be a recap of what we

1 provided to you when we came last April. Then with
2 each of the areas and chapters in NUREG-1927, I'll
3 talk about the public comments we received and how
4 we responded to those public comments and what
5 we're putting forward in the proposed final. Just
6 a recap of our requirements. NRC's requirements
7 allow for renewal of specific licenses for
8 independent spent fuel storage installations, or
9 ISFSIs, and certificates of compliance, or CoCs for
10 storage system designs for a period not to exceed
11 40 years.
12 For NRC to issue a renewal, the
13 licensee or applicant needs to demonstrate that the
14 structures, systems, and components important to
15 safety will maintain their intended functions in
16 the people of extended operation. They can do that
17 via a time-limited aging analyses, or TLAA, and
18 that predicts the effects of aging on structures,
19 systems, and components, and their ability to
20 continue to perform their intended functions.
21 Then also, there's aging management
22 programs, which safely manage the effects of aging,
23 so that the structures, systems, and components
24 will continue to perform their intended functions.
25 In 2011, we issued an update to our Part 72

1 requirements to include specific references to
2 TLAAs and AMPs. When we issued that rule making,
3 we also issued our standard review plan for storage
4 renewals, which is located in NUREG-1927, Revision
5 0. That was issued in March 2011, right after the
6 rule making came out. Since the original issuance
7 of NUREG-1927, the staff has reviewed both renewal
8 applications for specific ISFSI licenses, and also
9 CSEs for storage system designs. Through our
10 recent reviews, we did find that the guidance
11 needed to be expanded in several areas. As we
12 discussed, we have many renewal applications that
13 we're expecting over the next several years.
14 We did develop our intra-agency storage
15 renewal team to look at our framework and figure
16 out what changes were needed. Of course, we
17 considered what changes were needed to NUREG-1927,
18 but we also thought about what other changes were
19 needed to our framework, either as development of
20 guidance or other work. That's what you heard
21 about in my presentation yesterday.
22 NUREG-1927 revision, that was
23 identified as sort of our highest priority item, so
24 that's what we got started on first. AS I already
25 mentioned -- I know we talked yesterday, too -- we

1 have had extensive stakeholder engagement
2 throughout the entire process. Very early on, when
3 we first started thinking about changes to
4 NUREG-1927, we had a public meeting in July of
5 2014, a two-day public meeting, to talk through
6 some of the things we were looking to change.
7 We've had stakeholder outreach throughout. We've
8 had this early and often stakeholder outreach. We
9 feel that it's really helped us to develop a better
10 product -- a better guidance product. This slide
11 just lists some of those key meetings that we had
12 with stakeholders, including -- I already mentioned
13 the July 2014 meeting. We also had a meeting in
14 July of 2015. That was in the middle of our public
15 comment period.
16 It was a chance for us to explain what
17 we put forward in a draft Rev. 1. Even though that
18 meeting wasn't really a vehicle for getting
19 comments, we received a lot of questions at that
20 meeting that already got us thinking what changes
21 we might need to make in a proposed final. We
22 published the draft Revision 1. We published that
23 in July of last year. We received nine comment
24 letters.
25 We received a consolidated letter from

1 industry with the industry comments, a comment from
2 Nuclear Waste Technical Review Board, and also some
3 public commenters and public interest groups. The
4 comments, we broke them down into about 225
5 individual comments, pretty much on every area of
6 the guidance. We did consider all of the public
7 comments that we received as we developed the
8 proposed final that we provided to you in
9 preparation for this meeting. We also developed
10 specific responses to each public comment. Those
11 draft responses we did provide to you also for this
12 meeting. What we plan is that when we issue the
13 final Revision 1, when we're ready to issue that,
14 we also will issue the final responses to the
15 public comments. This slide just lists the
16 structure and the format of the draft Revision 1.
17 It's, for the most part, consistent with Revision
18 0.
19 Since we did make updates and
20 clarifications throughout Revision 1, as I
21 mentioned, I'll step through each chapter or area
22 of the guidance, talk about what we put forward in
23 the draft Revision 1, and then talk about what
24 we're putting forward in the proposed final as a
25 result of our consideration of public comments. In

1 the front matter of NUREG-1927, we updated the
2 introduction just to include specific information
3 related to the development of Revision 1.
4 We also included a reference to the
5 draft guidance in NEI 14-03. Even though NRC has
6 not yet endorsed that guidance, there's a couple
7 concepts of NEI 14-03 which I'll talk about later
8 that we thought were very valuable, that we wanted
9 to reference in the guidance. We did include a
10 reference to 14-03. I know Kris Cummings, I think,
11 will speak to detail on that when he talks today.
12 CHAIRMAN BALLINGER: Is there a
13 schedule for endorsement of 14-03?
14 MS. BANOVAC: Yes. We're currently
15 reviewing Revision 1 to 14-03. We reviewed
16 Revision 0 about a year and a half ago. We
17 provided comments.
18 We had a couple public meetings on it. I think it
19 was in September of last year that we received
20 Revision 1. Just given all the work is sort of
21 going on at the same time, we're hoping to wrap our
22 review of Revision 1, actually, very shortly, and
23 then be in a position to discuss with NEI what
24 portions of the guidance we think we can endorse,
25 or if there's portions of the guidance that we

1 think maybe needs some further work, we would talk
2 to that. That meeting is not yet planned. I know
3 we're working with Kris and industry to see what
4 would be a good time frame for that meeting, but we
5 would expect that probably within the next couple
6 months.
7 CHAIRMAN BALLINGER: Would that have
8 any impact on any revision to 1927?
9 MS. BANOVAC: No.
10 CHAIRMAN BALLINGER: No?
11 MS. BANOVAC: If we can endorse
12 portions or the complete guidance, we would do that
13 via a reg guide, so there would actually be sort of
14 a separate guidance product that would endorse NEI
15 14-03.
16 MR. CSONTOS: The slide that I had at
17 the beginning, that slide had the four products.
18 The fourth product was a reg guide. That reg guide
19 is specifically targeted to endorse certain outside
20 activities that we think are valuable. NEI 14-03
21 is one of them, as well as the ASME Code work.
22 Therefore, it's one of those things where I think
23 that -- we had the public meetings. We provided
24 comments back to NEI. NEI then went ahead and
25 updated their guidance, and then now we're in the

1 stage of reviewing that updated guidance of Rev. 1.
2 That reg guide is -- we're working on it right now.
3 MEMBER CORRADINI: Maybe since I missed
4 yesterday -- so, in theory, these are all
5 consistent?
6 MR. CSONTOS: Yes.
7 MEMBER CORRADINI: So the reg guide
8 will point to options that the industry can take,
9 and the options are consistent with each other? In
10 terms of if 14-03 is giving some guidance, and
11 19-27 is giving something different, they've been
12 resolved or hope to be resolved?
13 MR. CSONTOS: Yes, that was the whole
14 point of our dialogue, our collaboration over the
15 last -- I don't know how many years now. It's been
16 two and a half years probably. Yes, we're in
17 fairly good alignment here.
18 MS. BANOVAC: After consideration of
19 public comments, we did make just a few
20 clarifications in the front matter. We added a
21 little bit to the abstract. We eliminated some
22 repetition between the abstract and the
23 introduction. Also, we added just a brief
24 discussion to the introduction to talk about the
25 interim consolidated storage facility, since it

1 looks like that might be coming to fruition, and
2 sort of the applicability of the guidance in the
3 NUREG-1927 to that.
4 We do say that the guidance in 1927, as
5 far as the aging management considerations for any
6 SSCs that would essentially be in a period of
7 extended operation at an ICSF, that the guidance in
8 NUREG-1927 would be applicable. But we do note
9 that a separate guidance document we have,
10 NUREG-1567, is really the main guidance document
11 we're going to be using for review of an ICSF
12 application because that will be a specific ISFSI
13 license application. In Chapter 1 of 1927, that's
14 the general information review. In the draft
15 Revision 1, we did expand guidance on application
16 content. We did add a lot of guidance related to
17 CoC renewals. In Revision 0, the guidance was a
18 little bit heavy towards, I think, more of an ISFSI
19 license renewal, so we added some guidance that's
20 specific to CoC renewals, as there are some nuances
21 for CoC renewals in the general license framework.
22 We ended up adding a new section on
23 timely renewal. The timely renewal provisions are
24 included in Part 72, where if the applicant has
25 submitted a timely application, the license or the

1 CoC does not expire until NRC has made a decision
2 on that renewal application. We added reviewer
3 guidance on how aging management should be
4 considered in the case of concurrent amendment and
5 renewal applications, and also amendment
6 applications that are submitted after the renewal
7 is issued.
8 We also added reviewer guidance on the
9 use of license or CoC conditions to ensure that
10 AMPs remain effective in the period of extended
11 operation. In consideration of the public
12 comments, we're proposing some clarifying changes
13 in the proposed final Rev. 1. We've clarifying the
14 guidance for what's required to be submitted as
15 part of a specific license application versus a CoC
16 renewal application, so we make it a little bit
17 more clear where there are differences in the
18 information that needs to be submitted. Then also,
19 we got some comments on the new guidance we had on
20 terms, conditions, and specifications that could be
21 added to the license or CoC as part of the renewal.
22 In response to those comments, we tried
23 to clarify the guidance in that new section. In
24 Chapter 2 of NUREG-1927, that's on the scoping
25 evaluation. That's the part of the renewal

1 application that identifies which SSCs are within
2 the scope of renewal and, therefore, those are the
3 SSCs that are further reviewed for what aging
4 mechanisms and effects are applicable for those
5 SSCs. In this chapter, in the draft Revision 1, we
6 clarified the sources of information and the
7 specific content that supports the scoping
8 evaluation.
9 We also expanded guidance for review of
10 SSC subcomponents, scoping of fuel assemblies, and
11 also identifying SSCs that are within the scope of
12 renewal. In this chapter, we also clarified
13 guidance for ensuring that any SSCs that were
14 excluded from the scope of renewal, that the
15 applicant is proposing to exclude, that they do
16 have proper justification for doing so. In
17 consideration of public comments on this chapter,
18 we are proposing some clarifying changes. We're
19 going to clarify the guidance on how the fuel
20 assemblies may scope into the renewal review. We
21 also clarified guidance that scoping of SSCs, it
22 really depends on whether they're considered part
23 of the design basis for that particular license or
24 CoC.
25 So we add some guidance to the reviewer

1 that they really need to look at the FSAR and
2 really understand how the different SSCs are used
3 in the FSAR evaluations. I'm sorry; FSAR is final
4 safety analysis report. They really need to
5 understand how the SSCs are used in those safety
6 evaluations, how the SSCs are described in the
7 license or CoC and, therefore, whether those SSCs
8 are considered part of the design basis and whether
9 they should scope into the renewal.
10 Chapter 3 is the core of NUREG-1927.
11 This is the chapter on aging management review.
12 This contains information on the TLAAs and AMPs.
13 The aging management review is the process by which
14 the applicant assesses the aging mechanisms and
15 effects that could adversely impact the SSCs that
16 are within the scope of renewal and where they
17 propose appropriate aging management activities to
18 address those aging effects. We expanded the
19 guidance on identification of materials and
20 environments for SSCs and SSC subcomponents. We
21 added reviewer guidance for assessing environmental
22 data, such as the operating and service conditions
23 of SSCs, so they can be properly determined. We
24 also expanded the guidance on identification of
25 aging mechanisms and effects to address valid

1 sources of information for identifying what are the
2 applicable degradation modes. That includes the
3 use of any inspection results, site-specific and
4 industry-wide operating experience, consensus codes
5 and standards, and also other applicable NRC
6 guidance.
7 CHAIRMAN BALLINGER: What do you mean
8 by lead system inspection results?
9 MS. BANOVAC: I'm going to ask a
10 question about it. I'm going to touch on lead
11 system inspection a couple times in my
12 presentation. At the very end, I'm going to go
13 into a lot of detail. Should I --
14 CHAIRMAN BALLINGER: No, that's fine
15 then.
16 MS. BANOVAC: Do you think it would be
17 easier to go into -- okay.
18 CHAIRMAN BALLINGER: No, that's fine.
19 MS. BANOVAC: Okay, because lead system
20 inspection is a very interesting idea.
21 (Simultaneous speaking.)
22 MS. BANOVAC: So it shows up a couple
23 of times, but I think at the end, I'll go into a
24 little bit of detail. But I could speak earlier to
25 it if needed.

1 MEMBER REMPE: I'm behind because I was
2 trying to find something. You said you updated the
3 front matter to talk about consolidated, in terms
4 of storage. Could you point me to where that was
5 because I didn't remember seeing that when I was
6 reading.
7 MS. BANOVAC: In the actual guidance
8 document?
9 MEMBER REMPE: Yes, where is it? Is it
10 in the -- you said in --
11 MS. BANOVAC: -- in the introduction.
12 MEMBER REMPE: I did a word search,
13 even, because I didn't remember seeing that. I
14 just wanted to review that text.
15 MS. BANOVAC: Sure. It's in the
16 introduction. I have it right here. I'll just
17 point. It's on Page 2, third full paragraph.
18 MEMBER REMPE: Okay, I'll find it.
19 Thank you. Sorry to interrupt.
20 MS. BANOVAC: No problem.
21 MEMBER REMPE: Well, I see wet storage
22 and monitor retrievable storage installation, so it
23 wasn't obvious.
24 MS. BANOVAC: Are you looking at the
25 proposed final Revision 1 that we provided on

1 February 22nd?

2 MEMBER REMPE: Whatever Kris gave me.

3 MS. BANOVAC: That might be the draft

4 that was for public comment, but we provided --

5 MEMBER BROWN: That's the one that says

6 DFC at the end, the file?

7 MEMBER REMPE: I got it on 3/19, is

8 when I --

9 MS. BANOVAC: I also have the accession

10 number -- the item accession number. Would that --

11 MEMBER REMPE: No, maybe I'll ask you

12 offline later to give me --

13 MS. BANOVAC: If you want to take a

14 look --

15 MR. CSONTOS: The overarching

16 consideration is that the aging management

17 activities -- when we go -- if there is another

18 consolidated storage site, it's basically just

19 another ISFSI. It's just that it's incorporating a

20 72 to 71, back to a 72. You're moving it, and

21 there'll be things done to make sure what's being

22 placed on the pad and what's being received is

23 what's sufficient for what the licensee/applicant

24 will want.

25 But really, it's just another storage

1 site. So the inspection of the aging management
2 programs and everything else all pertain to those.
3 The only complexity to it is that there could be
4 all different types of systems coming in that are
5 all at different time intervals. Some may be under
6 aging management protocols because they're past
7 their 20 years, and others are not. It's really
8 the same concept.
9 MEMBER REMPE: Thank you.
10 MS. BANOVAC: Sure. Also in Chapter 3,
11 we expanded the discussion on aging management
12 review for fuel assemblies. Just as we did in the
13 scoping chapter, we talked about how fuel
14 assemblies may scope into the renewal. We also
15 expanded the discussion on aging management review.
16 We revised the TLAA guidance -- this is Section 3.5
17 -- to be more consistent with the definition of
18 TLAAs in Part 72. We also expanded the guidance
19 for how to identify and review the TLAAs. We
20 expanded discussion on each of the ten AMP
21 elements. The ten AMP elements were included in
22 Revision 0, but we expanded the discussion for what
23 the reviewers should be looking for in applications
24 regarding those ten elements of the aging
25 management programs.

1 We also provided new guidance on the
2 idea of learning AMPs. I know that came up a few
3 times yesterday. The thought is that the learning
4 AMP would continuously consider and respond to
5 operating experience or confirmatory research
6 results, or even any relevant work that's being
7 done in industry, for example, the work that is
8 ongoing on chloride-induced stress corrosion
9 cracking. So this idea of learning AMPs and that
10 the AMPs are not static, that they are dynamic, and
11 they respond appropriately to operating experience
12 and change, as needed --
13 MEMBER SKILLMAN: Kris, excuse me.
14 That concept is valid only if the licensees are
15 entering OE into some data system that others can
16 view.
17 MS. BANOVAC: Yes.
18 MEMBER SKILLMAN: That's commonly the
19 corrective action program. Would you speak to
20 that? Because for a learning AMP to be a learning
21 AMP, there needs to be effort by the license holder
22 to include that information in a -- maybe attitude
23 is the right word -- in an attitude that is, "We
24 found this. Hey, everybody, heads up, you might
25 find this, too, and here's what we're doing about

1 it." That needs to be that type of approach.
2 Would you speak to that, please?
3 MS. BANOVAC: Yes, I can speak to that,
4 and I know Kris will speak a lot more to it. Also
5 Kris, if you want to add anything, and then we
6 could breeze past that in our presentations. The
7 idea of essentially having a clearinghouse or a
8 database for industry reporting, like the reactors
9 do for INPO, to have something similar for the
10 storage side, that was an idea that we felt there
11 was value and industry felt there was value. So we
12 did include a reference to that in the guidance.
13 Now, industry -- and actually, at this point, I
14 think I'll turn it over to Kris, so you could talk
15 about your efforts with the INPO AMID.
16 MR. CUMMINGS: Yes. I will talk about
17 that. That is one of the four cornerstones that I
18 talked about briefly yesterday regarding our
19 approach to an operations-based learning aging
20 management program. Essentially, the four major
21 cask vendors, Areva TN, Holtec, Energy Solutions,
22 and NAC International have agreed to fund, through
23 INPO, a database for aging management experience
24 gained either in industry from inspections,
25 international research, research from the national

1 labs here domestically, basically anything that's
2 pertinent to aging management.
3 It is basically a clearinghouse. All
4 of the utilities in the U.S. will get access to it
5 through the vendors. So basically, utilities will
6 be entering the information into the AMID database,
7 so that any other utility and vendor can gain
8 access to it.
9 MR. CSONTOS: It's a very good comment
10 because that was part of the negotiations of the
11 discussions and the collaboration that we had for
12 the better part of the two and a half years. A
13 huge cornerstone of this entire operations-focused
14 aging management approach is that database.
15 I know Mark and I and others have been
16 requesting and saying, "Hey, we've got to get this
17 done." We don't know who it was, it was DOE,
18 whether it was NEI, whether it was INPO or whoever
19 -- because INPO, there are some of the
20 decommissioned sites that don't pay into INPO, so
21 there was a lot of behind-the-scenes trying to
22 figure out how to do this and create a database
23 where everyone can use it. This was what NEI and
24 the industry came up with. It's a huge part of
25 this. We will have access to it on an as-needed

1 basis, so that we can figure out if people are
2 doing the learning aging management process
3 appropriately.
4 MEMBER SKILLMAN: Are all licensees
5 going to participate?
6 MR. CUMMINGS: Yes.
7 MEMBER SKILLMAN: Thank you.
8 CHAIRMAN BALLINGER: Further follow up
9 on that. I think we may have talked about this a
10 little bit the last time you were here, but what
11 about the issue of proprietary information? Is
12 there any way that we can run afoul of this, where
13 the database just simply doesn't contain something
14 that would be otherwise useful, but happens to be
15 proprietary so, therefore, kept from it, that would
16 influence negatively --
17 MR. CUMMINGS: Let me address that.
18 That's specifically why we set this up through the
19 vendors and the vendors supporting it financially.
20 What happens is a utility is the one that's -- let
21 me use that as an example. A utility is garnering
22 inspection information. They then basically enter
23 the -- they do the inspection under their QA
24 program. They'll develop reports, whatever. What
25 are the inspection results? It will enter

1 basically a summary of the information into the
2 database. What then happens is that whatever cask
3 technology it involves, the cask vendor then has an
4 approval process.
5 They review whatever information was
6 entered into the amid database for that proprietary
7 information, so that then, what gets entered in is
8 a non-proprietary version. You don't have the
9 blacked out sections. You simply enter the
10 information that does not contain proprietary
11 information. However, what it does is it now
12 creates, essentially, a pointer to the QA record
13 contained by the utility because that continues to
14 be the QA record.
15 In the database, we don't want to
16 create an alternative QA record. It basically says
17 here is the summary of the information. If you
18 want more, go to that specific utility and get that
19 information, the more detailed information from
20 them.
21 CHAIRMAN BALLINGER: Okay. So there's
22 no way that information can be excluded that would
23 be useful, in spite of the fact that it's
24 proprietary?
25 MR. CSONTOS: I want to pull this up

1 again because what you're all asking about is
2 exactly why we have these four products. The reg
3 guide's there to endorse 14-03, that it does all
4 this part of it and does the part of some of the
5 learning aging management programs that the
6 industry is proposing to do themselves.
7 The TIIP, the temporary instructions
8 inspection procedures are another aspect to this
9 that we're working on, which we will be checking,
10 to get to your point, Ron, is that are licensees
11 doing this putting the data into the database or
12 going to the vendors appropriately? We're going to
13 look at correction action reports.
14 We're going to go and look up -- seeing
15 how things are being handled to make sure the
16 process is working appropriately. That's part of
17 why -- that's why we're having all this. The MAPS
18 report has all the aging management programs that
19 we have that we're going to be saying -- that we're
20 endorsing and saying, "If you use these, we're
21 good. We've already approved them." That should
22 streamline a lot of stuff. That's what the whole
23 process is, and that's what this database and the
24 oversight that we're going to be doing through the
25 TIIP.

1 CHAIRMAN BALLINGER: Okay, so one last
2 thing, to be clear. Let's say Vendor A has some
3 whiz bang thing that they're using, which happens
4 to be austenitic stainless steel. They get stress
5 corrosion cracking in their whiz bang thing. They
6 put in the non-proprietary database a summary of
7 what it is, but that summary is copied enough so
8 that another user wouldn't know that this is
9 chloride stress corrosion cracking in whiz bang,
10 which we have something similar to. They have to
11 know that it's time to go get the detailed data.
12 MR. CSONTOS: Part of it also will be
13 that outside of this process, we have the
14 information notices that we can create. That's
15 where we will be able to go in and have access to
16 this database, have access to the corrective action
17 reports, do all our inspections, collect this
18 information.
19 If we do see a trend -- I like to say
20 one is a point, two is a line, three is a trend.
21 If we have three events of something, that tends to
22 make us think about doing an IN. That's how we
23 would -- in case something like that ever happened,
24 to get around any of those issues, we could do --
25 and we have. We've done INs on the chloride SCC

1 from the reactor OPE.

2 CHAIRMAN BALLINGER: Okay. Just

3 databases like that are really great unless they

4 obscure something, even by mistake.

5 MR. CSONTOS: It's also not just for

6 negative OPE, it's also for positive OPE. That's

7 something else that I think that we would like to

8 make sure that best practices get out to the fleet.

9 For example, I really like the North Anna way of

10 how they paint their casks so that they can see

11 corrosion very, very easily.

12 They paint it white, so you can see the

13 corrosion very clearly if it happens. They go out

14 and they look at it quarterly. It's just another

15 maintenance activity, grind it away, repaint.

16 These are types of things that those types of good

17 OPE also should get included, as well.

18 CHAIRMAN BALLINGER: Thank you. So

19 continuing, further changes we made to Chapter 3, I

20 mentioned that we discussed specific NEI 14-03

21 concepts. One of them was the use of tollgates.

22 That's a periodic assessment of operating

23 experience. So in addition to your continuous

24 consideration, I guess, of operating experience,

25 this would be a point in time where the licensee

1 would sort of pause, look at all the operating
2 experience, and look at their AMPs and see if any
3 changes were needed. I know Kris will talk to this
4 a little bit more when he talks to NEI 14-03.
5 MEMBER SKILLMAN: Kris, before you go
6 on, and before the other Kris speaks, the concept
7 of tollgate, to me, suggests that there is an
8 action to halt and pay a fee or take an action
9 before proceeding. Is that what tollgate is
10 intended to mean in this context?
11 MS. BANOVAC: Yes, although the halt
12 wouldn't be -- you're continuing to store your
13 spent fuel. The halt would just be to kind of
14 stop, assess, and also there's a documentation
15 aspect. The tollgate assessment would be
16 documented, and that would be something that the
17 NRC could inspect when we go out to the ISFIs and
18 do our periodic inspections.
19 MEMBER SKILLMAN: But what lets the
20 tollgate rise to permit proceeding?
21 MS. BANOVAC: My view is to do the
22 assessment and determine whether any changes are
23 needed. I think once you do the assessment -- the
24 tollgate is making you do the assessment. That's
25 how I think of it. But Kris, since you guys

1 created the tollgate, Kris Cummings, is there
2 anything further you'd want to say about the
3 tollgate?
4 MR. CUMMINGS: Yes, that's the concept
5 is that --
6 MS. BANOVAC: Once again, recognizing
7 we haven't endorsed --
8 MR. CUMMINGS: Yes. The concept is
9 that this is the going back and looking at do we
10 have the right aging management program? The fee,
11 I would say, is that you're doing kind of a safety
12 assessment of the information that you've
13 collected.
14 So we anticipate that being kind of a
15 consolidated report that the licensee would create
16 to say what kind of operating experience is out
17 there? Is it applicable to my cask? Is it
18 applicable to the specific materials that I have on
19 site that I'm managing? What are the specific AMP
20 programs that I'm managing degradation or aging
21 effects through? Then when they get to the end of
22 that -- when they get to the tollgate, they say I'm
23 looking at all this collected material.
24 Is there anything that would require me
25 to make some modifications to my aging management

1 program? If you look at that, it's essentially an
2 assessment. After you do that assessment, that's
3 essentially the fee, to use your analogy, with the
4 tollgates. As long as you make that assessment and
5 you say everything's good, or I've made the
6 modifications that I think I need to, then you
7 progress through that tollgate.
8 CHAIRMAN BALLINGER: So the tollgate is
9 more like a fork in the road?
10 MR. CUMMINGS: Maybe it's like the
11 EZPass fastlane. You've got your monitor already
12 in your car, and you're passing through it.
13 CHAIRMAN BALLINGER: Okay.
14 MR. CSONTOS: I think of it as a
15 self-assessment -- a stress side self-assessment.
16 You're doing the self-assessment every time you're
17 doing a corrective action report and looking at
18 extended condition. You're looking to see whether
19 or not there is other circumstances, other events
20 that pertain to what you just found.
21 That's ongoing activity at the ISFSIs,
22 but then a self -- just set aside, this is
23 something that is, in addition to that, saying
24 let's take a little stop, take a look. Let's
25 re-collect all of the information, reassess the AMP

1 effectiveness, as I like to call it. Then that
2 would be a place -- we think that's a good idea,
3 rather than trying to do a onesy-twosy corrective
4 action report self-analysis. This is a collective
5 self-analysis.
6 MR. CUMMINGS: Another important aspect
7 which is key to point out is it -- like Al said,
8 it's something on top of what we already do.
9 You've still got your QA program. You've still got
10 your corrective action program. If you go out and
11 you see something that is a potential safety issue
12 or something that needs to be dealt with
13 immediately, that already trumps beyond the
14 tollgate assessment.
15 If we go out and we see something, we
16 still have to maintain the casks in accordance with
17 their certificates. We still need to maintain
18 safety in accordance with our QA programs. That's
19 an important distinction is that the tollgate is
20 not deferring anything off into the future that we
21 need to deal with immediately, today, if the
22 situation warrants it.
23 MEMBER SKILLMAN: Let me continue here
24 just a little bit further. Maybe by having this
25 discussion, we will not have to have it when Kris

1 comes to the table. In my mind, an excellent
2 example of a tollgate is the Core Operating Limits
3 report. You finished your reload. You've got all
4 your documentation. You're basically ready to go,
5 but you do not begin to pull rods until you have
6 approval for that COLR. Not only is it a tollgate,
7 you leave your vehicle in neutral, and the gate
8 doesn't go up. You stop until permission is given
9 to proceed. That's different than easy pass. I
10 want to pull this a little further. I live in a
11 tourist town. Stop signs are optional. You're
12 supposed to stop, but a lot of people go whizzing
13 through.
14 In this case, what I'm really asking is
15 whether or not the licensee -- and I'm going to use
16 the term burdened because it's what I know so well
17 -- is burdened by an administrative stop until
18 something is produced that then allows that
19 licensee to proceed, or is this simply a paper
20 function?
21 MR. MCCULLUM: This is Rod McCullum,
22 NEI. The answer to your question is yes, there is
23 a specific burden. We've talked about this as
24 something on top. These are specific points in
25 time where you have to take a specific look and do

1 a specific assessment. The burden is in your
2 license. We have already piloted this twice.
3 There are two tollgates already in place. Xcel
4 Energy has them at Prairie Island for high burnup
5 fuel linked to the demo project, and Calvert Cliffs
6 also has tollgates. They have a specific
7 statement, it goes into their license, that says a
8 certain year -- and I'm forgetting exactly which
9 year it is, but it's down the road. It's ahead,
10 and they have time to fumble for their change.
11 They will do this assessment. If they don't find
12 what they expect to find, they have to take other
13 actions.
14 It says either you will have the
15 following information from the demo project, or you
16 have to take other action. So it's not just I blew
17 through easy pass and didn't have my transponder,
18 and I hope I don't get caught. It's no, the gate's
19 not going to go up until you take those other
20 actions. That gate is in the license.
21 MEMBER SKILLMAN: Thank you. The
22 reason I find this important is because this
23 feature addresses many of the public comments about
24 physical condition determined through the AMPs for
25 those who are afraid of chloride stress corrosion

1 cracking or ASD, aqualized silica reaction on the
2 concrete outer shell, those types of things.
3 When they are found, if they are acted
4 on, the licensee and the industry distinguishes
5 itself by ensuring that those physical findings
6 have been properly addressed. But to not address
7 them is the reason there's so much fear. So if
8 these tollgates really have teeth, then I think
9 there is basis to be able to address these comments
10 professionally and thoroughly and in a way that we,
11 as an industry, want those comments addressed.
12 MR. CSONTOS: We actually like this,
13 and I'm hoping NEI can propose it to the reactor
14 side, as well, because I think the reactor side
15 could get the benefit out of some of these tollgate
16 type of concepts for their renewals.
17 Because this self-assessment that they
18 set aside time to do -- like you said, it is a
19 burden, but it is, I think, a healthy burden,
20 because I think it's something that could actually
21 help inform the future AMPs, not just for
22 themselves, but for the whole fleet. But also,
23 maybe you do diminish something else, like the high
24 burnup demo. We put those in there because we're
25 going to see what happens to the demo project.

1 If the demo project comes back like the
2 low burnup demo project and it was pristine fuel,
3 then what do we do? I think that's the piece that
4 you can get benefits out of the tollgates, as well
5 as you could actually increase and augment
6 inspections and such.
7 MEMBER SKILLMAN: Not lost on me is the
8 tollgate is only as good as the database, and that
9 database is going to be the amid, so these pieces
10 really --
11 MR. CSONTOS: All fit together, yes.
12 MEMBER SKILLMAN: Thank you. Maybe
13 this will save us some time in the next
14 presentation or hearing. I appreciate the
15 clarification.
16 MR. LOMBARD: If I might, I just want
17 to be clear. From the NRC perspective, we don't
18 see it as easy pass. We see it as a definite stop
19 and evaluate before you move forward.
20 MEMBER SKILLMAN: Yes, thanks. That's
21 certainly how I see it. Thank you. We agree.
22 MR. CSONTOS: I think Ron's got another
23 question.
24 CHAIRMAN BALLINGER: At some point in
25 the future, would these tollgates also serve to act

1 as decision points should somebody want to
2 transition to a completely risk informed process?
3 MR. CSONTOS: That's why 1927, Rev. 1,
4 learning AMPs, these are all things that we can
5 participate in and look into. Because one of the
6 criteria -- one of the ten elements of an AMP is
7 acceptance criteria. So if the acceptance criteria
8 is not confinement, complete, 100 percent -- what
9 is it you were saying, ten to the minus six,
10 yesterday, in terms of the vacuum drying, or the
11 confinement? If that changes, if the acceptance
12 criteria changes, the AMP can change as well.
13 That's why I was saying yesterday that 1927, Rev. 1
14 does not preclude the possibility of doing risk
15 informing.
16 CHAIRMAN BALLINGER: Thank you.
17 MS. BANOVAC: Okay. I think we've
18 already talked about it, too, the other concept in
19 NEI 14-03 that we reference is the aggregation and
20 dissemination of operating experience through the
21 clearinghouse or database. In the draft Revision
22 1, we just provide reviewer guidance for
23 applications that may use those concepts before NRC
24 may endorse the guidance. As I mentioned on the

1 previous slide, we did expand the discussion on the
2 aging management review for fuel assemblies.
3 That actually kind of consolidated the
4 discussion on retrievability that was originally in
5 Rev. 0. We added some new sections on commencement
6 of AMPs for CoC renewals. That links to a new
7 appendix that I'll talk about to calculate storage
8 terms for dry storage systems under a general
9 license. We also added a new section for
10 implementation of AMPs. This essentially addresses
11 the timing issue of licenses or CoCs that may be in
12 timely renewal and how timely renewal could impact
13 the time frames for setting up the infrastructure
14 to implement the AMPs, so for developing their
15 programs and procedures to implement the AMPs, and
16 also if there's any specific aging management
17 activities in the AMP if they're in timely renewal
18 and essentially wouldn't be able to meet that time
19 limit, we address that in the guidance.
20 On these last few slides, we really
21 didn't make extensive changes to Chapter 3, which
22 really is the core of NUREG-1927. Just as we
23 proposed many changes in the draft, we did receive
24 a lot of comments, so we made multiple

clarifications throughout Chapter 3. I'm just going to highlight some of those changes. In the TLAA section, we clarified the guidance for outcomes of TLAAs, where the TLAA either concludes that the SSC will continue to perform its intended functions, or there's an AMP that's needed to manage the aging effects.

In the AMP section, we did expand discussion on when a specific corrective action may be needed to be included in the application versus just a general reliance on the licensee's quality assurance or correction action programs. Regarding the operating experience element of the AMP, we re-organized the guidance to more clearly discuss the backward and forward-looking aspects of operating experience. For the backward-looking aspects, or what I call the backward-looking aspect of operating experience is the applicant is considering all of the operating experience that exists as it develops its aging management programs and its application. So in the application, it has to discuss how it considered the operating experience, and how that informed its proposed aging management programs.

1 Then, of course, the forward-looking
2 aspect of operating experience is what we've been
3 talking about as the learning AMP. So what we're
4 looking for there is a tollgate or some kind of
5 commitment that there will be periodic assessments
6 of the operating experience in the future to
7 determine whether those AMPs are still good,
8 relevant, or whether changes are needed.
9 We also updated the references that we
10 did have to NEI 14-03, since in the meantime, the
11 ISFSI AMID that Kristopher Cummings just spoke to,
12 and maybe will speak to more, or maybe we're done
13 with that now, we did include just a specific
14 reference to that, since that was in the NEI 14-03,
15 Rev. 1. Other changes we made to Chapter 3, here's
16 the second reference to lead system inspection, but
17 not the full detail yet. The lead system
18 inspection guidance was in Appendix C of the draft
19 guidance. We did receive some questions at our
20 July 2015 meeting, where we knew we'd probably have
21 to re-organize the guidance a little bit. We also
22 received public comments on the lead system
23 inspection. So what we did is there's no longer an
24 Appendix C in the proposed final.

1 We took what was formerly known as the
2 lead system inspection guidance and we really
3 incorporated that into Chapter 3 because we thought
4 it was a better fit. We thought that really, it's
5 supporting the aging management review.
6 There was a lot of confusion on the
7 term lead system inspection, so we replaced the
8 term with pre-application inspection, which we
9 heard both at our public meeting and in the public
10 comments, to clarify that this inspection is
11 performed before the application is submitted, and
12 that the results of this inspection essentially
13 inform the development of the application and the
14 proposed AMPs. We also introduced a baseline
15 inspection term in the draft Rev. 1, so we
16 clarified what that meant in the proposed final.
17 CHAIRMAN BALLINGER: So what kind of
18 pre-application inspection would be performed?
19 MS. BANOVAC: Do you want me to go
20 ahead and just talk about the lead --
21 (Simultaneous speaking.)
22 CHAIRMAN BALLINGER: If you're going to
23 keep doing it, that's --
24 MS. BANOVAC: No. That's why I asked

1 when you first asked because I'm like oh, there's
2 going to be two mentions until I talk about it in
3 detail. Would you like me to just go ahead and
4 talk in detail? I'll be happy to jump ahead.
5 CHAIRMAN BALLINGER: I'd rather reach
6 system inspection --
7 MS. BANOVAC: What is it? Actually, I
8 will -- I'm going to make an executive decision
9 here and jump to -- I'm going to jump to Appendix
10 C. The lead system inspection was actually in
11 Revision 0. It was about two paragraphs, and it
12 wasn't really clear what is this.
13 I think, really, the idea of the lead
14 system inspection came out of we don't have really
15 specific OPE, as far as inspections of our
16 canisters. We don't have that specific OPE yet.
17 So the idea was before you go in a period of
18 extended operation, can you take a look at what you
19 have to essentially confirm that the condition of
20 your system is as expected? That was sort of, I
21 guess, the philosophy of the lead system
22 inspection.
23 In the draft Rev. 1, we really explored
24 what is the purpose of the lead system inspection?

1 To provide this confirmatory data, here's what my
2 system looks like. We talked about selecting
3 systems for inspection, how you would select the
4 system where you would expect to see the most
5 degradation. So, I know we talked about some of
6 the factors for CISCC, maybe a cooler location,
7 where you can have the salts deliquesce, maybe
8 where you have a crevice.
9 We're really saying pick the right
10 systems in the right locations for inspection. As
11 far as guidelines for lead system inspection, we
12 said if there is consensus codes and standards that
13 are relevant, try to use those. Use of surrogate
14 inspections, this is, once again, just the product
15 of the fact that we don't have much specific OPE at
16 this point. Rather than relying on inspections
17 that were conducted at other sites, we kind of
18 discouraged use of that until we have a really good
19 base of operating experience that comes out of
20 these --
21 (Simultaneous speaking.)
22 CHAIRMAN BALLINGER: I went back and
23 read the EPRI report last night, the one that was
24 referred to yesterday about how to identify which

1 canisters to inspect. Now I recall reading it
2 before with the ranking system and things like
3 that. But there's no ranking in there with respect
4 to weld susceptibility, in terms of whether you
5 have weld repairs and wear and things like that.
6 So there's no -- that does not refine the
7 identification of canisters that I should inspect
8 well enough.
9 MS. BANOVAC: We'll talk a little bit
10 about that. In our example AMPs that we have in
11 1927, we have one for --
12 CHAIRMAN BALLINGER: Yes.
13 MS. BANOVAC: -- corrosion stress
14 control cracking, you know, so we'll talk a little
15 bit about that because --
16 CHAIRMAN BALLINGER: Yes.
17 MS. BANOVAC: -- we do address that in
18 the --
19 (Simultaneous speaking.)
20 MS. BANOVAC: We do address that.
21 MR. CSONTOS: The appendix talks
22 globally about these type of inspections because
23 the word inspection has so many different meanings
24 for us. This is an in-service inspection. When

1 you talk about a pre-application inspection versus
2 a baseline inspection, these are all things that
3 we're trying to carve out. The technical details
4 are for what to inspect up in the other AMPs. For
5 example, the chloride SSC AMP has in there, what
6 was it, detection of --
7 (Simultaneous speaking.)
8 MR. CSONTOS: -- aging effects. Yes,
9 exactly, detection of aging effects and what are
10 those aging effects? Where do they manifest?
11 Those AMPs --
12 (Simultaneous speaking.)
13 MR. CSONTOS: Right. Those AMPs tell
14 you what you're asking about, where to look, in
15 much more detail versus this area, where it's
16 talking about in global what's the purpose of the
17 pre-app versus the baseline inspections?
18 CHAIRMAN BALLINGER: Okay. Because I'm
19 more worried about making, what do you want to call
20 it, a false negative, in these sense that we've
21 come up with this group of canisters that you're
22 going to inspect, and in fact, your system of
23 identifying what needs to be inspected misses a
24 really bad one because of a variable which you had

1 no control over, don't know anything about, but, in
2 fact, you know it like, could be there.
3 For example, weld repairs and stuff
4 like that on older canisters, where nobody has a
5 record of where they ground it out or anything.
6 That's the kind of thing which, if you make your
7 decisions based on a population of canisters,
8 assuming that represents the global population, and
9 you find out that this is -- it's just a wrong
10 choice, not by anything that you could have any
11 control over, but it's just plain wrong.
12 MR. CSONTOS: Right. That's going to
13 be discussed in one of the AMPs. I think the
14 chloride SCC AMP. But really, we had that
15 discussion as part of the AMP development. What we
16 put into here, in 1927, and what we're putting into
17 the MAPS report, as example, or if you want to call
18 them the generic aging manager programs for those
19 specific degradation mechanisms that we're
20 concerned with, we took into consideration a lot of
21 those uncertainties, you can call it, things that
22 we just -- the unknowns.
23 We're not going to be able to manage
24 some of those, so we have to be able to make

1 certain regulatory decisions that will give us that
2 reasonable assurance that these systems are
3 performing. That can be handled in a percentage
4 coverage area. We may not be able to go in and
5 know exactly where all the repairs were done.
6 But for the most part, if we can go in
7 and do multiple canisters in other locations -- not
8 just one location, but looking at multiple
9 canisters -- and, over time, we should be able to
10 get coverage enough where we do go over areas that
11 have weld repairs. Because there's no way to --
12 like you said, there's no way that we're going to
13 know where they were.
14 CHAIRMAN BALLINGER: To Dick's comment
15 about public perception, if we go out there and
16 convince them that everything is cool, and then all
17 of a sudden have a real blunder that we have no
18 control over, but which we said we have control
19 over, then that's a public perception issue.
20 MR. CSONTOS: If you look at this --
21 Kris was alluding to it -- the use of surrogate
22 inspections, part of that is what -- inspections
23 have got certain roles for us. One of the roles is
24 that -- ASME code says you have to go and inspect

1 Class 1 piping every ten years, period. That's
2 because there were unknowns. We know that we may
3 not be aware of all the degradation mechanisms for
4 the next 300 years. Part of the inspection is also
5 a check to make sure everything is still going
6 along the way that you think it is.
7 If there are unknown degradation
8 mechanisms, these inspections will be able to catch
9 them. Site to site, it's going to be hard. I've
10 been saying this to anyone who will listen. It's
11 going to be very hard to make these environmental
12 cases from one place to another because we're
13 finding out chlorides come from all sorts of
14 sources, whether it be from coolant tower
15 generation of the steam and there's biocides that
16 are used that are chloride-based that could be --
17 some of these are right next to them.
18 MR. CSONTOS: Operation ponds, road
19 salts. If there are roads nearby that are --
20 you're in an ice application --
21 CHAIRMAN BALLINGER: That's in the EPRI
22 report on the ranking system.
23 MR. CSONTOS: Right, but there are a
24 lot of -- there's also a catchall, which is some of

1 those things that are not known very well so, for
2 example, some of the sites may have these salt
3 ponds that are nearby.
4 CHAIRMAN BALLINGER: I guess I'm coming
5 around to -- I wish Dana was here. But remember
6 Dana mentioned yesterday -- you said remember the
7 source term is extremely small, and the
8 consequences of a stress corrosion crack are,
9 therefore, almost vanishingly small. So you wonder
10 whether or not that kind of an approach that maybe
11 goes over the top of what you're doing here is a
12 way to think about going. Because you can say
13 we've done all the stuff we can, but in the words
14 of that great philosopher, the unknown unknowns,
15 even if we have an unknown unknown, the
16 consequences of one of those unknown unknowns
17 happening is of no consequence because the source
18 term is so small, the leak rates are so low, that
19 the threat to the public is non-existent. I'll
20 stop preaching.
21 MR. CSONTOS: We hear you.
22 MEMBER RICCARDELLA: Ron, this is Pete.
23 You just pretty much took the words out of my
24 mouth. I was going to refer to yesterday's

1 discussion on the risk management approach. I got
2 the impression from that presentation that we're
3 not really concerned about a local leak or
4 through-wall SCC. What we're worried about is a
5 very large SCC crack that could break in
6 transportation or something of that sort. Your
7 concern about repairs, the repairs are most likely
8 to be very localized, such that they might drive a
9 local crack through wall, but I don't think they're
10 going to be long enough to present a fracture risk.
11 MR. CSONTOS: We agree, too, because we
12 believe that the cracks would grow in a certain
13 orientation that would preclude it from being very
14 large at all, but we're looking to get the OPE to
15 support that hypothesis.
16 MS. BANOVAC: To kind of bring it back
17 to what we're looking at in the renewal is we're
18 looking to make sure that the safety functions
19 continue to be maintained, and one of those is
20 confinement. So to the extent that canister is
21 your confinement boundary, and that canister needs
22 to maintain impact -- and Kris, I think, explained
23 this a little bit better yesterday -- at whatever
24 leakage rate, they need to maintain that in the

1 renewal.

2 If they want to change their licensing

3 or design basis, they can always do that via

4 amendment in initial period, renewal period. But

5 all we're looking at in renewal is here's your

6 design basis or licensing basis. Is it going to

7 continue? If you're relying on that canister for

8 confinement, and that canister needs to be intact,

9 either leak tight or at some leakage rate, we're

10 just looking to make sure that's going to be

11 maintained.

12 If they want to change their design

13 basis and come in and say we could have this thing

14 all cracked up, and at the end of the day, it's not

15 going to impact those, we'd review that. But we're

16 not looking at that in renewal. We're just looking

17 at their existing licensing or design basis, will

18 it be maintained?

19 CHAIRMAN BALLINGER: Right, but the

20 unknown unknowns --

21 MS. BANOVAC: So we're limited to that.

22 CHAIRMAN BALLINGER: -- the unknown

23 unknowns, if you're hanging your hat on the

24 confinement requirement, the unknown unknowns can

1 invalidate that. There's no way --
2 (Simultaneous speaking.)
3 MR. CSONTOS: I want to take this back
4 to inspections, period, not just -- what you're
5 looking at is an inspection of a canister for one
6 specific degradation mechanism. When we're talking
7 about these pre-application inspections, we're
8 talking about the concrete systems. We're talking
9 about the support systems. Because some of these,
10 we will need to make sure that those support
11 systems can be able to support whether or not we
12 can retrieve the canisters.
13 Hate to see one of these that we'd lose
14 an ability or that there would be extraordinary
15 operations to be able to move or remediate being
16 able to pull out a canister or whatnot. In fact,
17 like I said, a lot of the baseline inspections,
18 pre-application inspections that we've seen, the
19 canisters are looking pretty good.
20 So we don't know if we even have the
21 disease yet, so let's find out whether we have a
22 disease. That's what these inspections are really
23 going towards, and they're not extensive
24 inspections. In our aging management program, our

1 generic one, we're just saying do visual. Just
2 start with visual. Let's see if we have a disease.
3 Once we have the disease, let's figure out -- then
4 we can figure out the next path after that, whether
5 it's risk informing -- because we know -- we
6 believe we know what the risk is.
7 So, therefore, let's do that cursory
8 check now, see if we have a disease. Then we can
9 see about whether we want to treat the disease or
10 if treating the disease will do more harm for the
11 workers who will have to do that optimization.
12 It's really going to be -- right now, it's we don't
13 know if we have a disease. Let's go take a look,
14 just a quick look, see whether or not we have it.
15 MS. BANOVAC: Then finally, the final
16 point we had on the lead system inspection in the
17 draft guidance, we had considerations for how this
18 might work for CoC renewals. For CoC renewal, the
19 CoC holder actually comes in with the application
20 and the proposed AMPs, and then the general
21 licensees that use that CoC are responsible for
22 implementing it. The CoC holders do not own
23 systems. They do not own or have access to the
24 general license sites, so we recognize that there

1 might be a difficulty to do this type of
2 pre-application inspection before a CoC renewal
3 application was submitted. So we try to address
4 that in the draft guidance. That's where we
5 introduced the term of baseline inspection. The
6 thought is that if you can't really do a bounding
7 pre-application inspection before you submit your
8 CoC renewal application, then there should be a
9 bounding inspection at the general license site,
10 I'd say at the beginning of the period of expanded
11 operations, so we address that in the draft.
12 As I mentioned, we received a lot of
13 comments in this area. We did incorporate this
14 into Chapter 3. Appendix C is now just reserved
15 for future use. So where we moved this guidance
16 to, it shows up a few places in Chapter 3. In
17 Section 3.4.1.2, that's a section on identification
18 of the aging mechanisms and effects. We included
19 the guidance on the pre-application inspection.
20 We noted that can assist the applicant
21 in identifying what are the applicable aging
22 mechanisms and effects, depending on what they see
23 in that inspection. We also included in this
24 section some of what we thought were important

1 elements from the former Appendix C, and we also
2 clarified -- this is something I think the industry
3 brings up all the time -- a pre-application
4 inspection, or formerly known as lead system
5 inspection, there's no requirement for it. So we
6 did clarify in the guidance that this is isn't a
7 requirement, but we noted the value that this
8 information could provide -- given that we don't
9 really have the specific operating experience yet,
10 that this can provide a lot of value in support of
11 the application and the proposed aging management
12 programs.
13 The guidance also shows up in Section
14 3.6.1.4, and this deals with detection of aging
15 effects. We included some guidance here that if
16 the pre-application inspection is not conducted, as
17 I mentioned, a baseline inspection should be
18 conducted upon entering the period of expanded
19 operation. Also, this appears in Section 3.6.1.10.
20 This is the operating experience element of the AMP
21 section. Once again, we discussed the valuable
22 operating experience that a pre-application can
23 provide to inform and support the applicant's AMPs.
24 MR. CSONTOS: Let me just say on that

one --

MS. BANOVAC: That's how we sort of repackaged the guidance into the proposed final.

MR. CSONTOS: I think the next applicant in here for a renewal is North Anna. North Anna came in this fall using this kind of approach, discussed what they were going to do in their pre-application inspection. We looked it over. We gave comments. They went off and did it. Our staff went to the site to observe the doing the inspection and gained a lot of information out of it. We had our pre-app meeting, I think, Monday this week and presented us some of the results of that. So it was a good example of how that process worked from this Rev. 1, even though it's not officially out there for use, but it came -- it was very fruitful for us to go through this process.

CHAIRMAN BALLINGER: So North Anna's on Revision 0, right?

MR. CSONTOS: Yes, but they chose to do this --

CHAIRMAN BALLINGER: But they're a pilot, in effect, right?

MR. CSONTOS: In some ways, yes.

1 MEMBER SKILLMAN: Are you at liberty to
2 disclose what didn't go well?
3 MR. CSONTOS: There was a little bit of
4 paint on the bottom of the cask that had degraded,
5 but there's eight inches of carbon steel underneath
6 there, and it looked like there was no real loss of
7 material from underneath. So the paint is just a
8 coating, but the actual structural piece, the
9 important to safety function is well maintained.
10 MEMBER SKILLMAN: Did the process of
11 the inspection --
12 MR. CSONTOS: Oh, yes.
13 MEMBER SKILLMAN: -- go as expected?
14 MR. CSONTOS: The whole process of
15 coming in to talk about which canister or systems
16 they want to look at, going through the whole
17 process of what they were going to do, we provided
18 feedback. It helped them with their plans. Us
19 seeing it, it was an example that we would like to
20 see in the future.
21 MEMBER SKILLMAN: Are the lessons
22 learned from that interaction being codified
23 somewhere in the NEI?
24 MR. CSONTOS: It was only just Monday.

1 MEMBER SKILLMAN: It's a work in
2 progress.
3 MR. CSONTOS: But it's a work in
4 progress, yes.
5 MEMBER SKILLMAN: Thanks, okay.
6 MS. BANOVAC: And I think the ideas are
7 already in 1927. We have in the guidance that we'd
8 like -- if a pre-application inspection is to be
9 conducted, we'd like the applicant to come in and
10 meet with the NRC ahead of time to talk about how
11 they're going to select the system, what's their
12 thinking in selecting the systems where they expect
13 to see the most degradation. That did happen in
14 September of last year, in a public pre-application
15 meeting with the applicant. That idea is already
16 in NUREG-1927, and not just for renewals, but many
17 aspects of --
18 (Simultaneous speaking.)
19 CHAIRMAN BALLINGER: To follow up on
20 that, when you did North Anna, they identified what
21 they believed would be the way to go, and you guys
22 had an idea of where you had to go. Did they
23 match?
24 MR. CSONTOS: For most of -- yes.

1 MS. BANOVAC: And I think --- this was a
2 while back now. We have not yet reviewed that
3 particular ---
4 MR. CSONTOS: Sure, that's right.
5 MS. BANOVAC: --- so, that's a while
6 back.
7 MR. CSONTOS: That's true, that's
8 correct.
9 MS. BANOVAC: We had an open dialogue
10 -- this was an open meeting, public meeting, back
11 in September, where we had an open exchange of what
12 should be considered in the selection of the
13 system. I will say that there will be a meeting
14 summary of the meeting we just had on Monday, so
15 you're welcome to look at that. That should be
16 issued within a couple weeks.
17 (Simultaneous speaking.)
18 MR. CSONTOS: It was a good example of
19 the process working.
20 MS. BANOVAC: Go ahead, John.
21 MR. WISE: Yes, John Wise, NRC staff.
22 I guess I want to just clarify one of the biggest
23 benefits of these pre-application inspections comes
24 at the point in the application where they do their

1 aging management review, where they basically lay
2 out what kind of aging effects they think are
3 potential ones that need to be managed.
4 When you have a pre-application
5 inspection and you find that's nothing happening,
6 that goes a long way in the application. So it's
7 not a subject we need to litigate in our
8 application review, so it can be very beneficial.
9 I thought North Anna's went very well, as far as we
10 got some very valuable information, and we don't
11 have to play a conservative guessing game when
12 we're doing that review. We can rely on real
13 information.
14 MEMBER SKILLMAN: I see this process
15 for spent fuel and for the casks the same way I see
16 7.002 inspections for the AMP review for license
17 renewal. That's where the rubber really meets the
18 road, when you really dig down into what those
19 findings are, and you're really depending on the
20 thoroughness of the NRC inspectors. But if that
21 team has been intrusive and thorough, and if
22 they've used a thick magnifying glass, you really
23 get an understanding of the physical condition of
24 the plan and its ability to safely move into a

1 20-year life extension. I see this as the very
2 same tool aimed specifically at spent fuel storage.
3 As long as it's conducted thoroughly, assertively,
4 and in a systematic fashion, it should produce a
5 result that is excellent.
6 MS. BANOVAC: That's what we're hoping.
7 MEMBER REMPE: Just to follow up on
8 what Ron, and I think Dick, were trying to ask, I
9 didn't hear any specifics, like the licensee came
10 in and said they were planning to inspect 10, and
11 we said do 15, or they were going to look at three
12 types of phenomena, and we said to look at five.
13 Were there any differences in the depth, the
14 number, or the types of inspections, or it was just
15 really matching up?
16 MS. BANOVAC: I want to be careful
17 because this will be in the application, but I
18 think -- is it fair to say that we didn't hear
19 anything on Monday that led us to believe that our
20 comments that we provided last fall when we met
21 were not considered. I think --
22 (Simultaneous speaking.)
23 MEMBER REMPE: Last fall, though --
24 last fall when you provided comments, did you ask

1 for more inspections or different types? That's
2 where I'm getting you to, because I saw --
3 MR. CSONTOS: Yes, last fall we did ask
4 for more --- in the guidelines, qualifications --
5 MS. BANOVAC: We're getting a little
6 bit too much into that specific licensing action.
7 I think I'd like to pull it a little bit back to
8 just the generic items.
9 MR. CSONTOS: The comments were --
10 MS. BANOVAC: Because that is an
11 upcoming application, and we have not seen it yet.
12 MR. CSONTOS: The comments were
13 addressed --
14 (Simultaneous speaking.)
15 MEMBER REMPE: It was a public meeting,
16 though. In the public meeting, did you have those
17 kind of discussions?
18 MR. CSONTOS: Yes.
19 MS. BANOVAC: Yes.
20 MEMBER REMPE: And you did ask for more
21 or something like that in a public meeting?
22 MR. CSONTOS: We asked for -- do you
23 want to talk about the card, I guess on the card?
24 MR. WISE: I guess I would say our

1 comments probably in the public meetings were more
2 along the lines of clarification, like tell us why
3 you selected this particular cask to pick up.
4 MEMBER REMPE: Oh, okay.
5 MR. WISE: And tell us what methodology
6 you're going to use. I think they're just making
7 sure we really understood what they were trying to
8 do. I can't remember any particular --
9 MR. CSONTOS: Qualification.
10 MR. WISE: -- hangups on things, as
11 far as things we were concerned that they weren't
12 going to do, but it was really making sure that we
13 were very clear what they were going to do and what
14 the basis was for what they were going to do.
15 MEMBER REMPE: Okay, thank you.
16 MS. BANOVAC: All right, so I'm going
17 to go back.
18 CHAIRMAN BALLINGER: We wondered
19 whether you would actually come back after
20 yesterday.
21 MS. BANOVAC: I know. I'm coming back.
22 This is an easy slide here. Just a couple of
23 administrative changes. We added a list of
24 consolidated references. That's a new Chapter 4.

1 We moved the definitions. It's the new Chapter 5
2 glossary.
3 So what we did in the draft is we did
4 add some new definitions. We clarified a lot of
5 the existing definitions, and we really tried to
6 make the definitions consistent with if they
7 appeared in Part 72, we wanted to use the Part 72
8 definition. Also, these two NUREGs that are cited,
9 those are our other two standard review plans for
10 ISFSI licenses and CoCs, and so we tried to be
11 consistent with those. So we did receive some
12 public comments on the definitions. We did add new
13 definitions for pre-application inspection and
14 baseline inspection, since we are using those
15 terms. Then we just made clarifications to several
16 other definitions in response to the public
17 comments. As far as appendices, in Rev. 0, we made
18 a lot of changes to the appendices.
19 We only kept one of the former
20 appendices, and that was Appendix A, on the use of
21 non-quantifiable terms, where essentially we're
22 encouraging to not use non-quantifiable terms and
23 try to quantify the information where it can be.
24 But we deleted all the other appendices in Revision

1 0 because we didn't feel they added any value to
2 our review process. What we did for the draft Rev.
3 1 is we developed new appendices on, example, AMPs.
4 Those appear in Appendix B. Lead
5 system inspections, we already spoke about that.
6 That appeared in the draft Appendix C. Also, in
7 Appendix D, we included guidance from ISG, Interim
8 Step Guidance 24, which was previously issued by
9 our division. That provides guidance on the use of
10 a high burnup fuel surveillance program. That's
11 for monitoring the performance of high burnup fuel
12 in a period of extended operation. In Appendix E,
13 we included some information on CoC renewals. Once
14 again, since there are some unique, I guess,
15 nuances regarding the CoC renewals and the general
16 license framework and how general licensees would
17 implement the aging management programs, we
18 included some of that guidance as a new appendix.
19 Finally, we have an Appendix F. We provided
20 information on storage terms for dry storage
21 systems, depending on whether they're loaded in the
22 initial term of the CoC or the renewal term of the
23 CoC.
24 MEMBER SKILLMAN: Kris, let me ask

1 this. Were there any public comments on Appendix
2 A?
3 MS. BANOVAC: Yes. I think we added
4 one sentence. Appendix A essentially says don't
5 use these non-quantifiable terms, and it says but
6 if you do, if you have to use them, try to
7 essentially provide some information that says what
8 it means.
9 If you use a non-quantifiable term, to
10 somehow explain what it means more. That's kind of
11 what Appendix A is doing. We got a comment. I
12 think it was why don't you just say use
13 quantifiable information where it exists? We're
14 like oh, yes, Appendix A doesn't say that. I think
15 we actually added a sentence just to make it very
16 clear. Yes, if you have quantifiable information,
17 we'd like to see that, instead of these
18 non-quantifiable terms.
19 MEMBER SKILLMAN: Has there been any
20 consideration to offering Appendix A for
21 agency-wide use?
22 MS. BANOVAC: I can't speak to that.
23 MEMBER SKILLMAN: That was a
24 tongue-in-cheek comment. I hope you realize that

1 for those who have not read Appendix A in this
2 particular document, it suggests not using, or at
3 least using only in terms of quantification, the
4 terms large, small, slight, slightly, significant,
5 significance moderate, and so on. These are terms
6 that are so common to our language and that we use
7 in almost every conversation that to require them
8 to be quantifiable is a very daunting task. I
9 understand the context in this particular reg
10 guide, but it kind of raises an issue of how we
11 communicate and the precision of absence of
12 precision that we almost take for granted. Thank
13 you.
14 MR. WISE: Just a follow up on that. I
15 used to work in the reactor renewals area. The
16 translation of aging management programs into
17 procedures that a plant inspector will follow,
18 that's always a very big concern. We put these
19 words in these aging management programs and what
20 will they look like when they're written up into a
21 procedure line item, and can that inspector that
22 doesn't actually know about an aging management
23 program -- he just has a procedure in front of him
24 -- are they going to be doing what we expected they

1 did when we all agreed to this aging management
2 program? That's part of what this appendix speaks
3 to. Can we remove some of that ambiguity from the
4 process?
5 MEMBER SKILLMAN: Also, it carries over
6 into enforceability in other actions. So the
7 ability to translate what this means is very
8 important.
9 MR. CSONTOS: A lot of our inspectors
10 have told us can we be more black and white versus
11 gray? The grayer it is, the harder it is for them
12 to do their job, for us to do our job. So any way,
13 shape, or form that we can make it more of
14 quantifiable terms that we can determine whether
15 it's a go/no go is better. So that's what we're
16 just suggesting.
17 MS. BANOVAC: We try to comply with it,
18 as well.
19 MR. CSONTOS: Yes.
20 MS. BANOVAC: We try. So Appendix B,
21 these are the three example AMPs that were
22 developed, localized corrosion, stress corrosion
23 cracking of stainless steel, reinforced concrete
24 structures, and the high burnup fuel monitoring

1 assessment program. Essentially, in the AMPs, the
2 approach we take is using consensus codes and
3 standards where they're relevant or practicable.
4 Using achievable and actionable acceptance
5 criteria, we try to do that in the AMPs.
6 Also, there's a reliance on the
7 licensee's quality assurance and corrective action
8 programs to further evaluate and characterize their
9 inspection findings and determine what corrective
10 actions are needed to preserve the SSC's intended
11 functions. Finally, on this slide, I do want to
12 mention -- I know you heard about the MAPS guidance
13 effort, managing aging processes and storage, which
14 will be very similar to the GALL for the reactor
15 renewals.
16 We expect that once MAPS is actually
17 issued, we'll probably retire Appendix B in 1927
18 because MAPS is essentially building on what these
19 example AMPs are, but the reason we did include
20 these in 1927 is that since this effort was sort of
21 first, we thought it would be important to get out
22 some example AMPs, not just for the reviewer's use,
23 but also for the applicants, for them to consider
24 as they prepare their application. That's the

reason we added these to 1927. Next slide, Slide 21, the first AMP for welded stainless steel canisters, this is based on the guidance in ASME Section 11, and also NUREG-1801, which is the GALL report. It really focuses on the parameters monitored and inspected, to include canister surfaces, welds, weld heat affected zones.

It's for visual evidence of any imperfections, such as localized corrosion, including pitting corrosion and crevice corrosion, and then also stress corrosion cracking. Also, the appearance and location of deposits, atmospheric deposits on canister surfaces, and the size of location of localized corrosion and stress corrosion cracks.

CHAIRMAN BALLINGER: This requires an inspection of all the heat affected zones?

MR. CSONTOS: I wouldn't use the word all.

(Simultaneous speaking.)

CHAIRMAN BALLINGER: That was going to be my next question, all meaning -- all is terrible, but almost all.

MR. CSONTOS: Well, looking at what's

1 accessible. We have to look at the operational
2 part to it, too. And we can't make agency programs
3 that are so specific from a paper perspective that
4 we may not be -- that's why we were calling it
5 achievable acceptance criteria. What we do here on
6 paper may not be actually achievable out there in
7 the field. What we're saying is take a look at
8 your system, see what's possible, and move on from
9 there. Because you may not get to 100 percent of
10 all the welds, but at least go to those locations
11 that you are accessible to go access, and in some
12 cases, you may not even be able to see the weld.
13 So you're going to have to figure out
14 how you're going to be able to determine where the
15 weld is and such. So there's a lot of aspects of
16 this that -- we're using this as a generic, and the
17 applicants or the CoC vendors will have to come in
18 and say what's possible for their systems.
19 CHAIRMAN BALLINGER: Now is LATA a
20 consideration?
21 MR. CSONTOS: Absolutely.
22 MS. BANOVAC: Always.
23 MR. CSONTOS: This whole endeavor is
24 all about optimizing public health and safety,

1 worker public health and safety, in terms of what
2 our safety metrics are. So it's always going to be
3 one of -- we're not going to dose people up for
4 things that may not be safety significant. As
5 times goes on, we'll get more involved in that.
6 MS. BANOVAC: That's why there is the
7 effort that's being put forward for the in situ
8 inspections, so being able to do this --
9 (Simultaneous speaking.)
10 MR. CSONTOS: -- right, without getting
11 --
12 MEMBER RICCARDELLA: Al?
13 MR. CSONTOS: Yes.
14 MEMBER RICCARDELLA: This is Pete, from
15 Colorado. As you know, ASME 11 has put --
16 OPERATOR: Please pardon the
17 interruption. The conference contains less than
18 three participants at this time. If you would like
19 to continue, press Star 1 now or the conference
20 will be terminated.
21 MR. CSONTOS: Sorry, we missed you from
22 the announcement. Can you say that again?
23 CHAIRMAN BALLINGER: Oh, no.
24 MEMBER RICCARDELLA: This is -- I'm

1 back. I got one of those Star 1 messages.
2 MR. CSONTOS: Yes, we did, too.
3 MEMBER RICCARDELLA: As you know, ASME
4 11 has a lot of effort in recent years into risk
5 informed in service inspection. Of course, that
6 concept requires a lot more OE than we have on this
7 topic, but we sure have improved how we select
8 experts in areas compared to the original ---
9 (Telephonic interference.)
10 MEMBER RICCARDELLA: I'm assuming that
11 --
12 CHAIRMAN BALLINGER: Pete, we're
13 getting about every second or third word. Are you
14 on a handset? Can you pick it up?
15 MEMBER RICCARDELLA: Yes, is this
16 better?
17 CHAIRMAN BALLINGER: Yes, so far.
18 MEMBER RICCARDELLA: I just talked
19 about the concept of risk informed inspection,
20 which has kind of evolved in Section 11, with time.
21 That requires, of course, operating experience and
22 knowledge of how to focus your inspections, but I'm
23 assuming that with time, we'll be heading in that
24 direction on these inspections.

1 MR. CSONTOS: That's absolutely
2 correct, Pete. I like to call this as a course
3 tuning, at this point. We're saying do an
4 inspection every five years because of the lack of
5 OPE. Hopefully, when we get more OPE in, the
6 better we are at figuring out what our sampling
7 rates should be, what the frequency and -- all
8 that's related to that risk informed ISI approach.
9 We've taken a little bit of the risk informed ISI
10 approach into the initial. Because of what we know
11 about the risk, we didn't ask for 100 percent
12 inspection of every canister out there that's going
13 into the 20th year. So we are taking into
14 consideration parts of that, but like you said,
15 Pete, as soon as we get more information and more
16 OPE, the better we will be to dial up, dial down,
17 do whatever we have to do to fine tune the
18 inspection frequencies.
19 MEMBER RICCARDELLA: It might turn out
20 that there's a large group of plants for which this
21 chloride stress corrosion cracking isn't a problem
22 because there are just no chlorides around.
23 MR. CSONTOS: We agree.
24 MEMBER RICCARDELLA: Okay.

1 MS. BANOVAC: In consideration of
2 public comments on the canister AMP, we are
3 proposing some changes in the proposed final. As I
4 discussed yesterday, ASME Section 11 created the
5 new task group for inservice inspection of storage
6 and transportation containments. That work began
7 in April of last year. We referenced that ongoing
8 work. Even though the consensus code case doesn't
9 exist yet, we referenced that ongoing work with the
10 expectation that once the code case is developed,
11 and if NRC endorsed that, we would, of course, be
12 referencing that in the AMP, so we just referenced
13 that that is ongoing work. In the draft AMP, we
14 included attributes or factors regarding
15 susceptibility of the canister to CISCC. This is
16 what we talked about might be cooler locations, an
17 area where there's a weld, the heat affected zone,
18 and also where there might be crevices. We
19 included those attributes.
20 In the proposed final, we clarified
21 guidance for prioritizing which of those areas to
22 inspect. We essentially say where two of those
23 attributes exist, that's where you want to be
24 looking, so we did provide some clarification in

1 the AMP on that.

2 We clarified the guidance on sample

3 size, and we also included a reference to EPRI's

4 susceptibility report, which has been mentioned now

5 several times, and we included some considerations

6 in, I guess, kind of anticipating applicants'

7 future use of that report and those rankings, sort

8 of how an applicant might use that, in terms of

9 ranking, and if an applicant wanted to rely on an

10 inspection that was conducted at a more aggressive

11 site, what we would expect them to consider. We

12 included a little bit of that in the AMP. Also, in

13 the draft AMP, we included some reporting

14 requirements for reporting inspection results to

15 the NRC. We got some comments in that area. So we

16 ended up just referencing our requirement in 7275,

17 and that does include NRC's reporting requirement,

18 so we just referenced that, rather than having

19 specific reporting requirements of those inspection

20 results for the NRC. Once again, we note that the

21 inspection results would be viewable by the NRC

22 during an ISFSI inspection.

23 Of course, now that there will be this

24 ISFSI aging management database, we'll be able to

1 see the operating experience that's being reported,
2 so we didn't feel we needed specific reporting
3 requirements in the actual AMPs. Finally, we added
4 a reference to a Sandia report. That had the
5 analysis of the samples from canisters at Hope
6 Creek and Diablo Canyon.
7 We included that, since that was new
8 information. We also developed an example AMP for
9 reinforced concrete structures. That AMP is based
10 on the ACI 349.3R guide for evaluation of existing
11 nuclear or safety-related structures. We also used
12 ASME Code Section XI, Subsection IWL. Of course,
13 we also used the GALL report for development of
14 this AMP. The AMP focuses on visual inspection of
15 above grade and below grade areas, also a
16 groundwater chemistry monitoring program to
17 identify any conditions that could be conducive to
18 aging mechanisms to below grade structures, like
19 chloride and sulfate induced degradation. Also, we
20 used radiation surveys to monitor performance of
21 the concrete as a radiation barrier shield, as an
22 indicator of potential concrete degradation.
23 The AMP also includes, as more of a
24 preventative action, the inspection of inlet and

1 outlet vents to ensure that the design temperature
2 limits for the system and for the concrete are
3 maintained. That's considered more of a
4 preventative action for the AMP. After
5 consideration of public comments in this area, the
6 additional changes we're putting forward in the
7 proposed final, we clarified the intent of the
8 radiation surveys.
9 We are also removing thermal
10 desiccation as an operable degradation mode, as we
11 felt that the potential high temperatures are
12 already addressed in the initial review of the
13 license or CoC application. We're removing the use
14 of some ambiguous terms, I guess, consistent with
15 our Appendix A, so we did remove the use of some of
16 those terms. We also clarified the guidance on
17 sample size and the extent of the surfaces that
18 should be inspected during the visual examination.
19 Similar to the changes in the canister AMP, we
20 referenced 7275 for reporting results to the NRC.
21 Finally, we include a reference to ACI CT-13, and
22 this contains the unique terminology for concrete
23 that we have in the AMP, and that's used in the ACI
24 guide, so we referenced that for defining those

terms. Finally, we developed an AMP -- I put AMP in quotes -- for high burnup fuel monitoring and assessment program.

The purpose of this AMP is to confirm that any degradation that's related to the fuel assemblies essentially will not result in an unanalyzed fuel configuration during the period of extended operation. This AMP is a little bit different than the other two AMPs, I would say, on purpose. It's not really an active AMP, where the licensee is going and doing inspections.

Rather, they're monitoring the information that's coming out of a surrogate demonstration program, and also other information and other research in the area of high burnup fuel to confirm the fuel performance in the period of extended operation. The AMP does rely on a surrogate demonstration program that meets the guidance in Appendix D of NUREG-1927, which is essentially a repeat of our ISG-24. That provided the guidance on the use of a demonstration program as, essentially, a surveillance tool for a licensee to confirm the integrity of their high burnup fuel and that the high burnup fuel maintains its

1 designed fuel configuration in the period of
2 extended operation.
3 The AMP does include formal evaluations
4 of non-destructive examination data and destructive
5 examination data that will be coming out of a
6 demonstration program at different periods of time,
7 so this is essentially the tollgate for high burnup
8 fuel, so that's what we included in that draft AMP.
9 After consideration of public comments on this AMP,
10 we're making just a few changes.
11 We used burnup, so we clarified that
12 burnup, we mean assembly average burnup. We also
13 clarified that the AMP should provide a technical
14 basis that supports the conclusion that the
15 demonstration fuel is characteristic of the
16 licensee's stored fuel. So we want to see the
17 technical basis in the application that they can,
18 indeed, rely on the demo because it's
19 representative of their fuel. Also, we provided a
20 new reference for fuel characteristics of the
21 planned DOE EPRI demo, so a new reference that had
22 come into existence since we published the draft.
23 We're going to skip, now, lead system inspection.
24 We talked about that. Now Appendix D, so this is a

1 repeat of ISG-24. ISG-24, it kind of does two
2 things. It talks about what a surveillance
3 demonstration, what type of information it would
4 need to provide, and it also describes how a
5 licensee would be able to use the information, so
6 how it can determine if the information is
7 applicable to its design basis fuel.
8 Essentially, we would -- the criteria
9 in ISG-24 is to confirm expected fuel conditions
10 based on the technical arguments put forward in
11 ISG-11. We want to confirm that the system is
12 sufficiently dry to eliminate any moisture-driven
13 degradation mechanisms. We hope that the demo will
14 provide data for benchmarking, confirm our
15 predictive models, and then update AMPs as needed,
16 and also to identify any aging effects that may
17 have been missed through the short-term studies and
18 experiments.
19 We only made one edit in this. I think
20 it was just one word that we changed in response to
21 public comments. This guidance was in existence
22 before, in ISG-24, and it did go out for public
23 comments separately. In Appendix E, this was the
24 appendix that we added for, I guess, unique

1 considerations for CoC renewals. We talked about
2 the development of TLAAs and AMPs. That's really
3 the CoC holders. That's their responsibility as
4 the applicant. The implementation of AMPs is, of
5 course, done by the general licensees who use that
6 CoC. We note that the general licensees need to
7 comply with all the terms, conditions, and
8 specifications of the CoC, which include any of
9 those as part of the renewal.
10 General licensees currently -- we call
11 it the 72.212 report. Under 10 C.F.R. 72.212, they
12 need to document how they're going to meet all the
13 terms of the CoC, so they do that before they first
14 use the CoC to store fuel. In this appendix, we
15 say that we want the general licensees to update
16 that 212 report to show how they're going to meet
17 all the new aging management elements of the
18 renewal and be able to implement those aging
19 management programs.
20 That report is subject to NRC
21 inspection, so that's something that we would plan
22 to inspect as the general licensees enter the
23 period of extended operation. Finally, we talk --
24 and I think we talked about this a couple times --

1 that the general licensees will use their existing
2 quality assurance and corrective action programs to
3 capture and appropriately address any aging
4 effects. As far as public comments we received on
5 Appendix E, we are proposing a few changes in
6 response to those comments. We're adding guidance
7 that general licensees need to consider their
8 unique licensing basis, including any exemptions
9 they've been granted, and also any 72.48 changes
10 that they've made that may impact the generic aging
11 management programs as part of that CoC.
12 We really want the general licensees to
13 consider their licensing basis in their 212
14 reports. We added some guidance on the timing for
15 that 212 report update that I just mentioned. Once
16 again, this is in recognition of the timely renewal
17 provisions. Because of those, it's possible that
18 someone may already be in the period of extended
19 operation by the time we actually issue the CoC
20 renewal. We also clarified that any general
21 licensee deviation from the cask final safety
22 analysis report, that does need to be evaluated
23 under 72.48.
24 We just clarified that in response to a

1 comment. Once again, the changes that I am
2 providing are just highlights. We've made many
3 clarifications throughout, but those are just some
4 of the highlights. Appendix F, this was storage
5 terms. In the 2011 rulemaking, where we updated
6 Part 72 to add the specific requirements for TLAAs
7 and AMPs, we included some examples of the pending
8 -- when you load a storage system, whether it's in
9 the initial term of the CoC or a renewed term of
10 the CoC, that will dictate what your allowed
11 storage term is. We provided some examples in the
12 statements of consideration that went along with
13 that rulemaking, but it actually produced, I think,
14 a lot of confusion for storage terms.
15 What we did in Appendix F, we made a
16 little flow chart for how to calculate the storage
17 term of a dry storage system, depending on when you
18 loaded it. Was it in the initial term of the CoC
19 or renewal term? In consideration of public
20 comments on Appendix F, we did clarify that the
21 storage period for a particular SSC, it begins when
22 it's first used to store spent fuel, irrespective
23 if that SSC is later stored at another location.
24 This is essentially in anticipation of

1 interim consolidated storage facility, the thought
2 that you may have a canister-based system, where
3 you stored the canister at one location for a
4 period of time, you transported it, and now you're
5 storing it at the second location, and the thought
6 that essentially, its life started when it was
7 first put into storage at the first location. We
8 also clarified that if a CoC is not renewed that a
9 dry storage system loaded under the CoC would need
10 to be removed from service, but once it reached the
11 end of its storage term, so that was a
12 clarification we provided in response to public
13 comments.
14 MEMBER BROWN: I don't understand that.
15 Once you put fuel into a container, you're going to
16 go take it out after 20 years and stick it in
17 another container? Is that what you're talking
18 about?
19 MS. BANOVAC: If the CoC were not
20 renewed, then yes. Once a dry storage system --
21 assuming that the initial term was 20 years, if the
22 CoC was not renewed, that dry storage system, that
23 would need to be taken out of service.
24 MEMBER BROWN: Okay, but if it is

renewed --

MS. BANOVAC: If it is renewed, then it can continue -- they can continue storing it in that system.

MEMBER CORRADINI: So Charlie's getting to where I was going to ask. Back to balancing worker dose, that strikes me -- that really is going to be the objective, is if I don't relicense, I have to repackage? That's what I think you're --

MEMBER BROWN: Yes, I just -- I don't know what the right word to use is. It doesn't sound rational to --

MEMBER CORRADINI: Irrational was the word that came to my mind.

MEMBER BROWN: I was trying to be complimentary here, as opposed to non-complimentary.

MS. BANOVAC: This goes back to your license term in perpetuity. We don't have license terms in perpetuity. We have license terms for a set period of time that we feel we have an adequate technical basis for. If a CoC, for whatever reason -- and we don't anticipate this, I would say -- but for whatever reason, if a CoC were not renewed,

1 there's no technical basis for the period of
2 extended operation. There's no aging management
3 considerations.
4 MEMBER BROWN: Let me elaborate.
5 Somebody said CoCs goes with the cask vendor.
6 That's what you told us yesterday -- told me
7 yesterday.
8 MS. BANOVAC: Yes.
9 MEMBER BROWN: You've got four of them
10 right now. Somebody commented about four guys --
11 (Simultaneous speaking.)
12 MEMBER BROWN: Okay, so the vendor
13 delivers -- he's got a CoC, delivers a bunch of
14 casks. They've got fuel in them. They're stored
15 at a site for the licensee. The vendor closes his
16 business, goes bankrupt, stops doing anything. Now
17 he doesn't have a CoC.
18 MS. BANOVAC: That actually was
19 recognized. That situation was recognized in the
20 2011 rulemaking. In the statements in
21 consideration, there is a discussion on that. If
22 the CoC holder went out of business, folded,
23 whatever, any general licensee using that system
24 could apply for the renewal. So the thought would

be that if, for whatever reason, that entity, that CoC holder went away, those general licensees could apply for the renewal and would essentially, then, be responsible --

MEMBER BROWN: They're not really who understands the design and configuration and all the stuff that goes into that. They're just -- they said you've got to meet rules, bought the container, put their stuff into it, and now they're storing it on site. They're not really the designer. They don't know -- how can they apply for a CoC when they're not the technical --

MR. CSONTOS: It's for the renewal part. The renewal part would be aging management activities, aging management programs that they'll be enacting themselves, so they will be intimately aware of the aging management programs that are associated with their system on their site.

MEMBER RICCARDELLA: Charlie, I'm sure those groups of licensees could find a friendly consultant out there that would help them develop their renewal.

MEMBER BROWN: You're looking for work, Pete? (Laughter.) I'm just teasing you.

1 CHAIRMAN BALLINGER: In effect, there'd
2 be no CoC holder.
3 MR. CSONTOS: Right. It would be each
4 licensee.
5 MR. CUMMINGS: Kris Cummings, NEI.
6 There are provisions in the regulations that allow
7 if a CoC holder goes out of business for
8 essentially the licensee to become -- I don't want
9 to call it the CoC holder, but to take over
10 responsibility for that cask. I mean, invariably,
11 site-specific licensees have responsibility for the
12 design and operation of their cask. They usually
13 get support from the cask vendor to support their
14 application, but a site-specific licensee is the
15 responsible entity. There's not that same
16 connection between the CoC holder and a general
17 licensee. I agree with the NRC that we don't
18 anticipate that being an issue any time in the near
19 future. All of the cask vendors have, I would say,
20 robust businesses and are not in threat of going
21 out of business any time soon.
22 MEMBER BROWN: Plenty of fuel. It just
23 seems inconsistent to use terminology remove from
24 service when they reach the end of their storage

1 term. That's kind of an absolute statement to me
2 that kind of hangs at the end. It ought to be
3 really addressed.
4 MR. CUMMINGS: I think there's other
5 options, too. Potentially, somebody could come in
6 for an exemption request, as long as the NRC finds
7 that acceptable.
8 (Simultaneous speaking.)
9 MEMBER BROWN: They ought to cover it,
10 is all I'm saying. Instead of just letting it hang
11 loose, they ought to cover it.
12 MR. CUMMINGS: I agree. I think that
13 is an option of last resort. I think from an
14 industry perspective, we would find other things to
15 do than to repackage, unless there was a public
16 health and safety reason to package. But if it's
17 simply look, our paperwork expired, our license
18 expired, we would find ways to approach the NRC to
19 ensure that those can continue to be monitored and
20 stored in a safe manner.
21 MEMBER BROWN: All I'm saying is your
22 documentation ought to -- this appendix sounds like
23 the right place. Since you recognize the
24 circumstance, you ought to then recognize the

1 circumstance of you need to get it taken care of.
2 There are options to do so, blah, blah, blah, and
3 put that in here, so that you're just not left
4 hanging with the statement if you lose the license
5 or you lose the certification, bang, it's out of
6 service.
7 MS. BANOVAC: I think we do reference -
8 - this is from our 2011 Part 72 rulemaking, so
9 rules always trump guidance. Guidance is just a
10 reflection of the rules. Since this was in the
11 2011 rulemaking, this guidance reflects it. I
12 think we already have -- I think the guidance is
13 already in Appendix F that refers back to the
14 statements of consideration for that 2011
15 rulemaking.
16 MEMBER BROWN: The statements of
17 consideration say what again? You told me --
18 MS. BANOVAC: Essentially say that if
19 the CoC holder were to go away, go out of business,
20 that a general licensee could apply for the
21 renewal. I believe -- I'd have to double check --
22 I think we have some language in the introduction,
23 as well, that it's just a reflection of what's in
24 the rule.

1 MEMBER BROWN: Okay. All I'm saying is
2 that statements of consideration are part of the
3 overall Federal Register notice and all the other
4 stuff you put out, but the rule is the rule. The
5 statements of consideration are thought processes
6 that generate the rule. Somehow, you ought to try
7 to identify that there are provisions, part of the
8 rule that allows this to be done, so that
9 somebody's not caught.
10 MS. BANOVAC: We can take as a takeaway
11 to look at what we currently have in Appendix F and
12 in the introduction regarding what we just
13 discussed to make sure that is clear.
14 MEMBER BROWN: Okay, that's my only
15 point.
16 (Simultaneous speaking.)
17 MR. CSONTOS: This is the last resort
18 in this case.
19 MEMBER BROWN: I understand that.
20 MR. CSONTOS: There are going to be
21 options, like you said, that could be brought to
22 bear in a number of ways from a regulatory point of
23 view. The public is what really is -- they're
24 concerned about these types of situations where

1 someone's at a decommissioned site or whatever,
2 what happens?
3 What if they have a CoC, and they're
4 there for 100 years? There's a lot of distrust of
5 DOE, from things that I have been involved with,
6 and the time frames from the public's perspective.
7 Therefore, that's why they're asking these
8 questions of hey, if it's here 100 years, if it's
9 here a long time, what's going to happen? This is
10 in there for that type of eventuality. If that
11 ever were to be a case, that's a last resort, but
12 we would always consider --
13 MEMBER CORRADINI: Are you going to
14 participate in next Tuesday's meeting in Chicago
15 about spent fuel interim storage?
16 MR. CSONTOS: I'll let you handle that,
17 Mark.
18 MR. LOMBARD: We're going to be
19 participating by webinar, I think, if that's the
20 right term that they're using.
21 (Simultaneous speaking.)
22 MEMBER CORRADINI: Because they had a
23 number of public meetings that they're planning to
24 go through to discuss who would be participating.

1 MR. LOMBARD: That's maybe another
2 discussion.
3 CHAIRMAN BALLINGER: Pete, is that you?
4 MEMBER RICCARDELLA: Yes, that's me.
5 On the last bullet on the slide, I'm assuming that
6 the provision -- that as long as the application
7 has been submitted, then the cask could continue to
8 be used while it's under review. That applies to
9 this bullet as well, doesn't it?
10 MS. BANOVAC: Yes, it would. I looked
11 up the introduction in the meantime. We do have a
12 note about that situation, that if a CoC holder
13 didn't apply for the renewal, so we do have
14 language like that in the introduction.
15 MEMBER REMPE: Where is that?
16 MEMBER BROWN: The introduction to the
17 appendix or to 1927?
18 MS. BANOVAC: The introduction to 1927,
19 Page 1, the end of the third paragraph.
20 MR. CUMMINGS: Yes, Kris Cummings, NEI.
21 Just the specific rule is 72-240 that specifically
22 allows for -- in the event that a certificate
23 holder does not apply for cask design renewal, any
24 licensee using a spent-fuel storage cask, a

1 representative of the licensee, or another
2 certificate holder may apply for renewal of the
3 cask design.
4 MEMBER BROWN: Is that part of the
5 rule, or is -- it's not part of the statements of
6 consideration; it's in the rule?
7 MR. CUMMINGS: That is the rule,
8 itself, that I just read.
9 CHAIRMAN BALLINGER: This may be
10 completely irrelevant, but what about -- what
11 happened with Fort St. Vrain? Is that DOE owned?
12 MR. LOMBARD: Yep.
13 (Simultaneous speaking.)
14 MR. LOMBARD: DOE is the licensee for
15 Fort St. Vrain, and we're the regulator. Let me
16 just clarify, it was really was put in as a matter
17 of convenience to describe the license term, the
18 storage periods and the terms of the licensing. So
19 the licensing, when you reach the end of a storage
20 period, is really handled outside of the AMPs age
21 management program. Thank you, Kris, for that
22 reference.
23 MR. CSONTOS: We do not anticipate
24 that. We anticipate alternative options.

1 Industry, whoever it is, will come in for
2 something. Like Pete said, an applicant can come
3 in, aging management programs are going to be
4 there, at the sites, so continuation of aging
5 management programs shouldn't be that hard.
6 MEMBER BROWN: I guess my only -- the
7 only thing I've gotten out of the last day and a
8 half is that even though they're not good for
9 perpetuity, the mere fact that you're using them
10 means they're perpetuity. The concept of removing
11 fuel from these containers, whether it's early or
12 later, seems to be kind of a really mindless end
13 game, even though we say it's 20 years, and it's
14 going to be renewed for another 20 years or what
15 have you. The net effect is perpetuity for these,
16 unless there's some other repository where you need
17 to do something because the container won't fit.
18 MS. BANOVAC: The thought is that these
19 will -- this will go to a geologic repository.
20 MEMBER BROWN: Sometime in four
21 people's lifetime from now. Okay, thank you.
22 MS. BANOVAC: Okay, so just to wrap up,
23 we do have, I think, a placeholder for a full
24 committee meeting, if needed. I understand that at

1 the end of the meeting, we'll decide if this needs
2 to go to a full committee. That would be on April
3 7th, if we need to go to full committee.
4 Then we'd receive ACRS letter if we go
5 to full committee, and then I have a couple
6 question marks there just to understand the timing
7 of that. Then finally, we would expect to publish
8 the final guidance in the summer of this year. I
9 just have a slide of references and acronyms. I
10 know we had lots of questions through my
11 presentation. We're a little bit over. But are
12 there any final questions to address? I think
13 we're scheduled for a break.
14 CHAIRMAN BALLINGER: Nothing I said
15 would have made any difference anyway. Thank you
16 very much. We will take a break until 25 of for
17 the next presentation. Thanks again.
18 MS. BANOVAC: Thank you.
19 (Whereupon, the above-entitled meeting
20 went off the record at 10:20 a.m. and resumed at
21 10:37 a.m.) MR. CUMMINGS: I'm going to
22 talk about NEI 14-03, which was industry guidance
23 that we put together at about the same time that
24 the NRC was putting together the revision to

1 NUREG-1927. It really focuses on the format and
2 content associated with the license renewal
3 application itself, and then some of the different
4 activities that need to be done, in terms of
5 implementing an operations-based learning aging
6 management program.
7 It's really more of a process document
8 than it is -- we don't go into what are the
9 specific aging management programs that need to be
10 implemented or the details of that. It's really a
11 guidance to the industry on how you implement those
12 sorts of things. So I'll go into that. I talked
13 about this a little bit yesterday, the four
14 cornerstones, the first being making sure that we
15 provide a consistent level of detail and format and
16 content on what goes into the license renewal
17 application, itself.
18 I think that's the first step to ensure
19 that there's an efficient and timely review process
20 on the part of the NRC is that we certainly have a
21 responsibility to get the right information and the
22 right level of information to the NRC to ensure
23 that their job is at least made more efficient.
24 Second is operations-based aging management through

1 learning aging management programs. We've talked
2 about that a little bit in the context of ensuring
3 that we have the ability to modify our programs as
4 we go forward, as we learn more information from
5 inspections, research, and other areas.
6 The third was the sharing of the
7 operating experience related to aging management.
8 That's through the aging management INPO database,
9 and I'll give you some more details on specifically
10 how that's going to work, although I think we
11 covered it pretty well earlier in the discussion.
12 Then finally, the periodic tollgate
13 safety assessments is really looking back on a
14 periodic basis as to did we get it right, are we
15 still doing it right, and what sort of
16 modifications do we need to make to the aging
17 management programs to ensure that we can continue
18 to maintain spent fuel in a safe configuration and
19 protect the public health and safety. This is just
20 kind of the format and content of the license
21 renewal application, itself. It is consistent with
22 NUREG-1927, in terms of you do a scoping evaluation
23 to determine which components of the casks are part
24 of your aging management review, the second part

1 being the aging management review, itself,
2 identifying what materials they're made of, the
3 environments that they're in, and the potential
4 degradation processes that may occur with time.
5 Then Section 4 would be any time limited aging
6 analysis that's been performed to justify either
7 not having an aging management program or having an
8 aging management program.
9 Then the last are just simply some
10 information that needs to be contained in the
11 application, in terms of the programs, themselves.
12 As the NRC mentioned, NUREG-1927 gives some
13 examples. We're looking forward to seeing the MAPS
14 report, which we expect to have more detail, and
15 I'm sure we'll have comments on that.
16 Then in terms of granted exemptions
17 that have been granted by the NRC, so that
18 information is part of the application, any license
19 or CoC changes that have been made since the
20 license was originally approved, and then a
21 supplement to the final safety analysis report,
22 which will essentially be the level of detail that
23 would be contained in the FSAR for the cask, that
24 then that gets added to a supplement as part of the

1 licensing basis of the cask, itself. Then there's
2 also some additional appendices that are needed,
3 especially for site-specific licenses having to do
4 with an environmental report or financial
5 qualification. Those two examples are specifically
6 for site-specific licensees only.
7 The second cornerstone being the
8 learning aging management, we've had a lot of
9 discussions and, I think, very fruitful
10 conversations with the NRC on ensuring that the
11 aging management programs that are developed by the
12 individual licensees don't be stuck in stone.
13 We have to recognize the fact that we
14 are kind of at the beginning of the license renewal
15 process or going into longer periods of time, and
16 that we will get more information as we go forward.
17 Having the ability to take that information and
18 feed it back into the aging management programs,
19 without necessarily going back to the NRC every
20 single time that we get that operating experience,
21 is a fundamental aspect of the learning aging
22 management programs.
23 So some of the things that we've added
24 with the other two cornerstones are to try to

1 address some of those issues. The first, and we
2 talked about this, was the aging management INPO
3 database. Again, that was the four cask vendors,
4 in conjunction or collaboration with INPO. The
5 guiding principles are kind of the key things that
6 are part of this. This is a supplement or another
7 program to allow basically the information sharing
8 amongst the industry. It's not a replacement of
9 the corrective action program.
10 Every general licensee or site-specific
11 licensee still has the requirement to maintain the
12 cask in accordance with its design and licensing
13 basis, and their corrective action program would
14 require them to address or evaluate any information
15 that they get for their specific license or their
16 specific casks on their ISFSI pads. The important
17 thing here is that we want the ability for other
18 utilities to also have access to that information
19 in a timely manner.
20 It's available to all CoC holders and
21 licensees. As I described before, essentially,
22 either CoC holders or licensees or NEI can put
23 information into that database. It then, depending
24 on what technology that's particular to, which are

1 the cask vendors it's particular to, it would then
2 go to that cask vendor for, essentially, review and
3 approval, both from an accuracy point of view, and
4 also from a proprietary information. We don't
5 anticipate that issue of proprietary information
6 being a major hurdle simply because I don't see the
7 results of an inspection necessarily being
8 proprietary. Maybe some of the technologies that
9 they develop to do the inspection might end up
10 being proprietary, but that's how you do the
11 inspection.
12 That may be useful for other licensees
13 to use, but how you did the inspection, it's really
14 getting those results and having that OE and how
15 much, maybe, salt did they see on a cask, or did
16 they see some pitting, or is there some scaling of
17 the concrete for the overpacks?
18 That's important to understand that and
19 how it might be applicable to other sites. There's
20 use of screening criteria which I'll go through,
21 and then the last one, which Al mentioned, was
22 entry of both positive and negative information.
23 One of the things is going to be -- at
24 least that we see it also from an industry

1 perspective -- is that we fully anticipate that
2 there's going to be -- let's take CISCC as an
3 example, that there will be sites around the
4 country that won't see and are not susceptible to
5 chloride-induced stress corrosion cracking because
6 they don't have large sources of chloride near
7 where their ISFSI is. So we anticipate, as we get
8 more information and we see the negative, we don't
9 see evidence of chloride-induced stress corrosion
10 cracking, that will give us additional information
11 and educate us on the time frames associated with
12 chloride-induced stress corrosion cracking and may
13 allow us, in the future, for some of those
14 licensees that are more recently loaded, to say
15 hey, look, we're similar.
16 We don't have chloride sources also.
17 Maybe there some relaxation that we can have with
18 our inspection frequency because they haven't seen
19 evidence of chloride-induced stress corrosion
20 cracking, and they can create a corollary between
21 other sites that also haven't seen it. The
22 screening criteria, this is kind of the first set
23 of questions. It really has to do with is it due
24 to aging related degradation?

1 Is the component or structure passive,
2 which is pretty much everything on the cask, and
3 then is the component or structure long lived, i.e.
4 it's not a component that's intended to be replaced
5 on a periodic basis. Then there's another set of
6 questions. Go back a set. The other thing that's
7 important here is what we're trying to do is make
8 sure that we capture the aging management
9 information here. We're not intending this
10 database to capture other OE that's not aging
11 management related. If there's somebody who's
12 loading a cask and they run into some issue or
13 complication with the loading of the cast, and
14 that's not because of aging facts, then that's not
15 something that would be captured through this
16 database.
17 We want to capture the stuff that's
18 applicable to aging management because there are
19 other ways to capture that operating experience,
20 whether it's through the cask user groups or other
21 methods, through which the loading operations, OE,
22 is captured. Then this next set is really to try
23 to have some additional information on whether
24 there's a trend, whether it's a new or unexpected

1 aging effect, whether the inspection results were
2 through AMP implementation or through some other
3 means, such as research done by national labs or
4 other entities, whether the captured OE is through
5 the use of new or improved test or inspection
6 methods.
7 One of the things that we want to make
8 sure that we do is as new inspection methods become
9 available -- because EPRI's certainly putting a lot
10 of effort into not only just getting the right
11 visual inspections, but then getting NDE techniques
12 that are available to detect cracks, to eventually
13 size cracks, in the case of chloride-induced stress
14 corrosion cracking. Those are things that we think
15 are important to put into the database, so that
16 people can see if there's new and better techniques
17 out there, that they can then start incorporating
18 those into their aging management programs through
19 their tollgate assessments.
20 Then obviously, if there's any
21 deficiencies that are indicatives of
22 ineffectiveness of the program, themselves,
23 capturing that so that, again, collectively, we
24 have that information to evaluation the

1 effectiveness of the specific aging management
2 programs, and also the specific inspection
3 techniques that are contained in those aging
4 management programs.
5 Tollgates, I think we talked about that
6 quite a bit earlier. It's a commitment to a
7 periodic documented safety assessment that's done
8 on a periodic basis through the period of extended
9 operation. Really, the idea here is that the
10 licensee goes out through the aging management
11 database, their own OE, but really, the aging
12 management INPO database is going to be one of
13 those key information sources to take kind of an
14 integrated look at their aging management program
15 and assess whether there's some changes that need
16 to be made. Are we looking for the right things?
17 Are we doing it on the right frequency? Then also,
18 on the other hand, are there things from a
19 risk-informed perspective that we can say for the
20 last 15 years, we've done an inspection every five
21 years, and we haven't seen anything. We haven't
22 seen the beginning of pitting.
23 We haven't seen anything from
24 chloride-induced stress corrosion cracking. We've

1 got, similarly, from a lot of other plants that are
2 very similar to the environment that the given
3 licensee going through the tollgate assessment is
4 looking at, can't we make a technical justification
5 to say maybe that becomes a seven-year or a
6 ten-year inspection, with the understanding that
7 you're still going to have further tollgate
8 assessments that allow you to reconsider whether,
9 then, that longer time frame is still appropriate
10 as you go longer periods of time.
11 Again, if confirmatory, you proceed
12 then to the next tollgate. There's no action. If
13 it's not confirmatory, that you see that there's
14 some changes that need to be made, then you would
15 implement corrective actions through the licensee
16 corrective action program. As mentioned before,
17 these were piloted in Calvert Cliffs and Prairie
18 Island renewals. In those cases, they were
19 tailored to specific issues, specific canister
20 corrosion and high burnup fuel.
21 MEMBER REMPE: What are the time frames
22 for the canister corrosion? I believe the high
23 burnup fuel's related to when you get the data, but
24 what's the periodic time for the tollgate --

1 (Simultaneous speaking.)
2 MR. CUMMINGS: Next slide. Again,
3 there's going to be aging management programs that
4 will have inspections on a frequency defined by the
5 CoC holder or the site-specific licensee. What
6 we've put in here is having, I think, the tollgate
7 assessments on essentially a ten-year time frame.
8 MEMBER REMPE: For those two
9 applications on the prior slide, it's ten years is
10 when the tollgates --
11 MR. CUMMINGS: No. Again, maybe Terry
12 or Jim, maybe you guys could -- Jim, maybe you
13 could speak up for Calvert on the specific dates
14 associated with your license.
15 MR. WOOD: Okay. For the exterior of
16 the canister inspections for stress corrosion
17 cracking, those are five years. In 2012, we did
18 inspections during the time when our renewed
19 license was being reviewed, and then 2017 will be
20 the next -- first five-year period. That's the
21 first tollgate. Then it's a-whole-nother story for
22 the high burnup fuel tollgate, from 2028 to 2038,
23 based on the high demo program.
24 MEMBER SKILLMAN: Please state your

1 name.

2 MR. WOOD: Oh, sorry, Jim Wood with

3 Exelon.

4 MR. CUMMINGS: Again, I want to

5 reiterate again, if somebody goes out and makes an

6 inspection, and they see that there's something

7 that they need to do within their corrective action

8 program, to do, say, an inspection on a more

9 frequent basis, they need to start looking every

10 year or every two years or something, they would

11 make that assessment in their corrective action

12 program.

13 That still exists. This is just kind

14 of on a periodic basis, and we're suggesting ten

15 years, you go and you assess, essentially, the

16 effectiveness of your aging management program as

17 it was proposed in the license renewal application.

18 That's it. I think just in closing, I would say

19 that this has been informed by very productive

20 discussions with the NRC. I think like Al

21 mentioned before, we're going to get some more

22 either comments or comments on Rev. 1 of NEI 14-03.

23 I guess the only other thing that I would add is

24 that we feel like the NRC, we'd like to see them

1 endorse this in conjunction with NUREG-1927. I
2 know that they're working through endorsing this
3 through the reg guide process, and that takes a
4 lengthy period of time.
5 I'd like to see some way that we can
6 get at least some level of endorsement or
7 understanding from the NRC that there's value to
8 this. I think the things that they've added in
9 NUREG-1927 with the specific aspects are good, but
10 certainly, we want to see something a little more
11 formal, in terms of the endorsement, in conjunction
12 with NUREG-1927.
13 CHAIRMAN BALLINGER: Thank you.
14 Questions? I guess now is the time to ask people
15 in the audience if they'd like to make a statement?
16 Sir, state your name and --
17 PUBLIC COMMENTS
18 MR. PLANTE: Yes, Paul Plante from 3
19 Yankees. We had a comment to the NUREG about --
20 and we've discussed this already today, but I want
21 to amplify this particular location. It's in the
22 CISCC sample AMP. In there, we talk about if a
23 canister shows evidence of localized corrosion or
24 stress corrosion cracking that exceeds acceptance

1 criteria identified in IWB 3640 are not permitted
2 to remain in service. This is that remain in
3 service argument again. I'd like you to think
4 about what we would actually do if such a case
5 happened.
6 If a utility failed an inspection, they
7 would put that canister into its corrective action
8 program, and then the corrective action program
9 would decide how it would stand, how to deal with
10 the inspection finding. The idea of removing a
11 canister from service creates a compliance issue,
12 if you will, because you can't remove these things
13 from service in any rapid fashion. If you happen
14 to be in the middle of a loading campaign, you
15 might have all the tooling accessible to you, but
16 if you happen to be a shutdown plant, you can't
17 remove a canister from service very quickly.
18 I would urge you to consider changing
19 that guidance to be something more along the lines
20 of to be entered into the corrective action program
21 for appropriate evaluation of the alternatives in
22 how you deal with something like that. That's my
23 comment. Thank you.
24 CHAIRMAN BALLINGER: Thank you. The

1 bridge line is open. Are there folks out there
2 that would like to make a comment?
3 MS. GILMORE: Yes, this is Donna
4 Gilmore. Can you hear me?
5 CHAIRMAN BALLINGER: Yes.
6 MS. GILMORE: Yeah, I was reading
7 through the response to the public comments that I
8 made on the NUREG-1927. One of the comments was
9 trying to say that we didn't have high enough
10 humidity here at San Onofre, and we have frequent
11 fog all the time. We've already had a pipe that
12 the NRC considered similar to have chloride-induced
13 stress corrosion cracking. So I'm a little
14 concerned. I'd like to recommend that there's an
15 opportunity to respond to the responses from the
16 NRC to my comments, and others may want to, too.
17 We want to get this right. I would
18 assume everybody in the room, or most, want to get
19 this right. I've also emailed a few of you -- I
20 didn't have everybody's email address -- a Sandia
21 Lab document that I referenced yesterday showing --
22 because these canisters are hotter -- we're talking
23 one and a half to five years of stress corrosion
24 cracking, and I know that wasn't taken into

consideration in this NUREG document. I hear people say we'll never want to have to open these canisters. Based on the data that I have, that doesn't seem to be a reality. The problem we have here is we have a bad engineering design on these canisters, and we're trying to make up the difference. I know the NRC is probably doing the best they can, in terms of trying to find some way to say that these thin canisters are okay, but that's not the reality.

What needs to happen is we need to get real and quit approving low standards. Now that we know this stuff's probably sitting here indefinitely, we need to step up and deal with the fact that we're going to have to use different technology that can be inspected, can be investigated, and doesn't have this cracking problem. I urge you to take this seriously.

I'm at the point I'm looking at probably selling my home if you guys don't deal with this. I've done a lot of research. I would appreciate talking to whoever is seriously considering this that's willing to listen and have a discussion with me. I don't mean Mark Lombard.

I've talked to him at length. Anyway, that's all I'll say for now. Thank you.

CHAIRMAN BALLINGER: Thank you. Is there anybody else out there that would like to make a comment?

MR. LEWIS: My name is Marvin Lewis.

CHAIRMAN BALLINGER: Hi, Marvin.

MR. LEWIS: Oh, wonderful, gotten through. Okay, look. We can argue whether you're on the other side of the looking glass or not. The problem is not looking glass. The problem is what's the reality? What is the reality? Well, if you go to Fukushima, the reality is three reactors melting down and right beside them the fuel pool. Fuel pools are spent fuel.

These containers contain spent fuel, and there you have an example of what spent fuel can add to an accident or instigate an accident, an example that's being very well ignored by the NRC. If you go down to New Mexico, Carlsbad, there you can see canisters burning. As far as I know, they're still burning, from the WIPP project, waste isolation power plant. You can put any kind of conclusion, any kind of risk-informed action. That

1 doesn't mean that's what's going to happen.
2 Probabilistic risk assessment and risk informed
3 both mean if you run a nuclear reactor long enough,
4 and enough of them, eventually you're going to get
5 just about every accident you can imagine,
6 eventually. The eventuality turned out to be 1979
7 at Three Mile Island, and about a year ago at
8 Fukushima, and that isn't the only one. There's a
9 Chalk River somewhere in Canada that had a nice
10 accident back in the '50s, I think it was. It's
11 hard for me to remember that far back. The point
12 I'm making is this.
13 It's nice to come up with wonderful
14 engineering conclusions. It's wonderful for the
15 NRC to have risk-informed actions. But let's not
16 forget the reality -- WIPP, right now, Three Mile
17 Island still gone, Fukushima poisoning the Pacific.
18 Looking through the looking glass is one thing.
19 Reality is another. Let's please remember reality
20 because you sure don't seem to be doing that this
21 morning. Thank you.
22 CHAIRMAN BALLINGER: Thank you. Are
23 there any other folks out there that would like to
24 make a comment? Hearing none, thank you very much.

1 We'll close the bridge line. Now is the time to go
2 around and get comments from committee members, but
3 before we do that, I'd like to bring a couple of
4 things up that we need to -- when you think about
5 your comments, think about these. That is
6 NUREG-1927, we have to make a decision of whether
7 we go to a full committee, and then for a letter,
8 so that's something I'd like people's comments on.
9 No. 2 is ISG-2. I would like to turn -- well, when
10 we get to it -- turn the conversation over to Dick
11 and to Charles because they had the most comments
12 related to that yesterday during the conversation.
13 But the question here is there was
14 some, at least in words, agreement from the staff
15 that they would change a few words in the thing.
16 If that's the case, then that may not -- ISG-2 may
17 not rise to the level of a full committee
18 presentation and letter. That's the comment we
19 need to think about there and what your thoughts
20 about that are. Lastly, as a result of yesterday's
21 bloodshed, we will schedule -- something good came
22 out of it.
23 May 18th subcommittee meeting, we're
24 going to have what we call a skull session,

1 brainstorming session, which will be closed,
2 between the ACRS subcommittee, and others maybe,
3 and the staff, related to risk informing the whole
4 process using PRA and those kinds of things. I
5 think we've captured that, right? So that's going
6 to happen. Those are the main things, but there
7 are probably, obviously, other things that people
8 might want to make comments on. We may start out
9 with Pete. Are you still there, hopefully?
10 MEMBER RICCARDELLA: I am still here.
11 Can you hear me?
12 CHAIRMAN BALLINGER: Loud and clear.
13 MEMBER RICCARDELLA: Okay. I guess my
14 comments, I think we've had an excellent series of
15 presentations in the last two days or day and a
16 half. I think this is a good example of
17 cooperation and coordination between NUREG-1927 and
18 NEI 14-03. I think that this is a model of how we
19 can operate during these times of challenging
20 budgets for both the industry and the agencies
21 without compromising safety.
22 CHAIRMAN BALLINGER: Do you have any
23 thoughts about full committee, those three topics?
24 MEMBER RICCARDELLA: I think it was

1 requested -- we were requested to provide a letter
2 on 1927, so if we're going to do that, we have to
3 do full committee. I'm wondering if we couldn't
4 handle 1927 and ISG-2 in the same letter?
5 CHAIRMAN BALLINGER: That would be, of
6 course, up to the full committee.
7 MEMBER RICCARDELLA: Yes.
8 CHAIRMAN BALLINGER: Okay. Dr.
9 Corradini.
10 MEMBER CORRADINI: I was not here
11 yesterday. I was in another meeting. My comment
12 for today is I think they did a nice job of
13 presenting 1927, and we should move forward with a
14 letter to the full committee. I guess my only
15 observation is I'm still concerned that this is a
16 bit too specific and detailed for what I consider
17 to be, from a risk standpoint, an extremely small
18 risk. But I can see the need to essentially assure
19 adequate protection, but I think we have to proceed
20 with a letter to the full committee.
21 CHAIRMAN BALLINGER: Dick.
22 MEMBER SKILLMAN: I want to thank Mark
23 Lombard and NRC staff and NEI for a day and a half
24 of thorough, clear, intrusive presentations. Thank

1 you. I think we should have a briefing to the full
2 committee, and I think we should write a letter --
3 CHAIRMAN BALLINGER: On 1927?
4 MEMBER SKILLMAN: -- on 1927, Rev. 1.
5 I think that's doable. With regard to ISG-2, Rev.
6 2, that can be combined in that meeting. My own
7 belief is that with the changes that we proposed,
8 assuming that the staff would make those changes --
9 and those changes are elimination of the phrase
10 that we spoke about yesterday, and also revamping
11 the paragraph regarding Options A, B, and C, so
12 that it's clear that those are not independent, and
13 they may be interrelated, I would be comfortable
14 proceeding with that ISG. That's my personal
15 perspective.
16 CHAIRMAN BALLINGER: Without a letter?
17 MEMBER SKILLMAN: Without a letter.
18 But if we chose to work the two together in a
19 briefing to the full committee, I would support
20 that, also. Thank you.
21 CHAIRMAN BALLINGER: Charles?
22 MEMBER BROWN: I would echo Dick did
23 send an email to you on some words for the Option
24 A, B, and C issue. I agreed with him. I don't

1 have any problem. We can integrate it in with the
2 1927 letter. That's just fine, if we decide to go
3 do that. But I'm like Dick; make a couple changes
4 like that -- and I think they wanted to go to
5 public comment or something.
6 MR. LOMBARD: To publishing.
7 MEMBER BROWN: Pardon?
8 MR. LOMBARD: To publishing, actually.
9 We wanted to go to publishing --
10 MEMBER BROWN: For ISG-2?
11 MR. LOMBARD: Yes.
12 MEMBER BROWN: I don't have any real
13 hard spot. The only issue I had was with Option A,
14 B, and C change, and also the -- what were the
15 words -- the operational safety thing. If they
16 incorporate those, I wouldn't have any problem.
17 MEMBER SKILLMAN: I wanted those words
18 eliminated everywhere it showed up --
19 MEMBER BROWN: They're a pretty minor
20 clarification, so I wouldn't have any problem going
21 forward with letting them publish it and just
22 dealing with 1927 in the full committee meeting.
23 My other comments were like Mike's -- were on the
24 level of detail being applied to this for a risk

1 that is vanishingly -- seems to be vanishingly
2 small, unless somebody can show something else. I
3 don't want to sound callous, but what was it, 10 to
4 the -14th or -15th or something like that? But
5 that's kind of irrelevant.
6 CHAIRMAN BALLINGER: That's a May 18th
7 discussion, I think.
8 MEMBER BROWN: No, I understand that.
9 I understand that, now that you remind me. That's
10 all I had.
11 CHAIRMAN BALLINGER: Joy.
12 MEMBER REMPE: I'm conflicted. My
13 comment's on process. ISG-2 is redefining
14 retrievability to be on a canister or cask basis,
15 rather than an assembly basis. I would think that
16 the commissioners would want -- I agree, and I
17 don't think I'm conflicted in that area with what
18 Dick's saying to the changes. I fully believe the
19 staff will do what we say, but to just be silent on
20 that, I'm not sure that's a good idea. I don't see
21 why the letter couldn't be on both topics. Is
22 there a hardship in waiting for a couple of weeks
23 for a letter to come out before you publish it?
24 MR. LOMBARD: No, if we're on the April

1 7th time frame, no, not really.
2 MEMBER REMPE: It just seems like that
3 would be something that the commissioners would
4 want to hear our views on it. My experience with
5 other unrelated topics is that it ought to be
6 something that the full committee decides at P&P,
7 if we decide not to write a letter, and you don't
8 have that option with our schedule to delay it a
9 month. So I think it would behoove us to not be
10 making decisions at a subcommittee level on that.
11 CHAIRMAN BALLINGER: We can't make that
12 decision anyway at the subcommittee level.
13 MEMBER REMPE: Right. So, therefore, I
14 think you need to have that included in full
15 committee.
16 (Simultaneous speaking.)
17 MEMBER BROWN: Is this issue on the
18 table for the full committee meeting in April?
19 MEMBER REMPE: It could be.
20 CHAIRMAN BALLINGER: One option could
21 be we get a presentation at the full committee and
22 decide not to write a letter.
23 MEMBER REMPE: That would cover your
24 bases in a more appropriate way with the process

1 that I have experienced at ACRS over the years.
2 MEMBER BROWN: I have an agenda for the
3 full committee meeting, and I did not look at it
4 specifically during this past week. If it's
5 already been published, then that creates a
6 problem, I think. I don't understand the FRN
7 process and the other stuff, the announcements at
8 the meetings, but --
9 MR. BROWN: This is Chris Brown. The
10 way I packaged it was under framework. So
11 retrievability fell under framework. If we don't
12 do it, it's still okay, but also packaged
13 NUREG-1927 --
14 MEMBER BROWN: That is in the -- okay,
15 then we're covered.
16 MR. BROWN: Thank you.
17 MEMBER BROWN: I'm flexible. I can go
18 along with doing ISG-2 in the full committee
19 meeting and just make it a dual -- cover them both
20 in a letter, and that way we get a letter out
21 within a couple of weeks after the meeting.
22 CHAIRMAN BALLINGER: So the options are
23 -- let me just make sure we have it clear on the
24 record -- 1927 for sure a letter. That's our

1 recommendation. ISG-2 may or may not be included
2 in the letter for 1927, or we may not have anything
3 at all.
4 MEMBER REMPE: That could still happen
5 in committee decision, and I think that's what this
6 needs to --
7 CHAIRMAN BALLINGER: Or, in theory, a
8 separate letter on ISG-2. That's a theory. So
9 those are the options that we have to consider.
10 MEMBER BROWN: I guess I'd suggest
11 putting it into the meeting in the part of 1927,
12 and then we'll evaluated that as part of PNP and
13 let it go at that. We'll get a letter one way or
14 the other on something.
15 MEMBER SKILLMAN: Chris.
16 MR. BROWN: We have two hours, so we
17 could do it.
18 CHAIRMAN BALLINGER: Okay, I think that
19 probably is it. Absent any other questions from
20 members --
21 MEMBER REMPE: Staff can have a
22 question.
23 MS. BANOVAC: Is it possible to ask a
24 question? For the staff's work planning purposes,

1 after the April 7th full committee meeting, what is
2 the time frame for when the letter would be issued,
3 just for the staff's work planning purposes?
4 CHAIRMAN BALLINGER: I think the way
5 it's worked in the past is that starting in about,
6 I don't know, five minutes, we'll start working on
7 a draft --
8 (Simultaneous speaking.)
9 CHAIRMAN BALLINGER: After the full
10 committee.
11 MEMBER REMPE: Then they go through a
12 process. The draft would be voted on and finalized
13 that week, but then they go through this publishing
14 thing that takes a week. So if you see a copy of
15 the draft, is that what you're asking for, or when
16 it's final coming out from ACRS?
17 MS. BANOVAC: I think the final letter,
18 how long after the April 7th meeting would that
19 final letter --
20 MEMBER REMPE: It's usually within a
21 week.
22 (Simultaneous speaking.)
23 MEMBER BROWN: I'm not sure you can
24 commit to absolute.

1 MS. BANOVAC: An average.
2 CHAIRMAN BALLINGER: We can deal with
3 this offline.
4 MS. BANOVAC: Thank you. I apologize.
5 I was just curious about the time frame.
6 CHAIRMAN BALLINGER: Again, if there's
7 nothing else, we are adjourned.
8 (Whereupon, the above-entitled meeting
9 was concluded at 11:17 a.m.)
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United States Nuclear Regulatory Commission
Protecting People and the Environment

Proposed Final NUREG-1927, Rev. 1
Standard Review Plan for Renewal of Specific Licenses and Certificates of Compliance for Dry Storage of Spent Nuclear Fuel

Kristina Banovac, Aladar Csontos, Darrell Dunn, Ricardo Torres, John Wise

Office of Nuclear Material Safety and Safeguards
Division of Spent Fuel Management

Meeting with Advisory Committee on Reactor Safeguards
Subcommittee on Metallurgy & Reactor Fuels
March 24, 2016

Outline

U.S.NRC
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- Storage renewal requirements and guidance
- Development of NUREG-1927, Rev. 1
- Changes proposed in the Draft NUREG-1927, Rev. 1 (recap of material provided in April 2015 ACRS subcommittee meeting)
- Additional changes in the proposed final NUREG-1927, Rev. 1, in consideration of public comments

Storage Renewal Requirements and Guidance

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- Renewal of Independent Spent Fuel Storage Installation (ISFSI) specific licenses and Certificates of Compliance (CoCs) for dry storage system designs, for a period not to exceed 40 years
- Maintain intended functions in the period of extended operation (PEO)
  - Time-limited aging analyses (TLAAs)
  - Aging management programs (AMPs)
- NUREG-1927, Rev. 0 issued in March 2011

NUREG-1927, Rev. 0 → Draft Rev. 1

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- NRC staff experience with storage renewal reviews indicated a need for expanded guidance
- 15 expected renewal applications from 2015 to 2025
- NRC Intra-Agency team assessed the current regulatory framework for storage renewals to determine what changes are needed
- NUREG-1927 revision identified as a high-priority, in addition to development of additional guidance and infrastructure
- Extensive stakeholder engagement and valuable input received from stakeholders

Early Stakeholder Outreach on Potential Changes to NUREG-1927

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- Valuable input from stakeholders at over 20 NRC-sponsored public meetings, including:
  - March 2014 – Regulatory Information Conference
  - April 2014 – Meeting with Nuclear Energy Institute (NEI) re: industry and NRC plans for developing renewal guidance
  - **July 2014 – Meeting to obtain stakeholder feedback on potential changes to NUREG-1927**
  - November 2014 – Spent Fuel Management Regulatory Conference
  - March 2015 – Regulatory Information Conference
  - March 2015 – Meeting with NEI on NEI 14-03, Rev. 0, Guidance for Operations-Based Aging Management for Dry Cask Storage
  - April 2015 – Meeting with ACRS Subcommittee on Metallurgy & Reactor Fuels
  - **July 2015 – Meeting on Draft NUREG-1927, Rev. 1**
  - Numerous meetings re: renewal applications for licenses and CoCs
- Participated in workshops, conferences and meetings

Public Comment on Draft NUREG-1927, Rev. 1

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- NRC staff developed a Draft Rev. 1 to NUREG-1927, to address recent review experience and input from stakeholders
- Request for comment published on July 7, 2015

  http://www.gpo.gov/fdsys/pkg/FR-2015-07-07/pdf/2015-16540.pdf
- 9 comment letters received; 225 individual comments
- Staff considered comments as it developed the proposed final guidance for ACRS coordination
- Staff developed draft responses to public comments

NUREG-1927, Rev. 1 Structure and Format

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- Updates and clarifications made throughout NUREG-1927, Rev. 1

- Front Matter (Abstract, Abbreviations, Introduction)
- Chapter 1: General Information Review
- Chapter 2: Scoping Evaluation
- Chapter 3: Aging Management Review
- Chapter 4: References
- Chapter 5: Glossary
- Appendices

Front Matter

- Updated Introduction to include information specific to Revision 1, including reference to the draft guidance in NEI 14-03

- In consideration of public comments:
  - Eliminate repetition between Abstract and Introduction
  - Add discussion to Introduction on applicability of guidance to an interim consolidated storage facility, in terms of aging management considerations for structures, systems, and components (SSCs) in the PEO

Chapter 1: General Information Review

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- Expanded guidance on application content, particularly for CoC renewals
- Added section on timely renewal
- Added reviewer guidance for amendment applications submitted during renewal reviews or after the renewal is issued
- Added reviewer guidance for use of conditions for ensuring AMPs remain effective during the PEO

Changes to Chapter 1 in the Proposed Final Guidance

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- Re: application content, clarify what is required for a specific license renewal application vs. a CoC renewal application
- Clarify guidance on terms, conditions, or specifications that may be added to specific licenses and CoCs as part of the renewal

Chapter 2: Scoping Evaluation

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- Scoping evaluation identifies SSCs reviewed for aging mechanisms and effects
- Clarified sources of information that may be used to support the evaluation
- Expanded guidance for:
  - Review of SSC subcomponents
  - Scoping of fuel assemblies
  - Identifying SSCs within the scope of renewal
- Clarified reviewer guidance for ensuring exclusions from the scope of renewal are justified

Changes to Chapter 2 in the Proposed Final Guidance

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- Clarify guidance on scoping of fuel assemblies
- Clarify guidance that scoping of certain SSCs (e.g., transfer casks, reinforced concrete pads) depends on whether they are considered to be part of the design bases for a particular license or CoC

Chapter 3:
Aging Management Review

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- Aging management review assesses proposed aging management activities for SSCs within the scope of renewal
- Expanded guidance on environmental data and identification of aging mechanisms and effects:
  - Lead system inspection results
  - Use of maintenance records, operating experience specific to material/service environment (site-specific, industry-wide)
  - Use of consensus codes/standards
  - Other applicable NRC guidance or reports

Chapter 3:
Aging Management Review (cont.)

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- Expanded discussion on aging management review for fuel assemblies
- Revised TLAA section:
  - ensure consistency with 10 CFR 72.3
  - provide guidance for review of calculations/analyses not part of approved design bases
- Expanded discussion on each of ten AMP elements
- Provided new guidance on learning AMPs and use of operating experience

Chapter 3:
Aging Management Review (cont.)

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- Included discussion of specific NEI 14-03 concepts:
  - Use of “tollgates” or periodic assessments of operating experience/confirmatory research
  - Aggregation and dissemination of operating experience
- Consolidated guidance discussion on retrievability
- Added sections on:
  - Commencement of AMPs for CoC Renewals
  - Implementation of AMPs (timing for implementation considering licenses/CoCs in timely renewal)

Changes to Chapter 3 in the Proposed Final Guidance

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- TLAAs – clarify guidance for outcomes of TLAA evaluation
- Corrective actions – expand discussion on when specific corrective actions may need to be identified in the applicant's proposed AMP vs. general reliance on the corrective action program
- Operating Experience (OE) – reorganize guidance to address backward- and forward-looking aspects of OE
- NEI 14-03 references – update the guidance to reference the ISFSI Aging Management Institute of Nuclear Power Operations Database

Changes to Chapter 3 in the Proposed Final Guidance (cont.)

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- Move and reorganize guidance on lead system inspection (Appendix C in the draft guidance) into Chapter 3 to discuss how results from a pre-application inspection may support the aging management review
  - Replace “lead system inspection” term with “pre-application inspection” to clarify that this type of inspection is performed before, and the inspection results are considered in the development of, the application
  - Clarify “baseline inspection” term

Chapters 4 & 5: Consolidated References and Glossary

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- Added list of consolidated references as new Chapter 4
- Moved definitions to new Chapter 5, Glossary
- Updated terminology and definitions:
  - Added/clarified existing definitions; made consistent with 10 CFR 72.3, NUREG-1536 and NUREG-1567
- In consideration of public comments:
  - Add new definitions for “pre-application inspection” and “baseline inspection”
  - Make clarifications to several definitions

Appendices

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- Appendix A on Non-Quantifiable Terms – No changes
- Removed appendices that added minimal value to the review process
- Added new appendices:
  - Example AMPs (Appendix B)
  - Lead system inspections (Appendix C)
  - Use of a demonstration program as a surveillance tool for high burnup (HBU) fuel performance, per ISG-24 (Appendix D)
  - Considerations for CoC renewals (Appendix E)
  - Storage terms and calculation of length of time that a dry storage system (DSS) can remain loaded (Appendix F)

Appendix B: Example AMPs

- Example AMPs:
  - Localized Corrosion and Stress Corrosion Cracking of Welded Stainless Steel Dry Storage Canisters
  - Reinforced Concrete Structures
  - HBU Fuel Monitoring and Assessment Program
- Use consensus codes and standards where practicable for the examination methods, equipment calibration, acceptance criteria, and personnel qualifications
- Use achievable and actionable acceptance criteria
- Rely on licensee quality assurance and corrective action programs for further evaluation, characterization, and other actions as needed to preserve the SSC intended functions

Appendix B:
AMP – Welded Stainless Steel Canisters

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- Based on guidance in consensus standards/guides and NUREG reports:
  - ASME Code Section XI, “Rules For Inservice Inspection Of Nuclear Power Plant Components”
  - NUREG-1801, “Generic Aging Lessons Learned (GALL) Report”
- Inservice inspection for localized corrosion and stress corrosion cracking
  - Canister surfaces, welds, and weld heat affected zones for discontinuities and imperfections
  - Appearance and location of atmospheric deposits on the canister surfaces
  - Size and location of localized corrosion (e.g., pitting and crevice corrosion) and stress corrosion cracks

Changes to Canister AMP in the Proposed Final Guidance

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- Cite inspection guidance under development by ASME B&PV code Section XI task group
- Identify priority areas for inspection
  - Indications near welds, and
  - Areas where 2 or more factors that promote stress corrosion cracking are present (i.e., weld, lower temperature, areas were deposits accumulate)
- Clarify guidance on sample size
- Change reporting requirements to be consistent with requirements in 10 CFR 72.75
- Add references to recent DOE and EPRI reports

Appendix B:
AMP – Reinforced Concrete Structures

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- Based on guidance in consensus standards/guides and NUREG reports:
  - ACI 349.3R, "Evaluation of Existing Nuclear Safety-Related Concrete Structures"
  - ASME Code Section XI, Subsection IWL, "Requirements for Class CC Concrete Components of Light-Water-Cooled Plants"
  - NUREG-1801, "Generic Aging Lessons Learned (GALL) Report"
- Visual inspection of above-grade and below-grade areas
- Groundwater chemistry program (mitigation)
- Radiation surveys (performance monitoring)
- Daily inspections of air inlets/outlets (prevention)

Changes to Concrete AMP in the Proposed Final Guidance

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- Clarify intent of radiation surveys
- Remove thermal desiccation as an operable degradation mode
  - Potential high temperatures already addressed in initial review of the approved design bases
- Remove ambiguous terms (e.g. adequate, heavy, etc.)
- Clarify sample size / extent of surfaces to be inspected
- Clarify when a condition is reportable to the NRC
- Reference ACI CT-13 for concrete terminology

Appendix B: AMP – HBU Fuel Monitoring and Assessment Program

- Confirmation that degradation does not result in an unanalyzed fuel configuration during the PEO
- Licensee's program of monitoring and assessing data from a surrogate demonstration program and other information to confirm HBU fuel performance during PEO
  - Surrogate demonstration program to meet the guidance in Appendix D (ISG-24)
  - Includes formal evaluations of non-destructive examination and destructive examination data that may come out of a surrogate demonstration program at different times

Changes to HBF Monitoring Program in the Proposed Final Guidance

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- Clarify “burnup” as assembly-average burnup
- Clarify that the AMP should provide a technical basis that supports the conclusion that the demonstration fuel is reasonably characteristic of the licensee’s stored fuel
- Provide new reference for fuel characteristics of DOE-EPRI Demonstration Program

Appendix C: Lead System Inspection(s)

- Expanded guidance for Lead System Inspection(s)
  - Purpose of the Lead System Inspection
  - Selecting System(s) for Inspection:
    - Inspection of multiple systems may be necessary to capture variations in designs, environments, materials, loadings, and applicable aging effects
  - Guidelines for the Lead System Inspection
  - Use of Surrogate Inspections
  - Considerations for Lead System Inspections for CoC Renewals

Changes to Lead System Inspection in the Proposed Final Guidance

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- Incorporate lead system inspection (i.e., pre-application inspection) guidance into Chapter 3; Appendix C reserved for future use
- Section 3.4.1.2 – pre-application inspection can provide information to assist applicant in identifying applicable aging mechanisms and effects
- Section 3.6.1.4 – if pre-application inspection not conducted, baseline inspection should be conducted upon entering PEO
- Section 3.6.1.10 – pre-application inspection can provide valuable operating experience to inform and support the applicant's proposed AMPs

Appendix D: ISG-24

- Use of a Demonstration Program as a Surveillance Tool for Confirmation of Integrity of High Burnup Fuel During the Period of Extended Operation
  - Confirm expected fuel conditions, based on technical arguments made in ISG-11, Rev. 3
  - Confirm the system is sufficiently dry to eliminate moisture-driven degradation from consideration
  - Provide data for benchmarking, confirm predictive models, and update AMPs, as necessary
  - Identify any aging effects that may be missed through short-term accelerated studies and analyses
- One edit made in consideration of public comments

Appendix E: Considerations for CoC Renewals

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- Development of TLAAs and AMPs
  - CoC holders
- Implementation of AMPs
  - General licensees to comply with the terms, conditions, and specifications of the CoC, including but not limited to, the requirements of any AMP (10 CFR 72.212(b)(11))
  - General licensees should update the evaluation required under 10 CFR 72.212(b)(5) to show how they will meet the new CoC terms, conditions, or specifications for aging management
- Corrective Actions
  - General licensees use their Corrective Action Program to capture and address aging effects

Changes to Appendix E in the Proposed Final Guidance

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- Add guidance that general licensees need to consider their licensing bases (including exemptions or 10 CFR 72.48 changes) that may impact aging management considerations in the renewed CoC
- Add guidance on timing for update of 10 CFR 72.212 evaluations, as a result of timely renewal provisions
- Clarify that any general licensee deviation from the cask final safety analysis report needs to be evaluated under 10 CFR 72.48

Appendix F: Storage Terms (CoC Renewals)

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- Flow chart for calculating length of storage term of a DSS loaded during either the initial storage period or renewal period(s) of a CoC
- In consideration of public comments:
  - Clarify that the storage period for a particular SSC begins when it is first used to store spent fuel, irrespective if the SSC is later stored at a different location
  - Clarify that if a CoC is not renewed, DSSs loaded under that CoC would need to be removed from service when they reach the end of their storage term

Path Forward

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- Meet with ACRS full committee (if needed) – April 7, 2016
- Receive ACRS letter (if needed) – ??
- Publish final guidance (Summer 2016)

References

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- 10 CFR Part 72, http://www.nrc.gov/reading-rm/doc-collections/cfr/part072/
- NUREG-1927, Rev. 0, http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1927/r0/
- Draft NUREG-1927, Rev. 1, http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1927/r1/
- FRN issuing Draft NUREG-1927, Rev. 1 for public comment, http://www.gpo.gov/fdsys/pkg/FR-2015-07-07/pdf/2015-16540.pdf
- Proposed Final NUREG-1927, Rev. 1 and comment responses (for ACRS coordination), ADAMS Accession No. ML16053A199
- NUREG-1536, http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1536/
- NUREG-1567, http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1567/
- NUREG-1801, http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1801/r2/
- ISG-24, http://pbadupws.nrc.gov/docs/ML1405/ML14058B166.pdf
- ISG-11, http://www.nrc.gov/reading-rm/doc-collections/isg/isg-11R3.pdf
- NEI 14-03, Rev. 1, ADAMS Accession No. ML15272A329

Acronyms

- ACI: American Concrete Institute
- ACRS: Advisory Committee on Reactor Safeguards
- AMP: Aging Management Program
- ASME: American Society of Mechanical Engineers
- B&PV: Boiler and Pressure Vessel
- CFR: Code of Federal Regulations
- CoC: Certificate of Compliance
- DOE: U.S. Department of Energy
- DSS: Dry Storage System
- EPRI: Electric Power Research Institute
- HBU: High Burnup
- ISFSI: Independent Spent Fuel Storage Installation
- ISG: Interim Staff Guidance
- NEI: Nuclear Energy Institute
- OE: Operating Experience
- PEO: Period of Extended Operation
- SSC: Structure, System and Component
- TLAA: Time-Limited Aging Analysis

NEI 14-03
"Format, Content and Implementation Guidance for Dry Cask Storage Operations-Based Aging Management"

Kristopher Cummings
Nuclear Energy Institute
ACRS Subcommittee on Metallurgy and Reactor Fuels
March 24th, 2016 • Rockville, MD

NEI 14-03 Cornerstones

- Consistent format and content of license renewal applications (LRAs)
- Operations-based aging management through learning aging management programs
- Sharing of operating experience related to aging management - AMID
- Periodic “tollgate” safety assessments

LRA Format and Content

- Section 1: General Information
- Section 2: Scoping Evaluation
- Section 3: Aging Management Review
- Section 4: Time Limited Aging Analysis (TLAAs)
- App. A: Aging Management Programs
- App. B: Granted Exemptions
- App. C: License/CoC Changes
- App. D: UFSAR Supplement
- Additional appendices as needed (environmental report supplement, financial qualification, etc.)

Operations Based Aging-Management

- Key concept:

  Effective licensee implementation of an operations-based DCS aging management program will require the ability to efficiently change AMAs based on feedback from operating experience, research, monitoring, and inspections

ISFSI Aging Management INPO Database

- Cask vendors (AREVA-TN, Energy Solutions, Holtec, NAC) have, in collaboration with INPO, agreed to develop an information sharing database of aging management OE.
- Guiding Principles:
  - Not a replacement of existing Corrective Action Program
  - Information available to all CoC holders and licensees
  - Use of screening criteria
  - CoC Holder Approval
  - Entry of both positive and negative information

Industry Dry Cask Storage OE Database

Logged In As: Eric Shewbridge

Home | OE Database | Search | Certrec Portal | Logout

Modify | Print | Back

OE Database

ID	2
Added By	Michelle Thomas
Date Added	9/4/2015 2:11 PM
Modified By	Al Haeger
Date Modified	9/9/2015 10:30 AM
Source of Data	AMP Inspection
Originator	EPRI
Date of Data Acquisition	09/09/2015
Data Entry Organization	
Location	Test
ISFSI Environment (Ultimate Heat Sink)	Salt Water
Ambient Temperature at time of Data Acquisition	Degrees F
Ambient Relative Humidity@Time of Data Acquisition	Percent
Dose Rate at Component Surface	mrem/hr
Storage Technology	Test
System Info(Affected Structure, System, Component)	Test
Cask in Service Date	11/01/2013
Heat Load at time of data acquisition	kW
Description of Information, data	Test entry
Material	reinforced concrete
Weld/HAZ Involvement	Neither
Code Applicability	
Inspection/NDE Technique/Instrumentation	

AMID Screening Criteria

First Series of Questions (from NEI 14-03):

- Is the cause of the condition due to aging-related degradation (such as loss of material or cracking)?
- Is the component or structure passive?
- Is the component or structure long lived (i.e., it is not subject to replacement based on a qualified life or a specific time period)?

- If answers to all three are "yes"……

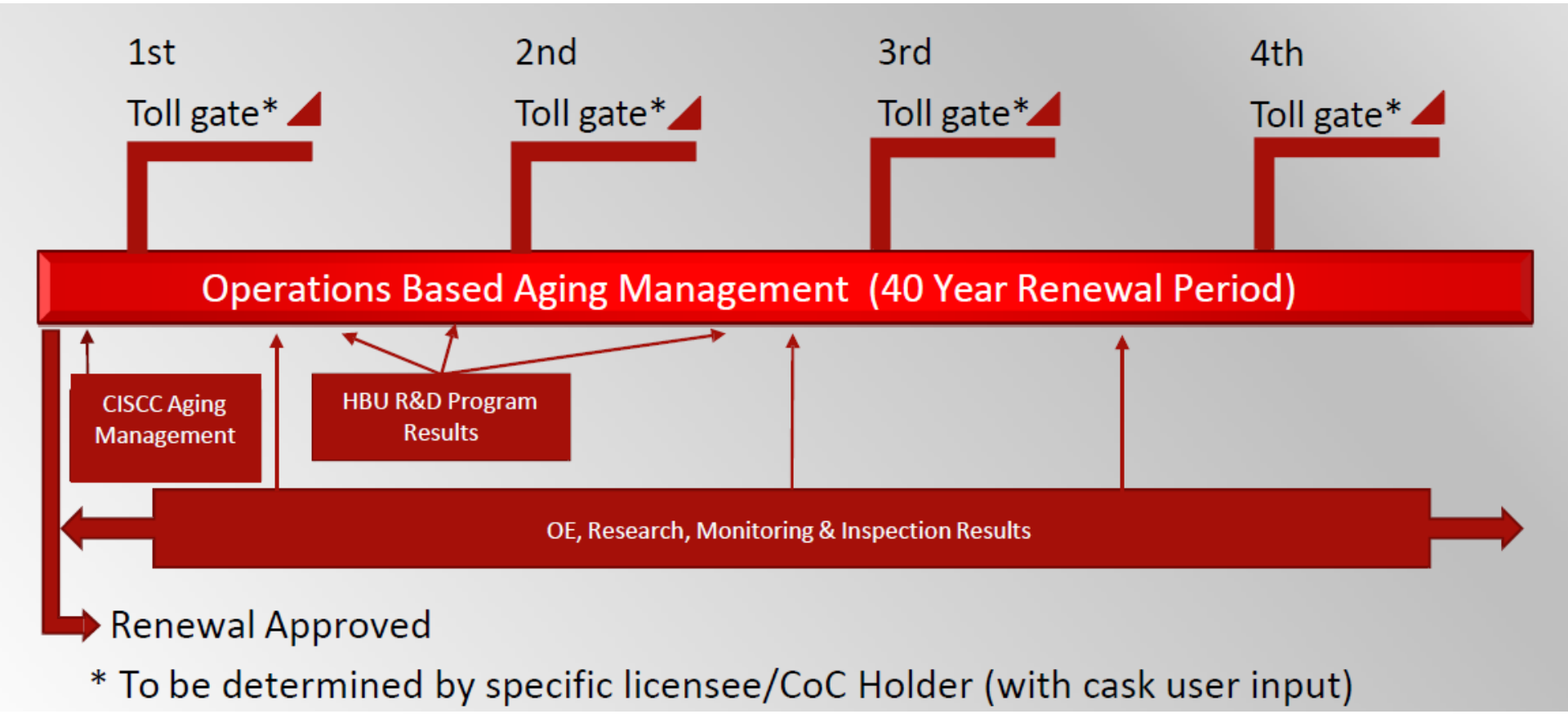
AMID Screening Criteria

- *Additional set of questions—Have we identified….:*
  - …a new and unexpected aging effect?
  - …a new or unexpected *trend* in aging effects?
  - …unexpected inspection results (either positive or negative) through AMP implementation?
  - …aging mechanisms and effects through the use of new or improved test or inspection methods or equipment?
  - …deficiencies that are indicative of aging management program ineffectiveness?

Toll Gates

- Commitment to periodic, documented safety assessments
- Assessment timing specified after renewed operating period begins determined by the specific licensee or CoC holder
- Integrates OE, research, monitoring, and inspection results and assesses aggregate impact (e.g. applies CISCC susceptibility criteria & HBU R&D results)
  - If confirmatory, proceed to next toll gate (no action)
  - If not, pre-plan for possible outcomes – e.g., implement corrective actions, if needed, under licensee's corrective action program
- Piloted in Calvert Cliffs and Prairie Island renewals tailored for specific issues – Canister corrosion, high burnup fuel

Toll Gates for ISFSI License Renewal



Thank you

Questions?

Abbreviations

- AMA – Aging Management Activity
- AMP – Aging Management Program
- CAP – Corrective Action Program
- CISCC – Chloride-Induced Stress Corrosion Cracking
- CoC – Certificate of Compliance
- DCS – Dry Cask Storage
- HBU R&D – DOE/EPRI Demonstration Project
- OE – Operating Experience
- MAPS – Managing Aging Programs for Storage
- PRA – Probabilistic Risk Analysis
- TLAA – Time-Limited Aging Analysis
- LRA – License Renewal Application