



**UNITED STATES
NUCLEAR REGULATORY COMMISSION
ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
WASHINGTON, DC 20555 - 0001**

September 10, 2013

MEMORANDUM TO: ACRS Members

FROM: Quynh Nguyen, Senior Staff Engineer */RA/*
 Technical Support Branch, ACRS

SUBJECT: CERTIFIED MINUTES OF THE ACRS PLANT OPERATIONS
 AND FIRE PROTECTION SUBCOMMITTEE MEETING ON
 JULY 24, 2013

The minutes of the subject meeting were certified on August 22, 2013, as the official record of the proceedings of that meeting. Copies of the certification letter and minutes are attached.

Attachments: As stated

cc: C. Santos



**UNITED STATES
NUCLEAR REGULATORY COMMISSION
ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
WASHINGTON, DC 20555 - 0001**

MEMORANDUM TO: Quynh Nguyen, Senior Staff Engineer
 Technical Support Branch, ACRS

FROM: Gordon R. Skillman, Chairman
 Plant Operations and Fire Protection Subcommittee

SUBJECT: CERTIFICATION OF THE MINUTES OF THE ACRS PLANT
 OPERATIONS AND FIRE PROTECTION SUBCOMMITTEE
 MEETING ON JULY 24, 2013

I hereby certify, to the best of my knowledge and belief, that the minutes of the subject meeting are an accurate record of the proceedings for that meeting.

/RA/

8/22/2013

Gordon R. Skillman, Chairman
Plant Operations and
Fire Protection Subcommittee

Date

ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
MINUTES OF THE ACRS PLANT OPERATIONS AND FIRE PROTECTION SUBCOMMITTEE
MEETING
JULY 24, 2013

The ACRS Plant Operations and Fire Protection Subcommittee held a meeting on July 24, 2013 in the Grand Canyon Main Conference Room, 2100 Renaissance Boulevard, Suite 100, King of Prussia, Pennsylvania. The meeting convened at 8:15 am and adjourned at 11:50 am.

The entire meeting was open to the public.

No written comments or requests for time to make oral statements were received from members of the public related to this meeting.

ATTENDEES

ACRS Members/Consultants/Staff

GORDON R. SKILLMAN, Chairman
J. SAM ARMIJO, Member
SANJOY BANERJEE, Member
DENNIS C. BLEY, Member
MICHAEL L. CORRADINI, Member
HAROLD B. RAY, Member
JOY REMPE, Member
STEPHEN P. SCHULTZ, Member
JOHN W. STETKAR, Member

NRC Staff

QUYNH NGUYEN, ACRS, Designated Federal Official
CAREY BICKETT, R-I
CHRIS CAHILL, R-I
BILL DEAN, Region I Regional Administrator
MARC S. FERDAS, R-I
MEL GRAY, R-I
JUSTIN HEINLY, R-I
RAY LORSON, R-I
RAY MCKINLEY, R-I
AMAR PATEL, R-I
RAYMOND POWELL, R-I
DARRELL J. ROBERTS, R-I
JOHN ROGGE, R-I
JAMES TRAPP, R-I

Other Attendees

RICHARD JANATI, Pennsylvania Department of Environmental Protection*
 CHRIS PRAGMAN, Exelon
 CHRIS PUPEK, Exelon

*Via telephone

SUMMARY

The purpose of the meeting is to discuss items of mutual interest. The meeting transcripts are attached and contain an accurate description of each matter discussed during the meeting. The presentation slides and handouts used during the meeting are attached to these transcripts.

SIGNIFICANT ISSUES	
Issue	Reference Pages in Transcript
Chairman Skillman inquired about Region I baseline inspections compared to the other regions.	15
Member Schultz asked for a comparison between the amount of effort dedicated to reactor inspections and the nuclear materials program in Region I since Region I covers both Region I and Region II.	18-20
In September 2013, Indian Point, Unit 2, will reach the end of their initial license period and begin entering their period of extended operations without a renewed license, the only plant in the country that will have to employ the provisions of timely renewal from the license renewal rule. Member Ray asked how long this situation would be in effect.	21-22
In the case of Oyster Creek, a number of commitments were made for operation or prior to operation in the period of extended operation. Member Armijo asked how Region I plans on ensuring that these commitments are completed. Member Schultz and Chairman Skillman also commented on this matter in regard to potentially reduced staff. Mr. Amar Patel, Resident Inspector at Oyster Creek, added clarification regarding inspections.	24, 28-30, 43-49, 86
Member Ray asked about the effect of licensees having to reduce staff in order to maintain earnings in a challenging market environment.	25-27
In regard to plant performance, Chairman Skillman asked if problems are the result of a personnel issue, plant hardware, or configuration.	33-35
The Members had a discussion with Mr. James Trapp regarding the alkali silica reaction phenomena and Seabrook.	49-85

Chairman Skillman and Members Armijo, Ray and Schultz asked clarification questions regarding inspection results from Three Mile Island.	95-100
Members Stetkar, Rempe and Schultz asked clarification questions about State-of-the-Art Reactor Consequence Analyses (SOARCA).	101-104
Chairman Skillman and Member Stetkar had discussions with the staff regarding National Fire Protection Association (NFPA) 805 and multiple spurious operations.	104-112
Chairman Skillman and Member Corradini had discussions with the staff regarding the staff's interactions with outside entities during natural events, such as Superstorm Sandy and Winterstorm Nemo.	112-122
Members Stetkar, Schultz, Corradini, Armijo and Banerjee had discussions with the staff regarding the condition of Oyster Creek, including the water pumps, during Superstorm Sandy. Chairman Skillman and Members Corradini, Stetkar, and Schultz inquired about a wall and its intended function in the switchyard.	122-134, 149
The ACRS Members had discussions with the staff regarding material and Agreement State activities, including inter-cask fuel transfers.	134-149

There were no Action Items.

Documents provided to the Subcommittee

None.

Official Transcript of Proceedings
NUCLEAR REGULATORY COMMISSION

Title: Advisory Committee on Reactor Safeguards
Plant Operations and Fire Protection

Docket Number: (n/a)

Location: King of Prussia, Pennsylvania

Date: Wednesday, July 24, 2013

Work Order No.: NRC-099

Pages 1-155

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1 UNITED STATES OF AMERICA

2 NUCLEAR REGULATORY COMMISSION

3 + + + + +

4 ADVISORY COMMITTEE ON REACTOR SAFEGUARDS

5 (ACRS)

6 + + + + +

7 PLANT OPERATIONS AND FIRE PROTECTION SUBCOMMITTEE

8 + + + + +

9 WEDNESDAY

10 JULY 24, 2013

11 + + + + +

12 The Subcommittee met at the Nuclear
13 Regulatory Commission, 2100 Renaissance Boulevard,
14 King of Prussia, Pennsylvania, at 8:15 a.m., Gordon
15 R. Skillman, Chairman, presiding.

16 COMMITTEE MEMBERS:

17 GORDON R. SKILLMAN, Chairman

18 J. SAM ARMIJO, Member

19 SANJOY BANERJEE, Member

20 DENNIS C. BLEY, Member

21 MICHAEL L. CORRADINI, Member

22 HAROLD B. RAY, Member

23 JOY REMPE, Member

24 STEPHEN P. SCHULTZ, Member

25 JOHN W. STETKAR, Member

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NRC STAFF PRESENT:

QUYNH NGUYEN, Designated Federal Official
CAREY BICKETT, R-I/DRP/TSAB
CHRIS CAHILL, R-I/DRS
BILL DEAN, Region I Regional Administrator
MARC S. FERDAS, R-I/DNMS/DB
MEL GRAY, R-I/DRS/PB4
JUSTIN HEINLY, R-I/DRP/PB6/TMRO
RAY LORSON, R-I/DNMS
RAY MCKINLEY, R-I/DRS/PSB2
AMAR PATEL, R-I/DRP/PB6/OCRO
RAYMOND POWELL, R-I/DRP/TSAB
DARRELL J. ROBERTS, R-I/DRP
JOHN ROGGE, R-I/DRS/EB3
JAMES TRAPP, R-I/DRS/EB1

ALSO PRESENT:

<http://files.privateerpress.com/highcommand/Wa>

*Present via telephone

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P R O C E E D I N G S

8:17 a.m.

1
2
3 MR. DEAN: All right. Well, good
4 morning, everybody. This is a meeting, your
5 meeting, obviously, a public meeting, and I'd like
6 to have you provide any opening remarks before I
7 have some and turn it over to the technical
8 presentations from our staff. So let me hand it off
9 to you first.

10 CHAIRMAN SKILLMAN: Yes, sir. Good
11 morning. This meeting will now come to order. This
12 is a meeting of the Plant Operations and Fire
13 Protection Subcommittee. I am Dick Skillman,
14 Chairman of the Subcommittee. ACRS members in
15 attendance are Stephen Schultz; Sanjoy Banerjee;
16 Dennis Bley; Harold Ray; Sam Armijo, the Chairman of
17 the ACRS; John Stetkar; Joy Rempe; and Mike
18 Corradini. The Official is Quynh Nguyen today.

19 As described in the Atomic Energy Act of
20 1954, as amended, the ACRS has statutory
21 responsibilities to review and advise the Commission
22 with regard to the licensing and operation of
23 production and utilization facilities and related
24 safety issues, the adequacy of proposed reactor
25 safety standards, technical and policy issues

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1 related to the licensing of evolutionary and passive
2 plant designs and other matters referred to it by
3 the Commission.

4 The purpose of this briefing is for the
5 staff to discuss items of mutual interest, namely
6 regional inspection and operational activities. The
7 Subcommittee will gather information, analyze
8 relevant issues and facts, and formulate a proposed
9 position and action, as appropriate, for
10 deliberation by the full Committee, if needed.

11 The rules for participation in today's
12 meeting were announced as part of the notice of this
13 meeting previously published in the Federal Register
14 on June 21, 2013. The meeting will be open to
15 public attendance, with the exception of portions
16 that may be closed to protect information that is
17 proprietary, pursuant to 5 USC 522(b)(c)(4). We
18 have received no written comments or requests for
19 time to make oral statements from members of today's
20 meeting, from members of the public for today's
21 meeting.

22 A transcript of the meeting is being
23 kept and will be made available, as stated in the
24 Federal Register notice. Therefore, we request that
25 participants in this meeting use the microphones

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1 located throughout the meeting room when addressing
2 the Subcommittee. Participants should first
3 identify themselves and speak with sufficient
4 clarity and volume so they can be readily heard.

5 A telephone bridgeline has been
6 established for this meeting. To preclude
7 interruption of this meeting, please mute your
8 individual telephones and lines during presentations
9 and Committee presentations. I ask that you please
10 silence all cell phones.

11 I would like to go around the room and
12 ask the members to introduce themselves, please.
13 Dr. Schultz?

14 MEMBER SCHULTZ: I'm Steve Schultz of
15 the ACRS.

16 MEMBER BANERJEE: Hi. I'm Sanjoy
17 Banerjee, also a member of the ACRS. Is this on?

18 CHAIRMAN SKILLMAN: I think there's a
19 little switch to turn it on.

20 MEMBER BANERJEE: Yes. My colleagues
21 say that I'm not very good at anything other than
22 thermal hydraulics, so that's what I chair.

23 MEMBER BLEY: Hi. I'm Dennis Bley. I'm
24 a member of the ACRS. I do electrical things and
25 risk assessment operation.

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1 MEMBER RAY: I'm Harold Ray, a member of
2 the ACRS.

3 CHAIRMAN SKILLMAN: Dick Skillman,
4 Chairman of the Subcommittee.

5 MEMBER ARMIJO: Sam Armijo. I'm
6 Chairman of the ACRS. My background is in nuclear
7 fuels, plant materials, and other things that I'm
8 sure this region deals with.

9 MEMBER STETKAR: I'm John Stetkar. I'm
10 a member of the ACRS. My areas of expertise are PRA
11 and plant operations.

12 MEMBER REMPE: I'm Joy Rempe. I'm also
13 a member of the ACRS. I also have a day job with
14 Idaho National Laboratory where I'm a group leader
15 in in-pile instrumentation development for the
16 Advanced Test Reactor.

17 MEMBER CORRADINI: Mike Corradini. I'm
18 a member. I'm at UW-Madison.

19 CHAIRMAN SKILLMAN: We will now proceed
20 with the meeting, and I call on Mr. Bill Dean,
21 Regional Administrator of NRC Region I, to make
22 introductory remarks. I would like to offer this
23 for Mr. Dean. Bill Dean became Regional
24 Administrator for the Region I office of the NRC in
25 October 2010. Region I is headquartered in King of

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1 Prussia, Pennsylvania, where Dean oversees
2 regulatory activities in Connecticut, Delaware,
3 Maine, Maryland, Massachusetts, New Hampshire, New
4 Jersey, New York, Pennsylvania, Rhode Island, and
5 Vermont.

6 Mr. Dean was an officer in the United
7 States Navy's Nuclear Power Program. At this point,
8 I turn the meeting over to Mr. Dean.

9 MR. DEAN: Thank you, Mr. Skillman. I
10 appreciate the opportunity to host the Advisory
11 Committee on Reactor Safeguards, in particular the
12 Subcommittee on Plant Operations and Fire
13 Protection. I understand you all had a good visit
14 at Peach Bottom yesterday, so, hopefully, you got
15 everything you needed. And we certainly appreciate
16 Exelon's efforts to support the group there, a large
17 group of people, and I think they did a great job.

18 Before we actually get into the
19 technical presentations and some of my opening
20 remarks, I do want to cover some, I guess,
21 housekeeping items. First of all, for those of you
22 who are not familiar with this building, there's
23 multiple evacuation routes if we do have a fire or
24 some other need to evacuate the building. You can
25 see all the doors out here will lead you to exits.

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1 There's exits out that hallway, and there's exits
2 out that hallway into the main lobby. And so if
3 there is an event, please follow those routes.

4 We do have security on the floor. This
5 is a public meeting. One of the unique aspects of
6 this building is that we actually occupy all of the
7 second and third floors but only part of the first
8 floor, so we don't have control over the whole
9 building. And so if there are members of the public
10 -- as a matter of fact, let me just ask are there
11 any members of the public here? One? Do you want
12 to introduce yourself, sir?

13 AUDIENCE MEMBER: No.

14 MR. DEAN: No? Okay. So we have one
15 member of the public here and, of course, we have
16 people on the phone. So we do have security here
17 present, if need be.

18 Obviously, the meeting is being
19 transcribed for the public record. And the
20 teleconference, you know, we're using the
21 microphones, but, to be honest with you, this
22 building is only a little bit over a year old and we
23 built a lot of good infrastructure into the
24 building. Actually, the microphone system that we
25 have in the ceiling is actually very good at picking

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1 up voices. And, in fact, those of you in the
2 audience, it can pick up your voices. So I would
3 ask those of you in the audience to, you know, if
4 you have to talk or whatever, maybe you can go out
5 in the hallway because it will affect those people
6 that are on the teleconference in terms of
7 listening. So, really, the use of the microphones
8 really is more for people in the room to be able to
9 hear because the acoustics aren't that great, as
10 opposed to people on the teleconference.

11 So if we do have to muster, the building
12 is an L-shaped. We are on the long end of the "L"
13 and the short end of the "L" is over there, and the
14 parking lot is behind us. And you can see in the
15 sort of cloud-shaped areas, those would be the areas
16 that you would muster to if we do have to have an
17 evacuation. So if you go out that direction, you go
18 in that part of the parking lot. If you go out this
19 way, you'd go in the other corner of the parking lot
20 there. But, hopefully, this is not the day that we
21 have an unannounced drill scheduled.

22 All right. Next slide. Thanks.

23 This is the agenda for this morning. I
24 just wanted to take an opportunity to review that
25 for those of you in the audience. We have several

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1 technical presentations by my highly competent and
2 knowledgeable technical staff. Carey Bickett and
3 Ray Powell will be talking about fleet overview and
4 reactor oversight process and performance. Jim
5 Trapp, a branch chief in our Division of Reactor
6 Safety, will talk about Seabrook, specific issues
7 associated with the alkali-silica reaction, which is
8 probably the most, I think, significant technical
9 issue that we're dealing with here in Region I at
10 this point in time.

11 Then we'll talk about our experiences
12 with flooding and seismic hazard inspections, and
13 we'll have our senior resident and resident from
14 Three Mile Island where we had a finding of
15 significance due to our oversight of the licensee's
16 efforts and their flood evaluations talking about
17 that.

18 Region I had the unique experience of
19 interacting with Peach Bottom and the Office of
20 Research in both the SOARCA study and the spent fuel
21 pool study, which I know you're familiar with. And
22 Chris Cahill, one of our senior reactor analysts,
23 will talk to you about our experiences there. John
24 Rogge, who's our branch chief responsible for fire
25 protection and electrical, will talk to you about

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1 some specific fire protection-related issues we've
2 had here in Region I over the past year or so,
3 including operator manual actions at Indian Point
4 and NF PA 805 implementation.

5 After break, we'll talk to you about
6 regional response to natural events. We've had
7 several over the past couple of years, most recently
8 Winter Storm Nemo and Hurricane Sandy last year.
9 And Ray McKinley will help lead that discussion.
10 He's one of our event response coordinators. And
11 then the senior resident and resident from Oyster
12 Creek, Jeff Kulp and Amar Patel, will talk to you
13 about their experiences at Oyster Creek where we had
14 a declared event as a result of Hurricane Sandy.

15 And then the final presentation will be
16 by Marc Ferdas, a branch chief in our DNMS
17 organization, who will talk to you about some unique
18 materials-related issues dealing with reactor plants
19 Crystal River and the Indian Point wet transfer,
20 spent fuel wet transfer activities at Indian Point.

21 So that's what we have set up in terms of technical
22 presentations for the Committee today.

23 So in terms of our mission here in
24 Region I, we inspect, assess, and oversee the safety
25 performance of 26 operating nuclear reactors; 16

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1 independent spent fuel storage installations; 4
2 nuclear reactors that are currently in safe store;
3 and over 900 material licensees, one master material
4 licensee, the U.S. Navy, and nine complex
5 decommissioning sites, to ensure adequate protection
6 of public health and safety and the environment.

7 In Region I, we operate in a fairly
8 unique environment compared to our peers in the
9 other three regions, given the very interested
10 political and public interest in many of the
11 facilities and what's going on in the nuclear world
12 in Region I. And that certainly challenges us on a
13 daily basis in terms of assuring that we have
14 adequate communications and information available to
15 the public and available to our staff to be able to
16 deal with the members of the public and the
17 political and state and local stakeholders that we
18 deal with. So that does provide a daily challenge
19 for us, and it does give us a unique operating
20 environment.

21 (Teleconference dialing.)

22 So maybe we'll wait for that -- okay,
23 okay, good. We want you to feel at home. So my
24 assumption is either we lost the connection and have
25 to redial.

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1 Okay. So let me continue on. Region I,
2 we have about 233 staff. About 135 are actual
3 inspector qualifications, and, of those inspectors,
4 almost one-third of our inspectors are actually the
5 resident site, senior resident inspectors at the
6 sites.

7 Just a little bit of data relative to
8 the last calendar year, which is how we do the
9 reactor oversight process, by calendar year. So it
10 was reactor oversight process year 13, calendar year
11 `12. A hundred and sixteen thousand-plus hours of
12 inspection and related activities associated with
13 our oversight and inspection of nuclear facilities.

14 That included five supplemental inspections and one
15 reactive inspection, which actually isn't too bad
16 when compared to some of our peers. I think you all
17 know that Region II and Region IV have had some
18 really significant challenges with Brown's Ferry and
19 Fort Calhoun, in particular, of course, all the
20 activities at San Onofre. And, of course, Harold,
21 I'm sure very close to you in terms of what's going
22 on out there at SONGS.

23 CHAIRMAN SKILLMAN: Bill, I would like
24 to ask a question here.

25 MR. DEAN: Yes.

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1 CHAIRMAN SKILLMAN: Your baseline
2 inspections, 116,000 hours. How would that amount
3 of hours compare with the other regions?

4 MR. DEAN: It would be probably,
5 probably a little bit less than Region II and Region
6 IV, given some of the significant inspection
7 activities they've had there. We have actually
8 provided some of our inspection assets to both
9 Region II and Region IV to support, for example, the
10 95003 inspection at Brown's Ferry and a lot of the
11 inspections that are being done at Fort Calhoun, you
12 know, as they recover from their flooding event and
13 all their significant -- so I would say that's
14 probably a little bit less than those two regions
15 because of the special inspections. Probably
16 equivalent to Region III.

17 CHAIRMAN SKILLMAN: Thank you.

18 MR. DEAN: Yes, okay. One thing that's
19 not in here that was unique for Region I last year
20 was that, for the first time in quite some time,
21 there was an extended strike action at a nuclear
22 power plant. Pilgrim Nuclear Power Plant had a
23 fairly lengthy strike outage, and so we had
24 augmented coverage at Pilgrim Nuclear Station for
25 what? Three or four weeks, was it, Daryl, at

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1 Pilgrim? Yes. So that was a pretty unique activity
2 for us, and if you're interested in that we can
3 certainly get some of the people that were involved
4 in that to talk to you about how that occurred.

5 And then a nuclear materials program,
6 320 inspections and 580 licensing actions in fiscal
7 year `12, also oversight of the Navy Master
8 Materials License. And then there's 16 agreement
9 states that exist in Region I, and I'll get to a
10 slide there in just a minute on our materials
11 program.

12 In terms of the reactor sites, 26
13 operating reactors in Region I evenly split between
14 BWRs and PWRs. We have all the PWR vendors
15 represented to some degree in Region I and then a
16 collection of both Mark I and Mark II containment
17 BWRs.

18 I will note that we have three of the
19 four oldest reactors in the United States in Region
20 I. We have, five of our sites have entered their
21 period of extended operation, so we do have, perhaps
22 relative to some of the other regions, an aging
23 fleet in Region I, and that certainly gives us,
24 potentially, some challenges in terms of new
25 emerging events and activities that aging plants

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1 might go through.

2 I already mentioned the 980 materials
3 licensees, and those are located in four states and
4 three territories. Delaware, Connecticut, Vermont,
5 and West Virginia, then the District of Columbia,
6 Virgin Islands, and Puerto Rico are the areas that
7 we have actual oversight of. All the rest are in
8 agreement states.

9 The 16 independent spent fuel storage
10 installations, 10 of them are inside protected
11 areas. You saw one of them yesterday at Peach
12 Bottom. Three are outside a protected area but
13 inside the owner-controlled area. And then three
14 stand alone: Connecticut, Yankee oriented ISFSIs.

15 Four nuclear reactors in safe store, and
16 then a total of nine complex material sites and
17 research reactors that are undergoing decommission.

18 MEMBER CORRADINI: Just out of
19 curiosity, what are the research reactors or
20 research test reactors?

21 MR. DEAN: Let's see. Marc Ferdas? Use
22 a mike, Marc? Yes. Marc Ferdas is the branch chief
23 of our decommissioning branch.

24 MR. FERDAS: We have our University of
25 Buffalo, WPI, and I think there's two. We finished

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1 one last year as a carryover.

2 MEMBER CORRADINI: Thank you.

3 MR. DEAN: Thanks, Marc. And then the
4 next slide. Just in terms of geographic, all of our
5 plants were fairly compact, which is actually pretty
6 good in terms of being able to get to all of our
7 sites fairly easily from the regional office, you
8 know, not some of the challenges that maybe some of
9 our other regional brethren face.

10 And then the next slide actually shows
11 you the materials program. We actually have both
12 the southeast part of the United States, as well as
13 the northeast and mid-Atlantic regions. And so that
14 was something that several years ago, as part of,
15 you know, developing where best to have our assets.

16
17 The Region I took over Region II's
18 materials program. They have responsibility for all
19 the fuel cycle facilities in the United States. So
20 that was done a few years ago. Yes, Steve?

21 MEMBER SCHULTZ: So, Bill, then could
22 you compare your activity level associated with
23 reactor inspections and your nuclear materials
24 program? This looks like a pretty hefty focus
25 related to the agreement states.

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1 MR. DEAN: It is. It is a pretty hefty
2 focus in terms of agreement states. And to be
3 honest with you, some of our biggest challenges
4 actually occur in Puerto Rico. A lot of challenges
5 in dealing with materials licensees in Puerto Rico.

6 But given the fact that we only have four states
7 and the District of Columbia, you know, in terms of
8 the eastern part of the United States under our
9 purview, you know, working with the agreement states
10 and the Office of FISME in terms of the agreement
11 state oversight program, I think that works pretty
12 well. We have really good relationships with most
13 of the states in terms of dealing with issues.
14 Pennsylvania, for example, you know, a great
15 relationship with them, and they're a fairly active
16 state.

17 So I think our agreement state program
18 is fairly healthy. We do have some, you know,
19 periodically with state budgets and things like
20 that, some challenges there. We did have the state
21 of Georgia just recently go on probation, the first
22 agreement state to be put in probation, and so,
23 obviously, some challenges there in terms of
24 overseeing and working with them to help them
25 improve and re-establish their program, you know, to

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1 where it needs to be. But for the most part, I
2 think the agreement state programs have done pretty
3 well.

4 MEMBER SCHULTZ: Thank you.

5 MR. DEAN: Yes, thank you. And then the
6 last thing I want to talk about before I turn it
7 over to my staff is just some unique plant
8 transitions that are impacting Region I sites.
9 Crystal River, effective August 1st, we'll actually
10 have oversight responsibility for Crystal River as a
11 decommissioning site, so that's actually been a
12 pretty unique activity over the last four or five
13 months that Marc Ferdas, who just spoke, will have
14 responsibility for. And so that will give us an
15 opportunity to travel down to Florida more than we
16 typically do.

17 Indian Point, Unit 2, this September
18 will reach the end of their initial license period
19 and begin entering their period of extended
20 operations without a renewed license, the only plant
21 in the country that will have had to employ the
22 provisions of timely renewal from the license
23 renewal rule. We have worked with the licensee to
24 essentially have them make commitments to implement
25 those activities that they would have implemented if

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1 they had had a renewed license so, basically, all
2 the aging management programs and so on. And so I
3 think that's a very positive outcome that they will,
4 in effect, put in place all the things that they
5 would have had to have done if we had given them a
6 renewed license.

7 And, of course, that's tied up in two
8 things. One is the very extensive number of
9 contentions that were filed at Indian Point for the
10 license renewal process, and those have not yet been
11 completed and probably are at least a year away;
12 and, of course, the waste confidence issue and the
13 order that the Commission provided the staff to not
14 issue any renewed licenses until the waste
15 confidence rule and policy is revamped.

16 And so we believe Indian Point will be
17 the only plant in the country that will get into
18 that situation. But we feel fairly confident that,
19 given the fact that they will be committing to put
20 in place all those programs, that they will have, in
21 effect, all the things that we would expect a plant
22 to have in a period of extended operation.

23 MEMBER RAY: Bill, is there any
24 particular time limit on how long they'll continue
25 that way?

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1 MR. DEAN: There is not, and I'm not a
2 lawyer and I don't play one on TV. But, you know,
3 the lawyers, as we were talking about how to deal
4 with Indian Point, you know, the Office of General
5 Counsel was very concerned about anything that might
6 undermine that aspect of the license renewal rule,
7 which was the timely renewal provisions. But, you
8 know, how long could it be? You know, it's
9 indeterminate. I mean, we have research reactors, I
10 think --

11 MEMBER CORRADINI: I was just going to
12 say, research reactors, Wisconsin went for ten
13 years. MR. DEAN: Right, right.

14 MEMBER CORRADINI: In a timely renewal.

15 MR. DEAN: Yes, so there is no time
16 limit, but we think that, hopefully, between dealing
17 with the contentions and completing that process and
18 the waste confidence, looking at the end of next
19 year. Hopefully, it won't be, it won't be too long.

20
21 MEMBER BANERJEE: What is this
22 contention process you said would take about a year?

23
24 MR. DEAN: The question for those of you
25 in the audience is about the contentions at Indian

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1 Point. There were, I think, I forget the exact
2 number, 15 to 17 contentions filed related to the
3 license renewal application from Indian Point, and
4 each of those has to be dispositioned by the
5 licensing board that is formed to deal with those
6 contentions.

7 And so they've had hearings in the
8 vicinity of Indian Point. They're planning more
9 hearings to review the contentions. But, you know,
10 my understanding is that it will probably take at
11 least a year for them to get through all those
12 contentions, resolve each of them, and make their
13 rulings and whether there needs to be anything done
14 relative to the license, any other commitments, or
15 things that the licensee has to do.

16 And, of course, we also have challenges
17 in the state of New York with the water quality
18 certificate and issues associated with the state
19 providing that water quality certificate. They have
20 initially denied that. That's under appeal. And so
21 there's that question there in terms of issuing a
22 renewed license if the state does not issue or
23 denies the water quality certificate. So there's
24 some challenges up there in terms of the whole
25 process.

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1 And then the last thing is Oyster Creek.
2 Oyster Creek had received a renewed license. But
3 in agreement with the state of New Jersey, they
4 agreed to shut down the facility in 2019. So,
5 basically, that would be ten years into their period
6 of 20 years of extended operation. And that was
7 done to, basically, avoid having to build cooling
8 towers, which is what the state was going to require
9 of them, and so they've reached that negotiated
10 settlement.

11 And so they'll be shutting down in 2019,
12 so that will provide us with some unique challenges
13 in terms of oversight of Oyster Creek over the next
14 four or five years as they begin to move into
15 decommissioning phase and so making sure that they
16 are continuing to invest in the plant and operate
17 the plant safely. We may end up putting in some
18 unique oversight activities to look at Oyster Creek.

19 So that was it in terms of opening
20 remarks. Sam?

21 MEMBER ARMIJO: In the case of Oyster
22 Creek, a number of commitments were made for
23 operation or prior to operation in the period of
24 extended operation. Now, besides reducing the time
25 period from 20 years down to 10 years, is there

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1 anything that is not going to be done that was
2 committed to be done to maintain the plant the way
3 it should be?

4 MR. DEAN: There's nothing that the
5 licensee has indicated that they would not that
6 they've committed to do. I will say that they are
7 probably looking carefully at things that would
8 require a significant investment of capital, you
9 know. If they had to, for example, replace their
10 condenser, you know, that may be something that they
11 would look at in terms of is that an investment that
12 we would want to make?

13 But, really, it's large capital
14 investment activities. It's not the commitments in
15 terms of programs and processes that they committed
16 to as part of their renewed license. All of those
17 programs and processes are in place.

18 Okay. If there's no other further
19 questions from the Committee -- yes, sir, Harold?

20 MEMBER RAY: Well, you mentioned some
21 things that were unique in the set of plants that
22 you are responsible for. One you didn't mention
23 that I think you share with Region II is probably
24 more plants that are subject to market revenues for
25 their viability, and there's been some talk or some

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1 comment by owners about having to reduce staff in
2 order to maintain earnings in a challenging market
3 environment. Does that, do you have any comment
4 about how that may be affecting your activities?

5 MR. DEAN: We had a little bit of
6 exposure to that with Vermont Yankee. Vermont
7 Yankee was going through other issues with the state
8 of Vermont relative to the Certificate of Public
9 Good. And, you know, as we were looking to, we had
10 not yet issued the renewed license, and, you know,
11 there were concerns there about what would happen
12 from a legal perspective.

13 And so we actually implemented an aspect
14 of the reactor oversight process where we did,
15 basically, a quarterly assessment of Vermont Yankee
16 and looked at things like staffing levels. We
17 looked at things like capital investment where they
18 continue to invest in the plant. Was there a
19 departure of qualified operators at a high rate from
20 the plant? So looking at those sort of things for a
21 plant that was potentially in financial
22 difficulties, you know, trying to get a sense of
23 whether those were showing some impact at the plant.

24 Currently, Entergy has made some
25 announcements about some restructuring and

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1 downsizing. And so it's obviously something that we
2 would closely look at in terms of plant performance.

3 In my discussions with Entergy management, many of
4 the aspects of their restructuring or reorganization
5 really are not oriented around plant activities but
6 really more of a corporate infrastructure and
7 oversight of these plants.

8 So, obviously, it's something that we
9 would have to keep an eye on, but I think our
10 reactor oversight process gives us the tools that we
11 need to be able to continue to inspect and provide
12 oversight of these facilities. But that is, that is
13 a forthcoming challenge, and I'm sure all of you
14 have read trade press about, you know, rumors about
15 certain plants potentially, you know, ceasing
16 operations just because they're not financially
17 viable, and that's certainly something that could,
18 indeed, exist in the landscape in all the regions.

19 MEMBER RAY: Yes. I think the concern
20 probably isn't so much, from our standpoint, a
21 prospect of having to make a decision to shut down
22 as it is a decision to continue to try and hang in
23 there with reduced resources. So I was interested
24 in your awareness, basically, following that.

25 MR. DEAN: Yes. We're aware, and,

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1 obviously, we're not seeing anything at this point
2 relative to -- obviously, there's requirements for
3 things, like operators. Technical specifications
4 require a certain amount of staffing. Emergency
5 response staffing, there's activities going on as a
6 result of post-Fukushima looking at, you know,
7 what's needed for emergency response and the staff
8 that needs to be at the site, particularly multi-
9 unit sites now. And so those are certainly things
10 that we are looking at in the prism of post-
11 Fukushima activities. But at this point in time we
12 have not seen anything that has affected any of our
13 sites in terms of staffing or performance.

14 Okay. Yes, sir?

15 MEMBER SCHULTZ: Bill, just tying the
16 last two questions together, the focus that you had
17 at Vermont Yankee associated with staffing and
18 performance both, it seems as if that type of focus
19 ought to be paid for Oyster Creek as they go through
20 the next six years focusing on where they are with
21 regard to overall capability in their staffing
22 program and how they maintain that.

23 MR. DEAN: Yes. Steve, you're exactly
24 right. And, in fact, we're coming up to, you know,
25 twice a year we have an assessment process, and

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1 we're coming up in a couple of weeks to our mid-
2 cycle assessment. And this has actually been
3 something that we've been discussing over the last
4 year or two as we've done our semi-annual
5 assessments is, you know, when is the right time to
6 put in something that provides that additional
7 oversight, like we did at Vermont Yankee and Oyster
8 Creek. And I think the time is coming up pretty
9 soon to put in some special activities.

10 MEMBER SCHULTZ: Yes, that's good
11 because what would be very good to have available
12 now would be that would demonstrate how you would
13 carry that through and demonstrate their continuing
14 capability.

15 MR. DEAN: Yes. One of the things that
16 Oyster Creek did was provide some, you know, golden
17 handcuffs on key members of the staff. And my
18 understanding is that, in the next year or two, some
19 of those expire, and so that really will be an
20 interesting time to see what happens as, you know,
21 people may be looking for other opportunities
22 elsewhere.

23 CHAIRMAN SKILLMAN: I would like to join
24 this discussion from this perspective. My
25 experience is that, as the utilities become more and

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1 more concerned about finances, many times the first
2 programs that go are the ones that surround and
3 support the maintenance role, whether it's 8910, DQ,
4 hydrogen line break. And, unfortunately, by the
5 time the utility recognizes there are problems, they
6 have more red systems in A1 for 5065 than they
7 anticipated they would have. And by that time, the
8 infrastructure has begun to fall apart.

9 And so I join Harold and Steve in their
10 concern. If the leading indicator is an
11 announcement that finances have become tight or
12 there might be compromise in finances, there should
13 probably be a thick magnifying glass right now on
14 what is being done to protect, particularly, the
15 critical systems. And I have ever confidence that
16 the people operating the plants are well aware of
17 this issue, but it doesn't take many errors or slips
18 or failures to perform to push systems into A1 and
19 get into system health red, which is where we don't
20 want these, particularly the older plants because
21 they may have fragility that is not fully
22 understood. So I join Harold and Steve in
23 expressing this concern.

24 MR. DEAN: Thanks. Thanks, Dick. And I
25 think, as a matter of fact, our next presentation, I

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1 think Ray Powell and Carey Bickett are going to talk
2 to you a little bit about what's going on with the
3 ROP enhancement process, and that's something that,
4 you know, personal input that I've given to the
5 individuals who are managing that evolution is along
6 those lines: with an aging fleet, do we have the
7 right inspection program now, in terms of looking at
8 things like aging management programs and so on?

9 You know, we go through a pretty
10 intensive inspection activity to get to the point
11 that a plant gets their license renewed. But what
12 have we embedded into our ongoing programs for
13 overseeing those, you know, passive components and
14 things like that that perhaps weren't areas of focus
15 in the existing reactor oversight process? And so,
16 hopefully, Ray and Carey will have a chance to touch
17 on that.

18 And that might be a good time to,
19 perhaps, segue to Carey Bickett and Ray Powell.
20 Thank you.

21 MR. GRAY: Just mike etiquette. I'm Mel
22 Gray. I met you gentlemen and ladies yesterday.
23 Those mikes, the closer you are we can really hear
24 you and hear you out here, as well. Also, there's
25 like a three-second time delay when you hit on, so I

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1 thought I'd just share that.

2 CHAIRMAN SKILLMAN: Thank you.

3 MS. BICKETT: Can you hear me? Is my
4 mike working? All right. Good morning. My name is
5 Carey Bickett. I'm a Senior Project Engineer in the
6 Division of Reactor Projects. And we're going to
7 give a quick fleet overview, excuse me, quick fleet
8 overview and reactor oversight process performance.

9 The agenda for this discussion. We're
10 going to do a quick action matrix summary, talk
11 about substantive cross-cutting issues from the 2012
12 end-of-cycles. Bill did mention our mid-cycles are
13 coming up in August, so this information is a little
14 bit dated. And the third item is the reactor
15 oversight process improvement initiatives.

16 Next slide, please. Bill had a similar
17 slide. I wanted to put it up again just to kind of
18 give you an overview of what fleets are in Region I.

19 As you can see, Entergy and Exelon are the biggest
20 fleets in the region, and a lot of these fleets also
21 cross other regions, too.

22 This is the action matrix summary. As I
23 said, it's of June 7th of this year. Beaver Valley
24 1 and 2 in the regulatory response column.
25 FitzPatrick, Nine Mile Point 1, Susquehanna 2, and

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1 Three Mile Island are also in the regulatory
2 response column. All our other plants are currently
3 in the licensee response column.

4 The Beaver Valley 95001 supplemental
5 inspection was completed in June of 2013, and the
6 follow-up assessment will be issued with the mid-
7 cycle letter. The Nine Mile Point supplemental
8 inspection is currently scheduled for October. And
9 to date, we haven't received information from other
10 sites indicating that they're ready for their
11 supplemental inspections.

12 CHAIRMAN SKILLMAN: Carey?

13 MS. BICKETT: Yes.

14 CHAIRMAN SKILLMAN: If I can, I would
15 like to offer this question. Many of these items
16 surfaced because of plant performance issues, the
17 plant doesn't behave the way it was intended to
18 behave or expected to behave, or the finding is a
19 finding from an item that is relatively obscure.
20 The real question is are you seeing a pattern of
21 either inattention by personnel, new people that
22 really don't understand what the functional
23 performance requirements are of the device that
24 caused whatever it was that put the plant on the
25 action column? Is this an underlying people issue,

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1 or is this an underlying plant hardware issue, or is
2 it a combination that you can speak to, please?

3 MS. BICKETT: That's a great question.
4 I don't know that I have the details on all these
5 findings. Do you have more information?

6 MR. POWELL: If I can -- I don't have a
7 microphone. Can everybody hear me? I respectfully
8 think it's a combination of both. We've seen
9 examples where it is, in fact, a hardware issue.
10 We've seen other examples where processes and
11 procedures over time aren't necessarily maintained
12 the way they should be.

13 And your comment on the experience level
14 is very interesting. I was at a public meeting with
15 industry just last Wednesday, and, as they tend to
16 do, they brought up the maturity of the industry and
17 the NRC panelists, of which I was one, kind of
18 pushed back with the plant may have been here four
19 years, but, if your engineering staff has been here
20 on the average of two or three years, it isn't as
21 mature. And we really encouraged them to keep their
22 focus on those areas because I think sometimes
23 there's a confidence on maturity that may not be
24 there.

25 CHAIRMAN SKILLMAN: Raymond, when you

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1 communicated, in some cases, did you find that the
2 process or the procedures have not been kept up-to-
3 date? Are these failures in configuration control
4 and configuration management by the plant
5 leadership? Do I need to speak again?

6 MR. POWELL: Yes, please.

7 CHAIRMAN SKILLMAN: What I'm really
8 wondering is is there something missing in
9 configuration control? As I hear you speak, I'm
10 saying why haven't the dots connected? Is the plant
11 not understanding, leadership or the people not
12 understanding how the parts fit if you say it's
13 partly hardware but it's really procedures
14 processes? The paper is old. It doesn't represent,
15 perhaps, the present configuration. Are we missing
16 something? And my underlying concern is is there
17 something lying ahead that's more serious? That's
18 really what I'm thinking about.

19 MR. ROBERTS: Good morning. We met
20 yesterday. Thanks for coming to the region. To
21 address the specific items up here, which are our
22 five plants that have moved to the right-hand side
23 of the action matrix, many of those are, I would say
24 that most of those are equipment-related issues.
25 There's a longstanding design issue with the Three

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1 Mile Island flooding problem. I wouldn't say that
2 any of these are reflective of configuration control
3 problems. In most cases, they were equipment issues
4 that you could attribute to maybe some aging, maybe
5 some just equipment degradation. One was storm
6 related. One of the scrams associated with Nine
7 Mile Point was scram related or storm related.
8 FitzPatrick has had longstanding issues with their
9 condenser, which they're going to have to fix with a
10 design or a major modification or major maintenance
11 evolution down the road.

12 So a lot of these specific cases -- and
13 Beaver Valley, of course, is security-related
14 issues. So I wouldn't lump any of these to
15 configuration control, per se, these particular
16 issues. So I don't think that there is a concern
17 about missing something in that regard.

18 CHAIRMAN SKILLMAN: Thank you.

19 MS. BICKETT: All right. Next slide,
20 please. At the 2012 end-of-cycle assessment, we
21 only had one plant with any substantive cross-
22 cutting issues, and that was Susquehanna. At that
23 assessment meeting, we closed the H.2(c) procedure
24 adequacy substantive cross-cutting issue, and we
25 maintained the P.1(c) problem evaluation substantive

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1 cross-cutting issue. Based on that, they didn't
2 meet the exit criteria by the 2012 end-of-cycle
3 assessment.

4 Next slide, please.

5 MR. POWELL: Mr. Skillman, I share your
6 ability with these things, so I'm just going to hold
7 this, if it's okay. As we were putting the agenda
8 today together, I was asked to talk to the last few
9 bullets on this slide. And while I was thinking
10 about how to approach that, I realized that if I
11 didn't include the first three bullets, I'm really
12 not going to do our process justice.

13 The bottom two reflect one-time special
14 efforts that were undertaken to review the
15 effectiveness of the ROP and look for enhancements
16 or improvements. But to just talk to that might
17 lead to the impression that the process does not
18 undergo continuous evaluation and review and, in
19 fact, it does. We are in the 14th year of the ROP,
20 which we call ROP 14, and the process has undergone
21 constant review, and it's adjusted based on lessons
22 learned and operating experience.

23 The top bullet talks to our feedback
24 form process, which is a very strong program. Our
25 program office does a good job of administering

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1 that. Any staff member can identify an issue. It
2 can range from a technical error in a procedure to
3 a, hey, I think we should be looking at aging
4 management, for example, in this procedure. So any
5 topic is fair game for feedback forms.

6 Just go give you an idea of the
7 quantity, my branch alone has submitted almost 40
8 this year. So it is actively used by the inspection
9 staff, and the program office, like I said, does a
10 good job. You usually get a notification the same
11 day that your form has been received. You're
12 contacted by the procedure owner or manual owner
13 usually within a week or so. And if it's a minor
14 change, they might wait for a biennial update, which
15 is fine. But if it's more significant, it's
16 reviewed and referred to one of the various working
17 groups, and the working groups will evaluate the
18 issue and will then change, as appropriate.

19 The second bullet talks to our annual
20 review. This is a formal self-assessment that is
21 reported on to the Commission each year. There are
22 quantitative and qualitative metrics, and we assess
23 the program against each annually. There's a bullet
24 there that talks to a biennial internal survey. I
25 really should have a third bullet which talks to a

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1 biennial external survey. We kind of alternate
2 years on the surveys as we try to get feedback on
3 the program from as many people as possible as we're
4 evaluating operator performance, aging management,
5 etcetera.

6 Yes, sir?

7 CHAIRMAN SKILLMAN: I'm going to remind
8 everybody to please identify themselves before they
9 speak. Dr. Bley?

10 MEMBER BLEY: Now I forgot what I was
11 going to ask. Who does the external surveys?
12 Another region or headquarters or somebody even
13 further --

14 MR. POWELL: The Division of Inspection
15 and Support, Regional Inspection Support out of the
16 headquarters office does the internal and external
17 surveys.

18 I broke the rules, so I'm sorry. My
19 name is Ray Powell. I'm the branch chief of the
20 Technical Support and Assessment Branch here in
21 Region I.

22 CHAIRMAN SKILLMAN: Thank you.

23 MR. POWELL: The third bullet.
24 Typically, we would do it by annual review, which is
25 an internal process. My counterparts in the other

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1 regions, the program office, and the procedure
2 owners, it's usually about a two-day VTC where we go
3 through procedure by procedure looking at are the
4 number of hours allocated to this procedure
5 appropriate, are there procedures where we're just
6 not finding anything? And sometimes that's okay.
7 We're not finding anything because the licensees
8 know we're looking, and that's a good thing. But
9 other times, you really wonder whether we might get
10 more bang for our buck looking at other things. And
11 we do that every other year.

12 However, this would have been the year
13 we're doing it, but that was tabled this year in
14 lieu of the former, which is the enhancement project
15 which Mr. Dean mentioned earlier. And I have a
16 separate slide on that, so I'll talk to that in just
17 a moment.

18 The last item is an independent
19 assessment, a one-time effort that was directed by
20 the Commission. Brian McDermott out of headquarters
21 is leading that. The team is composed of people no
22 longer associated with the ROP but who previously
23 had experience. All of them, I believe, were
24 inspectors or branch chiefs at one time. I've been
25 told that we should see a report from Mr. McDermott

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1 around Labor Day. I don't know that for certain.

2 The impact of the independent assessment
3 was we had already begun the enhancement project,
4 but, knowing that we're going to be getting this
5 input -- next slide, please -- what we did was we
6 kind of tabled part of the enhancement project for
7 the time being. The independent assessment is not
8 building into the baseline inspection program as
9 much as the ROP enhancement team is, so we continue
10 with that effort. As I said, I was at a meeting
11 last week to get external stakeholder feedback.
12 There were representatives from industry, the NEI,
13 the Union of Concerned Scientists. It was a pretty
14 good meeting with a lot of information exchange.

15 As noted on the chart, the assessment of
16 the communication time are on hold for now. We will
17 resume that.

18 As part of the enhancement project, the
19 data collection has to end at some point, and
20 there's a Federal Register notice out seeking input
21 from anybody who would like to comment on anything.

22 That notice closes this Friday, so, at that point,
23 we will probably move forward with developing
24 recommendations, and we can make changes as a result
25 of that effort, which doesn't mean to say if

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1 somebody has input two months down the road it won't
2 be considered. If you go back to the previous
3 slide, we are always seeking input, either formally
4 or informally, through a number of mechanisms.

5 The last slide is -- I borrowed this
6 from my friends at headquarters. It's the stated
7 purpose of the enhancement program. We're looking
8 to eliminate any redundant areas, looking at
9 inefficiencies. But equally as important is what
10 are we not looking at, what are we not inspecting,
11 given the current environment, that we should be?
12 Aging management is certainly the core front of our
13 thoughts. There's a number of other topics and
14 issues, also.

15 We'll take any questions. That's all
16 that I have.

17 CHAIRMAN SKILLMAN: Members, any
18 questions for Raymond?

19 MEMBER REMPE: Okay. Last Monday, we
20 had a meeting --

21 CHAIRMAN SKILLMAN: Could you identify
22 yourself?

23 MEMBER REMPE: Oh, I'm Joy Rempe. I am
24 a member of ACRS. Anyway, on Monday, we had a
25 meeting at headquarters to talk about what would be

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1 needed with the new designs for the reactor
2 oversight process, and there was quite a bit of
3 discussion amongst the members and the staff. And I
4 guess I was wondering if, one, you had any ideas of
5 how you will deal with this; and, two, did they ask
6 for your inputs? I didn't hear them discuss if they
7 had discussed this with some of the regional
8 members.

9 MR. POWELL: Ideas? Not immediately,
10 but it has been discussed and it is, certainly, on
11 the table for the group effort. It was mentioned
12 several times at last week's public meeting, so we
13 are considering that. I don't have an immediate
14 solution, but it will get addressed.

15 MEMBER ARMIJO: Yes. Sam Armijo. I'd
16 like to get back to the Oyster Creek issue. As you
17 know, Oyster Creek, when we reviewed that for EPU,
18 there were a number of materials degradation issues
19 that were concerned, particularly containment. And
20 a number of commitments were made to the NRC or to
21 assure that the plant would operate safely during
22 the EPU. Apparently, between the state of New
23 Jersey and the licensee, they reached an agreement
24 to operate the plant for only 10 of those 20 years,
25 and I just am concerned that some of those

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1 commitments that were made may be put aside or
2 deferred or reduced in scope in some way that the
3 NRC isn't a party to, you know.

4 So my question is has the NRC reviewed
5 the agreement between the state and the licensee,
6 particularly those, to be sure that none of the
7 commitments that were made regarding the safety of
8 the plant during the period of extended operation,
9 that none of those commitments were reduced to such
10 an extent that it would really not actually be a
11 fulfillment of those commitments when we look at
12 what was committed? Is there a document that says,
13 okay, they were going to do so many containment
14 inspections, they were going to do this level of
15 repair or maintenance, but they're not going to do
16 that anymore if it's only going to operate for 10
17 years instead of 20? Do we have that kind of level
18 of detail?

19 MR. ROBERTS: We do conduct inspections
20 during outages to look at those specific commitments
21 you're referring to. There are dry well related,
22 dry well shell inspections that the licensee
23 committed to that we look at. Our ISI branch led by
24 Jim Trapp currently looks at that periodically. We
25 haven't received any documentation or letters from

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1 Exelon indicating that they plan to cut back or
2 reduce any of those commitments, and so our
3 expectation is that when we verify this when we do
4 these inspections that they are completing those
5 commitments, as was promised.

6 So, you know, we are looking into that
7 or we look at that as part of our baseline
8 inspection program. And we have the same
9 expectation that you would.

10 MR. POWELL: I guess I'd just close with
11 we did mention Oyster Creek a couple of times and
12 that there are other plants. Prior to some of the
13 recent events, such as Kewaunee, through our
14 feedback form process we had initiated action at the
15 program office to start looking at how the
16 inspection profile should change. I guess we're
17 going to benefit from Kewaunee kind of getting the
18 trump on us. I know it's certainly an active topic,
19 and I would look for inspection program changes as a
20 result.

21 And if there's nothing else, I'd like to
22 introduce --

23 MEMBER SCHULTZ: Excuse me. Steve
24 Schultz. One question for your presentation related
25 to the internal reviews associated with the

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1 inspection program reviews. My question is you talk
2 about the things that are done within the region and
3 that focus. Is there interregional comparisons of
4 the self-evaluation programs that are done?

5 MR. POWELL: Yes. Bullets, all three of
6 them on the first slide I spoke to are all
7 interregional. They're coordinated by the program
8 office. There's the TSAP, the Technical Score and
9 Assessment Branch equivalent, in each region. It's
10 a good collegial working group, and we evaluate
11 across the regions.

12 CHAIRMAN SKILLMAN: Let me ask this.
13 Dick Skillman. Is there an inspection module
14 chapter in draft or in final that attempts to
15 distinguish between a plant, such as Oyster Creek,
16 that may be choosing to serve halfway through it's
17 PEO perhaps or capital upgrade cost reasons or, for
18 the utilities, it's just too expensive to run versus
19 a Kewaunee scenario where the decision has been made
20 to cease operation with a very healthy plant, but
21 the economics in the region caused the utility to
22 choose to not continue? I see those as two related
23 but very different scenarios, and I'm wondering if
24 you have an inspection module chapter that tries to
25 see those differences and inspect?

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1 It kind of gets to Sam's question. If
2 you're going to go halfway through the PEO, and
3 you've made decisions and commitments that are
4 required to enter the PEO and you haven't done it
5 and you don't intend to do it now because you're not
6 going to get the full benefit because you're not
7 going to operate the full 20 years, it seems that
8 that's a different lens through which to inspect.
9 So my question is is there a IMC chapter on
10 development that really looks at that?

11 MR. POWELL: I can tell you with
12 certainty that that feedback has been provided to
13 the program office. I cannot tell you the status of
14 the manual chapter or any inspection procedure,
15 however. We do have a manual chapter of 351 that
16 does talk to plants and extended shutdowns for non-
17 plant performance reasons, and I think that will be
18 some of the framework that's used to develop the
19 programs you're referring to.

20 CHAIRMAN SKILLMAN: Thank you.

21 MR. ROBERTS: I'd like to add, though,
22 that, while there isn't a specific manual -- I'm
23 Darrell Roberts. I'm sorry.

24 CHAIRMAN SKILLMAN: We can hear you.

25 MR. ROBERTS: While there isn't a manual

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1 chapter currently in existence, one of the things
2 that we do do is there are certain specific
3 parameters that we look at during our normal
4 baseline inspection program. In fact, the exercises
5 that Bill indicated at Vermont Yankee a year or two
6 ago when there was a lot of question and uncertainty
7 about their future, and there were specific
8 parameters we looked at, you know: maintenance
9 backlog, are PMs being deferred, you know, are there
10 capital projects that are being canceled or delayed
11 or are things being switched around in outages,
12 staffing issues?

13 So while there isn't a specific manual
14 chapter, at least currently, you know, in
15 recognition of that, the region took on a more
16 focused assessment, if you will, at Vermont Yankee.
17 And we intend to do the same thing with Oyster
18 Creek or any other plant that has a question mark
19 surrounding its future performance.

20 Now, if the licensee tells us it's too
21 expensive to run a plant, then that presents a
22 different issue, and we would be asking a lot more
23 questions, I would believe, than we currently are.
24 So we haven't got that indication yet from any of
25 our licensees.

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1 CHAIRMAN SKILLMAN: Thank you.

2 MR. ROBERTS: Yes.

3 MR. POWELL: Thank you for your time.

4 MR. TRAPP: I think I'm next up to --
5 can you hear me? Is the mike working? Closer? Are
6 we good? Okay. My name is Jim Trapp, and I'm the
7 Branch Chief for the Engineering Branch 3, and we do
8 material ISI and we do some license renewal. And
9 I'm here to talk to you today about a fascinating
10 subject for the region. It's ASR.

11 And I'll share with you I've only been
12 assigned to this project for a year. And a year
13 ago, when I was assigned to the project, they said,
14 you know, Seabrook, in the last 25 - 30 years, the
15 concrete at Seabrook, they have some micro-cracking
16 that's grown all the way to a millimeter in size.
17 And I said, boy, this is going to be, this is going
18 to be one exciting project to go up there and watch
19 micro-cracking of ASR into Seabrook.

20 And I will tell you I've been in the
21 business for a long time, 25 years with the NRC, and
22 this is probably the most fascinating subject and
23 project that I've had the opportunity, you know, to
24 be involved with. So, hopefully, I'll convey over
25 the next 20 minutes or so some of the real high

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1 points of that project.

2 And I will share with you I'm a nuclear
3 engineer by profession. We put together a task
4 force, and it was an NRC-wide task force. We had
5 people from NRO, license renewal, research. I mean,
6 the whole agency is kind of focused on this issue,
7 and we had a whole bunch of folks that know a lot
8 about concrete. Chris Strondry is one of the
9 fellows sitting over in the corner there. He's had
10 a lifetime of experience with concrete. He was part
11 of our organization, as with George Thomas, Bill
12 Cook -- I could go on and on -- Angie Burford. All
13 these folks supported this effort.

14 So with that said, I'm going to run
15 through a few things. I'm going to run through what
16 ASR is, what it's all about. I'm going to talk to
17 you a little bit about our response, the NRC
18 response to the issue, and talk to you, and this
19 will probably be the most fascinating part is future
20 activities. And there's a lot of future activities
21 left to be done over the next couple of years.

22 Indications of ASR. ASR, as has been
23 identified, localized areas of Seabrook concrete
24 structures. And what ASR really is, what causes it
25 is it's reactive aggregate. So it's the silica in

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1 the aggregate that was used at Seabrook that is the
2 culprit that's causing ASR. If you look nationwide,
3 we haven't identified any ASR in any other plants in
4 the United States yet, and there is a couple of
5 plants overseas. There's one in Canada, and there's
6 one in Belgium that they believe they have some ASR.

7 So Tihange-2 in Belgium and Gentily-2 in Canada
8 have both experienced some reported ASR. Gentily is
9 closed recently for economic reasons, not because of
10 ASR reasons.

11 So at Seabrook, there's 131 locations
12 identified that have some sort of ASR, and that's
13 throughout all the structures at the plant. Twenty-
14 six of those locations have what we call combined
15 crack index, and I'm going to pass a couple of
16 things around.

17 But the first thing, because we've got
18 to be on common terminology here, is combined crack
19 index, basically, what it is is they have a person
20 that every six months or every thirty months,
21 depending on how severe the ASR is, they go in, and
22 I'm going to send a picture around here, but they
23 basically measure the width of the cracks, both in
24 the vertical direction and the horizontal direction
25 along lines.

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1 And you'll see ABCs on this picture I'm
2 going to send around, and someone actually goes in
3 and measures the width of every crack that's
4 crossing a horizontal or vertical line, and they add
5 all those up and then they come up with what we call
6 the combined crack index. It's combined because
7 it's vertical and horizontal. And you'll see the
8 number of crack index are recorded with units of
9 millimeters per meter. So if you combine all the
10 cracks up, you're measuring the number of
11 millimeters of crack per meter of circumference or
12 of the grid here.

13 So I'll pass this around. It will give
14 you a good idea of what that's all about.

15 MEMBER ARMIJO: A quick question.

16 MR. TRAPP: Sure.

17 MEMBER ARMIJO: These measurements are
18 made on surface cracks.

19 MR. TRAPP: Exactly.

20 MEMBER ARMIJO: And is there a general
21 agreement that they're representative of what's
22 going on internal to the concrete, as, internally,
23 you don't have exactly the same environment? I'd
24 just like to have an idea that they're
25 representative of the wall structure.

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1 MR. TRAPP: And some of that -- and
2 we'll work through that when we get through the
3 presentation. But some of that is still to be
4 determined, I would say. You know, there's a
5 theory, there's a lot of theories out there, and
6 some of these theories are going to be put to rest
7 when the testing, and the University of Texas has an
8 extensive two-year project to do a lot of testing of
9 ASR on large concrete beams.

10 You know, specifically, your question is
11 what we're seeing at CCI is the surface concrete
12 strain, right? So it's the strain that's caused by
13 the ASR expansion in the wall. It's straining the
14 rebar. Most of the walls that we're dealing with at
15 Seabrook, other than containment, basically have a
16 rebar on the interior of the wall, rebar on the
17 exterior of the wall. There's about two to three
18 inches of cover concrete, and what we believe is the
19 ASR is actually spanning throughout the wall and
20 it's causing the rebar to bow and that's manifesting
21 itself with strain on the surface. And so the CCI
22 index is really measuring just sort of strain caused
23 by that expansion.

24 MEMBER BANERJEE: What's the scale?

25 MR. TRAPP: What you're looking at there

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1 is a 30 inches by 20 inches. And that's the grid
2 that they use when they do the CCI index. But, of
3 course, since the units are millimeters per meter,
4 it could be reflective of any part of the wall. I
5 will tell you that what you're seeing there, that
6 little 30 by 20, is what you'll see if you're at
7 Seabrook. So it's very localized. It's not
8 throughout the entire wall in most of the areas.

9 ASRs are a chemical reaction to concrete
10 that occurs over time in the presence of water,
11 alkali cement, and silica. You'll see some theories
12 out there that it's the ground water that's causing
13 ASR at Seabrook. You know, there's areas at
14 Seabrook that aren't seeing ground water. They're
15 above grade. Humidity can cause ASR. It doesn't
16 take a lot of moisture to cause ASR to occur.

17 So, you know, certainly any external
18 structures, if you look at the concrete structure
19 around the CST, you know, that has a lot of ASR
20 that's very visible, and that's just the rain water.

21 There's a thought that cycles of getting wet and
22 then drying is really conducive to promoting ASR,
23 but I would say a lot of this is still in the theory
24 stage, you know, and a lot of this theory is what I
25 think we're going to learn when we go and complete

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1 the project that NextEra is working on at the
2 University of Texas.

3 And then, finally, the SR forms a gel.
4 The gel is expansive and causes micro-cracks that
5 affect concrete material properties.

6 One of the interesting things is the gel
7 is probably not linear. There's a lot of gaps, a
8 lot of concrete, and so the theory is that the gaps
9 would fill up with the ASR gel first and then you'd
10 see some sort of acceleration. So what we're seeing
11 at Seabrook, you know, 25 to 30-year-old structures,
12 you know, it might be not linear. You know, we
13 might be seeing more expansion.

14 And, in fact, they are, you know, on a
15 six-month basis, the worst locations, 26 worst
16 locations, they are measuring those on a six-month
17 basis. We've got two sets of measurements in. You
18 know, it does look like ASR is causing some
19 expansion based on those measurements. There's 72
20 areas that the CCI index is 0.5, so it's half as
21 much as the 26 areas, and they're measuring those on
22 a 30-month frequency. And, you know, I think when
23 more data comes in, we'll have some good information
24 on the rate of expansion.

25 One of the problems is, you know, they

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1 do them in June and they do them in December, and so
2 there's some thermal effects. And those thermal
3 effects on the crack widths aren't really well
4 understood yet.

5 MEMBER CORRADINI: So maybe you said it
6 but I missed it. So what is it in terms of -- so
7 you said there's three compliments. There's the
8 presence of the silica, the presence of moisture,
9 and the presence of the alkali cement, so it must be
10 something to do with the alkalinity of the cement
11 versus a plant somewhere else. So has that even
12 gotten to the point that you have some sort of what
13 I'll call equivalent pH measurement that if your --

14 MR. TRAPP: Sure.

15 MEMBER CORRADINI: -- if your number is
16 8 or 9, you're okay. But now you get to 10 or 11,
17 and, goodness gracious, things are going south, or
18 what?

19 MR. TRAPP: Yes, and that's interesting.

20 The really dominant thing, again, goes back to the
21 silica in the aggregate. Concrete is extremely
22 alkaline. There's tons of alkaline in concrete. In
23 fact, at Seabrook, because the quarries were all
24 closed in the winter, so they backfilled. Instead
25 of backfilling the structures with dirt, they

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1 backfilled the structures with more concrete. So
2 there's enough alkali in the structures at concrete
3 to keep the alkali level extremely high for an
4 extremely long period of time.

5 So alkali is not a controlling element.

6 Water, like I said, the humidity, almost any water
7 at all, there's a lot of water in cement, is enough
8 to cause the alkali-silica reaction. So the only
9 thing that's really dominating and causing the
10 reaction is the silica.

11 And then with ASR, you know, depending
12 on transport of the alkali and the silica, you can
13 get changes in rate. For instance, the structures
14 that they fabricated down in Texas this winter, the
15 ASR didn't grow very fast. One reason is because of
16 temperature, and the other thing is humidity. And
17 they actually put them in tents. They have little
18 sprinklers on them, and they're trying to sprinkle
19 the beams periodically to get the drying and the
20 wetting cycles to try to get the ASR to grow faster.

21 We'll get into some of that when we talk about
22 Texas.

23 But, you know, the key is is the
24 transport of the alkali and the silica, getting
25 those two elements, you know, getting those two

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1 things together. That dominates the rate, but the
2 key is is the silica. It has to be reactive silica.

3

4 MEMBER CORRADINI: So two aspects. So,
5 one, the aggregate has got silica mixed all through
6 it anyway, so I guess I'm a little bit -- you told
7 us the scale that we're looking at is what here?

8 MR. TRAPP: Twenty inches by thirty
9 inches.

10 MEMBER CORRADINI: Okay.

11 MR. TRAPP: And that's a picture of the
12 wall. Now, you know, aggregate, it depends on where
13 your quarry is. So some aggregate that you get is
14 fine. Some aggregate you get is very, it's not
15 fine. In fact, the beams they're fabricating,
16 they're pulling some aggregate from a quarry in
17 Maine, which is where Seabrook's aggregate came
18 from, the reactive silica, and they're also getting
19 aggregate that's super highly reactive from New
20 Mexico, and they're mixing those two aggregates
21 together to make the test beams.

22 MEMBER CORRADINI: So maybe you said
23 this, too. Are we looking -- Sam may have asked it
24 differently. So we're looking at surfaces for sure,
25 but are we looking inside the plant or outside the

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1 plant? I'm interested in weathering. In other
2 words, does temperature change enter into this? So
3 are we mainly looking at stuff on the outside or
4 stuff on the inside where the thermal trend is much
5 less?

6 MR. TRAPP: We're looking at everything.

7 And everything, because of the silica in the
8 aggregate, and they use the same quarry for all the
9 aggregate, almost every structure has some sort of
10 ASR. If it doesn't, it probably --

11 MEMBER CORRADINI: In and out?

12 MR. TRAPP: In and out.

13 MEMBER CORRADINI: Okay.

14 MEMBER BANERJEE: So when you say
15 reactive silica, is there a particular impurity that
16 does this, or do people know that, the silica?

17 MR. TRAPP: The key is, do people know
18 it, it wasn't really well understood, I would say.

19 And the ASTM standards didn't require you to do
20 things like mortar-bar testing and prism testing
21 that would identify the reactive aggregate. So the
22 difference now is that there's tests that you can
23 do. And, basically, you're grinding up your
24 aggregate. You're throwing in a bunch of sodium
25 hydroxide, and then you can measure the expansion of

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1 that aggregate and the reactivity before you'd even
2 put it in the concrete.

3 MEMBER BANERJEE: But do you know if
4 there's a particular impurity or grain structure?
5 What is it that does this, that makes it happen?

6 MR. TRAPP: Your probably --

7 MEMBER BANERJEE: I mean, you grind it
8 up, put in the sodium hydroxide. Do you know why?

9 MR. TRAPP: I would answer this that the
10 chemists know why, Jim Trapp doesn't know why. So
11 the people who understand the chemistry, and it's a
12 complex chemistry, could put up the equations and
13 tell you exactly why that --

14 MEMBER BANERJEE: You can actually
15 characterize the silica before it --

16 MR. TRAPP: Correct.

17 MEMBER BANERJEE: -- what the chemistry
18 was?

19 MR. TRAPP: Yes. And there's other
20 mitigators. You could throw a fly ash in your mix,
21 and the fly ash somehow disrupts the chemistry, and
22 that's a fix for not getting ASRs is you put fly ash
23 in the mix. In fact, a professor in Texas, because
24 Texas has a lot of ASR, when he built his foundation
25 he put fly ash in his mix so he wouldn't get ASRs.

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1 It's a simple cheap fix.

2 MEMBER ARMIJO: Jim, we have a lot of
3 people interested in materials.

4 MR. TRAPP: Oh.

5 MEMBER ARMIJO: But, anyway, just for
6 perspective, a number of structures have probably
7 been built, non-nuclear, with silica. Has there
8 been any major degradation or structural failure in
9 like, say, an other type of structure? How bad can
10 it get?

11 MR. TRAPP: And I'll throw this out
12 there because I've thrown it out before, but I
13 haven't thrown it out in public yet. Since, you
14 know, they started building concrete structures back
15 in the Roman times, to our understanding, there's
16 never been a structure that has failed due to ASR
17 since Roman times to the present. So there's not a
18 lot of them.

19 There is things that happen, and people
20 will point to them. There's bridges that have been
21 replaced. There's a large problem with
22 infrastructure in Texas and Virginia and other
23 states where the vents, the parts of the bridge, you
24 know, you'll see some ASR. In fact, I jog along the
25 Schuylkill River at lunchtime, and the bridge down

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1 there I'm pretty sure has a little bit of ASR
2 infecting its bridge vents.

3 So it's out there. And the other thing
4 is if you don't reinforce with rebar, things like
5 airport runways, you know, because the ASR will
6 occur and then you'll get some fractures and that
7 gets sucked up into the engine. So there's been
8 some replacements of those types of structures.

9 MEMBER SCHULTZ: Okay. I understand. I
10 would like to hear more about the investigations
11 ongoing associated with the causality of the
12 process. But with regard to your last bullet on
13 concrete material properties and the degradation
14 associated with that, how much testing is being done
15 specifically on the situation at Seabrook to
16 determine that aspect?

17 MR. TRAPP: And there's a lot, and
18 that's my future activities. I've got a lot of
19 slides that I'm going to run through with what's
20 going on down in Texas and why they're doing it, so
21 I think we can just maybe hold off on that question
22 and, at the end, I'll certainly come back to it if I
23 didn't adequately answer it.

24 One of the big focuses for the NRC was
25 the operability of those structures. You know, this

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1 is the first time we've seen this, if the structural
2 is operable or not.

3 And I just want to run through that
4 we've done extensive inspections review. The
5 licensee has actually recalculated for all their
6 ASR-affected structures, and, basically, what
7 they've done is they've taken worst-case material
8 properties for shear, for compressive stress based
9 on industry known testing, not Seabrook specific but
10 industry known testing. They've taken the worst
11 case of that data. They've applied it to their
12 calculations, and they've shown that their
13 capacities are acceptable. And that doesn't mean
14 that, with all the safety factors, that they would
15 meet all the ACI. It means that, you know, the
16 structures aren't going to fail under design loads.

17 So there's still plenty of work to do before they
18 get their complete operability of evaluations.

19 Next slide. And at this point, I'm
20 going to pass out some samples. There's a lot of
21 NGOs in the area that they'll refer to Seabrook
22 walls and Seabrook concrete as mushy. We've brought
23 you a piece of, allegedly, mushy concrete, and you
24 can pound on it. If you look closely, the
25 aggregate, you'll see small cracks with white gel

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1 coming out of them. You'll need your glasses.
2 That's ASR.

3 And you can see, actually, the coating.
4 So they took a chunk of the wall and a slice of the
5 wall. This is a chunk of the wall. This is from
6 the RHR core spray balls. And if you look closely,
7 you know, this is actually a chunk of Seabrook and
8 you'll be able to see some ASR.

9 This is actually, interesting enough,
10 you know, I'll leave you, for your determination,
11 I'll pass this around, as well, but that's referred
12 to as moderate to severe ASR. So this is the real
13 bad one, and it looks much like counter tops, you
14 know, marble counter tops that you spend a lot of
15 money for. It's pretty solid.

16 And this one is part of the containment
17 enclosure building. Seabrook actually has almost
18 like a double containment. They have an enclosure
19 building around their containment, and this is a
20 slice for petrograph where they actually can go in
21 and measure damage rating indexes. If you hold it
22 up to the light, you're going to be able to see
23 aggregate, some sand, and you can see a little bit
24 of the ASR. This is mild ASR.

25 We ran through this a little bit through

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1 the Q&A, but, again, this is sort of where you're
2 going to see ASR. And I think the examples that I
3 provided you, you'll get a better look at what it
4 looks like.

5 Next up, I'd like to run into NRC
6 actions. We've issued an information notice back in
7 2011. And, again, you know, the purpose of that was
8 for other plants to go out and look to see if they
9 had ASR, and we haven't had any feedback that they
10 have.

11 We issued a confirmatory action letter
12 to the licensee, NextEra, and we captured 11
13 commitments in the CAL. And, really, back in 2012,
14 when we issued the CAL, you know, the program for
15 how they were going to address ASR was not well
16 developed, and so the commitments in the CAL were
17 really to set up the process, set up the program,
18 and develop a plan to address this issue.

19 Most of those commitments or all those
20 commitments have been reviewed by the NRC in two
21 inspections, one that was just completed recently.
22 And the licensee has met all of those commitments.

23 Ray talked a little bit about the ROP.
24 This took a lot of inspection, well beyond what is
25 allotted for Seabrook, so we went to the EEO and we

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1 got permission for an extra one to two FTE to just
2 monitor Seabrook ASR, and that was granted. We had
3 a task force charter. Again, we had to ensure
4 departmental interoffice support for our charter,
5 and we put together a great team of experts and have
6 done a lot of inspection and oversight.

7 The interest in the Seabrook area for
8 nuclear power and this issue particularly is
9 extremely high. I probably get emails from NGOs,
10 I'd say, every other day on some question on
11 Seabrook ASR. And so we've held two public
12 meetings, and we have the plans to conduct a third.

13 And they were well attended public meetings. Well
14 over a hundred people came to spend an evening with
15 us talking about ASR.

16 So we've done some press webinars, and
17 we've put together a pretty extensive public website
18 that has been well received. It's actually linked
19 right off of the main NRC public website. You can
20 click on Seabrook ASR and get everything that's
21 public regarding that, and that's been well received
22 by the public.

23 MEMBER BANERJEE: Why is there so much
24 interest? Is it because there's a lot of loss of
25 strength or --

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1 MR. TRAPP: No. In fact, there's not a
2 lot of loss of strength, and we'll get in that. But
3 I think there's a perception out there that this
4 might be the Achilles' heel for Seabrook, you know,
5 that you have something that's ongoing that can't be
6 remedied. And there's a perception there's a
7 serious safety issue, you know. Certainly, in their
8 belief, there's a serious safety issue, so there's a
9 need to communicate. We reached a different
10 conclusion based on our review of operability
11 evaluations, and we need to communicate that to the
12 local public. And then I think there's a thought
13 that ASR would be the one thing that Seabrook
14 couldn't recover from.

15 MEMBER BANERJEE: But there's testing
16 going on of material with ASR?

17 MR. TRAPP: There's been a lot of
18 testing, and there's going to be some specific
19 testing of Seabrook structures. And I'm going to
20 get there. I'm going to get there.

21 And I'll run through this pretty
22 quickly. Future activities. We've completed both
23 our CAL inspections and, with management approval,
24 we're going to propose anyway to close the CAL and
25 close the memo. And I want to emphasize, I

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1 can't emphasize this enough. The CAL was to set up
2 the plan, so we're not done with this issue. This
3 issue is probably going to go into I know 2015,
4 maybe 2016. But the level of effort that we've
5 applied to this point is adequate to show
6 operability and that the program in place to resolve
7 the issue is technically sound.

8 We are going to conduct a third public
9 meeting in the October time frame. And we're going
10 to continue to do a lot of ASR oversight, and this
11 would both be at the University of Texas-Austin,
12 which is Ferguson Structural Engineering Laboratory,
13 and I'll show you some pictures of what's going on
14 down there.

15 And we're also going to continue to monitor and
16 provide oversight at Seabrook on the ongoing
17 activities to make sure that the, you know, ASR at
18 the site is progressing, as anticipated.

19 And this will be the fun part. I think
20 this is the part you guys will like. This is the
21 testing at Austin. This is a multi-million dollar
22 project that NextEra is undertaking. And the first
23 question is kind of, well, why are they doing it?
24 There's a lot of ASR studies that have been done on
25 triaxially reinforced concrete beams. So if you

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1 have rebar in all three directions, you know, if all
2 Seabrook structures were rebar on the inside, rebar
3 on the outside, and lots of cross rebar in the
4 triaxial direction, there's probably enough research
5 out there that Seabrook wouldn't have to undertake
6 this project.

7 I think those type of triaxially reinforced beams,
8 that research has been done. In fact, it's been
9 done at the University of Texas, and I think those
10 structures would be pretty well understood.

11 And I will throw out sort of an
12 interesting nuance about these structures. As you
13 can sense, when you expand the structure, when you
14 expand the concrete, you're putting stress on the
15 rebar. And one of the things that structural
16 engineers do is they re-stress rebar to make their
17 structures stronger, so some of the things that you
18 find with ASR, you know, at reasonable levels of ASR
19 is these structures, when you do the mean tests,
20 become stronger and not weaker. So it's kind of
21 counterintuitive, you know. Certainly, it's not the
22 end-all. You know, we joke at one time, well,
23 everybody should get some ASR aggregate so they can
24 make their structure stronger, but there certainly
25 will be some level of ASR where that's going to

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1 reverse itself.

2 And that's really the crux of what
3 they're going to do at Seabrook is they're going to
4 build large-scale beams, and they're going to do
5 large-scale beam testing, and they're going to put
6 enough ASR in these beams, hopefully, to start to
7 show the asymptote and where the ASR starts to
8 affect structural integrity.

9 So that's the why. And, again, it's
10 important because some of the structures at Seabrook
11 which has the rebar on the inside and rebar on the
12 outside, those structures haven't been tested. So,
13 you know, time will tell whether those structures
14 behave as tracks or reinforced structures.

15 The testing is scheduled to be completed
16 by 2015. It's being done with similar aggregate to
17 what's used at Seabrook. Again, since they want to
18 induce the ASR in terms of, you know, months versus
19 25 years, they couldn't use all the same aggregate
20 and all the same concrete that they used at
21 Seabrook, or we would be waiting 25 years for the
22 results. So there is some differences, and that's
23 important to age the beams.

24 They have extensive oversight down at
25 the University of Texas. They've hired MPR, and

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1 that's sort of their quality assurance folks. It's
2 kind of funny. We were down there doing an
3 inspection, and it's probably the only time in
4 anyone's lifetime that you would see those ten PhD
5 students and maybe five PhD candidates all mixing
6 concrete in a concrete truck. So these folks are
7 getting some hands-on experience, but it was kind of
8 fun to watch.

9 So they're very highly-qualified folks.

10 You know, this batch of concrete is probably the
11 most precise batch of concrete that's ever been
12 mixed in America with all these folks down there
13 doing it.

14 And what would be the outcome? The
15 outcome of the project might be, and, again, we're
16 conjecturing a little bit, but, you know, the
17 relationships in the ACI code are really no longer
18 valid. So, you know, the way you would design a
19 structure is you would measure the compressive
20 stress, you would stick it into a square-root
21 formula, and you're going to come out with a shear,
22 and that shear you would put into your calculation.

23 Well, with ASR, you know, is that
24 calculation still valid? Maybe not. So the test
25 will tell us whether it is and, if not, what's the

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1 correction factor.

2 And so the ultimate outcome of this
3 would be, likely, a 5059 review, that we're using a
4 new methodology that isn't previously approved by
5 the FSAR. And then there would likely be a license
6 amendment. So, again, we're waiting on the testing,
7 but all this review might not be over until the NRC
8 would approve the methodology. And we're thinking
9 that's all going to be done, kind of done on the
10 back-end.

11 The three tests that they're doing.
12 Anchor bolt testing. And this, you know, nuclear
13 power plants, to hold up the cable trays and all,
14 there's a lot of Hilti bolts. There's a question
15 out there, well, will there be bolts that have a
16 bunch of ASR around them? Are they just going to
17 pull out of the wall? They've done some testing.
18 They had some, they call them the bone yard beam, so
19 they had some high-stress concrete beams from the
20 transportation industry that they drilled holes in,
21 put these in, pulled out. They had very high levels
22 of ASR, and they didn't experience any degradation
23 in that aspect of the test.

24 But they are growing additional beams,
25 and they're doing a lot of, they're going to be

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1 doing a lot of testing. They've already, basically,
2 tested the control beams, and they're now trying to
3 grow the ASR. And, again, they had a lot of
4 problems with that this summer. This winter, it
5 really didn't grow as expeditiously as they
6 expected.

7 And one of the interesting things here
8 is that a lot of people are complaining, well,
9 you're not testing Seabrook concrete. The nuance
10 here is you're developing concrete. You're
11 developing a control. You're testing the control,
12 and then they're going to test, say, three levels of
13 ASR, 2 CCI, 4 CCI, and 6 CCI. And so you're going
14 to compare all of your results back to the control
15 beam.

16 So the real validity of not being
17 concrete at Seabrook probably isn't all that
18 important because, much like when you design any
19 other structure, you're always relating it back to,
20 you know, back to some sort of control. And I know
21 we've had a lot of discussions with the NGOs in the
22 area, why aren't you just testing concrete at
23 Seabrook?

24 So that's the test program. That's the
25 first one is to do the Hilti bolts, lap-splices, and

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1 containment. They do cadweld, so all the rebars are
2 cadwelded together, so lap-splices are not an issue.

3 What the concern is is, basically, in
4 the walls, all the other walls at Seabrook, they
5 just basically lay one rebar next to another rebar,
6 and then they pour concrete around it. And there's
7 really nothing, there's no cadweld, there's really
8 nothing -- the strains between the two rebars are
9 really, are really transferred from the concrete.
10 So there's a thought out there and there's some
11 experience based on small-scale models that, you
12 know, the ASR could then cause that lap-splice to be
13 less strong and that could be a failure mode. So
14 one of the test programs that they'll be doing is
15 they'll be doing, they have a bunch of lap-splices
16 in a large-scale beam, and they'll be doing testing
17 and to see if those lap-splices behave differently
18 with ASR than with non-ASR.

19 And the third test program that they'll
20 be doing is with shear. Again, that's a real
21 concern with ASR. We tend to know how concrete with
22 ASR behaves from a compressive point of view, but
23 there's still a question out there for Seabrook
24 structures on shear.

25 So the three test programs really are

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1 the anchor bolt testing, the lap-splice testing,
2 shear testing, and then they're fabricating three
3 additional beams that they'll use for potential
4 remediation. So if any of these beams show
5 significant degradation, the thought is is that
6 they'd be able to put in some sort of lateral
7 reinforcement, drill holes and put in lateral
8 reinforcement, and then they would go back and test
9 those structures to see how they behave with high
10 levels of ASR. So there is a strategy out there for
11 remediation if the results that they have aren't
12 favorable.

13 Next slide. And so I'm just --
14 basically, these are some slides and some pictures
15 of what goes on. This is the lap-splice
16 performance. And to put this in perspective, these
17 beams that they're growing and building are about 30
18 feet in length, 4 feet depth, and 3 feet wide. So
19 these are significant beams.

20 And, you know, there is a lot of testing
21 of small-scale beams, but it really doesn't, you
22 know, you're not really getting good results if you
23 don't test large beams. And that's been pretty well
24 proven through other test programs.

25 Next slide. Again, this is a picture.

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1 This is an old beam that they fabricated. This
2 would be, again, a structure for transportation, and
3 they're doing a lap-splice test on that beam.
4 Again, it's sort of a massive facility, and this is
5 down at the University of Texas.

6 Again, the next slide now is just a
7 depiction of a shear slice. And, you know, you
8 expect the shear slice to give you a diagonal break,
9 and the next slide with a picture will show you
10 that's a typical shear test and result. You can see
11 on the right-hand side that they sheared that. They
12 should be able to get two shears out of each one of
13 the beams that they're fabricating.

14 And that's kind of ASR in a nutshell.
15 This is a subject that my peers and I talk about for
16 days and hours and weeks at a time. To try to do
17 that in 15 minutes or whatever I had here was a
18 challenge. MEMBER BLEY: Could you
19 clarify for me my old memories and what's going on
20 here? The rules of thumb, I've always heard, is the
21 strength comes from the steel and all concrete has
22 cracks. Now, this is more smaller localized
23 cracking and it does the growth; is that the big
24 difference?

25 MR. TRAPP: I think the big difference

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1 is the growth. And you're right. You know, you go
2 to containment, and when they do the containment
3 over pressure tests during initial construction,
4 you're sitting there and you watch the cracks grow.

5
6 And then I will share with you, when I
7 walk around containment, not being an expert in ASR,
8 it's like, well, why is that not ASR and why is this
9 ASR? And from this untrained eye, I can't really
10 tell you. You will see, and what you will see is
11 some of the gel. You'll see a blackened gel come
12 out of the ASR. But it's really that it's not
13 static, it's dynamic. You know, those cracks in the
14 beginning and any other cracks that are in
15 containment you would expect to stay static, where
16 this is dynamic. And so how is it going to behave
17 for the next, you know, if we're talking license
18 renewal and how is it going to behave for the next
19 20?

20 And I think it is reasonable to assume
21 that, at some point, you know, your pre-stressing
22 the rebar isn't going to work to your advantage
23 anymore, and you're going to have some issues. And
24 then that's been demonstrated. You know, lap-
25 splices at very high level of ASR, they're going to

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1 pull apart.

2 MEMBER ARMIJO: Sam Armijo. A quick
3 question. The program, as laid out, as you've
4 described it, looks very complete. But how do you
5 accelerate the rate of growth of the gel? You know,
6 try and get 20 years of life in a one-year test? Is
7 one way you can accelerate the kinetics is,
8 typically, by somewhat higher temperatures.

9 MR. TRAPP: Right.

10 MEMBER ARMIJO: Is any of that going on
11 as part of the program?

12 MR. TRAPP: Yes. And it's really, and I
13 just touched on it and, again, I wasn't very
14 thorough. I would like more time to talk to you
15 about this because I love this subject. But the
16 three ways they're accelerating it is that all the
17 beams are put in a hot house, so the temperature
18 they're trying to maintain, and they're thinking
19 about putting heaters in there next winter because
20 they're claiming, you know, a winter in Texas, they
21 said it was the coldest winter in Texas, so that's
22 one of the excuses why the ASR is not growing. And
23 then the other thing is they put the sprinklers in
24 there, so they're trying this heated wet, you know,
25 the dry and wetted cycles. So those are two things

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1 they're doing for the kinetics.

2 And the other thing they're doing in the
3 fabrication is they're finding aggregate that is
4 known to be super reactive. So they're going, you
5 know, nationwide. This aggregate that they got out
6 of New Mexico is like the most, the worst aggregate
7 for ASR. And so when they fabricate the beams, you
8 know, they're making sure that the aggregate looks a
9 lot like what's coming out of the quarries up in
10 Maine because you don't want the aggregate to
11 influence the outcome of the results.

12 So what they've shown is, you know, is
13 it's the shape and size of the aggregate more than
14 the aggregate itself that's causing, you know --
15 using similar aggregate would be acceptable, and
16 they're using the most reactive. And they also
17 throw in a little bit of sodium hydroxide to give
18 you a little boost with the alkaline. So those are
19 the things that they're doing to try to accelerate
20 it.

21 And, you know, this is kind of a known
22 science. They've grown beams before, and they've
23 been successful.

24 MEMBER BANERJEE: So you say shape and
25 size. How does that affect the kinetics? The

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1 surface area or what?

2 MR. TRAPP: Again, you're a little
3 beyond my knowledge base, but I believe that to be
4 the case. You know, if you have very large
5 aggregate, the beam would -- completely different
6 than what's at Seabrook. I guess it's logical that
7 that cracking would be a little bit different and,
8 you know, your performance of your beams would be a
9 little different than, you know, a similar size.
10 And, again, a lot of it is optics, so they're trying
11 to, they're trying to make these beams as close to
12 Seabrook because it's just an engineering and
13 technical reasonable thing to do.

14 MEMBER BANERJEE: And you say
15 temperatures. There's some evidence that there is
16 sort of a kinetics --

17 MR. TRAPP: Yes. And, basically, they
18 believe that's because of the transport of the two,
19 the silica and the alkali, that, with higher
20 temperatures, you get better interaction between
21 those two.

22 MEMBER BANERJEE: The reaction kinetics
23 or the diffusion?

24 MR. TRAPP: I know I'm on the record,
25 and I think you're beyond me. I think it's the

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1 diffusion, but I'm sure if I say it's the diffusion
2 then somebody will come back and say, no, it's the
3 reaction. But I believe it's the diffusion.

4 MEMBER ARMIJO: Well, it depends on
5 where the reaction occurs, whether it's at the
6 interface with a -- well, anyway, I won't belabor
7 your point. You're addressing the issue of
8 temperature and the kinetics of the reaction so that
9 you can say that, yes, we've duplicated, what
10 happens in 20 years we've duplicated with
11 experiments in a couple of years.

12 MR. TRAPP: Right.

13 MEMBER ARMIJO: So that's a key point.

14 MR. TRAPP: Right.

15 MEMBER SCHULTZ: Jim, I appreciate the
16 experimental testing approaches that have been
17 described here, but, still, we'll have the question
18 that has been raised by the public about, well, what
19 about at Seabrook? And I'm wondering whether I'm
20 expecting that the condition that's been described
21 for Seabrook 1 may also be apparent in Unit 2. A
22 lot of concrete was poured there, and I'm wondering
23 if that's been explored and whether there's any
24 testing that might be done on-site on the concrete
25 structures that have been at least partially

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1 constructed at Unit 2 that could answer some of the
2 questions that the public and we both have.

3 MR. TRAPP: And we get that question at
4 every public meeting and multiple times. The answer
5 to your question is, no, there is no testing going
6 on at Seabrook Unit 2. And there are a couple of
7 reasons for that, maybe some that are technically
8 sound, some that may be less so. One of them is
9 it's just too hard. The other thing that probably
10 at least resonates better with me is, you know, the
11 way that you monitor structures is, like all
12 structures, is you build these beams, you test them,
13 and that's how the ACI code works. That's how the
14 current structures are designed.

15 The levels of ASR in Unit 2 are low.
16 They're much like what we saw here. So testing
17 those structures probably isn't going to tell you
18 anything. You're going to have to wait, you know,
19 many, many more years to get to the level of ASR
20 that you're probably going to see structural
21 changes, and the only way you're going to do that is
22 to accelerate the ASR and test these beams.

23 So I think there's a practical element
24 here that you just, you know, I mean, the ACI code
25 says you can go do an in situ test on the wall and

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1 you're good to go. I'm not sure there's any in situ
2 test that the NRC would just back off and say, you
3 know what, we pushed on the wall, it didn't break,
4 and that's good enough, you know, we're done.

5 And then the other thing is there was a
6 question, you know, the real relation is how do you
7 make sure with the ASR with a CCI on these beams is
8 similar to what you're seeing in the walls at
9 Seabrook? That's the question that our team really
10 has been challenged with. And they are going to
11 take the samples. They're going to slice that.
12 They're going to do damage rating indexes. There's
13 a whole bunch of damage rating indexes, and they're
14 going to have to show explicitly that, hey, our beam
15 looks like our wall at Seabrook. And that's part of
16 the plan.

17 So I think there will be a high level of confidence
18 that the beam looks like the wall and that the tests
19 are, you know . . .

20 MEMBER SCHULTZ: That second part of the
21 process that you describe is what I would also like
22 to get to, and that is remembering when Seabrook was
23 designed, when it was constructed. It was an
24 extremely robust design in the first place, and
25 there was substantial, I believe, both design and

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1 construction margin applied to the Seabrook site.
2 And I'm wondering how much of that evaluation is
3 also being done going back into the, again, the
4 design and construction of that facility, in terms
5 of making a determination of an impact on plant
6 life.

7 MR. TRAPP: Yes, you're exactly correct.

8 I'll give you one example. The lap-splices which
9 are designed for three feet of overlap, at Seabrook
10 they have six feet of overlap. You know, if they
11 wanted to, the extent of saying, you know, we're
12 going to check every rebar splice and make sure
13 they're all six foot, they haven't done that. They
14 said, "You know what? Three foot is our design.
15 We're going with three foot. You know we put in six
16 foot, but, unless it necessary, we'll go back." And
17 you're right. So there's design margin there that
18 they haven't tapped yet.

19 MEMBER RAY: Jim, this is Harold Ray.
20 Your work is terrific, and it sounds like the
21 licensee's is, as well. I'm wondering how this is,
22 you referred, at one point, to a team. To what
23 extent is the headquarters and the people who
24 normally lead the ACRS looked to for research so
25 that the Agency can capture and carry forward

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1 whatever lessons there are here? Can you speak to
2 that for a minute?

3 MR. TRAPP: Yes. And, in fact, you
4 know, the team approach to this was perfect, and
5 research is part of our team. I recently reviewed a
6 new way that they're trying to come up with
7 techniques. They're trying to go out for research
8 with techniques to detect ASR in the walls. You
9 know, there's really no good UT or any way you can
10 work something on concrete. So that's part of it.

11 So research has really been intimately
12 involved. And I would say not only nationally but
13 internationally. There's been a lot of calls with
14 Canada. We had a presentation by the Belgians with
15 Tihange. So they're kind of all over this issue.

16 CHAIRMAN SKILLMAN: Colleagues, are
17 there any further questions for Jim? Jim, thank you
18 very much. I would like to call a recess of 15
19 minutes. Thank you.

20 (Whereupon, the above-entitled matter
21 went off the record at 10:00 a.m. and resumed at
22 10:15 a.m.)

23 CHAIRMAN SKILLMAN: Thank you for
24 returning to your seats. The meeting will now come
25 to order, and I turn the meeting over to?

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1 MR. GRAY: Mel Gray.

2 CHAIRMAN SKILLMAN: Mel Gray. Mel,
3 proceed, please.

4 MR. GRAY: We want to take a minute
5 here. We had some interest in Oyster Creek and
6 their dry well inspections that they committed to.
7 We have some information, if we could trickle back
8 for a minute on that. I'll introduce Amar Patel.
9 He's the resident inspector at Oyster Creek, so he
10 wanted to impart some information.

11 MR. PATEL: I'm Amar Patel, resident
12 inspector at Oyster Creek. I just wanted to clarify
13 that the dry well inspections are not only in their
14 aging management program, but it's also in the
15 license commission and the tech specs that we would
16 do a dry well inspection every other one.

17 CHAIRMAN SKILLMAN: Okay.

18 MR. CAHILL: Okay. My name is Chris
19 Cahill. I'm a senior reactor analyst here in the
20 region. And by looking at the crowd, it doesn't
21 look like anyone is as interested in flooding as
22 they were in ASR. I don't have any material
23 handouts, so we'll just go from there. So we're
24 going to go over the status of the employment side
25 of it and walk over employment for Region 1.

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1 Okay. So in the region, we did Tab 187
2 and 188 in response to the Fukushima waters. We
3 were evaluating the licensee's walkdowns for seismic
4 and external flooding.

5 Flooding here in the region,
6 predominantly, we're mostly coastal here, coastal
7 plants, so the flooding is really driven a lot by
8 the hurricanes. So we don't tend to see the large
9 dam failures like you might see in some of the other
10 plants, although dam failures may contribute a
11 little bit with large precipitation and things like
12 that, like a hurricane.

13 So we performed the walkdowns at all the
14 sites, and all the walkdowns were completed and
15 documents in the fourth quarter reports around
16 January. So we got those knocked off pretty quick.

17
18 There were some issues that were
19 identified. The first one was identified at
20 Millstone. It was identified by the licensee. They
21 identified some unsealed penetration openings.
22 Those are still in the inspection arena now, but
23 they're identified as unresolved items, so we're
24 still evaluating that for regulatory compliance, and
25 inspection activities are still undergoing.

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1 The next two, and this is sort of a
2 teaser for the next presentation by Justin Heinly,
3 were identified at Three Mile Island. Two issues
4 were identified. The first is a violation for
5 missing penetration seals in their intake and
6 screenhouse. And the second one was for significant
7 numbers of missing penetration conduit seals that
8 went from the area pump into the building.

9 I'd just like to say that this was an
10 extraordinary effort by the residents. They did a
11 great job finding these issues and drive to the
12 ground. And as you understand, Three Mile Island, a
13 nuclear power plant by a local river, flooding risks
14 tend to be pretty significant there.

15 Also, in response to the TIs, there was
16 a follow-up done, and these were performed to gain a
17 better understanding of the licensee's methods and
18 procedures done for the walkdowns and a system
19 review for walkdown reports. Several factors were
20 used in these audits. The first one was a lack of
21 clarity to have the walkdown those are typically
22 valued after over a review of the walkdown reports
23 looking at some guidance on the review of the
24 walkdown reports. Other issues included plant
25 specific areas of interest identified during review

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1 of the walkdown reports. Some of this was driven by
2 if the licensee relied on actions, for example,
3 sandbagging as a major flood mitigation feature.
4 There was more of an interest of looking at those,
5 the adequacy of issues like that. And also just from
6 feedback from the staff that certain issues probably
7 deserved a second look. So far in the region, we've
8 had audits conducted at Salem unit 1 and 2. As far
9 as our interest in the region, we've been
10 participating or observing these audits because we
11 have a knowledge of the site that can assist the
12 team and also, just with our large stakeholder
13 interest here, we'd like to see it performed as we
14 can so that we can address any issues that come up
15 in a timely manner. Salem Unit 1 and 2 and Hope
16 Creek Unit 1, those studies have been performed.
17 Vermont Yankee has been performed in the flooding
18 arena. In the seismic arena going on this week,
19 there's Beaver Valley and folks are out there this
20 week doing those. These are still in progress. The
21 site activities are done. George Wilson is the lead
22 for this activity and his team that is running this
23 is the same team that is running all the audits so
24 they get a consistent response. And that concludes
25 our writing prepared for this. I'll entertain any

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1 questions if we have those at this time.

2 CHAIRMAN SKILLMAN: Colleagues,
3 questions? Chris, thank you.

4 MR. CAHILL: Okay, great. Thank you.

5 MR. HEINLY: Can everybody hear me okay?

6 All right. My name is Justin Heinly, the resident
7 inspector at Three Mile Island. And the Senior
8 Resident Inspector is also here, Dave Werkheiser.
9 I'm here just to talk a little bit about the TI-187
10 inspection that we performed at Three Mile Island,
11 both independent, as well as the accompanied
12 walkdowns, and talk about two of the issues that we
13 identified.

14 The first issue was on the independent
15 walkdown where we identified 13 unsealed
16 penetrations in the motor base plates. And then the
17 second issue was during the accompanied walkdowns in
18 the air intake tunnel where we identified 43 cable
19 conduit seals that were not, that did not have their
20 seals inside them.

21 At the bottom here, we do have referenced the
22 official material that's been put out in the public
23 domain, if you guys have any further questions and
24 if you want to take a look at it.

25 So the first issue I'm going to talk

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1 about, and this was during our independent walkdown,
2 the licensee had already walked down this location
3 so we were doing it after they had completed their
4 walkdowns. So at TMI, they take suction off the
5 Susquehanna River, so this is kind of a cross-
6 sectional view of their intake screen and pumphouse.

7 The flood-protected area is up where the green and
8 purple diagrams are. That's both control centers,
9 as well as the pumps themselves. Those are the
10 safety-related connection to the ultimate heat sink
11 for Three Mile Island.

12 On the right-hand side, we're trying to
13 depict how the normal river water level was going
14 all the way up through what the probable maximum
15 flood was. So at the bottom, you can see the normal
16 water level here going up to their initial actions
17 for entry into their abnormal operating procedure,
18 followed by an unusual event going to an alert at
19 302 elevation.

20 Second from the top here is actually the
21 grade elevation, 305. And the highest one up there
22 is actually 313.5, which is the probable maximum
23 flood. This is their design basis flood that's put
24 in their FSAR. Their design basis flood barrier
25 system is actually 313.5, and that's what we were

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1 doing a walkdown of.

2 So the flood barrier in the intake
3 screen pumphouse is actually all four of these walls
4 right here. So as the river water comes up, the
5 base plate or the floor, rather, of the intake
6 structure is part of the flood boundary for TMI.

7 So when we took a look at it, that was
8 actually one of our focus areas. And we looked at
9 the motor base plates to ensure that they had all
10 their penetrations that were sealed. And lo and
11 behold, we found 13 holes. This is about a quarter
12 size, and these over here, this is actually the seal
13 leak-off that was used for packing seal, and those
14 actually went directly down. They communicated
15 between the flood barrier area and where the river
16 water would be. So river water actually had come up
17 through those holes into the protected flood area.

18 So because the licensee had already done
19 their walkdowns and we did it as an independent
20 walkdown, we identified that it was a failure of the
21 licensee to identify and correct, in accordance with
22 Criterion 16, corrective actions. When we did the
23 risk analysis, it came out as a green non-cited
24 violation for that.

25 Second issue we talked about. This was

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1 actually during our accompanied walkdown, so this is
2 in, this is a cross-sectional view, actually, of
3 TMI's flood barrier system. Again, we depicted on
4 the side there river water levels as they go up
5 through. It should be the same nomenclature as the
6 prior slide.

7 Just to give you a brief view of all the
8 different buildings, starting on the most right-hand
9 side with the emergency diesel generator building
10 housing the alpha and bravo diesel generators.
11 Moving left is the air media building, which houses
12 that green box there which is the emergency
13 feedwater system. In the background is the reactor
14 building. Next is the auxiliary and the fuel
15 handling building, which houses their safety-related
16 building spray and decay heat system. BW, so it's
17 synonymous with RHR in Westinghouse terms.

18 And then what is unique to TMI is they
19 have an air intake tunnel which is used as a safety-
20 related supply of air going into their safety-
21 related buildings, such as the aux and fuel handling
22 building. This tunnel is used for design basis
23 mitigation for specific only to TMI.

24 So when we did our walkdown, we actually
25 did the walkdown inside the tunnel here. And what's

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1 unique about the tunnel is that all of the cable
2 vaults or, excuse me, all of the cables that come
3 from the intake structure go through cable vaults in
4 the yard and then enter into the air intake tunnel
5 and continue on into the aux and fuel handling
6 building. What's circled there is
7 actually what's depicted here which are Crousse-
8 Hinds couplings, which were supposed to be, during
9 construction, filled with sealant material. So when
10 we looked at them, this is what we saw. It looked
11 as though there had been prior degradation on them
12 from some sort of humid environment or wetting.
13 When we took a look at it, the first flag was all
14 the rust and the degradation on it. But the second
15 thing was that there was holes on the bottom of them
16 and there were drain lines there. So when we looked
17 at it, we took a closer look at it and actually
18 shown our flashlight up inside, and that's the area
19 where the sealant material should have been and that
20 the licensee staff was there and said, yes, that's
21 where the material should be. When we shown our
22 flashlight up in, we didn't see anything but cables
23 or, in some cases, open conduits there.

24 So we provided the safety concern to
25 them that there was reasonable doubt of the seal's

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1 existence. So the licensee took it upon themselves
2 to further investigate and actually bore-scoped it
3 and confirmed that there was no sealant material in
4 there. The extended condition was that there were
5 43 of these Crousse-Hinds couplings that didn't have
6 their sealant material.

7 MEMBER RAY: You could visibly see all
8 of them?

9 MR. HEINLY: So there was -- let me back
10 up here. It's kind of hard to see, but they come in
11 in banks. So one of the banks that we looked at
12 actually had the drain lines open so that we could
13 look inside. Based upon those observations, they,
14 essentially, conservatively took the approach that
15 all Crousse-Hinds couplings that were designed to
16 have sealing in them did not.

17 So this is actually what we were looking
18 at. This is kind of a design drawing. This is the
19 drain well that we were looking up into and where
20 the sealant material actually should have been. So
21 the cables would have been pulled first, and then
22 they would have put in a sealant material inside of
23 there to prevent any water coming from the yard
24 vaults, yard cable vaults through the conduits and
25 entering into any safety-related structures.

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1 So what we identified is that, back in
2 2010, the licensee actually did a comprehensive
3 flood barrier system walkdown, and they had looked
4 at these couplings and they didn't, they didn't
5 question the integrity of the seals. And, also, the
6 fact that we pointed it out to them during our
7 inspection, we dispositioned it through the ROP as a
8 Criterion 16 violation for corrective actions for
9 the failure to identify.

10 The tricky part then became trying to
11 quantify and understand the ingrained plant
12 response, where the water would go, what systems
13 that they had and would not have available during a
14 probable maximum flood. So what you see here is
15 that's myself, as well as headquarters SRA. We had
16 substantial support between the resident staff, the
17 headquarter staff, and our regional folks of being
18 able to quantify and understand all this and what it
19 means when a probable maximum flood would occur
20 because, you know, in a probable maximum flood you
21 would already be shut down based upon tech specs.
22 So there's some unique aspects that needed to be
23 worked through.

24 MEMBER SCHULTZ: So for clarity, the
25 white finding was based on the fact that this was a

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1 programmatic element in their corrective action
2 program, pre-existing in the corrective action
3 program, and so the completeness of that corrective
4 action was what was questioned?

5 MR. HEINLY: They did a walkdown of
6 their entire flood barrier system to actually create
7 a design basis document. And during that walkdown,
8 they looked at these. However, they didn't question
9 the integrity of them, so they didn't identify it at
10 that opportunity when they were there looking at
11 them visually, like we did during the TI. So that
12 was part of the basis as to why we identified that
13 it was plant performance and that they should have
14 been able to identify and they had a reasonable
15 opportunity to do so.

16 MEMBER SCHULTZ: Thank you.

17 MR. HEINLY: So this is just kind of a
18 summary slide here. The two issues that we
19 identified was river intake. The things I want to
20 point out are the corrective actions, so they
21 permanently sealed the base plate holes in the
22 intake, as well as they provided valves that can be
23 shut off during a design basis flood that would be
24 used during the preparation for that.

25 And then, in the air intake, they took

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1 immediate comp actions. And then, furthermore, they
2 did a permanent modification to seal the conduits
3 upstream to make the flood barrier system whole.

4 We did also want to take the opportunity
5 to share this both within our own region and then
6 also throughout the entire NRC through our inspector
7 newsletter. Any questions?

8 MEMBER ARMIJO: Yes, I have a quick
9 question. In your picture on chart 40, what is that
10 orange, is that a --

11 MR. HEINLY: On this slide here?

12 MEMBER ARMIJO: Yes. What is that?

13 MR. HEINLY: Are you looking at these
14 guys right here?

15 MEMBER ARMIJO: Yes.

16 MR. HEINLY: Okay. So, yes, that was an
17 interesting point of this whole scenario was that
18 these are fire seals. They're not qualified for
19 holding back flood water. However, through this
20 investigation, the licensee did substantial testing
21 on these fire seals to prove at least some sort of
22 hold back for water so that, essentially, the water
23 would kind of get stuck here for a certain amount of
24 time, and some of them would blow through, others
25 would be able to maintain the flood water.

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1 MEMBER ARMIJO: My second question is
2 related to vault entrance. You didn't find any
3 problems with sealing in that vault entrance?

4 MR. HEINLY: So during the design basis
5 flood, the grade on the entire site would be filled
6 with water. So the conservative assumption would be
7 that these vaults were not designed to be
8 watertight. So the conservative assumption would
9 then be that they would completely submerge.
10 However, during normal plant operations, the
11 expectation is that those cable vaults are dry, and
12 we do do inspections on those.

13 MEMBER ARMIJO: Okay. But you haven't
14 found any evidence that they've ever really had
15 significant amounts of water for any reason in those
16 cable vaults?

17 MR. HEINLY: Yes. In the past, there's
18 actually been documented violations based upon
19 submergence of cables. That's been addressed.
20 They've taken substantial corrective actions on all
21 of their yard cable vaults, and they do do routine
22 preventive maintenance, as well as inspections, on
23 them. And, to date, I can't, I don't think there's
24 any cable vaults that have any submerged cables for
25 safety-related or license renewal cables that we've

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1 observed.

2 MEMBER ARMIJO: Okay. Thank you.

3 CHAIRMAN SKILLMAN: Justin, I have a
4 question. It's on slide 41 regarding information
5 sharing. I'm wondering if Exelon published this
6 information in OE to INPO so that it is very widely
7 shared among all licensees.

8 MR. HEINLY: Yes. I believe they put
9 out what's called an NER that's used to disposition
10 or, essentially, give the information throughout the
11 industry.

12 CHAIRMAN SKILLMAN: Thank you.
13 Colleagues, any further questions for Justin?
14 Justin, thank you.

15 MR. HEINLY: Thank you.

16 CHAIRMAN SKILLMAN: Chris, I'm going to
17 ask you, please, to move along as fast as you can.
18 We can maybe catch up on time or at least leave time
19 for --

20 MR. CAHILL: This should go by pretty
21 quick. We participated and assisted in research in
22 both the state of New York and a consequence
23 analysis on the SOARCA and the spent fuel pool
24 scoping study. And for the SOARCA analysis, we
25 participated mainly in the mitigation that was used

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1 or evaluated for the event, and this had to do with
2 implementation of some of the B5B strategies. The
3 most notable one was the lack of store and operation
4 of the RCIC system during the SOARCA earthquake-
5 evaluated events.

6 So it wasn't a PRA, per se. It was
7 really they were looking at a mitigated versus
8 unmitigated state. We assisted the research staff
9 with evaluating the emergency operating procedures,
10 SAMG guidance, other mitigating features, and doing
11 tabletops and walkdowns, to be able to ensure
12 research that the event was, the strategies were
13 credible to be able to be evaluated with SOARCA for
14 a mitigated condition. So that was the SOARCA.

15 MEMBER STETKAR: Chris?

16 MR. CAHILL: Yes, sir.

17 MEMBER STETKAR: Did you look at any of
18 the other actions that are in that scenario for
19 SOARCA? In particular, they look at shedding DC
20 loads to extend their battery lives way out beyond
21 the designed battery life. Did you look at any of
22 that from a tabletop or confirmatory perspective
23 with the site?

24 MR. CAHILL: We stepped through that,
25 but the SOARCA procedures were looking for, like,

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1 long-duration station blackouts. So we were either
2 beyond battery depletion for the batteries or they
3 were the failure of internal DC anyway just due to
4 the assumed large event.

5 MEMBER STETKAR: Okay. I don't want to
6 dwell on it. Thanks.

7 MR. CAHILL: With respect to the spent
8 fuel pool scoping study, once again, we assisted
9 research with this, and this was mainly with James
10 Zhang of research. And this actually went into
11 development of a human reliability study for some
12 mitigation where the SOARCA analysis was really just
13 is this credible to consider for a consequence
14 analysis, where with the spent fuel scoping study
15 actually assisted research in developing some
16 probability of success in employing some of this
17 equipment.

18 And with the spent fuel pool, although I
19 used the term FLEX here, we're really looking at the
20 specific B5B equipment that was available on site at
21 the time since they were in the process of rolling
22 out the FLEX. So at the time, we're considering the
23 single pump that was available. But just for
24 clarification, that's what we meant.

25 So we looked at the feasibility of the

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1 site identifying that there was a leak, diagnosing
2 and responding it, employing the B5B or the FLEX
3 equipment, and either employing a direct injection
4 or a spray, depending on what the rad levels
5 anticipated on the refuel floor might have been.
6 And, once again, we did the tabletop exercise and
7 actual field walkdowns looking at the various water
8 sources that may be used in this event.

9 MEMBER REMPE: So just to clarify, it
10 wasn't just you interacted with headquarters, it was
11 the licensee and you and headquarters personnel all
12 sitting down at a tabletop exercise, right?

13 MR. CAHILL: Correct. It was research,
14 NRR, the regions. Since we had done all the B5B
15 inspections previously in the region and we have
16 knowledge of the plants, with the addition of the
17 residents, we could kind of, you know, put some, put
18 our inputs in to make sure that the proper
19 perspective is given.

20 It was a large effort by the licensee.
21 We had senior reactor operators, field operators
22 walking down the equipment. And with the exception
23 of actually running hoses and spraying the pool, we
24 pretty much went through the whole set up.

25 And that completes -- yes, sir?

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1 MEMBER SCHULTZ: What you've described
2 here is mainly focused on site activities versus
3 response activities and emergency planning and
4 response, off-site response?

5 MR. CAHILL: Correct. Our assistance
6 was really dealing with the site, how the site was
7 going to respond with the equipment that they have
8 on hand.

9 CHAIRMAN SKILLMAN:
10 Colleagues, any further questions for Chris? Chris,
11 thank you.

12 MR. ROGGE: Hi. I'm John Rogge. I am
13 the Branch Chief of the Fire Protection Branch. I
14 supervise eight inspectors conducting fire
15 protection, cyber security type inspections
16 currently. So I'm going to just give you a quick
17 overview where we are, a little bit on the 805
18 Transition, where we stand with multiple spurious,
19 and a special case of Indian Point.

20 Region I has plants in various
21 conditions of where they got licensed during the
22 time. We have fifteen plants which are pre-79 so
23 they follow the Appendix R type rules; nine plants
24 post-79 which are our branch technical position
25 plants; and we have six that have decided that
they're going to transition into 805.

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1 The 805 plants originally were pretty
2 much a fleet decision, so you're seeing the Nine
3 Mile, Ginna, and Calvert Cliffs moving as a fleet.
4 And Beaver Valley is tied to the FENOC fleet. So
5 the decisions were pretty much made on fleets.
6 During the process of starting reviews, Nine Mile 2
7 chose to drop out of the program, mainly because
8 they have superior cable separation, and that was
9 pretty much what was driving the decision to go into
10 that space.

11 Beaver Valley did have to revise their
12 schedule for submittal, mainly because of the
13 discovery of they thought they would have synergy
14 from a single PRA that would give them insights to
15 two units. And their discovery was they really
16 needed two PRAs. The PRAs are essential because
17 they drive the modifications and where you're going
18 to look for lowering risk.

19 The 805 Transition status. Of course,
20 as those plants are going through the transition
21 phase, we have enforcement discretion. The idea
22 there is it's a voluntary transfer into the 805, and
23 we want to encourage them to go through it in a
24 diligent and robust way. And as they're finding
25 issues, we don't want to penalize them for their

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1 discovery of things that may have been beyond our
2 ability to see using deterministic methods.

3 CHAIRMAN SKILLMAN: John, if I could
4 back up one slide, please. The decision at Beaver
5 Valley between the two PRAs --

6 MR. ROGGE: Yes.

7 CHAIRMAN SKILLMAN: -- is that decision
8 applicable to other plants either in the region or
9 throughout the rest of the fleet? It seems to me
10 that's important because those are really two
11 different units there at Beaver Valley.

12 MR. ROGGE: Yes. We would have seen it
13 in at Nine Mile 1 or Nine Mile 2, and those are
14 totally unique design plants. Beaver 1 and Beaver 2
15 are often referred to as one is like a Surry plant
16 and one is like a North Anna plant. So when you're
17 going into the various sub-system level, you even
18 see where the nomenclature is there between the two
19 units: pressures, temperatures. And then there's
20 like an eight or eleven-year difference in when the
21 decision was. So all our Westinghouse BWRs, they
22 did not come out as, say, that plant. Even if you
23 have the benefit of walking in the control room, you
24 can see total differences in what happens at eleven
25 years.

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1 So that scope of work was not as
2 appreciated. Did that answer your question?

3 CHAIRMAN SKILLMAN: I was really
4 wondering if that, because they are so different and
5 they need different PRAs, has propagated through
6 other applicants who are recognizing 'I really have
7 two different machines on my hands.' TMI 1 and TMI
8 2 are like that.

9 MR. ROGGE: Right. I haven't heard of
10 that. Now, of course, our pilot on Harrison's
11 single-unit site and also with a three-unit site.
12 And they have transitioned successfully. They have
13 gone through the process of taking it out, and they
14 are going through and putting the mods in.

15 In our region, Calvert Cliffs is our
16 other two-unit site, and they plan on going through.
17 Then again, they are a fleet. They're following the
18 Nine Mile submittal replacement, so I'm not really
19 clear if they have identified or have that kind of
20 drawn out. I tend to see them as very similar
21 design.

22 CHAIRMAN SKILLMAN: Thank you, John.

23 MEMBER STETKAR: John, do you do
24 inspections or walkdowns or anything to confirm some
25 of the information in the RA submittals? I'm

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1 thinking mostly of cable routing. So when you say
2 you think, for example, Calvert Cliffs are the same
3 --

4 MR. ROGGE: Yes. The --

5 MEMBER STETKAR: -- do the region
6 inspectors go in and actually ask for confirmation
7 of that?

8 MR. ROGGE: Our current inspection
9 program is to maintain the current licensee basis
10 once we do the activities that you're talking about.
11 So with Calvert Cliffs, because they made the
12 transition, we're not going in and doing anything
13 yet.

14 With the Nine Mile 1, which is the
15 earlier submittal, we have done the on-site audit
16 and we had one of our SRAs participate in the on-
17 site audit. But when they actually get to the phase
18 of the transition, then we're going to change our
19 inspections and we'll go in and re-verify what --

20 MEMBER STETKAR: Okay. But I was trying
21 to follow-up a little bit on what Dick was asking.
22 You know, it's clear that Beaver Valley 1 and 2 are
23 different. It's clear that Nine Mile 1 and 2 are
24 different. What I thought I heard you say is
25 Calvert Cliffs is going to come in with a unit PRA

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1 and say that it applies for both the units, which
2 means that the two units are presumed to be
3 identical.

4 MR. ROGGE: There will be differences.
5 There always have been, but they're moving together,
6 just like Beaver Valley is moving together. But
7 what I'm trying to say is I don't think they're
8 going to have a discovery where, suddenly, they
9 realize that the scope of work is distinct. I think
10 they're going through it in a totally informed
11 approach.

12 MEMBER STETKAR: Okay, thank you. Where
13 are we on this?

14 MR. ROGGE: Okay. I was talking about
15 enforcement discretion and its purpose is to
16 encourage the identification of new and unique
17 things. In order to implement the enforcement
18 discretion, what we're doing are triennial fire
19 protection inspections. We review the licensee's
20 current findings' status and then the disposition in
21 the inspection reports at that time.

22 It does show that there is merit to this
23 program and that licensees are identifying things
24 they otherwise wouldn't have done without all this
25 engineering rigor and PRA focus. So today we have

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1 dispositioned or transitioned or dispositioned 15
2 violations. If you'd like a site rundown, it's,
3 basically, six of them at Ginna, one at Nine Mile,
4 three at Beaver Valley, and I think I have it on the
5 other slip. These may not be correct. So somehow I
6 lost my slides with the answers, so that may not
7 total to 15.

8 Any questions on what some of those
9 might have been? Okay.

10 Moving on to MSOs. The 805 plants are
11 going to disposition the MSOs as they're doing their
12 805 Transition. The remaining plants that I talked
13 to before, which are the pre-79s and 79s, took on
14 the project; and, essentially, all completed them.
15 I do note one exception by Indian Point, which I'm
16 going to talk about in a second. But we are looking
17 at those during the fire triennials. To date, we
18 haven't found any issues with programs the licensees
19 have done.

20 Next slide. Single spurious at Indian
21 Point has a story that I believe you may have been
22 briefed on during the exemption process. I'm not
23 really sure. But as part of a resolution, all
24 plants were required to identify and resolve their
25 non-compliances in a single spurious. It actually

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1 came before the multiple spurious program as the
2 first step. It also had enforcement discretion and
3 encouraged people to go out and identify what their
4 violations were and either correct them or, if they
5 had been prior approved, come in for approval or not
6 approval.

7 If you're a pre-79 plant, you needed an
8 exemption. And Indian Point is a pre-79 plant, so
9 they were required to not only have approval for
10 their operator manual actions which were being used
11 to compensate for the single spurious but they also
12 had to go through the exemption process because it
13 is against the Appendix R rule.

14 So as they went through that process,
15 many of the exemptions ended up being denied. And
16 they were denied for reasons mainly being not enough
17 time margin and not enough defense in depth.

18 During the process, we did conduct a
19 triennial inspection. And in that inspection, we
20 identified that one of their operator manual actions
21 was not feasible to be performed.

22 As part of the single spurious exemption
23 approval process, they were expecting that those
24 exemptions would be issued and that would also
25 address their multiple spurious operations through

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1 the exemption. That not being the case, they are
2 now using that violation to correct their multiple
3 spurious, so we see the double benefit there.

4 Any questions?

5 CHAIRMAN SKILLMAN: Colleagues, any
6 questions for John? John, thank you.

7 MR. ROGGE: I will retire.

8 MR. MCKINLEY: Good morning, everybody.

9 I'm Ray McKinley. I'm the Senior Emergency
10 Response Coordinator here for Region I. I want to
11 talk to you a little bit today about the region
12 response to hurricanes.

13 Over the past couple of years, we've had
14 some extreme challenges with regards to Hurricane
15 Irene that was back in August of 2012; also
16 Hurricane Sandy last year, also known as Superstorm
17 Sandy; Winter Storm Nemo in the winter of 2013; and
18 we've had a number of summer storms that have also
19 been challenges for us. So we'll talk to you
20 primarily here about hurricane response.

21 So we'll hit on the hurricane response
22 procedure, some of our experiences with Hurricane
23 Sandy, and just get a little bit into the 2013
24 forecast.

25 Our hurricane response procedure is

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1 governed by an incident response procedure. We
2 begin monitoring storm activity about 120 hours
3 before projected landfall. And it's a stepwise
4 approach as the storm approaches, and we'll escalate
5 our response appropriately.

6 One of the biggest things we do is track
7 the storm's progress and keep management informed of
8 what's going on. We're essentially tracking the
9 storm, the track of the storm, the size of the
10 storm, and the intensity of the storm, and that
11 helps inform us as to where we need to deploy
12 additional inspectors and what is the response
13 posture of this agency.

14 As the storm progresses, about 24 hours
15 before impact, the intensity of our response gets a
16 lot greater. We'll usually make a decision whether
17 or not to go into monitoring mode within about 12 to
18 24 hours of landfall. And we'll also be
19 aggressively monitoring licensee storm preparations
20 as the storm approaches and as it passes over the
21 facilities. And we'll be looking at power reactors,
22 research and test reactors in coordination with NRR.

23
24 And we'll also be looking at materials
25 licensees, and our materials licensees here in

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1 Region I, they go all the way down to Puerto Rico
2 and U.S. Virgin Islands into the southern states and
3 on up into the northeast. So we have a pretty wide
4 range of attention that we give these storms.

5 One of the other big things that we'll
6 do is coordinate with FEMA and our headquarters with
7 regards to infrastructure impact at the affected
8 facilities. If plants shut down in advance of the
9 storm or if they're shut down by the storm, they
10 need to ensure reasonable assurance to be able to
11 perform their off-site detective actions before they
12 can restart. And we've improved this process over
13 the past few years based on learnings that we've had
14 with Irene and Sandy. What FEMA will do is what's
15 called a preliminary capabilities assessment, and
16 they'll determine whether or not they need to do a
17 disaster-initiated review, which is a more thorough
18 review, depending on the extent of infrastructure
19 damage.

20 CHAIRMAN SKILLMAN: Ray, before you
21 proceed --

22 MR. MCKINLEY: Yes, sir.

23 CHAIRMAN SKILLMAN: -- you say in that
24 slide you coordinate with FEMA. What coordination
25 is there with the dispatcher at PJM?

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1 MR. MCKINLEY: We don't directly
2 interact with PJM, although the facilities do.
3 Their control rooms are in direct coordination. We
4 can monitor the websites to have an idea of what's
5 going on with PJM, and we also do interact with FEMA
6 with regards to critical infrastructure. So we're
7 constantly in discussions with other federal
8 agencies to get a better understanding of impacts to
9 off-site power sources and things of that nature.

10 MEMBER CORRADINI: So just to clarify so
11 I understand, so when it comes to on-site
12 activities, it's whether they go up or down in
13 power, etcetera, in the preparation, you watch
14 through the owner/operator. And when it comes to
15 off-site, you watch through FEMA. But you don't
16 directly interact -- what I'm trying to get at is
17 I'm trying to understand the coordination when
18 something like this happens and you have a lot of
19 time to prepare and think through it. Is that the
20 normal kind of process?

21 MR. MCKINLEY: Typically, yes. We'll
22 monitor through the licensees, and they do have
23 direct contact through their power system,
24 operations dispatchers and --

25 MEMBER CORRADINI: For on-site.

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1 MR. MCKINLEY: For on-site. And
2 transmission networks. So they have those linkages
3 with the licensees, so we can get information
4 through our licensees on grid stability, things of
5 that nature. We can also reach out through our
6 federal counterparts and PJM indirectly, if we had a
7 need to do that. We typically don't reach out
8 directly to --

9 MEMBER CORRADINI: Because the normal
10 protocol is to work through the owner/operator.

11 MR. MCKINLEY: That is correct.

12 MEMBER CORRADINI: Okay. And then one
13 last question. With something like this when
14 there's a lot of time, do you leave it to the on-
15 site inspectors then to go through the technical
16 support center or whatever appropriate location, or
17 do you add staff to the sites in the path of the
18 storm for just in case? I'm curious about it.

19 MR. MCKINLEY: Yes. I'm going to talk
20 about --

21 MEMBER CORRADINI: All right.

22 MR. MCKINLEY: -- Sandy a little bit,
23 and then that may answer some of your questions. So
24 Hurricane Sandy. October 29th, this photo was taken
25 at about 8:00 in the morning or so. And this storm

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1 was just incredible with regards to the time of the
2 year, very late in the season. In fact, hurricane
3 season ends November 1st. And the National Weather
4 Service itself had difficulty classifying this
5 storm. As it approached the northeast, they stopped
6 issuing hurricane warnings and called it a super
7 storm. So some of those things were kind of
8 interesting.

9 What also is very interesting is the
10 track of this storm. This hard left that you see
11 there, that's kind of your nightmare scenario.
12 That's exactly the impact that you don't want to
13 see. And it's that upper right quadrant of the
14 storm that is a significant concern. The winds are
15 a problem, but storm surge, that upper right
16 quadrant, that's really where the impact occurred.
17 The wave action, the storm runoff, that's where you
18 can get some significant impacts to, you know,
19 personnel, people, and the plants themselves.

20 CHAIRMAN SKILLMAN: Ray, just a question
21 of clarification. What constitutes landfall? The
22 leading edge of the storm, the eye of the storm, or
23 some intermediate --

24 MR. MCKINLEY: Yes, it's eyewall passage
25 where they classify landfall, but we look at it in

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1 terms of impact. So, yes, it's a fuzzy line for us
2 as far as -- we lean responding sooner rather than
3 later.

4 CHAIRMAN SKILLMAN: Yes, yes,
okay.

5 MR. MCKINLEY: But, yes, landfall is
6 defined by eyewall passage.

7 CHAIRMAN SKILLMAN: Okay.

8 MR. MCKINLEY: With regards to
9 inspectors, so as we're watching the storm develop,
10 the challenge for us usually in Region I is, when
11 these things hit us in the locations of our plants,
12 we have a broad impact across our entire region.
13 And this storm was clearly going to impact the
14 entire region and not only our plants but this
15 facility, the Region I office itself. So it's
16 always a challenge for us.

17 So in this case, we deployed back-up
18 inspectors to Calvert Cliffs on up north to
19 Millstone and as far west as Three Mile Island. So
20 in that bubble, we kind of had a pretty good feel
21 that we would be pretty well protected based on what
22 we could see with these wind fields and projected
23 storm impacts.

24 And that call was pretty good. Most of
25 the plants that we saw impacts at were at those

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1 facilities, and we weren't significantly impacted at
2 other ones, except further up north. You know, we
3 occasionally will have problems up at the Great
4 Lakes with grid system issues.

5 MEMBER CORRADINI: Why?

6 MR. MCKINLEY: If you have a significant
7 disruption in grid operations, you can run into low-
8 flow restrictions and, essentially load breach acts.

9 MEMBER CORRADINI: But is it the
10 connection between the northeast and the MISO that,
11 it's that connection point that --

12 MR. MCKINLEY: That's correct. Yes, in
13 a broad network, it can become problem. Hurricane
14 Sandy effects. So, specifically, in this region, as
15 we saw the storm approach, at 10:20 in the morning
16 we entered monitoring mode of incident response
17 operations staff at our incident response center.

18 As the impact of the storm, it became
19 obvious that our regional facility may be
20 significantly impacted in terms of our
21 infrastructure and our ability to respond, we handed
22 off to our back-up region in accordance with our
23 continuity of operations protocol. That's something
24 we do very well as an agency. That handover was
25 very seamless. We were also able to continue to

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1 engage from home using technology to stay involved
2 with our counterparts at our back-up region. And
3 headquarters also had to hand off to their alternate
4 facility to maintain the overall agency situational
5 awareness.

6 Again, that went very seamlessly. It
7 was very much a strength, as identified in our
8 after-action report. And we were able to staff the
9 center back up by noon the next day and totally re-
10 engage. And this facility was actually very robust.

11 We didn't even lose normal power, so we were very
12 happy with that.

13 As far as plant impacts, Oyster Creek
14 declared an alert due to intake water level. And
15 the residents will speak a little bit more to the
16 details of that, so I won't get into that.

17 Salem 1 shut down four of six
18 circulating water pumps tripped due to high intake
19 debris. Also, Nine Mile Point 1 and Indian Point 3
20 automatically shut down in response to grid
21 disturbances.

22 A number of plants, we had Millstone
23 reduce power preemptively in anticipation of
24 potential circulating water issues, intake debris.
25 So they backed their power down to avoid running

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1 into problems there. Vermont Yankee had some low-
2 flow restrictions, so, essentially, enough lines
3 were down that they were limited to the amount of
4 power they could push out through other transformer
5 type systems, so they had to reduce power. And at
6 Limerick, due to overall low load demand because so
7 many transmission lines, distribution lines were
8 down, the load was low on the system, so they
9 reduced power, as well.

10 None of these plants had to initiate
11 disaster-initiated reviews we coordinated with FEMA.

12 Preliminary capabilities assessments were performed
13 and determined that those plants could restart
14 without any significant delays. And that's real
15 important. We want to make sure that we don't
16 negatively incentivize these licensees from doing
17 the right thing. If they reduce power or shut down
18 in advance of these storms, that's a good thing. So
19 we want to allow them to hopefully get back up as
20 expeditious as they can, as long as they meet their
21 off-site requirements.

22 2013 hurricane forecast. It's going to
23 be another busy season. You can see the average
24 here. I don't think I've seen an average year here
25 in quite some time. You can see last year 19

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1 storms, ten hurricanes, two were major, Category 3
2 or above.

3 This year, we're already seeing them out
4 there. As a matter of fact, Tropical Storm Dorian
5 just fired up in the Atlantic. We'll be watching
6 that as it approaches Puerto Rico this weekend and
7 potential southeastern U.S. impact next week. But
8 it's too soon to tell on that. But it will be
9 another busy year.

10 That's really all I have. Any
11 additional questions? Okay. Thank you.

12 CHAIRMAN SKILLMAN: Thank you, Ray.

13 MR. PATEL: Hello. My name is -- can
14 you hear me? Hello. My name is Amar Patel. I'm
15 the resident inspector at Oyster Creek. And during
16 Superstorm Sandy, I was on site for the response.
17 Is that better?

18 My name is Amar Patel. I'm the resident
19 inspector at Oyster Creek. I was on site during the
20 Superstorm Sandy, and as well as the Senior Resident
21 Jeff Kulp and another operations examiner, Tom
22 Hedigan. And at the time, the plant was shut down
23 for a normal refueling outage, and the reactor
24 vessel head was removed, the spent fuel pool gates
25 were also removed, and the refueling cavity was

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1 flooded.

2 Decay heat removal was through the
3 shutdown cooling pumps and the fuel pool cooling
4 pumps. And then they were then subsequently cooled
5 reactor building cooling water system, and then
6 that's also cooled by service water.

7 Now, here's a general time line of
8 events during the Superstorm Sandy. Two major
9 issues occurred: the extended loss of off-site power
10 which lasted approximately 30 hours and a flooding
11 event that challenged the decay heat removal.

12 Now, there's a picture of the intake
13 structure at Oyster Creek. You'll see it's exposed
14 to elements, again, not like a lot of sites. But
15 you've got your four ESW pumps, emergency service
16 water pumps, and your two service water pumps. And
17 the concrete base there, that's actually six feet,
18 so that will be important for the other operation
19 when I discuss it a little bit later.

20 On the right-hand side -- no, that's
21 fine. You know what? I can see it better. Here's
22 a cross-sectional view of Oyster Creek, the intake
23 structure, and normal water level is zero feet.

24 Now, as the water level rose above 4.5
25 feet, which is their emergency action level

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1 declaration for unusual event, they declared an
2 unusual event and they would declare it at 4.65
3 feet. Now, as the level rose above 6 feet, which is
4 the alert declaration, they declared the alert, and
5 they declared at 6.25 feet and rising.

6 Now, at 1218, the highest level during
7 Superstorm Sandy was 7.4 feet. And to note there,
8 the importance piece of the intake during refueling
9 outage is the service water pumps, and the impact to
10 service water pumps is actually at 10.3 feet. In
11 1962, the highest level reached before Sandy was 4.5
12 feet.

13 MEMBER STETKAR: So in Sandy, the ESW
14 pumps kept running is what I'm hearing, but the SW
15 pumps probably did not; is that correct? Because
16 there --

17 MR. PATEL: Well, the ESW pumps are
18 actually lower than the service water pumps. They
19 didn't need the emergency service water pumps at the
20 time.

21 MEMBER SCHULTZ: But they were flooded?
22

23 MR. PATEL: They were not flooded, but
24 they still had some margin. I could probably, I'm
25 just going to assume and just guess they were about

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1 a foot lower than the service water pumps, so they
2 were not flooded.

3 MEMBER CORRADINI: But just to clarify
4 John's question, what was running at the time all of
5 this occurring?

6 MR. PATEL: The service water pumps, the
7 two service water --

8 MEMBER STETKAR: What cools the reactor,
9 the cooling water that --

10 MR. PATEL: Service water.

11 MEMBER STETKAR: Oh, service water.
12 Okay.

13 MR. PATEL: Yes. The emergency service
14 water pumps at Oyster Creek and the go in there and
15 spray each --

16 (Simultaneous speaking.)

17 MEMBER ARMIJO: At 10.3 feet, what
18 happens? Electrical shorting of the pumps or --

19 MR. PATEL: I can go to the next slide.
20 So there's a picture of the service water pump. So
21 the highest level recorded was 7.4 feet, and at 10.3
22 feet the impact to the motors -- I'm guessing it'll
23 impact the electrical flow.

24 MEMBER CORRADINI: So just for, you
25 don't have to go back but you had all these lines

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1 before. So the concrete deck was at six point
2 something, so they were --

3 MR. PATEL: Six point zero.

4 MEMBER CORRADINI: So they were about a
5 foot of water sitting on the deck?

6 MR. PATEL: Yes.

7 MEMBER CORRADINI: Okay. And is it
8 planned that there's drainage so that, if it sits on
9 the deck and there's a recession, it goes off and
10 down or it has to, you know, would there be standing
11 water after stuff --

12 MR. PATEL: No, it would naturally drain
13 back down because that's where the intake, the
14 intake --

15 MEMBER CORRADINI: Okay, all right.
16 Sorry.

17 MEMBER RAY: Before I feel too
18 comfortable with the 7.4 feet, this was a big storm,
19 so there must have been waves coming in at higher
20 levels than the 7.4 feet.

21 MR. PATEL: It wasn't really, there
22 wasn't any waves, like at the beach or something
23 like that. At the Barnegat Bay is where they had
24 the suction problems, so it was actually the level
25 was rising. We didn't see any wave action.

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1 MEMBER CORRADINI: Was anybody out
2 there?

3 MR. PATEL: Yes, operators were out
4 there, and you have your security guards were also
5 out there. The operators actually, where they read
6 the level indicator, they actually had to go out
7 into the intake structure to actually read the
8 level.

9 MEMBER BANERJEE: I mean, the wave
10 action may not be anything else than wind. But with
11 the water level up there, with the wind you could
12 get wave action.

13 MEMBER ARMIJO: I'm kind of on the same
14 track. With massive amounts of salt water spraying
15 or splashing against things, that would cause the
16 motors to short out. You didn't see anything like
17 that?

18 MR. PATEL: No. And just a point, after
19 the storm, their engineering department did do an
20 evaluation of components in the intake structure to
21 determine any impacts based on the storm, based on
22 any salt water interactions, and their evaluation
23 didn't see any effects.

24 MEMBER SCHULTZ: Let me ask this
25 question. During the storm, what was the condition

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1 of the parking lot and Route 9? This water was
2 coming in Barnegat Inlet into the bay.

3 MR. PATEL: Yes. The parking lot is
4 actually --

5 MEMBER SCHULTZ: Say again, please.

6 MR. PATEL: The parking lot is actually
7 at 23 feet.

8 MEMBER SCHULTZ: At 23 feet.

9 MR. PATEL: Yes.

10 MEMBER SCHULTZ: Okay. So Route 9 was
11 also dry --

12 MR. PATEL: Yes.

13 MEMBER SCHULTZ: Okay, thank you.

14 MR. PATEL: Here's a picture of the
15 normal water level, and there's just a picture of
16 the intake level stick they would read intake
17 levels. And normal water level is around zero feet.

18 And here's a picture during the storm.
19 Now, the picture is not that clear, but, if you can
20 see the top of the stick, that's where the level
21 rose. And you can see the traveling water screens
22 were actually in the back of the photo to your top
23 right. And the intake level, the intake level stick
24 is on the left-hand side. So I just wanted to show
25 you the perspective of during the storm.

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1 Now, here's a, this is a picture of the
2 initiating event at Oyster Creek during the storm.
3 Due to weather conditions and, specifically, the
4 winds, they caused a wall to collapse in the Oyster
5 Creek switchyard that caused a loss of offsite
6 power. Subsequently to this, the diesel generator
7 started successfully and shut down cooling pumps in
8 the spent fuel pool. The spent fuel cooling pumps
9 were powered from the diesel.

10 MEMBER SCHULTZ: What's the function of
11 that wall?

12 MR. PATEL: The function of the wall
13 was, it was actually built in the '80s for fire
14 protection purposes. The separation between the two
15 -- that's all it was.

16 CHAIRMAN SKILLMAN: It seems like this
17 is an important image because an active fire barrier
18 with phase transformers --

19 MR. PATEL: Those are both regulators.

20 CHAIRMAN SKILLMAN: Okay. And so that
21 is a fire barrier for whatever commitment that
22 Oyster Creek made back in this time period, and it
23 raises the question do they understand what is
24 required for the strength of that wall?

25 MR. PATEL: Just a note that this

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1 switchyard is not actually owned by Oyster Creek.
2 It's actually owned by First Energy and Jersey
3 Central Power and Light. So I'm not sure exactly
4 what the details were when they made this -- they
5 actually built this wall in the '80s, so I believe
6 it was a modification, and I'm not sure exactly what
7 the details were during the modification process of
8 all their, of what they were analyzed for, you know,
9 what they designed their wall to for high winds.
10 I'm really not, I'm not sure.

11 Now, a special inspection was conducted
12 for this event because one of the deterministic
13 criteria was met due to issues concerning
14 implementation of the emergency preparedness program
15 during an actual event and involving a
16 classification of notification process during the
17 declaration of an alert due to a high level in the
18 intake. A 10 CFR 5047 contains risk-significant
19 planning, standards for maintaining and implementing
20 a standard emergency classification scheme, and for
21 notifying state and local organizations.

22 Failure to timely classify, declare, and
23 notify state and local officials would adversely
24 impact the risk-significant planning standards.
25 Now, for these reasons, the region decided to

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1 conduct a special inspection.

2 Now, the special inspection team
3 concluded that the licensee's performance was
4 acceptable and the action levels, emergency action
5 level declarations were timely. The results of the
6 special inspection team are documented in the
7 inspection report listed on this slide.

8 So that's all I have prepared.

9 CHAIRMAN SKILLMAN: I'd like to go back
10 to that image of that wall. Is that the only one at
11 Oyster Creek, or are there others that might be
12 between components that could also lead to a loss of
13 off-site power? Extended condition is what I'm
14 really asking about.

15 MEMBER CORRADINI: Just a clarification,
16 Dick. I want to make sure this is not at Oyster
17 Creek, this is at the switchyard owned by another --

18 CHAIRMAN SKILLMAN: Hold that thought.
19 It's easy to say, gee whiz, it's the plant's
20 problem. But the plant is dependent upon the
21 switchyard that's 200 yards away, and it's owned by
22 Joe Blow Electrical Services and that switchyard can
23 affect the plant.

24 MEMBER CORRADINI: I don't disagree. I
25 just want to make sure --

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1 CHAIRMAN SKILLMAN: I'm not sure we have
2 the freedom to not reach out and touch somebody.
3 I'm wondering if there's something else we've got to
4 talk about.

5 MR. PATEL: Right. Now, they did
6 subsequently remove this wall, so they did do a
7 modification to actually remove this wall. So going
8 forward, this event would not occur due to high
9 winds because there's no wall.

10 MEMBER RAY: What about the event for
11 which it was put there in the first place?

12 MEMBER STETKAR: If I'm going to have a
13 voltage regulator blow up, it's going to take out
14 everything.

15 MR. PATEL: Right. But I didn't look at
16 the modification to remove the wall, so I don't know
17 exactly what, you know, the reasons.

18 MEMBER CORRADINI: So most of my
19 colleagues know this, but I don't. So where does
20 the regulatory authority of NRC end for something
21 like this? That is --

22 MEMBER RAY: Before you get there.

23 MEMBER CORRADINI: That's what I
24 thought. That's what I thought.

25 MEMBER RAY: Absolutely, positively.

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1 MEMBER ARMIJO: I have a question. I
2 don't know anything about switchyards. So it seems
3 to me that this is a very local event that caused
4 such a loss of off-site power. There's no
5 redundancy or some other way with just local damage
6 here would keep supplying power to the plant? I
7 mean --

8 MR. PATEL: A lot of New Jersey from the
9 shore actually lost power, so it wasn't just
10 localized to Oyster Creek. It was from I think
11 Atlantic City all the way up to --

12 MEMBER ARMIJO: Okay. So there were
13 other --

14 MR. PATEL: It was pretty much the whole
15 east coast of New Jersey --

16 MEMBER ARMIJO: Okay.

17 MR. PATEL: -- you know, lost power.

18 MEMBER ARMIJO: Got it.

19 MR. POWELL: Do we still have an open
20 question on regulatory authority?

21 MEMBER RAY: No.

22 MR. POWELL: Okay.

23 MEMBER BANERJEE: Was he correct?

24 CHAIRMAN SKILLMAN: Colleagues, any
25 other questions for Amar? Amar, thank you.

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1 MR. PATEL: Thank you.

2 MR. FERDAS: Okay. Are we going to
3 continue or --

4 CHAIRMAN SKILLMAN: No, please continue.

5 MR. FERDAS: Okay. Thank you.

6 MEMBER BLEY: I don't want to upset your
7 applecart before you start, but, somewhere in your
8 discussion, could you tell us a little bit about
9 Georgia ending up on probation? That seems very
10 unusual to me.

11 MR. FERDAS: Well, I can get someone
12 that can talk to that. Do you want to do that now,
13 or would you want to --

14 MEMBER BLEY: Either way.

15 MR. FERDAS: Okay. I'm going to hand it
16 over to my boss.

17 MEMBER BLEY: Okay.

18 MR. LORSON: Hi. My name is Ray Lorson.
19 I'm the Director for the Division of Nuclear
20 Materials Safety. We have a program called an
21 agreement state program where we relinquish
22 regulatory authority to agreement states if they are
23 adequate and their programs are compatible with the
24 NRC's programs.

25 Georgia became an agreement state

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1 approximately 50 years ago and has been operating
2 their program successfully since that period of
3 time. We have a requirement to periodically assess
4 the adequacy of the state programs. We use a
5 process that's called the IMPEP process, and we
6 conduct these reviews about every four or five years
7 at agreement states to confirm that the programs
8 remain adequate and compatible with the NRC's
9 program.

10 We conducted an IMPEP review last fall
11 and, as a result of that review, identified some
12 areas where the state's program required attention
13 and, specifically, in the area such as event
14 response or responses to allegations. Some of their
15 inspection frequencies were a little less frequent
16 than what the NRC would require.

17 As a result of that process, we follow
18 up the team's assessment with something called a
19 management review board, and that's a publically-
20 available meeting that's shared by the Deputy
21 Executive Director for Materials, Mike Webber. At
22 the conclusion of that meeting, there was a
23 recommendation, and the then review board agreed
24 with the staff recommendation to place the program
25 on probation.

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1 What that means is that there is
2 oversight by the NRC of the same program. It
3 basically requires the state to develop a formal
4 written improvement plan that gets submitted to the
5 NRC for review and approval. And right now, at this
6 point, the state is implementing the performance
7 improvement plan and actually making progress.

8 There was actually no specific
9 individual or release of material that was
10 associated with their state program performance. It
11 was really programmatic concerns associated with the
12 implementation of the program.

13 The process of probation is something
14 that has to be approved by the Commission. And the
15 Commission just completed their vote and there was
16 consensus on the issue that basically endorses that
17 recommendation and places them on probation. It's a
18 little different than something called heightened
19 oversight where we place an increased state of focus
20 from NRC that does not require Commission approval.

21
22 The big differentiator between oversight
23 as opposed to probation is that probation is a much
24 more public process. It involves more in the way of
25 formal communications, including a letter from the

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1 chairman or the governor of Georgia.

2 MEMBER BLEY: Is this kind of a normal
3 process, or is this unique?

4 MR. LORSON: The IMPEP process is a
5 normal process we do on agreements, so all the 38
6 agreement states across the country. Placing a
7 state on probation, this is the first time we've
8 ever actually implemented that part of the IMPEP
9 process, so this is a first-time use of that tool.
10 And the goal is to use the goal to help focus senior
11 state management on the necessary actions to improve
12 the program so we have confidence in the long-term
13 viability of the program. MEMBER BLEY:

14 Thanks for the briefing. I haven't known much about
15 this before.

16 MR. LORSON: Okay. Thank you.

17 MR. FERDAS: Okay. My name is Marc
18 Ferdas. In our Division of Nuclear Materials
19 Safety, I'm the Branch Chief responsible for our
20 decommissioning branch. The question that probably
21 initially comes up is how does materials and
22 reactors come, how do I come to sit in this chair
23 when it's a meeting on reactors? But our materials
24 program does encompass some of the reactor programs,
25 specifically reactor decommissioning and the

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1 independent spent fuel storage installation program.

2 I just wanted correct one thing that I
3 said earlier when the question came up on the
4 research and test reactors. The third one is the NS
5 Savannah. I was thinking universities in my head,
6 and a boat did not come to mind on that one. But
7 it's an odd one where it's characterized.

8 CHAIRMAN SKILLMAN: Let's correct the
9 boat. It's 35,000 real tons of real ship.

10 MR. FERDAS: Yes, it's a ship. It's a
11 ship.

12 MEMBER SCHULTZ: You had to say that,
13 didn't you?

14 MR. FERDAS: It's a ship with a kitchen.
15 Today, I plan to talk about two areas that my group
16 has responsibility for. First is the
17 decommissioning of Crystal River 3, and second is
18 the Indian Point inter-unit wet fuel transfer
19 operations that they have begun last year and will
20 continue through the life of their plant.

21 Decommissioning of Crystal River 3.
22 Basically, in February of this year, Duke Energy
23 announced that they were not going to restart
24 Crystal River Unit 3 after several years of looking
25 for possible repair plans and methods for the issue

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1 that they experienced with cracking of their
2 containment vessel or delamination, which I think
3 that's been talked at at great length so I won't get
4 into that.

5 Subsequent to that public announcement,
6 they sent the NRC a letter certifying the fuel has
7 been permanently removed from the vessel and that
8 they were no longer authorized to operate the
9 reactor. At that point, both the inspection process
10 and the licensing process shifts from an operating
11 plant to a shut-down plant for decommissioning.

12 They have announced that they do plan to
13 enter safe store, and what safe store basically is
14 is maintaining the plant and the fuel in a stable
15 condition until decommissioning or dismantlement
16 takes place. During that time, they are responsible
17 to maintain a variety of programs, such as security,
18 emergency preparedness, environmental monitoring.
19 They do do maintenance on the facilities during that
20 time, as I said, to keep it in a stable condition.
21 And the whole idea of entering safe store is to
22 allow radioactive decay to naturally occur, thus
23 reducing the cost, as well as the radiation exposure
24 to workers for dismantling the plant.

25 We do have an oversight program for

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1 that. We use Inspection Manual Chapter 2561 that
2 lays out our oversight responsibilities. In that
3 chapter, it basically walks you through the life of
4 a decommissioning plant. Right now, Crystal River
5 is in the transitioning to safe store. You have an
6 operating plant, and you need to transition to where
7 they're going to maintain it for long-term storage.

8 And that involves, in the near-term, they'll be
9 looking to deactivate systems, drain systems,
10 process water that still remains within the plant,
11 look to reduce some of their regulatory requirements
12 through licensing and tech spec changes with that.

13 In addition, what makes this kind of a
14 unique item for us is Crystal River 3 is in Region
15 II. We're in Region I here. However, working with
16 Region II, in conjunction, we felt that it would
17 better serve for the decommissioning oversight
18 process to transfer here mainly for one reason: that
19 we have the resources and the staff that can do the
20 decommissioning work.

21 And the reason for that is back in about
22 the mid 2000s there was a consolidation of the
23 materials programs where Region II licensees came to
24 Region I, and we took the staff with that. So at
25 this point, Region II really does not have staff

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1 qualified to perform the inspections under 2561, and
2 we still maintain that capability.

3 So as I said, we're in the process of
4 doing that transfer. There has been an agreement
5 come August 1st where Region I will take over full
6 oversight responsibility with one caveat: we are
7 going to delay the transfer of incident response
8 functions until after this hurricane season, you
9 know, to December 1st to allow us a little more time
10 to get our infrastructure in place in terms of what
11 we need in our IRC communication protocol, etcetera.

12 So we'll be doing that.

13 And in the near future we plan on
14 sending a letter to the licensee announcing our
15 inspection program, what we plan to do in terms of
16 future inspections. I can't really get into that at
17 this point.

18 Just for awareness, headquarters is, we
19 are working with headquarters. They have
20 established a working group to look at enhancing our
21 inspection manual chapter and procedures. As you
22 know, decommissioning of reactors has not occurred
23 for some period of time. There are two in progress,
24 Humboldt Bay and Zion. But, basically, with all the
25 regions getting together, we identified, you know,

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1 lessons learned from those. We have our own lessons
2 learned from the Yankee plants, and we need to just
3 beef up our infrastructure just for clarity for what
4 we should look at. So that's a big undertaking.

5 However, I will say what we have in
6 place now is adequate. We can do the inspections
7 and adequate oversight, but there's always room for
8 improvement in making those documents life-long
9 documents for when I'm not here a long time from
10 now, for knowledge transfer, you know, there's a
11 good pedigree for inspection process because there's
12 going to be more sites decommissioned.

13 MEMBER STETKAR: Marc, are you running
14 the, since you're going to take over Crystal River
15 3, are you running Zion out of this region?

16 MR. FERDAS: No, Region III does have
17 that capability to maintain it. It's really when
18 our materials program emerged, that Region II and
19 Region I aspect, where we kept that.

20 MEMBER STETKAR: Okay.

21 MR. FERDAS: And Region IV does their
22 own decommissioning. Any questions? Okay. I've
23 got three minutes, and I will note that my boss took
24 two of my minutes to get us back on target.

25 Next is Indian Point. You know, this

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1 is, truly, I would say, a unique method that Entergy
2 used to manage their spent fuel at the site. Back
3 in summer of 2012, under a Part 50 license, they
4 received approval to utilize this method. And,
5 basically, what it entails is, you know, it's a wet
6 transfer, so it's in a cask filled with water with
7 multi-connections where they transfer 12 spent fuel
8 assemblies from Unit 3 and ship it over to Unit 2
9 into the pool, and then it's processed as a normal
10 dry cask storage out to their storage pad. And the
11 reason for that is they had both physical, I would
12 say both physical and financial limitations to their
13 ability to upgrade the crane in Unit 3 based on
14 configurations, instrumentation in the plant, how
15 the plant is structured. For Unit 2, it was a great
16 undertaking to upgrade to a single failure-approved,
17 100-ton, approximately 100-ton crane. I know they
18 had to drill into bedrock in order to get, you know,
19 adequate connections and footings and that. So
20 there was good reasons for this plan.

21 Entergy did work with HOLTEC to design
22 the system. To date, there's been -- and I'll have
23 some pictures in the next slides to show kind of
24 working through the process. But, to date, they've
25 completed 16 of these inter-unit wet fuel transfers.

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1 That's approximately 192 assemblies. From there,
2 96 of those Unit 3 spent fuel assemblies have been
3 transported to their spent fuel, to the pad.

4 Oversight of this was also unique. We
5 did not have any inspection guidance in place at the
6 time. We, with help from headquarters, reactors,
7 program offices, and spent fuel offices, developed a
8 new inspection procedure to cover this. Basically,
9 it really leveraged the knowledge that we had from
10 dry cask storage. In the end, it's almost very
11 similar to dry cask storage operations.

12 I'll point out some of the unique
13 aspects. I would say, as I said, it's a Part 50
14 license. Typically, a dry cask is under Part 72
15 process. The shielded transfer for canister is
16 placed directly into the Unit 3 spent fuel pool and
17 the Unit 2 spent fuel pool. Normally, it would be
18 placed in a high-track system in this pool. That
19 wasn't done because of contamination concerns.
20 You're going to be seeing this. They're going to be
21 taking this out of Unit 3 over a roadway, internal-
22 to-plant roadway, so you didn't want to have
23 contamination on your high-track and potentially
24 spreading it throughout the facility.

25 During transport, as I said, it's filled

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1 with water and has a bolted lid connection. Most
2 dry cask storage are weld lid shut canisters. Once
3 the fuel is in there, you know, the idea is you're
4 not going to be going back in to get it.

5 And then the other thing, too, is the
6 components used, the STC, the high-track, are going
7 to be used multiple times over the life of the
8 plant. It's basically a vessel. Once it gets over
9 to Unit 2, it comes back again to Unit 3 to add
10 another set of fuel to it. And there's various
11 preventive maintenance activities, inspections, that
12 they have to do along the way to ensure that it's
13 still maintaining it's safety function and margins.

14 Go to the next slide. The pictures here
15 that I have is, basically, the first picture in the
16 upper left-hand corner is an STC getting ready to go
17 into the Unit 3 spent fuel pool. As I said, at that
18 time, it's loaded with 12 fuel assemblies, very
19 similar to a dry cask storage and normal operations
20 for a plant if you do fuel handling.

21 MEMBER ARMIJO: Now, this STC has the
22 bolted --

23 MR. FERDAS: Yes, what happens is it
24 goes in without lid, okay, and they put the lid on
25 under water. It's not bolted at that point, but

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1 it's lifted out with the lid on. And then what's
2 not shown in the middle picture would be it's taken
3 out, and then, the high-track process with the STC
4 inside of it, they'll bolt it up. They'll do the
5 bolting of the lid, and they do various pressure
6 tests. There's a 24-hour hold where they do a
7 pressurized test. The reason for that is to look
8 for any mis-loads of the fuel. However, there's
9 robust measures on the front to make sure they've
10 taken the right fuel for that canister.

11 What's also not shown is then the high-
12 track lid would be installed, and that's also bolted
13 down and then pressure tested, as well. And then
14 you get to the next picture is this is the high-
15 track with the STC outside of the Unit 3 building.
16 What happens, if you can see those orange pads
17 underneath, that's an air pad system where they have
18 ladders underneath with a tugger and they move the
19 STC outside the building at that point. So it's a
20 very orchestrated of the individuals working the
21 pneumatics to slide that out of the Unit 3 building.

22
23 MEMBER CORRADINI: Like a big piece of
24 furniture.

25 MR. FERDAS: Yes. The next picture is,

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1 once it's outside the building, the vertical cask
2 transporter, otherwise known as the VCT, picks up
3 the high-track and then it's transported over to the
4 other unit, all within the protected area over a pad
5 that has been designed for that weight of, you know,
6 the over 40 times now with the VCT there.

7 Then, after that, it's transported into
8 the Unit 2 spent fuel pool. And here you have the
9 STC being lifted out of the high-track and being
10 placed into the Unit 3 spent fuel pool.

11 MEMBER ARMIJO: Now, it's being put back
12 into -- now, it's still bolted up?

13 MR. FERDAS: It becomes -- it's
14 unbolted. It's unbolted with the lid on, and then
15 they'll lift, then they remove the lid once it's in
16 the spent fuel pool at that point.

17 MEMBER ARMIJO: Okay. And then the fuel
18 stays there until it goes off to --

19 MR. FERDAS: Yes. Based on the
20 amendment, they have a special section in the Unit 2
21 fuel pool where the Unit 3 fuel needs to remain.
22 But like I said, they've already taken some of that
23 Unit 3 fuel out to the pad with a normal cask --

24 MEMBER ARMIJO: Is this --

25 MEMBER BANERJEE: That cask is filled

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1 with water?

2 MR. FERDAS: The small one is filled
3 with water and bolted, yet. They leave a small, if
4 I recall, maybe an 18-inch gap there for some steam
5 expansion. But you'll get equilibrium eventually.
6 It's not going to heat up and boil with no safety
7 relief function, but it does leave a little steam
8 gap for that.

9 MEMBER ARMIJO: Is this going to be the
10 standard process then for this plant to --

11 MR. FERDAS: Yes, it is.

12 MEMBER ARMIJO: Okay.

13 MR. FERDAS: Yes. They looked at
14 various methods, and this is the method that will be
15 used for the life of the plant.

16 MEMBER ARMIJO: Will there be, is this
17 approved for transfer of, let's say, leaking fuel or
18 damaged --

19 MR. FERDAS: No, no. It only has the
20 intact fuel.

21 MEMBER ARMIJO: Okay. So that would be
22 a special case?

23 MR. FERDAS: Yes, that would be a
24 special case. Yes. Just like any other dry cask,
25 leaking fuel you can't put in. You'd have to

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1 canister it, etcetera. They would need a different
2 type of configuration to do that with their baskets.

3
4 CHAIRMAN SKILLMAN: Marc, does the
5 licensee have only one transfer inter-cask --

6 MR. FERDAS: My understanding is yes,
7 yes, it does.

8 CHAIRMAN SKILLMAN: Okay. So once that
9 is lowered into the pool, those assemblies are
10 removed and then that cask is cleaned --

11 MR. FERDAS: And then the process is in
12 reverse.

13 CHAIRMAN SKILLMAN: Got you. Thank you.
14 Colleagues, any further questions for Marc? Marc,
15 thank you.

16 MR. FERDAS: Thank you.

17 MEMBER RAY: While the next -- well,
18 before we conclude, let me add to what I said to you
19 guys a little bit ago. Design criteria part two for
20 off-site power to the plant, it allows the signals
21 to reach the yard, and it imposes no design
22 requirements on either the circuits or the
23 switchyard. Access to the switchyard and control of
24 the switchyard is a different matter, in terms of
25 individual plant operators. When it comes to design

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1 of the switchyard for external events, that's not
2 part of our criteria.

3 If, for any reason, off-site power is
4 considered unreliable, including the switchyard
5 vulnerability, then additional on-site emergency
6 power may be required.

7 CHAIRMAN SKILLMAN: Thank you. I would
8 like to ask whether or not there are any public
9 comments, comments from the public, please. Phone
10 line? Is there anybody on the phone line, please?

11 MR. JANATI: Yes, no comment.

12 CHAIRMAN SKILLMAN: Would you please
13 identify yourself?

14 MR. JANATI: Yes, it's Richard Janati.

15 CHAIRMAN SKILLMAN: Oh, Rich, thank you.
16 Anybody else on the phone line, please? Hearing
17 none, Bill, Bill Dean, please.

18 MR. DEAN: Thank you, Dick. First of
19 all, let me thank the Committee for taking the time
20 to come up here over the last couple of days. I
21 think that some of our staff have been in here
22 observing the proceedings. We invited a lot of them
23 to come so they have a chance to understand what our
24 brethren in headquarters have to go through often
25 with the Committee in terms of the depth of

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1 questioning and interest that you have in many
2 matters and the service that this committee provides
3 the Agency in terms of its continuing probing and
4 intellectual curiosity and so on. I think it really
5 strengthens this agency in the technical decision
6 that we make. So I think it was great for our staff
7 to be able to observe you all in action, and thanks
8 for coming out here to do that.

9 The only thing that I really wanted to
10 mention in terms of closing remarks, first of all,
11 is that we do have a couple of things I wanted to
12 share with you in terms of areas of focus going
13 forward for the region. Obviously, maintaining our
14 focus on plant safety through our inspection and
15 oversight processes, both on the reactors side and
16 the materials side, is paramount. I mean, that's
17 our bread and butter here in the regions.

18 But we're also going to be challenged
19 over the next couple of years in terms of, and you
20 got a little bit of a taste of it from Justin
21 Heinly's presentation about what he found in looking
22 at flooding actions. But post-Fukushima related
23 activities, we're going to see more and more action
24 on the region plate as things move from the
25 processes going on at headquarters to actual

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1 implementation. And so we see that as a challenge
2 and a focus area for us for the next couple of
3 years.

4 Obviously, I mentioned at the outset,
5 our unique environment that we have with all of our
6 external stakeholders in making sure that we
7 appropriately communicate with and listen to our
8 external stakeholders and process that information
9 appropriately.

10 And then, obviously, in the environment
11 that we find ourselves in in a federal family with
12 sequestration and other budgetary considerations is
13 being able to sustain both the recruitment and the
14 retention of highly-qualified staff to be able to
15 conduct the inspections that we need to. So those
16 are some of the high-level focus areas for us that
17 we have in the region. And I don't know if that
18 opens the door for any questions from you all.

19 MEMBER STETKAR: Yes, Bill, the last
20 bullet there, given the situation and the expected
21 projection over the next year or two or so, have you
22 seen negative effects on your staffing? Have you
23 experienced an erosion of staff here?

24 MR. DEAN: No. In fact, the big
25 challenge that we have, I think, in Region I

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1 relative to staff retention is the fact that our
2 proximity to headquarters and the value that many at
3 the headquarters office has placed on people with
4 regional experience is that I think we see a little
5 bit more of an exodus of some of our highly-
6 qualified staff in the positions in headquarters.

7 I, myself, started in a region, and I
8 was in Region II when I started, and I saw an
9 opportunity at headquarters. And then, after four
10 or five years in the region, I moved to
11 headquarters. And so, you know, for those that
12 don't see a future for them, you know, as quickly
13 maybe as they would like sometimes, headquarters
14 provides a little bit more opportunity.

15 That's declined a bit over the last
16 couple of years, not because of sequestration but
17 because of the Agency's focus on salaries and
18 benefits and the fact that we're fairly high,
19 government-wide, in terms of what the salary and
20 benefits structure is for this agency. And so
21 there's been a concerted effort to reduce that. And
22 you're seeing, you know, downsizing, obviously, with
23 not as many new reactors coming to the floor. You
24 know, we had this tremendous growth over a certain
25 period of time, anticipating many new reactors, and

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1 that has sort of downsized, you know, in light of
2 natural gas prices and things like that. So we're
3 actually doing some natural downsizing as an agency
4 because of that, and I think you all have been more
5 with the third building down there and, you know,
6 maybe we really didn't need that third building
7 after all. I'm glad I'm up here. I've got my
8 building here. I got that done before we came under
9 those constraints but --

10 MEMBER STETKAR: Keep the meeting room
11 open. We may be up here.

12 MR. DEAN: Yes, okay. I know this is
13 not quite the same as the setup you have down in
14 headquarters.

15 MEMBER STETKAR: You haven't seen a
16 drain out to the industry, an increasing drain?

17 MR. DEAN: Not to the industry. In
18 fact, to be honest with you, the industry that's
19 impacted us the most the last year is we lost
20 several of our people to Google.

21 MEMBER STETKAR: Is that right?

22 MR. DEAN: Yes, several people have
23 left, some of our qualified inspectors have left to
24 go work for Google. So that's been the biggest
25 drain on us.

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1 MEMBER SCHULTZ: As you describe it, the
2 path to regional toward headquarters, is there not
3 enough emphasis at headquarters for regional
4 experience to send those from headquarters to the
5 regions? I think it's invaluable.

6 MR. DEAN: Yes. No, thank you for that.
7 As a matter of fact, we just went through our
8 process for selecting the next individuals to be in
9 our SES candidate-development program. And mobility
10 to the regions was a consideration in the selection
11 process, and so headquarters does value the regional
12 experience and that's why, you know, we see a number
13 of our people, you know, going the other direction
14 sometimes. It's a bit of a challenge, but, to be
15 honest with you, we've actually, over the last year
16 to two, have hired a number of people from
17 headquarters who wanted to come out and get the
18 regional experience.

19 And so I think it's a two-way street.
20 But, you know, for us, we've had a lot of losses of
21 a lot of our qualified staff to headquarters.

22 MEMBER REMPE: So as you try to implement
23 Fukushima actions, do you anticipate you'll have a
24 budget for the staff required? Are there any
25 juggling and over-stressed, or do you have any feel

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1 for that?

2

3 MR. DEAN: You know, if past is
4 prologue, I think there certainly is a great
5 sensitivity on the part of headquarters to not
6 overburden the regions. I actually sit on the
7 Agency's JLV steering committee. And as they were
8 preparing to do these flooding and seismic audits,
9 they were actually making a concerted decision not
10 to incorporate regional participation in those. And
11 I pushed for regional participation on those audits
12 because of the value, and I think you heard it from
13 some of our inspectors today, the value that they
14 would provide to those teams, and it was the right
15 decision.

16 But we want to be engaged, we want to be
17 involved. And, you know, within the budgeting of
18 regional resources, there's some flexibility there.

19 Part of the regional allocation of resources is
20 devoted towards temporary instructions, which are
21 maybe a one-time inspection activity. And so
22 there's certain resources that we built into our
23 allocation to allow us to do those sort of things.
24 And, really, it's the matter of being able to find
25 the right people that are not involved in other

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1 activities.

2 I mentioned at the outset about our
3 support to Region II and Region IV for 95003
4 inspections and the Fort Calhoun 0350 process.
5 Again, that's something that's built into the
6 overall budget for the oversight program is that we
7 anticipate a couple of those inspections on an
8 annual basis. And so those resources are kind of
9 divvied up amongst the regions, you know, not in any
10 specific way, but it's sort of a cushion that is
11 built into the program to allow for emergent type
12 events.

13 So I don't sense that there's going to
14 be a lot of challenges at this point. But it will
15 take some juggling.

16 CHAIRMAN SKILLMAN: Colleagues, any
17 other questions or comments?

18 MEMBER SCHULTZ: I wanted to bring up
19 one topic again associated with ensuring continued
20 plant safety, and that's the Oyster Creek shutdown
21 schedule and the oversight that ought to be required
22 associated with that because we need to recognize
23 that, both the region and headquarters, that this is
24 a first-of-a-kind activity. Yes, plants have shut
25 down previously, but they've really been termed what

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1 you would consider immediate shutdown over a
2 regulatory concern or a financial concern. The
3 plant does not go through a six-year process of
4 shutdown, as Oyster Creek will, and I think that
5 additional attention to the oversight process ought
6 to be both determined, developed, and implemented
7 appropriately because this is not the first time
8 this is going to happen and we need to prepare for
9 it properly.

10 I understand things like golden
11 handcuffs may sound as if it's going to take care of
12 the problem, but we all know that, in terms of
13 operation of a safe nuclear facility, everyone
14 contributes to that within the staff. Hundreds and
15 hundreds of people need to be focused on a safety-
16 conscious work environment to assure plant safety.
17 So we need to develop activities of oversight that
18 assure that.

19 MR. DEAN: Yes, you're actually right,
20 Steve. And I think, you know, we certainly have
21 heard that message. I know it's something that
22 we've been looking at. I think, earlier, there was
23 some discussion about development of an appropriate
24 inspection module at headquarters for plants
25 because, you're right, Oyster Creek may not be the

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1 only plant.

2 And one of the things that I wanted to
3 mention with respect to Oyster Creek that sort of
4 defines some of the unique environment that we
5 operate in is that the state of New Jersey has a
6 very strong engagement with respect to Oyster Creek.

7 As a matter of fact, they have a special oversight
8 committee chaired by the director of the Department
9 of Environmental Protection in New Jersey, Bob
10 Martin, that, sometime in the next couple of months,
11 will issue a report based on their findings over the
12 last year or so in terms of what should oversight at
13 Oyster Creek look like. They certainly recognize
14 the NRC's preeminent role in terms of public health
15 and safety, but they certainly have interest and
16 equity in the safe operation of that plant, too.
17 And so New Jersey has taken a very active role in
18 assuring that we do, you know, as you say, provide
19 appropriate oversight in the final years of Oyster
20 Creek operation. So I appreciate that.

21 And I'm sorry, Dick. If there's no more
22 questions, I do want to thank Mel Gray and his team
23 for all that they've done over the last couple of
24 months, actually, this process working with Quynh,
25 to coordinate your guys' visit to Peach Bottom, as

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1 well as the visit and the agenda here. They did, I
2 think, a great job in trying to pull this all
3 together. And, hopefully, we were able to provide
4 you the support that you needed.

5 And I also want to thank all of my
6 staff. They did such a great job in terms of
7 preparing for and providing you all presentations
8 today. I think they did a great job overall.

9 CHAIRMAN SKILLMAN: Thank you. Let me
10 finish on this note. I want to thank the region,
11 everybody who has contributed to this very
12 productive piece of time for your preparation but,
13 more importantly, for your professionalism and
14 holding high the standard of nuclear safety up in
15 Region I. Thank you for that.

16 I particularly want to recognize the
17 inspectors. That is a tough job, and you really are
18 the first line. So thank you for the work that you
19 do to keep the thick magnifying glass on the plants
20 to keep all of us safe.

21 And I want to thank Quynh, who has
22 really done the bulk of the work, to let us come
23 here and to be at Peach Bottom yesterday. It's been
24 very smooth and very effective. So, Quynh, thank
25 you. And, Bill, thank you very much. We are

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1 adjourned.

2 (Whereupon, the foregoing matter was
3 concluded at 11:50 a.m.)
4
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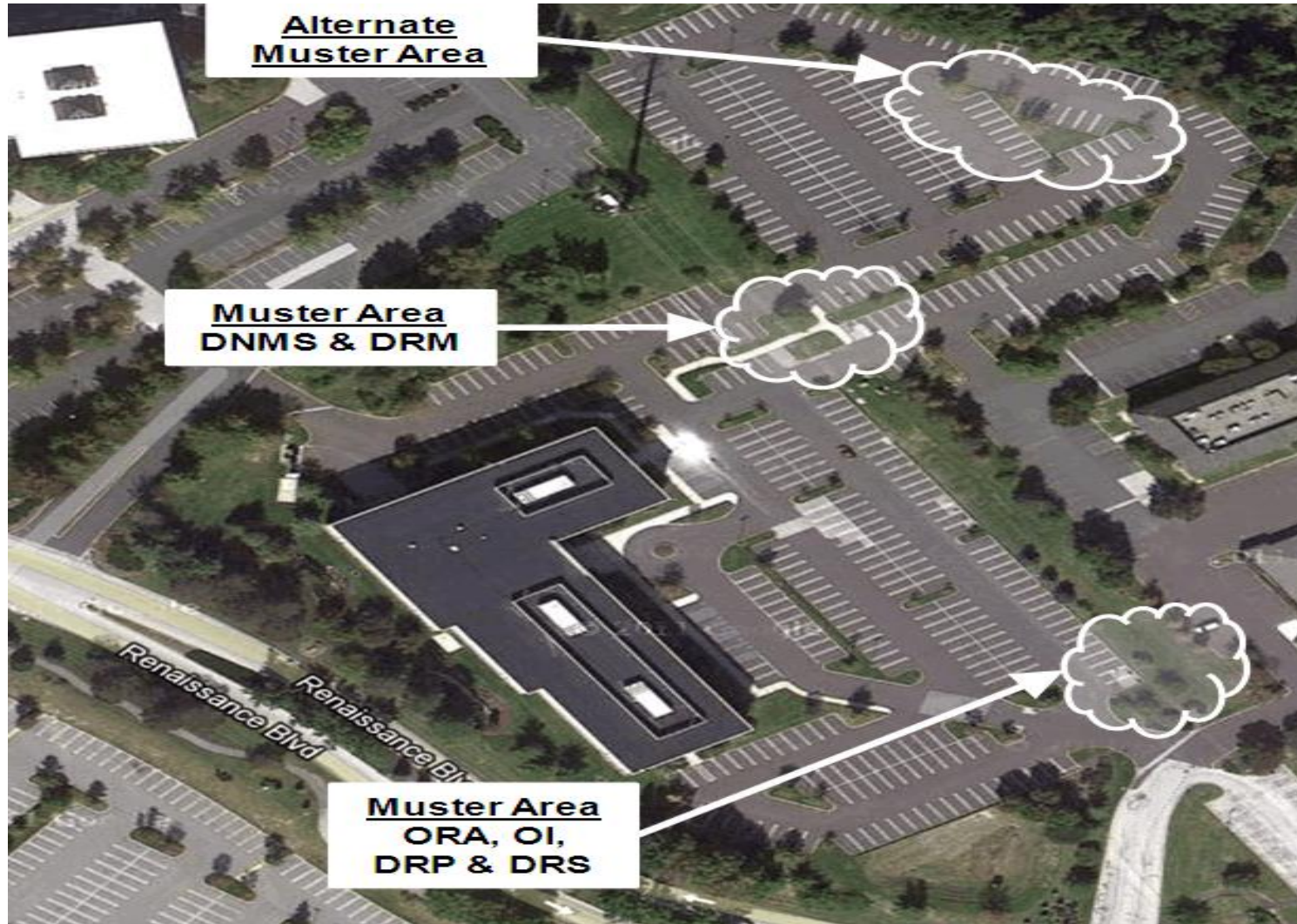
Protecting People and the Environment

Welcome and Overview of Region I

July 24, 2013

Bill Dean
Regional Administrator
Region I

Muster areas during building evacuation





Overview of Region I

- **Mission** – Inspect, assess and oversee the safety performance of 26 operating nuclear reactors, 16 ISFSIs, 4 nuclear reactors in SAFSTOR, over 900 material licensees, 1 Master Material License, and 9 complex decommissioning sites to ensure adequate protection of the public health and safety and the environment.
- **Who we are** –
 - 233 total staff in Region I (135 Qualified Inspectors)
- **What we do** –
 - Reactor Inspections (CY2012 - ROP 13)
 - Baseline Inspections - 116,000 hrs. of inspection and related activities
 - 5 Supplemental (3 – 95001 & 2 – 95002) and 1 Reactive Inspection
 - Responded to 7 declared events (6 UE's and 1 Alert)
 - Nuclear Materials Program
 - 320 Inspections and 580 Licensing Actions (FY2012)
 - Navy Master Material License (MML)
 - Oversight for Agreement States



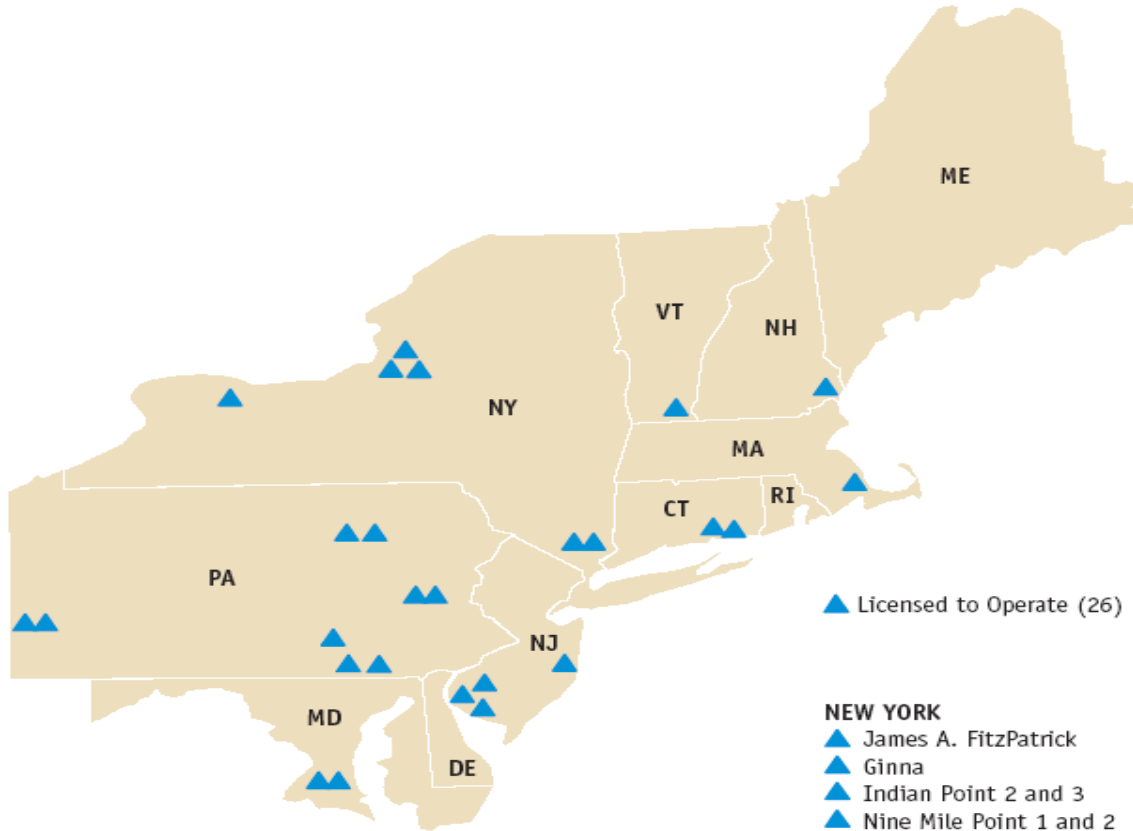
Region I Data

Number and Type of Licensees

- **16 Nuclear Reactor Sites (CT, MD, MA, NH, NJ, NY, PA, VT)**
 - 26 operating reactors
 - 13 PWRs (9 WH, 3 CE, 1 B&W)
 - 13 BWR (8 Mark-I and 5 Mark-2)
- **980 materials licensees (DC, DE, CT, PR, VI, VT, WV) & Navy MML**
- **16 ISFSIs**
 - 10 Inside Protected Area (PA)
 - 3 Outside PA (within OCA)
 - 3 Stand-alone
- **4 Nuclear Reactors in SAFSTOR**
- **Complex Decommissioning Activities**
 - 6 complex material sites
 - 3 Research / Test Reactors

Reactor Safety

Where we regulate



CONNECTICUT

- ▲ Millstone 2 and 3

MARYLAND

- ▲ Calvert Cliffs 1 and 2

MASSACHUSETTS

- ▲ Pilgrim 1

NEW HAMPSHIRE

- ▲ Seabrook 1

NEW JERSEY

- ▲ Hope Creek 1
- ▲ Oyster Creek
- ▲ Salem 1 and 2

NEW YORK

- ▲ James A. FitzPatrick
- ▲ Ginna
- ▲ Indian Point 2 and 3
- ▲ Nine Mile Point 1 and 2

PENNSYLVANIA

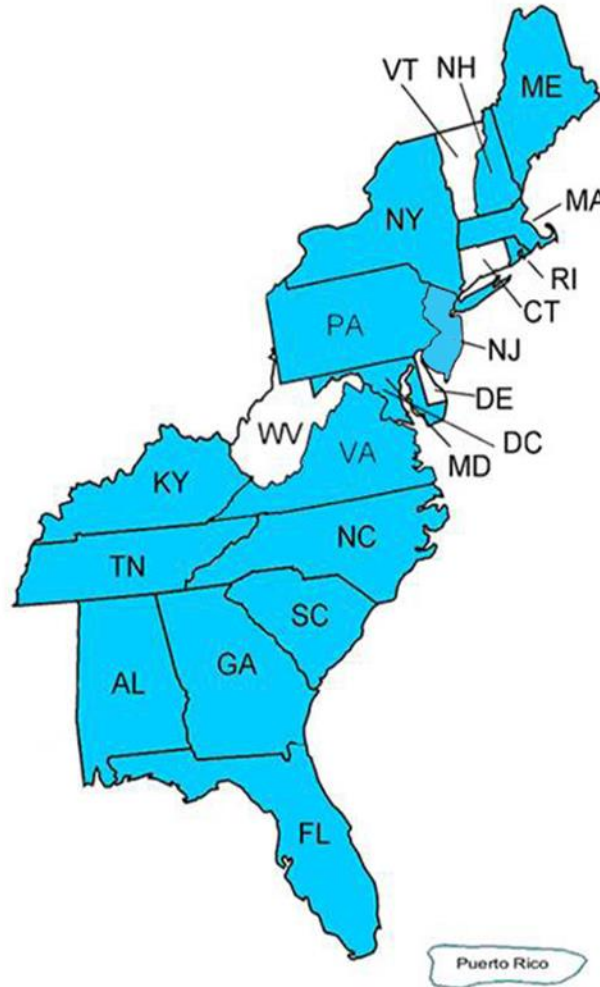
- ▲ Beaver Valley 1 and 2
- ▲ Limerick 1 and 2
- ▲ Peach Bottom 2 and 3
- ▲ Susquehanna 1 and 2
- ▲ Three Mile Island 1

VERMONT

- ▲ Vermont Yankee

Materials Safety

Where we regulate



Agreement State

Non-Agreement State

* Materials Licenses are located throughout the North/South Eastern States, Puerto Rico and the Virgin Islands



Unique Plant Transitions Impacting Region I Sites

- Crystal River – new decommissioning site
- Indian Point – timely renewal process
- Oyster Creek – Shutdown agreement with the State of New Jersey



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Protecting People and the Environment

Fleet Overview and Reactor Oversight Process Performance Summary

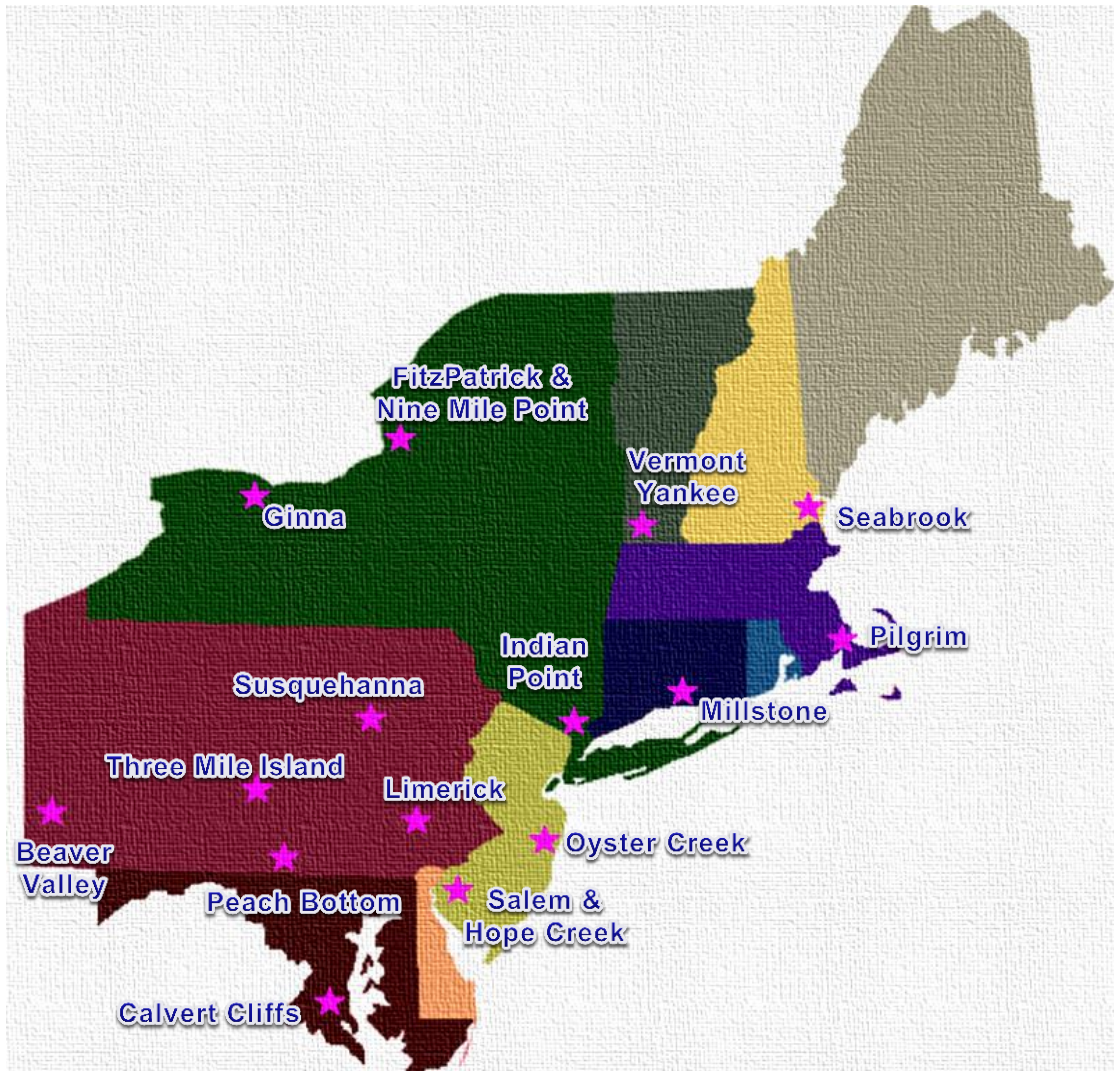
July 24, 2013

Carey Bickett / Raymond Powell
Division of Reactor Projects
Region I

Agenda

1. Action Matrix Summary
2. Substantive Cross Cutting Issues
3. Reactor Oversight Process Improvement Initiatives

Region I Plants



Constellation: Calvert Cliffs, Ginna, Nine Mile Point

Dominion: Millstone

Entergy: FitzPatrick, Indian Point, Pilgrim, Vermont Yankee

Exelon: Limerick, Oyster Creek, Peach Bottom, Three Mile Island

FENOC: Beaver Valley

NextEra: Seabrook

PPL: Susquehanna

PSEG: Salem, Hope Creek

Action Matrix Summary

as of 6/7/2013

Plant	Starting Quarter	Action Matrix Column and Input
Beaver Valley 1 & 2	3Q2012	<u>Regulatory Response</u> : One or more greater than green findings in the security cornerstone
FitzPatrick	4Q2012	<u>Regulatory Response</u> : White 'Unplanned Power Changes' performance indicator
Nine Mile Point 1	4Q2012	<u>Regulatory Response</u> : White 'Unplanned Scrams' performance indicator
Susquehanna 2	4Q2012	<u>Regulatory Response</u> : White 'Unplanned Scrams with Complications' performance indicator
Three Mile Island	4Q2012	<u>Regulatory Response</u> : White finding (external flood barrier deficiency)

All other Region I plants are in the Licensee Response Column.



Susquehanna

- Closed: H.2(c) – Procedure Adequacy (*opened at 2011 End-of-Cycle Assessment*)
- Maintained: P.1(c) – Problem Evaluation (*opened at the 2011 Mid-Cycle Assessment*)
 - Exit criteria not met. There was not a notable reduction in findings with this aspect and corrective action plans associated with monitoring progress were not effectively implemented.

Components of the Reactor Oversight Process Internal Assessment

Ongoing Feedback (IMC 0801)

- Individuals (inspector, inspection procedure owner, subject matter expert) via feedback process
- Collectives (working groups, subject matter experts) via interface meetings

Annual Review (IMC 0307)

- Reactor Oversight Process self-assessment
- Biennial internal survey

Biennial Review (IMC 0307B)

- Reactor Oversight Process realignment

FY 2013 Enhancement Project

- In lieu of Reactor Oversight Process realignment

FY 2013 Independent Assessment (SECY 12-0081)

- Will inform the Reactor Oversight Process Enhancement Project

Components of the ROP Enhancement Project

Baseline Inspection Program

Assessment (Later)

Communication (Later)

Enhance the baseline inspection program

Incorporate needed inspection areas for the current environment

Eliminate redundant inspection areas

Ensure efficient and effective use of agency resources

Incorporate flexibility where appropriate



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Protecting People and the Environment

**Deviations from the ROP
Seabrook Concrete Alkali-Silica Reaction (ASR)
Condition**

July 24, 2013

James Trapp, Branch Chief
Division of Reactor Safety
Region I

Agenda

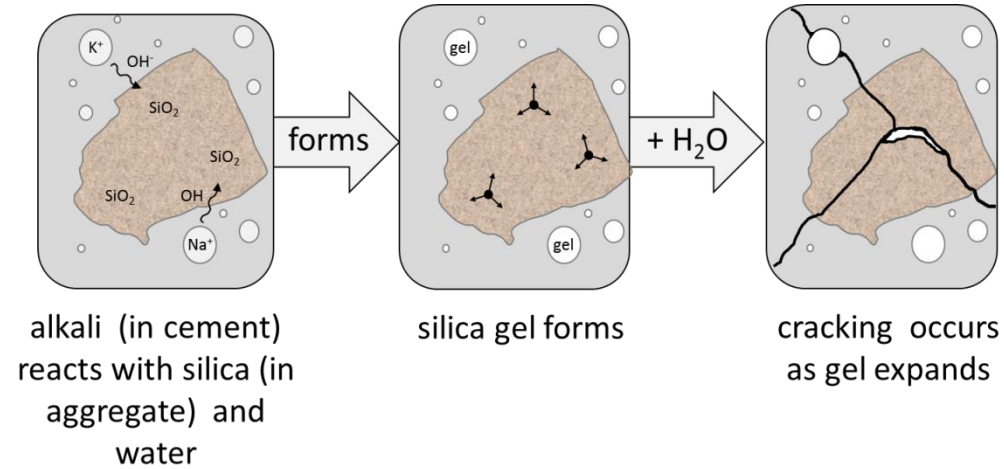
1. Issue
2. NRC Response
3. Future Activities

Indications of ASR

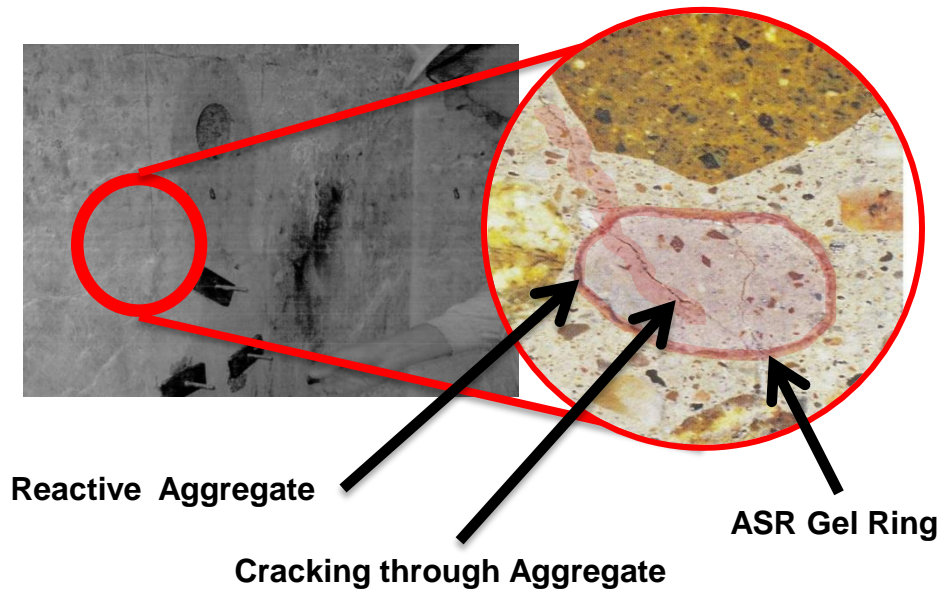
- Alkali-Silica Reaction (ASR) has been identified in localized areas of Seabrook concrete structures
- ASR is a chemical reaction in concrete, which occurs over time in the presence of water, between the alkaline cement and reactive silica found in some aggregates.
- ASR forms a gel that expands causing micro-cracks that effect concrete material properties

Issue

Process:



Appearance:



NRC Actions

- Information Notice (IN 2011-20)
- Confirmatory Action Letter (CAL 1-2012-002)
 - Including two follow-up inspection reports
- ROP Deviation Memo
- Task Force and Charter
- Two Public Meetings
- Webinar with Press
- Public ASR Website

Future Activities

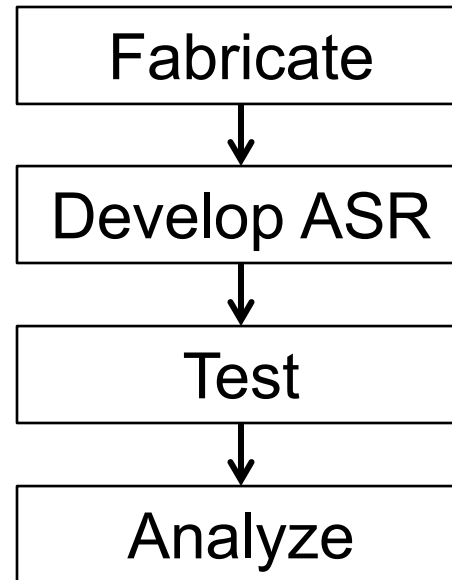
- Issue the second CAL Follow-up Inspection Report
- CAL and Deviation Memo Closure Letters
- Conduct Public Meeting
- Continued monitoring of ASR activities at Seabrook Station via PI&R Samples
- Oversight of ASR Test Program at University of Texas at Austin

Testing at UT-Austin

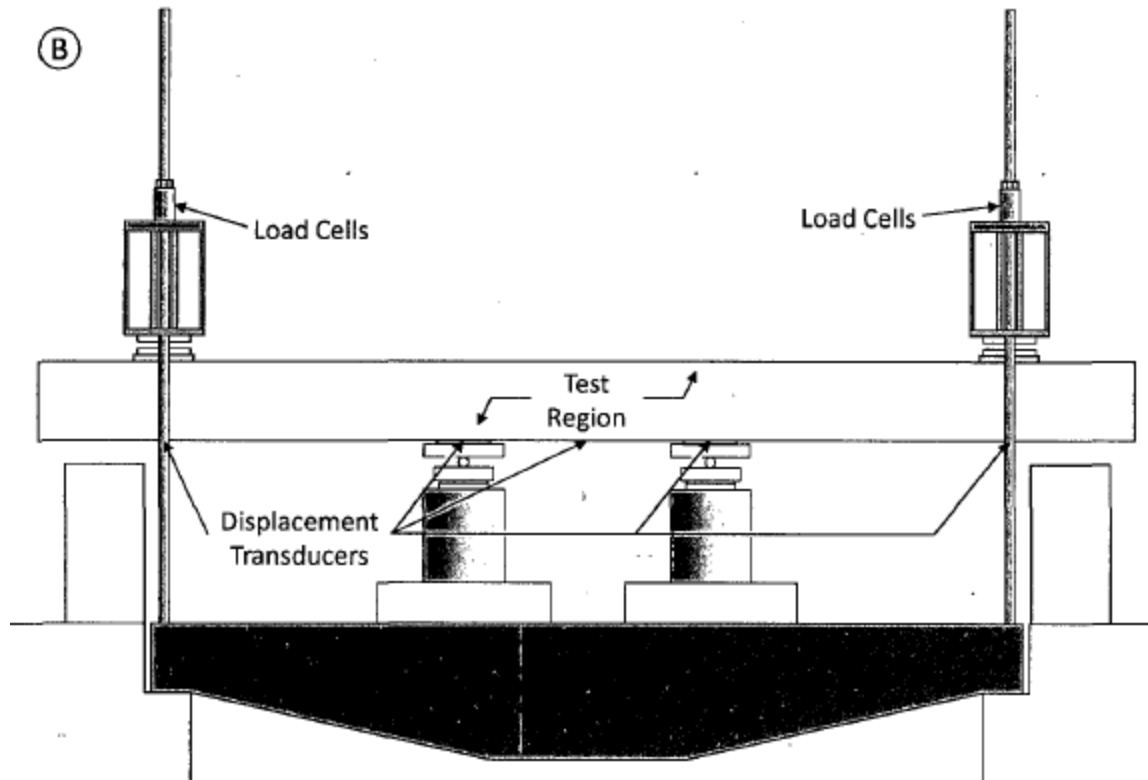
Purpose: To determine the effects of ASR on reinforced concrete performance using samples representative of the Seabrook structures.

Test Programs:

- 1) Anchor Bolts
- 2) Lap-splice
- 3) Shear



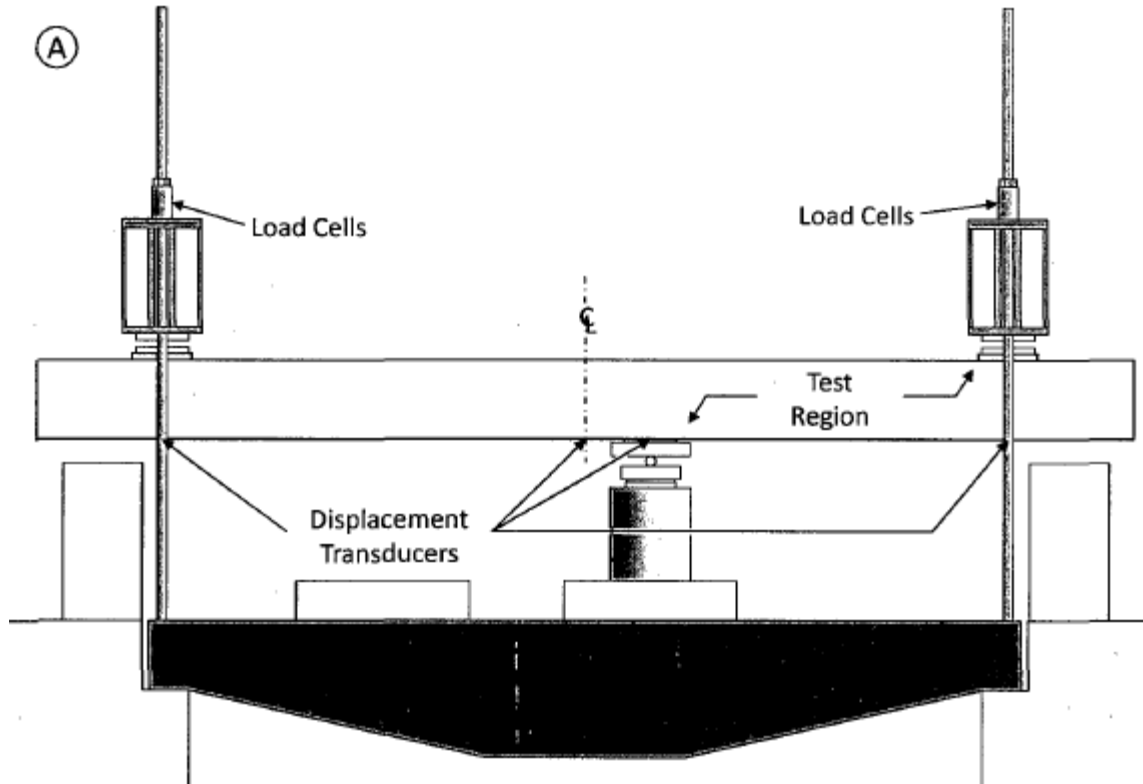
Test: Lap-splice Performance



Test: Lap-splice Performance



Test: Shear Performance



Test: Shear Performance





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Protecting People and the Environment

Status of Follow-up Flood and Seismic Walkdown Audits of Region I Plants

July 24, 2013

Chris Cahill, PE
Senior Reactor Analyst
Division of Reactor Safety
Region 1

TI 187 and 188 Objectives

- Verify licensee's seismic and external flood protection walkdown activities.
- These walkdowns were performed at all sites in response to a Request for Information as part of the lessons learned from the Fukushima accident.
- All RI inspections were completed and documented in the fourth quarter 2012 reports.

- NRC issues from the reports include:
 - Millstone Unit 2 – Unresolved Item associated with unsealed penetrations in the Unit 2 turbine and auxiliary buildings.
 - Three Mile Island – Green Non Cited Violation for the failure to identify and correct unsealed penetrations through the Intake Screen and Pump House.
 - Three Mile Island – White corrective action violation for Exelon’s failure to identify and correct that electrical cable conduits were not flood sealed in the air intake tunnel as designed.

Follow-up Audits

- Performed to gain a better understanding of the licensee's methods and procedures in conducting the walkdowns and to assist in the review of the walkdown reports.
- Factors in choosing the sites to audit were:
 - Lack of clarity as to how the walkdown was consistent with the guidance based on the review of the walkdown report.
 - Plant specific areas of interest identified during review of the walkdown report.
 - Feedback and information gained during performance of regional inspections (e.g., Temporary Instruction 2515/187).

Selected RI Audits Sites

- Flood protection audits:
 - Salem 1&2 and Hope Creek (on-site June 25-27)
 - Millstone (Week of July 15)
 - Vermont Yankee (Week of July 15)
 - Oyster Creek (Week of July 22)

- Seismic audits:
 - Beaver Valley (Week of July 22)
 - Seabrook (Week of July 29)



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Three Mile Island - 1 TI-187 Inspection Results

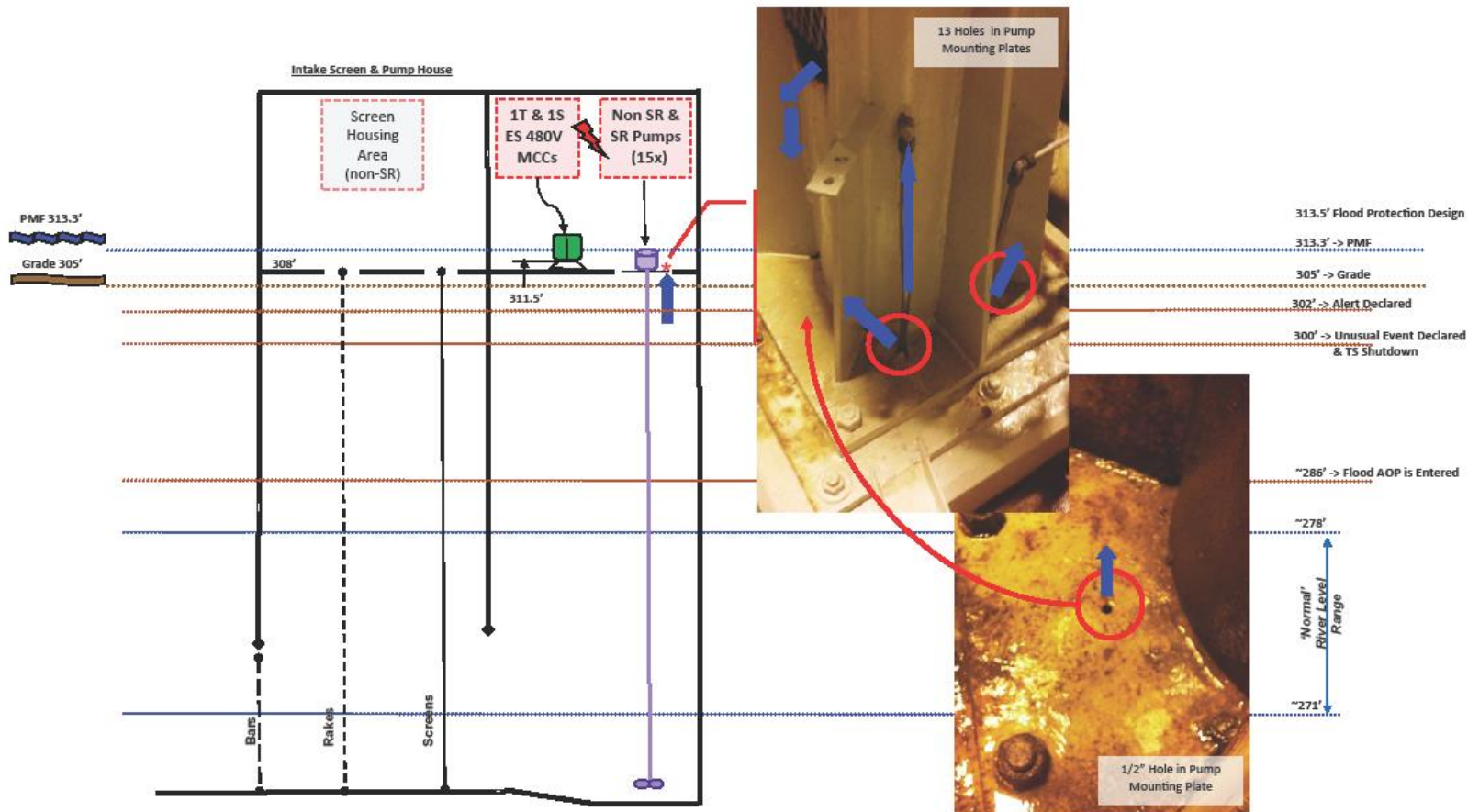
July 24, 2013

Justin Heinly / David Werkheiser
TMI Resident Inspectors
Division of Reactor Projects
Region 1

Inspection Scope / Results

- In August 2012, TMI resident inspectors conducted post-Fukushima flooding walkdowns. The inspectors' sample included the conduct of both independent and accompanied walkdowns.
- During an independent walkdown of the Intake Screen and Pump House (River Intake), the inspectors identified 13+ unsealed penetrations on motor baseplates.
- During an accompanied walkdown with the licensee of the Air Intake Tunnel (Air Intake), the inspectors identified the lack of seals in 43 cable conduits.
- The issues, and associated violations, are documented in NRC inspection reports:
 - ✓ 05-289/2012005 (February 11, 2013), ML13042A277
 - ✓ 05-289/2012005 (April 4, 2013), M13094A219
 - ✓ 05-289/2013009 (April 30, 2013), M13120A040

River Intake Motor Baseplate Holes



NOTES:

- Areas & Distance, Not to scale
- ISPH = Intake Screen and Pump House
- AOP = Abnormal Operating Procedure
- * Holes sealed and check valves installed August 2012

KEY:

- PMF Flow Path 
- Subject to Flood Water 

TMI-1 Flooding Issue Diagram

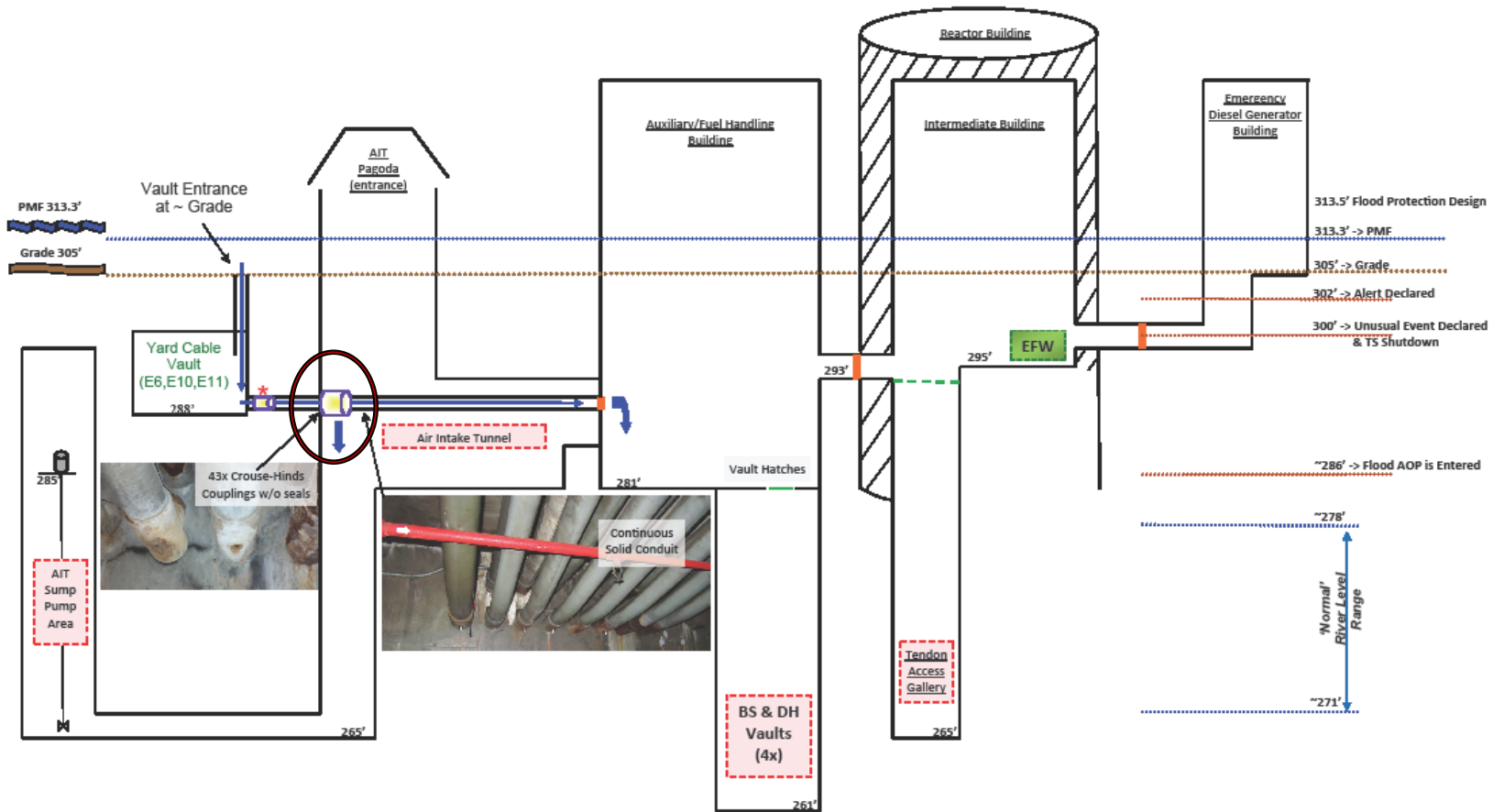
Intake Screen & Pump House

Rev. June 26, 2013
 Heinly / Werkheiser

River Intake Motor Baseplate Holes






Air Intake Missing Conduit Seals



NOTES:

- Areas & Distance, Not to scale
- AIT = Air Intake Tunnel
- PMF = Probable Maximum Flood
- FBS = Flood Barrier System
- * Flood Seals Installed here Nov 2012

KEY:

- Fire Foam Seal 
- PMF Flow Path 
- Subject to Flood Water 

TMI-1 AIT Diagram

AIT—Aux Bldg—Intermediate Bldg

Rev. Jun 26, 2013
Heinly / Werkheiser

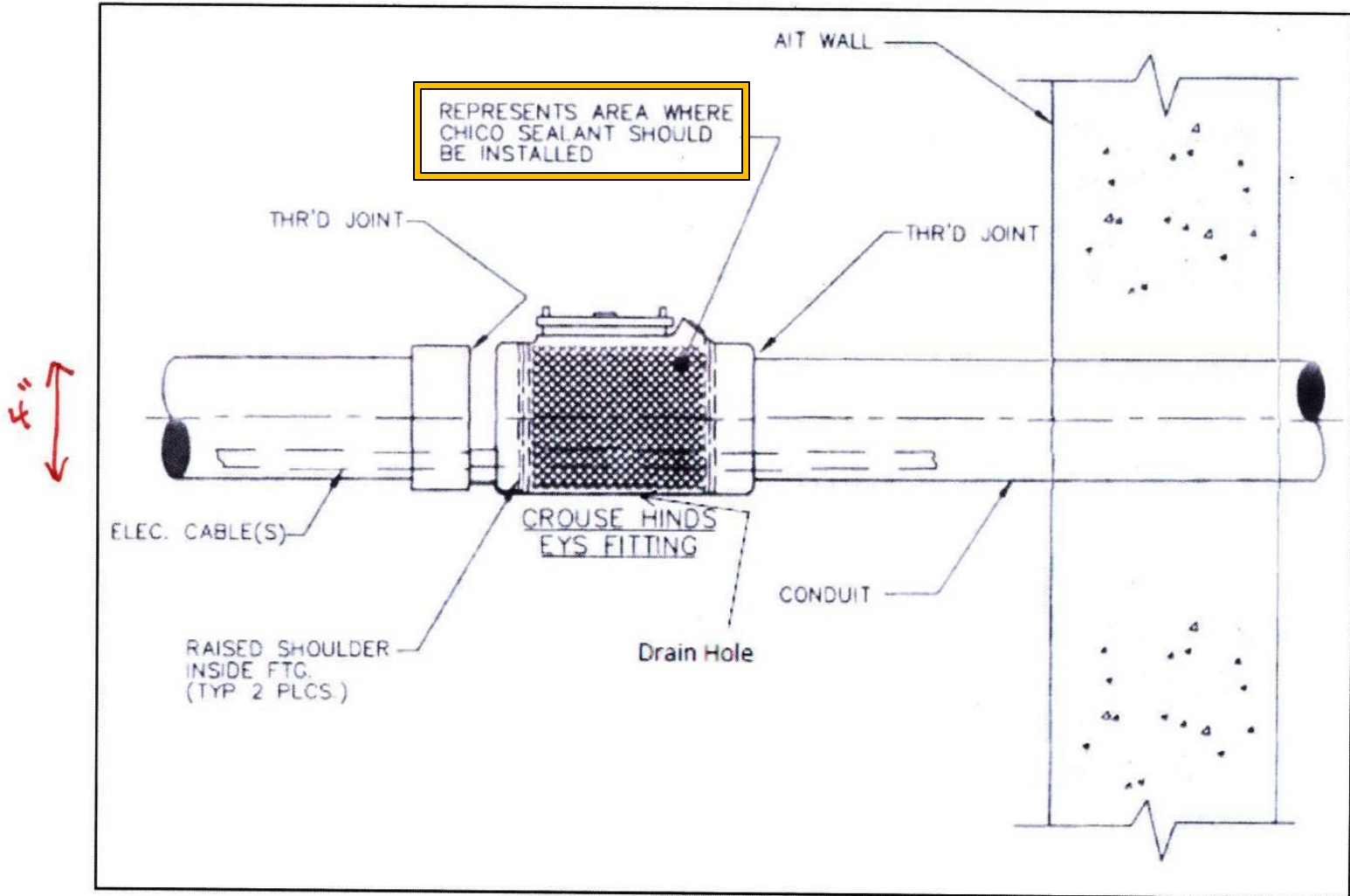
Air Intake Missing Conduit Seals



Three Mile Island-1
Air Intake Tunnel
Crouse-Hinds Seal Housings with open drain ports

August 10, 2012

Air Intake Missing Conduit Seals



Air Intake Missing Conduit Seals



Outcome / Info Sharing

❖ Inspection Outcome / Licensee Corrective Actions:

River water intake violation – NCV (Green) of 10CFR50, App B, Criterion 16 (Corrective Actions) for failure to identify and correct.

- Licensee sealed baseplate penetrations and installed check valves in pump cavity drains.

Air intake violation – NOV (White) of 10CFR50, App B, Criterion 16 (Corrective Actions) for failure to identify and correct.

- Licensee sealed conduits up stream at the cable vault. Other programmatic actions as a result of root cause evaluation (e.g. evaluation of ‘inaccessible’ features)

❖ NRC Information Sharing:

- ✓ Article published in NRC-wide Inspector Newsletter, (April 2013)
- ✓ Presentation at Region 1 Inspector Seminar, (June 2013)



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Protecting People and the Environment

**Region I Participation in State of the Art
Consequence Analysis (SOARCA) and Spent Fuel
Pool Scoping Safety Study**

July 24, 2013

Chris Cahill, PE
Senior Reactor Analyst
Division of Reactor Safety
Region 1

SOARCA Mitigation Measures Analysis

RI participated in the evaluation of reactor mitigation measures.

These measures included:

- Emergency Operating Procedures (EOPs)
- Severe Accident Management Guidelines (SAMGs)
- Specific mitigation measures
- In addition, the team completed table-top exercises of the selected scenarios to glean insights into operator actions for implementation of the available mitigation measures.

Spent Fuel Pool Scoping Study

RI participated in the evaluation of spent fuel pool mitigation measures:

- Detecting SFP leak
- Diagnosis and response planning
 - Determine the use of FLEX equipment
- Action – Either inject or spray water into SFP
- In addition, the team completed table-top exercises of the selected scenarios to glean insights into operator actions for implementation of the available mitigation measures.



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Region I Fire Topics

July 24, 2013

John Rogge
Division of Reactor Safety
Region I

1. Overview
2. NFPA 805 Transition Status
3. Multiple Spurious Operations
4. Indian Point – Single Spurious

Overview

- 15 plants are pre-79
- 9 plants are post-79
- 6 plants are in transition to
NFPA 805

NFPA 805

Transition Status

- NMP 1 – LAR submitted 6/11/12
- NMP2 – Withdrawn
- Ginna – LAR submitted 3/28/2013
- Calvert Cliffs – LAR scheduled 9/30/13
- Beaver Valley – LAR scheduled 12/31/13

NFPA 805 Transition Status

- Enforcement Discretion
- 15 violations have been dispositioned using enforcement discretion since commitment to transition to NFPA 805

MSO – Multiple Spurious Operation

- All plants have addressed the issue except for those in transition to NFPA 805 and Indian Point.
- Region I inspects the results during the Fire Inspection Triennial Teams.
- We have found no issues to date.

Single Spurious – Indian Point

- As part of resolution plants were required to identify and resolve the non compliances.
- Approval and Exemptions were needed if cables and equipment were protected by the use of Operator Manual Actions.

Single Spurious – Indian Point

- Many Exemptions were denied.
 - Time Margin
 - Defense in Depth
- Upon Inspection, one Unit 3 requested Exemption was found to be not feasible.
- Resolution will also address MSO issue.



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Protecting People and the Environment

Regional Response to Hurricanes and Storm Events

July 24, 2013

Ray McKinley
Senior Emergency Response Coordinator
Division of Reactor Safety
Region I

Agenda

1. Hurricane Response Procedure
2. Experience with Hurricane Sandy
3. 2013 Forecast

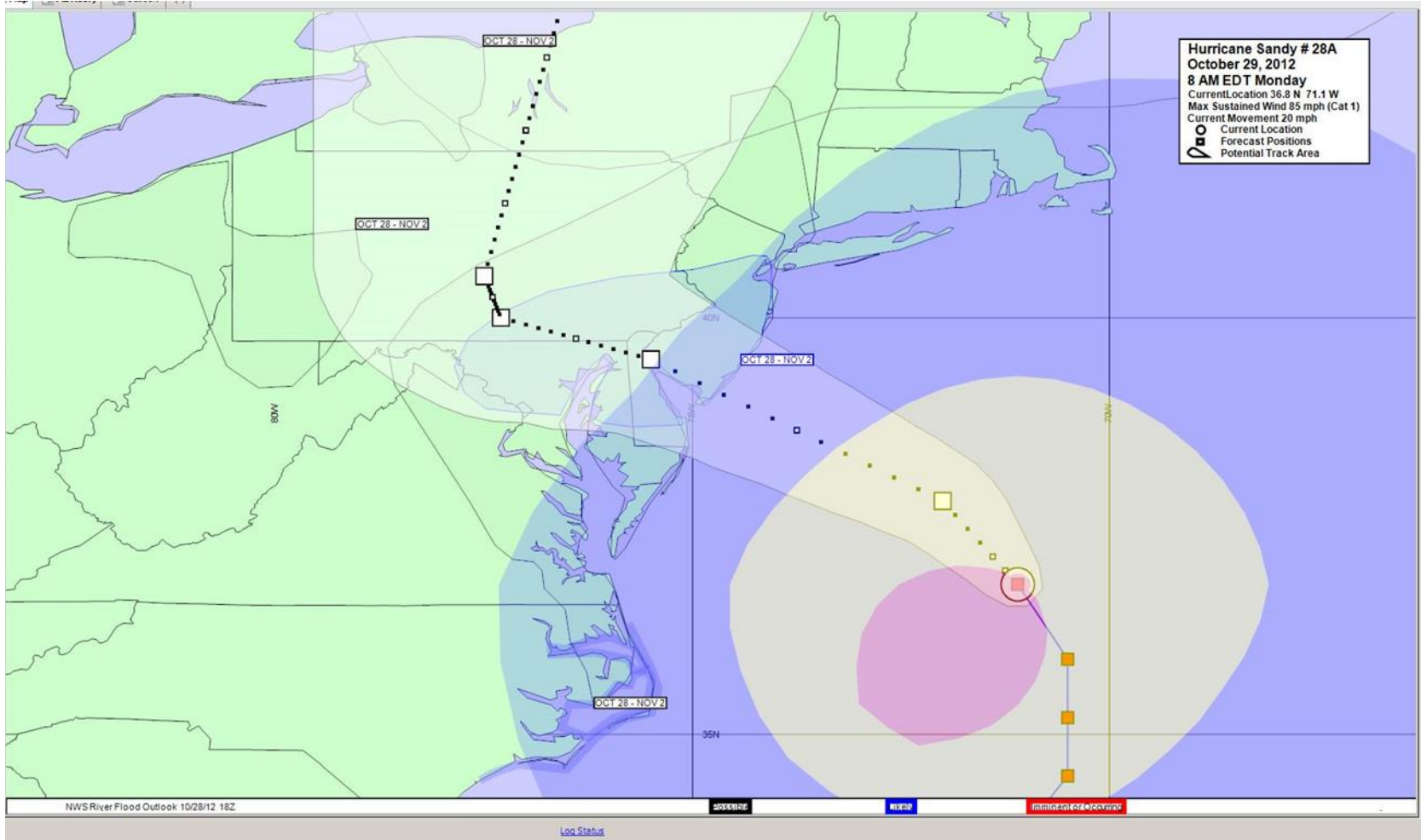
Preparation activities begin 120 hours from landfall and escalate as the storm approaches:

- Tracking storm progress
- Briefing NRC management and staff
- Dispatching additional inspectors
- NRC Incident Response posture decision making

Response activities intensify 24 hours before impact through storm passage:

- NRC Incident Response posture decision-making
- Monitoring NRC licensee preparations and storm impacts at NRC licensed facilities
- Coordinating with FEMA and affected states relative to infrastructure damage and reasonable assurance of protective action implementation

Hurricane Sandy



Hurricane Sandy Effects

- NRC executed portions of the Continuity of Operations Plan as the storm impacted the HQ and Region I offices.
- Plant impacts:
 - Oyster Creek Alert declared due to intake water level.
 - Salem 1 manually shutdown when 4 of 6 circulating water pumps tripped due to intake debris.
 - Nine Mile Point 1 and Indian Point 3 automatically shutdown in response to grid disturbances.

2013 Hurricane Forecast

	Average Year	2012 Actual	2013 Forecast
Named Storms	12.1	19	15 to 18
Hurricanes 74 to 110 mph	6.4	10	8 to 11
Major Hurricanes > 110 mph Cat 3 and above	2.7	2	3 to 6



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Hurricane Sandy

July 24, 2013

Amar Patel (RI)
Division of Reactor Projects
Region I (Oyster Creek)

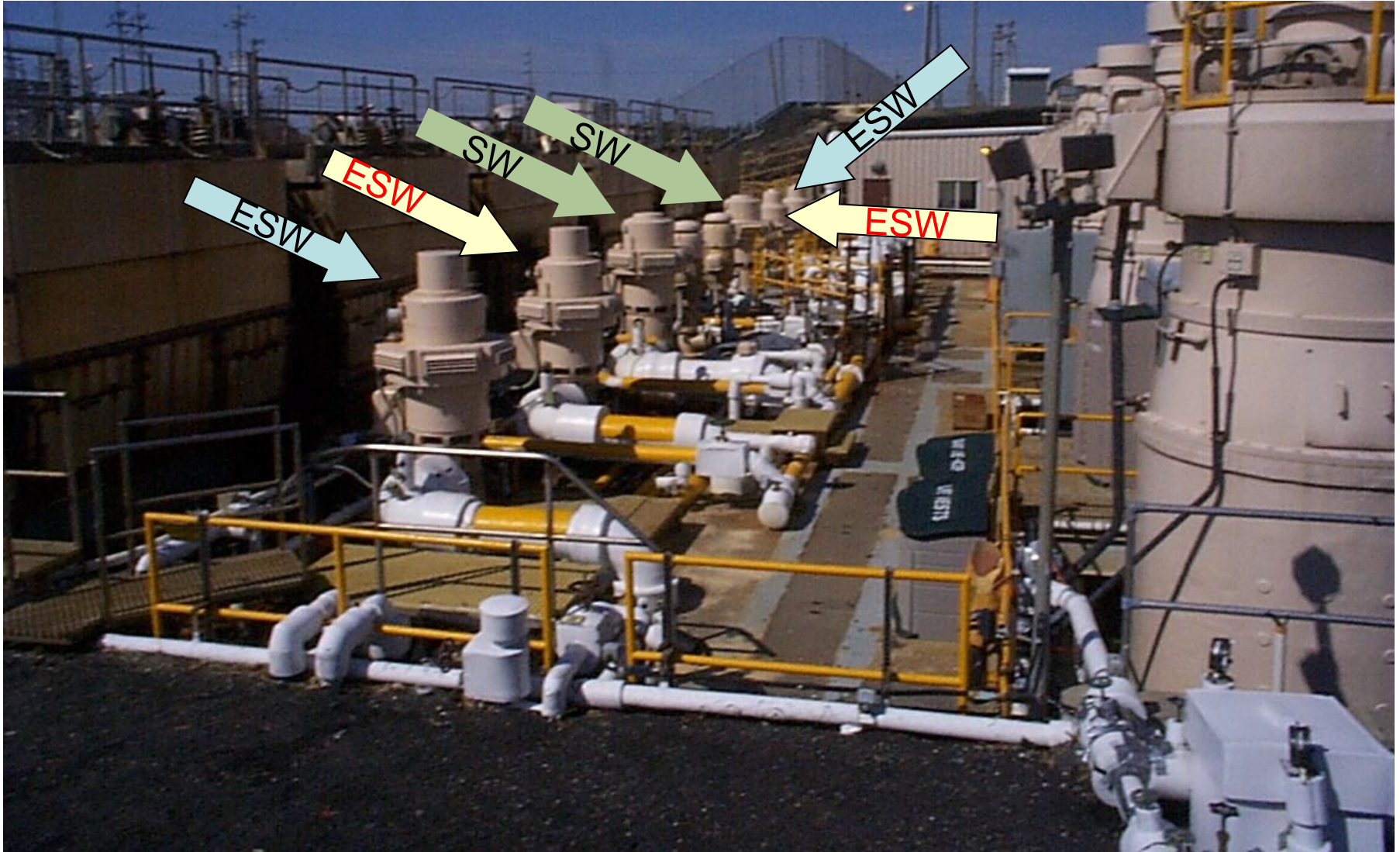
Timeline

- 10/29
 - 6:55 pm - **Unusual Event** declared (>4.5 ft) > 4.65 ft
 - 8:18 pm - **Loss of Offsite Power** occurred
 - 8:44 pm - **Alert** declared (>6 ft) – Intake level 6.25 ft and rising
- 10/30
 - 12:18 am - **highest level** during storm – 7.4 ft
- 10/31
 - 3:52 am - Offsite Power restored and Alert terminated



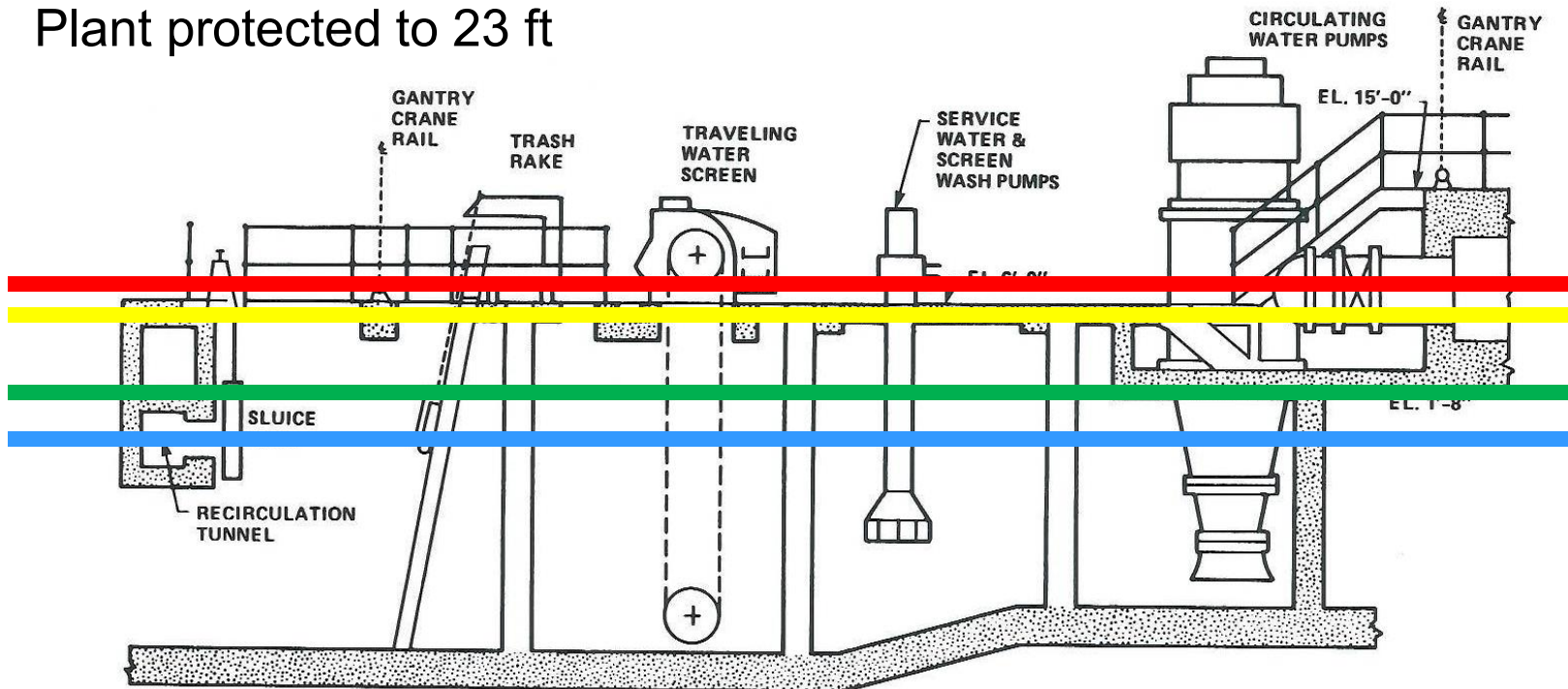
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Service Water System



Flooding of Intake

- Normal water level ~ 0 ft
- 6:55 pm Unusual Event declared (>4.5 ft) > 4.65 ft
- 8:44 pm Alert declared (>6 ft) – intake level 6.25 ft and rising
- 12:18 pm the highest level during Sandy – 7.4 ft
- Impact to service water pump motor - 10.3 ft
- 1962 highest level reached before Sandy – 4.5 ft
- Plant protected to 23 ft



Service Water Pump

- 10.3 ft – Impact to Motors
- 7.4 ft





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Normal Intake Level



Intake Level Stick →



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Intake Picture during Storm



Stick



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Initiating Event for LOOP



Inspection Results

- Special Inspection conducted
- Results – licensee response was acceptable and no findings of significance were identified
- Documented in inspection report 05000219/2012009
ML13010A470



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Protecting People and the Environment

Region I Materials Oversight of Reactor Activities & Issues

July 24, 2013

Marc S. Ferdas
Division of Nuclear Materials Safety
Region 1



Agenda

- Decommissioning of Crystal River 3
- Indian Point Inter-Unit Wet Fuel Transfer

Decommissioning of Crystal River 3

- On February 20, 2013, Duke Energy certified that fuel has been permanently removed from the vessel and no longer authorized to operate the reactor.
- Licensee plans to place the plant in SAFSTOR status.
- NRC oversight governed by Inspection Manual Chapter 2561, “Decommissioning Power Reactor Inspection Program.”
- NRC oversight responsibility in the process of being transferred from Region 2 to Region 1.
- HQ working group established to enhance inspection program guidance and procedures.

Indian Point Inter-Unit Wet Fuel Transfer

- Unique evolution approved by NRC under Part 50 license amendment in July 2012.
- Consists of the wet transfer of 12 spent fuel assemblies at a time from U3 to U2 using a HOLTEC designed system.
- 16 inter-unit wet fuel transfers have been completed to date.
- Oversight performed based on Region 1 developed NRC Inspection Procedure 60845, “Operation of Inter-Unit Fuel Transfer Canister & Cask System.”
- Extensive on-site inspections performed of licensee’s activities associated with pre-operational testing (dry-runs), initial transfer, and a selected transfer.

Indian Point Inter-Unit Wet Fuel Transfer

Empty STC going into U3 spent fuel pool



HI-TRAC with loaded STC moved out of U3 on air pads



Loaded STC lowered into U2 spent fuel pool to be unloaded



VCT transporting HI-TRAC and loaded STC from U3 to U2



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Closing Remarks

July 24, 2013

Bill M. Dean
Office of Regional Administrator
Region I



Areas of Focus Going Forward for Region I

- Ensuring continued plant safety
- Ensure completion of all actions related to events in Fukushima
-
- Continued engagement with stakeholders to communicate our key safety messages
- Maintain highly qualified staff with sequestration factors



Questions