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Plant License Renewal Subcommittee

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UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

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ADVISORY COMMITTEE ON REACTOR SAFEGUARDS

(ACRS)

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PLANT LICENSE RENEWAL SUBCOMMITTEE

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WEDNESDAY

MARCH 2, 2016

+ + + + +

ROCKVILLE, MARYLAND

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The Subcommittee met at the Nuclear Regulatory Commission, Two White Flint North, Room T2B1, 11545 Rockville Pike, at 12:58 p.m., Gordon R. Skillman, Chairman, presiding.

COMMITTEE MEMBERS:

GORDON R. SKILLMAN, Chairman

PETER RICCARDELLA, Member-at-Large

RONALD G. BALLINGER, Member

CHARLES H. BROWN, JR., Member

DANA A. POWERS, Member

HAROLD B. RAY, Member

JOHN W. STETKAR, Member

ACRS CONSULTANT:

STEPHEN SCHULTZ

DESIGNATED FEDERAL OFFICIAL:

KENT HOWARD

ALSO PRESENT:

JEFF AULER, DTE

RANDY BREYMAIER, DTE

YOIRA DIAZ-SANABRIA, NRR

CLIFFORD DOUTT, NRR/DLR

LYNNE GOODMAN, DTE

ALLEN HISER, NRR/DLR

TIM HOFFMAN, DTE

WILLIAM HOLSTON, NRR/DLR

CHRISTOPHER HOVANEC, NRR/DLR

LOIS JAMES, NRR

VAROUJAN KALIKIAN, NRR/DLR

MICHAEL LAKE, DTE

DANEIRA MELENDEZ-COLON, NRR/DLR

CHRIS MILLER, NRR/DLR

SEUNG MIN, NRR/DLR

LARRY PETERSON, DTE

KEITH POLSON, DTE

MOHAMMAD SADOLLAH, NRR/DLR

STUART SHELDON, Region III

JOHN TIBAI, DTE

KENT WOOD, NRR

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

2 12:58 p.m.

3 CHAIRMAN SKILLMAN: Good afternoon.

4 This meeting will now come to order.

5 My name is Dick Skillman. I am

6 Chairman of the Plant License Renewal Subcommittee.

7 The Subcommittee will review the license renewal

8 application for the Fermi 2 Nuclear Power Plant

9 this afternoon.

10 ACRS Members in attendance are Ron

11 Ballinger, Pete Riccardella, Harold Ray, Dr.

12 Powers, Charlie Brown, and our consultant, Dr.

13 Stephen Schultz. The Designated Federal Official

14 is Kent Howard, to my right.

15 This afternoon, we will hear

16 presentations from the Division of Reactor License

17 -- of License Renewal from Region III and from DTE

18 Electric Company regarding this matter. The

19 Subcommittee will gather information, analyze

20 relevant issues and facts, and formulate proposed

21 positions and actions as appropriate for

22 deliberations by the Full Committee -- by the

23 Subcommittee.

24 The rules for participation at today's

25 meeting have been announced as part of the Notice

1 of this meeting previously published in the Federal
2 Register. We have not received written comments or
3 requests for time to make oral statements from
4 members of the public regarding today's meeting.
5 The entire meeting will be open to public
6 attendance.
7 There will be a public phone bridge
8 line. To preclude interruption of the meeting, the
9 phone will be placed in a listen-in mode during the
10 presentations and Committee discussion.
11 A transcript of this meeting is being
12 kept and will be made available as stated in the
13 Federal Register Notice. Therefore, I request that
14 participants in this meeting please use the
15 microphones located throughout the meeting room
16 when addressing the Subcommittee.
17 The participants are requested to
18 please identify themselves and speak with
19 sufficient clarity and volume so that they can be
20 readily heard. I also request that you silence
21 your personal electronic devices for the duration
22 of the meeting.
23 I would like to make an opening
24 statement here. I have reviewed in detail the AMP
25 report from 2014, the AMP report and the 71002

1 inspection report from 2015, and the LER, the SER,
2 and the other associated documents, accumulating to
3 approximately 3,000 pages. It is obvious that
4 there has been a huge amount of work from the AMP
5 report in 2015 to the 71002 inspection in '15 and
6 finally to the production of the staff's SER in
7 January of 2016.
8 So I want to thank you up front for
9 what is obviously a huge amount of effort by the
10 licensee and by the NRC total staff. Thank you.
11 And with that, we will proceed, and I
12 will turn the meeting over to Chris Miller to begin
13 the presentations.
14 MR. MILLER: Good afternoon, and thank
15 you, Chairman Skillman and Members of the ACRS.
16 I am Chris Miller, Director of the
17 Division of License Renewal. Part of the team
18 sitting with me here at the table is Yoira Diaz.
19 She is our Project Branch 1 Director, Branch Chief.
20 We have in the audience Branch Chiefs Dennis Morey,
21 Brian Wittick, Jim Danna, and Steve Bloom, and also
22 a number of members from the DLR staff.
23 We also have from Region III Dr. Stuart
24 Sheldon, Senior Resident -- Senior Reactor
25 Inspector from Region III who conducted the 71002

1 inspection.

2 We're looking at having a very

3 productive meeting with you and thank you for your

4 time and your comments. We look forward to this

5 meeting.

6 We issued the SER With Open Items on

7 January 28, 2016, with one open item. The open

8 item is related to the effects of reactor water on

9 fatigue life and is summarized in the SER With Open

10 Items. At this time, the staff and the applicant

11 have reached a satisfactory resolution of the open

12 items, so we will be presenting those details to

13 the Subcommittee this afternoon.

14 There is a proposed site-specific

15 license condition that is summarized in the SER

16 With Open Items. The proposed site-specific

17 license condition is related to the Boraflex

18 Monitoring Program. We will be presenting those

19 details to the Subcommittee this afternoon as well.

20 The staff is prepared to discuss these

21 or any other questions on the review during the

22 presentation and during the Q&A session.

23 And at this time, I'd like to turn the

24 presentation over to DTE Energy and Site Vice

25 President Keith Polson to introduce his team and to

1 commence their presentation. Keith?

2 CHAIRMAN SKILLMAN: Before you do,

3 please let the record show that John Stetkar has

4 joined as a Member of ACRS.

5 Keith, please proceed.

6 MR. POLSON: So -- so good afternoon.

7 We really do -- on behalf of the whole Fermi team,

8 we really appreciate the opportunity to be here to

9 present an overview of our license renewal

10 application to this Subcommittee.

11 We are very proud of the efforts that

12 have gone forth the past several years, and we

13 really look forward to answering any questions that

14 you may have. But before I get into the actual

15 presentation, I would like to do some

16 introductions.

17 Myself, I am Keith Polson. I am the

18 Site Vice President. To my left is Larry Peterson.

19 He is the Director of Engineering. To his left is

20 Randy Breymaier, and he is the Manager of

21 Performance Engineering. And to Randy's left is

22 Lynne Goodman, who is the License Renewal Project

23 Manager.

24 We have brought a lot of subject matter

25 experts that are sitting in the chairs behind us.

1 It was not my intent to go through and introduce
2 every one of them. I think you can see we have got
3 a pretty diverse here of program owners and experts
4 in other fields, so moving on to the next slide?
5 So part of the agenda we're going to,
6 Larry is going to discuss the plant design, plant
7 history, and current status. Then Lynne is going
8 to talk about the license renewal application, the
9 project, and the SER. And then we will turn over
10 to Randy for aging management programs, and then at
11 the end, I will give closing remarks.
12 So with that, I would like to turn it
13 over to Larry.
14 CHAIRMAN SKILLMAN: Keith, before you
15 turn the baton, let me ask you a question please.
16 As the Site Vice President, what is
17 your vision of the importance of 10 CFR 50 Appendix
18 B to the site in general and to this application in
19 specific?
20 MR. POLSON: Well, it is -- I mean, it
21 is very important to the site and to DTE in general
22 for the future of -- of Fermi.
23 CHAIRMAN SKILLMAN: I'd say yes, that's
24 a good answer. Would you -- would you like to
25 expand at all?

1 MS. GOODMAN: Would you like me to talk
2 about the application --
3 MR. POLSON: Yes.
4 MS. GOODMAN: -- and the programs?
5 MR. POLSON: Yes.
6 MS. GOODMAN: Lynne Goodman. For the
7 aging management programs, definitely they're all
8 going to be under the auspices of 10 CFR 50
9 Appendix B. That's the guiding light for how we
10 operate our plants is through our QA program, and
11 all of our aging management activities will be done
12 under the auspices of our QA program.
13 CHAIRMAN SKILLMAN: Okay. Thank you.
14 Larry?
15 MR. PETERSON: Thank you.
16 This slide shows the plant location.
17 I've got several slides, and we'll look at the
18 overall plant layout in -- in general, but I wanted
19 to start by showing the plant location as being
20 pretty much in the center of Detroit and Toledo,
21 about 28 miles to the south of Detroit and 26 miles
22 to the north of Toledo. Next slide, please.
23 This is an aerial view, and I've got a
24 slide a couple of slides later that I'll highlight
25 the specific structures of the plant, but I wanted

1 to start with providing a simple aerial view of the
2 plant on Lake Erie. Next slide, please.
3 Fermi 2 is a boiling water reactor
4 rated a 486 megawatts thermal, producing
5 approximately 1,170 megawatts electrical. We are a
6 BWR 4 with a Mark I containment.
7 Some design fundamentals that I wanted
8 to go over as it relates to our electrical design
9 and our ultimate heat sink: our electrical design,
10 as noted on this slide, we actually have separate
11 switchyards, a 120 kV switchyard for our Division 1
12 power, and our 345 kV switchyard for our Division 2
13 power. We have a total of four emergency diesel
14 generators, two per division for our safety-related
15 divisions. And we do have a combustion turbine
16 generator onsite, (CTG) 11-1, which is our station
17 blackout power supply.
18 Cooling water is -- as you noted in the
19 prior slide, we are on Lake Erie. Lake Erie
20 provides a cooling water makeup via our general
21 service water that cools reactor building closed
22 cooling water as well as turbine building closed
23 cooling water and ultimately discharges to our circ
24 water reservoir.
25 We do have two natural draft cooling

towers, and one unique element that is noted in the picture, shown in the picture, is we have an RHR complex that houses our ultimate heat sink. We have two reservoirs in that complex, one per division, for our ultimate heat sink, that's -- that we rely on.

We also have mechanical draft cooling towers for each of those reservoirs. Additionally housed in the RHR complex are the emergency diesel generators that I referred to earlier.

CHAIRMAN SKILLMAN: Larry, before you change slides, would you give us a one-minute tutorial on your combustion turbine generator: how often you exercise it, in general how it's addressed in your -- in your license?

MR. PETERSON: Certainly. Our combustion turbine generator, being a station blackout power supply, is required to be able to function in our Technical Requirements Manual to meet SBO requirements. That requires routine surveillances as well as normal maintenance to be able to ensure that the (CTG) 11-1 will function to support station blackout.

It is also, being a station blackout power supply, all work associated with it is

1 handled under our Augmented Quality Program to
2 ensure that it is the -- the parts, the work,
3 everything is -- is treated to -- to ensure we're
4 meeting the station blackout requirements for
5 liability of that machine.
6 CHAIRMAN SKILLMAN: Okay, Larry. What
7 credit has that combustion turbine generator been
8 given in the post-Fukushima environment?
9 MR. PETERSON: It has no specific
10 credit in the post-Fukushima environment. I -- we
11 do have an individual here that can go into greater
12 details, but we're not explicitly crediting it --
13 CHAIRMAN SKILLMAN: Okay.
14 MR. PETERSON: -- as -- hopefully that
15 answers your --
16 CHAIRMAN SKILLMAN: Yes --
17 MR. PETERSON: -- question.
18 CHAIRMAN SKILLMAN: -- it does. Thank
19 you.
20 MR. PETERSON: The last element on this
21 slide is recognizing that we do share site with
22 Fermi 1. Fermi 1 is currently in safe storage.
23 Next slide, please.
24 MEMBER POWERS: I can't resist. It is
25 because of Fermi 1 that the ACRS is a statutory

1 committee.

2 MR. PETERSON: This slide shows the

3 principal structures on our site layout. And I'll

4 start with pretty much the center of the slide.

5 You see our reactor building, auxiliary building,

6 rad waste and turbine building all in the center of

7 the slide.

8 CHAIRMAN SKILLMAN: Just before you

9 proceed --

10 MR. PETERSON: Yes.

11 CHAIRMAN SKILLMAN: -- it appears as

12 though there is space for a second reactor

13 building. Was this intended to be a dual-unit site

14 and just the one unit was -- was built?

15 MR. PETERSON: I don't know the answer

16 to that question. Lynne, can you help out with

17 that?

18 MS. GOODMAN: Yes. Originally, there

19 was going to be a Fermi 2 and a Fermi 3, and it was

20 decided not to build Fermi 3 at that time.

21 CHAIRMAN SKILLMAN: Okay, very good.

22 Thank you, thank you.

23 MR. PETERSON: If you look at the

24 bottom of the slide, to the south of the -- of the

25 turbine building is our 120 kV switchyard. That's

1 our Division 1 power supply, as I mentioned
2 earlier. And just north of that is our general
3 service water intake that I described previously in
4 terms of the intake from Lake Erie.
5 To the west of the -- of the buildings,
6 you see the RHR complex, which we noted in the
7 prior slide, that houses our ultimate heat sink as
8 well as our emergency diesel generators. And
9 immediately to the west of that is our Division 2
10 power supply, the 345 kV switchyard.
11 Slightly to the north of our RHR
12 complex is our independent spent fuel storage pad.
13 And then if you go to the east of that, which is
14 directly north of the reactor building, you will
15 see the first of our two flexible storage
16 facilities, the FLEX storage facility number one,
17 and then just to the northeast of that is FLEX
18 storage facility number two, near our natural draft
19 cooling towers.
20 CHAIRMAN SKILLMAN: Why two?
21 MR. PETERSON: We -- in order to ensure
22 that we maintain our independence for our plus-one
23 pumps, the pond right -- right up near the FLEX
24 storage facility is our source of water that we
25 would use in a beyond-design-basis event, and we

1 basically have two pumps that are independent of
2 one another in FLEX storage facility number two to
3 take that initial suction on the circ water pond
4 and the -- the booster pumps in FLEX storage
5 facility number one, there's also redundant pumps
6 in there.
7 In order to meet the redundancy
8 requirements of the N and N+1 requirements with our
9 strategy, we ended up having to build two
10 buildings.
11 CHAIRMAN SKILLMAN: Thank you. Okay.
12 MR. PETERSON: Next slide, please.
13 Very brief on some significant points
14 of our plant history. We did have a construction
15 permit in September of 1972. Our initial operating
16 license was provided in March of 1985. Commercial
17 operation began in January of 1988.
18 Over time, we have had two power
19 uprates. We had a stretch uprate in 1992 where we
20 increased by 4.2 percent, and in 2014, we executed
21 a measurement uncertainty recapture power uprate of
22 1.64 percent.
23 The last item of note is the -- and it
24 -- the pictures shown on this slide relate to our
25 independent spent fuel storage installation. Our

first campaign was executed in 2014. Next slide, please.

A couple of things. We did come out of a refueling outage in the fall. RF17 was our fall 2015 refueling outage. Couple of key items to note was that that was the outage where we completed our FLEX modifications as well as the spent fuel pool modifications for reliable spent fuel pool instrumentation to be fully compliant with the NRC orders for FLEX and spent fuel pool instrumentation.

Additionally, we did some underground circ water piping inspections and repairs as part of our normal inspection repair program and did routine refueling, testing, inspections, preventive and corrective maintenance activities during that outage. Next slide, please.

MR. SCHULTZ: So Larry, with regard to the FLEX -- you've got it on this slide, the FLEX and the hardened vent, that's what I wanted to understand, where that project is? Has that been completed, then?

MR. PETERSON: No. The FLEX has been completed. We are fully compliant with the FLEX order coming out of RF17. Our hardened vent

1 commitment is to complete the remainder of the
2 hardened vent modifications for compliance with
3 that order by the end of RF18, which is spring of
4 next year.
5 MR. SCHULTZ: Thank you.
6 MR. PETERSON: Certainly.
7 This last slide talks a little bit
8 about the investment DTE Energy is making in
9 anticipation of extended plant operation. We have
10 -- we have looked at all elements that are
11 necessary to implement our license renewal to 2045,
12 and some of the key highlights include replacing
13 our generator, replacing various pumps and molders,
14 some -- process computer upgrades, as noted before,
15 FLEX and hardened vent compliance where hardened
16 vent will be completed next spring, spent fuel
17 racks, and aging management programs, and getting
18 into the inspection activities to start supporting
19 the plant period of extended operations.
20 MR. SCHULTZ: But then some of these
21 would have been done to support operation to 2025?
22 MR. PETERSON: Yes.
23 MR. SCHULTZ: Thank you.
24 MR. PETERSON: So with that, I turn it
25 over to Lynne Goodman, our License Renewal Project

1 Manager. Lynne?

2 MS. GOODMAN: Good afternoon.

3 We submitted an application in 2014.

4 It was developed using the GALL report, Rev 2 and

5 NEI 95 plan as guidance. We incorporated both

6 Fermi 2 and industry operating experience in our

7 application, and our subject matter experts and our

8 management were involved with the application

9 development, the review, the oversight, and we used

10 Entergy and Enercon as our experienced contractors

11 since this is our first license renewal. Next.

12 MS. GOODMAN: We addressed two interim

13 step guidance documents that were issued either

14 while we were finishing the development of our

15 application or following our application. The

16 first was ISG-2012-02, which dealt with aging

17 management of internal surfaces, firewater system,

18 and other items, and then 2013, which dealt with

19 internal coatings, so we did deal with those as far

20 as being documents that we looked at our adherence

21 to how we conformed to them and took any exceptions

22 if we did not conform to those. And I think we're

23 the first plant to come to you that dealt with it

24 that way.

25 CHAIRMAN SKILLMAN: Okay Lynne. At the

1 end of the last slide, you mentioned the work that
2 you are doing for your first license renewal. Are
3 you suggesting something beyond that that we should
4 be aware of?
5 MS. GOODMAN: Well, I kind of realized
6 my emphasis was wrong, but it's our -- we have one
7 plant, so it's our license renewal, of course we're
8 going to monitor what's going on with the industry,
9 and who knows what is going to happen? It is
10 always an option --
11 CHAIRMAN SKILLMAN: So --
12 MS. GOODMAN: -- for the future.
13 CHAIRMAN SKILLMAN: -- do you have life
14 beyond 60 banners in your engineering halls, or
15 anything like that?
16 MS. GOODMAN: Right now we're focusing
17 on life to 60, and then we will look forward.
18 CHAIRMAN SKILLMAN: Thank you. Okay.
19 MS. GOODMAN: Okay. We did an annual
20 update last June, and we're working on our annual
21 update for 2016.
22 Our SER contains one open item, as
23 Chris talked about earlier, and I am going to talk
24 about that, on environmentally assisted fatigue.
25 And we also have a license condition that Chris

1 mentioned on the Boraflex rack replacement, and
2 I'll talk about that.
3 CHAIRMAN SKILLMAN: Okay.
4 MS. GOODMAN: So just for some
5 background, just for some background,
6 environmentally assisted fatigue needs to be
7 evaluated for license renewal, and our application
8 addressed environmentally assisted fatigue and made
9 some commitments in that area and provided
10 screening results.
11 The NRC staff requested more
12 information on how we did the screening, and the
13 open item in the RAI that is associated with the
14 open items specifically requested information
15 regarding how we calculated the average
16 temperatures we used, and then did we make any
17 calculation revisions as a result of the RAI, and
18 did that revision affect our analysis conclusion?
19 Next.
20 We did use average transient
21 temperatures in six locations, and we used multiple
22 methods in determining the average temperature. As
23 a result of the RAI, we relooked at our
24 calculations and we did redo our calculations in
25 December last year, in January this year, to

1 address this operating -- this open item.

2 And in four locations, we revised them,

3 the calculation, to use conservatively the maximum

4 design temperature. Some of those calculations

5 were already being redone as part of our EAF

6 activities, our calculation activities, and we had

7 decided to use the conservative maximum design

8 temperature.

9 And in two areas, we did decide to use

10 average temperature. That was the SLC piping, the

11 Standby Liquid Control piping inside the

12 containment, our control rod drive assembly main

13 flange. Next please.

14 CHAIRMAN SKILLMAN: Now please before

15 you change --

16 MS. GOODMAN: Yes.

17 CHAIRMAN SKILLMAN: -- the slide, why

18 did you stay with average for those two locations?

19 MS. GOODMAN: We stayed with average

20 for those locations because NUREG-6909 allows us to

21 use the average, and to be able to obtain -- and

22 their -- their temperatures that they are exposed

23 to are definitely less than the normal design

24 temperature of the reactor and coolant system, and

25 it -- basically, we obtained usage factors less

1 than 1 with using average temperature.

2 What we did do is we did, for average

3 temperature, we used both the maximum temperature

4 and the threshold temperature instead of the

5 minimum temperature. NUREG-6909, it talks about

6 using average temperatures, and it talks about

7 averaging the maximum and the minimum, but then the

8 example gives shows averaging the maximum and the

9 threshold, and in some cases, we had done the

10 maximum and the minimum, and so that was part of

11 what we changed.

12 CHAIRMAN SKILLMAN: Thank you. Okay.

13 MS. GOODMAN: Okay. Next, please.

14 And for the two that we did continue to

15 use the average temperature, those do have the

16 simple transients which NUREG-6909 addresses, that

17 are -- that -- where average temperature can be

18 used, constant strain rate, the linear temperature

19 response, so in our response, we did provide

20 updated environmentally assisted fatigue usage

21 factors for these locations, all of them determined

22 in a manner conservative and consistent with NUREG-

23 6909. And as a result, there were no changes in

24 what our sentinel locations were.

25 MR. SCHULTZ: Okay. So Lynne, just to

1 look at this one more time through because --
2 MS. GOODMAN: Yes.
3 MR. SCHULTZ: -- clearly, there was
4 some distinction, there was a lot of discussion,
5 and perhaps it appeared there might have been some
6 confusion as to what ought to be used with regard
7 to the NUREG/CR-6909, and the way it's described in
8 this bullet is that the -- the example that was in
9 the document includes the threshold temperature
10 associated, the threshold and the maximum
11 temperature --
12 MS. GOODMAN: Right.
13 MR. SCHULTZ: -- that that was
14 provided, and was part of the problem that it was
15 not -- that was not identified as a requirement at
16 first, and then later on, you went with the example
17 that was in the document? Was that what the staff
18 was looking for?
19 MS. GOODMAN: Yes. Originally, we
20 looked at the terminology in the section of 6909
21 that talks about being able to use the average
22 temperature, and there, it talks about averaging
23 minimum and maximum, and so that's the route we
24 went.
25 I understand the draft revision to

NUREG-6909 makes this very clear, that you should be using threshold and maximum for averaging.

MR. SCHULTZ: For the average --

MS. GOODMAN: But --

MR. SCHULTZ: -- okay.

MS. GOODMAN: -- that's a draft revision, and basically, we are using the version of 6909 that's in the GALL, and to us, that was -- we felt that we were meeting that.

MR. SCHULTZ: I understand that you felt you were doing the right thing --

MS. GOODMAN: And --

MR. SCHULTZ: -- in the first place, but then in the --

MS. GOODMAN: Based on discussions --

MR. SCHULTZ: -- subsequent --

MS. GOODMAN: -- with the staff --

MR. SCHULTZ: -- subsequent discussions, you've come up with this approach, and the staff will concur with that later on, I presume, based on the earlier comment.

And what -- and your -- your bottom-line finding, which was recent here, is that no changes in the sentinel locations were -- were obtained with the revised evaluation?

1 MS. GOODMAN: Correct.

2 MR. SCHULTZ: Okay. Thank you.

3 MS. GOODMAN: Okay. Okay. And next, I
4 will talk about the license condition. It deals
5 with the Boraflex monitoring program and our spent
6 fuel racks. We currently have both Boral spent
7 fuel racks and Boraflex spent fuel racks in our
8 fuel pool.

9 Application originally included the
10 Boraflex monitoring aging management program as
11 well as a neutron-absorbing material aging
12 management program. In 2013, we did BADGER testing
13 for the first time, and BADGER testing is a way of
14 measuring the aerial density of boron-10, the
15 absorber in the fuel racks. We did identify that
16 some panels did not meet our acceptance criteria
17 and took corrective actions through our corrective
18 action program.

19 The NRC staff, in reviewing our
20 application, questioned whether or not the Boraflex
21 monitoring aging management program would be
22 effective during the program of extended operation
23 based on its degradation. Next, please.

24 So what we did in response, we were
25 already looking at long-term corrective action for

1 the Boraflex degradation that we had identified,
2 and we decided we would make the commitment in the
3 license renewal application to change out the Boral
4 -- Boraflex racks with Boral racks, and Boral racks
5 are already in our licensing basis.
6 We submitted a letter committing to
7 implement this previously approved license
8 amendment to use the Boral racks, and we committed
9 to do that replacement prior to the period of
10 extended operation.
11 So with that, we will not credit
12 Boraflex for neutron absorption during our period
13 of extended operation, and we will not use that
14 aging management program, and so I deleted it, and
15 this will be a license condition.
16 CHAIRMAN SKILLMAN: Lynne, I need to
17 ask if this was a hard-fought battle, and the
18 reason I ask the question that way is in the AMP
19 report from 2014, the AMPs are indicating that you
20 will remain vigilant of the status of the Boraflex.
21 And those words show up again in 2015.
22 And then we get into 2016 with the SER,
23 and all of a sudden, there is an admission that we
24 will no longer take credit for the Boraflex. So it
25 appeared as though there was a -- a change in

1 course of approximately 180 degrees in the period
2 of about 18 months.
3 MS. GOODMAN: Okay. And we had
4 discussions with the staff last summer, with --
5 they questioned the use of the Boraflex during the
6 period of extended operation, and we were
7 internally discussing what we wanted to do for
8 long-term corrective action. And originally, we
9 did not want to make it a commitment as part of the
10 license renewal application. We wanted that to be
11 just part of our corrective action program, an
12 important piece and an important decision. It's a
13 very major project to replace spent fuel racks.
14 After discussion with the staff, we
15 decided to make a commitment, and we made the
16 commitment in a letter approximately September last
17 year.
18 CHAIRMAN SKILLMAN: Okay.
19 MR. SCHULTZ: Lynne, when you did --
20 CHAIRMAN SKILLMAN: Thank you.
21 MR. SCHULTZ: -- when you did the
22 BADGER testing, you found that there was some
23 degradation in some of the racks. Was that a
24 surprise? Was the finding that was provided by the
25 BADGER testing a result that you didn't expect?

1 MS. GOODMAN: We did expect to find
2 some degradation based on operating experience --
3 MR. SCHULTZ: But in --
4 MS. GOODMAN: -- in the industry --
5 MR. SCHULTZ: -- but in terms of what
6 you saw, was that a surprise? And my second
7 question is did you find -- did you have confidence
8 in the BADGER test results?
9 MS. GOODMAN: What I'd like to do is
10 ask Michael Lake to answer that question as far as
11 were we surprised at all with the -- with the
12 BADGER test results, and did I get the question
13 correct?
14 MR. SCHULTZ: Yes, and the second part
15 was did -- did you have confidence in the results
16 of the BADGER testing?
17 MR. LAKE: Good afternoon. My name is
18 Michael Lake. I am the Supervisor of Reactor
19 Engineering.
20 In response to your questions, we were
21 not surprised by the results. We were in alignment
22 with what the rest of the industry had been seeing
23 for those type of racks. As part of the BADGER
24 tests that we did, they had just recalibrated their
25 testing equipment, so we were confident in what the

1 results that we were receiving.

2 MR. SCHULTZ: Okay. And you had

3 anticipated originally that you would do BADGER

4 testing every five years?

5 MR. LAKE: That is correct.

6 MR. SCHULTZ: And based on where you

7 were, you felt confident that that would be an

8 appropriate monitoring program going forward before

9 you got into the -- before you've been, again,

10 going into the other direction of replacing the

11 racks?

12 MR. LAKE: That is correct.

13 MR. SCHULTZ: Okay. Thank you.

14 MS. GOODMAN: Okay. Next.

15 With that, I would like to turn it over

16 to Randy Breymaier, who is our Manager of

17 Performance Engineering.

18 MR. BREYMAIER: Good afternoon. I am

19 Randy Breymaier, Manager of Performance

20 Engineering. I will be giving you a brief overview

21 of the aging management programs and their

22 implementation.

23 Performance engineering owns the

24 license renewal and its implementation at Fermi 2.

25 We have established a license renewal program with

1 an owner. This experienced program owner has been
2 an integral part of the core team.
3 The license renewal program owner has
4 been qualified in visual inspections and has had
5 training in many areas of NDE. He has had EPRI
6 training in the area of aging management
7 identification and has been actively involved in
8 the scoping process and long-term planning of the
9 license renewal and has a good working knowledge of
10 its implementation plan.
11 All the existing and new programs have
12 owners. These program owners were involved in the
13 establishment of the aging management scope within
14 their programs, and they are involved in the long-
15 range planning effort of their AMPs. They are
16 responsible for tracking program enhancements and
17 inspection schedules, and during the license
18 renewal process, commitments were made against both
19 existing and new AMPs, and these are contained
20 within our new FSAR.
21 MR. SCHULTZ: One question. Were the
22 responsible program owners involved in developing
23 the augmentation, the amplification portion of the
24 --
25 MR. BREYMAIER: For the enhancements?

1 MR. SCHULTZ: For the enhancements, I
2 am --
3 MR. BREYMAIER: Yes, they --
4 MR. SCHULTZ: -- sorry --
5 MR. BREYMAIER: -- were.
6 MR. SCHULTZ: -- I misspoke. Thank
7 you.
8 MR. BREYMAIER: Yes.
9 MR. SCHULTZ: And so they -- they've
10 been involved in the process to make those
11 recommendations, and then they'll be following them
12 --
13 MR. BREYMAIER: Reviewing the
14 recommendations, following them, they are
15 responsible. They have program notebooks which
16 have all the enhancements and schedules which --
17 which they will meet.
18 MR. SCHULTZ: I am sure. Thank you.
19 CHAIRMAN SKILLMAN: Randy, let me ask
20 this question, and it really begins with scoping
21 for this license renewal application. Your page 53
22 of your license renewal application writes this: "D
23 Procedure does not explicitly define design-basis
24 events. However, the safety-related criteria are
25 not related to accidents and transients described

1 in Chapter 15 of the USFAR. Consistent with the
2 definition of design-basis events as described in
3 10 CFR 50.49(b)(1), the design-basis document
4 describing design-basis events combinations
5 includes accidents and plant transient events
6 presented in 15+ other events, such as internal
7 missiles, tornado, external missiles and wind,
8 external floodways, and storm and seismic events."
9 And coupled onto the end of that
10 paragraph is the statement regarding use of the
11 alternate source term. So when I read this, I had
12 a check in my spirit, and I challenged myself, what
13 is the licensee communicating here? Is there
14 something in this that is beyond what is normally
15 done for a license renewal?
16 So I hear you speak of scoping. I hear
17 you say it's not limited to these events, we have
18 these other events. I know by the way we use
19 alternate source term. Can you give us a tutorial
20 on what you're really communicating here please?
21 MR. BREYMAIER: Lynne is better
22 prepared to answer that question.
23 CHAIRMAN SKILLMAN: Okay.
24 MS. GOODMAN: Okay. What we were
25 trying to communicate is that it's not just the one

1 chapter of the FSAR, that it's the other events
2 that are part of the definition for what is within
3 the scope of license renewal. And one difference
4 between our internal procedures is that the
5 alternate source term components are not defined as
6 safety-related in our definition space.
7 However, in the A1 space, as far as
8 what's within the scope of safety-related -- sorry,
9 what's within the scope of safety-related or needed
10 to mitigate the consequences of an accident,
11 alternate source term does fit within that scope.
12 So for license renewal purposes, we did include the
13 alternate source term components, multiple
14 components we used for the alternate source term,
15 you know, for our license amendment that adopted
16 alternate source term.
17 CHAIRMAN SKILLMAN: Thank you.
18 Understand. Thank you.
19 MR. BREYMAIER: In reviewing aging
20 management programs themselves, there were 45 AMPs,
21 one of which, Boraflex monitoring, was deleted, as
22 previously discussed, leaving 44 AMPs, 12 of which
23 are to be developed, such as the above-ground metal
24 tanks, as well as the buried and underground piping
25 programs.

1 The remaining 32 AMPs are existing, of
2 which 22 will have enhancements made to them. And
3 an example in this area would be the containment
4 inspection program, with enhancements to monitor
5 the sand cushion drains for blockage and
6 inspections to assess whether corrosion is
7 occurring.
8 Of the remaining 44 AMPs, 33 are
9 consistent with the GALL, and 10 have exceptions to
10 the GALL. An example in this area would be the
11 firewater system, where the GALL requires yearly
12 inspections of the sprinkler headers. It is
13 feasible only to inspect many of them during refuel
14 outages due to dose concerns. As a result,
15 inspections will be performed every 18 months
16 instead of 12 months.
17 And there is one AMP that is plant-
18 specific and will be implemented by periodic
19 surveillances and preventative maintenance
20 activities. This includes approximately 20
21 inspections using visual or other NDE techniques at
22 selected locations to periodically monitor for
23 material loss. This AMP manages effects not
24 covered by other AMPs.
25 In respect to the implementation of

1 license renewal, planning is in progress to
2 implement the required enhancements and the new
3 implementing procedures. This plan includes
4 lessons learned from the License Renewal Owners
5 Group as well as benchmarking units that have
6 successfully implemented license renewal. It
7 includes a long-range plan with resources and an
8 established budget which has been endorsed to
9 assure enhancements and new procedures meet their
10 milestones.
11 All program owners have attended
12 required job familiarization training, and they
13 will receive this year vendor training on aging
14 management identification. AMP owners are required
15 to quarterly track their enhancements and
16 inspection progress and report it to the license
17 renewal program owner.
18 Also, the OE process is being updated
19 to assure AMP owners review relevant OE. Program
20 owners were involved in the implementation of their
21 inspection scheduling. This includes approximately
22 80 specific inspections to be performed in the next
23 refuel outage in the spring of 2017. The remaining
24 inspections have been levelized and will be
25 completed during the following fall refuel outages,

leaving one additional outage to complete any outstanding inspections.

Program updates will be in place before the deadline of 2024. Long-term plans for the station include license renewal implementation activities plus projects that support safe operation at the plant for an additional 20 years.

MR. SCHULTZ: Randy, I have a general question, and it relates to these elements associated with the inspections that are going to be coming forward.

As I went through the application, and you're developing your overall program approach, there were many instances of inspections that has been performed in order to identify elements and demonstrate that the site was well-versed at identifying things that might be required for inspections, and as I went through many of those lists, I found that things were identified, and they were either fixed immediately or they were entered into the corrective action program.

And all of that is well and good. The one thing I kept looking for and I did not see as things were entered into the corrective action program was a component that would say extent of

1 condition was reviewed, and the following other
2 things were found and identified and fixed.
3 So I am wondering why that wasn't
4 apparent as you went through the process of
5 developing those elements that you should focus on
6 for long-term operation, longer-term operation. Or
7 is it just something that happened not to appear in
8 your discussions?
9 MR. BREYMAIER: I think -- I believe
10 your question is extent of condition on items that
11 were identified in the corrective action --
12 MR. SCHULTZ: That is right, that --
13 MR. BREYMAIER: Okay.
14 MR. SCHULTZ: -- is right. I mean, one
15 could presume that of course that's there, and
16 therefore it wasn't amplified, but in my
17 experience, you -- you obviously would not stop at
18 -- at find and fix.
19 MR. BREYMAIER: Right. I mean, our
20 corrective action drives you to extent of
21 condition. It's -- you know, that's the processes
22 we have in place, that extent of condition would --
23 is and would be addressed.
24 MR. SCHULTZ: Good. That -- I fully
25 expected that. I just did not see it in the write-

1 up for some reason. It did not flow out --

2 MR. BREYMAIER: Okay.

3 MR. SCHULTZ: -- of the information

4 provided. Thank you.

5 MR. BREYMAIER: Any other questions?

6 MR. SCHULTZ: I do. In your LAR, page

7 988, you write "If" -- this is ASR, alkali-silica

8 reaction -- "If potentially reactive aggregates

9 were encountered, then use of low-alkali portland

10 cement containing less than 0.6 percent alkali

11 calculated as sodium oxide equivalent was used to

12 prevent harmful expansion. Additionally, water

13 cement ratios within the acceptable range defined

14 in ACI-318. Nevertheless, based on ongoing

15 operating experience, the structures monitoring

16 program," so on and so forth about managing

17 cracking.

18 How could your program have been

19 clairvoyant? How could you know -- your bubble,

20 you aren't on a batch plant. You're making

21 hundreds of cubic yards of concrete at a time. How

22 could you pick off and say that mix is not what we

23 want? I expect not you, but someone in your group

24 --

25 MR. BREYMAIER: Okay --

1 MR. SCHULTZ: -- to --

2 MR. BREYMAIER: -- I would --

3 MR. SCHULTZ: -- to answer that.

4 MR. BREYMAIER: I would like to call

5 Tim Hoffman and ask him to --

6 MR. SCHULTZ: This is extent of

7 condition of alkali-silica reaction. If you read

8 your application, your application basically says

9 we don't have any of that stuff. That's

10 effectively what it says. And I'm skeptical.

11 MR. HOFFMAN: My name is Tim Hoffman,

12 and I am the structures monitoring program owner.

13 The mix designs for underground

14 concrete elements did call for types 2 and 5

15 cements that are, you know, resistant to this type

16 of degradation, and we also used a waterproof

17 membrane for these underground elements down to a

18 certain elevation.

19 CHAIRMAN SKILLMAN: And with that, you

20 are confident that by and large, you are free from

21 -- from the degradation that is beginning to show

22 itself around the industry?

23 MR. HOFFMAN: In inspections that we

24 have done in the past, we have not seen any of the

25 --

1 CHAIRMAN SKILLMAN: Symptoms?

2 MR. HOFFMAN: -- indications of ASR.

3 We will continue to monitor that on a -- what's the

4 term?

5 PARTICIPANT: Periodic?

6 MR. HOFFMAN: Periodic, yes.

7 CHAIRMAN SKILLMAN: Thank you.

8 MS. GOODMAN: And of course, we all,

9 you know, are watching the industry OE to learn

10 from that on this topic.

11 MR. SCHULTZ: One more general

12 question. I don't know if it's for you, Lynne, or

13 for Andy.

14 You mentioned the program owners being

15 in place, responsible moving forward for the

16 inspection plans and programs, and responsible also

17 for following industry OE as it relates to all of

18 this. What -- what is the coordination among them?

19 What is the -- what is the plan going forward?

20 You've got another several years before you move

21 into the next 20 years, so what -- what's going to

22 hold that together? Do you have corporate programs

23 that are going to show how this is going to move

24 forward, how they're all going to move forward as a

25 unit? You've got a very impressive list of experts

1 that are going to be following these elements.

2 MR. BREYMAIER: Right. We are in the

3 process of putting into place the OE review to

4 assure that the program owners get this -- get the

5 information they need, and this will be -- we have

6 an OE review committee, and this will be

7 proceduralized. We will have members, or the

8 license renewal program owner will be a member of

9 this review committee, and he will be responsible

10 for reviewing and assigning OE relevant to program

11 owners.

12 MR. SCHULTZ: Okay.

13 MS. GOODMAN: I can maybe add that

14 additionally, we have in place turnover checklists

15 if we do have a program owner, basically for

16 knowledge transfer, if we have a program owner

17 leave and a new program owner coming, so we have

18 already set those activities in progress to be

19 planning because there will be turnover over the

20 next nine years.

21 And so we need to be ready for that.

22 And we will have a very detailed project to lay out

23 which programs get revised which year, and that's -

24 - we're in progress of starting that effort, and as

25 Randy talked about, we also have a quarterly

1 reporting by each of the program owners on the
2 status of their implementation efforts, and we're
3 coordinating very closely between his group and my
4 group on making sure that we have both the project
5 and the actual program owners working together to
6 make sure we can accomplish implementing all our
7 commitments.
8 MR. SCHULTZ: Is this program owner
9 assignment, in addition to all your other duties,
10 you're now a program owner of this element for a
11 long-term --
12 MR. PETERSON: Let me discuss this.
13 One of the reasons, as Randy pointed out in his
14 presentation, we assigned, well over a year ago, a
15 dedicated license renewal program owner. He has
16 been part of the -- the core project team
17 throughout, and I would say he provides that level
18 of oversight and consistency for all of the other
19 program owners.
20 MR. SCHULTZ: Okay, so then --
21 MR. PETERSON: But --
22 MR. SCHULTZ: -- he is the lead.
23 MR. PETERSON: He is the lead.
24 MR. SCHULTZ: Okay.
25 MR. PETERSON: And in most cases --

1 actually, in virtually all of the cases, the
2 license renewal element of the -- of the expansion
3 and the added programs were natural extensions of
4 existing programs.
5 The other piece that provides that
6 consistency in that oversight is that Randy, as the
7 Performance Engineering Manager, is responsible for
8 all the program owners. Some of our program owners
9 such as Mr. Hoffman, he works in our design
10 organization. Our structures monitoring folks are
11 in the design organization, but they still funnel
12 their program ownership through Randy, so between
13 our license renewal program owner and Randy as the
14 Manager of Performance Engineering, that's what I
15 would view as the tie and the consistency to drive
16 this going forward.
17 MR. SCHULTZ: Okay. Thank you.
18 MEMBER POWERS: What I didn't get out
19 of that is the -- the question of okay, you got
20 Randy here. He was full-time but busy before this.
21 Now he's full-time busy plus some other stuff. I
22 mean, doesn't that -- don't you run into a conflict
23 here, or -- ? You've got 12 new programs, same
24 number of people?
25 MR. BREYMAIER: Our program does

1 address this. For the new programs or programs
2 that require major revisions, we will have
3 contractor assistance to generate these. During
4 the generation of the new programs, the program
5 owner will be involved. He will have final
6 approval of the program along with myself.
7 And, yes, and there will be some
8 additional work. I can't -- I can't -- that's part
9 of the ball game we're in.
10 CHAIRMAN SKILLMAN: John, please?
11 MEMBER STETKAR: Yeah, I was going to
12 hold off because I'm going to hit them with
13 something specific.
14 Tell me about your non-environmentally-
15 qualified inaccessible power cables program. I --
16 I know you've committed to follow GALL Rev 2, so I
17 understand that. But this is now characterized as
18 a new program, and there's a brief discussion in
19 your license renewal application that says well,
20 although it's a new program, we've kind of been
21 doing stuff already in response to industry
22 initiatives, and -- and generic letter 2007-01.
23 So I go read the inspection reports,
24 and the inspection reports say yeah, you've had a
25 bunch of problems with water in manholes, and that

1 you're -- one of them I read said you're monitoring
2 them weekly, but the commitments under this aging
3 management program just says we're going to monitor
4 them at least once a year, and episodically after
5 rain.
6 You did have one cable failure that was
7 apparently in scope, you could report it under
8 generic letter 2007-01. You had two DC power
9 cables that are apparently not in scope, but they
10 also were reported under that generic letter.
11 So -- so tell me what's going on now.
12 It's obviously a pretty low-lying area, and it
13 seems like it's pretty easy to get water
14 underground there. What are you doing today?
15 Because you are not going to invoke this new
16 program for another ten years or so.
17 MR. BREYMAIER: Let me answer this
18 question generally. Then I would like to have our
19 system -- or our expert in the cable area address
20 it.
21 We, to address the low-lying cable
22 issue, we have, for the EDG cables, we have
23 installed new cables, routed them above the water
24 table. We do have pumps now with audible alarms in
25 all the safety-related cable vaults.

1 MEMBER STETKAR: All of them? Because
2 the LRA -- the reason I felt a bit uncomfortable
3 about this is it uses terms like well, it's
4 included repair of some underground cable vaults,
5 installation of some sump pumps. You know, it
6 sounds rather spotty.
7 MR. BREYMAIER: Jeff, could you address
8 those questions?
9 MR. AULER: Good afternoon. My name is
10 Jeff Auler. I own the cable condition monitoring
11 program.
12 As far as what we're doing right now,
13 back in 2007, when the generic letter came out, we
14 formed a -- a core team, and we -- we went ahead
15 and we did some repairs on -- on the vaults, the
16 grade and, you know, that sort of thing. We
17 replaced a lot of the supports.
18 And another thing we did is we went
19 ahead and we -- we started doing pump-downs on --
20 on the vaults. And what that did is that allowed
21 us to go ahead and study the inflow rates.
22 MEMBER STETKAR: Are you --
23 MR. AULER: Once we had that, we
24 installed sump pumps, and we -- on 35 of
25 approximately 77. And the reason we focused on

1 those 35 is because those had the greatest inflow
2 rate, and those happened to be the route of the
3 medium voltage cables, and that also included the
4 safety -- the six -- now the six safety related
5 vaults that we have, okay?
6 And we also build a cable condition
7 monitoring program to go along with it. We did
8 some benchmarking and went down to TVA, and -- when
9 Mr. Kent Brown was there --
10 MEMBER STETKAR: I know --
11 MR. AULER: -- and --
12 MEMBER STETKAR: -- Kent very well.
13 MR. AULER: Yes. And -- and we build
14 procedures, and we test the shielded medium voltage
15 cables using the latest techniques: IEEE- and --
16 and EPRI-recommended techniques. I attend the
17 cable users group. I am actually a steering
18 member.
19 And for the low voltage cables, we --
20 we do a -- I do a sample. This is also recommended
21 by EPRI. And I sample the various insulation types
22 of low-voltage cables, and we do insulation
23 resistance on, you know, those various insulation
24 types, make sure nothing is happening, you know,
25 negative to the -- to the insulation types.

1 MEMBER STETKAR: And this -- this is a
2 -- a formal program that's got documentation and
3 trending that's in place now?
4 MR. AULER: Yes sir. There is -- there
5 is a structure to it. We have -- it's not a point-
6 of-contact program, it is a fully-implemented
7 program. We have what we call conduct manuals, or
8 high-level guidance, you know. And I also have
9 testing procedures, program notebooks, health
10 reports. We visit the -- you know, we make
11 presentations to the Plant Health Committee on
12 occasion as well.
13 MEMBER STETKAR: And -- and are -- is -
14 - I mean, you said you installed a bunch of -- a
15 lot of sump pumps. Are they reasonably effective,
16 I mean, based on your episodic or -- or --
17 MR. AULER: Yes --
18 MEMBER STETKAR: -- periodic --
19 MR. AULER: -- we --
20 MEMBER STETKAR: -- inspections --
21 MR. AULER: -- we've got --
22 MEMBER STETKAR: -- of the hole --
23 MR. AULER: -- we've --
24 MEMBER STETKAR: -- manholes?
25 MR. AULER: They do -- they do fairly

1 well. And if there is a case where the pump isn't
2 working, we, in the -- while we're waiting for a
3 repair, we go ahead and we do a manual pump-down
4 weekly on them.
5 MEMBER STETKAR: But it is -- I mean,
6 they fill up enough that you do have to do weekly
7 pump-downs?
8 MR. AULER: Yes, yes. Those that were
9 planned to have a sump pump, you know. Like I
10 mentioned --
11 MEMBER STETKAR: Yes.
12 MR. AULER: -- earlier, if, aside from
13 having -- that the routes of the medium-voltage
14 cables there, the inflow rates were large enough to
15 have quite a bit of water accumulation, so --
16 MEMBER STETKAR: Have -- just out of
17 curiosity, and I recognize the guidance, but
18 looking forward to the future, we just had a recent
19 Subcommittee meeting on the -- I'll call it for
20 GALL for subsequent license renewal because I've
21 forgotten the -- the NUREG number, and for
22 subsequent license renewal, in this particular
23 area, at least from what we've seen, the staff is
24 proposing extending the scope to -- to basically
25 include all in-scope cables, regardless of the

voltage.

So we're talking about now 120 volt AC or DC cables, things like that. Do you know -- are you susceptible to wetting of those types of cables? Because, you know, they in principle can cause problems also if they're -- instrument control power, for example, is what I'm thinking about.

MR. AULER: Well, the -- all of the vaults carry a mixture -- most of the vaults carry a mixture of low-voltage cables and the power cables --

MEMBER STETKAR: Yes.

MR. AULER: -- that are typically at the top of the vault.

MEMBER STETKAR: Yes, yes.

MR. AULER: But we -- I have studied the inflow rates as best I can, and I've set -- you know, we have quite a bit of data now, and I've set, for those that don't a sump, I've went ahead and set up four different preventative maintenance routines. We have a weekly, we have a quarterly, six-month, and a yearly.

And I -- I am confident that it works pretty good to -- to prevent longstanding water

1 issues on cables.

2 MEMBER STETKAR: Okay. Thank you.

3 Oh, let me -- while I've got you here,

4 I might as well, because the staff would only refer

5 to you anyway. In the staff -- when I was reading

6 the -- I don't remember whether it's in the SER or

7 some of the inspection reports, they referred to

8 cables that are qualified for submergence. Do you

9 actually have cables that are qualified for

10 submergence? That is a special kind of cable, so

11 be careful.

12 MR. AULER: No.

13 MEMBER STETKAR: Okay, thanks.

14 MR. AULER: No, we don't.

15 MEMBER STETKAR: Thanks. I'll ask the

16 staff then how they made that determination.

17 CHAIRMAN SKILLMAN: Any more, John?

18 (No audible response.)

19 CHAIRMAN SKILLMAN: Before we ask the

20 staff to come to the front of the room, do you have

21 any further questions for the Detroit Edison team?

22 (No audible response.)

23 CHAIRMAN SKILLMAN: Hearing none --

24 MR. PETERSON: If not, I'd like to turn

25 it over to Keith for closing remarks.

1 MR. POLSON: Okay. I'd like to thank
2 the Subcommittee for the time, and -- and for the
3 questions. Part of our process, we'll get back
4 together as a team, we'll do a critique on this
5 meeting, and if there are any open items that we
6 need to get back to you, we'll do that.
7 One of the questions, I think it got
8 asked a couple different times, about workload and
9 resources, we do have a process in place, so if the
10 workload would become too burdensome, we have a
11 process in place where we can add head count, and
12 we do review that, but at least on a yearly basis
13 as far as our org chart.
14 And I will tell you that DTE is fully
15 committed to providing the resources that we need
16 to run Fermi 2 safely, so with that, again, thank
17 you for the time and the questions.
18 MEMBER POWERS: How did you come to
19 this ownership-type approach to the aging
20 management?
21 MR. POLSON: I'm not sure what the
22 question is.
23 MEMBER POWERS: You've got a structure
24 here where you have owners in these individual
25 aging management programs reporting up to someone.

1 How did you -- what led you to that kind of an
2 approach?
3 MR. BREYMAIER: Let me try to answer
4 that question. We -- we've already had programs in
5 place, many of these aging management programs tie
6 directly to these programs, and the ones that
7 didn't -- did not, either new programs' owners were
8 identified, or they were related, they were tied
9 into the existing program owners.
10 MS. GOODMAN: And what I'd like to say
11 is that we really thought that to be effectively
12 managing for the long term, it needed to be the
13 plant program owners heavily involved with
14 implementing our new commitments. Now, as a
15 project team, we're going to help that, provide
16 resources to develop new programs and changes. But
17 the long term, it's the plant people, the program
18 owners, that are going to be running the plant and
19 managing the aging as we go through the next 30
20 years.
21 MEMBER POWERS: Well I get the
22 impression that if I showed up at the front gate,
23 and I said yeah, I want to know about aging program
24 number 25, that you would say oh, you go talk to
25 Fred, because Fred owns that, and he knows more

about it than I would know if I stayed up at night studying.

Is that the kind of structure that you've gotten to here? Is my perception correct on this?

MR. PETERSON: It certainly is. And I will tell you that as the license renewal project got started, if you will -- I've got a little over 30 years' experience at multiple plants, and I have learned that when you've got a big project and you hire expertise from somewhere else, that certainly helps with that initial workload, but you don't sustain the basic knowledge in the ownership if you don't ingrain your permanent plant staff early on.

And -- and the license renewal project, Lynne has been excellent in working with Randy to -- to set that up, and it -- it's really a matter of -- of having that right mindset, that right talent and perspective to be able to sustain it, because the project team will go away, but the people that are sitting out there in the audience, those are the guys that will live and breathe this for the next, you know, almost 30 years, until 2045.

So that -- that has been very well supported organizationally in terms of realizing

1 that that was an important way to get us to a good,
2 sustained ownership.
3 MEMBER POWERS: I make no secret. I
4 think it's wonderful. I think it's the best idea
5 I've heard in a long time. A lot of people can't
6 answer that question of what do you do about the
7 additional workload very well.
8 And -- but I'm trying to understand how
9 you came about it. I think you told me a hell of a
10 lot of experience has told me this is how to manage
11 things, and that's good. It worked for you. I am
12 trying to figure out how it works for other people
13 who don't have that experience. But to my mind, to
14 have -- to have somebody identifiable that owns it,
15 and is responsible not only for it, but turning it
16 over should he get promoted or find greener
17 pastures or go off and write the great American
18 novel, whatever it is, I think that's just
19 outstanding.
20 I just think it's the greatest idea on
21 handling these new, important programs, you know,
22 and an effective way to have somebody that I can go
23 call on the phone, and I know that he will know the
24 answer to my question.
25 CHAIRMAN SKILLMAN: I was anticipating

1 that, in response to Dr. Powers, you were going to
2 say we had pre-existing house reports and pre-
3 existing program reports, and when we moved into
4 license renewal, many of the program owners owned
5 the -- those same disciplines, and we had to add
6 some, so what we presently have are the system
7 health owners, system health owners, and the
8 program owners who now have additional
9 responsibilities, or we added program owners for
10 license renewal.
11 I think that that is what you are
12 communicating. Is that what you are communicating?
13 MR. PETERSON: That is --
14 MS. GOODMAN: Yes.
15 MR. PETERSON: -- that is correct.
16 CHAIRMAN SKILLMAN: So the men and
17 women that Dana is referring to would be those
18 program owners?
19 MR. PETERSON: Yes.
20 MR. SCHULTZ: I'll just add to that,
21 because when I went through the documentation of
22 the submittal, it was very clear that the
23 descriptions of the program enhancements that were
24 provided for GALL report items were -- were very
25 well thought out and developed, and they're going

1 to be -- they're going to be challenging to
2 implement --
3 MS. GOODMAN: Yes.
4 MR. SCHULTZ: -- I mean, you've
5 committed to some real program enhancements that
6 you need to carry out and carry forward over the
7 next several years and into -- obviously, into the
8 renewal process, but they're very well done, very
9 well done.
10 CHAIRMAN SKILLMAN: Yes. I was musing
11 on that, because as I was going through the AMPs
12 and the enhancements, I found one that had 18
13 enhancements, and then I found one that had 26
14 enhancements, and I said wow, these people have
15 really been -- have been very busy.
16 MEMBER POWERS: I think you want to
17 track this and seriously consider, you know, if
18 you've gone through this, and had the chance to try
19 it and whatnot, documenting that publically,
20 because it is -- you know, this is something that
21 could show up in Harvard Business Review as a
22 management strategy for these kinds of things that
23 deserves to be shared broadly, because it's
24 applicable not just for nuclear plants. I mean, I
25 can see it for any kind of program.

1 I mean, I would seriously think about
2 that as a contribution to the body of knowledge on
3 how we manage things.
4 MS. GOODMAN: Thank you.
5 PARTICIPANT: Thank you.
6 CHAIRMAN SKILLMAN: Keith, DTE team,
7 thank you very much. You can stand down, and we're
8 going to bring the NRC team up. Thank you very
9 much.
10 We're not taking a break. Let's keep
11 on going.
12 (Whereupon, the above-entitled matter
13 went off the record at 2:06 p.m. and resumed at
14 2:10 p.m.)
15 MS. MELENDEZ-COLON: I think we're
16 ready now.
17 MEMBER SKILLMAN: You're ready? Then,
18 let's please proceed. Welcome to you.
19 MS. MELENDEZ-COLON: Good afternoon,
20 Chairman Skillman and members of the License
21 Renewal Subcommittee. My name is Daneira Melendez-
22 Colon and I am the License Renewal Project Manager
23 for the Fermi 2 License Renewal Safety Review.
24 We are here today to discuss the review
25 of the Fermi 2 License Renewal Application as

1 documented in the Safety Evaluation Report with
2 Open Items which was issued on January 28, 2016.
3 Joining me here at the table today is
4 Dr. Allen Hiser, the LRA Senior Level Advisor, Dr.
5 Stuart Sheldon, Senior Reactor Inspector for Region
6 III and who led the 71 002 to inspection and Ms.
7 Lois James, the LRA Senior Safety Project Manager
8 running the slides.
9 Sitting in the audience are members of
10 the technical staff who participated in the review
11 of the License Renewal Application and conducted
12 the onsite audits.
13 Next slide?
14 I will begin the presentation with a
15 general overview of the staff review.
16 Next, Dr. Sheldon will present the
17 inspection activities observed during the License
18 Renewal Inspection at Fermi 2.
19 I will then present the main sections
20 of the Safety Evaluation Report and any associated
21 open items.
22 Next slide?
23 DTE submitted a single site application
24 for Fermi 2 which consists of one boiling water
25 reactor. The staff conducted two onsite audits and

one inspection at the site.

During the scoping and screening methodology audit, the audit team reviewed the applicant's administrative controls governing the scoping and screening methodology and the technical basis for selective scoping and screening results.

The staff also reviewed selected examples of component material and environment combinations, reviewed information contained in the applicant's Corrective Action Program to identify operating experience relevant to plant-specific age related degradation and reviewed quality practices applied during development of the LRA and the training of personnel who participated in the development of the LRA.

The results of the audit were documented in a report dated October 21, 2014.

During the aging management program audit, the audit team examined the applicant's aging management programs, or AMPs, and related documentation to verify the applicant's claims of consistency with the corresponding AMPs in the GALL report.

This staff reviewed the initial 44 AMPs and documented the results in a report dated

1 February 11, 2015.

2 Region III will further discuss the

3 activities of the 71 002 to inspection in a few

4 minutes.

5 Next slide?

6 In addition to the audits and

7 inspection already mentioned, the staff conducted

8 in depth technical reviews and issued requests for

9 additional information.

10 The staff performed its review of the

11 Fermi 23 License Renewal Application with the

12 exception of one open item and issued the Safety

13 Evaluation Report with Open Items on January 28,

14 2016.

15 The final SER will be issued in July

16 2016 and the resolution of the open item regarding

17 the effects of reactor water environment on fatigue

18 life.

19 I will now direct the presentation to

20 Dr. Sheldon to discuss the inspection activities

21 and results associated with this License Renewal

22 review.

23 Next slide?

24 MR. SHELDON: Good afternoon. I am

25 Stuart Sheldon, I led the inspection team from

1 Region III that reviewed the Fermi 2 License
2 Renewal Application.
3 The purpose of the 71 002 License
4 Renewal Inspection is to verify that the applicant
5 has adequate programs planned or in place to
6 implement aging management for the system
7 structures and components that require an aging
8 management review such that the SSEs will be
9 adequately maintained consistent with 10 CFR 54
10 existing safety evaluations the applicant's license
11 renewal program.
12 It's also intended to verify that the
13 applicant's license renewal documentation is
14 retrievable, auditable and consistent with the rule
15 and applicant approved programs and procedures.
16 Prior to the License Renewal
17 Inspection, the applicant added an aging management
18 program in response to Interim Staff Guidance
19 201301 on containment coatings integrity.
20 So, at the time of the inspection,
21 there were 45 aging management programs, 33
22 existing programs and 12 new programs. My staff
23 reviewed all of those aging management programs.
24 We reviewed the five regulated events, not as a
25 separate activity per se, but as part of our

1 scoping walk downs and our scoping reviews.
2 And, we selected six non-safety systems
3 or structures or components to review for
4 components that the applicant had scoped out of
5 their application to review that that scoping was
6 appropriate.
7 During our two week onsite inspection,
8 the team reviewed site documents related to the
9 regulated events and non-safety related structures
10 and components whose failure could prevent safety
11 related SSEs from accomplishing their safety
12 function, to confirm the applicant had applied the
13 required scoping and screening methodology.
14 We also completed walk downs on 23
15 systems, structures or components to assess the
16 adequacy of the applicant's license renewal
17 boundaries, material condition and conformance with
18 their application in the GALL report.
19 This activity enabled us to assess and
20 evaluate if the existing AMPs would be successful
21 at managing the aging effects for SSEs within the
22 scope of license renewal.
23 Next slide, please?
24 Our overall inspection results, we
25 concluded that the overall material condition of

1 the structure systems and components in the plant
2 were good. However, during inspection we
3 identified several concerns with respect to current
4 and planned programs which resulted in application
5 changes to five of the aging management programs
6 and one basis document change.
7 Next slide, please?
8 In summary, our team concluded that the
9 applicant performed the scoping and screening in
10 accordance with the rule. They also found that the
11 information was easily retrievable. We verified
12 that the existing programs were generally effective
13 in managing aging effects. And, we also verified
14 that the applicant has the tool to track the
15 completion of enhancements and the development of
16 the new programs.
17 So, lastly, based on the results of
18 this inspection, the inspectors gained reasonable
19 assurance that the programs in place and planned
20 will managing aging effects and ensure the intended
21 safety function of SSEs within the rule will be
22 maintained if they are implemented as describe in
23 the application with the proposed enhancements and
24 as supplemented through the responses to requests
25 for additional information and inspection

1 observations.

2 MEMBER SKILLMAN: Stuart, let me ask

3 this question, to your second bullet, if the

4 information was retrievable, auditable and

5 consistent with 10 CFR 54, my inclination is to

6 think that the reason that the reason that you can

7 make that statement is because the site was

8 behaving in a way to track all of that well before

9 they began their license renewal activities. Now

10 is that --

11 MR. SHELDON: Well, predominantly, the

12 information that goes towards license renewals,

13 part of the License Renewal Application, and the

14 background information for that.

15 So, they, in general, they do have a

16 very well structured system for maintaining

17 official records that are required by 10 CFR Part

18 50 and such as work orders and things like that.

19 But, also, they have all of the

20 application information well in hand and documented

21 and controlled and readily available.

22 MEMBER SKILLMAN: Fair enough, thanks.

23 Stuart, let me ask you, let me follow

24 up on the -- my favorite topic of underground

25 cables.

1 In the SER, there's quite -- there's a
2 couple of pretty long paragraphs discussing
3 inspection results and walk downs. We heard a
4 little bit from the applicant on what they're doing
5 today.
6 I know what they've committed to in
7 their program, but again, the program is associated
8 a period of extended operation which is somewhere
9 around ten years in the future.
10 Let me ask you first about the
11 statement says the inspectors also reviewed the
12 licensee -- wrong statement.
13 In those areas without the water
14 devices, the inspectors verified that drainage of
15 the area was available or that the cables were
16 qualified for submergence conditions. That, to me,
17 implies that where drainage is not available, the
18 cables were qualified for submergence conditions.
19 The applicant said they don't have any
20 of those qualified cables. So, I'm curious about
21 that statement. Did your inspectors actually say,
22 yes, they can't keep water out of the manholes but
23 the cables are qualified to be submerged?
24 MR. SHELDON: I believe that statement
25 is from the SER.

1 MEMBER STETKAR: Yes.
2 MR. SHELDON: That's not something that
3 we documented in our inspection.
4 MEMBER STETKAR: Well, it paraphrases -
5 - it says as described in Fermi 2 Power Plant Unit
6 2 Integrated Inspection Report and that there are
7 long numbers, and it says it twice.
8 MR. SHELDON: Integrated Inspection
9 Report.
10 MEMBER STETKAR: In two -- yes.
11 MR. SHELDON: Okay, that wasn't my
12 report.
13 MEMBER STETKAR: That's not your --
14 MR. SHELDON: That's the resident
15 report. So, I --
16 MEMBER STETKAR: That's the resident
17 report?
18 MR. SHELDON: Right. I can't speak to
19 that.
20 MEMBER STETKAR: The resident works in
21 Region III?
22 MR. SHELDON: Yes.
23 MEMBER STETKAR: Okay.
24 MR. SHELDON: Yes.
25 MEMBER STETKAR: You're here from

1 Region III?

2 MR. SHELDON: I am.

3 MEMBER STETKAR: Okay.

4 MR. SHELDON: We work for different

5 groups in Region III.

6 MEMBER STETKAR: Okay.

7 MR. SHELDON: So, I can't speak

8 specifically to that. I can follow up for you.

9 MEMBER STETKAR: Okay, I was curious

10 because we've had in the past, it's become much

11 less frequent currently, but we have had people

12 come in and say, well, our cables are qualified for

13 being submerged so there's no big deal that we

14 can't keep water out of these manholes.

15 And, when we've challenged them, they

16 say, well, no, they're really not qualified for

17 being submerged and we're doing something else.

18 And, I thought we'd kind of gotten past

19 that. So, I'm curious about that because if any of

20 the inspectors conclusions regarding what's being

21 done --

22 What I'm worried about is what's being

23 done currently and what's going to be done for the

24 next ten years before we invoke necessarily the

25 requirements under this particular aging management

1 program that they're describing as a new program
2 and committing to under the license renewal period
3 of extended operation?
4 So, I'm kind of curious about how the
5 inspectors made their conclusions that, indeed,
6 everything that's currently being done is being
7 done okay to keep those cables in an acceptable
8 operating condition?
9 MS. MELENDEZ-COLON: Yes, I will like
10 to call Cliff Doutt from the staff license renewal
11 is here. He looked at these programs.
12 MR. SADOLLAH: Cliff Doutt is
13 momentarily out. He'll be back.
14 This is Mo Sadollah. I'm the
15 electrical -- the other electrical tech reviewer.
16 I know that when we were doing the
17 audits, Cliff was looking at the -- some of these
18 underground cables under the E3 program, one of the
19 E3 programs.
20 I don't specifically recall is he
21 noticed anything that was -- the cable that was
22 qualified for submergence, but we can get back to
23 you whether he did specifically notice some or that
24 was just the general statement that usually is on
25 board.

1 MEMBER STETKAR: Well, he probably
2 didn't notice any since the applicant has stated on
3 the public record that they don't have any. So, if
4 he noticed some, he might have been not noticing
5 things very carefully.
6 That's what I'm trying to follow up on
7 is that there's quite a bit of emphasis in the SER
8 in the area of operating experience that makes
9 reference to sets of inspections. This isn't just
10 one, it's two paragraphs referring to a big long
11 lists of numbers here for inspection reports.
12 And, both of them say the same things,
13 the walk downs were done. They're removing water.
14 In cases where they can't remove water, there are
15 cables that are qualified and so forth.
16 So, I'm -- but that's what gave me
17 pause.
18 MS. DIAZ-SANABRIA: This is Yoira Dias,
19 the plant chief for the safety project.
20 So, the -- Cliff Doutt who is the lead
21 technical reviewer is right now looking at that
22 question.
23 MEMBER STETKAR: Okay.
24 MS. DIAZ-SANABRIA: So, if you can give
25 us a couple of minutes, Cliff will come back and --

1 MEMBER STETKAR: No problem at all.
2 MS. DIAZ-SANABRIA: Okay.
3 MEMBER STETKAR: We have time.
4 MR. SHELDON: Okay. Could you tell me
5 what page that it's on?
6 MEMBER STETKAR: On the SER -- let me
7 get back on the record here -- it's page 3-43 of
8 the SER itself. It's under the section of
9 Operating Experience for 3.0.3.1.14 is the section
10 number and it's under Operating Experience and,
11 specifically, it's on page 3-43.
12 As I said, it's mentioned twice in two
13 consecutive paragraphs.
14 MS. MELENDEZ-COLON: Cliff Doutt just
15 entered the room.
16 MEMBER STETKAR: Hi, Cliff. Hope you
17 know why you're here.
18 MR. DOUTT: Can you repeat the question
19 since I --
20 MEMBER STETKAR: Yes. My concern is,
21 in the SER, there are a couple of paragraphs in the
22 area that discusses Operating Experience for
23 Inaccessible Low Voltage and Medium Voltage Cables.
24 So, it's that.
25 And, if I can orient you, if you're

1 looking for page -- you have the SER?
2 MR. DOUTT: Yes.
3 MEMBER STETKAR: Look for page 3-43 if
4 you have that.
5 MR. DOUTT: Okay.
6 MEMBER STETKAR: Got it? If you look
7 toward the bottom of the -- middle to the bottom of
8 the paragraph or page, there are a couple of long
9 paragraphs that refer to integrated inspection
10 reports.
11 MR. DOUTT: Right, right.
12 MEMBER STETKAR: Kind of in the middle
13 of those discussions, there are statements that
14 says, in those areas without the watering devices,
15 the inspectors verified the drainage of the area
16 was available or that cables were qualified for
17 submergence conditions.
18 And, I stumbled over that qualified for
19 submergence conditions because every time that
20 we've questioned that phrase, we've been told,
21 well, they're not really qualified for submergence
22 but the applicant was doing things to keep the
23 manholes dry.
24 MR. DOUTT: Right.
25 MEMBER STETKAR: I asked -- I don't

1 know if you were in the room when I asked the
2 applicant whether they had any cables qualified for
3 submergence --
4 MR. DOUTT: The answer is no.
5 MEMBER STETKAR: -- the answer was no.
6 MR. DOUTT: Yes, that was a no.
7 MEMBER STETKAR: Yes. So, I'm curious
8 why this got into the SER or whether the inspectors
9 actually found conditions where they couldn't keep
10 the manholes dry but concluded it was okay because
11 the cables were qualified to be submerged.
12 That's a more of concern for me.
13 MR. DOUTT: Yes, that -- looking at the
14 inspections reports, basically, we're looking for
15 any past history that's obvious or whatever. There
16 are no cables that I'm aware of that would qualify
17 for submergence.
18 MEMBER STETKAR: Right.
19 MR. DOUTT: It's just a statement
20 within here the inspection criteria is what we can
21 look for if, in fact, there's water and
22 submergence. I didn't see any instances of that.
23 I'd have to go back and look.
24 MEMBER STETKAR: Oh, okay.
25 MR. DOUTT: But --

1 MEMBER STETKAR: Okay.
2 MR. DOUTT: What we normally would do -
3 - what I would normally do --
4 MEMBER STETKAR: Yes, I'd get it if
5 it's interpreted as the inspector is told to either
6 verify that it can be dewatered or that it -- the
7 cables are qualified and this is just parroting
8 back that requirement.
9 MR. DOUTT: That's, I think, the intent
10 here.
11 MEMBER STETKAR: I read it as if the
12 inspectors actually made that conclusion.
13 MR. DOUTT: Well, we normally -- well -
14 -
15 MEMBER STETKAR: Okay.
16 MR. DOUTT: -- if it was submerged,
17 we'd ask two questions. One, can it be qualified
18 for submergence?
19 MEMBER STETKAR: Right.
20 MR. DOUTT: Qualified being kind of a
21 little cube defining cube space here.
22 MEMBER STETKAR: Yes.
23 MR. DOUTT: So, it's designed for the
24 environment, so it's designed to be -- can be
25 submergence. That's fine.

1 If not, then what corrective actions
2 are we taking to amend? And wetting the cable,
3 submerging the cable. So, that would the general -
4 - that's how we'd handle that.
5 In this particular case, I don't know
6 of any cable that had -- and it's very unusual.
7 MEMBER STETKAR: Oh, yes, as I said, it
8 just -- it was curious. I stumbled over it
9 because, you know, we've been -- this Subcommittee
10 has been reviewing license renewals for as long as
11 I've been on the ACRS for eight and a half years.
12 And, early on, when there were more
13 issues that came up back in the 2000, 2007, 2008
14 time frame, we heard several applicants say that,
15 well, our cables are qualified and I'll use the
16 small cube for submergence. And, when we pressed
17 them on that, they said, well, no, they're really
18 not qualified and have no evidence that they can
19 survive under that.
20 And, in later submittals, we haven't
21 seen that assertion.
22 MR. DOUTT: Generally, there's a couple
23 of reviews where the cables were sometimes claimed
24 to be submerged qualified, but that'd be an EQ
25 situation.

1 MEMBER STETKAR: Yes.
2 MR. DOUTT: Which isn't directly
3 applicable to this.
4 MEMBER STETKAR: Right.
5 MR. DOUTT: The other one would be,
6 yes, we have the purchase order and the cert, but
7 we, no, we did not credit that.
8 MEMBER STETKAR: Yes, okay.
9 That helps if this is simply somebody
10 parroting back what the inspectors should have been
11 looking for rather than what they found.
12 MR. DOUTT: Yes, I think it's just a
13 matter or either or.
14 MEMBER STETKAR: Okay, okay, thank you.
15 MEMBER SKILLMAN: Wait, before you
16 leave, let me -- actually, John's into the section
17 of the SER that I am also in and I'm on page 3-16.
18 MR. DOUTT: Which one?
19 MEMBER SKILLMAN: 3-16.
20 MR. DOUTT: That one I may not have,
21 hang on.
22 MEMBER SKILLMAN: And, this is about
23 cathodic protection.
24 MR. DOUTT: No, that would not be me.
25 MEMBER SKILLMAN: Okay, well then, let

1 me ask Stuart.

2 In your review of this plan, how long

3 has the cathodic protection program been

4 successful? Here's what I'm really interested in,

5 we've reviewed plans where there was a cathodic

6 protection system for years and years, but many

7 years ago, it ceased to function. And, when I was

8 finally re-energized, the polarity was backwards.

9 And, when the staff finally discovered

10 what was wrong, there had been some damage and they

11 finally corrected the situation and the system has

12 been operating as it should have been operating,

13 but only for a short time period because the staff

14 finally -- the plant staff finally figured what was

15 going on.

16 So, my question is, to what extent did

17 you review the long-term functionality of the

18 cathodic protection system for this plant?

19 MR. SHELDON: I was not personally

20 responsible for that area. I have the electrical

21 inspector and I cannot answer that question based

22 on what he documented.

23 MEMBER SKILLMAN: I'd sure like to get

24 an answer to that question, sir.

25 MR. SHELDON: And, take that back and

1 follow up. Unless the --

2 MS. MELENDEZ-COLON: Yes, I think Bill

3 Holston will be able to answer your question.

4 MR. HOLSTON: My name's Bill Holston,

5 I'm a technical reviewer in the Division of License

6 Renewal and I do the evaluation of the varied

7 piping program which includes cathodic protection

8 system.

9 So, what we do is we do an extensive

10 review of the operating experience to see if there

11 are instances such of what you cited. We'll look

12 at cathodic protection survey results.

13 Even though the plants may not have

14 had, and I can't recall whether Fermi had it good

15 since year zero, but we'll look at the latter day

16 like the last two or three years' worth of cathodic

17 protection survey results.

18 What we have in the aging management

19 program for varied piping, recognizing that a lot

20 of plants throughout the country let their cathodic

21 protection systems degrade, is we have a cutoff

22 point that you have to have had it up to speed

23 within five years prior to the period of extended

24 operation if you're going to credit it to go to the

25 lower number of inspections during the period of

1 renewed license.

2 And so, if you haven't, if say, for

3 instance, you finally got religion in two years

4 prior to the period of extended operation, you

5 know, you did the upgrades to the rectifiers, maybe

6 you had to renew some anode bids and you did your

7 surveys and demonstrate you have the negative 850

8 millivolts, then you have to at least for that ten

9 year period to the larger number of inspections.

10 And, if you recall, we have four levels

11 of inspections. Really, if you're -- if you've got

12 an effective cathodic protection system, you had it

13 installed in that period, you do one inspection.

14 If you believe you don't or, one per

15 ten year period, if you believe that you don't need

16 cathodic protection, then it's two per period, but

17 you have to demonstrate why you don't. No plant's

18 done that yet or I don't even think -- nobody's

19 even tried that yet. Right?

20 The third level is where you have

21 cathodic protection installed but it's not meeting

22 availability criteria, it's not meeting

23 effectiveness criteria. In the current state of

24 recommendations, you do three inspections per ten

25 year period.

1 And then, the last one is the same
2 condition for cathodic protection, however, so it's
3 not meeting effectiveness, not meeting
4 availability, however, you also have some bad OE.
5 Right? You've seen some coatings damaged and all
6 that, then you're doing six per each ten year
7 period.
8 So, what Fermi committed to is to
9 follow that, you know, because, you know, you could
10 have a perfectly good system when we go out and
11 look at it and you get into the period of extended
12 operation, you've got a couple years where you're
13 having a portion of the system not working well,
14 and so, you know, they committed to follow those
15 four level -- well, three, because they're not
16 demonstrating they don't have cathodic protection.
17 MEMBER SKILLMAN: Bill, thanks.
18 I asked the question because I know
19 it's an active AMP, that's why I asked you. But,
20 I'm comfortable with that.
21 MEMBER BALLINGER: While we've got you,
22 well, while we don't got you, this is a site that's
23 slow resistivity is greater than 10,000 OHMs?
24 MR. HOLSTON: I don't remember -- this
25 is Bill Holston again, technical reviewer.

1 I don't remember precisely if it's
2 grading 10,000 OHMs. But, we don't singly look at
3 the slow resistivity because you can have good slow
4 resistivity but you can have bacteria, you have,
5 you know, so we look at -- when we look at soil
6 evaluation, we use -- well, we recommend and most
7 plants have met this, that they use American Water
8 Works Association Standard C105 which looks at like
9 six different parameters and comes up with a rating
10 for soil porosity.
11 MEMBER BALLINGER: Okay, thanks.
12 MEMBER STETKAR: Thank you, Daneira.
13 MS. MELENDEZ-COLON: Did that answer
14 your question?
15 MR. SCHULTZ: I wanted to make a
16 comment on Stuart's presentation because it was
17 short and to the point. But, in reviewing the
18 documentation of the inspection, I wanted to say
19 that I certainly found that this is a real
20 milestone in this project.
21 That is to say that it's clear from the
22 inspection report that there was very good
23 preparation for this inspection and that during the
24 inspection period, which was short, but as you
25 said, with five-plus at least one -- six

1 inspectors, a lot was accomplished both by the
2 inspection team and with the licensee.
3 And, I called it a milestone because I
4 think it really did set the stage for what then
5 ensued in the last 12 months to bring us to today
6 which is a very good point.
7 That is to say, I think you identified
8 very clearly or the staff and for the licensee what
9 needed to be done for the overall program to be
10 successful.
11 So, I don't want to pile on, but I do
12 think that the work that was done as well as the
13 report that was prepared was just very well done.
14 Thank you.
15 MR. SHELDON: Thank you for that
16 comment. We do try very hard to work with the
17 headquarters offices and coordinate so that we
18 follow up on any concerns they have along with the
19 inspection procedure.
20 MR. SCHULTZ: I think the report showed
21 that you hit the mark.
22 MS. MELENDEZ-COLON: Thank you.
23 Okay, in the next few slides, I'll be
24 presenting the results as described in the SER with
25 open items.

1 SER Section 2 described the scoping and
2 screening of structures and components subject to
3 aging management review.
4 The staff reviewed the applicant's
5 scoping and screening methodology procedures,
6 quality controls applicable to the LRA development
7 and training of its project personnel.
8 The staff also reviewed the various
9 summaries of the safety related systems, structures
10 and components, or SSEs, no safety SSEs affecting
11 safety related components and SSEs relied upon to
12 perform functions in compliance with the
13 Commission's regulations for fire protection,
14 environmental qualification, station blackout,
15 pressurized thermal shock and anticipated
16 transients without SCRAM.
17 Based on their review, the results from
18 the scoping and screen audit and additional
19 information provided by the applicant, the staff
20 concludes that the applicant's scoping and
21 screening methodology was consistent with the
22 standard review plan and the requirements of 10 CFR
23 Part 54.
24 Next slide?
25 SER Section 3.0 covers the staff review

1 of the applicant's aging management programs. For
2 a given aging management review, the staff reviewed
3 the item to determine whether it is consistent with
4 the GALL report.
5 Section 3.1 through Section 3.6 include
6 the aging management review items in each of the
7 general system areas within the scope of license
8 renewal.
9 If an aging management review was not
10 consistent with the GALL report, then the staff
11 reviewed the applicant's evaluation to determine
12 whether the applicant has demonstrated that the
13 effect of aging will be adequately managed so that
14 the intended functions will be maintained,
15 consistent with the current licensing basis for the
16 period of extended operation.
17 Next slide?
18 MEMBER SKILLMAN: Daneira, before you
19 proceed --
20 MS. MELENDEZ-COLON: Yes?
21 MEMBER SKILLMAN: We are at a point
22 that is probably a clean break.
23 MS. MELENDEZ-COLON: Okay.
24 MEMBER SKILLMAN: Because Section 3 is
25 a fairly heavy duty section. Would it be a good

1 time for you to take a break, your team to take a
2 break for 15 minutes?
3 MS. MELENDEZ-COLON: Sounds good.
4 MEMBER SKILLMAN: Colleagues?
5 We are going to recess for 15 minutes.
6 Please return at five minutes to three on that
7 clock.
8 We're in recess.
9 (Whereupon, the above-entitled matter
10 went off the record at 2:39 p.m. and resumed at
11 2:54 p.m.)
12 MEMBER SKILLMAN: Ladies and gentlemen,
13 we're back in session and we are on slide number
14 nine and now ten on aging management programs.
15 Good to go.
16 MS. MELENDEZ-COLON: Originally, the
17 applicant submitted 44 aging management programs
18 and amended the LRA adding a new program in
19 response to License Renewal Interim Staff Guidance
20 2013-01, Aging Management of Loss of Coating or
21 Lining Integrity for Internal Coatings, Linings on
22 In Scope Piping, Piping Components, Heat Exchangers
23 and Tanks issued in November 2014.
24 The slide 25, the applicant disposition
25 of the AMPs and the result in this position in the

1 SER with Open Items as a result of the staff's
2 review.
3 All were evaluated by the staff for
4 consistency with the GALL report. Note that one
5 existing program, the Boraflex Monitoring Program
6 which was consistent with that enhancement, was
7 deleted as a result of the staff's review.
8 Next slide?
9 Section 3.0.3.2.2 describes the
10 Boraflex Monitoring Program. The staff reviewed
11 operating experience information in the LRA and
12 during the aging management program audit to
13 determine whether the applicant had adequately
14 evaluated and incorporated operating experience
15 related to the Boraflex Monitoring Program.
16 During its review, the staff identified
17 operating experience for which it determined the
18 need for additional clarification which resulted in
19 the issuance of requests for additional
20 information.
21 The staff expressed concerns regarding
22 the applicant's long-term strategy to provide
23 reasonable assurance that it will be able to detect
24 and manage degradation of the Boraflex material in
25 the spent fuel pool and maintain the spent fuel

1 pool's criticality requirements.

2 In a letter dated September 24, 2015,

3 the applicant stated that the Boraflex material

4 currently used in the spent fuel pool will not be

5 credited to neutron absorption during the period of

6 extended operation.

7 The applicant also indicated that the

8 Boraflex Monitoring Program will not be relied on

9 during the period of extended operation and that

10 the neutron absorbing material monitoring program

11 will be used to manage all the neutron absorbing

12 material that will be credited during the period of

13 extended operation.

14 The applicant stated that the Boraflex

15 material is degrading and that the techniques used

16 to determine the rate of degradation did not

17 correlate well.

18 Hence, the reliability of the Boraflex

19 material to perform its intended function during

20 the period of extended operation cannot be

21 accurately projected or managed.

22 Next slide?

23 The applicant revised the LRA to no

24 longer credit the Boraflex material or the Boraflex

25 Monitoring Program during the period of extended

1 operation.

2 Section 1 contains a proposed plant

3 specific license condition. The proposed license

4 condition states that the applicant shall fully

5 implement the Boraflex rack replacement approved in

6 Amendment Number 141 to the Fermi 2 operating

7 license.

8 Amendment Number 141 issued on January

9 25, 2001 states in part that the existing Boraflex

10 racks in the spent fuel pool will be replaced with

11 new high density racks.

12 The new spent fuel storage racks will

13 contain Boral as the active fixed neutron absorbing

14 poison for primary reactivity control. No Boraflex

15 is used in the new design.

16 In addition, the applicant shall submit

17 a letter to the NRC confirming the removal of the

18 Boraflex material and discontinued reliance on its

19 neutron absorption function.

20 Next slide?

21 SER Section 4 identifies time limited

22 aging analyses for TLAAs. Section 4.1 documents

23 the staff's evaluation of the applicant's

24 identification of applicable TLAAs.

25 The staff evaluated the applicant's

1 bases for identifying those plant specific or
2 generic analyses that need to be identified as
3 TLAAs and determined that the applicant has
4 provided an accurate list of TLAAs as required by
5 10 CFR 54.21(c)(1).
6 Section 4.2 through Section 4.7
7 documents the staff's review of the applicable
8 Fermi 2 TLAAs as shown.
9 Based on its review and the information
10 provided by the applicant, the staff concludes,
11 with one exception, that the TLAAs will either
12 remain valid for the period of extended operation,
13 the TLAAs have been projected to the end of the
14 period of extended operation or the effects of
15 aging on those intended functions will be
16 adequately managed for the period of extended
17 operation as required by 10 CFR 52.21(c)(i)(ii) or
18 (iii) respectively.
19 Next slide?
20 Section 4 contains one open item. Open
21 Item 4.3.3-1 is related to the applicant's
22 methodology used to determine the average transient
23 temperatures used to calculate the environmentally
24 assisted fatigue correction factors.
25 On December 15, 2015, the staff held a

conference call with the applicant to obtain clarification on how the average transient temperatures were calculated and confirmed that the methodology used by the applicant was consistent with NUREG-6909, effect of light water reactor cooling environment on the fatigue life of reactor materials as stated in the response to RAI 4.3.3-3.

Based on the applicant's description, the staff determined that the applicant's methodology used to calculate the average transient temperatures was not consistent with the guidance in NUREG-6909.

The staff had concerns that this may result in the underestimation of both the environmentally assisted fatigue correcting factors and the resulting environmentally assisted fatigue cumulative usage factor values for some locations.

By a letter dated January 14, 2016, the staff issued request for additional information 4.3.3-3(a) requesting that the applicant assess the impact of revising the evaluations to use the correct method to determine the average transient temperatures in a manner consistent with NUREG-6909 and that it submit a description of the impact of this revision to the staff for review.

1 By a letter dated January 22, 2016, the
2 applicant provided a response to RAI 4.3.3-3(a).
3 The staff and the applicant held two teleconference
4 calls on February 10th and February 25th, 2016 to
5 discuss and clarify the applicant's response.
6 At this point, the staff and the
7 applicant have reached a satisfactory resolution to
8 the open item. However, the applicant has not yet
9 formally submitted the supplemental information
10 that the staff needs to close the open item.
11 The staff's conclusion will be
12 documented in the final SER and discussed during
13 the full Committee meeting.
14 MR. SCHULTZ: Excuse me, does the
15 presentation by the applicant today describe what's
16 been discussed in the last two phone calls in terms
17 of their approach? The bulleted listing of the
18 approach that has been made and the conclusions
19 that have been drawn?
20 MS. MELENDEZ-COLON: I think so, but I
21 would like to probably, Dr. Hovanec, who is the
22 primary reviewer for the open item to confirm that.
23 MR. HOVANEC: Chris Hovanec, Divisional
24 License Renewal.
25 Yes, the applicant's description of the

status is correct. The additional information is with respect to one specific location and how it's being managed.

MEMBER SKILLMAN: That's fine. Thank you.

MR. HOVANEC: Thank you.

MS. MELENDEZ-COLON: That staff's conclusion will be provided in the final SER. Yes.

Pending the satisfactory resolution of the open item, the staff will determine whether the requirements of 10 CFR 54.29(a) have been met for the license renewal for Fermi 2.

This concludes our staff presentation and now we'll be available for any further questions from the Subcommittee.

MEMBER SKILLMAN: I've got several questions, if I may please?

MS. MELENDEZ-COLON: Sure.

MEMBER SKILLMAN: On your SER on page 4-22, it has to do with a future EPU. And, this is what is written here, the staff finds the applicant has demonstrated pursuant to 10 CFR 50.21(c)(1)(ii) that the analysis for reactor vessel fluence has been projected to the end of the period of extended operation.

1 And then, hiding in paragraph are words
2 that communicate that EPU is not intended for this
3 20 year period.
4 And, I just want to make sure I
5 understand this accurately.
6 Here are the words, the applicant
7 further clarified that the operating power level
8 used to determine the 52-EFPY fluences are 3430 up
9 to cycle 16 and 3486 thereafter in cycle 17 and
10 continuing through the period of extended operation
11 consistent with the staff approval for the capture
12 of the MMR and the TPO.
13 MR. HISER: Can you read the rest of
14 that because it would -- the analysis should have
15 considered the EPU through the PEO. I mean, the
16 fluences should include that.
17 MEMBER SKILLMAN: Well, it includes the
18 power level to 3486 through cycle 17 and continuing
19 through the PEO. But, I think what this paragraph
20 is also communicating is there is not imbedded in
21 this the notion of a further extended power
22 operation.
23 MR. HISER: What that should reflect is
24 the condition of the plant as it exists and as we -
25 - as they project going forward. So, there should

1 not be any implication of a plan for an EPO or that
2 they're precluded from EPO -- from a further EPO.
3 MEMBER SKILLMAN: Correct. I hear you
4 say this is based on their current power level and
5 if they were to ask for an extended power operate,
6 that would be an independent activity.
7 MR. HISER: That's correct.
8 MS. MELENDEZ-COLON: I have Dr. Min
9 that can address your question.
10 MR. MIN: This is Seung Min from
11 Division of License Renewal.
12 At this point, the primary reviewer
13 from DSS, Matt Hardgrove, is not available. So, I
14 will convey -- I'll share my understanding at this
15 point.
16 But, the sentence describing the
17 potential EPU, the clarification for the potential
18 EPU was intended to point that on -- you have, sir,
19 describing on unimplemented EPU condition. But,
20 that condition, the power levels was not considered
21 in the 52-EFPY fluence projection.
22 However, MUR thermal optimization
23 process power level upgrade was considered as
24 implemented. That is my understanding.
25 MEMBER SKILLMAN: Yes, and I see that,

too. I just wanted to be clear in my own mind as I read the wording. I think others who might read this might say, well gee, that's somewhat confusing the way that paragraph is constructed.

What I understand it to say is up until the end of cycle 16, you were at 3430, thereafter, you're at 3486 and if you intend to go beyond that, that's a whole different deal. And, your 52-EFPY is based on the aggregate of everything up to 3430 plus the cycle or the next several cycles of 3486.

MR. HISER: We'll take a look at that and the final SER, if we need to clarify, we will certainly do that.

MEMBER SKILLMAN: That would be good.

Okay, I've got one other question I would like to ask.

And this is something I honestly didn't -- perhaps I don't appreciate how important this is, hence, my question.

I'm on your SER page 4-93 and this has to do with the main steam bypass lines cumulative operating times.

And, the LRA states that the cumulative value of 100 days of operation shall not be exceeded without prior notification to the NRC.

1 Is there someone here who can explain
2 that to us? What does that mean?
3 MS. MELENDEZ-COLON: Yes, we have Roger
4 Kalikian.
5 MR. KALIKIAN: Yes, hi, this is Roger
6 Kalikian from the staff.
7 They had redesigned the line, there was
8 an event early in the plant life and when they did
9 their evaluations, those some vibrations that
10 happens when these valves are in a certain
11 position.
12 So, that 100 days is for the amount of
13 time those valves are in those positions where they
14 create those vibrations.
15 MEMBER SKILLMAN: So, this is a cyclic
16 fatigue consideration for some mode of operation?
17 MR. KALIKIAN: Yes, and it doesn't
18 happen all the time, it's just when those valves
19 are at certain positions.
20 MEMBER SKILLMAN: Thank you. Okay.
21 Those were the questions I had on the
22 SER. I would ask my colleagues if any of my
23 colleagues have questions on the SER?
24 MR. SCHULTZ: I have one for the staff.
25 It's really not now, it's now directly applicable

1 to the SER but it goes to the question that you've
2 addressed in the presentation related to the
3 evaluation of the Boraflex racks.
4 And, as you stated, there was, I think
5 first, in the mind of the staff that there was a
6 concern related to the capability for monitoring
7 the condition of the Boraflex if they were to
8 determine to go forward with that rack and need to
9 monitor it. There was a concern as to whether that
10 could be adequately done.
11 And then, that became the applicant's -
12 - the licensee's concern and they determined that
13 they would pull that.
14 But, is there, in that back and forth
15 associated with the monitoring capability, is there
16 some generic lesson learned associated with the
17 capability to monitor degradation of Boraflex that
18 ought to be transmitted to the rest of the
19 industry? Some of -- some licensees still have
20 Boraflex in their pools.
21 MS. MELENDEZ-COLON: Right. We have
22 Kent.
23 MR. WOOD: This is Kent Wood, technical
24 reviewer from the Division of Safety Systems.
25 And, we're getting ready to issue a

1 generic letter on spent fuel pool neutron absorbing
2 materials of which Boraflex is one of them. So,
3 we'll gather that type of information from anybody
4 that's still crediting Boraflex and we expect that
5 to go out hopefully relatively soon.
6 We briefed the ACRS on this generic
7 letter in September of '14. But, we are looking at
8 it generically for the industry.
9 MR. SCHULTZ: Yes, I was kind of
10 looking for that status report or an update to
11 where that program was because this just seemed
12 like another example. And, I understand how it
13 went back and forth and how the --
14 MR. WOOD: Yes, it's went back and
15 forth and, you know, the monitoring and the
16 crediting of Boraflex is problematic and that's
17 what we're looking to address and that's why we got
18 the license condition to solve the problem long-
19 term.
20 MEMBER BALLINGER: It was a wise move.
21 MEMBER SKILLMAN: Steve, was that
22 sufficient?
23 MR. SCHULTZ: Well, the other is a
24 comment really associated with the discussion that
25 was held by the licensee and then by the staff

1 related to the open item.

2 And, I'll make my comment and then you

3 can respond if you feel appropriate.

4 But, that particular issue went, again,

5 went back and forth and there was a lot of focus on

6 assuring that the evaluation approach was done in

7 appropriate technical fashion in accordance to the

8 regulatory guidance.

9 One could take that to mean that, gee,

10 that we're focusing so hard on this particular item

11 that we might be missing some other things.

12 I took that differently when I reviewed

13 all the material. It really seemed to me to be a

14 good example of the technical depth that was being

15 applied by the staff in performing a very thorough

16 review.

17 It was just one particular example that

18 seemed to extend out but there were plenty of other

19 examples of accordance between the licensee and the

20 staff that, in many, many other areas, the work had

21 been performed appropriately, the review had been

22 done and the items had been closed.

23 And this was just one example, I think,

24 that in a sense demonstrate the stick-to-itiveness

25 of the staff to continue to focus on the item until

1 it was appropriately resolved.

2 Just a comment.

3 MS. MELENDEZ-COLON: Thank you.

4 MEMBER SKILLMAN: Thank you, Steve.

5 Our colleagues, do you have -- do any

6 of you have comments or questions for the NRC staff

7 here?

8 Hearing none, Daneira, thank you, NRC

9 team, thank you. And, we'll then open the phone

10 line, please.

11 While we're doing that, is there

12 anybody in the room who would care to make a

13 comment or raise a question for the record?

14 Hearing none, on the phone line, good

15 afternoon. This is the ACRS, the phone line is

16 open. If someone is there, would you please just

17 announce your presence by indicating your name?

18 MR. GURILLO: Jim Gurillo.

19 MEMBER SKILLMAN: Thank you, sir.

20 Anybody else?

21 Okay, those that are on the line, does

22 anybody care to make a comment or raise a question,

23 please?

24 Hearing none, we're going to close the

25 phone line.

1 And, we'll go around the table for
2 final comments from ACRS members.
3 Ron, may I begin with you, please?
4 MEMBER BALLINGER: I sat side by side
5 the original --
6 MEMBER SKILLMAN: Microphone, please?
7 MEMBER BALLINGER: I sat side by side
8 the original AMP inspection and then the SER. And,
9 the original AMP inspection is replete with
10 statements like the staff noted the aspects of the
11 decision detection aging effects program element
12 not associated with the exception or not consistent
13 with the corresponding program in GALL report.
14 And, that's complete. Every one --
15 almost every one of these AMPs that were inspected
16 had something like that.
17 And then, in the SER, everything's been
18 fixed. So, it's as if, you know, you were 25
19 points behind in the fourth quarter then all of a
20 sudden LeBron James came in and caught up.
21 So, I thought it was an excellent -- it
22 goes to the staff's stick-to-itiveness in getting
23 this thing done because I think a lot of these
24 AMPs, at least on paper, were in pretty rough
25 shape.

1 Thank you.

2 MEMBER SKILLMAN: Thank you, Ron.

3 Pete?

4 MEMBER RICCARDELLA: I have no

5 comments.

6 MEMBER SKILLMAN: Thank you, Pete.

7 Harold?

8 MEMBER RAY: No.

9 MEMBER SKILLMAN: Thank you.

10 UNIDENTIFIED MEMBER: I have no

11 comments.

12 MEMBER SKILLMAN: Dana?

13 MEMBER POWERS: No.

14 MEMBER SKILLMAN: Charlie Brown?

15 MEMBER BROWN: No comments.

16 MEMBER SKILLMAN: John Stetkar?

17 MEMBER STETKAR: Nothing more, thanks.

18 Good review, good presentation by DTE. I'm happy.

19 MEMBER SKILLMAN: Thank you, John.

20 Our consultant, Dr. Schultz?

21 MR. SCHULTZ: Just the same, thank you

22 very much for the presentations.

23 MEMBER SKILLMAN: Kent, any comment you

24 might make?

25 MR. HOWARD: None.

1 MEMBER SKILLMAN: Let me just make one
2 or two final comments.
3 I began where Ron was. I read the 2014
4 AMP report and that was the first thing I read and
5 I said, oh my goodness, this is going to be a
6 ragged day.
7 And then I read the 71 002 inspection.
8 Stuart, compliments to you, that was a good, solid
9 report and I could begin to see the healing from
10 the 2014 AMP report to the 2015 progress.
11 Then it took about a year from that
12 2015 report to the final SER. And, if you go back
13 and check the original AMP write-ups from 2014 to
14 the final SER, there has been a remarkable work
15 completed to get a nice clean SER.
16 And, I would say it's clean. It's an
17 easy read. It's a nice piece of work. So, I
18 commend you for that.
19 I have no further comments and I thank
20 the DTE staff, Keith, for you team, for each one of
21 you that came, safe travels back. Appreciate what
22 all of you have done. Thank you.
23 And, Chris, to your team, Daneira, your
24 team, to all, thank you very much.
25 And, with that, we are adjourned.

1 (Whereupon, the above-entitled matter

2 went off the record at 3:19 p.m.)

3

4

DTE Energy®

Fermi 2 – License Renewal

ACRS Subcommittee Meeting
March 2, 2016

Keith Polson

Site Vice President

Introductions

Representing Fermi 2 Nuclear Power Plant:

- Keith Polson, Site Vice President
- Larry Peterson, Director Engineering
- Randy Breymaier, Manager Performance Engineering
- Lynne Goodman, License Renewal Project Manager

"Our number one asset at DTE is our people"

Personnel In Attendance

ISI Programs & Service Water Marc “Al” Brooks	Chemistry Programs Bruce Cummings	Reactor Vessel Programs Erica Mullen
Fire Protection / Fire Water Chris Redmond	Civil / Structural Tim Hoffman Andrew Kulikowski	Fatigue Management Mike Williams Whitney Hemingway
Containment Glenda Velasquez	Fuel Storage Mike Lake	Flow-Accelerated Corrosion Vladimir Tamahkyarov
New Programs & Implementation Brett Gallatin	Inaccessible Cables Jeff Auler	Operations Greg Strobel
License Renewal Project John Tibai Kevin Lynn	Plant Support Engineering Kyle Dittman Bill Mayes	FLEX Response Kevin Burke
Structural Integrity Associates Terry Herrmann	Counsel Jon Christinidis Dave Repka	Project Contractor - Entergy Alan Cox
	General Electric Hitachi Brian Frew	

Agenda

• Introductions	Keith Polson
• Plant Design, Plant History, and Current Status	Larry Peterson
• License Renewal Application Project and SER Discussion	Lynne Goodman
• Aging Management Programs	Randy Breymaier
• Closing Remarks	Keith Polson

Plant Design

Larry Peterson

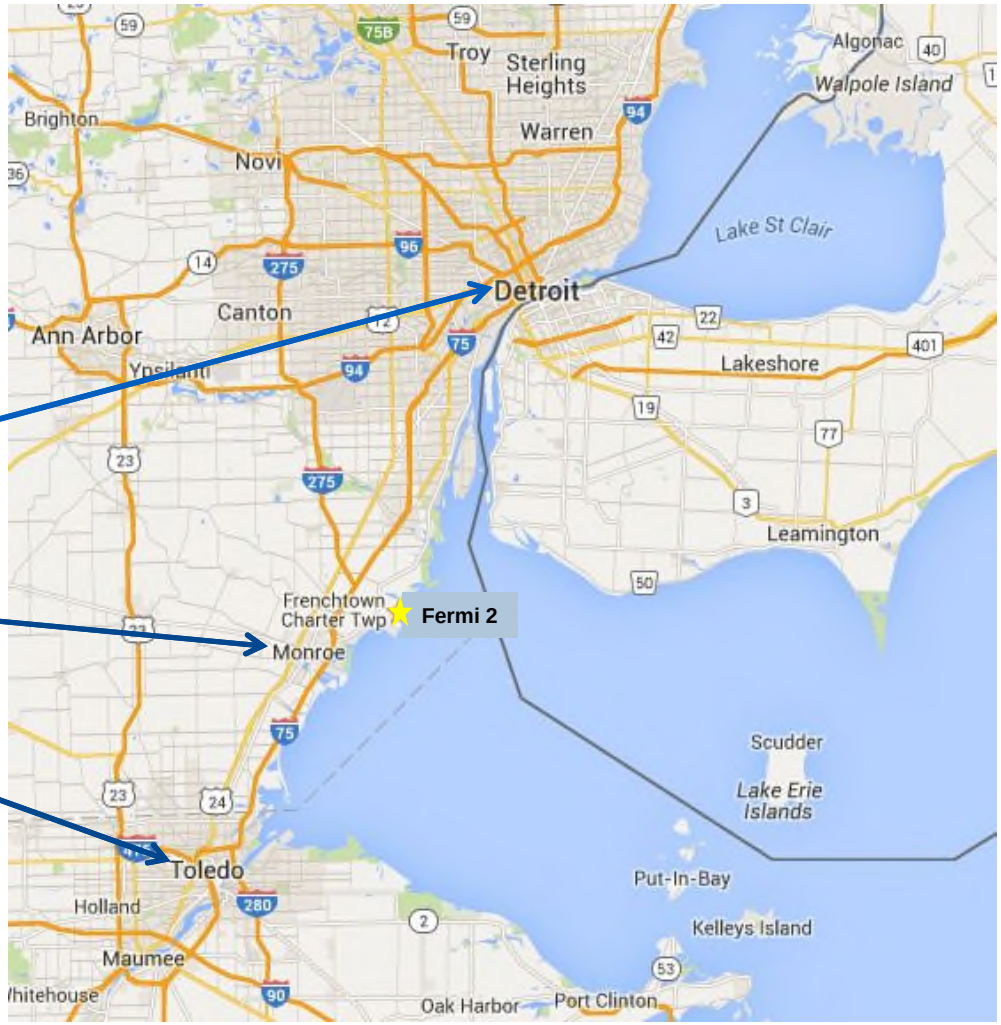
Director, Engineering

Plant Location

The Fermi 2 power plant is located on the western shore of Lake Erie at Lagoona Beach, Frenchtown Township, in Monroe County, Michigan.

The plant is approximately:

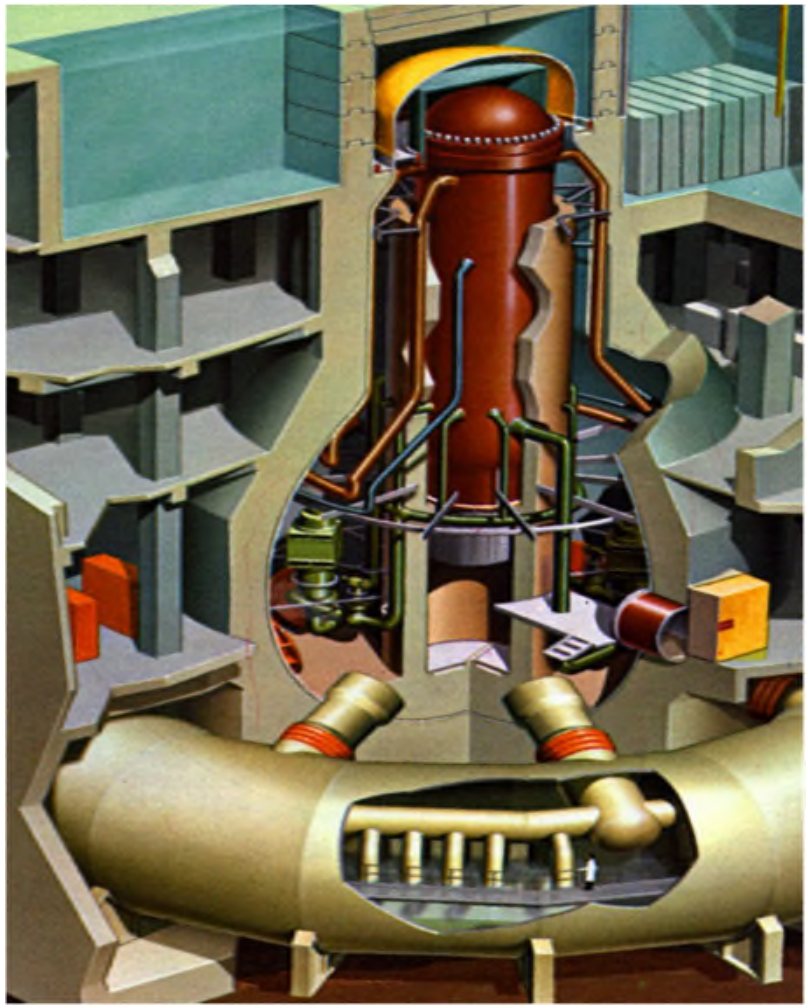
- 28 miles southwest of downtown Detroit, Michigan
- 8 miles northeast of Monroe, Michigan
- 26 miles northeast of downtown Toledo, Ohio



Fermi 2 Generating Station

Plant Design

- Fermi 2 is a 3486 MWt Boiling Water Reactor
- Producing approximately 1170 Mwe
- GE BWR 4 with a Mark I Containment



BWR Mark I Containment perspective - NRC Reactor Concepts Manual

Plant Design

- Electrical Design
  - o 120 kV switchyard for Division 1 power
  - o 345 kV switchyard for Division 2 power
  - o 4 Emergency Diesel Generators (EDGs) – 2 per division
  - o Combustion Turbine Generator (CTG) 11-1 station blackout power supply – Division 1

- Cooling Water
  - o Lake Erie provides makeup water to General Service Water, which discharges into a Circulating Water Reservoir
  - o Two natural draft cooling towers
  - o RHR Complex is Ultimate Heat Sink
    - Two reservoirs (one per division) with induced draft cooling towers over each reservoir
- Fermi 2 shares site with Fermi 1, a LMFBR in passive SAFSTOR

Site Layout

The principle structures:

- Reactor Building
- Turbine Building
- Auxiliary Building
- Radwaste Building
- Residual Heat Removal (RHR) Complex
- Two natural-draft hyperbolic circulating water cooling towers
- Independent Spent Fuel Storage (ISFSI) Pad
- FLEX Storage Facilities (FSF)

Plant History

- Construction Permit – September 1972
- Operating License – March 1985
- Commercial Operation – January 1988
- 4.2% Thermal Power Increase – September 1992
- 1.64% Measurement Uncertainty Recapture (MUR) Uprate (56 MWt) – February 2014
- Independent Spent Fuel Storage Installation (ISFSI) – 2014

Current Status

Current Plant Status – March 2, 2016

RF17 Fall 2015 – major activities completed:

- Fukushima modifications fully compliant with FLEX and fuel pool per NRC orders
- Underground circulating water piping inspection and repair
- Refueling, testing, inspections, preventive and corrective maintenance

Fukushima FLEX 2 Storage Facility

Plant Investment

In anticipation of extended operation, DTE Energy is making a large investment in Fermi 2:

- Generator replacement
- Pumps and motors
- Process computers
- FLEX and hardened vent
- Spent fuel racks
- Aging management programs
- Plant modifications for safe, extended operations

License Renewal Application Project

Lynne Goodman

License Renewal Project Manager

License Renewal Application Project

- Submitted application April 24, 2014
- Developed using NUREG-1801 (GALL) Rev. 2
- Followed guidance of NEI 95-10 *"Industry Guideline for Implementing the Requirements of 10 CFR 50.54 - The License Renewal Rule"* Rev. 6, June 2005
- Identified the Aging Management Programs (AMPs) to manage aging effects during Period of Extended Operation (PEO)
- Incorporated Fermi 2 and industry operating experience
- Fermi 2 subject matter experts and management were involved with the application development, review and oversight
- Used Enercon/Entergy as experienced LRA contractor

License Renewal Application Project

- Addressed two License Renewal ISG documents issued during or following LRA development
  - o LR-ISG-2012-02 Aging Management of Internal Surfaces, Fire Water Systems, Atmospheric Storage Tanks, and Corrosion Under Insulation
  - o LR-ISG-2013-01 Aging Management of Loss of Coating or Lining Integrity for Internal Coatings/Linings on In-scope Piping, Piping Components, Heat Exchangers, and Tanks
- Reviewing new LR-ISG-2015-01 “Changes to Buried and Underground Piping and Tank Recommendations” as operating experience
- Yearly update
  - o Annual LRA update submitted June 2015

SER Discussion

- Fermi 2 SER contains one Open Item (OI):
  - OI 4.3.3-1 (RAI 4.3.3-3a) – Environmentally assisted fatigue (EAF)

- Fermi 2 SER contains a license condition that is plant-specific:
  - License Condition No. 3 – Boraflex rack replacement

OI 4.3.3-1 / RAI 4.3.3-3a – Environmentally Assisted Fatigue

Background:

- Environmentally assisted fatigue (EAF) should be evaluated for license renewal
- Fermi 2 LRA addressed EAF and provided EAF screening results (i.e. CUF_{en})

NRC Request:

- NRC staff requested more information on how EAF screening was performed
- RAI / Open Item specifically requested information regarding:
  - How were average temperatures calculated
  - Were any calculation revisions made as a result of the RAIs
  - Did revisions affect analysis conclusions

OI 4.3.3-1 / RAI 4.3.3-3a – Environmentally Assisted Fatigue

DTE Response:

- Average transient temperatures were used in six locations:
  - SLC piping inside containment
  - Feedwater nozzles
  - Core ΔP nozzle
  - CRD nozzles
  - CRD assembly main flange
  - RR pump cooler
- Multiple methods were used to determine average temperature for the different locations above
- EAF calculations were revised in January 2016 to address this OI
- Four locations were revised to use conservative maximum design temperature instead of average temperature
- Two locations now use average temperature for a transient:
  - SLC piping inside containment
  - CRD assembly main flange

OI 4.3.3-1 / RAI 4.3.3-3a – Environmentally Assisted Fatigue

DTE Response (cont.):

- Temperature is determined by average of maximum and threshold temperature
  - NUREG/CR-6909 threshold temperature (150°C / 302°F) is used since minimum is less than threshold temperature
- Average can be used since the specific transients are simple:
  - Constant strain rate
  - Linear temperature response
- Updated CUF_{en} values were provided for these locations
- All CUF_{en} values are determined in manner consistent with NUREG/CR-6909
- No changes in sentinel locations for fatigue monitoring

RAIs B.1.3-1 and B.1.3-1a – Boraflex Monitoring

Background:

- Fermi 2 currently has Boral and Boraflex spent fuel storage racks
- LRA originally included Boraflex Monitoring AMP, including enhancement for periodic BADGER testing during PEO
- Previous BADGER test results (2013) identified some Boraflex panels did not meet the acceptance criteria for B-10 areal density

NRC Request:

- NRC staff requested to review the 2013 BADGER test report
- After reviewing the test report, the NRC staff questioned whether Boraflex Monitoring AMP would be effective during PEO due to current degradation

RAIs B.1.3-1 and B.1.3-1a – Boraflex Monitoring

DTE Response:

- DTE's current licensing basis includes NRC-approved license amendment allowing DTE to replace Boraflex racks with Boral racks
- Two phases of replacement were completed, but final phase was not
- DTE submitted a letter committing to implementation of the previously approved license amendment to replace Boraflex with Boral prior to PEO
- Boraflex will not be credited for neutron absorption function during PEO
- Boraflex Monitoring AMP will not be used during PEO
- This DTE commitment is License Condition No. 3 in SER

Aging Management Programs

Randy Breymaier

Manager, Performance Engineering

Aging Management Programs

- The Performance Engineering organization owns license renewal implementation at Fermi 2.
  - License Renewal has a Program Owner and the owner is part of the License Renewal Core Team
- All existing and new programs have owners
- During the License Renewal Process, commitments were made against both the existing and new AMPs. These commitments are in the UFSAR Supplement (Appendix A of the LRA).

Aging Management Programs

Aging Management Programs (AMPs)

- 45 total AMPs
  - 12 new AMPs to be developed
  - 32 existing AMPs, enhancements will be made to 22 AMPs
  - 1 existing AMP was deleted (Boraflex Monitoring)
- Of the 44 remaining AMPs
  - 33 AMPs consistent with GALL, Rev. 2
  - 10 AMPs with exception to GALL, Rev. 2
  - 1 AMP plant-specific (Periodic Surveillance and Preventive Maintenance)

Implementation

- Planning in progress to implement enhancements and new programs
- Program owners involved in implementation plan scoping
- Schedule has been developed to spread inspections over six refuel outages
  - This includes ~80 specific inspections to be performed in the next refueling outage in spring 2017 (RF18)
- Program updates will be in place before required deadline in 2024
- Long term plan for station includes license renewal implementation activities plus projects to support safe operation of the plant for 20 more years

Closing Remarks

"Fermi 2 has been providing safe, reliable, environmentally clean, cost-effective power to our customers for over 25 years."

United States Nuclear Regulatory Commission

Protecting People and the Environment

Advisory Committee on Reactor Safeguards License Renewal Subcommittee

Fermi 2

Safety Evaluation Report (SER) with Open Items

March 2, 2016

Daneira Meléndez-Colón, Project Manager

Office of Nuclear Reactor Regulation

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Presentation Outline

- Overview of Fermi 2 license renewal review
- Region III 71002 Inspection, License Renewal Inspection
- SER Section 2, Scoping and Screening Review
- SER Section 3, Aging Management Review
- SER Section 4, Time-Limited Aging Analyses
- Conclusion

License Renewal Review
(Audits and Inspections)

- **Scoping and Screening Methodology Audit**
  - August 4 - 7, 2014
- **Aging Management Program (AMP) Audit**
  - September 15 - 19, 2014, and September 29 - October 3, 2014
- **Region III 71002 Inspection (Scoping and Screening & AMPs)**
  - April 13 - May 1, 2015

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SER Overview

- **SER with Open Items (OIs) was issued January 28, 2016**
- **Fermi 2 SER contains one OI:**
  - OI 4.3.3-1 Effects of Reactor Water Environment on Fatigue Life
- **The final SER is scheduled for publication July 2016**

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71002 Inspection

- **Scope**
  - Aging Management Programs
  - Regulated Events
  - Non-Safety Systems affecting Safety Systems
- **Inspection**
  - April 13 - May 1, 2015: Team Inspection (5 inspectors) on-site for 2 weeks

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71002 Inspection

Overall Inspection Results

- Material Condition of SSCs – Good
- Application Changes to 5 AMPs
- One Basis Document Change

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71002 Inspection

- **Conclusions:**
  - Scoping and screening performed in accordance with 10 CFR 54
  - Information used to prepare the license renewal application was retrievable, auditable, and consistent with 10 CFR 54
  - Existing programs were generally effective in managing aging effects
  - Actions to address enhancements and new programs are being tracked for completion
  - Reasonable assurance that aging effects will be managed and intended functions maintained, subject to resolution of issues requiring further review

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SER Section 2

- **Structures and Components Subject to Aging Management Review**
  - Section 2.1, Scoping and Screening Methodology
  - Section 2.2, Plant-Level Scoping Results
  - Sections 2.3, 2.4, 2.5 Scoping and Screening Results

SER Section 3

- **Aging Management Review Results**
  - Section 3.0, Aging Management Programs
  - Section 3.1, Reactor Vessel, Internals, and Reactor Coolant System
  - Section 3.2, Engineered Safety Features Systems
  - Section 3.3, Auxiliary Systems
  - Section 3.4, Steam and Power Conversion Systems
  - Section 3.5, Structures and Component Supports
  - Section 3.6, Electrical and Instrumentation and Controls System

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SER Section 3

3.0.3 - Aging Management Programs

Applicant's Disposition of AMPs	Final Disposition of AMPs in SER with OIs
• 11 new programs – 11 consistent • 33 existing programs – 9 consistent – 18 consistent with enhancements – 5 consistent with enhancements and exceptions – 1 plant specific with enhancements • 1 new program added - 1 consistent with exceptions	• 12 new programs – 11 consistent – 1 consistent with exceptions • 32 existing programs - 6 consistent - 16 consistent with enhancements - 3 consistent with exceptions - 6 consistent with enhancements and exceptions - 1 plant specific • 1 existing program deleted

SER Section 3

3.0.3.2.2 - Boraflex Monitoring Program

- **Issue**: The reliability of the Boraflex material to perform its intended function during the period of extended operation cannot be accurately projected or managed.
- **Concern**: AMP may be inadequate
- **Resolution**: Proposed License Condition, deletion of Boraflex Monitoring Program, and Neutron Absorbing Material Monitoring Program used to manage all neutron-absorbing material

SER Section 3

3.0.3.2.2 - Boraflex Monitoring Program

- Proposed License Condition: The applicant shall implement the Boraflex rack replacement previously approved before the period of extended operation. The applicant shall submit a letter to the NRC confirming the removal of the Boraflex material and discontinued reliance on its neutron absorption function.

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SER Section 4

- **Time-Limited Aging Analyses**
  - 4.1, Identification of Time-Limited Aging Analyses
  - 4.2, Reactor Vessel Neutron Embrittlement
  - 4.3, Metal Fatigue
  - 4.4, Environmental Qualification (EQ) Analyses of Electric Equipment
  - 4.5, Concrete Containment Tendon Prestress Analyses
  - 4.6, Containment Liner Plate, Metal Containment, and Penetrations Fatigue Analyses
  - 4.7, Other Plant-Specific TLAAs

SER Section 4 Open Item

OI 4.3.3-1 Effects of Reactor Water on Fatigue Life:

- **Issue**: The methods used to determine the average transient temperatures to calculate F_{en} factors were not consistent with the guidance in NUREG/CR-6909
- **Open Item**: Applicant to assess the impact of revising the evaluations to use the correct determination of average transient temperature in a manner consistent with NUREG/CR-6909

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Conclusion

Pending satisfactory resolution of the open item, the staff will determine whether the requirements of 10 CFR 54.29(a) have been met for the license renewal of Fermi 2.