



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

October 4, 2021

Terry J. Lodge, Esq.  
Counsel for Petitioners  
316 N. Michigan St., Suite 520  
Toledo, OH 43604-5627

Dear Mr. Lodge:

Your letter, on behalf of the organizations Beyond Nuclear, and Don't Waste Michigan (Petitioners), dated April 16, 2020 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML20111A334), addressed to the Executive Director for Operations, U.S. Nuclear Regulatory Commission (NRC), was referred to the Office of Nuclear Reactor Regulation pursuant to Section 2.206 of Title 10 of the *Code of Federal Regulations* (10 CFR 2.206). In the letter, you requested that enforcement action be taken against Fermi 2 in the form of a Demand For Information requiring DTE Energy Company (DTE Energy, or the licensee) to respond with information related to a formal risk assessment of the torus coatings condition at Fermi 2. Specifically, you requested an analysis for the potential that debris within the torus during design basis events blocks the suction strainers for the Emergency Core Cooling System (ECCS) and Reactor Core Isolation Cooling (RCIC) pumps and increases the risk of reactor core damage. As the basis for your request, you state, in part, that:

Extensive modifications were made to the original torus designs across several years to enable them to withstand the forces encountered during design basis accidents. The coatings applied to the torus above its normal water level will be more than splashed a bit during design basis accidents. The qualified coatings to be applied below the waterline are intended to withstand design basis forces – the unqualified coating above the waterline presumably cannot meet this intention. DTE Energy has not committed to even inspecting the condition of the coatings above the torus waterline.

and:

...DTE Energy has not committed to even inspecting the aging, unqualified coatings above the waterline in the torus. If that coating degrades, the turbulent forces associated with design basis accidents can both dislodge coating material and deposit it on the suction strainers.

and:

DTE [Energy] obtained the NRC's permission to change the scope of re-coating work during the 2020 refueling outage: "...internal surfaces of the submerged portion of the downcomers and the coated internal surfaces of the submerged portion of process piping will be inspected and degraded coating, if any, will be removed." Thus, DTE will inspect the internal surfaces of these torus objects and only remove coating identified as being defective. The NRC's Special Inspection

Team last year reported abundant reason to question just how adequately DTE [Energy] can find torus coating problems and then even fix problems that are found...

...It is due entirely to this long history of ineffective torus coating inspections and corrective actions that the NRC issued a Confirmatory Action Letter (CAL) last fall — had these inspections and associated corrective actions been adequate, the CAL would not have been necessary. Hence, it is unreasonable to assume that the inspections of the internal surfaces of objects below the torus waterline will find and fix deficient coating after so many passed efforts failed to do so for many years.

and:

The NRC's Special Inspection Team [SIT] reviewed DTE Energy's risk assessment of ECCS performance degradation due to debris loading on the torus suction strainers and found it lacking...

Consistent with NRC Management Directive (MD) 8.11, "Review Process for 10 CFR 2.206 Petitions," (ADAMS Accession No. ML18296A043) a petition review board (PRB) was established to consider your petition. The PRB consists of staff from headquarters and Region III who are knowledgeable of torus coating, risk analysis, and the inspections conducted at Fermi 2. In evaluating your petition, the PRB conducted several internal meetings and evaluated the NRC's records regarding the issues you raised on the Fermi 2 torus.

The PRB's initial assessment was that your submittal does not meet the criteria for consideration under 10 CFR 2.206 in accordance with MD 8.11, Section III.C.1(b)(ii) for accepting petitions because the technical issues raised in your petition have already been the subject of NRC staff review and evaluation and none of the additional Section III.C.1(b)(ii) circumstances apply.

On September 29, 2020, you were informed by e-mail of the PRB's initial assessment. On October 9, 2020, you indicated that your clients would like to have a public meeting but requested to delay the meeting until after your April 2020 Freedom of Information Act (FOIA) request had been fulfilled. Consistent with the NRC's "Desktop Guide: Review Process for 10 CFR 2.206 Petitions" (2.206 Desktop Guide) (ADAMS Accession No. ML18176A147), the PRB used its discretion regarding providing a reasonable amount of additional time, and on November 9, 2020, the NRC agreed to provide time for you to compile, review, and/or submit additional information for consideration.

While delivery of the voluminous amount of FOIA documents is still ongoing, approximately 1,300 pages and over 8 months of additional time have been provided to you and your clients. On July 12, 2021, you were offered by e-mail an opportunity to clarify or supplement the petition in a public meeting. No response was received and on July 27, 2021, the PRB informed you by e-mail that it would move forward with its final determination on whether to accept the petition for review. Since that time, we have not received any feedback from you nor the Petitioners.

The PRB final determination is unchanged from the September 29, 2020 initial assessment. The Fermi 2 torus unqualified coating and suction strainer issues described in your petition do not meet the criteria for consideration under 10 CFR 2.206 because these issues have previously

been the subject of NRC staff review and none of the three circumstances of MD 8.11, Section III.C.1(b)(ii) apply.

Some of the NRC's previous considerations of this issue can be found in the following documents:

1. "Safety Evaluation Report Related to the License Renewal of Fermi 2", July 12, 2016 (ML16190A241).
2. "Fermi Unit 2, Revision 22 to Updated Final Safety Analysis Report [UFSAR]," April 26, 2019 (ADAMS Accession No. ML19128A089).
3. NRC Letter to DTE Energy, "Fermi Power Plant, Unit 2 – Design Basis Assurance Inspection (Teams); Inspection Report 05000341/2019012," dated July 29, 2019 – contains inspection activities associated with the torus coating and suction strainers, including a Design Bases Assurance review (ADAMS Accession No. ML19211B289).
4. NRC Letter to DTE Energy, "Confirmatory Action Letter – Fermi Power Plant, Unit 2 Commitment to Address Degraded Torus Coatings," EA-19-097, dated October 4, 2019 (ADAMS Accession No. ML19280D881)].
5. NRC Letter to DTE Energy, "Fermi Power Plant, Unit 2 – Special Inspection Reactive Report 05000341/2019050," EA-19-097, dated January 31, 2020 – contains inspection activities associated with an assessment of degraded torus coatings and the potential for torus suction strainer blockage at Fermi 2 (ADAMS Accession No. ML20031D253).
6. NRC Letter to DTE Energy, "Revision to Confirmatory Action Letter – Fermi Power Plant, Unit 2 Commitment to Address Degraded Torus Coatings," EA-19-097, dated March 27, 2020 (ADAMS Accession No. ML20087L769)].
7. NRC Letter to DTE Energy, "Revision to Confirmatory Action Letter – Fermi Power Plant, Unit 2 Commitment to Address Degraded Torus Coatings," EA-19-097, dated June 24, 2020 (ADAMS Accession No. ML20177A383)].

Additionally, since the PRB's initial assessment, the following document has been published:

- NRC Letter to DTE Energy, "Fermi 2 Power Plant – Confirmatory Action Letter Followup Inspection Report 05000341/2020010 And Closure," EA-19-097, dated November 5, 2020 – contains inspection activities associated with the corrective action taken to repair the torus coating Fermi 2 (ADAMS Accession No. ML20310A133).

The coatings above and below the waterline at Fermi 2 are fully qualified coatings. This design is described in the Fermi UFSAR Section 6.2.1.6, "Materials," under "Surfaces of Suppression Chamber":

The interior surfaces of the suppression chamber, including the interior and exterior surfaces of the downcomers and vent header, the exterior surfaces of the vent pipes, vent header supports, ring girders, catwalks, monorail, stiffeners, supporting steel, piping, hangers, and penetration nozzles, are coated with the Wisconsin Protective Coating Plasite 7155 system. The Plasite coating is a water-resistant phenolic coating cross-linked with epoxy resin and polymerized with an alkaline curing agent. The function of this coating is to provide long-term protection from corrosion and radiation, and to facilitate washdown.

Plasite 7155 resists temperatures up to 400°F intermittently, develops good hardness and abrasion resistance, can withstand cyclic thermal shock, and provides a broad range of long-term chemical resistance.

The coating was applied in accordance with Regulatory Guide 1.54, [American National Standards Institute] ANSI 101.4, meets pull-test requirements of ANSI 5.12, Section 6.2, has been [design-basis accident] DBA tested, and is considered a fully qualified coating capable of withstanding accident conditions. Its application is a safety-related, [quality assurance] QA Level 1 activity. ...

...Touch-up repairs to the suppression chamber interior coating under submerged or dry conditions are made using compatible safety-related coatings complying with the original requirements and standards.

As part of its inspection activities the NRC verified that the coating meets the Fermi 2 design basis and is qualified to withstand design basis events.

Additionally, coating below the waterline was identified as degraded and was the focus of an NRC SIT review. Following the inspection, the licensee determined that it would replace the degraded coatings. The licensee replaced this coating during the 2020 refueling outage (RFO). The NRC staff inspected the coating repair work and concluded that it meets the codes required to ensure that it is qualified to withstand design basis events.

By letter dated March 13, 2020 (ADAMS Accession No. ML20073N414), the licensee stated:

Both the internal and external surfaces of the downcomers are coated as described in UFSAR Section 6.2.1.6. Since the bottoms of the downcomers (i.e., approximately 3') are torus internals that are coated and are in the submerged portion of the torus, the original DTE commitment in [DTE Letter to NRC, "DTE Commitment Regarding Containment Coatings," NRC-19-0065, dated September 26, 2019 (ADAMS Accession No. ML19270E090)] and NRC Confirmatory Action Letter (CAL) in [NRC Letter to DTE Energy, "Confirmatory Action Letter – Fermi Power Plant, Unit 2 Commitment to Address Degraded Torus Coatings," EA-19-097, dated October 4, 2019 (ADAMS Accession No. ML19280D881)] would indicate that the current coating (both internal and external) at the bottom of the downcomers should be removed and replaced with qualified coating capable of withstanding design basis accident (DBA) conditions.

Consistent with this understanding, the DTE torus coating project plans to remove the current coating from the external surfaces of the bottom of the downcomers and apply the same DBA qualified coating as will be used on the torus.

For the internal downcomer surfaces, the licensee verified the coating in this area was not the same as the coating that was reviewed as part of the NRC SIT review. The methods they used to verify this are described in the licensee's March 13, 2020, letter. The licensee indicated they would inspect the internal surfaces of the bottom of the downcomers during the 2020 RFO. If the downcomer internal inspections identified degraded coatings (i.e., severe blistering), action would be taken to remove that degraded coating in the affected downcomers. By letter dated June 19, 2020 (ADAMS Accession No. ML20171A600), the licensee expanded their commitment by stating:

Torus internals that do not require protective coating to perform their intended function may be left uncoated. Following completion of these activities,

unqualified coatings in the submerged portion of the torus will be explicitly addressed for potential impact on ECCS strainers in the same manner as other unqualified coatings in primary containment.

As explained in the January 31, 2020, inspection report, the NRC reviewed the licensee's operability evaluation and concluded that even if a large area of coatings delaminated during a loss of coolant accident it would not block the ECCS strainers following a DBA to the extent that functionality/operability of safety systems would be lost. The quantity of coatings inside the submerged portions of the downcomers is significantly less than the amount of degraded coatings that the licensee previously analyzed as part of an operability evaluation during the NRC SIT review. In its June 24, 2020, letter, the NRC stated:

The total amount of coating unable to be removed is estimated to be less than 0.01 percent of the total coated surface area in the submerged portion of the torus. The licensee planned to account for this small amount of coatings as part of their emergency core cooling system (ECCS) suction strainer margin calculation.

Given the amount of degraded coatings below the water level that were previously shown to not challenge ECCS operability, it is not likely that the small amount of coatings inside of the downcomers would pose a threat to ECCS operability. In fact, the licensee demonstrated that the amount of degraded coatings remaining inside of the downcomers is within its design basis for coating amounts reaching the strainer. As indicated in its November 5, 2020, letter, the NRC independently reviewed the amount of unqualified coatings in the submerged portion of the torus and the potential impact on the ECCS suction strainers as part of the CAL closure inspection.

The regulations in 10 CFR 2.206 provide an opportunity for safety issues to be raised by interested persons, and while the PRB determined that the issue raised does not require further review, the NRC understands that this process takes time, resources, and energy by petitioners. Accordingly, I thank you for taking the time to raise your concerns to the attention of the NRC and participating in this process.

Sincerely,



Signed by Caldwell, Robert  
on 10/04/21

Robert K. Caldwell, Deputy Director  
Division of New and Renewal Licenses  
Office of Nuclear Reactor Regulation

cc: Paul Gunter, Director Reactor Oversight Project Beyond Nuclear 7304 Carroll Avenue, #182 Takoma Park, MD 20912	Kevin Kamps Radioactive Waste Specialist Beyond Nuclear 7304 Carroll Avenue, #182 Takoma Park, MD 20912	Michael Keegan, Convenor Don't Waste Michigan Attn: Corinne Carey 2213 Riverside Drive NE Grand Rapids, MI 49505
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cc: Listserv

SUBJECT: 2.206 PETITION FOR FERMI 2, TORUS COATING REPAIR DATED  
OCTOBER 4, 2021

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**ADAMS Accession Nos.: Package ML20111A331; Letter ML21216A118 NRR-106**

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DATE	08/26/2021	08/26/2021	09/15/2021	09/15/2021
OFFICE	NRR/DORL/D	PRB Chair	NRR/D*	PRB Chair
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DATE	09/21/2021	09/28/2021	10/4/2021	10/4/2021

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