POLICY ISSUE
(Information)

November 20, 2014 SECY-14-0132

FOR: The Commissioners

FROM: Mark A. Satorius
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SUBJECT: STAFF STATEMENT IN SUPPORT OF THE UNCONTESTED HEARING FOR ISSUANCE OF COMBINED LICENSE FOR THE FERMI NUCLEAR PLANT UNIT 3

PURPOSE:

The U.S. Nuclear Regulatory Commission's (NRC's) staff has completed its review of the application for a combined license (COL) to authorize construction and operation of Enrico Fermi Nuclear Plant Unit 3 (Fermi 3), located in Monroe County, Michigan. This reference COL Reference Combined License (RCOL) application references the Economic Simplified Boiling-Water Reactor (ESBWR) Design Control Document (DCD), Revision 10.

The staff presents this information paper pursuant to the revised Internal Commission Procedures dated June 12, 2012. Issuance of this paper follows the issuance of the Fermi 3 COL final safety evaluation report (FSER) on November 18, 2014, (Agencywide Documents Access and Management System (ADAMS) Accession No. ML14296A540). The agency issued the final environmental impact statement (FEIS) on January 18, 2013 (NUREG-2105, Volumes 1, 2, 3, and 4 (ADAMS Accession Nos. ML12307A172, ML12307A176, ML12307A177, and ML12347A202, respectively)). A draft COL for Fermi 3 and a draft record of decision are referenced in this Commission paper (ADAMS Accession Nos. ML14296A600 and ML14303A425, respectively).

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This paper serves as the staff's primary pre-filed testimony for the uncontested (mandatory) hearing for issuance of the Fermi 3 COL. This paper, with its references, also provides the information requested to support the Commission's determination that the staff's review has been adequate to support the findings set forth in Title 10, "Energy," of the *Code of Federal Regulations* (10 CFR) 52.97, "Issuance of Combined Licenses," and 10 CFR 51.107, "Public Hearings in Proceedings for Issuance of Combined Licenses; Limited Work Authorizations."

In accordance with the internal Commission procedures, this paper focuses on non-routine matters. Non-routine matters with regard to areas of particular importance in supporting the findings related to 10 CFR Part 51, "Environmental Protection Regulations for Domestic Licensing and Related Regulatory Functions," and Part 52, "Licenses, Certifications, and Approvals for Nuclear Power Plants," are matters that relate to any unique features of the facility or novel issues that arose as part of the review process.

The staff's review of the Fermi 3 COL application is complete. The agency issued the final ESBWR DCD rule on October 15, 2014. The rule became effective on November 14, 2014.

SUMMARY:

This paper addresses each of the findings in 10 CFR 52.97(a) and 10 CFR 51.107(a) and provides an adequate basis for the Commission to conclude that each of these findings can be made for the Fermi 3 COL application. This paper also focuses on non-routine matters, such as unique features of the facility or novel issues that arose as part of the review process. This paper does not address routine aspects of the safety and environmental review process.

BACKGROUND:

I. Application History

Application, Ownership, and Location

On September 18, 2008, the Detroit Edison Company submitted an application to the NRC for a COL to construct and operate an ESBWR located at the site of the Fermi Nuclear Power Plant in Monroe County, Michigan, to be designated Fermi 3. By letter dated December 21, 2012, the Detroit Edison Company informed the NRC that effective January 1, 2013, the name of the company would be changed to "DTE Electric Company." The legal entity will remain the same (ADAMS Accession No. ML12361A437). DTE Electric Company most recently updated the Fermi 3 COL application on October 31, 2014 (ADAMS Accession No. ML14309A478). The publicly available portions of the application are available in ADAMS and on the NRC Web site at http://www.nrc.gov/reactors/new-reactors/col/fermi/documents.html. There are portions of the application that contain non-public information, including the security plan, which contains Safeguards Information (SGI). The non-SGI, non-public portions of the application are also available in ADAMS. The SGI version of the Fermi COL application is located on the NRC's secure local area network.

DTE Electric Company is the sole owner of the existing Fermi 1 and 2 nuclear units and the licensed operator of the existing facilities, with control of the Fermi site and existing facilities. DTE Electric Company would own, construct, and operate Fermi 3.

The proposed Fermi 3 site is located in Monroe County in southern Michigan, about 32.2 km (20 mi) north of the Michigan/Ohio border. The U.S./Canada international border runs through Lake Erie about 11.3 km (7 mi) east of Fermi 3. The site is on the west shore of Lake Erie at Lagoona Beach, Frenchtown Township, Monroe County, Michigan, approximately 38.6 km (24 mi) northeast of Toledo, Ohio; 48.3 km (30 mi) southwest of Detroit, Michigan; and approximately 11.3 km (7 mi) northeast of the city of Monroe, Michigan. There are two existing nuclear reactors at Fermi. Fermi 1 is a non-operational demonstration liquid metal fast breeder reactor that is currently undergoing decommissioning. Fermi 2 is an operating boiling-water reactor. Fermi 3 would be located adjacent to and generally to the south of Fermi 2 and west of Fermi 1.

Additional information about the applicant and ownership appears in Part 1 (General and Administrative Information) of the COL application. Additional information about the site location and characteristics appears in Part 2 (Final Safety Analysis Report (FSAR)), Chapters 1 and 2, of the COL application.

Referenced Design Certification

The Fermi 3 COL application references the ESBWR certified design. GE-Hitachi Energy was the applicant for the design certification of the ESBWR design. The FSER was published as NUREG-1966, "Final Safety Evaluation Report Related to the Certification of the Economic Simplified Boiling-Water Reactor Standard Design," in April 2014 (ADAMS Accession No. ML14100A304) and was supplemented in September 2014. On October 15, 2014, the NRC published the ESBWR design certification final rule (ADAMS Accession No. ML14274A552) in the *Federal Register (FR) (79 FR 61943)*. The Fermi 3 COL application references the ESBWR certified design, including DCD Revision 10, as documented in Appendix E, "Design Certification Rule for the ESBWR Design," to 10 CFR Part 52.

Overview of the Design-Centered Review Approach

The design-centered review approach (DCRA) is described in Regulatory Issue Summary 2006-06, "New Reactor Standardization Needed to Support the Design-Centered Licensing Review Approach" (ADAMS Accession No. ML053540251). The DCRA is a policy intended to promote standardization of COL applications. In this approach, the first COL referencing a design is considered the RCOL and additional COLs are considered subsequent COLs. This policy directs the staff to perform one technical review for each standard issue outside the scope of the design criteria and to use this decision to support decisions on multiple COL applications. In this context, "standard" refers to essentially identical information and may include information provided by the applicant(s) to resolve plant-specific issues.

The Fermi 3 COL application is the RCOL application for the ESBWR design center. In November 2007, the North Anna Unit 3 COL application was originally designated as the RCOL application for the ESBWR design center, and the staff issued a safety evaluation report (SER) with open items that documented a review of both standard and site-specific information. In May 2010, Dominion Energy, Inc. informed the NRC that it had changed reactor technology and had selected the U.S. Advanced Pressurized-Water Reactor for its North Anna Unit 3 COL application. As a result of Dominion's decision, the staff conducted reviews to ensure that the standard information that had been evaluated for the North Anna Unit 3 application was directly

applicable to the Fermi 3 application. DTE Electric Company responded to all of the open items in the staff's North Anna Unit 3 SER that related to standard content on behalf of the ESBWR design center, consistent with its new position as the RCOL for the ESBWR design center. Thus, the Fermi 3 SER documents the staff's review of both standard and site-specific information and is the first complete SER for a COL application in the ESBWR design center.

The staff has completed preparation of a draft COL for Fermi 3. The draft license is available to the Commission for information (ADAMS Accession No. ML14296A600).

Advisory Committee on Reactor Safeguards

To support the Advisory Committee on Reactor Safeguards (ACRS) in providing an independent review and report to the Commission regarding the Fermi 3 COL application, the staff presented the results of its safety review to the ESBWR subcommittee at six meetings on: May 26, 2011; October 21, 2011; November 30, 2011; August 16, 2012; July 7, 2014; and August 20, 2014. The staff presented the results of its Fermi 3 COL review to the ACRS Full Committee on September 4, 2014. The ACRS issued its final recommendation on September 22, 2014 (ADAMS Accession No. ML14252A294), fulfilling the requirement of 10 CFR 52.87, "Referral to the Advisory Committee on Reactor Safeguards," that the ACRS report on those portions of the application that concern safety. The ACRS conclusions and recommendations and the staff response are discussed further in later sections of this paper.

II. Outreach

Public Meetings

Prior to the NRC docketing the Fermi 3 COL application, the staff held a public outreach meeting in Monroe, Michigan, on August 20, 2008, to discuss the safety and environmental review of the anticipated COL application, to describe opportunities for public participation in the review process, and to take questions from the public. On January 14, 2009, NRC staff held two scoping meetings in Monroe, Michigan to discuss the environmental scoping process and to give members of the public an opportunity to provide comments on environmental issues the NRC should consider during its review of the application. After issuing the draft environmental impact statement (DEIS) on October 28, 2011 (ADAMS Accession Nos. ML11287A108 and ML11287A109), the staff held two public meetings in Monroe, Michigan on December 15, 2011, to provide an overview of the DEIS and to accept public comments on the document.

In total, NRC staff conducted approximately 80 public meetings and public teleconferences during the review of the application.

Federal Register Notices

The NRC published the following FR notices, as required for key milestones in the licensing process:

- After the NRC received the application on September 18, 2008, the agency published notice of such receipt on October 17, 2008 (73 FR 61916).

- The NRC docketed the Fermi 3 COL application on November 25, 2008, and published a notice of docketing on December 2, 2008 (73 FR 73350).

- On December 10, 2008, the NRC published a notice of intent to prepare an environmental impact statement (EIS) and to conduct scoping (73 FR 75142).

- On January 8, 2009, the NRC published a notice of hearing and opportunity to petition for leave to intervene (74 FR 836).

- On October 28, 2011, the NRC published a notice of availability of the DEIS for public comment and notice of public meetings to present an overview of the DEIS and to accept public comments on the document (76 FR 66998). On December 14, 2011, the NRC published notice of availability of an errata sheet for the DEIS (76 FR 77855).

- On January 16, 2013, the NRC published a notice of availability of the FEIS

- (78 FR 3470).

- On April 9, 16, 23, and 30, 2014, the NRC published notices of the COL application in accordance with Section 182c of the Atomic Energy Act of 1954, as amended, and 10 CFR 50.43(a)(3) (79 FR 19659, 79 FR 21493, 79 FR 22706, and 79 FR 24457).

Consultations

In accordance with Section 657 of the Energy Policy Act of 2005, the NRC consulted with the U.S. Department of Homeland Security. As part of its environmental review, in accordance with the National Environmental Policy Act (NEPA) and other applicable statutes, including the Endangered Species Act and the National Historic Preservation Act (NHPA), the staff consulted with and obtained input from appropriate Federal, State, local, and Tribal organizations.

Adjudicatory Actions

On January 8, 2009, the NRC published in the *Federal Register* (74 FR 836) a notice of opportunity to petition for leave to intervene. On March 9, 2009, a group of organizations and individual petitioners filed an intervention petition that included 14 contentions. The Atomic Safety and Licensing Board (ASLB) granted the petition and admitted four contentions concerning management of low-level radioactive waste, omission of data concerning groundwater hydrology, potential for Fermi 3 to contribute to algae blooms in Lake Erie, and impacts of Fermi 3 on a species of snake listed as threatened under Michigan state law (LBP-09-16, ADAMS Accession No. ML092120531). On November 6, 2009, the petitioners filed an additional contention concerning quality assurance. The ASLB also admitted this contention (LBP-10-9, ADAMS Accession No. ML101660525).

On July 9, 2010, the ASLB issued an unpublished order granting a motion filed by DTE Electric Company on April 26, 2010, for summary disposition of the contention concerning low-level radioactive waste (ADAMS Accession No. ML101900488). In granting summary disposition, the ASLB noted that the information identified by the intervenors as missing from the COL application had been supplied by DTE Electric Company.

On March 1, 2011, the ASLB issued an unpublished order granting a motion filed by DTE Electric Company on February 3, 2011, for summary disposition of the contention concerning groundwater hydrology data (ADAMS Accession No. ML110601036). In granting summary disposition, the ASLB noted that onsite measurements of hydrological parameters identified by the intervenors as missing from the COL application had been supplied by DTE Electric Company.

On May 20, 2011, the ASLB issued a memorandum and order denying motions filed by DTE Electric Company on September 17, 2010, and November 16, 2010, for summary disposition of the contentions concerning algae blooms and the state-listed snake species (LBP-11-14, ADAMS Accession No. ML111400352). In denying summary disposition, the Board noted that DTE Electric Company had addressed some of the issues in the contentions, but that additional issues remained in dispute.

On November 9, 2012, the ASLB issued a memorandum and order granting a motion filed by DTE Electric Company on April 17, 2012, for summary disposition of the contention concerning algae blooms and denying motions filed by DTE Electric Company on April 17, 2012, and June 11, 2012, for summary disposition of the contention concerning quality-assurance and the state-listed snake species (LBP-12-23, ADAMS Accession No. ML12314A071). In so ruling, the ASLB noted that all issues related to algae blooms had been resolved, but that issues related to quality-assurance and the snake species remained in dispute.

An evidentiary hearing on the contentions concerning quality assurance and the state-listed snake species was held in Monroe, Michigan, on October 30-31, 2013. On May 23, 2014, the ASLB issued a Partial Initial Decision ruling for DTE Electric Company on the safety contention concerning quality-assurance and for the NRC staff on the environmental contention concerning the state-listed snake species (LBP-14-07, ADAMS Accession No. ML14143A323). The intervenors filed a petition seeking Commission review of the ASLB's ruling on the quality assurance contention, and that petition is currently pending before the Commission.

The intervenors filed 10 contentions based on the DEIS, all of which were found inadmissible by the ASLB in memoranda and orders issued on June 21, 2012, and November 9, 2012 (LBP-12-12, ADAMS Accession No. ML12173A370; LBP-12-23, ADAMS Accession No. ML12314A071).

The intervenors filed five contentions based on the FEIS, all of which were found inadmissible by the ASLB in an unpublished order issued on April 30, 2013 (ADAMS Accession No. ML13120A527). However, in denying a contention concerning the environmental impacts of transmission lines, the ASLB stated that it would consider whether to address the issue *sua sponte* even though the intervenors' contention was barred on procedural grounds. On July 7, 2014, the ASLB issued a memorandum concerning its determination that *sua sponte* review of the transmission-line issue was warranted and requesting the Commission's permission to conduct this review (LBP-14-09, ADAMS Accession No. ML14188C420). This issue is currently pending before the Commission.

Individual contentions not included in the filings described above were submitted in this proceeding on December 14, 2009, July 2, 2012, and October 29, 2013. The ASLB found these

three contentions inadmissible (LBP-10-9, ADAMS Accession No. ML101660525; LBP-12-23, ADAMS Accession No. ML12314A071; ADAMS Accession No. ML14143A330).

Following the Fukushima nuclear power plant accident in Japan in March 2011, a petition to suspend all reactor licensing decisions and certain aspects of ongoing licensing proceedings was filed in this and other proceedings on April 14, 2011. The Commission denied the suspension petition, but granted the intervenors' request for a safety analysis to the extent that the NRC would conduct a short-term and long-term lessons-learned analysis of the Fukushima accident (CLI-11-05, ADAMS Accession No. ML11252A847). A contention related to the Fukushima accident subsequently was filed in this proceeding on August 11, 2011. The ASLB dismissed the contention as moot in an unpublished order issued on November 23, 2011 (ADAMS Accession No. ML11327A085).

A contention related to continued storage of spent nuclear fuel was filed in this proceeding on August 3, 2012. Pursuant to the Commission's direction in CLI-12-16, the ASLB issued an order holding the contention in abeyance on August 29, 2012 (ADAMS Accession No. ML12242A332). On August 26, 2014, the Commission issued an order directing the ASLB to dismiss this contention (CLI-14-08, ADAMS Accession No. ML14238A222). The ASLB issued its order dismissing that contention on October 6, 2014 (ADAMS Accession No. ML14279A328).

A second contention concerning safety issues related to disposal of spent nuclear fuel was filed in this proceeding and others on September 29, 2014 (ADAMS Accession No. ML14272A262). On October 7, 2014, the Commission issued an order establishing a schedule for parties to all proceedings in which the contention was submitted to file their pleadings before the Commission. (CLI-14-09, ADAMS Accession No. ML14280A126). This issue is currently pending before the Commission.

III. Review Process/ Methodology

A description of the processes and methodologies used to ensure quality, consistency, and completeness in preparation of the FSER and FEIS are described in the following documents:

NUREG-0800, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants (LWR [Light Water Reactor] Edition)" (ADAMS Accession No. ML070660036). The principal purpose of the standard review plan (SRP) is to ensure the quality and uniformity of staff safety reviews. The staff uses the SRP as a routine tool for evaluating the safety of nuclear power-plant designs. The SRP, comprehensively updated in 2007, is the most definitive basis available for evaluating whether an application meets the set of regulations established by the Commission. Each section of the SRP outlines the specific regulations that will be met when the review is complete, including the general design criteria from Appendix A, "General Design Criteria for Nuclear Power Plants," to 10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities."

NUREG-1555, "Standard Review Plans for Environmental Reviews for Nuclear Power Plants: Environmental Standard Review Plan." This guidance, including a 2007 update that addresses environmental reviews for COL applications, includes environmental SRPs that NRC staff uses when conducting environmental reviews of applications related to nuclear power

plants, in accordance with NEPA and the NRC's NEPA implementing regulations in 10 CFR Part 51.

NUREG-2157, "Generic Environmental Impact Statement for Continued Storage of Spent Nuclear Fuel" (ADAMS Accession No. ML14198A440). The NRC prepared a final generic EIS that provides a regulatory basis for this final rule of Continued Storage of Spent Nuclear Fuel. As directed by 10 CFR 51.23(b), the impacts assessed in NUREG-2157 are deemed to be incorporated in an EIS for a COL application**.**

SRM-SECY-12-0025, "Proposed Orders and Requests for Information in Response to Lessons Learned from Japan's March 11, 2011, Great Tohoku Earthquake and Tsunami," (ADAMS Accession No. ML120690347). This Staff Requirements Memorandum (SRM) provides direction to the staff on implementing the Commission-approved recommended actions to be taken in response to Fukushima lessons learned.

Design-Centered Review Approach, SECY-06-0019, "Semiannual Update of the Status of New Reactor Licensing Activities and Future Planning for New Reactors," (ADAMS Accession No. ML053530315). Under the DCRA, the NRC's Office of New Reactors has used, to the extent practicable, a "one-issue-one-review-one-position" strategy to optimize the review effort and resources needed to perform these reviews. Within the ESBWR design center, the staff has conducted one technical review for each reactor design issue and is using this one decision to support the review of multiple COL applications.

"Addressing Construction and Preconstruction Activities, Greenhouse Gas Issues, General Conformity Determinations, Environmental Justice, Need for Power, Cumulative Impact Analysis, and Cultural/Historical Resources Analysis Issues in Environmental Impact Statements" (ADAMS Accession No. ML100760503). This guidance assisted the staff in addressing certain aspects of the environmental reviews for early site permit (ESP) and COL applications that: (1) had evolved since the last update to NUREG-1555 (in 2007), or; (2) had been identified in conducting the first several reviews of ESP and COL applications.

Regulatory Guides. Regulatory guides (RGs) provide guidance to licensees and applicants on implementing specific parts of the NRC's regulations, techniques used by the NRC staff in evaluating specific problems or postulated accidents, and data needed by the staff in its review of applications for permits or licenses. Chapter 1, Table 1.9-202, "Conformance with Regulatory Guides," to the applicant's FSAR identifies the RGs associated with the Fermi 3 COL application and whether the applicant conformed to or departed from each RG. This listing does not include departures from regulatory guidance associated with the ESBWR DCD, which has been incorporated by reference.

Interim Staff Guidance. For areas in which the existing SRP does not contain review guidance, the staff prepared and used interim staff guidance (ISG) documents. ISGs are found at http://www.nrc.gov/reading-rm/doc-collections/isg/col-app-design-cert.html. The ISGs clarify technical review approaches and address questions related to processes and licensing. The

staff used the following ISGs in the Fermi 3 COL review, and the FSER section(s) to which each ISG primarily relates are indicated below:

- DC/COL-ISG-1, "Interim Staff Guidance on Seismic Issues of High Frequency Ground Motion," dated May 19, 2008; see FSER Subsection 3.7.2.

- DC/COL-ISG-3, "PRA Information to Support Design Certification and Combined License Applications," dated June 11, 2008; see FSER Sections 19.55, 19.58, and 19.59.

- DC/COL-ISG-7, "Assessment of Normal and Extreme Winter Precipitation Loads on the Roofs of Seismic Category I Structures," dated June 23, 2009; see FSER Section 2.3.1.

- DC/COL-ISG-8, "Necessary Content of Plant-Specific Technical Specifications," dated December 9, 2008; see FSER Section 16.4.

- DC/COL-ISG-11, "Finalizing Licensing-Basis Information," dated November 2, 2009; see FSER Section 1.1.

- DC/COL-ISG-15, "Post-Combined License Commitments," dated January 21, 2010; see FSER Sections 1.3.5 and 1.4.5.

- DC/COL-ISG-16, "Compliance with 10 CFR 50.54(hh)(2) and 10 CFR 52.80(d)," (nonpublic), dated June 9, 2010; see FSER Sections 19A and 19B.

- DC/COL-ISG-17, "Ensuring Hazard-Consistent Seismic Input for Site Response and Soil Structure Interaction Analyses," issued March 24, 2010; see FSER Section 3.7.1.

- DC/COL-ISG-20, "Seismic Margin Analysis for New Reactors Based on Probabilistic Risk Assessment," dated March 15, 2010; see FSER Section 19AA.

- DC/COL-ISG-22, "Interim Staff Guidance on Impact of Construction of New Nuclear Power Plants on Operating Units at Multi-Unit Sites," dated May 11, 2012; see FSER Section 1.3.5.

- JLD-ISG-2012-01, Revision 0, "Compliance with Order EA-12-049, Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events," dated August 29, 2012; see FSER Section 20.2.

- JLD-ISG-2012-03, Revision 0, "Compliance with Order EA-12-051, Reliable Spent Fuel Pool Instrumentation," dated August 29, 2012; see FSER Section 20.3.

- NSIR/DPR-ISG-01, "Emergency Planning for Nuclear Power Plants," dated November 2011; see FSER Section 13.3.

Office Instructions. In its review, the staff followed administrative guidance contained in a number of office instructions. These internal documents address a range of procedural matters,

including the staff's process for issuing requests for additional information (RAIs), handling audits, ensuring the qualification and training of technical staff and managers, ensuring consistency between staff offices; and overseeing interactions with applicants, intervenors, and public stakeholders.

New and Significant Review Process: The staff has developed a generic process to address circumstances in which there is an extended delay between the issuance of the FEIS for a particular license application review and the start of that proceeding's mandatory hearing phase. This process provides guidance to the environmental staff on identifying potentially significant new information after the DEIS or FEIS is issued in order to determine its significance, and to consider whether this information requires supplementation of the DEIS or FEIS in accordance with 10 CFR 51.72(a) or 51.92(a).

IV. *Advisory Committee on Reactor Safeguards Report*

The ACRS review of the Fermi 3 COL application culminated with a letter to the Commission dated September 22, 2014, concluding that: (1) there is reasonable assurance that Fermi 3 can be built and operated without undue risk to public health and safety and that the Commission should approve the Fermi 3 COL application; and (2) there is reasonable assurance that the ESBWR design and the Fermi 3 application satisfy the requirements resulting from the Fukushima Near-Term Task Force Recommendations (ADAMS Accession No. ML14252A294).

The ACRS letter identified what it believes to be generic issues related to seismic reevaluations, mitigating strategies, and spent fuel pool instrumentation. In addition, the ACRS letter discusses an issue related to the protection of equipment from tornado-generated missiles. The ACRS commented that it believes further action by the staff is needed to resolve these issues not only for Fermi 3, but also for current operating plants and other combined license applications. The ACRS noted anomalies in the calculated variations of uncertainty with ground motion frequency at Fermi 3 and other sites, a lack of information regarding regulatory treatment of nonsafety systems (RTNSS) equipment survivability and operability during the transition phase following a beyond-design-basis external event, and a lack of specificity regarding the actual radiation levels that are required for equipment qualification in beyond-design-basis conditions. The ACRS also noted inconsistencies in wind-driven missile analyses that make it unclear whether structures that house RTNSS equipment credited for mitigation of beyond-design-basis external events will survive site-specific tornado-generated missiles.

The staff responded to the ACRS in a letter dated November 14, 2014 (ADAMS Accession No. ML14293A058), that provided the staff's position on these items for the Fermi 3 COL application, operating plants, and future combined license applicants. For each issue identified by the ACRS, the staff documented how the Fermi 3 COL application meets the NRC's requirements. With respect to generic issues such as the uncertainties in calculation of ground motion frequency and ongoing rulemaking activities associated with mitigation strategies, the staff also has scheduled future meetings with the ACRS to address the Committee's observations.

DISCUSSION:

I. Excluded Matters

This section discusses matters that were previously addressed and resolved in the context of other reviews undertaken as part of the 10 CFR Part 52 process. Such excluded matters include issues addressed under the ESBWR design certification review.

A full discussion of matters resolved by the design certification rule (DCR), and thus excluded from the uncontested hearing, can be found in the final rule (79 FR 61943). As explained in the rule, those resolved matters include, for example, all nuclear safety issues associated with the information in the FSER and Supplement Number 1; Tier 1 and Tier 2 information; the documents listed in the table to the DCR; and the rulemaking record for certification of the ESBWR design, with the exceptions specified below. The ESBWR rulemaking also resolves all environmental issues concerning severe accident mitigation design alternatives associated with the information in the NRC's environmental assessment for the ESBWR design and NEDO-33306, Revision 4, "ESBWR Severe Accident Mitigation Design Alternatives," for plants referencing the DCD whose site characteristics fall within those site parameters specified in NEDO-33306.

There are certain matters for which the ESBWR DCR does not provide finality; and therefore, remain for a COL applicant to consider. These include, for example, generic technical specifications and other operational requirements such as human factors engineering procedure development and training program development; hurricane loads on certain structures, systems, and components described in the generic DCD that are not bounded by the total tornado loads analyzed in the generic DCD; hurricane-generated missile loads on certain structure, system, and components (SSCs) described in the generic DCD that are not bounded by tornado-generated missile loads analyzed in the generic DCD; and two limited aspects of spent fuel pool level instrumentation design (in regard to the connection of an independent power source, and how the instrumentation will maintain its design accuracy following a power interruption or change in power source without recalibration). Furthermore, several tables in the DCD identify COL areas that interface with corresponding areas of the certified design. Tables 1.8-1 and 1.8-2 of the DCD presents a listing of interfaces between the COL and the certified design. Table 1.10-1 lists COL information items, which address those areas for which a COL applicant referencing the ESBWR design must provide additional supporting information to meet a regulatory requirement. The staff review of the Fermi 3 application confirmed that the applicant satisfactorily addressed all interface items and COL information items.

Finally, excluded from consideration in the uncontested hearing are issues resolved during the COL contested proceeding. The Licensing Board granted summary disposition on three contentions: a contention concerning low-level radioactive waste information allegedly missing from the COL application, a contention concerning groundwater hydrology data allegedly missing from the COL, and a contention relating to algae blooms. At the COL evidentiary hearing, the Board resolved the remaining contested issues related to quality assurance and the snake species listed as threatened by the state of Michigan. Intervenors appealed the Board's decision on the quality-assurance issue. This appeal is currently pending before the Commission. Also pending before the Commission is a request from the Licensing Board seeking authorization for *sua sponte* review of the adequacy of staff's consideration of the

environmental impacts related to the likely transmission corridor for Fermi 3, which were examined in the FEIS's analysis of cumulative impacts.

II. Exemptions and Departures

Exemptions from NRC Regulations

The staff evaluated and found acceptable the following exemption from NRC regulations associated with the review of the application:

Description	Regulation	Location of Evaluation in FSER
Special nuclear material control and accounting (MC&A) program description	10 CFR 70.22(b), 70.32(c), 74.31, 74.41, and 74.51	Section 1.5.4

In accordance with 10 CFR 70.22(b), current applicants requesting a license to possess special nuclear material (SNM) must submit a full description of their MC&A program and show compliance with 10 CFR 74.31, "Nuclear Material Control and Accounting for Special Nuclear Material of Low Strategic Significance"; 74.33, "Nuclear Material Control and Accounting for Uranium Enrichment Facilities Authorized To Produce Special Nuclear Material of Low Strategic Significance"; 74.41, "Nuclear Material Control and Accounting for Special Nuclear Material of Moderate Strategic Significance"; or 74.51, "Nuclear Material Control and Accounting for Strategic Special Nuclear Material," as applicable. Also, in accordance with 10 CFR 70.32(c), applicants requesting a license to possess SNM are subject to a condition to maintain and follow a MC&A program for source material and SNM in which decreases to the program effectiveness will be submitted as a license amendment request pursuant to 10 CFR 70.34, "Amendment of Licenses." However, the requirements, in 10 CFR 70.22(b) and 70.32(c), contain an exclusion for licensees governed by 10 CFR Part 50, including existing nuclear power plants. The Fermi 3 Combined License application was submitted, and accepted, as a licensing action for a nuclear power plant under 10 CFR Part 52, rather than 10 CFR Part 50. The exclusions described above 10 CFR Part 70, "Domestic Licensing of Special Nuclear Material," and Part 74, "Material Control and Accounting of Special Nuclear Material," do not include 10 CFR Part 52 applicants, even though for the purposes of the requirement, the applications are for the same facility type. For both Part 50 and Part 52 applicants, Subpart B, "General Reporting and Recordkeeping Requirements," of 10 CFR Part 74 (excluding Section 74.17, "Special Nuclear Material Physical Inventory Summary Report") contains the appropriate MC&A performance requirements.

In Part 7, "Departures," of the combined license application, the applicant requested an exemption from the requirements in 10 CFR 70.22(b), 70.32(c), 74.31, 74.41, and 74.51, that a special nuclear material license application describe an MC&A program and that the applicant establish, implement, maintain, and follow an MC&A program. The applicant provided a full discussion of the exemption request and noted that the cited regulations include exceptions from these requirements for nuclear reactors licensed under 10 CFR Part 50. The purpose of the request was to achieve an exception similar to the exemption already granted by regulation to a reactor applicant licensed pursuant to 10 CFR Part 50.

The staff evaluated this exemption request and determined that such an exemption is authorized by law, will not present an undue risk to public health or safety, and is consistent with the common defense and security, and that special circumstances are present as described in 10 CFR 50.12(a)(2)(ii) because the Commission determined that these requirements are unnecessary for similar 10 CFR Part 50 applicants. The staff evaluation of the exemption request appears in the FSER section listed in the above table.

Departures from ESBWR DCD Revision 10

The Fermi 3 Combined License Application (COLA) identified one departure from the ESBWR design. The staff evaluated the applicant's proposed departure from information in the ESBWR DCD Revision 10, presented in the table below. Part 7 of the COL application describes and justifies the departure and evaluates the departure against the criteria in Section VIII.B.5 of Appendix E, "Design Certification Rule for the ESBWR Design," to 10 CFR Part 52 to determine whether the applicant could implement the departure without NRC approval. Part 7 of the COL application also identifies the affected FSAR sections and provides a summary, justification, and evaluation of each departure.

Description	Location of Evaluation in FSER
EF3 DEP 11.4-1. Long-Term, Temporary Storage of Class B and C Low-Level Radioactive Waste	Section 11.4

The ESBWR DCD states that onsite storage space for a 6-month volume of packaged waste is provided in the Radwaste Building. The Fermi 3 Radwaste Building is configured to accommodate a minimum of 10 years' volume of packaged Class B and C waste generated during plant operation because of the lack of access to offsite disposal facilities that accept Class B and C waste shipments. This configuration also maintains space for at least 3 months' worth of packaged Class A waste. The departure involves a redesign of the Radwaste Building that affects the arrangement of systems and components within the building volume. The systems and components requiring modifications are associated with the liquid waste management system and the solid-waste management system. The applicant stated that the existing Radwaste Building fire protection and heating, ventilation, and air conditioning systems have sufficient capacity to accommodate the extra volume of Class B and C wastes, and require no modification. This departure does not affect offsite dose rates or the integrity of waste containers in storage. As such, this departure does not create a potential for increased radiation exposure to members of the public. The staff confirmed that the applicant provided sufficient information to allow the staff to resolve all safety issues in its review of the request to depart from the design certification.

III. Nonroutine Unique Facility Features or Novel Issues

Safety Matters

a. Soil Structure Interaction

General Design Criterion 2, "Design Bases for Protection Against Natural Phenomena," in Appendix A to 10 CFR Part 50, requires that nuclear power plants must be capable of withstanding the most severe earthquakes that have been historically reported for the site and surrounding areas, with sufficient margin to accommodate uncertainties. 10 CFR 52.79(d)(1) requires that for a COLA referencing a design certification, sufficient information must be provided to demonstrate that the characteristics of the site fall within the site parameters specified in the DCD. The Fermi 3 COLA incorporates the ESBWR DCD by reference. The Safe Shutdown Earthquake design ground motion for the ESBWR standard plant structure is defined by the Certified Seismic Design Response Spectra. At the Fermi 3 site, the Reactor Building/Fuel Building and Control Building (CB) structures will be partially embedded in rock with granular backfill surrounding the structures from the top of rock to the plant grade. This site-specific foundation embedment configuration deviates from the foundation configurations considered in the ESBWR DCD. In addition, the Fermi 3 site does not meet the minimum backfill shear wave velocity requirement of the ESBWR DCD. The ESBWR DCD provides that if the site-specific soil characteristics do not meet the conditions defined by the DCD, site-specific soil structure interaction (SSI) analyses need to be performed to confirm that the certified design is adequate for the site.

In order to verify that the seismic demand at the Fermi 3 site is bounded by the DCD analyses, the applicant performed site-specific SSI analyses to address the DCD backfill requirement and the partial embedment configuration of the reactor building/fuel building and CB. The applicant used Foundation Input Response Spectra (FIRS) computed from the Central and Eastern U.S. (CEUS) Seismic Source Characterization model as input to the SSI analyses. The applicant provided the results of the SSI analyses as supplementary information in the COLA. The NRC staff reviewed the information provided in the COLA and the responses to RAIs, checked the referenced ESBWR DCD, and conducted additional technical audits of the site-specific seismic analyses and calculations. The staff's review confirmed that at the Fermi 3 site, the site-specific seismic demand is bounded by the DCD analyses. The staff concludes that the applicant has provided sufficient information to demonstrate that with regard to these site-specific configurations and seismic demands, the NRC's determinations regarding the safety of the ESBWR certified design remain applicable for the Fermi 3 site.

b. Applicability of Near-Term Task Force (NTTF) Recommendations Regarding the Evaluation of the Fukushima Dai-ichi Nuclear Power Plant Event to the Fermi 3 COL

SECY-12-0025 and SRM- SECY-12-0025 address the requirements and regulatory actions resulting from the Fukushima NTTF Tier 1 recommendations. The staff determined that four of the NTTF Tier 1 recommendations (and the requirements in the resulting Commission Orders) were applicable to the Fermi 3 COL application, and issued several RAIs. These RAIs asked the applicant to 1) provide an evaluation of the Fermi 3 site for updated seismic hazards (*Recommendation 2.1*), 2) develop mitigating strategies for beyond-design-basis external events (*Recommendation 4.2*), 3) provide reliable spent fuel pool instrumentation

(*Recommendation 7.1*), and 4) evaluate emergency preparedness staffing and communications (*Recommendation 9.3*).

The staff evaluated the applicant's responses to these RAIs in FSER Chapter 20, entitled "Requirements Resulting from Fukushima Near-Term Task Force Recommendations." A discussion of the remaining Tier 1 recommendations and why they did not apply to the Fermi 3 COL review appears in the introduction to Chapter 20 of the FSER.

For the reasons described in FSER Chapter 20, the applicant made revisions to FSAR Sections 2.5 and 3.7, and the draft license for Fermi 3 contains three license conditions related to Recommendations 4.2, 7.1, and 9.3.

Recommendation 2.1 Seismic Reevaluation

The requirements resulting from Recommendation 2.1 appear in Attachment 3 to Enclosure 7 to SECY-12-0025 (ADAMS Accession No. ML12039A188). The NRC issued RAI 01.05-1 requesting the Fermi 3 COL applicant to address this recommendation. To satisfy the requirements, the applicant revised FSAR Sections 2.5.1, 2.5.2, and 3.7.1 to reflect its use of NUREG-2115, "Central and Eastern U.S. Seismic Source Characterization for Nuclear Facilities" (CEUS SSC). The FSAR revisions included revised ground motion response spectra (GMRS) in Section 2.5.2 and revised FIRS in Section 3.7.1.

The staff's review, which included confirmatory calculations of the Fermi 3 site response analysis and seismic hazard re-evaluation using CEUS SSC distributed seismicity sources, is documented in FSER Sections 2.5.2 and 3.7.1. The staff's seismic hazard re-evaluation confirmatory calculations are in good agreement with the applicant's. By performing the Fermi 3 site response confirmatory calculations, the staff was able to conclude that in the frequency range significant to a reactor's structures, systems, and components, there are no significant differences between the staff's and the applicant's site response results. Based on the staff's confirmatory analyses and the staff's review of the Fermi 3 COL FSAR and the seismic reevaluation for Recommendation 2.1, the staff concluded that the updated site-specific GMRS and FIRS presented in the Fermi 3 COL FSAR accurately characterize the ground motion at the Fermi 3 site.

Recommendation 4.2, Mitigation Strategies for Beyond-Design-Basis External Events

The requirements resulting from this recommendation appear in Enclosure 4 to SECY-12-0025, (ADAMS Accession No ML12039A124), and the corresponding staff review for Fermi 3 appears in Section 20.2 of the FSER. The design basis for Fermi 3 includes passive design features that provide core, containment, and spent fuel pool cooling for 72-hours without reliance on operator action, alternating current (AC) power, or external water sources. By the nature of its passive design and its inherent 72-hour coping capacity, Fermi 3 has many features and attributes necessary to address the NTTF recommendations and will maintain required safety functions for at least 72-hours without need for operator action or use of offsite equipment and resources.

The staff reviewed the information provided by the applicant for mitigating strategies that would be used to cope with an extended loss of AC power resulting from a beyond-design-basis-event at Fermi 3. For example, the applicant described the passive cooling features of the ESBWR

standard plant, and the availability of both installed ancillary equipment and safety-related connections for portable equipment that could be used during the final mitigation phase. To satisfy the recommendation for mitigation after 72-hours, the staff developed a license condition similar to the license condition imposed by the Commission on the COLs for Summer Units 2 and 3 (see ADAMS Accession No. ML12090A531, page 22). The license condition requires the licensee to prepare an overall integrated plan to maintain or restore core cooling, containment and spent fuel pool cooling capabilities given a simultaneous loss of all AC power and loss of normal access to the ultimate heat sink. The license condition also requires the licensee to complete the development of strategies and guidance to be used for mitigation and to specify implementation details, including procedures; training; acquisition, staging, or installing of equipment and consumables relied on in the strategies; and configuration controls and provisions for maintenance and testing.

Recommendation 7.1, Spent Fuel Pool Instrumentation

The requirements resulting from this recommendation appear in Attachment 2 to Enclosure 6 to SECY-12-0025, (ADAMS Accession No. ML12039A148), and the corresponding staff review for Fermi 3 appears in Section 20.3 of the FSER. In response to the staff's RAI, the applicant provided additional information about alternate power supply and recalibration following a loss of power to the instrumentation. The applicant incorporated this design information into Section 1.5.1.1.2 of the FSAR. The staff developed a license condition that would require the spent fuel pool/buffer pool instrumentation to be maintained available and reliable through the development and implementation of a training program. This condition also requires that the training program includes provisions to ensure that trained personnel can route the temporary power lines from the alternate power source to the appropriate connection points, and connect the alternate power source to the safety-related level instrument channels.

Recommendation 9.3, Emergency Preparedness Communications and Staffing

The staff issued two requests for information based upon Enclosure 5 of Enclosure 7 to SECY-12-0025 (ADAMS Accession No. ML12039A188). The corresponding staff review for Fermi 3 appears in Section 20.4 of the FSER. The applicable requirements for this recommendation are contained in 10 CFR 50.47(b) and Appendix E to 10 CFR Part 50. A proposed license condition was provided by DTE Electric Company as a response to the RAI regarding this recommendation. The staff revised the proposed license condition to require the licensee to conduct an assessment of onsite and offsite communications systems and equipment required during an emergency event to ensure that communications capabilities can be maintained during prolonged station blackout conditions; and to conduct an assessment of the onsite and augmented staffing capability to respond to a multi-unit event.

Environmental Matters

a. Historic Preservation Related to Fermi 1

In December 2008, the NRC initiated consultation under Section 106 of the NHPA for the proposed Fermi 3 project, which included communication with the Michigan State Historic Preservation Officer (SHPO), federally recognized Indian tribes, and the Advisory Council on

Historic Preservation. The NRC coordinates its NHPA consultation on COL applications with its NEPA review of those applications, consistent with 36 CFR 800.8(c).

Fermi 3 will be located adjacent to and generally west of Fermi 1. Fermi 1 was a prototype fast breeder reactor, had a generating capacity of 94 megawatt-electric (MW(e)) and began commercial operation in 1957. Fermi 1 was deactivated in 1972, and has been defueled in preparation for dismantling. Decommissioning began in 1975; full decommissioning of Fermi 1 is expected to be complete prior to initiation of building Fermi 3.

As explained in the application, the applicant evaluated Fermi 1 for eligibility for listing on the National Register of Historic Places and determined that it meets the eligibility criteria. Fermi 1 was also designated a Nuclear Historic Landmark by the American Nuclear Society in October 1986.

Based on the application and information obtained during the NHPA Section 106 consultation, the NRC staff determined that the demolition of Fermi Unit 1 would be an adverse effect per 36 CFR Section 800.5(d)(2). The NRC, the Michigan SHPO and DTE Electric Company developed and executed a Memorandum of Agreement (MOA) on March 20, 2012, that identified ways to mitigate the adverse effects on Fermi 1 pursuant to 36 CFR 800.6(c) (ADAMS Accession No. ML12089A007).

Stipulation I of the MOA required that DTE Electric Company submit a Fermi 1 documentation package to the Michigan SHPO, following acceptable guidelines. DTE Electric Company submitted the package to the SHPO on April 5, 2012. The SHPO approved the Fermi 1 documentation package on May 7, 2012, and consistent with the MOA, the approved packages have been placed in the State Archives of Michigan and delivered to the Monroe County Library and Reference Center.

Stipulation II of the MOA required that DTE Electric Company, in consultation with Monroe County Community College, the Michigan SHPO, and other interested parties, develop and establish a permanent public exhibit regarding the history of the Fermi 1 within 2 years of the date of the MOA. DTE Electric Company established a public exhibit regarding the history of Fermi 1 at the Monroe County Community College. The exhibit was opened to the public on August 26, 2013. DTE Electric Company has contacted a number of potentially interested parties with regard to permanent retention or display of the remaining archival items associated with Fermi 1. DTE Electric Company is currently working to facilitate the possible transfer of items associated with Fermi 1 to Argonne National Laboratory.

By letter dated January 31, 2014, DTE Electric Company documented completion of the stipulations in the MOA (ADAMS Accession No. ML14041A012).

b. International Interactions

The Fermi 3 site is located just over 7 miles from the international boundary between the U.S. and Canada. Because of this proximity, international interactions have been an important consideration during the environmental review. While the NRC's regulations [in 10 CFR 51.10(a)] specify that the NRC's requirements for implementing NEPA do not extend to "environmental effects which NRC's domestic licensing and related regulatory functions may

have upon the environment of foreign nations," the staff has undertaken appropriate outreach to inform its analysis of the potential environmental impacts of the Fermi project.

The staff contacted two international organizations in the course of the Fermi 3 environmental review, the International Joint Commission (IJC) and the Great Lakes Fisheries Commission. The IJC is an international organization formed in 1912 to address issues related to the Boundary Waters Treaty of 1909, and which also works to address other international agreements related to air and water quality. The IJC's Great Lakes Water Quality Board includes Federal, State/provincial, local, and Tribal governments in the U.S. and Canada, as well as representatives of business and environmental organizations. The Great Lakes Fisheries Commission was established by the Convention on Great Lakes Fisheries between Canada and the U.S. in 1955. Members include Federal and State/provincial government officials from the two countries as well as academic experts. Additionally, staff contacted the U.S. Fish and Wildlife Service (FWS), which manages the Detroit River International Wildlife Refuge (DRIWR) jointly with Canadian governmental counterparts, including Environment Canada and the Ontario Ministry of Natural Resources. The interactions with the IJC, Fisheries Commission, and FWS helped the staff gather relevant information concerning potential trans boundary impacts, which subsequently informed the staff's analysis in the EIS.

The DRIWR, established in 2001, is the first international wildlife refuge in North America. It is managed jointly by the FWS and its Canadian counterpart agencies. As explained in the EIS, DTE Electric Company entered into a cooperative agreement with FWS on September 25, 2003, placing some undeveloped portions of the Fermi site under management by the DRIWR (although DTE Electric Company retained ownership). These areas were designated as the DRIWR Lagoona Beach Unit. The habitat types covering the greatest area of the DRIWR Lagoona Beach Unit are coastal emergent wetland, various types of forest, and shrub land. The agreement between DTE Electric Company and the FWS allows for modifications to the agreement (such as the proposed building of Fermi 3) by either party at any time. The staff received scoping comments from the FWS regarding the DRIWR, which stated that the DRIWR staff would continue to work with DTE on wildlife management during the Fermi 3 planning process. The staff considered the DRIWR when assessing potential land use and terrestrial ecology impacts from the Fermi 3 project. The staff concluded that land use impacts would be small and that terrestrial ecology impacts would be small to moderate. As explained in the EIS, the potential for moderate impacts to terrestrial ecology is limited to potential impacts to the state-listed snake species, a topic that was addressed in the contested hearing.

The staff engaged in international outreach in other ways as well. Prior to the public meetings for scoping the EIS and for presenting the staff's analysis in the DEIS, the staff placed advertisements about the meeting in the City of Windsor newspaper, *The Windsor Star*. In addition, staff attended a Government to Government meeting early in the Fermi 3 review that addressed Fermi's emergency planning zone. Emergency management personnel from Essex County, Ontario, participated in this meeting along with U.S. emergency management organizations.

During the scoping process for the Fermi 3 EIS, the staff received comments recommending that the staff consider contacting the city of Windsor, Ontario, and other governmental entities in Canada, and the Walpole Island First Nation in Canada. Although staff did not initiate direct contact with those entities, both the City of Windsor and the Walpole Island First Nation have

representatives on the IJC's Great Lakes Water Quality Board, as do several other Canadian governmental entities. The IJC's Great Lakes Water Quality Board provided scoping comments identifying IJC reports that the staff considered as part of its environmental review.

After the comment period on the DEIS was closed, and shortly before publication of the FEIS, the U.S. Embassy in Canada contacted the staff with questions on whether there would be opportunity for public consultation after the final EIS is issued referencing a letter that originated with the Walpole Island First Nation. The staff responded with a letter describing the environmental review and its treatment of trans boundary environmental impacts, and it also forwarded a copy of the FEIS. No further communication from the Walpole Island First Nation was received. In sum, the staff took appropriate steps to ensure that the proposed facility's proximity to the U.S. – Canada border was properly considered in its evaluation of the Fermi 3 application. The information obtained through the staff's outreach to the public and to cognizant international organizations supported the thoroughness of the staff's review.

c. Continued Storage

On June 8, 2012, the U.S. Court of Appeals for the District of Columbia Circuit vacated the NRC's 2010 Waste Confidence Decision and Rule, finding that it did not comply with NEPA (*New York v. NRC*, 681 F.3d 471). Later that month, several petitioners requested suspension of final licensing decisions for reactor licensing applications relying on the vacated rule pending completion of Commission action to address the court's remand. These petitions were filed on a number of adjudicatory dockets, including in the Fermi 3 COL proceeding (ADAMS Accession No. ML12172A396). The Commission responded to these petitions on August 7, 2012, stating that it would not issue licenses dependent upon the Waste Confidence Decision and Rule until the court's remand is appropriately addressed. The Commission further stated that this determination extended just to final license issuance, and that all current licensing reviews and proceedings should continue to move forward. (CLI-12-16; ADAMS Accession No. ML12220A117). The Commission separately directed the staff to develop an updated rule supported by a generic EIS (SRM-COMSECY-12-0016; ADAMS Accession No. ML12250A032).

On September 19, 2014, the Commission issued a final rule at amending 10 CFR 51.23, as well as the associated Generic Environmental Impact Statement for Continued Storage of Spent Nuclear Fuel (NUREG-2157). The final rule adopts the generic impact determinations made in NUREG-2157 and codifies the NRC's generic determinations regarding the environmental impacts of continued storage of spent nuclear fuel beyond a reactor's operating license (i.e., those impacts that could occur as a result of the storage of spent nuclear fuel in at-reactor or away-from-reactor sites after a reactor's licensed life for operation and until a permanent repository becomes available). NUREG-2157 analyzes the impacts of at-reactor and away-from-reactor spent fuel storage during short-term, long-term, and indefinite timeframes.

In CLI-14-08, the Commission stated that the revised 10 CFR 51.23 and associated NUREG-2157 cure the deficiencies identified by the court in *New York v. NRC* and stated that the rule satisfies the NRC's NEPA obligations with respect to continued storage for actions such as the Fermi 3 COL application. The Commission's Order also explicitly lifted the suspension of the affected licensing actions. As directed by 10 CFR 51.23(b), the impacts assessed in NUREG-2157 are deemed incorporated into an EIS for a COL application.

The final EIS for the Fermi 3 COL application was published before the revised rule and NUREG-2157 were published. The staff, therefore, evaluated the new information presented in NUREG-2157 in accordance with 10 CFR 51.92(a) to determine whether a supplement to the final EIS was required. The staff concluded that, as stated in NUREG-2157, the most likely impacts of continued storage would be those associated with at-reactor storage during the short-term timeframe and, as concluded in NUREG-2157, the impacts of such storage would be small. Based on this analysis, the staff concluded that the information in NUREG-2157 does not present a seriously different picture of the environmental impacts of the proposed action when compared to the impacts that were described in the FEIS for Fermi 3. Therefore, this information does not warrant a supplement to the FEIS for Fermi 3. The staff's consideration of this issue is documented in an evaluation available under ADAMS Accession No. ML14318A477.

IV. Findings

10 CFR 52.97(a)(1)

(i) The applicable standards and requirements of the Act and the Commission's regulations have been met.

The staff reviewed the application and evaluated it against the applicable regulations in 10 CFR Parts 20, 26, 30, 31, 32, 40, 50, 51, 52, 55, 70, 73, 74, 100, and 140. The staff performed this evaluation using applicable portions of the SRP, ISG documents, RGs, bulletins, NUREGs and generic letters. Based on the staff's review, documented in the FSER and the FEIS, the staff concludes that, for the purpose of issuing a COL for Fermi 3, the applicable standards and requirements of the Atomic Energy Act of 1954, as amended, and the Commission's regulations have been met.

(ii) Any required notifications to other agencies or bodies have been duly made.

As required by Section 182c. of the Atomic Energy Authority and 10 CFR 50.43(a), the NRC took the following actions: On March 14, 2013, the NRC notified the Michigan Public Service Commission (ADAMS Accession No. ML13044A458) and the Federal Energy Regulatory Commission (ADAMS Accession No. ML13044A394) regarding the Fermi 3 COL application. In December 2008 and January 2009, the NRC published notices of the application in the *Detroit Free Press*, *Toledo Blade*, *Monroe Evening News*, and *Windsor Star*. In addition, the staff also published a notice of the application in the *Federal Register* on April 9, April 16, April 23, and April 30, 2014 (at 79 FR 19659, 79 FR 21493, 79 FR 22706, and 79 FR 24457, respectively).

Based on the staff's completion of notifications to regulatory agencies and the public notices described above, the staff concludes that, for the purposes of issuing a COL for Fermi 3, all required notifications to other agencies or bodies have been duly carried out.

(iii) There is reasonable assurance that the facility will be constructed and will operate in conformity with the licenses, the provisions of the Act, and the Commission's regulations.

The staff reviewed information provided by the applicant to ensure that the plant will be constructed and will operate in conformity with the license, applicable provisions of the Atomic Energy Act of 1954, as amended, and applicable regulations. This includes the FSAR and other portions of the application, including general and financial information, technical specifications, the emergency plan, requests for departures and exemptions, the quality assurance (QA) plan, and the security plan.

In areas where the staff found that the information submitted initially was incomplete or insufficient to allow the staff to reach a reasonable assurance conclusion, the staff issued RAIs to the applicant to obtain sufficient information. The staff reviewed applicant responses to ensure that the additional information provided was sufficient to support the staff conclusion. Where necessary, the applicant provided multiple supplemental responses. As necessary, the staff also conducted audits of the applicant's records and calculations and performed its own confirmatory calculations to confirm applicant statements.

In some cases, the staff's "reasonable assurance" finding required the imposition of license conditions or inspection, test, analysis, and acceptance criteria (ITAAC) as part of the licenses. The draft COL lists the license conditions, including license conditions for the Fukushima NTTF Recommendations, and ITAAC. The basis for each license condition or ITAAC appears in the technical evaluations in the Fermi 3 COL FSER and the ESBWR DCD FSER referenced by the Fermi 3 COL application.

On the basis of the staff's review of the application discussed in this paper and documented in the FSER and FEIS, the staff concludes that, for the purpose of issuing a COL for Fermi 3, there is reasonable assurance that the facility will be constructed and will operate in conformance with the license, the provisions of the Atomic Energy Act of 1954, as amended, and the Commission's regulations.

(iv) The applicant is technically and financially qualified to engage in the activities authorized.

The staff reviewed information provided by the applicant regarding technical and financial qualifications.

a. Technical Qualification. The staff reviewed information provided by the applicant regarding its technical qualifications. The review included an evaluation of the applicant's operating experience, organizational structure, and QA program. The review included the fact that the applicant operates Fermi 2, which is a 3430-MW(e) boiling-water reactor plant, approximately 30 miles southwest of Detroit. The applicant holds a 10 CFR Part 50 license for Fermi 2 and has demonstrated its ability to build and operate a nuclear power reactor. The applicant has demonstrated the ability to choose and manage the oversight of nuclear steam supply system vendors, architect-engineers, and constructors of nuclear-related work. The staff's review of the applicant's organizational

structure concluded that its management, technical support, and operating organizations are acceptable. The staff reviewed the QA program and found it acceptable. This QA program includes requirements that will be implemented by the applicant's engineering, procurement, and construction contractor. The adequacy of the applicant's QA program was a topic addressed in the contested hearing, and a petition for review of the ASLB's ruling on that contention is pending before the Commission.

The staff's evaluation of this information appears in Sections 1.4 and 13.5 and Chapter 17 of the FSER. Based on the staff's evaluation of the applicant's experience with building and operating a nuclear power plant, its operating organization, and its QA program, the staff finds that the applicant is technically qualified to hold a 10 CFR Part 52 license in accordance with 10 CFR 52.79(a)(1)(iv).

b. Financial Qualifications. The staff reviewed information provided by the applicant about financial qualifications. The review included an evaluation of the financial qualifications, decommissioning funding assurance, foreign ownership, and nuclear insurance and indemnity. The staff evaluated information pertaining to the total cost of Fermi 3, consisting of engineering, procurement, construction costs, owners' costs, financing costs, inflation and information pertaining to funding sources for the owner. Applicable regulations and guidance considered by the staff included 10 CFR Part 140, "Financial Protection Requirements and Indemnity Agreements"; 10 CFR 52.97(a)(1)(iv); 10 CFR 50.33; "Contents of Applications; General Information"; Section I.A.2, "Source of Construction Funds," of Appendix C, "A Guide for the Financial Data and Related Information Required to Establish Financial Qualifications for Construction Permits and Combined Licenses to 10 CFR Part 50; and NUREG-1577, "Standard Review Plan on Power Reactor Licensee Financial Qualifications and Decommissioning Funding Assurance."

The staff's evaluation of this information appears in Chapter 1 of the FSER. Based on the financial information provided by the applicant, the NRC staff concludes that the DTE Electric Company has demonstrated that it possesses or has access to the financial resources necessary to meet estimated operation and construction costs and related fuel cycle costs. Therefore, the NRC staff concludes that the applicant, DTE Electric Company, is financially qualified to construct and operate Fermi 3 and to engage in the activities authorized by the licenses.

(v) Issuance of the licenses will not be inimical to the common defense and security or to the health and safety of the public.

The staff reviewed the application to assure that issuance of the license will not be inimical to the common defense and security or to public health and safety. Specifically, the staff evaluated the applicant's analysis and conclusions about site-specific conditions, including the geography and demography of the site; nearby industrial, transportation, and military facilities; site meteorology; site hydrology; and site geology, seismology, and geotechnical engineering to ensure that issuance of the licenses will not be inimical to public health and safety. The review also evaluated the design of structures, components, equipment, and systems to ensure safe operation, performance, and shutdown when subjected to extreme weather, floods, seismic events,

missiles (including aircraft impacts), chemical and radiological releases, and loss of offsite power to the extent not already resolved by the incorporation of the ESBWR design.

The review confirmed that radiological releases and human doses during both normal operation and accident scenarios will remain within regulatory limits, which supports the staff's conclusion that issuance of the licenses will not be inimical to public health and safety. The review determined that the physical security to be implemented at the site is adequate to protect the facility, which supports the staff's conclusion that issuance of the licenses will not be inimical to the common defense and security.

The review also determined that operational programs identified by the applicant are sufficiently described to assure the staff of compliance with regulations. Where the staff needed to confirm operational program implementation to reach a reasonable assurance finding, but the details of program implementation were not governed by specific regulatory requirements, the draft license contains license conditions to ensure that operational programs will be properly implemented and thus that issuance of the COL will not be inimical to the common defense and security or to public health and safety. The staff evaluation addressed the operational programs identified in staff requirements memorandum SECY-05-0197, dated February 22, 2006, as well as three additional operational programs, including a cybersecurity program, a program for SNM, and a SNM physical security program. The staff's review of the applicant's emergency planning information concluded that the emergency plan is acceptable and supports the staff's conclusion that issuance of the licenses will not be inimical to public health and safety.

On the basis of the staff's review of the application, as discussed in this paper and the referenced documents, the staff concludes that issuance of the COL for Fermi 3 will not be inimical to the common defense and security or to public health and safety.

(vi) The findings required by Subpart A of Part 51 of this chapter have been made.

As discussed below, the staff concludes that, for the purpose of issuing a COL for Fermi 3, the environmental review has been adequate to support the findings set forth in 10 CFR 51.107(a).

10 CFR 52.97(a)(2):

The staff concludes that there are no acceptance criteria from ITAAC in the referenced standard design certification that the applicant has asserted are met. Therefore, no Commission finding under this section is required for the purpose of issuing a COL for Fermi 3.

10 CFR 51.107(a):

(i) Determine whether the requirements of Sections 102(2) (A), (C), and (E) of NEPA and the regulations in Subpart A of 10 CFR Part 51 have been met.

The staff reviewed the application and evaluated it against the applicable regulations in 10 CFR Parts 50, 51, 52, and 100. The staff performed this evaluation using applicable portions of the environmental SRP (NUREG-1555), issued in 2000 and updated in 2007, and ISG documents, RGs, and generic letters.

In accordance with NEPA Section 102(2)(A) (42 U.S.C. § 4332(2)(A)), the staff prepared the FEIS (NUREG-2105) based on its independent assessment of the information provided by the applicant and information developed independently by the staff, including through consultation with other agencies. The staff's technical analysis used a systematic, interdisciplinary approach to integrate information from many fields, including the natural and social sciences as well as the environmental design arts. Consequently, the staff concludes that its review comports with the NRC's requirements in Appendix A, "Format for Presentation of Material in Environmental Impact Statements," to 10 CFR Part 51. The staff concludes that environmental findings in the FEIS constitute the "hard look" required by NEPA and have reasonable support in logic and fact.

In accordance with NEPA Sections 102(2)(C)(i–v) (42 USC § 4332(2)(C)(i–v), the FEIS for the Fermi 3 COL addresses (1) the environmental impact of the proposed action, (2) any unavoidable adverse environmental effects, (3) alternatives to the proposed action, (4) the relationship between local short-term uses of the environment and the maintenance and enhancement of long-term productivity, and (5) any irreversible and irretrievable commitments of resources that would be involved in the proposed action should it be implemented.

As supported by correspondence presented in Appendix F to the FEIS, the staff concludes that it fulfilled the requirement of NEPA Section 102(2)(C) by consulting with and obtaining comments from other Federal agencies with jurisdiction by law or special expertise (see 42 USC § 4332(2)(C)). The U.S. Army Corps of Engineers (USACE) fully participated with the NRC in preparing this EIS as a cooperating agency and participated collaboratively on the review team under the Commission's MOA with the USACE.

The staff concludes that the FEIS demonstrates that the staff adequately considered alternatives to the proposed action to the extent that it involves unresolved conflicts concerning alternative uses of available resources, consistent with the requirements of NEPA Section 102(2)(E) (42 USC § 4332(2)(E)). The alternatives considered in the FEIS include the no-action alternative, energy alternatives, alternative sites, and system design alternatives.

(ii) Independently consider the final balance among conflicting factors contained in the record of the proceeding with a view to determining the appropriate action to be taken.

Section 11.6 of the FEIS provides the staff's summary of the cost-benefit balancing. The staff concluded that "the construction and operation of the proposed Fermi 3 site, with mitigation measures identified by the staff, would have accrued benefits that most likely would outweigh the economic, environmental, and social costs associated with constructing and operating one new unit at the Fermi site."

(iii) Determine, after weighing the environmental, economic, technical, and other benefits against environmental and other costs, and considering reasonable alternatives, whether the COL should be issued, denied, or appropriately conditioned to protect environmental values.

As noted above, in its FEIS, the staff considered the cost-benefit balancing as well as reasonable alternatives. Based on that analysis, the staff recommends that the COL be issued. The staff based its recommendation on (1) the DTE Electric Company COL application environmental report; (2) consultation with Federal, State, Tribal, and local agencies; (3) the review team's own independent review; (4) the staff's consideration of public scoping comments related to the environmental review; and (5) the assessments summarized in this EIS, including the potential mitigation measures identified in the Environmental Report and in the EIS. In addition, in making its recommendation, the staff determined that none of the alternative sites assessed is obviously superior to the Fermi site. The NRC's determination is independent of the USACE's determination of a Least Environmentally Damaging Practicable Alternative pursuant to Clean Water Act (CWA) section 404(b)(1) guidelines and its required public interest review (PIR). The USACE's independent regulatory permit decision documentation will reference relevant analyses from the EIS and, as necessary, include a supplemental PIR; CWA section 404(b)(1) evaluation; cumulative impact analysis; compensatory mitigation plan that is in accordance with 33 CFR Part 332, "Compensatory Mitigation for Losses of Aquatic Resources"; and other information and evaluations that may be outside the NRC's scope of analysis and not included in this EIS, but that are required by the USACE to support its permit decision.

(iv) Determine, in an uncontested proceeding, whether the NEPA review conducted by the NRC staff has been adequate.

The staff conducted an independent evaluation of the application; developed independent, reliable information; and conducted a systematic, interdisciplinary review of the potential impacts of the proposed action on the human environment and reasonable alternatives to the applicant's proposal. Before development of the DEIS, the staff issued a notice of intent and invited the public to provide any information relevant to the environmental review. The staff also provided opportunities for governmental and general public participation during the public meeting on the DEIS and used publicly available guidance in the development of its FEIS in conformance with the requirements of Appendix A to 10 CFR Part 51.

The staff considered the purpose of and need for the proposed action, the environment that could be affected by the action, and the consequences of the proposed action, including mitigation that could reduce impacts. The FEIS considered the no-action alternative, energy alternatives, alternative sites, system design alternatives, and the potential impact of conservation measures in determining the demand for power and consequential need for additional generating capacity. The FEIS compared the alternatives to the proposed action. The staff considered any adverse environmental effects that could not be avoided should the proposed action be implemented, the relationship between short-term uses of the human environment and the maintenance and enhancement of long-term productivity, and any irreversible or irretrievable commitments of resources that would be involved in the proposed project.

The NRC filed the DEIS with the U.S. Environmental Protection Agency for its review consistent with its requirements of Section 309 of the Clean Air Act (see 42 U.S.C. § 7609). The staff considered all comments received on the DEIS and, in Appendix E to the FEIS, described the manner in which each comment was dispositioned.

On these bases, the staff concludes that, for the purpose of issuing the COL, it conducted a thorough and complete environmental review that was sufficient to meet the requirements of NEPA and adequate to inform the Commission's action on the COL request.

COORDINATION:

The Office of the General Counsel has reviewed this paper and has no legal objection.

/RA Michael R. Johnson Acting for/

Mark A. Satorius
Executive Director
for Operations

References

1. General Electric-Hitachi, “ESBWR Design Control Document, Revision 10,” ADAMS Accession No. ML14104A929, April 1, 2014.

2. U.S. Nuclear Regulatory Commission (NRC), “Final Safety Evaluation Report Related to the Combined License for Fermi, Unit 3,” ADAMS Accession No. ML1414296A540 November 18, 2014.

3. NRC and U.S. Army Corps of Engineers (USACE), “Final Environmental Impact Statement for the Combined License (COL) for Enrico Fermi 3,” NUREG-2105, Volumes 1 through 4, ADAMS Accession Nos. ML12307A172, ML12307A176, ML12307A177, and ML12347A202, January 31, 2013.

4. NRC, “Combined License for Fermi 3,” Draft, ADAMS Accession No. ML14296A600, October 24, 2014.

5. NRC, “Record of Decision for Fermi 3,” Draft, ADAMS Accession No. ML14303A425.

6. “Final Rule – Economic Simplified Boiling-Water Reactor Design Certification,” SECY-14-0081, ADAMS Accession No. ML111730346, July 31, 2014.

7. Detroit Edison Company, Letter from Peter W. Smith (Director, Nuclear Development – Licensing and Engineering), “Subject: The Detroit Edison Company Name Change to DTE Electric Company,” ADAMS Accession No. ML12361A437, December 21, 2012.

8. DTE Electric Company, Letter from Peter W. Smith (Director, Nuclear Development – Licensing and Engineering, DTE Energy) “DTE Electric Company Application for a Combined License for Fermi 3 Update,” ADAMS Accession No. ML14295A354, October 15, 2014.

9. NRC, NUREG-1966, “Final Safety Evaluation Report Related to the Certification of the Economic Simplified Boiling-Water Reactor Standard Design,” ADAMS Accession No. ML14100A304, April 11, 2014.

10. NRC, NUREG-1966, Supplement 1, “Final Safety Evaluation Report Related to the Certification of the Economic Simplified Boiling-Water Reactor Standard Design,” ADAMS Accession No. ML14265A084, September 30, 2014.

11. NRC, “Economic Simplified Boiling-Water Reactor Design Certification,” Final Rule, *Federal Register,* 79 FR 61943, ADAMS Accession No. ML14274A552, October 15, 2014.

12. NRC, Regulatory Issue Summary (RIS) 2006-006, “New Reactor Standardization Expectations Needed to Support the Design-Centered Licensing Review Approach,” ADAMS Accession No. ML053540251, May 31, 2006.

13. NRC, “Safety Evaluation Report with Open Items Regarding the North Anna Unit 3 Combined License Application,” ADAMS Accession No. ML092150277, August 7, 2009.

14. Dominion, Letter from Eugene S. Grecheck (Vice President, Nuclear Development) to the NRC, “North Anna Unit 3 Combined License Application – Technology Change,” ADAMS Accession No. ML101410207, May 18, 2010.

15. ACRS, “Report on the Safety Aspects of the DTE Electric Company Combined License Application for Fermi 3,” ADAMS Accession No. ML14252A294, September 22, 2014.

16. NRC, “Report on the Safety Aspects of the DTE Electric Company Combined License Application for Fermi 3,” ADAMS Accession No. ML14293A058, November 14, 2014.

17. NRC and USACE, “Notice of Availability of Draft Environmental Impact Statement for a Combined License for Unit 3 at the Enrico Fermi Atomic Power Plant Site,” *Federal Register*, 76 FR 66998, October 28, 2011.

18. NRC, “Detroit Edison Company; Notice of Receipt and Availability of Application for a Combined License,” *Federal Register*, 73 FR 61916, October 17, 2008.

19. NRC, “Detroit Edison Company Acceptance for Docketing of an Application for Combined License (COL) for Fermi 3,” *Federal Register*, 73 FR 73350, December 2, 2008.

20. NRC, “Detroit Edison Company Fermi Nuclear Power Plant, Unit 3 Combined License Application Notice of Intent To Prepare an Environmental Impact Statement and Conduct Scoping Process,” *Federal Register,* 73 FR 75142, December 10, 2008.

21. NRC, “Detroit Edison Company; Notice of Hearing, and Opportunity To Petition for Leave To Intervene and Order Imposing Procedures for Access to Sensitive Unclassified Non-Safeguards Information and Safeguards Information for Contention Preparation on a Combined License for Fermi 3,” *Federal Register*, 74 FR 836, January 8, 2009.

22. NRC and USACE, “Detroit Edison Company; Notice of Availability of Errata Sheet for the Draft Environmental Impact Statement for a Combined License for Unit 3 at the Enrico Fermi Atomic Power Plant Site,” *Federal Register,* 76 FR 77855, December 14, 2011.

23. NRC, “DTE Electric Company (Formerly the Detroit Edison Company), Notice of Availability of Final Environmental Impact Statement for a Combined License for Unit 3 at the Enrico Fermi Atomic Power Plant Site,” *Federal Register*, 78 FR 3470, January 26, 2013.

24. NRC, “DTE Electric Company; Fermi 3,” *Federal Register*, 79 FR 19659, 79 FR 21493, 79 FR 22706, and 79 FR 24457; April 9, 16, 23, and 30, 2014.

25. NRC, LBP 09-16, “Memorandum and Order, Ruling on Hearing Requests,” ADAMS Accession No. ML092120531, July 31, 2009.

26. NRC, LBP-10-09, Order, “Ruling on Proposed New Contentions 15 and 16,” ADAMS Accession No. ML101660525, June 15, 2010.

27. NRC, CLI-11-05, “Memorandum and Order,” ADAMS Accession No. ML11252A847, September 9, 2011.

28. NRC, Order, “Granting Motion for Summary Disposition of Contention 3,” ADAMS Accession No. ML101900488, July 9, 2010.

29. NRC, Order, “Granting Motion for Summary Disposition of Contention 5,” ADAMS Accession No. ML110601036, March 1, 2011.

30. NRC, LBP-11-14, Memorandum and Order, “Denying Motions for Summary Disposition of Contentions 6 and 8; Denying in Part and Granting in Part Motion to Strike,” ADAMS Accession No. ML111400352, May 20, 2011.

31. NRC, LBP-12-23, Memorandum and Order, “Granting Motion for Summary Disposition of Contention 6; Denying Motions for Summary Disposition of Contentions 8 and 15; Denying Motion to Admit Contention 25; and resolving remaining issues regarding Contentions 20 and 21,” ADAMS Accession No. ML12314A071, November 9, 2012.

32. NRC, LBP-14-07, Partial Initial Decision, “Ruling on Contentions 8 and 15,” ADAMS Accession No. ML14143A323, May 23, 2014.

33. NRC, LBP-12-12, Memorandum and Order, “Ruling on Motion for Leave to Late-file Amended and New Contentions and Motion to Admit New Contentions,” ADAMS Accession No. ML12173A370, June 21, 2012.

34. NRC, Memorandum and Order, “Denying Intervenors’ Motion for Resubmission of Contentions 3 and 13, for Resubmission of Contention 23 or its Admission as a New Contention, and for Admission of New Contentions 26 and 27,” ADAMS Accession No. ML13120A527, April 30, 2013.

35. NRC, LBP-14-09, Memorandum, “Determining that Issues Related to Intervenors' Proposed Contention 23 Merit *Sua Sponte* Review Pursuant to 10 C.F.R. Section 2.340(b) and Requesting Commission Approval,” ADAMS Accession No. ML14188C420, July 7, 2014.

36. NRC, Memorandum and Order, “Denying Intervenors' Motion for Admission of Proposed Contention 13 and for Supplementation of the Final Environmental Impact Statement,” ADAMS Accession No. ML14143A330, May 23, 2014.

37. NRC, Memorandum and Order, “Denying as Moot Intervenors’ Motion to Admit Contention 17 and Motion to Supplement the Basis of Contention 17,” ADAMS Accession No. ML11327A085, November 23, 2011.

38. NRC, Order, “Holding New Contention in Abeyance,” ADAMS Accession No. ML12242A332, August 29, 2012.

39. NRC, CLI-14-08, “Memorandum and Order,” ADAMS Accession No. ML14238A222, August 26, 2014.

40. NRC, NUREG-0800, “Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants, LWR Edition,” ADAMS Accession No. ML070660036, March 2007.

41. NRC, NUREG-1555, “Environmental Standard Review Plan: Standard Review Plans for Environmental Reviews for Nuclear Power Plants,” available at http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1555/, July 2007.

42. NRC, NUREG-2157, “Generic Environmental Impact Statement for Continued Storage of Spent Nuclear Fuel,” ADAMS Accession No. ML14198A440, September 2014.

43. NRC, SRM-SECY-12-0025, “Proposed Orders and Requests for Information in Response to Lessons Learned from Japan's March 11, 2011, Great Tohoku Earthquake and Tsunami,” ADAMS Accession No. ML120690347, March 9, 2012.

44. NRC, SECY-06-0019, “Semiannual Update of the Status of New Reactor Licensing Activities and Future Planning for New Reactors,” ADAMS Accession No. ML053530315, January 31, 2006.

45. NRC, “Addressing Construction & Preconstruction Activities; Greenhouse Gas Issues, General Conformity Determinations, and Environmental Justice, Need for Power, Cumulative Impact Analysis, and Cultural/Historical Resources Analysis Issues in EIS,” ADAMS Accession No. ML100760503, December 10, 2010.

46. ASME, ASME Code Case N-782, “Use of Code Editions, Addenda, and Cases,” Section III, Division 1.

47. Stirewalt, G., Salomone, L., McDuffie, S., et al., NUREG-2115, “Central and Eastern United States Seismic Source Characterization for Nuclear Facilities,” ADAMS Accession No. ML12048A776, January 2012

48. NRC, SECY-11-0137, “Prioritization of Recommended Actions to Be Taken in Response to Fukushima Lessons Learned,” ADAMS Accession No. ML11272A111, October 5, 2011.

49. DTE Electric Company, Letter from Peter W. Smith (Director, Nuclear Development – Licensing and Engineering) to the NRC, “DTE Electric Company Updated Response to NRC Request for Addition Information Letter No. 77,” ADAMS Accession No. ML13032A378, January 25, 2013.

50. NRC, CLI-12-09, Memorandum and Order, ADAMS Accession No. ML12090A531, March 30, 2012.

51. Nuclear Energy Institute (NEI), NEI 12-06, “Diverse and Flexible Coping Strategies (FLEX) Implementation Guide,” ADAMS Accession No. ML12221A205, August 3, 2012.

52. American Nuclear Society, “American Nuclear Society 2010 Honors and Awards List,” ADAMS Accession No. ML112620068, Accessed July 22, 2010.

53. DTE Electric Company, Letter from Peter W. Smith (Director, Nuclear Development – Licensing and Engineering) to the Michigan State Historic Preservation Office, “Subject: DTE Electric Company Completion of Actions Stipulated in Memorandum of Agreement,” ADAMS Accession No. ML14041A012, January 31, 2014.

54. *New York v. NRC*, 681 F.3d 471 (D.C. Cir. 2012).

55. NRC, CLI-12-16, Commission Memorandum and Order, ADAMS Accession No. ML12220A098, August 7, 2012.

56. NRC, Letter to Michigan Public Service Commission, “Notification of the Availability of the Combined License Application for Fermi 3 In Accordance with 10 CFR 50.43 Requirements,” ADAMS Accession No. ML13044A458, March 14, 2013.

57. NRC, Letter to Federal Energy Regulatory Commission, “Notification of the Availability of the Combined License Application for Fermi 3 In Accordance with 10 CFR 50.43 Requirements,” ADAMS Accession No. ML13044A394, March 14, 2013.

58. NRC, NUREG-1577, “Standard Review Plan on Power Reactor Licensee Financial Qualifications and Decommissioning Funding Assurance,” ADAMS Accession No. ML013330264, December 13, 2001.

59. NRC, SECY-05-0197, “Review of Operational Programs in a Combined License Application and Generic Emergency Planning Inspections, Tests, Analyses, and Acceptance Criteria,” ADAMS Accession No. ML052770225, October 28, 2005.