

**UNITED STATES COURT OF APPEALS  
FOR THE DISTRICT OF COLUMBIA CIRCUIT**

Beyond Nuclear, Inc.,	)	Case No. 15-1173
Petitioner,	)	
-vs-	)	
U.S. Nuclear Regulatory Commission	)	
and United States of America,	)	
Respondents,	)	
DTE Electric Company,	)	
Intervenor.	)	

**PETITIONER’S NOTICE OF FILING OF DEFERRED JOINT APPENDIX**

Petitioner Beyond Nuclear, Inc. hereby gives notice of the electronic filing of the Joint Appendix, which was previously deferred by order of the Court.

The Joint Appendix consists of two (2) volumes. Seven paper copies of the two volumes are being transported to the Court.

February 13, 2017

/s/ Terry J. Lodge

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**CERTIFICATE OF COMPLIANCE WITH RULE 32(A) AS TO  
TYPE-VOLUME LIMITATION, TYPEFACE REQUIREMENTS  
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1. This Notice complies with the type-volume limitation of Fed. R. App. P. 32(a)(7)(B) because it contains 53 words, excluding the parts exempted by rule.

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/s/ Terry J. Lodge

Counsel for Appellant

**CERTIFICATE OF SERVICE**

I hereby certify that on the 13th day of February, 2017, I caused true and correct copies of the foregoing “Notice of Filing of Deferred Joint Appendix” to be served, via deposit in the Court’s Electronic Case Filing system, upon Michelle Albert, Esq., Michelle.Albert@nrc.gov, Andrew Averbach, Esq.,

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/s/ Terry J. Lodge

Terry J. Lodge

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**IN THE UNITED STATES COURT OF APPEALS  
FOR THE DISTRICT OF COLUMBIA CIRCUIT**

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**Case No. 15-1173**

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*BEYOND NUCLEAR,*

Petitioner,

v.

*U.S. NUCLEAR REGULATORY COMMISSION,*

Respondent,

*DTE ELECTRIC COMPANY,*

Intervenor.

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PETITION FOR REVIEW OF FINAL ADMINISTRATIVE ACTION  
OF THE UNITED STATES NUCLEAR REGULATORY COMMISSION

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**JOINT APPENDIX  
Volume I  
Pages JA 1 - JA 371**

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UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION  
ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:

Ronald M. Spritzer, Chairman  
Dr. Anthony J. Baratta  
Dr. Randall J. Charbeneau

In the Matter of

DETROIT EDISON COMPANY

(Fermi Nuclear Power Plant, Unit 3)

Docket No. 52-033-COL

ASLBP No. 09-880-05-COL-BD01

April 30, 2013

**MEMORANDUM AND ORDER**

(Denying Intervenor's 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)

Before this Licensing Board is Intervenor's 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.<sup>1</sup> We deny Intervenor's motion in its entirety.

**I. Background**

This combined license ("COL") contested proceeding involves the application of DTE Electric Company (formerly the Detroit Edison Company) ("Applicant") under 10 C.F.R. Part 52, Subpart C, to construct and to operate a GE-Hitachi Economic Simplified Boiling Water Reactor ("ESBWR"), designated Unit 3, on its existing Fermi nuclear facility site in Monroe County, Michigan.<sup>2</sup>

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<sup>1</sup> Motion for Resubmission of Contentions 3 and 13, for Resubmission of Contention 23 or its Admission as a New Contention, and for Admission of the New Contentions 26 and 27 (Feb. 19, 2013) [hereinafter "FEIS Contentions"].

<sup>2</sup> Letter from Jack M. Davis, DTE, to NRC, Detroit Edison Company Submittal of a Combined License Application for Fermi 3 (NRC Project No. 757) (Sept. 18, 2008) (ADAMS Accession No.

the 2010 version of the LTRA, and not, as Intervenor's argue, the 2008 version.<sup>88</sup> The FEIS plainly states: "The review team's reassessment is based on ReliabilityFirst's 2010 Long Term Resource Assessment, hereafter the LTRA (RFC 2010)."<sup>89</sup> As the Staff argues, "In NRC proceedings, an intervenor's imprecise reading of a document cannot serve as the basis for an admissible contention."<sup>90</sup> Because Intervenor's do not provide facts or expert opinion to show a genuine dispute with the FEIS based on the Staff's use of the 2010 version of the LTRA,<sup>91</sup> the LTRA argument in Contention 13 is inadmissible.

Thus, resubmitted Contention 13 will not be admitted.

C. Contention 23: the Transmission Line Corridor

Intervenor's state that they

assert a new contention, or alternatively, resubmit their former Contention 23, as amended, seeking consideration of new and significant information from the Final Environmental Impact Statement . . . for the COLA for Fermi 3 which is relevant to completion of NEPA analysis of the transmission corridor. Specifically, Intervenor's request a hearing on the inadequately-disclosed and -described environmental implications of having an operational transmission line corridor extending for nearly thirty (30) miles between the regional electric grid and Fermi 3.<sup>92</sup>

Intervenor's first submitted Contention 23 in response to the DEIS. As originally pled, it stated:

The high-voltage transmission line portion of the project involves a lengthy corridor which is inadequately assessed and analyzed in the Draft Environmental Impact Statement.<sup>93</sup>

In its June 12, 2012, Order ruling on the DEIS contentions, the Board found proposed

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<sup>88</sup> See FEIS at 8-19.

<sup>89</sup> See id.

<sup>90</sup> Staff's Answer at 19 (citing Georgia Institute of Technology (Georgia Tech Research Reactor, Atlanta, Ga.), LBP-95-6, 41 NRC 281, 300 (1995)).

<sup>91</sup> See FEIS Contentions 14-15.

<sup>92</sup> Id. at 21.

<sup>93</sup> LBP-12-12, 75 NRC at \_\_\_ (slip op. at 42).



Contention 23 untimely, holding that:

Intervenors do not establish that the contention is based on any data or conclusions in the DEIS that are significantly different from those in the ER. We are satisfied that each of the issues that comprise the subject matter of the contention was discussed in the ER, including the route of the transmission corridor and impacts from the corridor on historic and cultural resources, on endangered or threatened species, and on wetlands and vegetation. Rather than put forward any information to show how the DEIS differs from the ER, Intervenors at several points acknowledge that the DEIS' treatment of the transmission corridor echoes the ER. Because Contention 23 is not based on new or materially different information, it is not timely under Section 2.309(f)(2).<sup>94</sup>

The Board stated, however, that while Contention 23 was untimely, "it raises substantial questions concerning the adequacy of the DEIS that the NRC Staff should carefully consider in preparing the FEIS."<sup>95</sup> Intervenors criticized the DEIS for, among other things, failing to adequately define the route for the corridor, identify endangered or threatened species along the corridor, adequately evaluate impacts on wetlands and vegetation, and adequately investigate historic or cultural resources that may be affected. The Board concluded that, "[g]iven the very limited analysis in the DEIS of these and other environmental impacts arising from the transmission line corridor, these claims may have been admissible had they been filed in a timely manner."<sup>96</sup> The Board further observed that, even though the Staff regards the transmission corridor as a preconstruction activity and it is outside the NRC's regulatory jurisdiction, the construction and maintenance of the transmission corridor is sufficiently closely connected with Fermi Unit 3 that its environmental consequences must be analyzed in the FEIS.<sup>97</sup> Because the Staff has the primary responsibility to comply with NEPA, the Board recommended that "the NRC Staff consider the issues raised by Intervenors when it prepares

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<sup>94</sup> Id. at 42-43.

<sup>95</sup> Id. at 43.

<sup>96</sup> Id. at 45.

<sup>97</sup> Id. at 46.

the FEIS.”<sup>98</sup>

1. *Timeliness of Resubmitted Contention 23*

Both the NRC Staff and the Applicant argue that, as before, Contention 23 is not based on new or materially different information.<sup>99</sup> They argue that the Intervenor’s challenges could have and should have been made in response to the ER and/or the DEIS.

We agree that Intervenor’s have not established that Contention 23 is based on any data or conclusions in the FEIS that are significantly different from those in the ER or the DEIS. As before, we are satisfied that each of the issues that comprise the subject matter of the contention was discussed in the ER, including the route of the transmission corridor<sup>100</sup> and impacts from the corridor on historic and cultural resources,<sup>101</sup> on endangered or threatened species,<sup>102</sup> and on wetlands and vegetation.<sup>103</sup> The same issues were also reviewed in the DEIS.<sup>104</sup> Intervenor’s have not put forward any information to show how the FEIS is materially different from the ER or the DEIS in its assessment of the impacts of the transmission line corridor. Because Contention 23 is not based on new or materially different information, it is not timely under Section 2.309(c)(1).

Intervenor’s state that Contention 23 is “based on the ASLB’s June 21, 2012 ruling in this litigation,”<sup>105</sup> which they characterize as a Board “order” to the Staff to more thoroughly evaluate

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<sup>98</sup> Id. at 49.

<sup>99</sup> Staff’s Answer at 22-24; DTE Answer at 15-17.

<sup>100</sup> ER at 3-57.

<sup>101</sup> Id. at 4-19 to 4-22.

<sup>102</sup> Id. at 4-51 to 4-52.

<sup>103</sup> Id. at 4-12 to 4-16.

<sup>104</sup> See, e.g., DEIS at 2-10 to -11, 2-32, 2-60, 2-80, 2-205, 4-27, 4-39, 4-42, 5-20, 5-24, 5-38, 5-89.

<sup>105</sup> FEIS Contentions at 22.

the impacts of the transmission line corridor in its FEIS.<sup>106</sup> To the extent Intervenor believe that LBP-12-12 cures the timeliness problem for Contention 23, they are mistaken. The Board did not “order” the Staff to make any change in the FEIS. The Board simply made a recommendation to further the agency’s compliance with NEPA. The Board’s recommendation does not cure the Intervenor’s failure to bring their NEPA challenges in response to the DEIS and/or the ER, given that the alleged deficiencies were apparent in those documents. Thus, the Board’s recommendation does not alter the timeliness analysis.

## 2. *Sua Sponte review of the FEIS’s Transmission Corridor Analysis*

Intervenor suggest that the Board either has exercised or should consider exercising its authority to review the adequacy of the transmission corridor analysis *sua sponte*. They note that “[a] licensing board has the power to raise *sua sponte* any significant environmental or safety issue in operating license hearings,”<sup>107</sup> and that “[t]he ASLB has this prerogative especially where an issue is excluded from the proceeding because it has not been properly raised, rather than because it has been rejected on its merits.”<sup>108</sup> Intervenor also refer to the Appeal Board’s instruction that “[l]icensing boards have independent responsibilities in the realm of the enforcement of the NEPA command; *i.e.*, their role is not confined to the arbitration of those environmental controversies as may happen to have been placed before them by the litigants in the particular case.”<sup>109</sup>

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<sup>106</sup> Id. at 24.

<sup>107</sup> FEIS Contentions at 24 (citing 10 C.F.R. § 2.340(a) (formerly § 2.760a); Consol. Edison Co. of N.Y. (Indian Point Nuclear Generating Units 1, 2& 3), ALAB-319, 3 NRC 188, 190 (1976); Houston Lighting & Power Co. (South Texas Project, Units 1 & 2), LBP-85-8, 21 NRC 516, 519 (1985)). Although Intervenor cite 10 C.F.R. § 2.340(a), the relevant provision for this case is Section 2.340(b) because DTE is seeking a combined license.

<sup>108</sup> FEIS Contentions at 25 (citing Cleveland Elec. Illuminating Co. (Perry Nuclear Power Plant, Units 1 & 2), LBP-82- 79, 16 NRC 1116, 1119 (1982)).

<sup>109</sup> Tennessee Valley Authority (Hartsville Nuclear Plant Units 1A, 2A, 1B, and 2B), ALAB-380, 5 NRC 572, 575 (1977).

In a combined license proceeding, the authority for *sua sponte* review is found in 10 C.F.R. § 2.340(b). It provides that, in an initial decision, the presiding officer, in addition to ruling on the admitted contentions, shall

make findings of fact and conclusions of law on any matter not put into controversy by the parties, but only to the extent that the presiding officer determines that a serious safety, environmental, or common defense and security matter exists, and the Commission approves of an examination of and decision on the matter upon its referral by the presiding officer under, inter alia, the provisions of §§ 2.323 and 2.341.

Here, although we have twice ruled that Contention 23 was not properly filed by the Intervenors, the Board previously stated that the Contention raises a substantial NEPA issue that might have been admissible had it been timely filed. Thus, although the Board has not decided whether the issue raised by Contention 23 satisfies the criterion of Section 2.340(b) for *sua sponte* consideration, the issue is appropriate for the Board's evaluation under that provision. Now that the FEIS has been issued and the Board has ruled that Contention 23 remains procedurally defective, this is an appropriate point for the Board to decide whether the issue the Contention raises merits *sua sponte* review under Section 2.340(b). Thus far, however, the parties have not directly addressed that issue. They have instead, understandably, focused their efforts on the admissibility of the FEIS contentions under Sections 2.309(c)(1) and 2.309(f)(1). In addition, even if the Board agreed that the standard of Section 2.340(b) is satisfied, the Commission would have to concur in that determination before the issue could be further litigated before this Board. Thus, it is not clear that the issue raised by Contention 23 could be resolved under the schedule for resolution of Contentions 8 and 15 (which remains in effect) even if the Board concluded that *sua sponte* review is appropriate and the Commission agreed.

Accordingly, the Board will not decide the question of *sua sponte* review of Contention 23 in this Order. Instead, the Board will allow the parties thirty (30) days from the date of this Order to state their views as to whether the issue raised by Contention 23 satisfies the criterion of Section 2.340(b) for such review, after which the Board will rule on the matter. In addition to

presenting their views concerning the Section 2.340(b) issue, the Board requests that the parties address, through documentary evidence and/or affidavits, the following factual issues to the extent they are able to do so:

- (1) The current status of planning for and development of the transmission line corridor;
- (2) Whether any permits necessary for development of the transmission line corridor have been applied for;
- (3) Whether any routes for the transmission line corridor are currently being actively evaluated other than the proposed route shown in the FEIS, page 2-11;
- (4) Whether the transmission line is likely to be constructed even if Fermi Unit 3 is not built.

In conclusion, Contention 23 is not admitted, but the Board will in a subsequent order decide whether it is appropriate for *sua sponte* review. If the Board decides that such review is appropriate and the Commission agrees, the Board will establish a schedule for the part of Contention 23 that may be subject to adjudication. The current schedule for Contentions 8 and 15 remains in effect.

D. Contention 26: Transmission Corridor Impacts on Wildlife

Proposed New Contention 26 reads as follows:

There has been no federal Endangered Species Act (“ESA”) biological assessment of the plant and animal species within the proposed transmission line corridor which itself is part of the proposed Fermi 3 power plant project and there are no ESA mitigation arrangements published in the Fermi 3 FEIS for a combined operating license.<sup>110</sup>

Proposed Contention 26 concerns (1) the lack of a biological assessment concerning the proposed transmission line corridor’s impact on endangered and threatened species protected

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<sup>110</sup> FEIS Contentions at 53.

discussion of Contention 23 in LPB-12-12 explains,<sup>122</sup> the Staff's NEPA responsibilities may well extend to evaluating the impact of the transmission corridor on historic and cultural resources, but Contention 27 alleges a violation of the NHPA, not NEPA. It is therefore inadmissible under Section 2.309(f)(1)(vi) because it fails to demonstrate a material dispute with the FEIS.

Accordingly, Contention 27 will not be admitted.

#### CONCLUSION

For the reasons stated above, the Board denies Intervenor's 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. The Board will decide in a separate order whether Contention 23 is appropriate for sua sponte review. Any party may submit its views on that issue within thirty (30) days of this Order.

It is so ORDERED.

THE ATOMIC SAFETY  
AND LICENSING BOARD\*

/RA/

Ronald M. Spritzer, Chairman  
ADMINISTRATIVE JUDGE

/RA/

Dr. Anthony J. Baratta  
ADMINISTRATIVE JUDGE

/RA/

Dr. Randall J. Charbeneau  
ADMINISTRATIVE JUDGE

Rockville, Maryland  
April 30, 2013

\* Copies of this Order were sent this date by the agency's E-Filing system to the counsel/representatives for (1) Applicant Detroit Edison Company; (2) Petitioners Beyond Nuclear et al.; and (3) NRC Staff.

<sup>122</sup> LBP-12-12, 75 NRC at \_\_\_ (slip op. at 43-49).

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

In the Matter of )

DETROIT EDISON COMPANY )

(Fermi Nuclear Power Plant, Unit 3) )

(Combined License) )

Docket No. 52-033-COL

CERTIFICATE OF SERVICE

I hereby certify that copies of the foregoing **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)** have been served upon the following persons by Electronic Information Exchange.

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Docket No. 52-033-COL

**MEMORANDUM AND ORDER (Denying Intervenor's 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)**

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[Original signed by Clara I. Sola]  
Office of the Secretary of the Commission

Dated at Rockville, Maryland  
This 30<sup>th</sup> day of April 2013



UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION  
ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:

Ronald M. Spritzer, Chairman  
Dr. Anthony J. Baratta  
Dr. Randall J. Charbeneau

In the Matter of

DETROIT EDISON COMPANY

(Fermi Nuclear Power Plant, Unit 3)

Docket No. 52-033-COL

ASLBP No. 09-880-05-COL-BD01

August 29, 2012

ORDER

(Notifying Parties of Amendments to Rules of Practice)

On August 3, 2012, the Commission issued a final rule amending its 10 C.F.R. Part 2 rules of practice for licensing proceedings.<sup>1</sup> The effective date of the amended rules is September 4, 2012, and “the new or amended requirements will be effective and govern all obligations and disputes that arise after the effective date.”<sup>2</sup> The parties are instructed to familiarize themselves with the amended Part 2, particularly those provisions regarding the filing of new or amended contentions.<sup>3</sup> With regards to existing discovery obligations in this proceeding, the schedule for mandatory disclosures shall continue under the terms of the

---

<sup>1</sup> Amendments to Adjudicatory Process Rules and Related Requirements, 77 Fed. Reg. 46,562 (Aug. 3, 2012).

<sup>2</sup> Id. at 46,562.

<sup>3</sup> See id. at 46,591-92.

- 2 -

parties' Joint Motion,<sup>4</sup> as acknowledged by the Board's scheduling order.<sup>5</sup> All other provisions in the scheduling order shall remain in effect, except as revised upon motion by a party.

IT IS SO ORDERED.

FOR THE ATOMIC SAFETY  
AND LICENSING BOARD

*/RA/*

---

Ronald M. Spritzer, Chairman  
ADMINISTRATIVE JUDGE

Rockville, Maryland  
August 29, 2012

---

<sup>4</sup> Joint Motion on Mandatory Disclosures (Aug. 19, 2009).

<sup>5</sup> Licensing Board Order (Establishing Schedule and Procedures to Govern Further Proceedings), Sept. 11, 2009 (unpublished) at 1.

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

In the Matter of )

DETROIT EDISON COMPANY )

(Fermi Nuclear Power Plant, Unit 3) )

(Combined License) )

Docket No. 52-033-COL

CERTIFICATE OF SERVICE

I hereby certify that copies of the foregoing **ORDER (Notifying Parties of Amendments to Rules of Practice)** have been served upon the following persons by Electronic Information Exchange.

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Docket No. 52-033-COL

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[Original signed by Nancy Greathead]  
 Office of the Secretary of the Commission

Dated at Rockville, Maryland  
 this 29<sup>th</sup> day of August 2012

**UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION  
Before the Commission**

In the Matter of:	)	
	)	Docket No. 52-033-COL
DTE Electric Company	)	
	)	October 6, 2014
(Fermi Nuclear Power Plant, Unit 3)	)	

\*

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\*

\*

**INTERVENORS' PETITION FOR REVIEW  
OF ATOMIC SAFETY AND LICENSING BOARD'S DISMISSAL  
OF CONTENTION 23 FOR LACK OF TIMELINESS**

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Staff's refusal to include NEPA analysis of the Fermi 3 transmission corridor in the Final Environmental Impact Statement as a new circumstance between the Staff's issuance of the Draft Environmental Impact Statement ("DEIS") and the FEIS, and therefore, the proper subject of a new, timely-submitted contention.

Second, even if the Board properly excluded Contention 23 from the proceedings in favor of its contemporaneous intention at the time to consider a *sua sponte* referral to the full Commission recommending transmission corridor treatment in the Fermi 3 NEPA documents (a referral which it subsequently made to the Commission), Petitioners' move to have Contention 23 admitted is legally separate and distinct, and has no bearing, on the process or merits of the *sua sponte* referral.

The April 30, 2013 ASLB order warrants review under 10 C.F.R. § 2.341(b)(4)(ii)-(v), and reversal should be ordered of the ruling which excluded Petitioners' Contention 23 from the COL proceeding. Even if the Commission is inclined to affirm the ASLB's decision, it should further determine that the contention litigation has no relationship to, or bearing on, the Commission's determination of the *sua sponte* referral.

## **II. Factual and Procedural Background**

The essential question Petitioners' Contention 23 asked was who is responsible for enforcing NEPA concerning the transmission line corridor extending some 29 miles from the regional grid to the Fermi 3 nuclear power plant? DTE had neglected to include any meaningful environmental assessment of the transmission line corridor in its Environmental Report. Intervenors assumed that the transmission corridor, which would occupy 1,000 acres of land across its 29-mile length, was improperly segmented or partitioned from the Fermi 3 project, and

that the NRC Staff would rectify this obviously improper omission when the Staff prepared the Draft Environmental Impact Statement (“DEIS”). Instead, the Staff in the DEIS failed to analyze the transmission corridor for its direct environmental impacts. When Intervenor realized that the corridor would again be omitted, this time from the agency’s DEIS, on January 11, 2012, they filed a “Motion for Resubmission of Contention 10, to Amend/Resubmit Contention 13, and for Submission of New Contentions 17 Through 24,” raising, among other matters, the new Contention 23. *See* ML12012A278 at pp. 41-53.

In response, the ASLB rejected admission of Contention 23. However, in its “Memorandum and Order (Ruling on Motion for Leave to Late-file Amended and New Contentions and Motion to Admit New Contentions),” *Detroit Edison Company* (Fermi Nuclear Power Plant, Unit 3), LBP-12-12, ASLBP No. 09-880-05-COL-BD01 (June 21, 2012) at pp. 44-45, the ASLB observed that

Although Contention 23 is untimely, it raises substantial questions concerning the adequacy of the DEIS that the NRC Staff should carefully consider in preparing the FEIS. Intervenor presents a number of criticisms of the DEIS’s limited evaluation of the environmental impacts of the transmission line corridor. For example, Intervenor emphasizes that substantial construction will take place in undeveloped wetlands, forests, and grasslands. . . . Intervenor also stress potential impacts to threatened and endangered species. . . . Intervenor further argue that maintenance of the transmission corridor will continue to impact wetlands and other environmental resources after construction is completed. . . .

The ASLB further found that there is a strong likelihood that NEPA compliance respecting the transmission corridor had been “segmented” from the power plant project, and that the NRC as a regulatory agency cannot credibly maintain that even if the transmission corridor construction falls in the category of “preconstruction activity,” that environmental impacts from that activity fall outside NRC authority:

It appears that the sole purpose of the new transmission corridor is to transmit electrical energy generated by Fermi Unit 3, and that it would serve no useful purpose absent the new nuclear power plant. If that is true, the transmission corridor lacks independent utility (*i.e.*, it is a connected action) and must be fully evaluated in the FEIS, though the NRC may define construction of the transmission corridor as a preconstruction activity, it is owned by a company other than the Applicant, and it is outside the NRC's regulatory jurisdiction. The NRC's obligations under NEPA include evaluating all environmental effects of the proposed action (including connected actions) that it has the authority to prevent. Even though the NRC does not license construction or operation of the transmission corridor, it has the authority to deny the license for Fermi Unit 3 if, for example, the total environmental costs of the new reactor and connected actions exceed the benefits. Denial of the license would effectively prevent harmful environmental impacts resulting from construction and operation of the transmission corridor, given that its sole purpose appears to be transmitting electrical energy generated by Fermi Unit 3.

*Id.* at pp. 47-48. Hence although the ASLB found that Petitioners had articulated no satisfactory explanation for waiting until the DEIS stage to object on the record, it noted that primary responsibility for compliance with NEPA lies with the Commission, and pronounced “*We recommend, therefore, that the NRC Staff consider the issues raised by Intervenors when it prepares the FEIS.*” (Emphasis supplied). *Id.* at pp. 48-49.

In a subsequent order, the ASLB declared that the transmission corridor includes habitat for the Eastern Fox Snake, a state-threatened reptile species that was the subject of adjudication of Contention 8:

[T]he review team concludes that the impacts from construction and preconstruction activities for Fermi 3 on terrestrial resources on the Fermi site *and transmission line corridor would be SMALL to MODERATE* . . . . The potential for MODERATE impacts is limited to possible adverse effects on the eastern fox snake. The staff's evaluation of the potential impacts on the eastern fox snake recognizes the potential for mitigation measures proposed by Detroit Edison. . . and approved by the MDNR [Michigan Department of Natural Resources] to significantly reduce impacts on that species, thereby leading to SMALL impacts, but acknowledges the possibility of MODERATE impacts if proposed mitigation is not implemented as described in their plan.

(Emphasis supplied). “Memorandum and Order (Denying Motion for Reconsideration of the



Board's Order Denying Second Motion for Summary Disposition of Contention 8)," *Detroit Edison Company* (Fermi Nuclear Power Plant, Unit 3), ASLBP No. 09-880-05-COL-BD01 (January 30, 2013), p. 5 (citing p. 4-47 of FEIS).

When the ASLB "recommended" that the Staff consider within the FEIS the environmental impacts of construction and maintenance of transmission lines through and within the 29-mile corridor, Petitioners continued to rightly expect that the NRC Staff would recognize its primacy in complying with NEPA and that, having finally understood the imperative of including the transmission corridor within the FEIS, that task would be accomplished. When the NRC Staff's response was, instead, to decline to treat the transmission corridor within the FEIS, Petitioners timely moved a second time for admission of Contention 23. See Intervenor's February 21, 2013 "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," ML13050A935 at pp. 21-53.

In their 2013 Motion, Petitioners urged that Contention 23 should be admitted on either of two grounds: (1) treatment as a new contention according to 10 C.F.R. §2.309(f)(2) because the ASLB in LBP-12-12 had strongly admonished the NRC staff to include the Transmission Corridor in the FEIS stage of the proceeding and the Staff refused, which comprised new information, materially different from that previously available; or alternatively, (2) there was a dispute of fact between the Environmental Report ("ER") and the DEIS, which should have allowed Petitioners to resubmit Contention 23 at the FEIS stage.

The ASLB emphasized the significance of its recommendation, noting that the "recommendation does not cure the Intervenor's failure to bring their NEPA challenges in response to

the DEIS and/or the ER, given that the alleged deficiencies were apparent in those documents.”

“Memorandum and Order (Denying Intervenor’s 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” (April 30, 2013) (unpublished) at p. 22. Nonetheless, the Board stated that Contention 23 “raises a substantial NEPA issue that might have been admissible had it been timely filed,” and that the issue raised by Contention 23 was still appropriate for evaluation under 10 C.F.R. § 2.340(b) for *sua sponte* consideration. *Id.* at 23.

Subsequently, the ASLB did order *sua sponte* consideration of the transmission corridor under NEPA. “Memorandum (Determining that Issues Related to Intervenor’s Proposed Contention 23 Merit *Sua Sponte* Review Pursuant to 10 C.F.R. § 2.340(b) and Requesting Commission Approval),” LBP-14-09, 80 NRC \_\_ (July 7, 2014) (slip op.).

### **III. Argument**

#### ***A. At the FEIS stage, Contention 23 should have been evaluated as ‘new’ because the NRC Staff had flagrantly allowed segmentation in repudiation of the ASLB’s recommendation to include impacts to the Transmission Corridor in the FEIS***

In its 2012 ruling (LBP-12-12) denying admission of Contention 23 at the DEIS stage, the ASLB painstakingly identified the violation of NEPA by failing to address impacts to the Transmission Corridor within the DEIS, and warning that the Board could consider a *sua sponte* referral. The very ASLB warning to the NRC Staff constituted “new information” which was “materially different from that previously available” and which identified a dispute of law between DTE’s Environmental Report (“ER”) and the NRC Staff’s DEIS which the NRC Staff was strongly “recommended” to cure. The Board’s ruling in LBP-12-12 was “materially different information” - a regulatory advisory - that Petitioners relied upon in the belief that NEPA

**Official Transcript of Proceedings****NUCLEAR REGULATORY COMMISSION**

Title: Detroit Edison Company  
Fermi Nuclear Plant, Unit 3

Docket Number: 52-033-COL

ASLBP Number: 09-880-05-COL-BD01

Location: Monroe, Michigan

Date: Wednesday, October 30, 2013

Work Order No.: NRC-351

Pages 271-522

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1 UNITED STATES OF AMERICA

2 NUCLEAR REGULATORY COMMISSION

3 + + + + +

4 ATOMIC SAFETY AND LICENSING BOARD PANEL

5 + + + + +

6 HEARING

7 -----x

8 In the Matter of: : Docket No.

9 DETROIT EDISON COMPANY : 52-033-COL

10 : ASLBP No.

11 (Fermi Nuclear Power : 09-880-05-COL-BD01

12 Plant, Unit 3) :

13 -----x

14 Wednesday, October 30, 2013

15  
16 Monroe County Courthouse

17 Board Meeting Room

18 125 E. Second Street

19 Monroe, Michigan

20  
21 BEFORE:

22 RONALD M. SPRITZER, Chair

23 DR. ANTHONY J. BARATTA, Administrative Judge

24 DR. RANDALL J. CHARBENEAU, Administrative Judge

25

**NEAL R. GROSS**

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

9:27 a.m.

CHAIRMAN SPRITZER: As I indicated my name is Ron Spritzer. I'm the chairman of this Board. We are here in the matter of Detroit Edison Company. The specific facility at issue is Fermi Nuclear Power Plant Unit 3. Our docket number, NRC docket number is 52-033-COL.

And we are here today to conduct an evidentiary hearing on the two pending contentions in this case, contentions 8 and 15. There's one other contention that's been held in abeyance and we're not going -- or proposed and held in abeyance dealing with the Waste Confidence Rule. We're not hearing anything regarding that issue here today.

As I said I'm Ron Spritzer. I am an administrative judge and an attorney. I'll ask the other two judges sitting up here with me to introduce themselves.

JUDGE BARATTA: My name's Anthony Baratta. I'm the associate chief administrative judge with the Atomic Safety Licensing Board. My background includes about 45 years dealing with nuclear technology issues and such. I was formerly a professor at Penn State of nuclear engineering and I've been with the Panel for

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1 about 10 years.

2 JUDGE CHARBENEAU: I'm Randall Charbeneau.  
3 I'm a part-time administrative judge with the Atomic  
4 Safety and Licensing Board. I'm a faculty member in  
5 civil and environmental engineering at the University  
6 of Texas at Austin. I've been there since 1978. I've  
7 been a member of the Board since 2008. Thank you.

8 CHAIRMAN SPRITZER: All right and let me  
9 ask the parties to introduce themselves for the  
10 record, I should say parties' representatives that is  
11 since all parties are represented by counsel, the  
12 attorneys who are representing each of the parties.  
13 Why don't we start on my left with the applicant.

14 MR. T. SMITH: Yes, good morning. My name  
15 is Tyson Smith. I'm an attorney with Winston &  
16 Strawn. With me I have my partner David Repka also  
17 with Winston & Strawn. And at the end of the table is  
18 Bruce Matters who is assistant general counsel with  
19 DTE.

20 CHAIRMAN SPRITZER: Very well. And for  
21 the interveners?

22 MR. LODGE: Thank you. Good morning, my  
23 name's Terry Lodge. I'm counsel for the joint  
24 interveners. To my right is Michael Keegan who is  
25 assisting us and is also one of the -- is a



1 representative of Don't Waste Michigan. To my left is  
2 Arnold Gundersen who is our expert witness on  
3 contention 15.

4 CHAIRMAN SPRITZER: Very well. And for  
5 the NRC staff?

6 MS. CARPENTIER: I'm Marcia Carpentier.  
7 I'm one of the attorneys for the NRC staff. And with  
8 me are Megan Wright and Kevin Broach.

9 CHAIRMAN SPRITZER: Very well. Good  
10 morning to everybody.

11 Hopefully you know where the breakout  
12 rooms are located for each of the parties. Everybody  
13 is set up as far as those are concerned? Okay.

14 I've been advised we may have -- this may  
15 be a rather odd coincidence but there's apparently  
16 going to be an alarm test at 10 a.m. related I believe  
17 to DTE and the Fermi plant, an emergency zone alarm  
18 test. It won't, however, require us to do anything.  
19 We'll simply stay here. Somebody may come in the room  
20 and say you don't need to leave, but other than that  
21 we're not expecting that we'll have to evacuate the  
22 premises.

23 In case -- hopefully everyone is clear  
24 where the witnesses will be, but if not they will be  
25 seated over to my right. We have three working

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1 I could find it in half a minute.

2 CHAIRMAN SPRITZER: All right. It's on  
3 page 35 of 38, question 39. It's a DTE quote. It  
4 says, I think at the time Bing put the QA plan  
5 together we had not envisioned hiring a deco QA  
6 professional. Conventionally the QA plan needs to be  
7 owned by deco and the QA professional, i.e., a QA  
8 manager role needs to have a reporting relationship at  
9 a level that is independent of line functions to which  
10 the program applies.

11 So this personnel performing QA oversight  
12 function are not subject to line influence. And the  
13 key was that they had not envisioned hiring someone to  
14 fulfill that role. It was written in January of '08.

15 CHAIRMAN SPRITZER: Have you identified  
16 any information developed during the site  
17 investigation that is inaccurate?

18 MR. GUNDERSEN: I haven't reviewed --  
19 that's not part of the ADAMS database and it wasn't  
20 part of what we were given by DTE. There are no  
21 boring logs and calculations and things like that to  
22 review. It was not part of the information I was  
23 privy to to analyze.

24 CHAIRMAN SPRITZER: So I take it your  
25 position is more that the information can't be trusted

1 because it wasn't developed under an appropriate QA  
2 program.

3 MR. GUNDERSEN: Yes, that's correct. That  
4 is my position.

5 CHAIRMAN SPRITZER: Have you identified  
6 any specific instance of a material safety significant  
7 error in a safety-related portion of the Fermi 3 COL  
8 application?

9 MR. GUNDERSEN: No, the calculational  
10 basis for the geotechnical foundation work that's  
11 ongoing is a serious concern of mine. But again we  
12 were not provided any of that analysis to dissect as  
13 to its accuracy.

14 CHAIRMAN SPRITZER: Now, other than the  
15 violation described in the NOV issued by the NRC staff  
16 have you identified any other violation of NRC QA  
17 requirements?

18 MR. GUNDERSEN: Yes, it's broader than the  
19 NOV. It was the -- and frankly if it were just the  
20 NOV I don't think this report would have the legs it  
21 has.

22 It was -- the NOV was the culmination of  
23 a series of NRC emails and internal memoranda that  
24 questioned the entire integrity of the design process  
25 up until June of 2009. I mean, QA professionals

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1 Gundersen. I'm sure it's going to break your heart  
2 but I think we're done with questions for you for now.

3 MR. GUNDERSEN: Okay, thank you. Thank  
4 you very much.

5 CHAIRMAN SPRITZER: And it's about 4  
6 o'clock so we'll take another 15-minute break and  
7 we'll come back -- this time I believe I'm correct  
8 that the next witnesses up will be the applicant's  
9 witnesses on contention 15.

10 MR. T. SMITH: Yes, Your Honor.

11 (Whereupon, the foregoing matter went off  
12 the record at 3:55 p.m. and went back on the record at  
13 4:13 p.m.)

14 CHAIRMAN SPRITZER: Let's go back on the  
15 record. We seem to still be missing a couple of  
16 people. Can we get started?

17 MR. T. SMITH: Yes, Your Honor. Our  
18 witnesses are ready.

19 CHAIRMAN SPRITZER: Okay. Would you  
20 please introduce your witnesses to us?

21 MR. T. SMITH: To the farthest from you we  
22 have Peter Smith who is the director of nuclear  
23 licensing and engineering for the Fermi 3 project. He  
24 testified earlier on the fox snake contention.

25 Next to him we have Steve Thomas who's the

1 project manager for B&V. Next to him we have Mr. Stan  
2 Stasek who's the director of quality management at  
3 DTE. And then next to him we have Mr. Ron Sacco who  
4 is the head of quality assurance for B&V.

5 CHAIRMAN SPRITZER: Very well. Good  
6 afternoon, gentlemen. And you are -- all of you have  
7 already been sworn in. You're of course still under  
8 oath.

9 WHEREUPON,

10 PETER SMITH

11 STEVE THOMAS

12 STAN STASEK

13 RON SACCO

14 were called for examination by DTE, having been first  
15 duly sworn, assumed the witness stand, were examined  
16 and testified as follows:

17 JUDGE BARATTA: All right. I'd like to  
18 begin by asking a few questions relative to your  
19 initial direct testimony. I'm looking at page 2. Can  
20 we get -- Andy, could you bring up the DTE's direct  
21 testimony? I don't have the exhibit number. And go  
22 to page 2. Should be page 2 I think. That's the  
23 Arabic numeral 2. Go down towards the bottom of the  
24 page there.

25 Referring to this statement where the

1 application review phase of the project DTE has  
2 ensured through systematic processes that the  
3 suppliers, et cetera. Could you describe what those  
4 systematic processes were prior to 2008? Because  
5 previous to that it references the pre-application  
6 phase and COL application review phase.

7 MR. P. SMITH: So, prior -- when we  
8 embarked on this project we went and -- went out with  
9 requests for proposals from engineering firms who were  
10 doing similar activities for other applicants or  
11 prospective applicants in that time frame, developing  
12 COLA products. And we specified in our requests for  
13 proposal that they demonstrate that they have a  
14 quality assurance program in place that meets the  
15 requirements of 10 C.F.R. 50 Appendix B. So that was  
16 the first step.

17 And then during our review of the bids all  
18 of the prospective suppliers that were qualified and  
19 we reviewed their proposals we verified in the  
20 proposal review that they had provided evidence in  
21 fact that they did have a functioning Appendix B QA  
22 program.

23 JUDGE BARATTA: In the case of Black &  
24 Veatch what was that verification that you used?

25 MR. P. SMITH: So, there was a previous

1 NUPIC audit that had been performed.

2 JUDGE BARATTA: Could you explain what  
3 NUPIC is?

4 MR. P. SMITH: Stan --

5 MR. STASEK: Would you like me to do that?

6 MR. P. SMITH: Please.

7 MR. STASEK: Okay, NUPIC stands for the  
8 Nuclear Procurement Issues Committee. It was a  
9 committee that was formed quite a few years ago  
10 because of the additional resources that were becoming  
11 necessary to monitor and audit all of the vendors that  
12 the operating plants had in place.

13 For instance, at Fermi there's several  
14 dozen vendors that they maintain on their approved  
15 suppliers list. And if they had to go and do the  
16 required audits of those vendors it would be a very  
17 large group of folks needed to do that.

18 So NUPIC was formed and their function was  
19 to do resource-sharing between the utilities such that  
20 all of us could take credit I'll say for the audits  
21 that were done by the NUPIC format. Meaning it's a  
22 combined team that goes from representatives from  
23 different utilities to a vendor. They use standard  
24 checklists from vendor to vendor so that there is  
25 consistency between the audits that are done. And

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1 then there's information-sharing between the  
2 utilities. And that's really a standard for the  
3 industry these days and has been for several years.

4 JUDGE BARATTA: Okay. You heard Mr.  
5 Gundersen identify what he felt might be attributes  
6 that would show that DTE retained responsibility for  
7 the QA program, one of which was the audit function.  
8 Do you feel that a NUPIC audit would satisfy that  
9 function?

10 MR. STASEK: The NUPIC audits are done on  
11 all of the vendors that are on approved supplier lists  
12 throughout the industry and as such yes, I agree that  
13 if there was a NUPIC audit that was done by another  
14 plant. When I say another plant we all take turns  
15 leading those audits. So for instance, I believe in  
16 2007 the NUPIC audit was led by River Bend.

17 MR. P. SMITH: Entergy.

18 MR. STASEK: Entergy. And so that  
19 information is available on their central database and  
20 yes, we could take credit for that.

21 JUDGE BARATTA: Did DTE actually review  
22 the NUPIC audit or the audit that Entergy did of Black  
23 & Veatch? The audit report.

24 MR. P. SMITH: Yes.

25 JUDGE BARATTA: Were there any



1 deficiencies that you recall?

2 MR. P. SMITH: None that I recall.

3 MR. STASEK: In addition to the review  
4 that Peter did when I started on the project in March  
5 of 2009 we subsequently did an audit of NUPIC  
6 ourselves. I wanted to do that. I was new to the  
7 project and wanted to ensure that we had an up-to-date  
8 approved suppliers list that we were looking at  
9 putting in place.

10 And so in July of 2009 we performed an  
11 audit of Black & Veatch as well. And during that  
12 audit we also reviewed the earlier NUPIC audit and did  
13 not identify that there was any issues that were  
14 identified during that previous audit as well.

15 JUDGE BARATTA: Could we go to question  
16 number 21 which is on page 7? Okay. In question  
17 number 21 the response says there are no QA  
18 requirements applied prior to submittal of a COL  
19 application. Earlier I believe we had NQA-1 up and  
20 that clearly requires QA for siting and in particular  
21 Section 2.20 references subsurface investigations.  
22 How do you reconcile the statement that appears in  
23 your answer 21 with the NQA-1 requirements?

24 MR. P. SMITH: So first of all, at the  
25 time we started this project and started working

1 toward this project in late 2006 and were preparing  
2 our requests for proposal the term "applicant" had yet  
3 to be defined within the regulation.

4 JUDGE BARATTA: NQA-1 does not use the  
5 term "applicant."

6 MR. P. SMITH: I understand that. So we  
7 also understood our obligation to provide quality  
8 information in support of our application and that,  
9 the way we went about doing that was we went about  
10 finding a vendor who had in place a quality assurance  
11 program that met the requirements. And chose to use  
12 that program for the conduct of all of the safety-  
13 related site investigation work and other COLA  
14 development work. And that was our plan from the  
15 beginning.

16 In addition to that in the same time frame  
17 the inspection guidance for the pre-application  
18 geotechnical inspection or audit also had a discussion  
19 in there that there is no requirement for a  
20 prospective applicant to have a QA program in place.

21 JUDGE BARATTA: That seems to conflict  
22 with what NQA-1 clearly says.

23 MR. P. SMITH: Wait, but we didn't  
24 conflict with NQA-1 because we applied a program that  
25 met the NQA-1 requirements to the subsurface

1 investigation and all of the other safety-related  
2 aspects of the application.

3 JUDGE BARATTA: But NQA-1 -- doesn't NQA-1  
4 still use language similar to Appendix B without the  
5 term "applicant," namely that you have to retain  
6 responsibility. It allows delegation of the authority  
7 to conduct the program but you have to retain  
8 responsibility for that QA program.

9 MR. P. SMITH: And we clearly were  
10 responsible for the work product.

11 JUDGE BARATTA: Okay.

12 MR. P. SMITH: We imposed contractual  
13 requirements on our vendors. We were actively  
14 involved in the site activities. We did not receive  
15 any work product from the vendor until we had our own  
16 program in place.

17 JUDGE BARATTA: Let's go back to your  
18 active involvement in the site investigations. Could  
19 you describe exactly what was done?

20 MR. P. SMITH: So, the geotechnical  
21 investigation plan, for example, was developed by  
22 Black & Veatch. It was sent to DTE Energy for our  
23 review and approval.

24 We facilitated all of the site work, all  
25 of the coordination with the existing plant. We were

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1 in the field all the time that there were people  
2 working on our site throughout the entire geotechnical  
3 investigation. So we had firsthand knowledge of what  
4 work was being done.

5 JUDGE BARATTA: You may have -- but when  
6 you say firsthand knowledge it sounds -- what you  
7 describe is more the type of thing involved in  
8 scheduling and site access, and not verification that  
9 procedures are being properly followed.

10 MR. P. SMITH: So in addition to that I  
11 had personnel from my extension, the owner's engineer  
12 who were assisting me in providing oversight. Plus I  
13 was aware that Black & Veatch was providing from their  
14 quality assurance organization within Kansas City  
15 oversight of the activities.

16 JUDGE BARATTA: You've heard a question  
17 about the owner's engineer as whether or not there was  
18 sufficient separation from the two organizations. How  
19 do you reconcile the comments made by Mr. Gundersen  
20 that there was not?

21 MR. P. SMITH: So, there was probably more  
22 separation than was needed. So if you take a typical  
23 organization like we have at DTE Energy where we have  
24 a line organization and a quality assurance  
25 organization at some point within that organization

1 they all report to a common point.

2 Within Black & Veatch the owner's engineer  
3 organization was based out of Ann Arbor and it was  
4 completely independent from the line organization  
5 within Black & Veatch Kansas City that was performing  
6 the site investigation work.

7 And the QA that was in Kansas City of  
8 Black & Veatch as well.

9 JUDGE BARATTA: So because they're two  
10 physically separated but common company you --

11 MR. P. SMITH: All utilities have exactly  
12 the same setup within their own organizations.  
13 Ultimately the QA organization and the line  
14 organization in any company that has a quality  
15 assurance program ends up at a common point.

16 JUDGE BARATTA: Isn't it true typically  
17 that in the utility or any organization that has a QA  
18 program that the line function, production function  
19 shall we say, is separate from the quality assurance  
20 and they only come together at the very top?

21 MR. P. SMITH: They come together -- Stan,  
22 if you can describe the level that they --

23 MR. STASEK: In response to your question,  
24 yes, that's true. It really relates to what do you  
25 consider at the top.

1 So, when you look at an operating nuclear  
2 plant, for instance, the QA organization and the line  
3 organization, they meet at the top typically at the  
4 chief nuclear officer role. That's defined as really  
5 the uppermost senior leader level that is full-time  
6 associated with nuclear.

7 So what we've had on the project is that  
8 same concept as well where when I first joined the  
9 project Peter Smith was the line organization lead, I  
10 was the QA organization lead and we both reported to  
11 the director for nuclear development who at the time  
12 was the uppermost full-time leader associated with the  
13 project.

14 And that's a minimum. In some  
15 organizations the QA group actually can report up  
16 through a totally separate chain up to the company  
17 president or up to the CEO. But as a minimum that's  
18 typically how the industry is aligned.

19 JUDGE BARATTA: And when did you join the  
20 project?

21 MR. STASEK: I joined the project in March  
22 of 2009.

23 JUDGE BARATTA: Okay. So who performed  
24 that function prior to March 2009? And was that  
25 reporting relationship comparable?

1 MR. P. SMITH: Yes, it was. It was  
2 identical, in fact. It was Jim Warner who filled  
3 initially the ND QAPD manager role that was described  
4 until Stan came onboard and we had transitioned into  
5 the Fermi 3 QAPD after we had submitted the  
6 application. And those reporting were both to the  
7 director of nuclear development, myself and.

8 JUDGE BARATTA: The bar chart that we saw  
9 a little while ago had Mr. Warner on it, did it not?

10 MR. P. SMITH: It did.

11 JUDGE BARATTA: Okay. And did it -- it  
12 seemed to show -- it only went back to 2008. Did Mr.  
13 Warner have that position prior to 2008?

14 MR. P. SMITH: No. Mr. Warner came  
15 onboard around the February time frame of 2008.

16 Prior to that time we had not staffed our  
17 nuclear development organization. It was minimally  
18 staffed. There was myself. I had a financial analyst  
19 working with me.

20 And then the model that we were heading  
21 down the path which was also common in that time frame  
22 was using an owner's engineer organization to expand.  
23 So the owner's engineer performed a lot of functions  
24 for us in the early days of this project.

25 JUDGE BARATTA: And who did that owner's

1 engineer report to?

2 MR. P. SMITH: That owner's engineer  
3 reported to me. But at that time we didn't have the  
4 ND QAPD in place. We put that in place in February of  
5 2008 and that's when we also staffed the organization.

6 JUDGE BARATTA: But at that time were you  
7 not performing subsurface investigations of the site?

8 MR. P. SMITH: That was done previously  
9 which is what we've been talking about a whole bunch  
10 today from essentially April of 2007 up until February  
11 of 2008 that we did not have a DTE Energy QA program  
12 in place for this project that we relied on.

13 JUDGE BARATTA: And I go back to how do  
14 you meet the requirements that are in NQA-1 to retain  
15 responsibility for the program even though it allows  
16 you to delegate the program to a contractor.

17 MR. P. SMITH: But that implies that we  
18 have to have a program to -- well I'm trying to figure  
19 out how a greenfield plant with a non-nuclear  
20 background would enter this business.

21 I mean, one approach would be to up-front  
22 develop a QA program.

23 JUDGE BARATTA: That's correct.

24 MR. P. SMITH: Another approach is the  
25 approach that we took.



1 JUDGE BARATTA: The question is does that  
2 approach meet NQA-1 or not. I think that's what we're  
3 here to determine. Okay.

4 MR. P. SMITH: Well, I think just to add  
5 on that though, you know, I think it's fundamentally  
6 how did we assure quality in the work product.

7 JUDGE BARATTA: Well, yes, that's the  
8 question.

9 MR. P. SMITH: Ultimately --

10 JUDGE BARATTA: I mean, how do you, you  
11 know, ensure that. You do agree that the subsurface  
12 investigations that were done in 2007 involved  
13 investigations that were safety-related or would  
14 support safety-related --

15 MR. P. SMITH: Absolutely, which is why we  
16 insisted that they be done under a program.

17 JUDGE BARATTA: And the basis for saying  
18 that it was done under a program is strictly that  
19 Black & Veatch had a program.

20 MR. P. SMITH: Had a program.

21 JUDGE BARATTA: Which had been audited by  
22 other folks doing similar work. Is that correct?

23 MR. P. SMITH: Correct.

24 JUDGE BARATTA: Actually I guess it's more  
25 that there was a NUPIC audit, not -- because in the

1 testimony I think don't you talk to both?

2 MR. P. SMITH: So there was a NUPIC audit  
3 that was done in the end of 2007. There was an  
4 earlier audit -- oh, 2006, I'm sorry. Thank you,  
5 Steve. In 2006. And that's what we based our  
6 selection on.

7 There was a subsequent audit done in the  
8 end of 2007 that we were invited to participate in but  
9 were unable to by Entergy.

10 JUDGE BARATTA: Going to the owner's  
11 engineer concept, you said you had him doing -- or her  
12 doing a variety of functions, correct?

13 MR. P. SMITH: Correct.

14 JUDGE BARATTA: Were any of those  
15 functions -- did they perform both line functions? Or  
16 as well as --

17 MR. P. SMITH: They weren't safety-  
18 related. We had the owner's engineer gather data for  
19 us. Mine our document library to fulfill responses  
20 for a request for information from Black & Veatch  
21 Kansas City on the COLA project.

22 We had the owner's engineer do a site  
23 planning for us as to where we would locate a cooling  
24 tower, help us select cooling tower technology.

25 The owner's engineer facilitated our

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1 reactor technology selection effort. Owner's engineer  
2 developed an early implementation schedule. A number  
3 of activities.

4 JUDGE BARATTA: Did that particular  
5 individual have QA training? And if so, what level?

6 MR. P. SMITH: So, the owner's engineer is  
7 an organization. It's not an individual.

8 The owner's engineer within one of the  
9 tasks that we had set out originally for the owner's  
10 engineer was the development of the Fermi -- I'm  
11 sorry, the ND QAPD. And so that was an activity. And  
12 within the organization they had Mr. Ashworth and  
13 there was one other individual too that I don't recall  
14 his name right now that were QA professionals.

15 JUDGE BARATTA: And are they the same ones  
16 that observed the activities at the site?

17 MR. P. SMITH: Yes.

18 JUDGE BARATTA: And are they the same ones  
19 who -- I believe there was reference to -- yes.

20 MR. P. SMITH: I'm sorry, I just wanted to  
21 clarify. So, Mr. Ashworth from the owner's engineer  
22 was out on the site and the other individual who I  
23 can't recall his name right now was out as well. From  
24 the owner's engineer side.

25 And then in addition to that Black &

1 Veatch Kansas City, QA organization, the Appendix B  
2 NQA-1 performed surveillances of activities  
3 periodically on the site. And the individual who did  
4 that was Art Layfield.

5 JUDGE BARATTA: What was done relative to  
6 the data that came from Fermi 2 to ensure that it was  
7 collected under a QA program? Were any audits or  
8 reviews done of the Fermi 2 program?

9 MR. P. SMITH: Not from a Fermi 3  
10 perspective. So I think what you're referring to --  
11 well, first of all, I think met data was mentioned  
12 previously.

13 JUDGE BARATTA: Yes.

14 MR. P. SMITH: Met data is collected under  
15 the Fermi 2 met tower. It's an operational met tower.  
16 It's part and parcel of operations. That data is  
17 logged, computer logged.

18 What we did is we got downloads of the  
19 information from the Fermi 2 plant computer system and  
20 transmitted that to Black & Veatch for use in the COLA  
21 under a request for information from Black & Veatch.

22 JUDGE BARATTA: How was that, the  
23 transmittal of that data done so as to ensure that  
24 there was a clear chain of custody to avoid any  
25 manipulation of the data? If there was no QA program

1 that DTE --

2 MR. P. SMITH: Right. Go ahead, Steve,  
3 and answer the question.

4 MR. THOMAS: As part of the COLA  
5 development we established a process called the  
6 request for information process, also referred to as  
7 the RFI process. So that was done underneath our QA  
8 program, underneath the Black & Veatch program.

9 So we submitted -- and the RFI process  
10 allowed us to request information from DTE or from GEH  
11 or other vendors that we needed design input for for  
12 the COLA.

13 One of those RFIs related to the met data  
14 that we requested from DTE. So as part of that RFI  
15 process we would fill out the request with the  
16 information that we were looking for. DTE would then  
17 provide that information and they would sign saying  
18 here's the information. And then we would sign that  
19 we received the information and that it met our needs.

20 Now, in the case of the met data what we  
21 did to ensure the fidelity of the data or the  
22 usability of the data, we didn't just use the data  
23 carte blanche. We went and reviewed all that data and  
24 established a criteria for which data should be  
25 excluded. Because sometimes an instrument will stick

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1 or you know, for example, and we don't want to use  
2 incorrect data.

3 So that review of that data was all  
4 documented as part of a Black & Veatch calculation  
5 which had a preparer, a verifier and an approver. And  
6 then that data could be used as input into the various  
7 analyses that relied on that data.

8 JUDGE BARATTA: Okay, and that was a Black  
9 & Veatch developed process. Correct?

10 MR. THOMAS: That's correct.

11 JUDGE BARATTA: What did DTE do to ensure  
12 that Black & Veatch was following that process? Isn't  
13 that a requirement typically of a QA program, to make  
14 sure that a vendor is following their processes?

15 MR. P. SMITH: So, during the COLA  
16 development the next phase for us was the acceptance  
17 review of that information. So when it was turned  
18 into the COLA work product we had our ND QAPD in place  
19 and all of its implementing procedures. And we had  
20 checklists and we had review packages that were  
21 produced by B&V for us to review and comment on.

22 And those included all of the sources of  
23 information. Not physically the sources of  
24 information but we were able to verify that there was  
25 a path via the DBM, the site development basis matrix

1 for each chapter and section that there was a  
2 reference to a B&V calculation, a reference to where  
3 the source was and that there were trails. So we  
4 reviewed that as well as we reviewed it against --

5 JUDGE BARATTA: Right. When you do it  
6 isn't it true that when you do a calculation under a  
7 QA program typically what you have is a set of calc  
8 notes with sample calculations followed by a series of  
9 checks and balances? Is that true?

10 MR. P. SMITH: Go ahead and describe the  
11 calculation.

12 MR. THOMAS: I think that's a fair summary  
13 but I believe that's a very brief summary. The  
14 calculation obviously has several sections --

15 JUDGE BARATTA: I can't testify. That's  
16 why I'm asking you.

17 MR. THOMAS: Yes, it has design inputs.  
18 We have to identify all the design inputs. All the  
19 design inputs have to have a reference so that whoever  
20 is doing the independent verification can go back and  
21 not necessarily have -- and not have to rely on the  
22 preparer. But he can verify that that calculation is  
23 correct based on the information that's presented. So  
24 there's design inputs.

25 Any assumptions that are made in the

1 calculation are identified, what the basis for those  
2 assumptions, the methodology is provided in the  
3 calculation and then the results. And then obviously  
4 whatever attachments that you have to go with that  
5 calculation.

6 MR. P. SMITH: So, but every calculation  
7 is not reviewed by an in-line QA person. QA -- the  
8 quality is built into the system that develops the  
9 calculation. The calculation was developed under a  
10 procedure that tells you what the criteria are for  
11 design inputs. It tells you if you're going to use an  
12 analytical method how you have to validate the  
13 analytical method you're going to use, various  
14 attributes like that.

15 The function of quality assurance in that  
16 system is in the performance of audits and  
17 surveillances that verify on a sampling basis that  
18 those procedures and programs are being followed.

19 JUDGE BARATTA: All right, that's my --  
20 understood. Now, the question is did your acceptance  
21 program do any surveillance to or sampling of the data  
22 that was cited.

23 Did you not say earlier that you checked  
24 to make sure there was something referenced where the  
25 data came from? Did you go back to that reference?



1 MR. P. SMITH: No, we didn't go beyond  
2 that because that function was fulfilled by Black &  
3 Veatch quality assurance in their oversight of the  
4 COLA development.

5 JUDGE BARATTA: But how did you ensure  
6 that they in fact performed that oversight?

7 MR. P. SMITH: Because I had access to the  
8 audits and surveillance reports that Black & Veatch  
9 did.

10 JUDGE BARATTA: What I asked a minute ago,  
11 did you go back and look at those to make sure that  
12 they were in compliance.

13 MR. P. SMITH: Well, no, I did not go and  
14 physically look at everything that Black & Veatch did.

15 JUDGE BARATTA: But did you sample at  
16 least?

17 MR. P. SMITH: No. The extent of the  
18 review that we did for acceptance was as I described  
19 against the checklists and verifying that we had  
20 evidence of the information and how it had been  
21 developed.

22 JUDGE BARATTA: So I go back to how did  
23 you maintain responsibility as required by NQA-1 for  
24 the QA.

25 MR. P. SMITH: I think that is maintaining

1 responsibility.

2 JUDGE BARATTA: I'm sorry, I'm a little  
3 skeptical about that. You want to ask a few questions  
4 while I catch up?

5 JUDGE CHARBENEAU: Let me ask a couple.  
6 Can we go forward to page -- trying to get to Q 28.  
7 Forty-eight, I'm sorry. It's probably page 28. Yes,  
8 it's page 29. There we are.

9 Okay, if we start with the line that says  
10 during the initial -- this is -- now we're looking at  
11 the time period, as I understand kind of a time line  
12 contract with Black & Veatch is March 2007. The  
13 nuclear development program for DTE was established in  
14 April 2007, and the DTE quality assurance program in  
15 February 2008. So we're at the time frame prior to  
16 2008.

17 And we're seeing here that during this  
18 initial phase there were no audits. There was no  
19 surveillance by DTE personnel. And yet further down  
20 there's an assertion that DTE is providing oversight.  
21 What exactly are we doing at that time?

22 MR. P. SMITH: During the conduct of the  
23 site investigations? So this is the sentence. In  
24 addition to the applicable programs for operating the  
25 Fermi Unit 2 for access work control and contractor

1 oversight were utilized for that site work. Is that  
2 what you're referring to?

3 JUDGE BARATTA: Yes.

4 MR. P. SMITH: Okay. So that -- so I was  
5 paired with BNV's site manager who -- all of the  
6 contractor personnel, the drillers, the B&V  
7 geotechnical engineers, the laborers, everybody who  
8 was involved in the drilling. And we were paired and  
9 basically our daily routine looked something like  
10 this, is that on the day that -- on a particular day  
11 we'd have our first morning meeting, pre-job brief and  
12 go through the activities for the day.

13 Typically we were operating three drill  
14 rigs in three different locations on the site. I had  
15 an interface responsibility with the Unit 2 operations  
16 department because they needed to know where I was  
17 drilling onsite on that particular day.

18 Once all of those things were fulfilled I  
19 -- and I had one other person who we were trading off  
20 for the period of time. We went out throughout the  
21 day and observed the activities at the drill rigs.

22 JUDGE CHARBENEAU: So you were actually  
23 observing the activities, the collection of core?

24 MR. P. SMITH: Yes.

25 JUDGE CHARBENEAU: Were there any -- and

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Title: Detroit Edison Company  
Fermi Nuclear Plant, Unit 3

Docket Number: 52-033-COL

ASLBP Number: 09-880-05-COL-BD01

Location: Monroe, Michigan

Date: Thursday, October 31, 2013

Work Order No.: NRC-351

Pages 523-712

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UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

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ATOMIC SAFETY AND LICENSING BOARD PANEL

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HEARING

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In the Matter of: : Docket No.

DETROIT EDISON COMPANY : 52-033-COL

: ASLBP No.

(Fermi Nuclear Power : 09-880-05-COL-BD01

Plant, Unit 3) :

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Thursday, October 31, 2013

Monroe County Courthouse

Board Meeting Room

125 E. Second Street

Monroe, Michigan

BEFORE:

RONALD M. SPITZER, Chair

DR. ANTHONY J. BARATTA, Administrative Judge

DR. RANDALL J. CHARBENEAU, Administrative Judge

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

2 9:27 a.m.

3 CHAIRMAN SPITZER: Good morning.

4 Everybody present and accounted for, at least everyone  
5 we need to get started this morning?

6 MR. TYSON SMITH: Yes, Your Honor.

7 CHAIRMAN SPITZER: Before we move or  
8 resume the testimony of the DTE witnesses on  
9 Contention 15, we received two new proposed exhibits,  
10 and we'll go ahead and deal with them now, or at least  
11 I assume DTE wants to move into evidence its new  
12 exhibit, which is 000108.

13 (Whereupon, the document was marked as  
14 DTE Exhibit 000180 for identification.)

15 MR. TYSON SMITH: Correct. That's the B&V  
16 Employee Concerns Program Procedure MP1.2 that we  
17 discussed yesterday.

18 CHAIRMAN SPITZER: Is there any objection  
19 to that exhibit being admitted?

20 MR. LODGE: No, Your Honor, not from  
21 Intervenors.

22 MS. CARPENTIER: And not from staff.

23 CHAIRMAN SPITZER: Very well. That will  
24 be admitted.

25 (Whereupon, the document marked as DTE

1 governed by a DTE QA Program meeting the requirements  
2 of Appendix B."

3 Do you agree that that statement is true?  
4 Maybe we could -- yes, there we go.

5 MR. PETER SMITH: That's true. For the --  
6 for the work that was done prior to the -- if we're  
7 referring to the period of the site investigation  
8 work, we did not have a -- a -- a DTE Appendix B QA  
9 Program that we applied to the work, however, the work  
10 was done under Black and Veatch's Quality Assurance  
11 Program.

12 CHAIRMAN SPITZER: All right. I think we  
13 understand your position. Unless my colleagues have  
14 anything further, we can move onto the NRC staff  
15 witnesses.

16 And if NRC counsel will introduce their  
17 witnesses to us and identify them?

18 MS. CARPENTIER: Certainly, Your Honor.  
19 Beginning at your far right is Adrian Muniz, who is  
20 the overall project manager for the Fermi 3 SER. In  
21 the middle is George Lipscomb, who is the technical  
22 reviewer for chapter 17, section 5 of the SER, which  
23 is the review of the QA Program. And to his left is  
24 Ida Rivera-Verona, who is his predecessor. She was  
25 the person who first flagged this issue in the summer

1 of 2009. She's the author of some of the emails that  
2 the interveners have cited. She led the inspection  
3 team that did the inspection in August 2009 and she's  
4 the primary author of the NOV. Mr. Lipscomb was also  
5 a member of that inspection team and he was also a  
6 member of the 2010 staff inspection of Black and  
7 Veatch.

8 CHAIRMAN SPITZER: Since we just had them  
9 out, why don't we go back to the emails that were just  
10 up on the screen. Go back to Intervener's 3, if we  
11 could, and we'll see if we can find that language  
12 again. Yes, there we go. This language that we've  
13 highlighted is however based on our continued review,  
14 the staff determined that the oversight provided by  
15 DTE was not governed by a DTE QA Program meeting the  
16 requirements of Appendix B.

17 Mr. Lipscomb, do you still agree with that  
18 -- or do you agree? It's not your document, I  
19 believe. Do you agree with that statement?

20 MR. LIPSCOMB: At the time that is  
21 correct.

22 CHAIRMAN SPITZER: Well, is it true today?  
23 Understanding that we're referring to the pre-  
24 application period. I believe that's what's intended  
25 here.

1 MR. LIPSCOMB: If it's pre-application,  
2 that's a correct statement.

3 CHAIRMAN SPITZER: All right. And is it  
4 the staff's position that that is in your view  
5 consistent with NRC requirements; that is that, there  
6 need not be a DTE QA Program meeting the requirements  
7 of Appendix B during that time period?

8 MR. LIPSCOMB: DTE did not have to have a  
9 QA Program during that time period but they had to  
10 assure that the safety-related activities met the  
11 requirements of Appendix B.

12 JUDGE BARATTA: I really don't understand  
13 how you can do that. Can you explain that to me?

14 MR. LIPSCOMB: Absolutely. DTE did not  
15 have a program at that point, but they contracted to  
16 Black and Veatch that did have a Quality Assurance  
17 Program that met the requirements of Appendix B. So  
18 they ensured as part of their application that those  
19 safety-related activities that occurred prior to their  
20 application in September of 2009 did meet the  
21 requirements of Appendix B through contract names with  
22 Black and Veatch.

23 JUDGE BARATTA: How much experience do you  
24 have in QA?

25 MR. LIPSCOMB: I have 20 years Navy

1 experience. During that period I was the safety  
2 department head in the aviation squadron. I was also  
3 a quality assurance officer during that period, which  
4 has direct quality assurance attributes as far as  
5 inspecting, audits, qualifications of individuals.  
6 I've also been at GE-Hitachi in supply chain  
7 management there and worked with the quality assurance  
8 members there. I also have been at the NRC, and since  
9 at the NRC the majority of my job is related to  
10 quality assurance, which is six years roughly.

11 JUDGE BARATTA: Okay. And the six years  
12 with the NRC, is that the first time you had to meet  
13 Appendix B requirements?

14 MR. LIPSCOMB: That's correct.

15 JUDGE BARATTA: And what about NQA-1?

16 MR. LIPSCOMB: That's the same.

17 JUDGE BARATTA: Okay. And are those  
18 different in your background with the military?

19 MR. LIPSCOMB: They are different.

20 JUDGE BARATTA: Thank you. Isn't it the  
21 basic philosophy of QA which is expressed in Appendix  
22 B and NQA-1 that oversight has to be provided of any  
23 QA Program?

24 MR. LIPSCOMB: As a basic tenant of QA,  
25 yes.

1 JUDGE BARATTA: Then how can you say that  
2 they ensured that the data and such collected by Black  
3 and Veatch was in fact quality data if there was no  
4 required oversight, which is I think what I said?

5 MR. LIPSCOMB: That is correct, they can  
6 have assurance by other methods that the data meets  
7 the requirements of Appendix B without what you'd  
8 consider a full Quality Assurance Program.

9 JUDGE BARATTA: Please explain what those  
10 are then in detail.

11 MR. LIPSCOMB: Explain what what are?

12 JUDGE BARATTA: Those other methods that  
13 you referenced.

14 MR. LIPSCOMB: Sure. In the case of the  
15 Fermi 3 plant DTE had contractual oversight over Black  
16 and Veatch.

17 JUDGE BARATTA: Okay. Could you go into  
18 more detail there?

19 MR. LIPSCOMB: Sure. They issued a  
20 purchase order to Black and Veatch accompanied by a  
21 number of quality and technical attachments and  
22 requirements that laid out the requirements for the  
23 work that Black and Veatch was doing. Those  
24 requirements required that Black and Veatch meet the  
25 requirements of Appendix B. And so through

1 contractual methods they did do that through  
2 procurement, and they supplemented that by internal  
3 methods using their ND QAPD at the time for part of  
4 that pre-application time. And then they supplemented  
5 also by hiring an owner's engineer, and they also  
6 supplemented it by doing a -- a variety of like  
7 surveillance-type activities and oversight, some of  
8 which might not have been formally documented.

9 JUDGE BARATTA: Are you familiar with the  
10 Midland decision that was cited yesterday?

11 MR. LIPSCOMB: I'm not.

12 JUDGE BARATTA: Okay. You can provide or  
13 require something be done, but how do you ensure that  
14 it was in fact done? What you've given me are  
15 basically requirements that they do things. In your  
16 mind how did DTE ensure that they were done?

17 MR. LIPSCOMB: Well DTE required Black and  
18 Veatch to meet certain standards. As I outlined in my  
19 testimony and just a moment ago, they put certain  
20 methods in place to verify and control the contractor.  
21 And then -- that's for pre-application. And then  
22 after they submitted the application they continued  
23 the oversight. They completed audits and the did  
24 other activities. So from a DTE perspective, that's  
25 what I'm aware of that they did.

1 MS. RIVERA-VERONA: Can I add?

2 JUDGE BARATTA: Sure.

3 MS. RIVERA-VERONA: During the inspection;  
4 if we can bring up the Exhibit 2 of the staff, we did  
5 mention that during our inspection we did look at the  
6 surveillances and activities that were completed prior  
7 to the -- if you can go -- let me look at the page  
8 number.

9 JUDGE BARATTA: Did you say Exhibit 2?

10 MS. RIVERA-VERONA: Yes, that's our  
11 inspection report. And during the inspection report  
12 we did mention that we did look at the audits and  
13 surveillances. There were a total of eight of them.  
14 If you can go to page 10, to the bottom of page 10, we  
15 look at all these surveillances that were performed in  
16 support of the pre-application activities. And that  
17 would include all the activities that were conducted  
18 by Black and Veatch to verify that all the  
19 requirements and contract requirements were -- were  
20 done.

21 JUDGE BARATTA: And these were formed --

22 MS. RIVERA-VERONA: We look at them during  
23 the inspection.

24 JUDGE BARATTA: No, I'm referring to the  
25 surveillance.

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1 MS. RIVERA-VERONA: It was a combination  
2 between Black and Veatch and -- and DTE.

3 JUDGE BARATTA: Okay. What this says is  
4 the NRC inspectors were provided eight surveillances  
5 of Fermi 3 site characterization and COL application  
6 activities between July 2007 and June 2008.

7 MS. RIVERA-VERONA: Yes.

8 JUDGE BARATTA: In one audit, right.

9 MS. RIVERA-VERONA: And if you can go to  
10 -- to the next page?

11 JUDGE BARATTA: Okay.

12 MS. RIVERA-VERONA: I'm sorry.

13 CHAIRMAN SPITZER: If I may interject for  
14 a section. To make sure we've got the records clear,  
15 I believe the document we're talking about is NRC S2.

16 MS. RIVERA-VERONA: S2, yes. Did I say 3?

17 JUDGE BARATTA: No, you said 2.

18 MS. RIVERA-VERONA: Oh, okay.

19 CHAIRMAN SPITZER: All right. There was  
20 some uncertainty.

21 JUDGE BARATTA: Yes. Okay. Now these  
22 surveillances though were conducted not by DTE, but by  
23 B&V. That's on the top of the next page. Or five of  
24 the eight surveillances, particularly the ones that  
25 were done between July 2007 and June 2008.

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1 MS. RIVERA-VERONA: Yes.

2 JUDGE BARATTA: Okay. So the staff  
3 considers those to be adequate --

4 MS. RIVERA-VERONA: We do.

5 JUDGE BARATTA: -- even though it's not  
6 DTE doing the work? It's a contractor for DTE?

7 MS. RIVERA-VERONA: Yes.

8 MR. LIPSCOMB: If there's not a specific  
9 regulatory requirement that defines the amount of  
10 oversight that's required.

11 JUDGE BARATTA: There's some pretty strong  
12 language in NQA-1 though. And you cite NQA-1, don't  
13 you, in the staff Standard Review Plan.

14 MR. LIPSCOMB: That's correct, we do.

15 JUDGE BARATTA: Is there evidence that DTE  
16 provided QA oversight of Black and Veatch? I guess  
17 this is Michigan. I think MI stands for Michigan. Is  
18 that correct?

19 MS. RIVERA-VERONA: Yes.

20 JUDGE BARATTA: Do you have any evidence  
21 of how they ensured that Black and Veatch Michigan  
22 when they did these surveillances did the correctly?

23 MR. LIPSCOMB: I -- I have not reviewed --  
24 other than what's in the inspection report that the  
25 inspection team reviewed, I haven't reviewed anything

1 specific to Black and Veatch Michigan.

2 JUDGE BARATTA: And yet you feel that that  
3 satisfied the requirements that are cited in your  
4 Standard Review Plan from NQA-1?

5 MR. LIPSCOMB: If we could bring up the  
6 staff Exhibit No. 1, S1, which is our SER for Section  
7 17.5? And there's a section in this that refers  
8 specifically to the conclusions reached for pre-  
9 application activities, and that would be on page 17-  
10 35. There it is. Staff conclusions for pre-  
11 application activities. And in that paragraph right  
12 there we outline our conclusions and how we reached  
13 them.

14 And if you look in that paragraph,  
15 probably about the fifth -- fifth line down where it  
16 starts -- the beginning line is -- is "Internal  
17 oversight. If you go to the end of that, it says,  
18 "The staff also determined that the applicant is not  
19 required to implement a QA Program in compliance with  
20 the criteria of Appendix B, however, the applicant did  
21 establish applicable portions of an Appendix B program  
22 by creating the ND QAPD and by creating procedures for  
23 implementing those elements of the ND QAPD associated  
24 with the activities planned in support of the review  
25 and acceptance of the Black and Veatch COLA

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1 application work product." And then it goes on.

2 JUDGE BARATTA: All right. When was the  
3 ND QAPD put into effect?

4 MR. LIPSCOMB: In early two-thousand -- in  
5 the early two-thousand of eight.

6 JUDGE BARATTA: Were there activities that  
7 were covered under the Section 2.20 of the -- yes,  
8 sorry -- the quality assurance, ASME quality assurance  
9 requirements? Were they done prior to 2008?

10 MR. LIPSCOMB: Well, that would be a -- an  
11 applicant question for the exact timeline, but my  
12 understanding is that there were geology-type  
13 activities that were safety-related that occurred  
14 prior to the application.

15 JUDGE BARATTA: But you say for activities  
16 occurring before the date of the COL application. Now  
17 doesn't that include that time period?

18 MR. LIPSCOMB: Yes, it does.

19 JUDGE BARATTA: Then don't you know  
20 whether or not they were done prior to 2008?

21 MR. LIPSCOMB: Well, I know that they  
22 would have had to have been done if they supported  
23 what was submitted with the original application. I  
24 did not review the geology portions of the  
25 application, and I would assume if you're referring to

1 the sections of work that were done by Black and  
2 Veatch in 2007-2008 time frame, then, yes, they would  
3 have been pre-application.

4 JUDGE BARATTA: But they would be covered  
5 by your statement though?

6 MR. LIPSCOMB: Covered by what?

7 JUDGE BARATTA: Your statement that  
8 appears for activities occurring before the date of  
9 the COL application it appears.

10 MR. LIPSCOMB: That -- that's correct.  
11 They would be covered.

12 JUDGE BARATTA: Well, they were not  
13 covered though then by the ND QAPD. So is your  
14 statement correct in that chapter?

15 MR. LIPSCOMB: Well, the -- you got to I  
16 guess keep in perspective that the activities were  
17 being conducted by Black and Veatch as a contractor to  
18 Detroit Edison. So if the activities occurred before  
19 Detroit Edison put in place internally the  
20 programmatic controls of their ND QAPD, then you're  
21 correct they would be before the ND QAPD. But it is  
22 possible that some of those activities occurred after  
23 that document was put in place at the Detroit Edison  
24 facility. Because there's a time period that's before  
25 the activities were going out and there's a time

1 period after prior to application.

2 JUDGE BARATTA: Yes, I understand that  
3 from the previous testimony. What I'm trying to get  
4 at though is this paragraph that you referenced  
5 appears to imply that all of the activities that  
6 occurred before the day of the COL application; I'm  
7 just reading what you wrote, were done under the ND  
8 QAPD Program, and that doesn't seem to be correct.

9 MR. LIPSCOMB: Well, I -- I think that  
10 what is being said here is that the ND QAPD was put in  
11 place at some point prior to the application and that  
12 -- that the staff's position is that they did not have  
13 to have a QA Program in compliance with Appendix B in  
14 place at -- at DTE at that point. But they did  
15 establish some procedures, and that's one example of  
16 procedures that they put in place.

17 CHAIRMAN SPITZER: But I take it under  
18 your interpretation they didn't have to do that.  
19 Every bit of work done before the COL application was  
20 submitted could have been done by Black and Veatch  
21 with not oversight review whatsoever by the license  
22 applicant? Is that correct?

23 MR. LIPSCOMB: They were -- they were not  
24 required to have a Quality Assurance Program in place,  
25 but they are required to make sure each and every one

1 Quality Assurance Program. The applicant may delegate  
2 to others such as contractors, agents or consultants  
3 the work of establishing and meeting the Quality  
4 Assurance Program or any part thereof, but shall  
5 retain responsibility for the Quality Assurance  
6 Program."

7 That would seem to mean to me that the  
8 applicant must be actively involved in retaining  
9 responsibility during the pre-application phase,  
10 assuming Appendix B applies in some manner. Do you  
11 disagree?

12 MR. LIPSCOMB: Appendix B does apply pre-  
13 application and post-application.

14 CHAIRMAN SPITZER: So the applicant must  
15 retain responsibility during the pre-application  
16 phase?

17 MR. LIPSCOMB: But the applicant is not an  
18 applicant until they apply.

19 CHAIRMAN SPITZER: So how do we make sense  
20 of your interpretation that -- it seems to lead to the  
21 completely irrational result that something that  
22 doesn't exist -- if Appendix B applies, the applicant  
23 has to retain responsibility. But you're telling me  
24 there is no applicant in the pre-application phase, so  
25 we just seem to be left with a totally incoherent

1 version of this regulation. It somehow applies but  
2 doesn't apply.

3 MR. LIPSCOMB: Well, Appendix B applies  
4 pre and post-application.

5 CHAIRMAN SPITZER: Maybe I should save  
6 this for your counsel.

7 JUDGE BARATTA: Yes, I think that would be  
8 best.

9 MS. CARPENTIER: Just to clarify, the  
10 distinction between the applicant pre and post-  
11 application is not at the core of the staff's  
12 argument. That's more DTE's argument in testimony.  
13 And we frame it in a different way, which we can  
14 discuss as needed.

15 CHAIRMAN SPITZER: It will be needed.

16 JUDGE BARATTA: It sure seemed like it was  
17 in that anyway.

18 MR. TYSON SMITH: Along those lines I  
19 think there's a distinction between enforcement  
20 authority, which is part of what this NOV is about,  
21 and licensing requirements, which is what, you know,  
22 DTE has demonstrated that it retained responsibility  
23 by, among other things, requiring that B&V have an  
24 Appendix B Program and apply that to site  
25 investigation activities.



1 inspection of both Detroit Edison and Black and  
2 Veatch. So we used both together to reach the staff  
3 conclusion that the Appendix B requirements were met  
4 even if Detroit Edison did not have a program prior to  
5 the application.

6 JUDGE BARATTA: So you do now agree that  
7 Detroit Edison had to do something other than simply  
8 say, okay, Black and Veatch has a program? You just  
9 told me that there was what I'll call oversight,  
10 correct? Because this is not explained in your  
11 discussion about the conclusions of the pre-  
12 application activities. In fact, I think that appears  
13 to me to be somewhat misleading because you rely  
14 strictly on the fact that there was an ND QAPD there.  
15 At least that's what I see in that 17-35 paragraph  
16 that you cited earlier.

17 MR. LIPSCOMB: We did not rely on the ND  
18 QAPD. That was part of what they did. It was  
19 mentioned that they had that in place, but that was  
20 not relied upon. They relied on their subcontractor  
21 Black and Veatch and their program as part of the  
22 contracting for eh Appendix B -- meeting the  
23 requirements of Appendix B and NQA-1. That was --  
24 that was the primary method, and then other things  
25 were put in place as they went.

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1 MS. RIVERA-VERONA: For the geotechnical  
2 activities.

3 MR. LIPSCOMB: For the early geotechnical  
4 activities.

5 JUDGE BARATTA: Right, that's what's in  
6 question are those. All right. I understand your  
7 position, I think.

8 CHAIRMAN SPITZER: If DTE could exercise  
9 satisfactory control through contractor oversight  
10 before the COL application was actually submitted,  
11 then why after the submission date does it suddenly  
12 become necessary that the applicant develop an  
13 Appendix B Program, or have an Appendix B Program?

14 MR. LIPSCOMB: Well, once -- once they're  
15 an applicant, there are a large number of requirements  
16 that go in place. So I think we've discussed quite a  
17 few of them. So I guess it gets into when you become  
18 an applicant more activities need to be in house, I  
19 guess we would say, that they would need to have the  
20 program in place to guide those activities. At that  
21 point they would have to as an applicant.

22 CHAIRMAN SPITZER: Well, just --

23 MR. LIPSCOMB: And --

24 CHAIRMAN SPITZER: Sorry. Go ahead.

25 MR. LIPSCOMB: No, I was saying that

1 there's -- there's two parts to it: There's the  
2 enforcement part as to whether you can issue a Notice  
3 of Violation, for instance, for something that --  
4 while they're not an applicant, which is the reason  
5 that we retracted the NOV, but there's still the  
6 requirement to meet Appendix B, whether it's pre or  
7 post-application.

8 CHAIRMAN SPITZER: Are you familiar with  
9 the requirements of the regulations and in 10 CFR 52.5  
10 dealing with employee protection?

11 MR. LIPSCOMB: Well, I don't have the  
12 words in front of me, but I'm generally familiar with  
13 them.

14 CHAIRMAN SPITZER: Are those enforceable  
15 by the NRC before a COLA has been received by eh NRC?

16 MR. LIPSCOMB: Well, the decision of  
17 whether something is enforceable is -- is determined  
18 by our Office of General Counsel and our Office of  
19 Enforcement. So if it's a situation that's not a  
20 standard situation, which in this particular case that  
21 might be the case, that would have to be decided as to  
22 whether those particular regulations required.

23 Now you're referring to 52.5 specifically?

24 CHAIRMAN SPITZER: That's what this  
25 question refers to, yes.

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1 MR. LIPSCOMB: Which is the employee  
2 protection requirements?

3 CHAIRMAN SPITZER: I believe so.

4 MR. LIPSCOMB: And it gives kind of a long  
5 list of who it applies to; I could read it if you  
6 like, but it does say an applicant for a license. So  
7 it would -- in my mind would apply at the time that  
8 they become an applicant.

9 CHAIRMAN SPITZER: But not before?

10 MR. LIPSCOMB: Well, that's my  
11 interpretation and my -- my opinion, but Office of  
12 General Counsel and Office of Enforcement would have  
13 to make their decision on any particular Notice of  
14 Violation or any type of citation for something. But  
15 that would be my interpretation, the way I read that.  
16 But to be said, if there were, as we brought up, a --  
17 a situation where an employee wanted to enact parts of  
18 the employee protection, when they apply for an  
19 application, they become an applicant. So at that  
20 point certainly that would apply.

21 MS. RIVERA-VERONA: If I can add, if -- if  
22 a -- if an employee raises concern about application  
23 before the staffs -- NRC staffs receive an  
24 application, there is nothing we can enforce. There  
25 is nothing we -- we can do at a time. We don't have

1 CHAIRMAN SPITZER: Okay. And what  
2 specific concerns did you have about the quality of  
3 that information?

4 MS. RIVERA-VERONA: That it was actually  
5 performed under a QA Program, under Appendix B QA  
6 Program.

7 JUDGE BARATTA: Yes, we just heard that  
8 there's no requirement to perform it under an Appendix  
9 B QA Program. I guess I find that very confusing.

10 MS. RIVERA-VERONA: If -- if I can add,  
11 from what I understand that my colleague here said,  
12 the requirements will have to be met, but it was not  
13 required to be -- it was the applicant to have that  
14 program in place. We did have to verify that the  
15 requirements of Appendix B were met for all the safety  
16 activities that were used to develop the application.

17 JUDGE BARATTA: Do you know of any other  
18 instance in which a nuclear power plant that has begun  
19 the NRC application process toward a commercial power  
20 operating license has informed the NRC that they were  
21 not actually an applicant until the very day their  
22 completed application was turned into the NRC in final  
23 form?

24 MS. RIVERA-VERONA: I'm not aware.

25 MR. LIPSCOMB: I'm not aware either.

1 issue that's still out there.

2 CHAIRMAN SPITZER: All right.

3 JUDGE BARATTA: And it's your position  
4 that as long as they can demonstrate that they  
5 retained responsibility, even though they didn't have  
6 a fully-developed QA Program or any QA Program -- well,  
7 any formal QA Program themselves --

8 MS. CARPENTIER: I'm sorry, I didn't hear  
9 those last few --

10 JUDGE BARATTA: I say it's your position  
11 that they retained responsibility as required by  
12 Appendix B even though they did not have a formal  
13 full-blown QA Program at the time in question, which  
14 is I guess prior to 2008?

15 MS. CARPENTIER: That's correct. It was  
16 a limited set of activities. They had not yet staffed  
17 their QA positions, so their own senior management was  
18 doing that sort of oversight.

19 JUDGE BARATTA: And that's sufficient to  
20 satisfy the responsibility?

21 MS. CARPENTIER: For the scale of  
22 activities that were taken place, yes.

23 JUDGE BARATTA: Yes. And I believe the  
24 interveners say no? Okay.

25 MS. CARPENTIER: Okay. To continue, the

1 distinction about how Appendix B applies pre and post-  
2 licensing is somewhat distinct from this enforcement  
3 question. What the applicant was required to do on  
4 September 18th, 2008 when they submitted the  
5 application was to explain to the NRC what QA Program  
6 did apply to design work that occurred pre-  
7 application. It didn't have its own program. We know  
8 that. We've discussed that at length. But they had  
9 to point to something, and in this case the Black and  
10 Veatch Program.

11 As of summer of 2009 they had not yet  
12 pointed to anything in their presentations to the NRC.  
13 The June emails that the interveners cite and that  
14 were discussed extensively this morning and the early  
15 revisions of the application that the applicant has  
16 submitted as exhibits do not contain this information  
17 about the design-related pre-application work. That's  
18 why the staff did inspections and that's why the staff  
19 issued RAIs.

20 And we got that information and we ensured  
21 that it was included in later revisions to the  
22 application. So it wasn't in the application in the  
23 summer of 2009. It is there now and the application  
24 now has the information as it's been presented here  
25 that relates to the design that 10 CFR 52.79(a)(25)

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1 site investigation activities. And that's exactly  
2 what DTE did here by delegating the responsibility for  
3 executing the program to B&V and retaining  
4 responsibility for the quality of that information.

5 JUDGE BARATTA: I'm a little concerned  
6 about the way you're throwing around the word  
7 "responsibility" there, because the Appendix B really  
8 says the applicant may delegate to others such as  
9 contractors, agents or consultants the work of  
10 establishing and executing a Quality Assurance  
11 Program, not the responsibility.

12 MR. TYSON SMITH: I'm sorry, I did  
13 misspoke. We delegated the work, not the  
14 responsibility.

15 JUDGE BARATTA: And I'll also refer to  
16 your rebuttal statement position, because you made the  
17 same error there in that you stated that -- delegated  
18 to Black and Veatch the responsibility for  
19 establishing and executing a QA Program. And this is  
20 on -- I think it's page 10 of your rebuttal statement.  
21 And then go on to say DTE retained overall  
22 responsibility of the program.

23 MR. TYSON SMITH: Well, I have no reason  
24 to doubt that that's what that says, and that's  
25 certainly a misstatement. It should be delegated



UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

BEFORE THE COMMISSION

In the Matter of:

DTE ELECTRIC COMPANY

(Fermi Nuclear Power Plant, Unit 3)

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)  
)

Docket No. 52-033-COL

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APPLICANT'S OPPOSITION TO PETITION FOR REVIEW ON CONTENTION 23

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COMPANY

October 31, 2014

12-12 regarding the adequacy of the DEIS discussion of the offsite transmission corridor constituted “new” information. The Board stated: “To the extent Intervenor believe that LBP-12-12 cures the timeliness problem for Contention 23, they are mistaken.” The Board “simply made a recommendation” that did “not cure the Intervenor’s failure to bring their NEPA challenges in response to the DEIS and/or the ER, given that the alleged deficiencies were apparent in those documents.”<sup>31</sup> In other words, the Intervenor may not “piggyback” on the Board’s analysis in LBP-12-12. The same legal arguments could have been raised earlier by the Intervenor based on the ER, independently of the Board.

C. There Was No Material Difference Between the DEIS and FEIS

In the Petition for Review, the Intervenor also claim that the resubmitted proposed Contention 23 was timely because “[d]isparate assertions of the Transmission Corridor footprint between the ER and DEIS created a dispute of fact.”<sup>32</sup> The Intervenor (Petition for Review at 8) focus on the following statements as the basis for the supposed “difference” between the ER/DEIS and FEIS:

<b>ER (at 3-17)</b>	By reconfiguring conductors, new lines in this portion of the route could use existing towers, but placement of additional transmission infrastructure may be necessary.
<b>DEIS (at 3-17)</b>	By reconfiguring conductors, new lines in this portion of the route could use existing towers, but placement of additional transmission infrastructure may be necessary.
<b>FEIS (at 2-46)</b>	For a portion of this eastern 18.6-mi segment of the proposed route, reconfiguring existing conductors may allow for the use of existing transmission infrastructure without the need for building additional transmission infrastructure.

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republished in the FEIS the same data and conclusions that were published in the DEIS - became known only with the publication of the FEIS.”).

<sup>31</sup> April 30 Order at 22.

<sup>32</sup> Petition for Review at 8.

According to the Intervenors, the ER and DEIS acknowledge that new transmission corridor infrastructure “may be necessary,” but the FEIS states that by reconfiguring existing conductors DTE could use existing transmission infrastructure “without the need for building additional transmission infrastructure.”<sup>33</sup> The Intervenors argue that the “later assessment” in the FEIS must be “based on new data which is not disclosed in the FEIS” and that the NRC Staff provided no support or explanation for concluding that there will be fewer impacts in the transmission corridor.<sup>34</sup> This argument is flawed for two reasons.

First, the FEIS explains that reconfiguring existing conductors “may allow” for the use of existing transmission infrastructure without the need for building additional transmission infrastructure. The FEIS conclusion is functionally identical to that in the DEIS and ER, which also acknowledged the *possibility* that existing towers could be used by reconfiguring conductors, but nevertheless allow that placement of additional transmission infrastructure “may be necessary.” The ER, DEIS, and FEIS all recognize the *potential* to use existing transmission corridor infrastructure, but none definitively conclude that additional infrastructure is unnecessary. The Intervenors’ misreading of the FEIS cannot cure their tardiness in filing Contention 23.<sup>35</sup>

Second, in the Petition for Review the Intervenors compare text in Chapter 3 of the DEIS to Chapter 2 of the FEIS. This approach presents a misleading view of the differences

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<sup>33</sup> Petition for Review at 8.

<sup>34</sup> *Id.* at 9.

<sup>35</sup> See *Georgia Institute of Technology* (Georgia Tech Research Reactor, Atlanta, Ga.), LBP-95-6, 41 NRC 281, 300 (1995) (explaining that a petitioner’s imprecise reading of a reference document cannot serve to generate an issue suitable for litigation).

between the two documents. A comparison of corresponding sections in the DEIS and FEIS show that there are in fact no differences between the two documents:

DEIS (at 3-17)	FEIS (at 3-17)
By reconfiguring conductors, new lines in this portion of the route could use existing towers, but placement of additional transmission infrastructure may be necessary.	By reconfiguring conductors, new lines in this portion of the route could use existing towers, but placement of additional transmission infrastructure may be necessary.
DEIS (at 2-45)	FEIS (at 2-46)
For a portion of this eastern 18.6-mi segment of the proposed route, reconfiguring existing conductors may allow for the use of existing transmission infrastructure without the need for building additional transmission infrastructure.	For a portion of this eastern 18.6-mi segment of the proposed route, reconfiguring existing conductors may allow for the use of existing transmission infrastructure without the need for building additional transmission infrastructure.

There are also no “revision bars” in the margin of the FEIS that would indicate a change from the DEIS. An “apples-to-apples” comparison therefore confirms the absence of any new or materially different information in the FEIS that could support a timely contention. As a result, there is no “inconsistent speculation about the reuse of existing Transmission Corridor towers” that could provide the basis for a timely contention. The Intervenor’s attempt to revive Contention 23 should be denied.

D. Contention 23 Was Inadmissible

In LBP-12-12, the Board did not conclusively resolve the admissibility of Contention 23 because it denied the contention as untimely. The Board noted, however, that “[g]iven the very limited analysis in the DEIS of these and other environmental impacts arising from the transmission line corridor, [the Intervenor’s] claims may have been admissible had they been filed in a timely manner.” The Board’s reasoning appears to be closely linked to its views of the legal issues that underlie its request to conduct a *sua sponte* review in LBP-14-09. As

**ENTERGY NUCLEAR VERMONT  
YANKEE, LLC AND ENTERGY  
NUCLEAR OPERATIONS, INC.  
(Vermont Yankee Nuclear Power  
Station)**

This proceeding involves an application by Entergy Nuclear Vermont Yankee, LLC and Entergy Nuclear Operations, Inc. for a license amendment for the Vermont Yankee Nuclear Power Station, which is located in Vernon, Vermont. In response to a notice filed in the **Federal Register**, see 80 FR 8,355, 8,359 (Feb. 17, 2015), a hearing request was filed on April 20, 2015 by the State of Vermont.

The Board is comprised of the following administrative judges: William J. Froehlich, Chairman, Atomic Safety and Licensing Board Panel, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001.

Dr. Michael F. Kennedy, Atomic Safety and Licensing Board Panel, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001.

Dr. Richard E. Wardwell, Atomic Safety and Licensing Board Panel, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001.

All correspondence, documents, and other materials shall be filed in accordance with the NRC E-Filing rule. See 10 CFR 2.302.

Rockville, Maryland,  
Dated: May 1, 2015.

**E. Roy Hawken,**

*Chief Administrative Judge, Atomic Safety  
and Licensing Board Panel.*

[FR Doc. 2015-11039 Filed 5-6-15; 8:45 am]

**BILLING CODE 7590-01-P**

**NUCLEAR REGULATORY  
COMMISSION**

[Docket No. 52-033; NRC-2008-0566]

**DTE Electric Company; Fermi 3**

**AGENCY:** Nuclear Regulatory  
Commission.

**ACTION:** Combined license and record of  
decision; issuance.

**SUMMARY:** The U.S. Nuclear Regulatory  
Commission (NRC) is providing notice

of the issuance of Combined License (COL), NPF-95 to DTE Electric Company (DTE, formerly Detroit Edison Company) and Record of Decision.

**ADDRESSES:** Please refer to Docket ID NRC-2008-0566 when contacting the NRC about the availability of information regarding this document. You may access publicly-available information related to this document using any of the following methods:

- *NRC's Agencywide Documents Access and Management System (ADAMS):* You may obtain publicly-available documents online in the ADAMS Public Documents collection at <http://www.nrc.gov/reading-rm/adams.html>. To begin the search, select "ADAMS Public Documents" and then select "Begin Web-based ADAMS Search." For problems with ADAMS, please contact the NRC's Public Document Room (PDR) reference staff at 1-800-397-4209, 301-415-4737, or by email to [pdr.resource@nrc.gov](mailto:pdr.resource@nrc.gov). The ADAMS accession number for each document referenced in this document (if that document is available in ADAMS) is provided at the end of this document.

- *NRC's PDR:* You may examine and purchase copies of public documents at the NRC's PDR, Room O1-F21, One White Flint North, 11555 Rockville Pike, Rockville, Maryland 20852.

**FOR FURTHER INFORMATION CONTACT:**

Adrian Muñiz, Office of New Reactors, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; telephone: 301-415-4093, email: [Adrian.Muniz@nrc.gov](mailto:Adrian.Muniz@nrc.gov) regarding safety matters; or Mallecia Sutton, at 301-415-0673, email: [Mallecia.Sutton@nrc.gov](mailto:Mallecia.Sutton@nrc.gov) regarding environmental matters.

**SUPPLEMENTARY INFORMATION:**

**I. Introduction**

Under section 2.106 of Title 10 of the *Code of Federal Regulations* (10 CFR), the NRC is providing notice of the issuance of COL NPF-95 to DTE and, under 10 CFR 51.102(c), the Record of Decision (ROD). With respect to the application for the COL filed by DTE, the NRC finds that the applicable standards and requirements of the Atomic Energy Act of 1954, as amended,

and the Commission's regulations have been met. The NRC finds that any required notifications to other agencies or bodies have been duly made and that there is reasonable assurance that the facility will be constructed and will operate in conformity with the license, as amended, the provisions of the Act, and the Commission's regulations. Furthermore, the NRC finds that the licensee is technically and financially qualified to engage in the activities authorized, and that issuance of the license will not be inimical to the common defense and security or to the health and safety of the public. Finally, the NRC finds that the findings required by subpart A of 10 CFR part 51 have been made.

Accordingly, the COL was issued on May 1, 2015, and is effective immediately.

**II. Further Information**

The NRC has prepared a Final Safety Evaluation Report (FSER) and Final Environmental Impact Statement (FEIS) that document the information reviewed and NRC's conclusion. The Commission has also issued its Memorandum and Order documenting its final decision on the uncontested hearing held on February 4, 2015, which serves as the Record of Decision ROD in this proceeding. The NRC also prepared a document summarizing the ROD to accompany its action on the COL application that incorporates by reference materials contained in the FEIS. In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," details with respect to this action, including the FSER FEIS, Summary ROD, and accompanying documentation included in the combined license package, as well as the Commission's hearing decision and ROD, are available online in the ADAMS Public Documents collection at <http://www.nrc.gov/reading-rm/adams.html>. From this site, persons can access the NRC's ADAMS, which provides text and image files of NRC's public documents.

The ADAMS accession numbers for the documents related to this notice are:

ML14296A540 .....	"Final Safety Evaluation Report for Combined Licenses for Enrico Fermi Unit 3".
ML12307A172, ML12307A176, ML12307A177, and ML12347A202.	NUREG-2105, "Final Environmental Impact Statement for the Combined License for Enrico Fermi Unit 3".
ML14308A337 .....	DTE COL Application—Revision 8 of the application.
ML15120A040 .....	Commission's Memorandum and Order on the uncontested hearing (Record of Decision).
ML15120A221 .....	Summary of the Record of Decision.
ML15084A160 .....	Combined License No. NPF-95.



Dated at Rockville, Maryland, this 1st day of May 2014.

For the Nuclear Regulatory Commission.

**Mark Delligatti,**

*Deputy Director, Division of New Reactor Licensing, Office of New Reactors.*

[FR Doc. 2015-11038 Filed 5-6-15; 8:45 am]

**BILLING CODE 7590-01-P**

## NUCLEAR REGULATORY COMMISSION

[NRC-2015-0048]

### Compliance With Phase 2 of Order EA-13-109

**AGENCY:** Nuclear Regulatory Commission.

**ACTION:** Interim staff guidance; issuance.

**SUMMARY:** The U.S. Nuclear Regulatory Commission (NRC) is issuing its Japan Lessons-Learned Division Interim Staff Guidance (JLD-ISG), JLD-ISG-2015-01, "Compliance with Phase 2 of Order EA-13-109, Order Modifying Licenses with Regard to Reliable Hardened Containment Vents Capable of Operation under Severe Accident Conditions." This ISG provides guidance and clarifies the Phase 2 requirements in the order to assist the licensees that have Boiling Water Reactors (BWRs) with Mark I and Mark II Containments in the design and implementation of either a vent path from the containment drywell or a strategy that makes it unlikely that venting would be needed from the drywell before alternate reliable containment heat removal and pressure control is reestablished. This ISG also endorses, with clarifications, the industry guidance contained in Nuclear Energy Institute (NEI) 13-02, "Industry Guidance for Compliance with Order EA-13-109," Revision 1.

**ADDRESSES:** Please refer to Docket ID NRC-2015-0048 when contacting the NRC about the availability of information regarding this document. You may obtain publicly-available information related to this document by using any of the following methods:

- *Federal Rulemaking Web site:* Go to <http://www.regulations.gov> and search for Docket ID NRC-2015-0048. Address questions about NRC dockets to Carol Gallagher; telephone: 301-415-3463; email: [Carol.Gallagher@nrc.gov](mailto:Carol.Gallagher@nrc.gov). For technical questions, contact the individual listed in the **FOR FURTHER INFORMATION CONTACT** section of this document.

- *NRC's Agencywide Documents Access and Management System (ADAMS):* You may obtain publicly-available documents online in the

ADAMS Public Documents collection at <http://www.nrc.gov/reading-rm/adams.html>. To begin the search, select "ADAMS Public Documents" and then select "Begin Web-based ADAMS Search." For problems with ADAMS, please contact the NRC's Public Document Room (PDR) reference staff at 1-800-397-4209, 301-415-4737, or by email to [pdr.resource@nrc.gov](mailto:pdr.resource@nrc.gov). The ADAMS accession number for each document referenced (if it available in ADAMS) is provided the first time that a document is referenced. The JLD-ISG-2015-01 is available in ADAMS under Accession No. ML15104A118. The ISG for complying with Phase 1 requirements of the order (JLD-ISG-2013-02) was issued on November 14, 2013 (ADAMS Accession No. ML13304B836). The NEI 13-02, Revision 1 is available in ADAMS under Accession No. ML15113B318.

- *NRC's PDR:* You may examine and purchase copies of public documents at the NRC's PDR, Room O1-F21, One White Flint North, 11555 Rockville Pike, Rockville, Maryland 20852.

- *NRC's Interim Staff Guidance Web site:* JLD-ISG documents are also available online under the "Japan Lessons Learned" heading at <http://www.nrc.gov/reading-rm/doc-collections/isg/japan-lessons-learned.html>.

#### FOR FURTHER INFORMATION CONTACT:

Rajender Auluck, Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; telephone: 301-415-1025; email: [Rajender.Auluck@nrc.gov](mailto:Rajender.Auluck@nrc.gov).

**SUPPLEMENTARY INFORMATION:** The NRC developed JLD-ISG-2015-01 to provide guidance and clarification to assist nuclear power reactor licensees with the identification of methods needed to comply with Phase 2 requirements in Order EA-13-109 (ADAMS Accession No. ML13130A067), "Order Modifying Licenses with Regard to Reliable Hardened Containment Vents Capable of Operation under Severe Accident Conditions." This ISG is not a substitute for the requirements in Order EA-13-109, and compliance with the ISG would not be a requirement.

The accident at the Fukushima Dai-ichi nuclear power station reinforced the importance of reliable operation of containment vents for BWR plants with Mark I and Mark II containments. As part of its response to the lessons learned from the accident, on March 12, 2012, the NRC issued Order EA-12-050 (ADAMS Accession No. ML12056A043) requiring licensees to upgrade or install a reliable hardened containment venting system (HCVS) for Mark I and Mark II

containments. While developing the requirements for Order EA-12-050, the NRC acknowledged that questions remained about maintaining containment integrity and limiting the release of radioactive materials if licensees used the venting systems during severe accident conditions.

The NRC staff on November 26, 2012, presented the Commission with options to address these issues in SECY-12-0157, "Consideration of Additional Requirements for Containment Venting Systems for Boiling Water Reactors with Mark I and Mark II Containments" (ADAMS Accession No. ML12325A704). In the staff requirements memorandum (SRM) for SECY-12-0157, dated March 19, 2013 (ADAMS Accession No. ML13078A017), the Commission directed the staff to: (1) Issue a modification to Order EA-12-050 requiring BWR licensees with Mark I and Mark II containments to upgrade or replace the reliable hardened vents required by Order EA-12-050 with a containment venting system designed and installed to remain functional during severe accident conditions, and (2) develop a technical basis and rulemaking for filtering strategies with drywell filtration and severe accident management of BWR Mark I and II containments. The NRC subsequently issued Order EA-13-109 to define requirements and schedules for licensees for BWRs with Mark I and Mark II containments to install severe accident capable containment venting systems.

In recognition of the relative importance of venting capabilities from the wetwell and drywell, a phased approach to implementation is being used to minimize delays in implementing the requirements originally imposed by Order EA-12-050. Phase 1 involves upgrading the venting capabilities from the containment wetwell to provide reliable, severe accident capable hardened vents to assist in preventing core damage and, if necessary, to provide venting capability during severe accident conditions. Phase 2 involves providing additional protection during severe accident conditions through installation of a reliable, severe accident capable drywell vent system or the development of a reliable containment venting strategy that makes it unlikely that a licensee would need to vent from the containment drywell during severe accident conditions. For implementation of Phase 1 order requirements, the NRC issued JLD-ISG-2013-02 on November 14, 2013 (78 FR 70356), which endorsed, with exceptions and clarifications, the

# DTE Energy®



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*Detroit Edison*

## Fermi 3 Combined License Application

## Part 3: Environmental Report

Revision 2  
February 2011

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## Chapter 1 Introduction

Environmental Reports (ERs) are documents submitted to the Nuclear Regulatory Commission (NRC) by a license applicant to aid the NRC in complying with Section 102(2) of the National Environmental Policy Act (NEPA). This ER is submitted as Part 3 of the Application for a Combined License (COLA) for a new nuclear power plant at the Detroit Edison Enrico Fermi Atomic Power Plant (Fermi) site in Monroe County, Michigan in compliance with the requirements contained within 10 CFR 52, Subpart C, for Combined Licenses.

This report was prepared in accordance with the guidance provided in NUREG-1555, "Standard Review Plans for Environmental Reviews for Nuclear Power Plants" and Regulatory Guide 4.2, Revision 2, "Preparation of Environmental Reports for Nuclear Power Stations." The organization and format of this report follows the general format guidelines specified by NUREG-1555, as follows:

- [Chapter 1:](#) Introduction
- [Chapter 2:](#) Environmental Description
- [Chapter 3:](#) Plant Description
- [Chapter 4:](#) Environmental Impacts of Construction
- [Chapter 5:](#) Environmental Impacts of Station Operations
- [Chapter 6:](#) Environmental Measurement and Monitoring Programs
- [Chapter 7:](#) Environmental Impacts of Postulated Accidents Involving Radioactive Materials
- [Chapter 8:](#) Need for Power
- [Chapter 9:](#) Alternatives to the Proposed Action
- [Chapter 10:](#) Environmental Consequences of the Proposed Action

Chapter 1 provides a brief introductory description of the proposed project and the site location and identification of the applicant ([Section 1.1](#)). This Chapter also identifies and assesses environmentally related authorizations required by Federal, State, regional, local, and affected Native American tribal agencies as a prerequisite to plant licensing and construction ([Section 1.2](#)).

### 1.1 The Proposed Project

Detroit Edison (the Applicant) proposes to construct and operate a new nuclear power plant at the Fermi site. The proposed unit is to be designated as Fermi 3. Federal action resulting in the issuance of a Combined License (COL) by the Nuclear Regulatory Commission under 10 CFR 52, Subpart C, "Combined Licenses for Nuclear Power Plants" is anticipated.



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## Purpose

The purpose of the project is fourfold:

1. Generate at least  $1535 \pm 50$  megawatts (MW) of electricity for sale that will reliably aid in satisfying the forecasted energy and capacity needs of Detroit Edison customers located in the Detroit Edison Service Territory;
2. Provide new baseload electric generation capacity as early as 2021 to compensate for the expected retirement of existing, aging baseload generating units and diminishing availability of the Midwest Independent Service Operator regions baseload generation capacity;
3. Provide price stability by minimizing reliance on imported power into the Detroit Edison service territory; and
4. Utilize an electric generation technology that is less subject to price fluctuations resulting from either fuel or regulatory drivers, provides fuel diversity, and reduces reliance on fossil fuel and their attendant environmental impacts.

The above purpose is in-line with Detroit Edison's mission to provide reliable and affordable electrical power.

## Need

Construction of a new electric generating facility is needed to provide reliable, affordable power to address Michigan's expected future peak electric demand.

Chapter 8 of the Environmental Report provides detailed discussion outlining the need for power and the related benefits to be generated by the proposed facility. The need for power was assessed by balancing the current and forecasted demand against the current and forecasted supply, while demonstrating that an adequate reserve margin is maintained. Reference [Chapter 8](#) and [Chapter 9](#) for a complete description of:

- [Section 8.1](#) – Description of the power system, an overview of the pertinent service area, and a discussion of regional relationships;
- [Section 8.2](#) – Description of the analysis performed to determine current and forecasted energy needs in the State of Michigan;
- [Section 8.3](#) – Description of the analysis performed to determine energy supply resources;
- [Section 8.4](#) – Description of the assessment of the need for power; and
- [Section 9.1](#) – Description of the no-action alternative.

The need for power assessment is derived from the Michigan 21<sup>st</sup> Century Electric Energy Plan (Plan). The Plan was prepared and issued by the Michigan Public Service Commission pursuant to Executive Directive No. 2006-02. The Plan reached several significant conclusions including:

- Michigan's peak electric demand is forecasted to grow at approximately 1.2 percent per year for the next 20 years;
- There is a need for additional electric generating resources in order to preserve electric reliability and provide affordable energy over the next 20 years. This modeling outcome is confirmed even in the presence of increased use of energy efficiency and renewable resources;
- The projected electric demand will not be satisfied through the expansion of transmission nor access to external markets; and
- There is need for regulated baseload capacity to prevent natural gas prices from driving up wholesale costs and market prices for an increasing number of hours each year.

The above conclusions were based upon key factors such as the current age of baseload units and newer electric generating units' reliance on natural gas. As indicated above, the Plan concluded that the State of Michigan has a current need for new baseload capacity and the need is projected to increase. Michigan's current baseload generating units are an average of more than 48 years old. The average age of Detroit Edison's coal-fired generation units is 44 years old. The last new baseload plant in the State of Michigan began commercial operation more than 18 years ago. The assessment assumes that older, less efficient units, totaling 3755 MW of capacity, will be retired by 2025.

Further, new baseload electric production is needed due to the fact that recently constructed electric generation units in Michigan have been limited to natural gas-fired facilities. Natural gas-fired units currently represent approximately 29 percent of Michigan's generating capacity. Dependence upon natural gas-fired units has exposed Michigan to volatile electricity prices driven by fluctuating fuel market prices.

#### 1.1.1 Ownership and Applicant

The Applicant applying for a COL for the proposed nuclear power plant at the Fermi site is the Detroit Edison Company, a wholly owned subsidiary of DTE Energy, and is the owner of the proposed project. Detroit Edison is the licensed operator of the existing Fermi 2 nuclear power plant and will be responsible for construction and operation of the proposed project. Detroit Edison is the proposed licensee.

#### 1.1.2 Site Location

The proposed location of the new nuclear power plant is the existing Fermi site. The Fermi site, the area within the Fermi property boundary, consists of approximately 1260 acres in eastern Monroe County, Michigan. The Fermi site is situated along the western shoreline of Lake Erie. It is approximately 24 miles northeast of Toledo, Ohio, 30 miles southwest of Detroit, Michigan, and 7 miles from the United States/Canada international border. [Figure 2.1-3](#) and [Figure 2.1-4](#) provide illustrations of the Fermi site. [Figure 2.1-3](#) illustrates the property boundary that encompasses the approximately 1260 acres comprising the Fermi site. [Figure 2.1-4](#) illustrates the Fermi 3 site plan.

### 1.1.3 Reactor Information

The Applicant proposes to construct and operate an ESBWR designed by GE-Hitachi Nuclear Energy Americas, LLC (GEH) at the Fermi site in Monroe County, Michigan. According to the ESBWR Design Control Document (DCD), the reactor has a rated core thermal power of 4500 megawatts thermal (MWt) and a gross electrical output of approximately  $1605 \pm 50$  megawatts electric (MWe). The reactor's standard net estimated electrical power output is approximately 1535 MWe (Reference 1.1-1). The NRC accepted the ESBWR Design Certification Application for review in a letter dated December 1, 2005 and expects review of the Application to continue through 2010 (Reference 1.1-2).

### 1.1.4 Cooling System Information

As discussed in Chapter 3, the GEH ESBWR reactor design proposes to dissipate waste heat from the Main Condenser and transfers this heat to the Normal Power Heat Sink (NPHS). The Fermi 3 NPHS consists of a hyperbolic natural draft cooling tower. The Auxiliary Heat Sink consists of mechanical draft cooling towers.

The Fermi Station Water System (SWS) provides the necessary makeup water for the cooling systems utilized by Fermi 3 from Lake Erie. The SWS withdraws water via an intake bay formed by two rock groins extending into Lake Erie.

Cooling tower blowdown water is discharged to Lake Erie through a new wastewater discharge outfall located in Lake Erie.

### 1.1.5 Transmission System Information

#### Onsite

A new transmission corridor has been identified on the Fermi site. This new transmission corridor will be approximately 170 feet wide and will include two sets of towers carrying both rerouted 345 kV lines serving Fermi 2 and the new 345 kV lines serving Fermi 3. The new transmission lines are needed to transmit power from the Fermi 3 generator to the Fermi 3 switchyard at the intersection of Toll Road and Fermi Drive. Onsite 120 kV support for Fermi 2 will be routed underground along the disturbed Fermi Drive corridor.

The two 345 kV transmission lines exiting the Fermi 2 switchyard are owned by ITC *Transmission*; however, the two 345 kV transmission lines to leave the Fermi 3 Power Plant are to be owned by Detroit Edison up to the proposed new Fermi 3 switchyard. Detroit Edison will continue to own the land on the Fermi site housing the new transmission corridor, but expects to contract with ITC *Transmission* to maintain these transmission lines and towers.

#### Offsite

The International Transmission Company (ITC *Transmission*) proposes to service the Fermi 3 station through the installation of three new 345 kV transmission lines from the Fermi site to the Milan Substation. The new lines for Fermi 3 will run in a common corridor with transmission lines for Fermi 2, to a point just east of I-75. From the intersection of this Fermi site corridor and I-75, the

three Fermi-Milan lines will run west and north for approximately 12 miles in a corridor shared with other non-Fermi lines. From this point, all non-Fermi lines turn north and continue on to their respective destinations and the three Fermi-Milan lines will continue west through an estimated 300-foot corridor for approximately 10 miles to the Milan substation. The ITC *Transmission* system transfers power from power plants to local distribution systems. The ITC *Transmission* system also carries power resulting from transfers from power plants to loads across the Eastern Interconnection. The 345 kV transmission system and associated corridors including the proposed route for Fermi 3 are exclusively owned and operated by ITC *Transmission*. The Applicant has no control over the construction or operation of the transmission system. The interconnection point is between Fermi 3 and the switchyard. It is assumed that the Milan Substation may also be expanded from its current size of 350 by 500 feet to an area approximately 1,000 by 1,000 feet to accommodate the three new transmission lines from Fermi 3. ([Reference 1.1-3](#))

#### 1.1.6 Proposed Action and Constraints

The action proposed by the applicant is the construction and operation of a new nuclear power unit on the Fermi site. The 10 CFR 52 licensing process is being followed to obtain a combined license. The combined licensing process includes Design Certification for the ESBWR by the NRC. The Applicant has not identified any constraints to the review process at the time of submittal of this application. Prior to commencement of construction, numerous other permits and approvals are required from Federal, State and local agencies. The permits and approvals required for the construction and operation of a new unit are discussed in [Section 1.2](#). During the permitting processes, opportunities are provided for public participation.

Detroit Edison undertook statistical analysis at the county and Census Block Group level and concluded that the areas near the Fermi site do not qualify as low income or minority areas according to the standard definitions adopted for environmental justice evaluations. Detroit Edison has also had discussions with Monroe County officials and citizens confirming these conclusions and indicating their belief that there are no environmental justice or subsistence living concerns. Given the lack of populations qualifying as low income or minority near the Fermi site and the input from citizens and county officials, no discussions have been held beyond those summarized here. Additional information on low income and minority populations is provided in [Subsection 2.5.4](#), [Subsection 4.4.3](#), and [Subsection 5.8.3](#).

#### 1.1.7 Major Activity Start and Completion Dates

The Applicant seeks a COL permitting the construction and operation of a new facility at any time during the lifetime of the license. Subject to required regulatory approvals and a decision to build, the following are estimated dates related to construction and operation of Fermi 3:

First Structural Concrete: December 2013

Pre-Operational Testing: December 2018

Fuel Load: June 2019

Commercial Operation: June 2020

### 3.7 Power Transmission System

The Fermi 3 switchyard will be connected to the International Transmission Company (ITC*Transmission*) system by three 345 kV transmission lines. This new switchyard will be separate from the 345 kV and 120 kV switchyards feeding Fermi 2. The ITC*Transmission* system transfers power from power plants to local distribution systems. The ITC*Transmission* system also carries power resulting from transfers from power plants to loads across the Eastern Interconnection. ([Reference 3.7-1](#)) The 345 kV transmission system and associated corridors including the proposed route for Fermi 3 will be owned and operated by ITC*Transmission*. The applicant has no control over the construction or operation of the transmission system. The interconnection point is between Fermi 3 and the switchyard.

ITC*Transmission* operates within the Midwest Independent System Operator (Midwest ISO) regional reliability area, a Federal Energy Regulatory Commission (FERC) -approved regional transmission organization. As part of the Midwest ISO interconnection process, various studies and analyses are performed including feasibility and system impact studies. For the ITC*Transmission* service area, the Midwest ISO typically has ITC*Transmission* perform the studies and analyses. As part of these work activities, the Midwest ISO and ITC*Transmission* determine necessary upgrades to the transmission system. This process has been followed for the proposed connection of Fermi 3 to the ITC*Transmission* system.

ITC*Transmission* follows the applicable regulatory processes and approvals in order to implement changes to the transmission system. As discussed above, the interconnection studies are performed by ITC*Transmission*, including determining the routing for these new transmission lines. As part of this process, Detroit Edison is not involved in the evaluation or decision making for proposed changes to the transmission system or possible design. Accordingly, Detroit Edison cannot reasonably provide the transmission system detailed design information considered by ITC*Transmission*.

#### 3.7.1 Power Transmission System Configuration

The output of Fermi 3 will be delivered to the switchyard through the unit main step-up transformers as described in [FSAR Section 8.2](#) and [Section 8.3](#). Fermi 3 will be connected to the switchyard by two overhead conductor circuits, one—the normal preferred power supply—feeds the unit's two unit auxiliary transformers (UAT) and the other—the alternate preferred power supply—feeds the unit's two reserve auxiliary transformers (RAT). The switchyard will be connected to ITC*Transmission* by three 345 kV transmission lines which are in turn connected to the Milan substation.

#### 3.7.2 Design Parameters

Three new transmission lines and a separate switchyard will be needed for Fermi 3 per System Impact Study Report (MISO G867) performed by ITC*Transmission* ([Reference 3.7-1](#)). This study evaluated the connection of an additional 1563 MW to the system at the Fermi site. The new transmission lines and switchyard will be designed to prevent a common failure mode for all reasonable, postulated hazards. Without the new transmission lines, the study indicates that the full output of Fermi 3 contributes to post contingency overloads on the system, most notably at the

points of interconnection on the 345 kV, 230 kV, and 120 kV portions of the system. The study also finds if Fermi 2 and Fermi 3 have switchyards tied together, that unstable conditions may arise. In addition to the new transmission lines and switchyard, upgrades to existing transmission (and possibly subtransmission) lines will be needed to facilitate the new generation on the system.

Transmission line and switchyard design will meet or exceed the requirements established in the National Electrical Safety Code (NESC) ([Reference 3.7-2](#)), which provides rules for electrical safety, electrical clearances, structural design loadings, and material strength factors. Modifications to the existing system will comply with relevant local, state, and industry standards including NESC and various American National Standards Institute/Institute of Electrical and Electronic Engineers, Inc. standards. The standards include the rules in Sections 23, 25, and 26 of the NESC.

### 3.7.3 Construction Methods

The Fermi 3 switchyard will be located approximately 3000 ft. to the west of the Fermi 3 reactor, and will be separate from the existing 345 kV and 120 kV switchyards utilized by Fermi 2.

The new transmission lines from the Fermi 3 switchyard will be 345 kV lines and will be located in existing corridors to the Milan substation.

The study performed by ITC *Transmission* indicated the use of towers, steel poles and/or combinations of these structures will be used in the construction of the new transmission lines. ([Reference 3.7-1](#)) The three 345 kV lines for Fermi 3 will run in a common corridor, with transmission lines for Fermi 2, to a point just east of I-75. From the intersection of this Fermi site corridor and I-75, the three Fermi-Milan lines will run west and north for approximately 12 miles in a corridor shared with other non-Fermi lines. From this point, all non-Fermi lines turn north and continue on to their respective destinations and the three Fermi-Milan lines will continue west for approximately 10 miles to the Milan substation.

### 3.7.4 Transmission Line Noise

There are two categories of electrical noise effects of power transmission lines: corona effect caused by electrical stresses at the conductor surface resulting in air ionization noise, and field effects caused by induction to objects in proximity to the conductors. The audible noise produced by corona effect and ground level electric field effect are the primary concerns.

Audible noise is typically at its maximum during or following rain or during fog. The maximum noise level is kept below the level which would result in a number of complaints (approximately 52.5 dB(A) per [Reference 3.7-3](#)) through the use of typical design standards to properly size conductors and specify corona-free hardware.

Ground level electric field effects of overhead power transmission lines relate to the possibility of exposure to electric discharges from objects in the line's field. The likely range of maximum vertical electric field is 4-6 kV/m ([Reference 3.7-3](#)) for a 345 kV transmission line.



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### 3.7.5 References

- 3.7-1 ITC *Transmission*, "System Impact Study Report (MISO G867)," Generation Interconnection in Monroe County, MI, July 21, 2008.
- 3.7-2 National Electric Safety Code, Institute of Electrical and Electronic Engineers, Inc., 2007.
- 3.7-3 Fink, D.G., and H.W. Beaty, eds., "Standard Handbook for Electrical Engineers," 13<sup>th</sup> ed., McGraw-Hill, New York, 1993.

#### 4.1.1.4 Site Restoration and Management Actions

Preventive measures implemented to reduce construction activity impacts would be targeted toward erosion control, controlled access roads for personnel and vehicular traffic, and restricted construction zones. The site preparation work would be completed in two stages, the first of which would consist of stripping, excavating, and backfilling the areas needed for structures and roadways. The second stage would entail developing the site with the necessary facilities to support construction, such as construction offices, warehouses, trackwork, large unloading facilities, water wells, construction power, construction drainage, and similar facilities. In addition, temporary structures would be razed and holes would be filled. Grading and drainage work would be designed and executed with the goal of avoiding and minimizing erosion during the construction period.

The Fermi 3 site surface and subsurface features would be stabilized and restored in accordance with permit requirements and conditions after completion of construction activities. Disturbed areas would be restored consistent with existing and native vegetation. A Site Redress Plan that addresses site restoration is not required for Fermi 3 because Detroit Edison will not seek a safety-related Limited Work Authorization (LWA-2) permit. Permanently disturbed locations would be stabilized and contoured to blend with the surrounding area in accordance with design specifications. Revegetation of disturbed areas would be compliant with site maintenance and safety requirements, and stabilization and restoration methods would comply with applicable laws, regulations, permit requirements and conditions, good engineering and construction practices, and recognized environmental best management practices.

#### 4.1.2 Transmission Corridors and Offsite Areas

As stated in NUREG-1555, Section 4.1.2:

In some cases transmission lines may be constructed and operated by an entity other than the applicant. In such cases, impact information may be limited and the reviewer should proceed with the assessment using the information that can be obtained.

The 345 kV transmission system and associated corridors are exclusively owned and operated by ITC*Transmission*. The Applicant has no control over the construction or operation of the transmission system. Accordingly, the construction impacts are based on publicly available information, and reasonable expectations of the configurations and practices that ITC*Transmission* would likely follow based on standard industry practice. However, the information described in this subsection does not imply commitments made by ITC*Transmission* or Detroit Edison, unless specifically noted.

As discussed in [Subsection 2.2.2](#), three new 345 kV transmission lines are proposed to serve Fermi 3. A study completed by ITC*Transmission* and Midwest ISO concluded that the existing transmission system from Fermi to the electric grid would need additional lines to sufficiently transport power produced at Fermi 3 without overloading the transmission system in the Fermi area.



### Onsite

The approximate route and impact areas associated with the short length of new transmission corridor that would be constructed within the Fermi site is shown on [Figure 2.1-4](#) and described in [Subsection 2.2.2.2](#).

In the onsite portion of the 345 kV transmission corridor, the Fermi 2 transmission lines are owned by *ITCTransmission*, while the Fermi 3 transmission lines will be owned by Detroit Edison up to the point of their interconnection with the new Fermi 3 switchyard. Outward from the Fermi 3 switchyard interconnection, *ITCTransmission* will own the lines and other transmission system equipment. Detroit Edison will maintain ownership and control of the land in the new onsite transmission corridor; however, it is expected that Detroit Edison would contract with *ITCTransmission* to maintain the transmission towers and lines located on Detroit Edison property.

Construction of the Fermi 3 switchyard, clearing of the onsite transmission line ROW, construction of the transmission towers, and stringing of the transmission lines will all be accomplished using methods that minimize impacts to wetlands and forest vegetation. The drainage area within this portion of the Fermi site will be spanned by the transmission lines; however, impacts to the drainage area are expected to be minimal because construction activities associated with the transmission structure installation are not expected to occur within the drainage area. The Fermi 3 switchyard will be constructed in the prairie restoration area at the intersection of Fermi Drive and Toll Road. The switchyard will permanently convert approximately 10 acres of the DRIWR from restored native grass vegetation to a developed use. The onsite transmission corridor will convert approximately an additional 6 acres of the DRIWR from woodlot forest, forested wetlands, and thicket to a developed use.

The onsite transmission line ROW and associated access pathways will have a combined temporary and permanent impact of approximately 8 acres (approximately 5.7 acres of permanent impacts to forested areas, and approximately 2.3 acres of temporary impacts to scrub-shrub and emergent wetland vegetation near the drainage area). Within the 4.7 acre forested area of the ROW near Toll Road, there will be approximately 1.53 acres of permanent impact to a forested wetland. Impacts to wetlands will be minimized as much as possible in this area through placement of the transmission line ROW adjacent to the Toll Road ROW so that the narrowest possible portion of the forested wetland would be impacted. Complete avoidance of wetland impacts in this area was not practicable because of the need for transmission lines to travel from the Fermi 3 power block to the Fermi 3 switchyard without impacting existing structures or other areas required for Fermi 3 construction (refer to [Figure 2.1-4](#)).

During construction of the transmission system, forest clearing will be limited to the 170-foot wide ROW to minimize impacts to existing vegetation and wildlife habitat. To the extent feasible, the transmission towers will be placed in locations outside forested areas and outside the central portion of the drainage area so that inundation of the transmission structures with water would be less likely. The drainage area holds water at varying levels depending on the amount of recent precipitation in the surrounding area and any seiche events that may occur in Lake Erie. The temporary access pathways to the transmission tower locations will approach the towers from both

the southeast and northwest directions so equipment will not cross the drainage area. During construction, when these temporary access pathways to the transmission tower locations are used, matting will be laid over the pathways as necessary to minimize impacts to underlying emergent wetland vegetation (largely phragmites and cattails). Transmission lines will also be strung onto the towers without equipment crossing the drainage. When construction within the area is complete, the matting will be removed and the area will be allowed to recover. The areas around the towers will be revegetated through seeding or natural regrowth.

Each of the eight transmission towers outside the forested areas along the onsite transmission corridor would temporarily impact an approximately 0.2 acre area around the tower to accommodate construction vehicles and activities. The permanent impact for each tower along the route would be approximately 0.03 acre to accommodate the tower and foundation locations.

Refer to [Subsections 4.4.1.1](#) and [4.4.2.4.5](#) for descriptions of construction-related noise and visual impacts on the Fermi site.

Preventive measures implemented to reduce onsite transmission corridor construction impacts would be targeted toward erosion control, minimizing the chances of spills, minimizing temporary access pathway impacts, and restricting construction within forested and wetland areas, near the drainage area, and around each transmission tower.

Transmission tower foundation excavation work and other construction activities will be designed and executed using Best Management Practices (BMPs) with the goal of avoiding and minimizing erosion. The Soil Erosion and Sedimentation Control Plan for Fermi 3 construction activities will be implemented throughout construction on all areas of the site, including the onsite transmission line corridor. Spill prevention, control, and response measures will also be implemented as part of the Pollution Incident Prevention Plan (PIPP) for Fermi 3.

Disturbed areas will be restored consistent with existing and native vegetation as soon as practical after completion of construction in each area of the transmission corridor. Revegetation of disturbed forest areas would be compliant with site maintenance and ITC *Transmission* safety standards, and stabilization and restoration methods would comply with applicable laws, regulations, permit requirements and conditions, good engineering and construction practices, and recognized environmental best management practices.

In light of the measures described above that will be taken to avoid and minimize impacts from construction of the onsite transmission corridor, impacts to land use on the Fermi site are expected to be minimal.

#### Offsite

Land use impacts resulting from the construction of the new 345 kV transmission lines are expected to be SMALL because the 29.4-mile route would use 18.6 miles of an established and developed portion running along a combination of corridors already used for transmission structures and lines, and would convert a short (10.8-mile) tract of an established and undeveloped section, along the route to the Milan Substation, previously characterized for utility use. Assuming a nominal 300-foot

width along the entire proposed transmission corridor, a total of approximately 1069 acres could potentially be disturbed for construction activities. Laydown and other areas potentially located outside the corridors may be defined by ITC *Transmission* at a time closer to construction of the lines. Existing roads are expected to be used for access and construction traffic as much as possible, and no new access roads would be anticipated because the topography of the area is flat.

The land use impacts of construction along the proposed 345 kV transmission route are expected to be minimized by the use of existing corridors and adjacent areas, line design, and inspection and maintenance policies. Impacts to land use should be reversible, as the structures could be removed and the corridors could be restored to native vegetation or farmland at the end of the useful life of the transmission system. Agricultural activities may be allowed to continue during operation of the line, as described in [Subsection 5.1.2](#).

Impacts of adding transmission lines in existing transmission line corridors are generally minimal. The use of available existing rights-of-way (ROW) for the new route rather than the use of a route that would convert open space to transmission use is typically the approach selected, which serves to minimize environmental impacts of new transmission development. Construction work within the assumed 300-foot wide ROW area along the undeveloped 10.8 mile portion of the route nearest to the Milan Substation is expected to be monitored by ITC *Transmission* to ensure SMALL land use impacts.

It is likely that any additionally required ROWs would be purchased, and the land then leased to the original owners at a nominal fee for productive use such as farming. Accordingly, it is anticipated that only the land around the tower bases (approximately 25 feet on each side) would be lost from productive use. The corridor areas under construction may be fenced to prevent other land uses during the construction period. New access roads should not be necessary, and existing road infrastructure is expected to be used as much as possible to access the new route. Construction of the new transmission route may result in the following potential impacts to land use:

- vegetation removal and brush piles
- soil disturbance and erosion, and
- damage to culverts, driveways, and roadways.

Land use impacts from constructing the new transmission lines are anticipated to be SMALL due to the placement of the new transmission lines and structures largely through land already used or planned for transmission and utility use. There could be impacts to forest, agricultural lands, wetlands and streams, residences, undeveloped land, and recreational uses within the assumed 300-foot corridor ROW. These construction impacts are expected to be alleviated to the extent practicable through the use of environmental stewardship, best management and industry practices, and conformance with applicable laws and regulations pertaining to ground-disturbing activities, such as forest and wetlands protection and stormwater controls. Based on the description in [Subsection 2.2.2](#), the transmission corridors are expected to have SMALL impacts on urban areas, state parks, and federally regulated wetland areas. The new transmission route does not cross federal lands. The land use for 0.5 miles around all transmission corridors, including the

newly developed portion, is shown on [Figure 2.2-3](#). On the figure, the new section and the 0.5-mile area around it are outlined in blue to distinguish the newly developed lines from the previously developed lines serving Fermi.

Construction practices used for construction of the new transmission lines to Milan Substation are expected to comply with, or use practices that go beyond, the requirements of local, State, and Federal environmental regulations. It is also anticipated that the best environmental practices would be observed, including continual and responsible management of wastes and chemicals to prevent and avoid pollution. It is expected that the use of chemicals and creation of wastes would be minimized as much as possible during transmission line work ([Reference 4.1-4](#)).

After completion of construction, the transmission corridor is anticipated to be restored using the following or similar techniques:

- Land restoration including disking, fertilizing, seeding, and installing erosion control devices (filter fences, hay or straw bales, mulch).
- Cleanup and proper disposal of construction debris.
- Property damage repaired to its original condition and to landowner satisfaction.

The Fermi 3 switchyard will be separate from the Fermi 2 switchyard. The location of the Fermi 3 switchyard is shown on [Figure 2.1-4](#).

It is expected that many new towers and/or steel poles will be needed to support the three new 345 kV transmission lines to Milan Substation along the 10.8-mile portion of the route where there are no existing structures. Methods of new tower/steel pole construction and conductoring are expected to be in accordance with ITC *Transmission* construction standards, as well as applicable regulatory and industry standards.

Approximate acreages of land use categories located within 0.5-mile of the 345 kV transmission corridors (established and undeveloped) are reported in [Table 2.2-6](#). Land use impacts of construction are expected to be mitigated within the assumed 300-foot wide corridor, through the use of existing access roads, implementation of measures in the associated SESC Plan and PIPP, use of best management practices, consultation with landowners along the route, and adherence to all applicable Federal, State, and local laws and regulations governing the construction of transmission lines.

Overall, transmission construction impacts to land use in the vicinity of Fermi 3 and the new transmission route are expected to be SMALL because of the use of existing and maintained corridors already dedicated to transmission use and the short-term nature of construction impacts typically seen along the corridor. Land uses present in the assumed ROW area before clearing would be restored in large part after construction completion. Examples of the preventive measures that may be implemented are limiting construction work to the assumed 300-foot wide ROW area, placing gravel on access roads as needed and using existing access roads to the degree possible, establishing vegetation cover in disturbed areas, limiting machinery access points to reduce erosion, compensation for farmers with land damaged by the corridor work, and use of

measures similar to those used in the associated SESC Plan and PIPP to avoid erosion, siltation, and potential spills.

#### 4.1.2.1 Planning and Zoning

The new transmission route travels through and is compatible with the land use planning and zoning designations for Monroe, Wayne, and Washtenaw Counties, as described in [Subsection 2.2.2](#).

Along its 29.4-mile length, the new transmission route will cross mostly areas that are used for agriculture, open space, and some rural residential properties, as well as various sized pockets of forested land. The new transmission lines will be constructed in areas where electrical infrastructure may be viewed as an acceptable use and where transmission use complies with local planning policies. During the planning process for the new transmission lines, county and city offices are expected to be contacted by ITC *Transmission* to determine necessary measures for compliance to zoning and planning regulations or guidance in place at that time for each county, township, or city that the route crosses.


Construction work for the new transmission route to the Milan Substation will occur largely outside the boundaries of the Fermi site. The new lines will impact mostly agricultural and forested land along the route. It is probable that adjacent farmland could continue to be used as pasture and cropland, with possible short-term, temporary disruptions of use to the portions of croplands closest to the transmission corridors during the construction work. These areas would be able to revert to agricultural use after transmission line construction is completed. Forested and other areas along the newly developed 10.8 mile portion of the corridor could be cleared to accommodate the assumed 300-foot width of the ROW. This area comprises approximately 160 acres of the 393 acres potentially affected along the newly developed 10.8 mile portion of the route, which is considered to be a minor impact in accordance with the guidance in NUREG-1555, Section 4.1.1. Therefore, the construction of transmission lines to serve Fermi 3 is expected to have a SMALL, temporary impact on agriculture in the vicinity.

Potential control actions during construction that could restrict land use along the new transmission route may include fencing the area where work is being performed. Signs indicating the presence of high voltage transmission lines may be posted along the fenced area to alert the public to electrical safety hazards that could be caused by contact with the lines.

#### 4.1.2.2 Transportation and Rights-of-Way

Because of its length, the new transmission route will cross multiple road and railroad intersections as well as traverse a number of previously established transmission corridors and could have minor impacts on road traffic flow during the construction period. Rail traffic is less likely to be affected because of its periodic nature. Impacts will be minimal, localized, and temporary because affected intersections and transmission corridors would be used as normal after transmission line construction is completed. [Subsection 2.2.2](#) describes some of the features crossed by the new transmission line.



United States Nuclear Regulatory Commission Official Hearing Exhibit	
In the Matter of:	DETROIT EDISON COMPANY (Fernald Nuclear Power Plant, Unit 1)
USCA Case #15-1178 Document #1661055	
	ASLBP #: 09-880-05-COL-BD01
	Docket #: 05200033
	Exhibit #: DTE000088-00-BD01
	Admitted: 10/30/2013
	Rejected: Other:
Identified: 10/30/2013 Withdrawn: Stricken:	

4/30/2013

July 13, 2010

Mr. Russell J. Bell, Director  
New Plant Licensing  
Nuclear Generation Division  
Nuclear Energy Institute  
1776 I Street, NW, Suite 400  
Washington, DC 20006-3708

SUBJECT: FINAL SAFETY EVALUATION FOR TECHNICAL REPORT NEI 06-14,  
"QUALITY ASSURANCE PROGRAM DESCRIPTION," REVISION 9

Dear Mr. Bell:

By letter dated February 19, 2010, the Nuclear Energy Institute (NEI) submitted Revision 8 to NEI 06-14 for staff review and approval. NEI 06-14 provides a Quality Assurance Program Description (QAPD) template for applicants of 10 CFR Part 52 permits or licenses to use in meeting the requirements of 10 CFR Parts 50 and 52. Revision 8 to NEI 06-14 was submitted to the U.S. Regulatory Commission (NRC) to address NRC comments made during a public meeting on December 11, 2009 and to provide an acceptable alternative for a commitment to Regulatory Guide (RG) 1.33, "Quality Assurance Program Requirements (Operation)," Revision 2, February 1978, in the QAPD. The NRC staff reviewed NEI 06-14, Revision 8, in accordance with the provisions of Section 17.5, "Quality Assurance Program Description-Design Certification, Early Site Permit and New License Applicants," of NUREG 0800, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants."

Based on the results of its review, the NRC staff held another public meeting on NEI 06-14 on April 27, 2010. The purpose of the meeting was to discuss the proposed changes to the QAPD template and its compliance with the applicable quality assurance requirements for the operations phase. By letter dated May 12, 2010, NEI submitted NEI 06-14, Revision 9, that incorporates NEI responses to NRC staff comments on NEI 06-14, Revision 8, provided in the April 27, 2010, public meeting.

The Quality and Vendor Branches have reviewed the NEI submittal and supporting documentation. On the basis of its review, the staff concludes that the QAPD template can be used by applicants of 10 CFR Part 52 permits or licenses, as applicable, for establishing a quality assurance program that complies with Appendix B to Title 10 of the *Code of Federal Regulations* 10 CFR Part 50 requirements.

4/30/2013

R. J. Bell

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When an applicant submits the QAPD as part of a licensing request, the staff will review applicant-specific information substituted for the bracketed text in NEI 06-14 to determine if the applicant adequately followed the guidance provided in the QAPD template and has established the necessary controls to comply with the applicable requirements of Appendix B to 10 CFR Part 50, consistent with the criteria contained in SRP Section 17.5. Key areas that an applicant is required to address include:

- The organizational description addressed in Part II, Section 1 of NEI 06-14.
- Record retention criteria addressed in Part II, Section 17.1 of NEI 06-14.
- Regulatory commitments addressed in Part IV of NEI 06-14.

To ensure all quality assurance requirements for the operations phase are addressed, an applicant must either demonstrate that its QAPD has incorporated all of the administrative controls not included in ASME NQA-1-1994, "Quality Assurance Requirements for Nuclear Facility Applications," by explicitly addressing the provisions in NEI 06-14, Revision 9, Attachment 4, or otherwise by including a commitment to RG 1.33 in Part IV of the QAPD.

Enclosed is the NRC staff's SER which defines the basis for acceptance of NEI 06-14, Revision 9. The NRC staff finds that for COL applications, NEI 06-14, Revision 9, provides an acceptable template for describing a quality assurance program.

Our acceptance applies only to material provided in NEI 06-14, Revision 9. We do not intend to repeat our review of the acceptable material described in the NEI 06-14, Revision 9. When NEI 06-14, Revision 9 appears as a reference in COL applications, our review will ensure that the material presented applies to the specific application involved. Licensing requests that deviate from NEI 06-14, Revision 9, will be subject to a plant-specific or site-specific review in accordance with applicable review standards.

In accordance with the guidance provided on the NRC website, we request that NEI publish the accepted version of NEI 06-14A, Revision 2 within 3 months of receipt of this letter. The accepted version should incorporate this letter and the enclosed SER. The accepted version should also contain historical review information, including NRC RAs and your responses. The accepted versions shall include a "-A" (designating accepted) following the report identification symbol.

If future changes to the NRC's regulatory requirements affect the acceptability of NEI 06-14A, NEI will be expected to revise NEI 06-14A appropriately, or justify its continued applicability for subsequent referencing.

R. J. Bell

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If you have any questions, please contact Sheryl A. Burrows at (301) 415-6086 or via email at [Sheryl.Burrows@nrc.gov](mailto:Sheryl.Burrows@nrc.gov).

Sincerely,

**/RA/**

William F. Burton, Chief  
Rulemaking and Guidance Development Branch  
Division of New Reactor Licensing  
Office of New Reactors

Project No. 689

Enclosure:  
Safety Evaluation Report

cc w/encl: See next page



R. J. Bell

-3-

If you have any questions, please contact Sheryl A. Burrows at (301) 415-6086 or via email at [Sheryl.Burrows@nrc.gov](mailto:Sheryl.Burrows@nrc.gov).

Sincerely,

/RA/

William F. Burton, Chief  
Rulemaking and Guidance Development Branch  
Division of New Reactor Licensing  
Office of New Reactors

Project No. 689

Enclosure:  
Safety Evaluation Report  
cc w/encl: See next page

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NRO-002

OFFICE	PM:DNRL/NRGA	LA:DNRL/NRGA	DCIP/CQVA	DCIP/CQVA
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DATE	6/30/10	6/30/10	6/30/10	6/30/10
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4/30/2013

SAFETY EVALUATION BY THE OFFICE OF NEW REACTORSTECHNICAL REPORT NEI-06-14,"QUALITY ASSURANCE PROGRAM DESCRIPTION" REVISION 91. INTRODUCTION

By letter dated October 19, 2006 (Ref. 1), the Nuclear Energy Institute (NEI) submitted an industry quality assurance program description (QAPD) template for review and approval by the U.S. Nuclear Regulatory Commission (NRC) staff. In its letter dated January 7, 2007, NEI revised the QAPD template in technical report NEI 06-14, "Quality Assurance Program Description," that provides a generic template for use by early site permit (ESP) and combined license (COL) applicants to implement NRC regulatory requirements related to quality assurance (QA) programs. NEI 06-14 is based on ASME NQA-1-1994, "Quality Assurance Requirements for Nuclear Facility Applications," as supplemented by quality assurance and administrative control requirements specific to the operations phase. NEI 06-14 provides a common format for applicants when making commitments to comply with Title 10 of the *Code of Federal Regulations* (10 CFR), Part 50, Appendix B, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants," (Appendix B), and 10 CFR Part 52 requirements.

The QAPD template was initially released in May 2008 as NEI 06-14A, Revision 0, the 'A' denoting NRC staff approval as documented by NRC safety evaluation dated April 25, 2007 (Ref. 4). Subsequent to issuance of NEI 06-14A, NEI submitted NEI 06-14, Revision 5 by letter dated May 7, 2008 (Ref. 9), to address generic QA program issues that had been identified during NRC staff review of COL applications. By letter dated June 24, 2008, NEI submitted NEI 06-14, Revision 7 (Ref. 12) and incorporated NEI responses to NRC Requests for Additional Information (RAI) dated April 30, 2009 (Ref. 10), and September 17, 2008 (Ref. 7). The NRC staff approved the use of NEI 06-14, Revision 7, in the safety evaluation dated September 16, 2009 (Ref. 13).

In response to the public meeting held on December 11, 2009, NEI submitted Revision 8, by letter dated February 19, 2010 (Ref. 14), to incorporate changes necessary to address operational conditions in accordance with American National Standards Institute (ANSI) N18.7-1976, "Administrative Controls and Quality Assurance for the Operational Phase of Nuclear Power Plants" and Regulatory Guide (RG) 1.33 "Quality Assurance Program Requirements (Operation)," Revision 2, February 1978. By letter dated May 12, 2010 (Ref. 17), NEI submitted NEI 06-14, Revision 9, that incorporates NEI responses to NRC staff comments on NEI 06-14 provided in a public meeting conducted on April 27, 2010. This safety evaluation report documents the basis for the NRC staff's acceptance of NEI 06-14, Revision 9, as an acceptable basis for developing a QAPD that meets Appendix B to 10 CFR Part 50 requirements.

2. BACKGROUND

The QAPD template provides guidance for establishing a top-level policy document that defines Quality Assurance (QA) policy and assigns major QA program functional responsibilities. This QAPD template can be used for ESP, COL, construction, preoperational and/or operation activities, as applicable, affecting the quality and performance of safety-related SSCs.

The QAPD template includes brackets throughout the document to allow for user-specific text for statements that are scope dependent; are not applicable to COL applications with an approved ESP, or are applicable only to ESP applications. In addition, the QAPD template uses brackets to provide guidance to users on how to address areas that are specific to the application. Brackets are also used to provide the user with different alternatives that satisfy Appendix B to 10 CFR Part 50 requirements.

When an applicant submits the QAPD as part of a licensing request, the staff will review applicant-specific information substituted for the bracketed text in NEI 06-14 to determine if the applicant has established the necessary controls to comply with the applicable requirements of Appendix B to 10 CFR Part 50, consistent with the criteria contained in SRP Section 17.5.

### 3. DISCUSSION AND EVALUATION

#### 3.1 REGULATORY EVALUATION

The Commission's regulatory requirements related to quality assurance programs are set forth in Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, Appendix B, Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants." Appendix B establishes QA requirements for the design, fabrication, construction, and testing of the structures, systems and components (SSCs) of the facility. The pertinent requirements of Appendix B apply to all activities affecting the safety-related functions of those SSCs and include designing, purchasing, fabricating, handling, shipping, storing, cleaning, erecting, installing, inspecting, testing, operating, maintaining, repairing, refueling, and modifying.

10 CFR Part 52, Section 52.79 establishes the technical information requirements for COL applications. Section 52.79(a)(25) requires that COL applications provide a description of the QA program applied to the design, and to be applied to the fabrication, construction, and testing of the SSCs of the facility. Further, 10 CFR 52.79(a)(25) requires that the description of the QA program include a discussion of how the applicable requirements of Appendix B have been and will be satisfied, and also include a discussion of how the QA program will be implemented.

10 CFR Part 52, Section 52.17 establishes the technical information requirements for ESP applications. Section 52.17(a)(1)(xi) requires that ESP applications provide a description of the QA program applied to site-related activities for the future design, fabrication, construction, and testing of the SSCs of a facility or facilities that may be constructed on the site.

Finally, 10 CFR 52.79(a)(27) requires that the application contain information on the managerial and administrative controls to be used to assure safe operation consistent with Appendix B to 10 CFR Part 50 requirements and to include a discussion of how such requirements will be satisfied.

#### 3.2 EVALUATION

In evaluating the adequacy of the QAPD template, the staff followed SRP 17.5 (Ref. 5), which provides guidance to NRC staff for evaluating QA program descriptions submitted under 10 CFR Part 52. SRP 17.5 is based on ASME NQA-1-1994; Regulatory Guide (RG) 1.8, "Qualification and Training of Personnel for Nuclear Power Plants," Revision 3; RG 1.28, "Quality Assurance Program Requirements (Design and Construction)," Revision 3; and RG 1.33, "Quality Assurance Program Requirements (Operation), Revision 2." An evaluation of conformance with these regulatory guides is included in Part IV of the QAPD template.

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### 3.2.1 Organizational Description

The QAPD template provides guidance for applicants to describe functional responsibilities and position descriptions during the construction, preoperational and operations phases, as well as characterizing control and transitions between phases.

In addition, the QAPD template commits an applicant using it to the QA standards described in NQA-1-1994, Basic Requirement 1 and Supplement 1S-1.

Information in Part II, Section 1 of NEI 06-14, Revision 9, is applicant-specific and will be reviewed and approved by the NRC staff on a case-by-case basis.

### 3.2.2 Record Retention Criteria

The NRC staff will evaluate the adequacy of records retention times as applicant-specific information when an ESP or COL applicant submits their application. Regulatory position C.2 of RG 1.28, Revision 3 provides record retention times for lifetime and nonpermanent records. The QAPD template provides guidance to ESP and COL applicants to base record retention times on Regulatory Position C.2 and Table 1 of Regulatory Guide 1.28, Revision 3 or by including their specific table in the QAPD.

The QAPD template commits an applicant using it to complying with the quality standards described in NQA-1-1994, Basic Requirement 17 and Supplement 17S-1, with the following clarification and exception:

- As an alternative to the NQA-1-1994, Supplement 17S-1, Section 4.2(b), requirements for records to be firmly attached in binders or placed in folders or envelopes for storage in steel file cabinets or on shelving in containers, the QAPD template proposes that hard records be stored in steel cabinets or on shelving in containers, except that methods other than binders, folders, or envelopes may be used to organize records for storage. In a previous safety evaluation (Ref. 13), the staff determined that this proposed alternative is acceptable.

### 3.2.3 Regulatory Commitments

Commitments to NRC regulatory guides (RGs) identified in COL and ESP applications are listed in Chapter 1 of the Final Safety Analysis Report (FSAR). An applicant must specifically evaluate conformance to the following RGs related to an applicant's QA program. These RGs are typically identified in Chapter 1 of the FSAR and their inclusion is consistent with RG 1.206, section C.I.1.9:

- RG 1.8, Revision 3, "Qualification and Training of Personnel for Nuclear Power Plants," issued May 2000.
- RG 1.26, Revision 4, "Quality Group Classification and Standards for Water-, Steam-, and Radioactive-Waste-Containing Components of Nuclear Power Plants," issued March 2007.
- RG 1.28, Revision 3, "Quality Assurance Program Requirements (Design and Construction)," issued August 1985.

- RG 1.29, Revision 4, "Seismic Design Classification," issued March 2007.
- RG 1.33, Revision 2, "Quality Assurance Program Requirements (Operations)," issued February 1978. (Exception to RG 1.33 see Section 3.2.3.1 of SER)
- RG 1.37, Revision 1, "Quality Assurance Requirements for Cleaning of Fluid Systems and Associated Components of Water-Cooled Nuclear Power Plants" issued March 2007.

Applicants using the template must address conformance to the RGs identified in Part IV of the QAPD template, in the bracketed text, by either including a commitment to the regulatory guides or by providing an alternative or exception to be reviewed for adequacy by the NRC staff. The NRC staff will review the adequacy of commitments to these RGs on an applicant-specific basis.

#### 3.2.3.1 Alternative for Commitment to RG 1.33

RG 1.33, Revision 2, conditionally endorses ANSI N18.7-1976 as an acceptable method to the NRC staff for complying with the Commission's regulations with regard to the overall quality assurance program requirements for the operation phase of nuclear power plants. ANSI N18.7-1976 provisions for administrative controls during the operation phase of nuclear power plants are addressed in Part V of the NEI 06-14, Revision 9. Therefore, in order to satisfy Appendix B to Part 50 requirements during the operations phase, an applicant using the template must demonstrate that its QAPD has incorporated all of the administrative controls not included in NQA-1-1994 by either of the following methods:

- Explicitly addressing the provisions in NEI 06-14, Revision 9, Attachment 4 (Ref. 15), while also completing Part V of the QAPD template or,
- Including an explicit commitment to RG 1.33 in Part IV of the QAPD.

The NRC staff will review the adequacy of alternatives for commitment to RG 1.33 on an applicant-specific basis.

#### 4. CONCLUSION

Based on its review of NEI 06-14, Revision 9, in accordance with the guidance of SRP 17.5, the NRC staff concludes that the QAPD template provides an acceptable format and adequate guidance for establishing a QA program that complies with Appendix B to 10 CFR Part 50. The QAPD template is based on ASME NQA-1-1994, as supplemented by additional regulatory guidance and industry guidance applicable to administrative and quality controls during nuclear power plant operation. Accordingly, the staff concludes that the QAPD template can be used, by applicants of 10 CFR Part 52 permits or licenses, as applicable, for establishing a QA program description required by the provisions of 10 CFR 52.17(a)(1)(xi) for an ESP application and 10 CFR 52.79(a)(25) for a COL application.

When an applicant submits the QAPD as part of a licensing request, the staff will review applicant-specific information substituted for the bracketed text in NEI 06-14 to determine if the applicant adequately followed the guidance provided in the QAPD template and has established the necessary controls to comply with the applicable requirements of Appendix B to 10 CFR

Part 50, consistent with the acceptance criteria contained in SRP Section 17.5. Key areas that an applicant is required to address include:

- The organizational description addressed in Part II, Section 1 of NEI 06-14.
- Record retention criteria addressed in Part II, Section 17.1 of NEI 06-14.
- Regulatory commitments addressed in Part IV of NEI 06-14.

To ensure all quality assurance requirements for the operations phase are addressed, an applicant must either demonstrate that its QAPD has incorporated all of the administrative controls not included in NQA-1-1994 by explicitly addressing the provisions in NEI 06-14, Revision 9, Attachment 4 (Ref. 15), or otherwise by including a commitment to RG 1.33 in Part IV of the QAPD.

## 5. REFERENCES

1. Heymer, A. P., Nuclear Energy Institute, to the U.S. NRC, "NEI Technical Report on Template for an Industry Quality Program Description," October 19, 2006. (ADAMS Accession No. ML062990149)
2. Heymer, A. P., Nuclear Energy Institute, to the U.S. NRC, "NEI Technical Report 06-14, *Template for an Industry Quality Program Description*, Request for Additional Information (RAI) Responses," January 4, 2007. (ADAMS Accession No.: ML070470234)
3. Heymer, A. P., Nuclear Energy Institute, to the U.S. NRC, "NEI Technical Report 06-14, *Template for an Industry Quality Program Description*, Revision 3," February 13, 2007. (ADAMS Accession No: ML070600650)
4. U.S. NRC, Office of New Reactors, Final Safety Evaluation for Technical Report NEI 06-14, "Quality Assurance Program Description," April 25, 2007. (ADAMS Accession No. ML070510300)
5. NUREG-0800, "Standard Review Plan," Section 17.5, "Quality Assurance Program Description—Design Certification, Early Site Permit and New License Applicants," March 2007. (ADAMS Accession No. ML06310019)
6. Bell, R. J., Nuclear Energy Institute, to the U.S. NRC, "NEI Technical Report 06-14, *Quality Assurance Program Description*, Revision 5," May 7, 2008. (ADAMS Accession No. ML081350560)
7. U.S. NRC, Office of New Reactors, to the NEI, "Request for Additional Information Regarding Nuclear Energy Institute Technical Report 06-14A, Quality Assurance Program Description, Revision 5," dated September 17, 2008, (ML0824607713,) and enclosure: Request for Additional Information Regarding the Nuclear Energy Institute Quality Assurance Program Description Topical Report No. NEI-06-14A, Revision 5. (ADAMS Accession No.: ML0824607831)
8. Bell, R. J., Nuclear Energy Institute, to the U.S. NRC, "Response to September 17, 2008, Request for Additional Information on NEI 06-14A, Revision 5, "Quality Assurance Program Description," and "Revised NEI 06-14A for NRC Endorsement," dated



4/30/2013

November 14, 2008. (ADAMS Accession No.: ML083380308)

9. Bell, R. J., Nuclear Energy Institute, to the U.S. NRC, "Supplemental Response to NRC's September 17, 2008, Request for Additional Information on NEI 06-14A, *Quality Assurance Program Description*, Revision 5," November 20, 2008. (ADAMS Accession No. ML083380335)
10. U.S. NRC, Office of New Reactors, to the NEI, "Supplemental Request for Additional Information Regarding Nuclear Energy Institute Technical Report 06-14A, *Quality Assurance Program Description*, Revision 6," dated April 30, 2009. (ADAMS Accession No. ML091140483)
11. Bell, R. J., Nuclear Energy Institute, to the U.S. NRC, "Response to April 30, 2009 Request for Additional Information on NEI 06-14A, Revision 6, *Quality Assurance Program Description*," dated June 12, 2009, (ADAMS Accession No. ML091800447) and enclosure: NEI response to NRC's Request for Additional Information Regarding the Nuclear Energy Institute *Quality Assurance Program Description* Topical Report No.: NEI-06-14A, Revision 5. (ADAMS Accession No.: ML091800448)
12. Bell, R. J., Nuclear Energy Institute, to the U.S. NRC, "Submittal of NEI 06-14, Revision 7, *Quality Assurance Program Description*," dated June 24, 2009.
13. U.S. NRC, Office of New Reactors, Safety Evaluation of NEI 06-14, "Quality Assurance Program Description," Revision 7, September 16, 2009. (ADAMS Accession No.: ML092390016)
14. Bell, R. J., Nuclear Energy Institute, to the U.S. NRC, "Submittal of NEI 06-14, Revision 8, *Quality Assurance Program Description*," dated February 19, 2010.
15. Bell, R. J., Nuclear Energy Institute, to the U.S. NRC, "Submittal of NEI 06-14, Revision 8, *Quality Assurance Program Description*," dated February 19, 2010.  
Attachment 4: Table of where RG 1.33 and ANSI N18.7-1976 requirements are addressed by NQA-1-1994 and/or NEI 06-14
16. U.S. NRC, Office of New Reactors, December 12, 2010 Summary of Meeting with Industry to Discuss Technical Report 06-14 "*Quality Assurance Program Description*" January 13, 2010: (ADAMS Accession No. ML100130690)
17. Bell, R. J., Nuclear Energy Institute, to the U.S. NRC, "Submittal of NEI 06-14, Revision 9, *Quality Assurance Program Description*," dated May 12, 2010.
18. U.S. NRC, Office of New Reactors, April 27, 2010 Summary of Meeting with Industry to Discuss Technical Report 06-14 "*Quality Assurance Program Description*" May 10, 2010. (ADAMS Accession No.: ML101270249)

Exhibit NRC S23

April 30, 2013

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of	)	
	)	
DTE ELECTRIC COMPANY	)	Docket No. 52-033-COL
	)	
(Fermi Nuclear Power Plant, Unit 3)	)	

WRITTEN DIRECT TESTIMONY OF GEORGE A. LIPSCOMB  
CONCERNING THE STAFF'S REVIEW OF THE FERMI 3  
QUALITY ASSURANCE PROGRAM  
AS IT RELATES TO CONTENTION 15

**Q1. Please state your name, occupation, and by whom you are employed.**

A1. My name is George A. Lipscomb. I am an electrical engineer with the Office of New Reactors (NRO) at the US Nuclear Regulatory Commission (NRC). In my current position, I am primarily a Quality Assurance (QA) inspector, but also have technical reviewer responsibilities, both supporting the activities of the Construction Electrical Vendor Branch (CEVB) in the Division of Construction Inspection and Operational Programs (DCIP). The CEVB organization and its predecessor organizations, Quality and Vendor Branch A (CQVA) and Quality and Vendor Branch B (CQVB), support NRC Combined License Application (COLA) QA reviews and inspections to verify applicant compliance with regulatory requirements. A statement of my professional qualifications is attached hereto as Exhibit NRC S17.

**Q2. Please describe your responsibilities in relation to this review.**

A2. I have served in several capacities related to the QA review of the Fermi 3 application. I was the lead technical reviewer for Chapter 17.5 of the Fermi 3 COLA Final Safety Analysis



Report (FSAR). I was an inspection team member of the August 2009 QA implementation inspection of DTE Electric Company (DTE of Applicant) in Detroit, Michigan. Finally, I was also an inspection team member of the September 2010 vendor inspection of Black & Veatch (B&V) in Overland Park, Kansas.

**Q3. Please describe your professional qualifications as they relate to this review.**

A3. I have participated in QA review activities on two COL applications in the past four years—one full COL application as the lead reviewer and one acceptance review. I have also reviewed multiple industry or NRC regulatory guidance technical documents in my capacity as a technical reviewer during the same period. Currently, I am the lead technical reviewer on a first-of-a-kind industry software commercial-grade dedication (CGD) guide that is being considered for NRC endorsement.

Prior to my employment at the NRC, I managed multiple U.S. Navy aviation QA programs as an operational squadron QA officer and as a training squadron safety department head. Both positions required inspection and maintenance of QA standards and programs.

**Q4. What is the purpose of this testimony?**

A4. The purpose of this testimony is to provide a summary of the Staff's activities related to resolution of the issues presented in Contention 15. These include (1) review of the Fermi 3 combined license application (COLA); (2) resolution of QA violations cited following a Staff inspection of DTE in August 2009; (3) resolution of Requests for Additional Information regarding the QA programs in place during COLA development; and (4) inspection of DTE's contractor B&V.

**Q5. Are you familiar with Contention 15?**

A5. Yes.

**Q6. Are you familiar with the materials filed by the Intervenor in connection with Contention 15?**

A6. Yes.

**Q7. Are you familiar with the Applicant's QA programs as related to Contention 15?**

A7. As the technical reviewer for Section 17.5 in Chapter 17 of the Staff SER, I am familiar with the Applicant's Quality Assurance Program Description (QAPD) in the Fermi 3 COLA and with the Nuclear Development Quality Assurance Program Description (ND QAPD) that was in place prior to submittal of the Fermi 3 COLA. In that capacity and in my capacity as a QA inspector, I am also familiar with the Applicant's responses to Staff Notices of Violation (NOVs) and Requests for Additional Information (RAIs), as described in the exhibits listed below.

**Q8. What documents did you rely on in preparing this testimony?**

A8. I relied on the following documents in preparing this testimony:

- Exhibit NRC S1 – Chapter 17 of the Advanced Safety Evaluation Report (SER) With No Open Items (Oct. 17, 2011), ADAMS Accession No. ML112630120.
- Exhibit NRC S2 – NRC Inspection Report 05200033/2009-201 and Notice of Violation (Oct. 5, 2009) (October 2009 NOV), ADAMS Accession No. ML092740064.
- Exhibit NRC S3 – Detroit Edison Reply to a Notice of Violation 05200033/2009-201-01, 02, and 03 (Nov. 9, 2009) (Reply to October 2009 NOV), ADAMS Accession No. ML093160318.
- Exhibit NRC S4 – NRC Response to Detroit Edison Reply to a Notice of Violation 05200033/2009-201-01, 02, and 03 and Revised Notice of Violation to Detroit Edison Company (Apr. 27, 2010) (April 2010 NOV), ADAMS Accession No. ML100330687.
- Exhibit NRC S5 – Detroit Edison Company Reply to Notice of Violation 05200033/2009-201-04 (May 26, 2010) (Reply to April 2010 NOV), ADAMS Accession No. ML101480046.
- Exhibit NRC S6 – Nuclear Regulatory Commission Inspection Report 05200033/2009-201 and Revised Notice of Violation to Detroit Edison Company (June 4, 2010) (DTE NOV Closure Letter), ADAMS Accession No. ML101530596.

- Exhibit NRC S7 – Detroit Edison Company Response to NRC Request for Additional Information Letter No. 26, Related to SRP Section 17.5 (May 10, 2010) (May 2010 RAI Responses), ADAMS Accession No. ML101320254.
- Exhibit NRC S8 – Letter from Mark S. Lesser, Division of Construction Inspection, NRC, to Douglas R. Gipson, DTE, Audit of Combined License Pre-Application Subsurface Investigation Activities at Fermi (Project No. 757) (Aug. 8, 2007) (2007 B&V Audit Report), ADAMS Accession No. ML072210911.
- Exhibit NRC S9 – NRC Inspection Report No. 99901391/2010-201 and Notice of Violation (Oct. 14, 2010) (2010 B&V Inspection Report), ADAMS Accession No. ML102790137.
- Exhibit NRC S10 – NRC Inspection Report No. 99901391/2010-201 and Notice of Violation (Dec. 17, 2010) 2010 B&V (2010 B&V Inspection Letter), ADAMS Accession No. ML103500064.
- Exhibit NRC S11 – Standard Review Plan (SRP) for the Review of Safety Analysis Reports for Nuclear Power Plants: LWR Edition (NUREG-0800) (March 2007), Section 17.5, ADAMS Accession No. ML063190019.
- Exhibit NRC S12 – Final Safety Evaluation for Technical Report NEI 06-14, “Quality Assurance Program Description,” Revision 9 (July 13, 2010) (SER for NEI 06-14), ADAMS Accession No. ML101800497.
- Exhibit NRC S13 – NEI 06-14A [Revision 7], “Quality Assurance Program Description” (August 2010), ADAMS Accession No. ML102370305.
- Exhibit NRC S14 – NRC Enforcement Policy (Jan. 28, 2013), pp. 8-11, ADAMS Accession No. ML12340A295.

The first three of these exhibits were introduced into the record of this proceeding by other witnesses. I hereby introduce the remaining documents, Exhibits NRC S4 through S14, into the record of this proceeding.

**Q9. What regulations govern QA in a COL application?**

A9. The NRC’s regulations governing QA are found in Appendix B of 10 C.F.R. Part 50. 10 C.F.R. § 52.79(a)(25) requires a COL applicant to include a description of its QA program, including how the program complies with Appendix B, in its COLA.

**Q10. Is there applicable QA guidance available for applicants preparing their applications and for Staff in conducting its review?**

A10. Regulatory Guide 1.206, Combined License Applications for Nuclear Power Plants (LWR Edition),” section C.I.17.5, “Quality Assurance Program Guidance,” provides applicants with information on how to prepare the portions of their application related to QA. The primary guidance for Staff reviewers evaluating an applicant’s QAPD is found in the Section 17.5 of the Standard Review Plan (SRP), which is attached hereto as Exhibit NRC S11. In addition, the Staff has approved Technical Report NEI 06-14A, Revision 7, as an acceptable template for a COL applicant’s QA program. The Staff’s safety evaluation of NEI 06-14 and the current approved version designated NEI 06-14A, Revision 7, are attached hereto as Exhibits NRC S12 and S13.

**Q11. Please say more about the relevance of NEI 06-14 to the Staff QA review of COL applications.**

A11. The Nuclear Energy Institute (NEI) is a nuclear energy industry organization. One of its activities is to develop proposed guidance that it considers adequate for nuclear power plant licensees and license applicants to meet NRC regulations. On some topics, this guidance includes specific “template” language that can be included in a license application. The Staff evaluates NEI templates to determine if applications based on those templates would meet applicable NRC regulations. Staff safety evaluations of NEI templates are found in their own SERs, separate from the SERs prepared in specific licensing cases. Once accepted by the NRC Staff, NEI templates have the status of guidance and represent an NRC-endorsed method an applicant may use to demonstrate compliance with applicable NRC regulations. As discussed below, NEI 06-14 has been accepted by the NRC Staff for use by COL applicants.

**Q12. Are there other steps in the Staff review?**

A12. Once the Staff has received a COL application and accepted it for docketing, the Staff formulates questions about the application's content and submits them to the applicant in the form of Requests for Additional Information (RAIs). The applicant responds to RAIs in writing, on the docket of the proceeding, and if necessary includes proposals for changing the COLA to address Staff concerns. The Staff may also conduct inspections and audits of an applicant or its contractors if it wishes to inspect items not on the docket of the proceeding in addition to items formally submitted to the NRC.

**Q13. Where is the Staff's QA review for the Fermi 3 COL application documented?**

A13. The NRC Staff review of Chapter 17.5 of the Fermi 3 COLA FSAR provides an assessment of the Fermi 3 QA program, including the QA program that is applicable during the design, construction, and operations phases of a nuclear power plant, and is documented in Chapter 17 of the Staff's Safety Evaluation Report (SER) dated October 17, 2011 (Exhibit NRC S1).

**Q14. What was the Staff's conclusion about the Fermi 3 QA program?**

A14. Section 17.5.4.22 of the Staff's SER draws the following conclusions. First, for activities prior to September 18, 2008 (the date the Fermi 3 COLA was submitted to the NRC), "the applicant has provided adequate assurance that the requirements of Appendix B have been met for safety-related activities supporting the Fermi 3 COL application." Second, for activities after September 18, 2008, "the applicant has provided adequate assurance that the Fermi 3 project has met the requirements of Appendix B." Finally, the Applicant has adequately resolved all NRC Staff Chapter 17.5 RAIs.

**Q15. Does the Staff agree with the intervenors that the Fermi 3 QA program is insufficient to “govern the design, construction, and operation of Fermi Unit 3 in conformity with all relevant NRC regulations”?**

A15. No. As described below, the Staff has found the Applicant’s QA program to be in compliance with Appendix B of 10 C.F.R. Part 50 and has determined that all QA implementation issues are resolved.

**Q16. Please describe how this testimony is organized.**

A16. The following testimony is organized in four categories. My responses to Questions 17-18 address the Staff’s review of the QA program in the Fermi 3 COLA. My responses to Questions 19-24 address the Staff’s August 2009 inspection of the Applicant, the violations for which the Applicant was cited, and related follow-up. My response to Question 25 addresses QA issues prior to September 18, 2008, that were resolved through the RAI process. Finally, my responses to Questions 26-27 address audits and inspections of the Applicant’s contractor B&V.

**Q17. How was the Staff’s review of the QA program in the Fermi 3 application conducted?**

A17. The Staff’s review of the QA program was conducted as outlined in Section 17.5.4 of the SER (Exhibit NRC S1), which describes the NRC guidance used for reviewing the Fermi 3 COLA FSAR, Chapter 17.5. The Staff followed the guidance of NUREG-0800 Section 17.5 (Exhibit NRC S11), the Standard Review Plan (SRP) for QA Program Descriptions (QAPDs) submitted by applicants. As described in the SER, the Staff developed the guidance in Section 17.5 of the SRP using American Society of Mechanical Engineers (ASME) NQA-1–1994, “Quality Assurance Requirements for Nuclear Facility Applications,” supplemented by additional regulatory and industry guidance for nuclear operating facilities. ASME NQA-1 is a well

established consensus industry QA standard that provides detailed instructions to applicants on how to meet higher-level regulatory requirements.

Chapter 17.5 of the Fermi FSAR states that the Fermi 3 QAPD is based on NEI 06-14, commonly referred to as the "NEI QA Template." The Staff specifically compared the Fermi 3 QAPD against NRC Staff-endorsed versions of NEI 06-14, which are indicated by the use of an '-A' designation in the template title (e.g., NEI 06-14A). During the period of the Fermi 3 FSAR review and related inspections, NEI 06-14 was also being updated by NEI and reviewed by the Staff. The Staff's safety review of the revised version of NEI 06-14 and the most recent NRC-endorsed version of the template itself, designated NEI 06-14A, Revision 7, are attached hereto as Exhibits NRC S12 and S13. Both were issued in 2010.

The initial version of the Fermi 3 COLA, submitted in 2008, was based on an earlier version of NEI 06-14, designated NEI 06-14A, Revision 5. The final reviews of the Fermi 3 QAPD used NEI 06-14A, Revision 7, issued in August 2010 (Exhibit NRC S13). Between 2008 and 2010, the Applicant made a number of changes to FSAR Chapter 17.5 in response to Staff RAIs issued to reflect changes to NEI 06-14, and I was responsible for reviewing these changes and ensuring that they were reflected in the Staff evaluation in SER Chapter 17. NEI 06-14A, Revision 7, is the version that the Applicant referenced in its February 2011 updates to the Fermi 3 FSAR and QAPD.

I note that NEI designates the draft version of NEI 06-14A, Revision 7, as NEI 06-14, Revision 9, and the Staff's SER approving the latest version of NEI 06-14 (Exhibit NRC S12) makes reference to Revision 9. This may seem confusing because the revision numbering of the draft does not correspond to the revision numbering of the final, accepted version, i.e., NEI 06-14, Revision 9, corresponds to NEI 06-14A, Revision 7 (Exhibit NRC S13). However, only the final, Staff-endorsed version was used in the Staff evaluation of the Fermi 3 QAPD that is documented in the SER (Exhibit NRC S1).

The NRC Staff reviewed NEI 06-14, Revision 9, following the guidance in SRP Section 17.5 (Exhibit NRC S11). The Staff concluded that the QAPD template in NEI 06-14, Revision 9, provides an acceptable format and adequate guidance for establishing a QA program that complies with Appendix B to 10 C.F.R. Part 50. The QAPD template in NEI 06-14, Revision 9, is based on ASME NQA-1-1994, as supplemented by additional regulatory guidance and industry guidance applicable to administrative and quality controls during nuclear power plant operation. Accordingly, the Staff concluded that the QAPD template in NEI 06-14, Revision 9, can be used by applicants for 10 C.F.R. Part 52 permits or licenses, as applicable, for establishing a QA program description required by relevant sections of that part—10 C.F.R. § 52.79(a)(25) for a COL application. See SER for NEI 06-14, Exhibit NRC S12 at 1. The current accepted version, NEI 06-14A, Revision 7 (Exhibit NRC S13) was released by NEI soon after the Staff's review of the draft was complete.

The NRC Staff reviewed the Fermi 3 QAPD against the acceptance criteria in SRP Section 17.5 and against NEI 06-14A, Revision 7, in the following areas: (1) Organization; (2) Quality Assurance Program; (3) Design Control; (4) Procurement Document Control; (5) Instructions, Procedures, and Drawings; (6) Document Control; (7) Control of Purchased Material, Equipment, and Services; (8) Identification and Control of Materials, Parts, and Components; (9) Control of Special Processes; (10) Inspection; (11) Test Control; (12) Control of Measuring and Test Equipment; (13) Handling, Storage, and Shipping; (14) Inspections, Tests, and Operating Status; (15) Nonconforming Materials, Parts, or Components; (16) Corrective Action; (17) Quality Assurance Records; (18) Quality Assurance Audits; and (19) Non-safety-Related SSC Quality Assurance Control. These areas are specified in the SRP (Exhibit NRC S11) and in NEI 06-14A, Revision 7 (Exhibit NRC S13), and together constitute the elements of a complete QAPD that meets the requirements of Appendix B. As summarized in the SER (Exhibit NRC S1), the Staff concluded that, for each of these areas, the QAPD in the



Fermi 3 Application met all applicable acceptance criteria and therefore complies with NRC regulations.

As discussed in my answer to the questions below, the Staff review of the Applicant's QA program also included resolution of RAIs and of violations identified during a Staff inspection in August 2009. The Staff's resolution of these issues is documented in the Staff SER (Exhibit NRC S1) and in other exhibits I cite below, all of which support the Staff's conclusion that the Fermi 3 QAPD complies with the applicable NRC QA requirements.

**Q18. Is the Staff aware of any other relevant QA programs, in addition to the QAPD in the Fermi 3 Application?**

A18. Yes. Prior to submittal of the Fermi 3 application in September 2008, other QA programs controlled the Applicant's activities for developing the COL application, including with respect to safety-related Fermi 3 site characteristics (i.e. radiological analysis and geotechnical boring). Initially, the Applicant relied on the B&V Appendix B/NQA-1 program, which was used as DTE hired staff and developed the Nuclear Development (ND) QAPD.

As stated in the FSAR, the Applicant created the ND QAPD, issued in February 2008, to provide control of COLA work product receipt and review prior to submittal to the NRC. The Applicant further stated the ND QAPD was developed specifically to control the Applicant's activities at the time (e.g., review of B&V COLA work product), but the Applicant also contractually delegated quality and safety-related services for COL application development to B&V. The Staff determined this arrangement provided for QA control of COLA development activities under the B&V Appendix B/NQA-1 program, and for QA control of work product receipt under the ND QAPD.

The Staff reviewed the ND QAPD during the August 2009 QA implementation inspection and found that it included those elements of an Appendix B QA program that were relevant to

reviewing B&V COLA work product. The ND QAPD is further discussed in my response to Question 25 below.

**Q19. Please describe events leading up to NRC Staff's August 2009 inspection of the Applicant's QA Program.**

A19. In April 2009, I was assigned to the Fermi 3 application review team as a technical reviewer. In the summer of 2009, the NRC Staff realized that it did not have sufficient information to determine what kind of QA program the Applicant had used to control COLA development activities. The Staff review team clarified DTE's use of various QA programs presented in the Fermi 3 FSAR with the Applicant by teleconference, but still wanted more information from the Applicant to determine whether appropriate QA controls had been in place when the COLA was developed.

At the beginning of the Fermi 3 FSAR review, the NRC Staff was familiar with other COL applications which used QA programs for those applicants' existing reactors to control both pre-application activities and activities in the application review phase. In contrast to the approach used by such applicants, the Fermi Applicant informed the Staff that, for the Fermi 3 project, it intended to develop a new QA program for Fermi 3 that was separate from the program in place for Fermi 2. The Staff determined that further clarification of this approach was necessary. The approach proposed by the Applicant was similar to the process an applicant might take who did not have the benefit of an existing QA program (e.g., a "green field" application). However, since the Fermi 3 application was submitted, other applicants have taken this approach and created QA program separation between the proposed new plant and existing fleets. This approach helps ensure that new applications are informed by current regulatory standards and guidance.

After the initial discussions with DTE, the Staff concluded that in addition to issuing RAIs to collect the information needed for a full evaluation of the Fermi 3 QA programs, it would be of

additional licensing benefit to conduct an inspection to assess the effectiveness of DTE control over current and COLA development activity. With approval of NRC Staff management, the licensing and inspection divisions in the NRC Office of New Reactors coordinated to schedule the August 2009 QA inspection at the Applicant's offices in Michigan.

**Q20. What did the inspection team find, and how did your work contribute to the findings?**

A20. I was assigned to the Fermi 3 QA implementation inspection as an inspector and assigned the areas of Procurement Document Control and External Audits. The inspection team included a mix of senior QA inspectors and inspectors specifically assigned to the Fermi 3 application. I submitted my input to the team leader, who incorporated it into the inspection report. The NRC Staff issued the Inspection Report and Notice of Violation (NOV) on October 5, 2009. October 2009 NOV, Exhibit NRC S2.

This October 2009 NOV identified three violations for activities both before and after the date the Fermi 3 COLA was submitted to the NRC. My inspection activities identified deficiencies that, when combined with other inspector-identified deficiencies, resulted in the first of those three violations, NOV 05200033/2009-201-01. This violation cited the Applicant for failure to establish and implement a QA program, and was supported by several examples of programmatic and documentation failures that had occurred prior to the date of application. The Staff also issued two other violations relating to a failure to conduct internal audits and trending of corrective actions.

**Q21. How severe were these violations, and how was the severity level determined?**

A21. All three were designated as Severity Level IV, the level assigned to the least significant violation used in traditional enforcement. The severity level of the three violations was determined by reference to the NRC Enforcement Policy (Exhibit NRC S14), which defines

Severity Level IV as “less serious, but ... of more than minor concern, that resulted in no or relatively inappreciable potential safety or security consequences (e.g., violations that created the potential of more than minor safety or security consequences).” It is similar to a “Green Finding” for licensees falling under the Reactor Oversight Process (ROP) used with operating reactors. A ROP ‘Green Finding’ is a finding of very low safety significance.

The factors the Staff considers when assessing violations are described in the NRC Enforcement Policy (Exhibit NRC S14). They are (a) whether the violation resulted in actual safety or security consequences, (b) whether the violation had potential safety or security consequences, (c) whether the violation impacted the ability of the NRC to perform its regulatory oversight function, and (d) whether the violation involved willfulness.

**Q22. How did the Applicant correct the violations identified by the Staff in the October 2009 NOV?**

A22. The Applicant responded to the Initial NOV by letter dated November 9, 2009 and contested all three violations. Reply to October 2009 NOV, Exhibit NRC S3. DTE contested the violations, in part, because it claimed that (a) some deficiencies were for activities that occurred prior to DTE becoming an applicant, (b) the requirements of Appendix B were not specific enough to show that DTE’s activities were in violation, and (c) the Fermi 3 QAPD was not yet incorporated as a condition of a license.

The review team considered the Applicant’s assertions in consultation with the NRC Office of Enforcement and the Office of the General Counsel late in 2009. The Staff concluded that DTE was correct that an applicant’s actions before it became an applicant were not a proper basis for an NOV. However, the Staff concluded that the Applicant’s objections related to the other two violations were largely unsupported.

The NRC Staff issued a revised NOV by letter to DTE on April 27, 2010. April 2010 NOV, Exhibit NRC S4. The letter stated that, “While Detroit Edison must demonstrate

compliance with Appendix B in order to receive a COL from the Nuclear Regulatory Commission (NRC), the NRC cannot issue a Notice of Violation for actions or omissions occurring before it submitted the Fermi 3 COL application to the NRC.” The revised NOV identified two violations of NRC requirements for activities performed after September 18, 2008, the date on which DTE submitted the Fermi 3 COL application. The first of these replaced the first of the three violations in the October 2009 NOV (see Exhibit NRC S2, Enclosure 1 at 1-2), and cited the Applicant for failure to perform an evaluation of the B&V quality assurance program and adequately document the basis for the qualification of B&V to perform safety-related Fermi 3 COL activities as of September 18, 2008. See April 2010 NOV, Exhibit NRC S4, Enclosure 1 at 1-3. The second combined two previous violations (NOV 05200033/2009-201-02 and -03) into a single violation. Both of these violations were still designated as Severity Level IV. However, the Staff noted that the Applicant had responded to the second violation (which combined the second and third violations in the October 2009 NOV) by conducting an internal audit of its QA program and by performing a trending analysis of its corrective action reports, both of which were required by the Applicant’s QA implementation procedures and cited as missing in the second violation. The Staff stated that no further action regarding the second violation was required. April 2010 NOV, Exhibit NRC S4, Enclosure 1 at 7, 11.

**Q23. How did the Applicant correct the violation in the revised NOV?**

A23. The Applicant responded to the revised NOV by letter dated May 26, 2010. Reply to April 2010 NOV, Exhibit NRC S5. The sole remaining violation at that time related to the Applicant’s failure to perform an evaluation of the B&V QA program and adequately document the basis for qualifying B&V to perform safety-related Fermi 3 activities after September 2008.

The Applicant response included (a) the reason for the violation, (b) the corrective steps taken, and (c) the preventive steps taken to prevent reoccurrence. The Applicant stated in Attachment 1 to this letter that B&V was a qualified Appendix B COLA contractor, as established

through the contracting process. According to the Applicant, B&V's qualifications were further assessed during the Applicant's July 2009 audit of B&V, which confirmed that the safety-related activities performed by B&V prior to July 2009 were completed in accordance with 10 C.F.R. 50 Appendix B requirements.

The Staff reviewed the Applicant's response to several Staff RAIs, in addition to the Applicant's May 2010 letter, to resolve this violation. In RAIs issued to DTE in 2009 and 2010, the Staff specifically sought clarification of issues related to DTE oversight of B&V in various periods, including after September 2008. These RAIs are discussed in more detail in my response to Question 25 below and in the Staff SER. See Exhibit NRC S1 at 17-34.

Two RAIs primarily related to pre-application activities, RAI 17.5-16 and RAI 17.5-19, were relevant to the resolution of the remaining violation in the April 2010 NOV because they provide details of B&V's qualification for safety-related work and the Applicant's control over that work. B&V's qualification and the Applicant's control over its contractor are relevant to both pre-application and post-application activities. The Applicant's response to RAI 17.5-16 includes information specifically related to how B&V was qualified for the Fermi 3 project and how contracting documents established QA controls governing B&V. May 2010 RAI Responses, Exhibit NRC S7, Attach. 1 at 5-7. The response to RAI 17.5-19 clarifies how the Applicant retained responsibility for, and maintained control over those portions of the QA program delegated to other organizations, and specifically identified the responsible organizations and processes used for verifying that the delegated QA functions were implemented effectively. May 2010 RAI Responses, Exhibit NRC S7, Attach. 4 at 6-10. The Staff examined the portions of these RAI responses that related to the remaining violation, together with the Applicant's response to the April 2010 NOV (Exhibit NRC S5), in order to determine whether the Applicant had provided sufficient information to resolve the violation.

The Staff's process for resolving violations cited in NOVs is coordinated by the inspection team leader. This process includes the inspection team members and involves

consultation with other expert NRC personnel as required. The determination of whether the violation is resolved is approved by NRC management. Prior to the release of the final NRC letter related to the inspection on June 4, 2010 (see DTE NOV Closure Letter, Exhibit NRC S6), the Staff conducted multiple meetings to discuss Fermi 3 QA both before and after September 18, 2008. To resolve the remaining violation in the NOV, the Staff examined the Applicant's information related to B&V's qualification for Fermi 3 post-application safety-related work. In the judgment of those involved in the process, the additional information contained in the above-mentioned RAI responses, the Fermi 3 process changes outlined in the response to the April 2010 NOV, and DTE's successful audit of B&V in July 2009 provided sufficient information to show that the Applicant had performed an appropriate evaluation of the B&V QA program and had adequately documented the basis for qualifying B&V to perform safety-related Fermi 3 activities after September 2008. Accordingly, the Staff concluded that (a) the DTE information submitted was responsive to the revised NOV, (b) the implemented corrective actions were appropriate, and (c) the activities cited in the April 2010 NOV are again consistent with the requirements of Appendix B to 10 CFR Part 50.

**Q24. Has the Staff identified any more QA implementation issues related to activities after September 18, 2008, when the Fermi 3 COLA was submitted to the NRC?**

A24. No. The NRC Staff documented the acceptance of the Applicant's responses to the revised NOV in a letter dated June 4, 2010 (Exhibit NRC S6). The NRC considered the Applicant's QA program returned to regulatory compliance upon the Staff's acceptance of the Applicant's response to the last remaining issue in the revised NOV. The NRC Staff has discretion to conduct inspections at any time to verify ongoing regulatory compliance.

As documented in the SER, the Staff has found that the QAPD in the COLA meets NRC regulatory requirements, and all known implementation issues related to that QAPD are resolved. This provides "satisfactory proof of a fully-implemented QA program that will govern

the design, construction, and operation of Fermi Unit 3 in conformity with all relevant NRC regulations,” and claims to the contrary in Contention 15 are without basis.

**Q25. How did the Staff address QA questions related to activities before the COLA was submitted on September 18, 2008?**

A25. As described above, the Staff determined that activities occurring before the Fermi 3 COL application was submitted to the NRC are not subject to enforcement actions such as NOVs. However, the Staff does consider whether there were appropriate QA controls at the time the COL application was developed and whether the information in the COLA as submitted is reliable.

In general, the Staff uses RAIs within the licensing process to obtain additional information regarding the nature, quality, sources, and reliability of information contained in the COLA. In this case, the Staff sent RAI 17.5-16 through 17.5-19, which were specifically related to QA for activities prior to September 18, 2008, to the Applicant on March 18, 2010. The Applicant responded to the RAIs in a letter dated May 10, 2010, which includes the full text of the Staff’s RAIs as well as the Applicant’s answers. May 2010 RAI Responses, Exhibit NRC S7.

The first of these RAIs, RAI 17.5-16, requested the Applicant to “provide a detailed summary describing how all Fermi 3 safety-related activities completed or in process prior to September 18, 2008, were consistent with the requirements of Appendix B.” The Applicant responded with thirteen pages of narrative description and a thirteen-page table setting out all safety-related pre-application activities and the associated QA programs that applied to them. May 2010 RAI Responses, Exhibit NRC S7, Attach. 1. As noted in my response to Question 23 above, a portion of the Applicant’s response to this RAI was related to the initial qualification of B&V to perform safety-related work on the Fermi 3 application.



The second RAI, RAI 17.5-17, requested the Applicant to provide a table summarizing QA support of Fermi 3 safety-related activities completed or in process prior to September 18, 2008. Specifically, the Staff requested that the Applicant include the following information limited to Fermi 3 safety-related activities conducted prior to September 18, 2008: 1) list of Detroit Edison QA personnel providing project support including hire dates, QA qualification types & dates, type of QA support provided, and percentage dedicated to project if less than full time, 2) summary by job classification of Black & Veatch (B&V)-Ann Arbor QA personnel providing project support including, QA qualification types, type of QA support provided, and number of hours dedicated to project, and 3) summary by job classification of B&V (Overland Park, Kansas) QA personnel providing project support including, QA qualification types, type of QA support provided, and number of hours dedicated to project. The Applicant responded with the requested information for QA personnel at DTE, B&V-Ann Arbor, and B&V-Overland Park. May 2010 RAI Responses, Exhibit NRC S7, Attach. 2.

The third RAI, RAI 17.5-18, requested the Applicant to “provide a table summarizing the ND QAPD and Fermi 3 implementing procedures effective prior to September 18, 2008,” and to “note when the ND QAPD or implementing procedures were contractually imposed on, or applied by, contracted personnel, if applicable.” The Applicant responded with a list describing the relevant procedures and when those procedures were contractually imposed on, or applied by, contracted personnel. May 2010 RAI Responses, Exhibit NRC S7, Attach. 3.

The fourth RAI, RAI 17.5-19, requested the Applicant to provide (1) a “description of how the applicant will retain responsibility for, and maintain control over, those portions of the QA program delegated to other organizations”; (2) the “identification of the responsible organization and the process for verifying that delegated QA functions are effectively implemented”; (3) the identification of major work interfaces for activities affecting quality”; and (4) a “description of how clear and effective lines of communication between the applicant and its principal contractors are maintained to assure coordination and control of the QA program.” The

Applicant provided the requested information for the periods January 2007 to November 2007 (development of COLA work product by B&V); November 2007 to September 2008 (receipt, review, and acceptance of COLA work product by DTE); and September 2008 to present (post-Application activities). May 2010 RAI Responses, Exhibit NRC S7, Attach. 4. As noted in my response to Question 23 above, portions of the Applicant's RAI response related to activities after September 2008 are related to resolution of the April 2010 NOV (Exhibit NRC S4). However, activities in the other two periods occurred prior to submittal of the application and are therefore relevant here.

The Staff reviewed the Applicant's responses to the four RAIs and concluded that the Applicant provided detailed information outlining QA support for Fermi 3 safety-related activities completed before the Fermi 3 COLA submittal date. Specifically, the Applicant provided (1) a list of safety-related activities and safety-related COL application sections; (2) dates of the activity or section creation; (3) the contracting entity conducting the activity/section creation and governing the QAPD; (4) the QA organization responsible for oversight of the activity/section creation; (5) dates and type of any specific contractor conducting the QA oversight activities (e.g., surveillance, document review, etc.); (6) contractor approval dates; (7) dates of Applicant's review and approval; (8) dates and type of any specific Applicant QA oversight activities (e.g., surveillance, document review, etc.); (9) background personnel information (including QA qualification types, type of QA support provided, and number of support hours) for both Applicant and contractor organizations; and (10) a summary of the various versions of the Fermi 3 QAPD and the implementation procedures. Additionally, in the response to the fourth RAI, RAI 17.5-19, the Applicant provided detailed information regarding the relationship between DTE and its contractor B&V for the three periods noted above. SER, Exhibit NRC S1 at 17-34 to 17-36.

After reviewing the Applicant's extensive submittals in answer to the RAIs, the Staff determined that at the outset of the Fermi 3 project (a) DTE contractually delegated to B&V the

work of establishing and executing a QA program satisfying the requirements of 10 CFR 50 Appendix B for COL application development, and B&V did have such a program in place when the information in the COL was developed; and (b) internal oversight of safety-related activities was inherent in the B&V program. The B&V QA program covered activities carried out by B&V prior to February 2008 as well as later.

After February 2008, the Staff determined that the Applicant did establish portions of an Appendix B program related to review and acceptance of the B&V COL application work product by creating the ND QAPD and related implementing procedures. The table of safety-related activities and COLA sections that the Applicant provided in its response to RAI 17.5-16 shows all dates for Applicant review and acceptance of B&V work product as February 2008 or later, with the exception of preliminary work product that was reviewed again upon incorporation into the corresponding COLA sections in mid-2008. The ND QAPD provided additional DTE oversight over B&V, beyond the contractual oversight mechanisms established initially, as well as controlling work by DTE personnel. SER, Exhibit NRC S1 at 17-35.

Finally, the Staff confirmed that DTE continued to delegate the execution of quality- and safety-related services associated with COLA revision and application review support to the B&V 10 CFR 50 Appendix B/NQA-1 QA Program after submission of the COLA in September 2008, but that the QAPD in the Fermi 3 Application was in place and governed work by DTE personnel. SER, Exhibit NRC S1 at 17-36.

From the comprehensive description in the RAI responses, the Staff determined that both B&V's development of the information in the COLA and DTE's receipt and acceptance of B&V work product occurred under appropriate QA controls. The Staff therefore concluded that the information in the COLA is reliable and that the QA implementation violations described above "do not affect the quality of safety-related design information in the FSAR." Claims to the contrary in Contention 15 are without basis.

**Q26. Has the Staff conducted any audits/inspections of the Applicant's contractor, B&V?**

A26. The Board has specifically requested information regarding audits of the B&V QA program used in connection with its safety-related COLA activities for the Fermi 3 project. The NRC Staff conducted two audits/inspections related to B&V activities related to Fermi 3, one in 2007 and one in 2010.

The NRC Staff conducted an audit of the Applicant in July 2007 to observe combined license (COL) pre-application subsurface investigation activities. This audit, which included observation of work performed by B&V and examination of B&V QA documents, was conducted at the Fermi site and led by inspectors from NRC's Region II, accompanied by members of the Office of New Reactors (NRO) staff. A report of this audit was issued in August 2007. 2007 B&V Audit Report, Exhibit NRC S8. The NRC audit team concluded that the "drilling and field testing activities were controlled by adequate procedures and standards with an appropriate level of supervisory and quality assurance oversight," and "the work was being done in an appropriately controlled manner." No adverse observations were identified during the audit.

As part of the normal selection of vendors for NRC inspection, B&V was selected for a routine inspection in 2010. This inspection was not limited to activities related to the Fermi 3 COLA, but also included B&V work in support of other NRC applicants and licensees. I was a member of the inspection team, and the other inspectors were informed of the August 2009 DTE inspection and the ongoing Fermi 3 licensing activities. The NRC B&V vendor inspection, completed in September 2010, was led by NRO inspectors at B&V's facility in Overland Park, Kansas (outside of Kansas City, Missouri). The NRC Staff issued the B&V vendor inspection report on October 14, 2010. 2010 B&V Inspection Report, Exhibit NRC S9. The inspectors found no violations of 10 CFR Part 50, Appendix B QA requirements. The report identified one violation of 10 CFR Part 21 requirements for activities not directly related to Fermi 3, which B&V

responded to by letter. The NRC Staff documented the acceptance of B&V's response in a letter dated December 17, 2010. 2010 B&V Inspection Letter, Exhibit NRC S10.

The lack of adverse observations from the 2007 audit and the lack of Fermi 3-related findings from the 2010 B&V inspection support the Staff's conclusion that the Applicant has provided adequate assurance that the requirements of Appendix B have been met for safety-related activities supporting the Fermi 3 COL application.

**Q27. Is the Staff aware of any other audits of B&V?**

A27. The Staff is aware of two such audits. One, a Nuclear Procurement Issues Committee (NUPIC) audit of B&V's Appendix B/NQA-1 program, was conducted prior to the Applicant's selection of B&V for COLA development in April 2007. NUPIC is an industry organization of NRC-licensed utilities that conducts routine audits of vendors that serve the nuclear industry. The Staff inspection team for the August 2009 QA implementation inspection of Detroit Edison was informed that the selection and qualification of B&V was largely based on this NUPIC audit that occurred prior to selection. A description of activities during this period are contained in the Fermi 3 FSAR, Chapter 17.5, under the section titled "Development of COLA Work Product (January 2007 to November 2007)."

Second, the Applicant audited B&V in July 2009, prior to the Staff's August 2009 inspection of the Applicant. The NRC inspectors reviewed the Applicant's audit report dated August 7, 2009, during the Fermi 3 QA implementation inspection, and the details are included in section 3.b.3 of the NRC inspection report dated October 5, 2009. See October 2009 NOV, Exhibit NRC S2, Enclosure 2 at 10-11. The Applicant states in their May 26, 2010, response to the revised NOV, that this audit assessed the B&V QA Program and found it to be effectively implemented for Fermi 3 COL application activities. Exhibit NRC S5, Attach. 1 at 3. The lack of adverse observations in the Applicant's audit supports the Staff's conclusion that the Applicant

has provided adequate assurance that the requirements of Appendix B have been met for safety-related activities supporting the Fermi 3 COL application.

**Q28. Has the Staff completed its review of Fermi 3 QA issues? If so, what were its findings?**

A28. The Staff completed its review in 2011 with issuance of Chapter 17 of the Fermi 3 SER. All RAIs and NOV's related to QA issues for the Fermi 3 application are resolved, and the Staff's technical review is complete. The Staff has found that all violations of NRC regulations have been resolved, and that the Applicant is now in compliance with Appendix B to 10 C.F.R. Part 50. Furthermore, the Staff has concluded that those violations have not affected safety-related design information in the FSAR. For these reasons, Contention 15 is without basis.

**Q29. Does this complete your testimony?**

A29. Yes, it does.

**Q30. Do you hereby certify under penalty of perjury that the foregoing is true and complete to the best of your knowledge, information, and belief?**

A30. Yes. I hereby certify under penalty of perjury that the foregoing is true and complete to the best of my knowledge, information, and belief.

**Executed in Accord with 10 CFR § 2.304(d)**

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Dated at Rockville, MD  
this 30th day of April, 2013



NUREG-2105, Vol. 1

# **Environmental Impact Statement for the Combined License (COL) for Enrico Fermi Unit 3**

Final Report

Chapters 1 to 6

U.S. Nuclear Regulatory Commission  
Office of New Reactors  
Washington, DC 20555-0001

Regulatory Office  
Permit Evaluation, Eastern Branch  
U.S. Army Engineer District, Detroit  
U.S. Army Corps of Engineers  
Detroit, MI 48226



**US Army Corps  
of Engineers®**

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environmental criteria used by the USACE in evaluating discharges of dredged or fill material into waters of the United States. Among the criteria, the Guidelines stipulate that no discharge of dredged or fill material shall be permitted if there is a practicable alternative that would have less adverse impact on the aquatic environment, so long as the alternative does not have other significant adverse environmental consequences. If an applicant's preferred alternative is determined to be the LEDPA, the USACE must still determine its effect on the other criteria contained in the Guidelines as well as the applicable public interest factors. A permit would not be issued for an alternative that is not the LEDPA.

In addition, subject to the Guidelines as discussed above and criteria (see 33 CFR 320.2 and 320.3), a permit will be granted unless the USACE District Engineer determines that it would be contrary to the public interest. The following general criteria are considered by the USACE in the evaluation of every application:

- The relative extent of the public and private need for the proposed work;
- Where there are unresolved conflicts about resource use, the practicability of using practicable and reasonable alternative locations and methods to accomplish the objective of the proposed structure or work; and
- The extent and permanence of the beneficial and/or detrimental effects that the proposed structure or work is likely to have on the public and private uses to which the area is suited.

The USACE would address its LEDPA and public interest review determinations and the final mitigation plan in its permit decision documentation. A partial public interest review, a preliminary 404(b)(1) analysis including Detroit Edison's proposed LEDPA determination, and Detroit Edison's proposed mitigation plan to compensate for the unavoidable aquatic resource loss attributable to its proposed LEDPA, are included in this EIS.

### 1.1.2 Preconstruction Activities

In a final rule dated October 9, 2007 (72 FR 57416), the Commission limited the definition of "construction" to those activities that fall within its regulatory authority in 10 CFR 51.4. Many of the activities required to construct a nuclear power plant are not part of the NRC action to license the plant. Activities associated with building the plant that are not within the purview of the NRC action are grouped under the term "preconstruction." Preconstruction activities include clearing and grading, excavating, dredging, discharge of fill, erection of support buildings and transmission lines, and other associated activities. These preconstruction activities may take place before the application for a COL is submitted, during the staff's review of a COL application, or after a COL is granted. As of October 2012, no preconstruction activities related to development of Fermi 3 or associated facilities have occurred on the Fermi site and none are expected in the immediate future. Although preconstruction activities are outside the NRC's



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regulatory authority, many are within the regulatory authority of local, State, or other Federal agencies, and certain preconstruction activities require a permit from USACE.

Because the preconstruction activities are not part of the NRC action, their impacts are not reviewed as a direct effect of the NRC action. Rather, the impacts of the preconstruction activities are considered in the context of cumulative impacts. Certain preconstruction activities (e.g., those actions related to work or the building of structures in navigable waters or to the discharge of dredged or fill material into waters of the United States) require USACE authorization, and impacts are viewed as direct effects of a USACE permit action. Such activities are included in the EIS as part of the USACE review. For purposes of this EIS, both construction and preconstruction activities are described in Chapter 4. Chapter 4 of this EIS describes the relative magnitude of impacts related to preconstruction and construction activities. It should be noted that Chapter 4 contains a partial evaluation of the public interest factors required as part of the USACE permit decision-making process. The USACE's independent regulatory permit decision documentation will reference relevant analyses from the EIS, and, as necessary, include supplemental public interest factor evaluations that may be outside of the NRC's scope of analysis and not included in the EIS, but required by the USACE in support of its permit decision.

### 1.1.3 Cooperating Agencies

Most proposed nuclear power plants require a permit from the USACE if structures or work would occur in, over, under, or affecting, and/or involving the discharge of dredged material or fill in waters of the United States, in addition to a license from the NRC. Therefore, the NRC and USACE decided that the most effective and efficient use of Federal resources in the review of nuclear power projects would be achieved by a cooperative agreement. On September 12, 2008, the NRC and USACE signed a Memorandum of Understanding (MOU) regarding the review of nuclear power plant license applications (USACE and NRC 2008). Therefore, the Detroit District of USACE is participating as a cooperating agency as defined in 10 CFR 51.14.

As described in the MOU, the NRC is the lead Federal agency and the USACE is a cooperating agency in the development of a COL EIS. Under Federal law, each agency has jurisdiction related to portions of the proposed project as major Federal actions that could significantly affect the quality of the human environment. The goal of this cooperative agreement is the development of one EIS that serves the needs of the NRC license decision process and the USACE permit decision process. While both agencies must meet the requirements of NEPA, both agencies also have mission requirements that must be met in addition to the NEPA requirements.

The NRC makes license decisions under the Atomic Energy Act (42 USC 2011 *et seq.*), and the USACE makes permit decisions under the Rivers and Harbors Appropriation Act and Clean Water Act, and the USACE is cooperating with the NRC to ensure that the information

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Part of the Fermi site lies in the 100-year floodplain associated with the shore of Lake Erie (Detroit Edison 2011a). Floodplains and other surface water hydrology elements are discussed further in Section 2.3.1.1. Cultural resources and historic properties have been identified within the area. Cultural resources include archaeological and architectural resources; historic properties consist only of architectural resources. Cultural resources are discussed in Section 2.7.

### 2.2.2 Transmission Lines

A single onsite transmission corridor accommodates the existing 345-kV transmission lines that originate at the Fermi 2 switchyard and extend to the west perimeter fence, near Doxy Road and Fermi Drive (Detroit Edison 2011a). A portion of the onsite transmission corridor just east of the site boundary and north of Fermi Drive has been restored to native tallgrass prairie vegetation. A new onsite corridor would be developed for a new 345-kV transmission line carrying power from Fermi 3 (Detroit Edison 2011a). Existing offsite transmission infrastructure serving Fermi 2 consists of two 345-kV power lines extending from the Fermi site approximately 5 mi to a point west of I-75 where the lines turn north for about 12 mi adjacent to I-275 (Figure 2-5) (Detroit Edison 2011a).

ITC *Transmission* has not yet formally announced a route for the offsite portion of the proposed new transmission line serving Fermi 3. Detroit Edison expects that the proposed new transmission line would be built within the existing Fermi 2 transmission corridor for approximately 18.6 mi extending outward from the Fermi site boundary. Detroit Edison expects that the remaining 10.8 mi, extending to the Milan Substation, would be built within an undeveloped right-of-way (ROW) possessed but not yet used by ITC *Transmission* (Detroit Edison 2011a). The route for the undeveloped ROW crosses mostly agricultural and forest land with scattered wetlands. No part of the route crosses designated or protected natural or recreational areas or areas with planned minerals development, although the route likely crosses some prime farmland. Land use restrictions within the corridor segments are governed by agreements between ITC *Transmission* and individual property owners along the corridor (Detroit Edison 2011a).

### 2.2.3 The Region

The 50-mi region surrounding the Fermi site is shown in Figure 2-2. The region includes all of the Toledo metropolitan area (approximately 300,000 residents) and most of the Detroit metropolitan area (approximately 900,000 residents). Land use within the U.S. portion of the 50-mi region is generally similar to land use in the vicinity of the Fermi site as shown in Table 2-2. Agriculture and urban land development are the most important land uses. Principal agricultural products and livestock in the region include soybeans, corn, wheat, milk, cattle, and pigs (Detroit Edison 2011a). In the Canadian portion of the 50-mi region, more than 57 percent

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control or eradicate it, and developing educational and informational materials to help communities detect and deal with borer infestations (MDA 2009).

Dutch elm disease is fatal to American elms and some other elm species and first entered Michigan about 1950. The disease is caused by any of three species of fungi (*Ophiostoma ulmi*, *O. himal-ulmi*, or *O. novo-ulmi*) and is transmitted by bark beetles. This disease probably accounts for the lack of large American elm specimens on the site and for the remains of old, fallen specimens.

Two non-native invasive plant species were observed in emergent wetlands on the site during the 2006 and 2008–2009 surveys: common reed and purple loosestrife. The widespread common reed forms dense monocultures within wetlands and moist soils, eliminating other native wetland plants and changing wetland ecology. Although common reed as a species is native to North America, it is thought that most monocultures observed today are the result of introduced non-native Eurasian genotypes (Saltonstall 2002). At the present time, parts of both lagoons are dominated by dense and extensive stands of common reed and native cattail species. The non-native invasive purple loosestrife is present throughout most wetlands on the Fermi site. The west-side drainage corridor has virtually no open water because of the common reed, cattails, and purple loosestrife. Because these stands are so uniform, they provide a low diversity of food sources for wildlife species and hence generally minimal habitat for most species, especially waterfowl.

Other invasive non-native plant species identified on the site include reed canarygrass, European privet, and garlic mustard. Reed canarygrass can form dense stands that crowd out native vegetation, especially in wet soils. European privet was observed in forest: woodlot cover type areas. It can form dense thickets in the understory of forests. Garlic mustard shades out native forest understory plants and produces allelopathic compounds that inhibit seed germination of other species (NPS 2010c). In upland areas, common buckthorn is a dominant species in shrubland areas. Once established, it can form dense understory stands that are difficult to eliminate and crowd out native species.

#### 2.4.1.2 Terrestrial Resources – Transmission Lines

The existing 345-kilovolt (kV) transmission system and associated corridors outside the Fermi site are exclusively owned and operated by ITC *Transmission*. Any new transmission lines built outside of the Fermi site to serve Fermi 3 would also be owned and operated by ITC *Transmission*. Detroit Edison has no control over the design or operation of transmission lines off of its plant sites. Accordingly, the description presented here of the terrestrial resources that interface with the transmission line corridors is based on publicly available information and reasonable expectations of the configurations that ITC *Transmission* would likely use based on standard industry practice. The information described in this subsection does not imply commitments were made by ITC *Transmission* or Detroit Edison, unless specifically noted.

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New offsite transmission lines built to support Fermi 3 would consist of three 345-kV lines running north from the Fermi site in a single corridor extending west to the Milan Substation for a distance of about 29.4 mi. The corridor is located in portions of Monroe, Wayne, and Washtenaw Counties and is illustrated in Figure 2-5. Approximately 18.6 mi of the new lines would be installed alongside existing 345-kV lines serving Fermi 2. For a portion of this eastern 18.6-mi segment of the proposed route, reconfiguring existing conductors may allow for the use of existing transmission infrastructure without the need for building additional transmission infrastructure. The need for additional transmission towers and additional corridor width will be determined by ITC *Transmission* when it designs the system. The final western 10.8 mi of transmission lines would be built in an undeveloped segment of an existing transmission ROW that was previously authorized for transmission line use. Some transmission tower footings were installed there as part of earlier plans but were never used, and the corridor has been only minimally maintained. Most of the eastern 18.6 mi of the corridor cross agricultural land, but the undeveloped western 10.8-mi portion crosses a variety of land cover types, including forest, agricultural lands, rural residential areas, and a golf course.

To accommodate the new transmission lines, it is assumed the Milan Substation would be expanded from its current size of 350 by 500 ft to approximately 1000 by 1000 ft, which would affect lands currently occupied by maintained grasses and cropland.

### ***Existing Cover Types and Vegetation***

Major vegetation types occurring along the proposed transmission corridor for Fermi 3 are summarized in Table 2-7. Except for Lake Erie and associated coastal and shoreline habitats (coastal emergent wetland and forest: coastal shoreline), which do not exist west of the Fermi site, the plant communities found along the corridor are similar to those described for the site in Section 2.4.1.1.

The eastern 18.6 mi of the proposed corridor follows an existing transmission line corridor that crosses mostly cropland. Non-cropland areas are generally pasture, open developed space, and emergent wetlands. No forested areas are present within the corridor because normal maintenance has already removed most trees. The corridor passes through only a few small forested areas. Emergent wetlands and waters crossed by the corridor are generally narrow. As currently anticipated, none of the existing towers are located in wetlands, with the exception of one set of towers at Stony Creek (north of Stony Creek Road), where the crossing is more than 1300 ft.

The western 10.8-mi segment of the proposed transmission corridor, which does not follow previously cleared and regularly maintained corridors, crosses a mosaic of pastures and forest, including forested wetlands, shrub/scrub, cropland, and developed land (Detroit Edison 2011a). Forested and emergent wetlands are present, and three wetlands extend more than 900 ft along the corridor (Detroit Edison 2011a). It is possible that towers may need to be placed in these

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**Table 2-7.** Vegetative Cover Types Occurring in the Proposed 29.4-mi Fermi 3 Transmission Corridor

<b>Vegetative Cover Type</b>	<b>Acres in Corridor (assumes 300-ft width)</b>	<b>Percent of Vegetative Cover Type in Region</b>	<b>Acres in Region<sup>(a)</sup></b>
Open water	1.5	0.00	725,910
Developed	158.9	0.01	1,089,795
Barren land	2.8	0.03	10,346
Deciduous forest	151.5	0.05	282,046
Evergreen forest	0.2	0.00	6717
Mixed forest	0.8	0.01	5765
Shrub/scrub	5.0	0.16	3179
Grassland/herbaceous	35.1	0.08	41,308
Pasture/hay	152.2	0.07	219,241
Cultivated crops	454.8	0.04	1,217,689
Woody wetlands	93.4	0.07	128,090
Emergent herbaceous wetland	13.0	0.02	56,711
<b>Total</b>	<b>1069.2</b>	<b>0.03<sup>(b)</sup></b>	<b>3,786,797</b>

Source: Adapted from Detroit Edison 2011a

(a) The region is defined as the area within a 50-mi radius of the Fermi site. Only the areas of vegetation cover types in the United States are presented.

(b) Calculated as 1069.2 as a percent of 3,786,797.

wetlands in order to construct crossings (Detroit Edison 2011a). The proposed Milan Substation site is located entirely in an area of cropland and planted grassland (Detroit Edison 2011a).

### Wildlife

The wildlife found along the proposed new transmission line corridor is expected to be similar to that found on the Fermi site, as described in Section 2.4.1.1. The corridor lies entirely within the same ecoregion as the Fermi site, and the habitats in and along the corridor are similar to those on the Fermi site. The exceptions are that there is no lakeshore habitat along the corridor and that the transmission line corridor crosses a number of habitats that are not present on the Fermi site in significant quantities, including low-intensity development and pasture/hay. Certain birds favoring areas near surface waters, such as the bald eagle and many waterfowl species, are less likely to be found along the new transmission corridor than they are on the Fermi site because of the proximity of the Fermi site to the coastline of Lake Erie. Wildlife habitat on developed land and pasture/hay is likely to include some of the species present in grassland and shrubland, but with less diversity and with more species tolerant of disturbance.

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### ***Existing Natural and Human-Induced Ecological Effects on the Transmission Corridor***

The 18.6-mi eastern segment of the proposed route crosses mostly crop and pasture land and land uses resulting from development. Corridor maintenance, including the removal of undesirable vegetation by mechanical means and herbicides, imposes stress on terrestrial resources. Other areas of the eastern segment support herbaceous plant communities; however, rural residences are common and cropland is scattered throughout the section. Disease vectors and pests along the proposed new transmission line route are expected to be the same as those on the Fermi site as described in Section 2.4.1.1.

#### **2.4.1.3 Important Terrestrial Species and Habitats – Site and Vicinity**

NUREG-1555 (NRC 2000) defines “important species” as (1) species listed or proposed for listing as threatened, endangered, candidate, or species of special concern in Part 17, Title 50 of the *Code of Federal Regulations* (50 CFR 17.11 and 17.12) by the FWS or the State in which the project is located; (2) commercially or recreationally valuable species; (3) species essential to the maintenance and survival of rare or commercially or recreationally valuable species; (4) species critical to the structure and function of local terrestrial ecosystems; or (5) species that could serve as biological indicators of effects on local terrestrial ecosystems. Several species meeting definitions (1) and (2) occur on the Fermi site and vicinity. “Important habitat” is defined by the NRC in NUREG-1555 (NRC 2000) as wildlife sanctuaries, refuges, or preserves, wetland, floodplains, and areas identified as critical habitat by the FWS. The terrestrial species and habitats deemed important by these definitions are addressed in the sections below (see Table 2-8). Section 4.3.1 describes the preconstruction and construction impacts on the terrestrial ecosystem and potential needs for mitigation.

The white-tailed deer is a recreationally important species in the vicinity of the Fermi site and is present on the Fermi site. This species is a valued game animal, but no hunting is allowed on the Fermi site. According to Detroit Edison (2011a), the mourning dove (*Zenaidura macroura*) is the only upland game bird commonly observed on the Fermi property. Wild turkey and ring-necked pheasant (*Phasianus colchicus*) may be in the area, but none were observed directly or indirectly (e.g., tracks or feathers) during site evaluations between 2006 and 2008 (Detroit Edison 2011a). Canada geese and other waterfowl, including mallard ducks, are common to abundant on the Fermi site, at least during some parts of the year. Detroit Edison manages wildlife on the Fermi property in coordination with the FWS and the DRIWR.

The following discussion reflects information provided by the FWS, MDNR, the results of the detailed wildlife surveys conducted in 2008 and 2009 (Detroit Edison 2009e), and other information sources as cited.



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**2.4.1.4 Important Terrestrial Species and Habitats – Transmission Lines*****Important Species***

Important species potentially occurring along the proposed offsite transmission line corridor include many of the important species potentially occurring at the Fermi site, as described in Section 2.4.1.3. However, some species known to be present at the Fermi site may not occur along the corridor route, considering its location further inland from Lake Erie. Field surveys of the corridor route have not yet been conducted to confirm the presence of any species. All Federally and State-listed terrestrial species that occur in the counties to be crossed by the proposed transmission line are identified in Table 2-9.

FWS (2009) identified several terrestrial species that are listed under the ESA or candidates for listing that could occur in the area of the proposed offsite transmission line corridor, some of which are not known to occur at the Fermi site. Species identified as potentially present in Monroe County are the Indiana bat, Karner blue butterfly, and eastern prairie fringed orchid. For Wayne County, the species identified are the Indiana bat and eastern prairie fringed orchid. For Washtenaw County, the species identified are the Indiana bat, Mitchell's satyr butterfly, and eastern prairie fringed orchid. FWS also noted that the eastern massasauga, a candidate species, may be present in Washtenaw and Wayne Counties.

Prior to installation of the offsite transmission line, FWS and MDNR would need to review detailed information on the transmission line corridor. The agencies may, at that time, require surveys of the proposed transmission line corridor for the presence of important species and habitat. A recreationally important species present in the vicinity of the proposed transmission line corridor is the white-tailed deer. This species is an important game animal. Transmission line corridors can provide habitat for the white-tailed deer and may be used for hunting. After installation of the transmission line, operation and maintenance of the corridor are unlikely to affect the white-tailed deer population in the project area.

***Important Habitats***

Within the Fermi site, the proposed transmission line route crosses the DRIWR. Outside the Fermi site, with the exception of wetlands, no important habitat features are known to occur along the estimated corridor (Detroit Edison 2011a). The corridor crosses about 30 wetlands or

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**Table 2-9.** Federally and State-Listed Terrestrial Species That Have Been Observed in Monroe, Washtenaw, and Wayne Counties and May Occur within the Transmission Line Corridor

Common Name	Scientific Name	Federal Status <sup>(a)</sup>	State Status <sup>(a)</sup>
<b>Plants</b>			
American chestnut	<i>Castanea dentata</i>	NL	E
American lotus	<i>Nelumbo lutea</i>	NL	T
Arrowhead	<i>Sagittaria montevidensis</i>	NL	T
Bald-rush	<i>Rhynchospora scirpoides</i>	NL	T
Beak grass	<i>Diarrhena obovata</i>	NL	T
Blue-eyed-grass	<i>Sisyrinchium hastile</i>	NL	Presumed extirpated
Bog bluegrass	<i>Poa paludigena</i>	NL	T
Canadian burnet	<i>Sanguisorba canadensis</i>	NL	E
Canadian milk vetch	<i>Astragalus canadensis</i>	NL	T
Compass plant	<i>Silphium laciniatum</i>	NL	T
Corn salad	<i>Valerianella umbilicata</i>	NL	T
Cup plant	<i>Silphium perfoliatum</i>	NL	T
Downy gentian	<i>Gentiana puberulenta</i>	NL	E
Downy sunflower	<i>Helianthus mollis</i>	NL	T
Edible valerian	<i>Valeriana edulis</i> var. <i>ciliata</i>	NL	T
False hop sedge	<i>Carex lupuliformis</i>	NL	T
Few-flowered nut rush	<i>Scleria pauciflora</i>	NL	E
Fire pink	<i>Silene virginica</i>	NL	E
Forked aster	<i>Aster furcatus</i>	NL	T
Gattinger's gerardia	<i>Agalinis gattingeri</i>	NL	E
Ginseng	<i>Panax quinquefolius</i>	NL	T
Goldenseal	<i>Hydrastis canadensis</i>	NL	T
Hairy mountain mint	<i>Pycnanthemum pilosum</i>	NL	T
Hairy wild petunia	<i>Ruellia humilis</i>	NL	T
Jacob's ladder	<i>Polemonium reptans</i>	NL	T
Least pinweed	<i>Lechea minor</i>	NL	Presumed extirpated
Leggett's pinweed	<i>Lechea pulchella</i>	NL	T
Leiberg's panic grass	<i>Dichanthelium leibergii</i>	NL	T
Lesser ladies'-tresses	<i>Spiranthes ovalis</i>	NL	T
Low-forked chickweed	<i>Paronychia fastigiata</i>	NL	Presumed extirpated
Mat muhly	<i>Muhlenbergia richardsonis</i>	NL	T
Nodding mandarin	<i>Prosartes maculata</i>	NL	Presumed extirpated
Northern bayberry	<i>Myrica pensylvanica</i>	NL	T
Orange- or yellow-fringed orchid	<i>Platanthera ciliaris</i>	NL	E
Plains blazing star	<i>Liatris squarrosa</i>	NL	Presumed extirpated
Prairie buttercup	<i>Ranunculus rhomboideus</i>	NL	T



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Table 2-9. (contd)

Common Name	Scientific Name	Federal Status <sup>(a)</sup>	State Status <sup>(a)</sup>
Prairie trillium	<i>Trillium recurvatum</i>	NL	T
Prairie white-fringed orchid	<i>Platanthera leucophaea</i>	T	E
Pumpkin ash	<i>Fraxinus profunda</i>	NL	T
Purple coneflower	<i>Echinacea purpurea</i>	NL	Presumed extirpated
Purple milkweed	<i>Asclepias purpurascens</i>	NL	T
Purple turtlehead	<i>Chelone obliqua</i>	NL	E
Raven's-foot sedge	<i>Carex crus-corvi</i>	NL	E
Red mulberry	<i>Morus rubra</i>	NL	T
Rosepink	<i>Sabatia angularis</i>	NL	T
Rosinweed	<i>Silphium integrifolium</i>	NL	T
Round-fruited St. John's-wort	<i>Hypericum sphaerocarpum</i>	NL	E
Sand cinquefoil	<i>Potentilla paradoxa</i>	NL	T
Sedge	<i>Carex seorsa</i>	NL	T
Short-fruited rush	<i>Juncus brachycarpus</i>	NL	T
Showy orchis	<i>Galearis spectabilis</i>	NL	T
Side-oats grama grass	<i>Bouteloua curtipendula</i>	NL	E
Smooth rose-mallow	<i>Hibiscus laevis</i>	NL	Presumed extirpated
Spike rush	<i>Eleocharis radicans</i>	NL	Presumed extirpated
Spike-rush	<i>Eleocharis geniculata</i>	NL	Presumed extirpated
Stiff gentian	<i>Gentianella quinquefolia</i>	NL	T
Sullivant's milkweed	<i>Asclepias sullivantii</i>	NL	T
Swamp candles	<i>Lysimachia hybrida</i>	NL	Presumed extirpated
Swamp or black cottonwood	<i>Populus heterophylla</i>	NL	E
Tall green milkweed	<i>Asclepias hirtella</i>	NL	T
Three-awned grass	<i>Aristida longespica</i>	NL	T
Tinted spurge	<i>Euphorbia commutata</i>	NL	T
Toadshade	<i>Trillium sessile</i>	NL	T
Umbrella-grass	<i>Fuirena pumila</i>	NL	T
Upland boneset	<i>Eupatorium sessilifolium</i>	NL	T
Vasey's rush	<i>Juncus vaseyi</i>	NL	T
Violet wood sorrel	<i>Oxalis violacea</i>	NL	Presumed extirpated
Virginia flax	<i>Linum virginianum</i>	NL	T
Virginia snakeroot	<i>Aristolochia serpentaria</i>	NL	T
Virginia water-horehound	<i>Lycopus virginicus</i>	NL	T
Water willow	<i>Justicia americana</i>	NL	T
Western mugwort	<i>Artemisia ludoviciana</i>	NL	T
White gentian	<i>Gentiana flavida</i>	NL	E
White lady slipper	<i>Cypripedium candidum</i>	NL	T
Whorled pogonia	<i>Isotria verticillata</i>	NL	T

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Table 2-9. (contd)

Common Name	Scientific Name	Federal Status <sup>(a)</sup>	State Status <sup>(a)</sup>
Wild hyacinth	<i>Camassia scilloides</i>	NL	T
Wild rice	<i>Zizania aquatica</i> var. <i>aquatica</i>	NL	T
Winged monkey flower	<i>Mimulus alatus</i>	NL	Presumed extirpated
Wisteria	<i>Wisteria frutescens</i>	NL	T
Woodland lettuce	<i>Lactuca floridana</i>	NL	T
<b>Insects</b>			T
American burying beetle	<i>Nicrophorus americanus</i>	E	Presumed extirpated
Dukes' skipper	<i>Euphyes dukesi</i>	NL	T
Frosted elfin	<i>Incisalia irus</i>		T
Karner blue butterfly	<i>Lycaeides melissa samuelis</i>	E	T
Mitchell's satyr butterfly	<i>Neonympha mitchellii mitchellii</i>	E	E
Poweshiek skipperling	<i>Oarisma poweshiek</i>	NL	T
Regal fritillary	<i>Speyeria idalia</i>	NL	E
Silphium borer moth	<i>Papaipema silphii</i>	NL	T
<b>Amphibians</b>			
Blanchard's cricket frog	<i>Acris crepitans blanchardi</i>	NL	T
Smallmouth salamander	<i>Ambystoma texanum</i>	NL	E
<b>Reptiles</b>			
Eastern fox snake	<i>Pantherophis gloydi</i>	NL	T
Eastern massasauga	<i>Sistrurus catenatus catenatus</i>	C	Special concern
Kirtland's snake	<i>Clonophis kirtlandii</i>	NL	E
Spotted turtle	<i>Clemmys guttata</i>	NL	T
<b>Birds</b>			
Barn owl	<i>Tyto alba</i>	NL	E
Cerulean warbler	<i>Dendroica cerulea</i>	NL	T
Common moorhen	<i>Gallinula chloropus</i>	NL	T
Common tern	<i>Sterna hirundo</i>	NL	T
Forster's tern	<i>Sterna forsteri</i>	NL	T
Henslow's sparrow	<i>Ammodramus henslowii</i>	NL	E
King rail	<i>Rallus elegans</i>	NL	E
Least bittern	<i>Ixobrychus exilis</i>	NL	T
Louisiana waterthrush	<i>Seiurus motacilla</i>	NL	T

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**Table 2-9.** (contd)

Common Name	Scientific Name	Federal Status <sup>(a)</sup>	State Status <sup>(a)</sup>
Peregrine falcon	<i>Falco peregrinus</i>	NL	E
Prairie warbler	<i>Dendroica discolor</i>	NL	E
Red-shouldered hawk	<i>Buteo lineatus</i>	NL	T
<b>Mammals</b>			
Indiana bat	<i>Myotis sodalis</i>	E	E
Least shrew	<i>Cryptotis parva</i>	NL	T

Source: MNFI 2010

(a) C = candidate for listing, E = endangered, NL = not listed, T = threatened.

other waters, according to FWS National Wetland Inventory (NWI) mapping (FWS 2010b), that may be regulated by the USACE and/or MDEQ. The undeveloped western 10.8-mi segment of the corridor crosses eight wetlands and nine drainages or narrow streams. The majority of the wetlands in this undeveloped segment are 100 to 400 ft wide where, but three wetlands are much wider, at 1302 ft, 903 ft, and 1339 ft (Detroit Edison 2011a). Since the upper limit of spans between transmission structures is typically 900 ft, it is anticipated that development of this undeveloped segment of corridor might require the placement of one tower or pole in each of these wetlands. The wetlands include woody and emergent herbaceous community types. The 18.6-mi existing eastern section of the corridor crosses two wetlands and 12 narrow drains or small streams. The existing lines span all of these wetlands, with the exception of a 1386-ft-long wetland crossing at Stony Creek, where one set of towers is currently located in wetland.

**Terrestrial Monitoring**

Detroit Edison has stated that other than the biological studies performed by Detroit Edison and described above, no formal monitoring of the terrestrial environment has been conducted or is planned on the Fermi site or along the proposed transmission line corridor (Detroit Edison 2011a). The only recent study, besides the 2008-2009 vegetation and wildlife surveys discussed above, is that of the onsite transmission line corridor prairie planting that was surveyed for plant species occurrences in 2005 and 2007 (Detroit Edison 2011a). FWS, ITC *Transmission*, and Detroit Edison cooperatively funded the restoration and planting of this 29-ac prairie area in the onsite transmission line corridor along the north side of the existing facility approach road (Fermi Drive). The restoration was begun in 2005 and completed in 2006 (Detroit Edison 2011).

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Table 2-10. (contd)

Common Name	Scientific Name	Intake Location	South Lagoon	Overall
Spotted sucker	<i>Minytrema melanops</i>	0.0	0.3	<0.1
Tadpole madtom	<i>Noturus gyrinus</i>	0.0	0.5	<0.1
Western mosquitofish	<i>Gambusia affinis</i>	0.0	0.3	<0.1
White perch	<i>Morone americana</i>	33.5	1.9	12.4
White sucker	<i>Catostomus commersoni</i>	0.3	0.2	0.2
Yellow bullhead	<i>Ameiurus natalis</i>	0.0	0.3	0.0
Yellow perch	<i>Perca flavescens</i>	0.0	1.8	1.2

Source: AECOM 2009b  
(a) Percent of the individuals collected at site location.

abundant larval fish taxa entrained during the earlier study included Cyprinids (22.9 percent), *Morone* spp. (20.0 percent), gizzard shad (19.5 percent), Clupeids (8.8 percent), and white perch (6.2 percent); the taxa for which fish eggs were most abundant in entrainment samples included Cyprinidae (42.1 percent of eggs) and Percidae (22.4 percent of eggs).

Impingement data collected from 1991 to 1992 from the Fermi 2 intake indicated that the dominant species impinged was the gizzard shad, which accounted for 71.5 percent of the estimated total number of individual fish impinged during the study period. White perch was the second most abundant species impinged (6.8 percent of the estimated total). Third, fourth, and fifth species ranked by the estimated number of individuals affected were the rock bass, freshwater drum, and emerald shiner, respectively. Estimated numbers of fish impinged (by species) in 2008–2009 from Fermi 2 are presented in Table 2-12. During that period, gizzard shad accounted for approximately 39 percent, emerald shiner accounted for approximately 29 percent, and white perch accounted for approximately 10 percent of the total estimated numbers of fish impinged at the plant (AECOM 2009b). Overall, it is estimated that 3102 individual fish were impinged by the Fermi 2 cooling water intake during the 2008–2009 sampling period (Table 2-12). Most of the fish species identified in impingement samples are considered forage species for other fishes. On the basis of an analysis conducted by the Lake Erie Forage Task Group (2010), it is estimated that the long-term average density of forage fish in size classes capable of being captured in nets and trawls is approximately 1,384,680 fish per square mile in the western basin. Assuming an estimate of approximately 1200 mi<sup>2</sup> for the western basin as a whole, the long-term average number of forage fish within the basin is estimated to be approximately 1.7 billion.

#### 2.4.2.2 Aquatic Habitats – Transmission Lines

Aquatic habitats within or adjacent to the transmission line corridor that would serve Fermi 3 and are identified in the ER (Detroit Edison 2011a) include several small streams and numerous

**Table 2-11.** Estimated Numbers of Fish Eggs and Larvae Entrained by the Fermi 2 Cooling Water Intake from July 2008 through July 2009<sup>(a)</sup>

Common Name	2008					2009					Annual Total <sup>(b)</sup>
	Jul	Aug	Sep	Oct	Nov	Mar	Apr	May	Jun	Jul	
Gizzard shad	62,048							1,452,781	1,191,501	27,531,802	30,238,132
Emerald shiner	1,054,814	1,897,015					109,500	2,994,507	911,148	3,933,115	10,900,099
Bluntnose minnow		72,962					15,643	4,892,017	560,707		5,541,329
Yellow perch							140,786	4,121,154	560,707		4,822,647
Unidentified spp.				4,298,465							4,298,465
Freshwater drum										2,317,728	2,317,728
Round goby	62,048	510,735	141,109					770,863	210,265	70,234	1,765,254
Bigmouth buffalo								1,274,889	420,530		1,695,419
Channel catfish	434,335										434,335
Largemouth bass							62,571	88,946			151,517
Sunfish sp.								148,243			148,243
White perch	124,096										124,096
Unknown centrarchidae									70,088		70,088
Brook silverside								59,297			59,297
<b>Total</b>	<b>1,737,341</b>	<b>2,480,712</b>	<b>141,109</b>	<b>4,298,465</b>	<b>0</b>	<b>0</b>	<b>328,500</b>	<b>15,802,697</b>	<b>3,924,946</b>	<b>33,852,879</b>	<b>62,566,649</b>

Source: AECOM 2009b

(a) Based on measured entrainment rates and actual operational flow volume reported by Detroit Edison from July 2008 through July 2009.

(b) Annual estimate does not include data from December through February. The numbers of eggs and larvae are expected to be low during these months because it is outside the normal spawning period for most Lake Erie fish species.

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**Table 2-12.** Estimated Numbers of Fish Impinged by the Fermi 2 Cooling Water Intake from August 2008 through July 2009<sup>(a)</sup>

Common Name	2008					2009							Annual Total	% of Total
	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr <sup>(b)</sup>	May	Jun	Jul		
Gizzard shad			62	150	930	62							1204	38.8
Emerald shiner	31	30	31		62	93	84	558					889	28.7
White perch	62	30	31	30	31		28	93					305	9.8
Bluegill					31	31	28	124					214	6.9
Round goby	31	30				31				31			123	4.0
Smallmouth bass	31							31					62	2.0
Spottail shiner										31		31	62	2.0
Banded killifish			31										31	1.0
Brook silverside	31												31	1.0
Largemouth bass			31										31	1.0
Bluntnose minnow		30											30	1.0
Channel catfish		30											30	1.0
Freshwater drum											30		30	1.0
Green sunfish		30											30	1.0
Rock bass		30											30	1.0
<b>Total</b>	<b>186</b>	<b>210</b>	<b>186</b>	<b>180</b>	<b>1054</b>	<b>217</b>	<b>140</b>	<b>806</b>		<b>62</b>	<b>30</b>	<b>31</b>	<b>3102</b>	<b>100.0</b>

Source: AECOM 2009b

(a) Based on measured impingement rates and actual operational flow volume reported by Detroit Edison from August 2008 through July 2009.

(b) Annual estimate does not include data from April 2009 because heavy debris prevented sample collection.

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small drainage ditches. The new transmission line corridor does not cross any lakes, ponds, or reservoirs. Stony Creek, which is located in the developed eastern portion of the assumed route, is the largest stream crossed by the transmission line corridor and is described in Section 2.4.2.1.

Because of the small size of the streams and ditches present along the presumed transmission line path, detailed information regarding the aquatic species present in most of these water bodies is not readily available. Because of the small size of the drainages and because of the intermittent nature of flows in these surface water features, it is assumed that species diversity is similar to or less than that described for Stony Creek in Section 2.4.2.1. There are no important commercial or recreational fisheries present within the assumed 300-ft ROW as a result of the small sizes of the drainages present.

### 2.4.2.3 Important Aquatic Species and Habitats – Site and Vicinity

Several criteria (see Section 2.4.1.3) identify important species that may be affected by building, operating, or maintaining a new facility. Aquatic species meeting these criteria include commercially or recreationally important fishery species, species considered to have vital roles in ecosystem dynamics, and Federally or State-listed species. On the basis of these criteria, 37 species that inhabit the freshwater habitats near the Fermi site were identified as important species (Table 2-13).

Brief summaries of distribution and life history information for important species are also provided; these summaries were developed from information provided by NatureServe (2009) unless otherwise indicated. Where applicable, information about impingement and entrainment during Fermi 2 operations is presented for each species based on recently collected impingement and entrainment data for the Fermi site (AECOM 2009b).

The National Marine Fisheries Service (NMFS) has advised that it considers fishery resources within Lake Erie as non-NMFS trust resources and consultation with NMFS regarding essential fish habitat pursuant to the Magnusson-Stevens Fishery Conservation and Management Act is not required for Fermi 3. This is the case even for those species that would be considered NMFS trust resources if found in the ocean, an estuary, or a river with tidal connections (e.g., rainbow smelt, alewife, Atlantic salmon). This is because fish that are land-locked in Lake Erie are not to be considered a component of the marine or estuarine ecosystem, could not serve as prey for a Federally managed species, or could not in any way contribute to the marine fisheries under NMFS jurisdiction (Johnson 2012).



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although crayfish, amphibians, and larger insects often become dominant foods of local populations or seasonally.

In addition to being a species that has recreational importance, smallmouth bass have ecological importance as being one of the top-level predators in aquatic habitats in the Great Lakes region. Smallmouth bass make up a small component of the aquatic community in the immediate vicinity of the Fermi site, according to recent fish surveys. Francis and Boase (2007) captured low numbers of smallmouth bass in collections from Swan Creek. Smallmouth bass were not found in most aquatic habitats on the Fermi site during surveys conducted in the 2008–2009 period (AECOM 2009b), perhaps because many of these habitats have conditions (e.g., warm summer water temperatures and high turbidity) that are not optimal for smallmouth bass. On the basis of impingement rates measured at the cooling water intake, it is estimated that 62 smallmouth bass were impinged at the Fermi 2 cooling water intake from August 2008 through July 2009 (AECOM 2009b; Table 2-12), accounting for approximately 2 percent of the fishes impinged by Fermi 2. No smallmouth eggs or larvae were identified in entrainment samples collected at the Fermi 2 cooling water intake from August 2008 through July 2009 (AECOM 2009b). However, it was estimated that approximately 70,000 eggs or larval stages of fish in the same fish family (*Centrarchidae*) would be entrained annually, on the basis of the presence of eggs and larvae not identifiable to the species level (AECOM 2009b). Some portion or all of these unidentified eggs and larvae could have been those of smallmouth bass.

### **Federally and State-Listed Aquatic Species**

This section presents information about the Federally and Michigan State-listed threatened and endangered aquatic species in the vicinity of the Fermi site. Federally and State-listed aquatic species that may occur on or near the Fermi site or in the counties through which the proposed transmission line corridor would pass (Monroe, Washtenaw, and Wayne Counties) are indicated in Table 2-16.

Three freshwater mussel species that are Federally listed as endangered could occur within the project area based upon historic records of occurrence. The northern riffleshell (*Epioblasma torulosa rangiana*) could occur in waters of Monroe and Wayne Counties in Michigan. The rayed bean (*Villosa fabalis*) and the snuffbox mussel (*E. triquetra*) have a potential to occur within Monroe, Washtenaw, or Wayne Counties. Another freshwater mussel that is Federally listed as endangered (white catpaw, *E. obliquata perobliqua*), was last reported from Wayne and Monroe Counties in 1930 and is believed to have been extirpated from the State of Michigan. None of these species has been specifically documented to occur either on the Fermi site or along the proposed transmission line route, although they have a potential to occur within one or more of the counties where project activities (including the proposed transmission line ROW) could occur. No Federally designated aquatic critical habitats occur near the Fermi site.



**Table 2-16.** Federally and State-Listed Aquatic Species That Have Been Observed in Monroe, Washtenaw, and Wayne Counties, Michigan, and the Potential for Their Occurrence on the Fermi Site

Common Name	Scientific Name	Federal Status <sup>(a)</sup>	State Status <sup>(b)</sup>	Monroe County <sup>(c)</sup>	Wayne County <sup>(c)</sup>	Washtenaw County <sup>(c)</sup>	Fermi Site <sup>(d)</sup>
<b>Mollusks</b>							
Elktoe	<i>Alismidonta marginata</i>		SC	X		X	U
Ellipse	<i>Venustaconcha ellipsiformis</i>		SC			X	U
Gravel pyrg	<i>Pyrgulopsis letsoni</i>		SC	X		X	U
Hickorynut	<i>Obovaria olivaria</i>		E		X	X	U
Northern riffleshell	<i>Epioblasma torulosa rangiana</i>	E	E	X	X		U
Purple lilliput	<i>Toxolasma lividus</i>		E	X			U
Purple wartyback	<i>Cyclonaias tuberculata</i>		T	X	X	X	U
Rainbow	<i>Villosa iris</i>		SC		X	X	U
Rayed bean	<i>Villosa fabalis</i>	E	E	X	X		P
Round hickorynut	<i>Obovaria subrotunda</i>		E	X	X		U
Round pigtoe	<i>Pleurobema sintoxia</i>		SC	X	X	X	U
Salamander mussel	<i>Simpsonaias ambigua</i>		E	X	X		P
Slippershell	<i>Alismidonta viridis</i>		T	X		X	U
Snuffbox mussel	<i>Epioblasma triquetra</i>	E	E	X	X	X	P
Wavyrayed lampmussel	<i>Lampsilis fasciola</i>		T	X		X	U
White catspaw	<i>Epioblasma obliquata perobliqua</i>	E <sup>(e)</sup>	E <sup>(e)</sup>	X	X		U
<b>Fish</b>							
Brindled madtom	<i>Noturus miurus</i>		SC	X	X	X	P
Channel darter	<i>Percina copelandi</i>		E	X	X		U
Creek chubsucker	<i>Erimyzon claviformis</i>		E	X			U
Eastern sand darter	<i>Ammocrypta pellucida</i>		T	X	X		U
Lake sturgeon	<i>Acipenser fulvescens</i>		T		X		U
Northern madtom	<i>Noturus stigmosus</i>		E		X	X	U
Orangethroat darter	<i>Etheostoma spectabile</i>		SC	X		X	U
Pugnose minnow	<i>Opsopoedus emiliae</i>		E	X	X		P

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Table 2-16. (contd)

Common Name	Scientific Name	Federal Status <sup>(a)</sup>	State Status <sup>(b)</sup>	Monroe County <sup>(c)</sup>	Wayne County <sup>(c)</sup>	Washtenaw County <sup>(c)</sup>	Fermi Site <sup>(d)</sup>
Pugnose shiner	<i>Notropis anogenus</i>		E		X	X	U
Redside dace	<i>Clinostomus elongatus</i>		E		X	X	U
River darter	<i>Percina shumardi</i>		E	X	X		U
River redhorse	<i>Moxostoma carinatum</i>		T		X		U
Sauger	<i>Sander canadensis</i>		T	X	X		P
Silver chub	<i>Macrhybopsis storeriana</i>		SC	X	X		O
Silver shiner	<i>Notropis photogenis</i>		E	X		X	U
Southern redbelly dace	<i>Phoxinus erythrogaster</i>		E	X		X	U
Spotted gar	<i>Lepisosteus oculatus</i>		SC			X	U

(a) Federal status rankings determined by the FWS under the Endangered Species Act: E = endangered.

(b) State species information provided by MNFI (2007g): E = endangered; T = threatened; SC = species of special concern.

(c) County-level occurrence based on information provided by MNFI (2007g): X = the species has been observed within the identified county.

(d) O = species observed on or adjacent to the Fermi site; P = possible occurrence due to presence of potentially suitable habitat and nearby populations, but has not been reported on or adjacent to the Fermi site; U = unlikely to occur due to absence of nearby populations and/or lack of suitable habitat on or adjacent to the Fermi site. Species for which there was no record of occurrence reported by the MNFI (2007g) for Monroe County were considered unlikely to occur on the Fermi site.

(e) The white catspaw is considered extirpated from Michigan (MNFI 2007g).

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The State of Michigan has listed 33 aquatic species as endangered (17 species), threatened (7 species), or of special concern (9 species) in Monroe, Wayne, or Washtenaw County (Table 2-16) (MNFI 2007g). Of these, 17 species are fish and 16 species are mollusks (15 freshwater mussels and 1 snail species). Species of special concern are those that are considered to be rare in Michigan or those for which the status of the population is uncertain. Additional information about the distribution, life history, population status, and potential for occurrence of Federally and State-listed threatened and endangered aquatic species that could be present in the vicinity of the Fermi site is provided below. MNFI (2007g) presents additional information about distribution, life history, and ecology of species of special concern to the State of Michigan.

Hickorynut (*Obovaria olivaria*)

The hickorynut is a freshwater unionid mussel (see Section 2.4.2.1) that is listed as endangered by the State of Michigan (MNFI 2007g). The historic range for the hickorynut includes eastern North America, from western Pennsylvania and New York to Missouri, Iowa, and Kansas, and from Michigan and the St. Lawrence drainage southward to Alabama and Arkansas (Badra 2004a). In Michigan, the historic range for this species included the Kalamazoo, Grand, Menominee, Saginaw, and Detroit Rivers, as well as Lake Erie and Lake St. Clair (Badra 2004a). Habitat for the hickorynut consists of sand or mixed sand and gravel substrates in large rivers and lakes (Badra 2004a).

The general life history of unionid mussels is described in Section 2.4.2.1. Gravid individuals of the hickorynut retain larvae internally over the winter and release glochidia in the spring (Badra 2004a). The shovelnose sturgeon (*Scaphirhynchus platyrhynchus*) and freshwater drum have been shown to be suitable hosts, and it is possible that additional species are used as hosts in natural environments (Badra 2004a). Like all freshwater mussels, the hickorynut is a filter feeder.

Principal threats to the hickorynut include siltation and runoff from human activities, damming and dredging of rivers, and the spread of introduced invasive species. Zebra mussels pose a threat for freshwater mussels because they compete for food and benthic habitat and because they attach to the shells of native mussels, making it difficult for the mussels to move and feed properly. The hickorynut was last observed in Washtenaw County in 1996 and in Wayne County in 2006; the hickorynut has not been reported from Monroe County (MNFI 2007g). Although streams with conditions suitable for the hickorynut are not present on the Fermi site, some nearshore areas in Lake Erie in the vicinity of the site could potentially provide suitable substrate. Since no large rivers will be crossed by the proposed transmission line ROW, it is unlikely that this species would be present in stream areas crossed by the transmission line corridor.

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### Northern Riffleshell (*Epioblasma torulosa rangiana*)

The northern riffleshell is a freshwater unionid mussel (see Section 2.4.2.1) that was Federally listed as an endangered species in 1993 and is also listed as endangered by the State of Michigan (MNFI 2007g). The historic range for the northern riffleshell includes Illinois, Indiana, Kentucky, Michigan, Ohio, Pennsylvania, West Virginia, and western Ontario (Carman and Goforth 2000b). It was once widespread in the Ohio and Maumee River Basins and in tributaries of western Lake Erie (Carman and Goforth 2000b). In Michigan, the northern riffleshell is known to currently occur only in the Black River in Sanilac County and the Detroit River in Wayne County (Carman and Goforth 2000b). More than 100 individuals from the Detroit River population were relocated to the St. Clair River in 1992 as part of an effort to establish a new population, but the success of that effort is not known (Carman and Goforth 2000b).

The habitat for the northern riffleshell is fine to coarse gravel in riffles and runs of streams with swift currents (MNFI 2007g). The general life history of unionid mussels is described in Section 2.4.2.1. The northern riffleshell holds larvae over the winter and releases glochidia in the spring (Carman and Goforth 2000b). In the laboratory, glochidia developed with brown trout (*Salmo trutta*), bluebreast darter (*Etheostoma camurum*), banded darter (*Etheostoma zonale*), and banded sculpin (*Cottus carolinae*) as hosts; however, these fish species do not occur in the areas of Michigan that could harbor northern riffleshell populations, suggesting that there are also other hosts (Carman and Goforth 2000b). The age at maturity for northern riffleshells is not known, but this species may reach 15 years of age (Carman and Goforth 2000b). Like all freshwater mussels, the northern riffleshell is a filter feeder.

The survival of this species depends on the protection and preservation of suitable habitat and host fish species. Principal threats to survival of the species are similar to those described previously for the hickorynut. The northern riffleshell was last observed in Monroe County in 1977 and in Wayne County in 2006 (MNFI 2007g). The northern riffleshell has not been reported from Washtenaw County (MNFI 2007g). Streams with conditions suitable for the northern riffleshell are not present on the Fermi site; it is currently unknown if appropriate habitats are present in stream areas that are crossed by the proposed transmission line corridor. The portions of Lake Erie adjacent to the Fermi site do not offer suitable habitat for this species.

### Purple Lilliput (*Toxolasma lividus*)

The purple lilliput is a freshwater unionid mussel (see Section 2.4.2.1) that is listed as endangered by the State of Michigan (MNFI 2007g). The historic range for the purple lilliput extends from Michigan south to Alabama and from Missouri and Arkansas eastward to Virginia (Carman 2002a). In Michigan, the purple lilliput is generally restricted to the southeastern portion of the State, and spent shells have been found from sites in the River Raisin in Monroe

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Country (Carman 2002a). The purple lilliput occurs in small to medium-sized streams and occasionally in large rivers and lakes; the preferred substrate for this species is well-packed sand or gravel and a water depth of less than 1 m (MNFI 2007g).

The general life history of unionid mussels is described in Section 2.4.2.1. Gravid purple lilliputs have been known to retain the larvae internally for about a year, although populations in Michigan reportedly produce multiple broods in a single year (Carman 2002a). Fish hosts for the purple lilliput include green sunfish and longear sunfish (*Lepomis megalotis*) (Carman 2002a), both species that have been observed in aquatic habitats associated with the Fermi site (AECOM 2009b). Like all freshwater mussels, the purple lilliput is a filter feeder.

Principal threats to survival of the species are similar to those described previously for the hickorynut. The purple lilliput was last reported from Monroe County in 1977; it has not been reported from Wayne or Washtenaw County (MNFI 2007g). Streams with conditions suitable for the purple lilliput are not present on the Fermi site; it is currently unknown if appropriate habitats are present in stream areas that are crossed by the proposed transmission line corridor. The portions of Lake Erie adjacent to the Fermi site do not offer suitable habitat for this species.

Purple Wartyback (*Cyclonaias tuberculata*)

The purple wartyback is a freshwater unionid mussel (see Section 2.4.2.1) that is listed as threatened by the State of Michigan (MNFI 2007g). The historic range for the purple wartyback includes eastern North America, from Ontario, Canada, south to Alabama, west to Oklahoma, and east to Pennsylvania (Badra 2004b). It is present in the Mississippi River, Ohio River, Lake Michigan, Lake St. Clair, and Lake Erie drainages (Badra 2004b). The purple wartyback is found in medium to large rivers with gravel or mixed sand and gravel substrates in areas with relatively fast current (Badra 2004b).

The general life history of unionid mussels is described in Section 2.4.2.1. Gravid individuals of the purple wartyback release glochidia during the same summer that they are fertilized (Badra 2004b). The yellow bullhead and channel catfish have been shown to be suitable hosts for the purple wartyback, and it is possible that additional species are used as hosts in natural environments (Badra 2004b). Like all freshwater mussels, the purple wartyback is a filter feeder.

Principal threats to survival of the species are similar to those described previously for the hickorynut. The purple wartyback was last reported from Monroe, Wayne, and Washtenaw Counties in 2000, 2006, and 2005, respectively (MNFI 2007g). Streams with conditions suitable for the purple wartyback are not present on the Fermi site, and Lake Erie adjacent to the Fermi site does not offer suitable habitat for this species. Since no large or medium rivers are crossed by the proposed transmission line corridor, it is unlikely that this species would be present in stream areas associated with the corridor.

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### Rayed Bean (*Villosa fabalis*)

The rayed bean is a freshwater unionid mussel (see Section 2.4.2.1) that was Federally listed as endangered in 2012 (77 *Federal Register* [FR] 8632). This species is listed as endangered by the State of Michigan and has been recorded in Monroe and Wayne Counties (MNFI 2007g). The rayed bean is patchily distributed in the St. Lawrence, Ohio, and Tennessee River drainages (Carman 2001f). Although it was historically widespread from Ontario to Alabama and Illinois to New York, only a few populations are currently known to exist, and it is assumed to be extirpated throughout much of its former range (Carman 2001f). As of November 2010, extant populations were known from 28 streams in Indiana, Michigan, New York, Ohio, Pennsylvania, West Virginia, and the province of Ontario in Canada. In Michigan, existing rayed bean populations are known from the Black, Pine, Belle, and Clinton River systems.

The rayed bean is generally found in smaller headwater creeks, although it has also been found in larger rivers (FWS 2002). They usually are found in or near shoal or riffle areas; there are also records of rayed bean specimens from shallow, wave-washed areas of Lake Erie, generally associated with islands in the western portion of the lake (FWS 2002). Preferred substrates are gravel and sand, and it is oftentimes found among the roots of vegetation growing in riffles and shoals (FWS 2002).

The general life history of unionid mussels is described in Section 2.4.2.1. The rayed bean reportedly holds glochidia internally over the winter for release in the spring; female rayed beans bearing eggs have been found in May (Carman 2001f). Fish hosts for the glochidia could include the Tippecanoe darter (*Etheostoma tippecanoe*), greenside darter (*Etheostoma blennioides*), rainbow darter (*Etheostoma caeruleum*), mottled sculpin (*Cottus bairdi*), and largemouth bass (FWS 2002). The limited data available suggest that the lifespan for the rayed bean is less than 20 years (FWS 2002). As are other freshwater mussels, the rayed bean is a filter feeder.

The rayed bean has experienced a significant reduction in range, and most of its populations are isolated and appear to be declining (FWS 2002). The survival of the rayed bean is threatened by a variety of stressors, especially habitat destruction associated with siltation, dredging, and channelization and the introduction of alien species such as the Asian clam and zebra and quagga mussels (FWS 2002). The rayed bean was last observed in Monroe County in 1984 and in Wayne County in 2006 (MNFI 2007g), although these observations were based on the presence of shells, not living specimens (Carman 2001f). The rayed bean has not been reported from Washtenaw County (MNFI 2007g).

There are no streams on the Fermi site with conditions suitable for the rayed bean, and no extant populations are known to occur in the stream drainages that would be crossed by the proposed transmission line route. Although there are records of rayed bean specimens (valves, not live specimens) from shallow, wave-washed areas of western Lake Erie, information



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supplied by Detroit Edison suggests that it is unlikely that the species occurs in the vicinity of the Fermi site for a number of reasons, as follows. First, approximately 30 years of information on mussels in the western basin of Lake Erie (including in the vicinity of the Fermi site) have been collected and evaluated by the USGS, and no rayed bean specimens have been identified. Second, the USACE conducted mussel surveys in Lake Erie approximately 2 mi south of the Fermi site and found no live specimens or shells of the rayed bean. Third, the rayed bean was not observed in surveys conducted by the MNFI just north of the Fermi site near the mouth of Swan Creek. Fourth, observations made by divers during sediment sampling and buoy maintenance activities within the exclusion zone for the Fermi site indicate that the sediment is predominantly clay hardpan and not suitable for the rayed bean (Detroit Edison 2010c).

Round Hickorynut (*Obovaria subrotunda*)

The round hickorynut is a freshwater unionid mussel (see Section 2.4.2.1) that is listed as endangered by the State of Michigan (MNFI 2007g). The historic range for the round hickorynut includes much of eastern North America, from Ontario and New York southward to Arkansas, Mississippi, Alabama, and Georgia. It has historically been present in the Ohio, Tennessee, Cumberland, and Mississippi River systems, as well as the St. Lawrence and Lake Erie/Lake St. Clair drainages (Carman 2001g). In Michigan, the round hickorynut occurs in the Lake St. Clair and Lake Erie drainages, and it has historically been observed in Sanilac, St. Clair, Macomb, Wayne, Monroe, and Lenawee Counties (Carman 2001g). The round hickorynut is found in sand and gravel substrates of moderately flowing medium to large rivers and along the shores of Lake Erie and Lake St. Clair, near river mouths (Carman 2001g).

The general life history of unionid mussels is described in Section 2.4.2.1. Gravid individuals of the round hickorynut retain fertilized larvae over the winter and release glochidia during the early summer (Carman 2001g). The host fish species for the round hickorynut is unknown (Carman 2001g). Like all freshwater mussels, the round hickorynut is a filter feeder.

Principal threats to survival of the species are similar to those described previously for the hickorynut. The round hickorynut was last reported from Monroe and Wayne Counties in 1977 and 2000, respectively; there are no reports of this species from Washtenaw County (MNFI 2007g). Streams with conditions suitable for the round hickorynut are not present on the Fermi site, although areas in Lake Erie near the mouths of Swan Creek or Stony Creek could contain suitable substrates. Since no large or medium rivers are crossed by the proposed transmission line corridor, it is unlikely that this species would be present in stream areas associated with the corridor.

Salamander Mussel (*Simpsonaias ambigua*)

The salamander mussel is a freshwater unionid mussel (see Section 2.4.2.1) that is listed as endangered by the State of Michigan (MNFI 2007g). The historic range for the salamander

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mussel includes North America from Ontario southward to Tennessee, where it is found in the Great Lakes Basin in the Lake St. Clair, Lake Huron, and Lake Erie drainages. The salamander mussel is also found in the Ohio River, Cumberland River, and upper Mississippi River drainages (Carman 2002b). The salamander mussel is found in medium to large rivers and in lakes. It is usually found in silt or sand substrates under flat stones (MNFI 2007g).

The general life history of unionid mussels is described in Section 2.4.2.1. The biology of the salamander mussel is poorly understood. Gravid females release glochidia in the spring or summer (Carman 2002b). The host for the salamander mussel is the mudpuppy (*Necturus maculosus*) (Carman 2002b), a large (8 to 15 in. long) salamander species that inhabits many water bodies in Michigan. Like all freshwater mussels, the salamander mussel is a filter feeder.

Principal threats to survival of the salamander mussel are similar to those described previously for the hickorynut. The salamander mussel was last reported from Monroe and Wayne Counties in 1977 and 1998, respectively; there are no reports of this species from Washtenaw County (MNFI 2007g). Streams with conditions suitable for the salamander mussel are not present on the Fermi site. However, areas in Lake Erie near the site could contain suitable substrates as well as the mudpuppy host. Although the exact locations are not known, the nearest reported occurrence of the salamander mussel is from Macon Creek, a medium-sized tributary of Lake Erie, and La Plaisance Bay, located 6 to 9 mi southwest of the Fermi site (Carman 2002b). Since no large or medium rivers are crossed by the proposed transmission line corridor, it is unlikely that this species would be present in stream areas associated with the corridor.

### Slippershell (*Alasmodonta viridis*)

The slippershell is a freshwater unionid mussel (see Section 2.4.2.1) that is listed as threatened by the State of Michigan (MNFI 2007g). The historic range for this species extends from southern Ontario south to Alabama and from South Dakota and Kansas east to New York, Virginia, and North Carolina (Carman 2002c). It is found in the Lake Michigan, Lake Huron, Lake St. Clair, and Lake Erie drainages of the Great Lakes Basin and is also present in the Mississippi River system from the Ohio River drainage to the Tennessee River drainage (Carman 2002c). In Michigan, this species has been observed in a number of counties, including Monroe and Washtenaw Counties. The slippershell typically occurs in creeks and headwaters of rivers in sand or gravel substrates, although it can also be present in larger rivers and lakes and has occasionally been found in mud substrates (MNFI 2007g).

The general life history of unionid mussels is described in Section 2.4.2.1. The biology of the slippershell is poorly understood. The slippershell retains larvae internally for about a year. Fish species that are hosts for the slippershell include the johnny darter (*Etheostoma nigrum*) and mottled sculpin (Carman 2002c). Like all freshwater mussels, the slippershell is a filter feeder.



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Principal threats to survival of the slippershell are similar to those described previously for the hickorynut (Carman 2002c). The slippershell was last reported from Monroe and Washtenaw Counties in 2000 and 2005, respectively; there are no reports of this species from Wayne County (MNFI 2007g). Streams with conditions suitable for the slippershell are not present on the Fermi site, and Lake Erie adjacent to the Fermi site does not offer suitable habitat for this species. It is currently unknown if appropriate habitats are present in any of the smaller streams that are crossed by the proposed transmission line corridor.

Snuffbox Mussel (*Epioblasma triquetra*)

The snuffbox mussel is a freshwater unionid mussel (see Section 2.4.2.1) that was Federally listed as endangered in 2012 (77 FR 8632). This species is listed as endangered by the State of Michigan and has been recorded in Monroe, Wayne, and Washtenaw Counties (MNFI 2007g). The historic range of the snuffbox mussel extends from Ontario southward to Mississippi and Alabama and eastward to New York and Virginia; extant populations are still present in Wisconsin, Illinois, Indiana, Kentucky, Michigan, Ohio, Pennsylvania, Tennessee, and West Virginia (NatureServe 2009). In Michigan, this species is found primarily in eastern and southeastern rivers, including Otter Creek in Monroe County and the Detroit River in Wayne County (Carman and Goforth 2000c). The snuffbox mussel primarily inhabits small and medium-sized rivers, although specimens have also been collected from Lake Erie and large rivers, such as the St. Clair River. Preferred habitat usually has clear water and sand, gravel, or cobble substrate with a swift current; individuals are often buried deep in the sediment (Carman and Goforth 2000c).

The general life history of unionid mussels is described in Section 2.4.2.1. The snuffbox mussel is a late summer spawner (Carman and Goforth 2000c). Gravid females retain larvae over the winter and release glochidia from May to July (Carman and Goforth 2000c). In Michigan, the only known fish host is the log perch (*Percina caprodes*), although the banded sculpin (*Cottus carolinae*) has been identified as a fish host in other portions of the range (Carman and Goforth 2000c). The snuffbox mussel can live to be approximately 10 years of age (Carman and Goforth 2000c). Like all freshwater mussels, the snuffbox mussel is a filter feeder.

Principal threats to survival of the snuffbox mussel are similar to those described previously for the hickorynut. The snuffbox mussel was last reported from Monroe, Wayne, and Washtenaw Counties in 1933, 2000, and 1977, respectively (MNFI 2007g). Streams with conditions suitable for the snuffbox mussel are not present on the Fermi site, although there is a possibility that shoreline areas of Lake Erie near the site could contain suitable substrates. The snuffbox mussel is unlikely to inhabit any of the smaller streams that are crossed by the proposed transmission line corridor.

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### Wavyrayed Lampmussel (*Lampsilis fasciola*)

The wavyrayed lampmussel is a freshwater unionid mussel (see Section 2.4.2.1) that is listed as threatened by the State of Michigan (MNFI 2007g). The historic range for this species extended from Ontario to Alabama and Illinois to New York, and it is now discontinuously distributed in the Great Lakes tributaries of Lake Michigan, Lake Erie, Lake Huron, Lake St. Clair, and in the Ohio, Mississippi, and Tennessee River drainages (Stagliano 2001c). Historically, the wavyrayed lampmussel was found throughout the streams and rivers of southeastern Michigan, but the current distribution is more limited (Stagliano 2001c). It is currently known to occur in the Clinton River drainage in Macomb and Oakland Counties, the St. Joseph River in Hillsdale County, the Belle River in St. Clair County, the Huron River drainage in Washtenaw County, and the River Raisin drainage in Jackson, Lenawee, and Washtenaw Counties. It has also been reported in the past from the River Raisin in Monroe County, although the status of populations in that area is not known. The wavyrayed lampmussel occurs in small to medium-sized shallow streams, in and near riffles, with good current; it rarely occurs in medium or larger rivers (Stagliano 2001c). The preferred substrate is sand and gravel (Stagliano 2001c).

The general life history of unionid mussels is described in Section 2.4.2.1. The wavyrayed lampmussel breeding season extends from August of one year through July of the following year (Stagliano 2001c). Following fertilization, gravid females retain larvae over the winter and release glochidia during spring and summer (Stagliano 2001c; Carman and Goforth 2000c). The smallmouth bass is the only known fish host (Stagliano 2001c). After dropping off the fish host, this species reportedly does not move more than approximately 300 yd throughout its life (Stagliano 2001c). The life span of the wavyrayed lampmussel is unknown (Stagliano 2001c). Like all freshwater mussels, the wavyrayed lampmussel is a filter feeder.

Principal threats to survival of this species are similar to those described previously for the hickorynut. The wavyrayed lampmussel was last reported from Monroe, Wayne, and Washtenaw Counties in 2000, 1995, and 2005, respectively (MNFI 2007g). Streams with conditions suitable for the wavyrayed lampmussel are not present on the Fermi site, and Lake Erie adjacent to the Fermi site does not offer suitable habitat for this species. It is currently unknown if appropriate habitats are present in any of the smaller streams that are crossed by the proposed transmission line corridor.

### White Catspaw (*Epioblasma obliquata perobliqua*)

The white catspaw is a freshwater unionid mussel (see Section 2.4.2.1) that is Federally listed as endangered and is also listed as endangered by the State of Michigan (MNFI 2007g). This species is considered extirpated from Michigan (MNFI 2007g). Catspaw mussels historically occurred throughout the Midwest and in eastern North America. The white catspaw is believed to have been widely distributed in the Great Lakes drainages; it has been reported from New York to Indiana and is confirmed to have once been present in several rivers in Ohio, Indiana,

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and southeastern Michigan (Carman 2001h). The white catspaw was also known to have been present in nearshore areas in Lake Erie (Carman 2001h). Currently, the white catspaw is a highly imperiled species, and the only known viable population remaining is in Fish Creek, Ohio (Carman 2001h).

The white catspaw is a medium-sized mussel up to 2 in. long. Little is known of its required habitat because this species is so rare, but it has historically been found in sand and gravel substrates in the riffles and runs of high-gradient streams. In Michigan, the white catspaw also occurred in large rivers (e.g., the Detroit River) and in nearshore areas of Lake Erie (Carman 2001h). The breeding season is unknown, but related mussel species typically release glochidia in late spring or early summer. It is considered likely that the host species for the white catspaw is a riffle-dwelling fish such as a darter or sculpin (FWS 1990). The lifespan is estimated to exceed 15 years (Carman 2001h).

The survival of the white catspaw mussel is currently in severe jeopardy (FWS 1990). Threats to the continued existence of the species include habitat destruction associated with siltation, dredging, and channelization (FWS 1990). The white catspaw was last observed in Monroe and Wayne Counties in 1930 and has not been reported from Washtenaw County (MNFI 2007g). High-gradient streams with conditions suitable for the white catspaw are not present at the Fermi site, although nearshore areas in Lake Erie adjacent to the site could provide suitable substrate. Given the rarity of this species and the absence of reports of individuals or other populations within the region surrounding the Fermi site, it is considered highly unlikely that this species would be present in the project area or in aquatic habitats crossed by the proposed transmission line corridor and, therefore, is not considered further in the environmental impact statement.

Channel Darter (*Percina copelandi*)

The channel darter is a small fish listed as endangered by the State of Michigan (MNFI 2007g). Its distribution extends from the upper St. Lawrence drainages, through the Great Lakes Basin, and into the Ohio River Basin. The darter is found primarily in the Ohio River Basin, but isolated populations occur southward to Louisiana (Carman and Goforth 2000a). In Michigan, the darter's range historically included nearshore areas of Lake Erie and Lake Huron, including some tributaries (Carman and Goforth 2000a). Since 1994, it has been recorded only in the Au Sable, Pine, and St. Clair Rivers in Michigan (Carman and Goforth 2000a). The channel darter's habitat includes rivers and large creeks with moderate current over sand and gravel substrate. It has also been recorded in wave-swept areas of Lake Huron and Lake Erie that have coarse-sand, fine-gravel beach and sandbar substrates (Carman and Goforth 2000a). The darter is usually found in deeper water but will move into shallow water (<3 ft) at night (Carman and Goforth 2000a).

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In addition to the economic damage caused by this species, the invasion of the Great Lakes and other areas by this species has had important ecological effects. As identified in previous sections, zebra mussels have contributed to the decline of native freshwater mussels by competing for food and space and by preventing burrowing and other activities when they attach to the shells of freshwater mussels. In addition, the collective water-filtering ability of quagga and zebra mussels is believed to have had lakewide effects on nutrient levels, the abundance and composition of phytoplankton and zooplankton communities, and water clarity, resulting in large-scale ecological changes (USGS 2008).

### 2.4.2.4 Important Aquatic Species and Habitats – Transmission Lines

As identified in Section 2.4.2.2, aquatic habitats within or adjacent to the new transmission line corridor include several small streams and numerous small drainage ditches. The new transmission line corridor does not cross any lakes, ponds, or reservoirs. Stony Creek, which is located in the developed eastern portion of the assumed route, is the largest stream crossed by the transmission line route and is discussed in Section 2.4.2.1.

There are no known commercial fisheries occurring within surface water habitats that occur within the proposed transmission line corridor. While some species that support fisheries (e.g., largemouth or smallmouth bass, bluegill, or yellow perch) could be present in these habitats in low numbers, there are no important commercial or recreational fisheries present within the assumed 300-ft-wide ROW because of the small sizes of the drainages present.

Federally and State-listed species that have a potential to occur along the new transmission line route, on the basis of county-level records for Monroe, Wayne, and Washtenaw Counties, are identified in Table 2-16. The majority of the transmission line route falls within the Ottawa-Stony Watershed (Hydrologic Unit Code 04100001). However, it is not known whether suitable habitat or populations of species identified in Table 2-16 occur in portions of the drainage that would be crossed by the proposed transmission route. The MDEQ and/or USACE may require surveys of the proposed transmission line corridor to evaluate the presence of important species and habitat.

### 2.4.2.5 Aquatic Monitoring

No formal monitoring of the aquatic environment on the Fermi site has been conducted or is planned. The current NPDES permit for the Fermi site does not require monitoring of aquatic ecological resources, and there are no requirements in the license for Fermi 2 to conduct monitoring of aquatic resources, including specific aquatic ecological monitoring of the algal community, benthic invertebrates, or fish.

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### ***Traditional Cultural Properties***

Detroit Edison contacted six Native American groups in an effort to identify any traditional cultural properties in the area of the Fermi 3 site and/or to determine whether the Fermi 3 site is an area that is otherwise sensitive to these groups with respect to cultural resources. Five of the six Native American groups are Federally recognized Indian Tribes: the Match-e-be-nash-she-wish Band of Potawatomi Indians of Michigan; the Huron Potawatomi, Inc.; the Forest County Potawatomi Community of Wisconsin; the Hannahville Indian Community; and the Saginaw Chippewa Indian Tribe of Michigan (Detroit Edison 2009d). The NRC also contacted these five Federally recognized Indian Tribes as part of consultation under NEPA and Section 106 of the NHPA (see Section 2.7.4). The remaining Native American group contacted by Detroit Edison was the non-Federally recognized Native American group (the Wyandot of Anderdon Nation) (Detroit Edison 2009d).

None of the five Federally recognized Indian Tribes responded to Detroit Edison. The non-Federally recognized Native American group responded to Detroit Edison's contact but did not identify any traditional cultural properties in the area of the Fermi 3 site or indicate that the Fermi 3 site is an area that is sensitive to this group with respect to cultural resources (Detroit Edison 2011a; Gronda 2008). Responses from Federally recognized Indian Tribes that the NRC has received to date are discussed in Section 2.7.4.

### **2.7.3 Historic and Cultural Resources within the Transmission Line Corridor**

The proposed transmission line route will extend from the Fermi 3 site in Monroe County north and west to the existing Milan Substation in Washtenaw County. The majority of the proposed transmission line route, from the Fermi 3 project area in Monroe County north to the Sumpter-Post Road junction in Wayne County, will utilize an existing transmission line route. The remaining portion of the proposed transmission line route, from the Sumpter-Post Road junction in Wayne County west to the existing Milan substation in Washtenaw County, will utilize a new, undeveloped transmission line route.

Efforts to identify cultural resources along the proposed transmission line route consisted of site file research for the entire proposed transmission line route and a field view of the proposed new portion of the route. The APE for the site file search for the entire proposed transmission line route was defined as a 1.5-mi area around the proposed route from the Fermi 3 site in Monroe County to the existing Milan Substation in Washtenaw County. Site file searches identified a total of 77 previously recorded archaeological resources within the proposed transmission line route APE; no previously recorded architectural resources or NRHP-listed or NRHP-eligible historic properties were identified (Detroit Edison Corporation 2011a). Six of the 77 archaeological resources would be crossed by that portion of the proposed transmission line route that would require a new corridor. These six archaeological resources, which consist of

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five prehistoric archaeological sites and one historic archaeological site, were previously determined to not be NRHP eligible (see Table 2-63).

**Table 2-63.** Identified Transmission Line Corridor Archaeological Resources

Site Number	Site Description	Site Age or Cultural Period	NRHP–Eligibility Status
20WN928	Previously Recorded Prehistoric Archaeological Site	Unidentified Prehistoric	Determined Not Eligible
20WN927	Previously Recorded Prehistoric Archaeological Site	Woodland	Determined Not Eligible
20WN972	Previously Recorded Prehistoric Archaeological Site	Late Woodland	Determined Not Eligible
20WN 973	Previously Recorded Prehistoric	Unidentified Prehistoric	Determined Not Eligible
20WN976	Previously Recorded Prehistoric	Late Woodland	Determined Not Eligible
20WN1043	Historic Archaeological Site	19th and 20th Century	Determined Not Eligible

Source: Detroit Edison 2011a

The preliminary field view of the APE for both archaeological and aboveground resources was limited to the portion of the proposed transmission line route that would require a new corridor, and it extended 1.5 mi on either side of an assumed 300-ft-wide corridor centerline (Detroit Edison 2011a). Results of this field view of the proposed new transmission line route indicated a moderate to high potential for identifying archaeological resources and the few aboveground resources that meet the minimum age requirement or retain sufficient integrity to be considered for NRHP eligibility (Detroit Edison 2011a).

Cultural resources impacts related to construction of the proposed transmission lines are discussed in Sections 4.6, 10.2.1, and 10.4.1.5. Operational impacts of the proposed transmission lines on cultural resources are discussed in Sections 5.6 and 10.2.2, and cumulative transmission line cultural resource impacts are discussed in Section 7.5.

## 2.7.4 Section 106 Consultation

In December 2008, the NRC initiated Section 106 consultation for the proposed Fermi 3 project with the Michigan SHPO and the Advisory Council on Historic Preservation (ACHP) as part of the scoping process for the review of the Fermi 3 COL application under NEPA, consistent with 36 CFR 800.8(c) (NRC 2008a, b) (see Appendix C). In December 2008, the NRC also initiated Section 106 consultation for the proposed Fermi 3 project with a total of 17 Federally recognized Indian Tribes, in accordance with 36 CFR 800.2(c)(2)(ii) and 36 CFR 800.3(c), (see Appendix C for complete listing). Twelve of the Indian Tribes contacted as part of the scoping process are located in the State of Michigan. The remaining five Indian Tribes are located outside the State of Michigan but are either within a 50-mi radius of the Fermi 3 project or have a judicially



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(Detroit Edison 2011b). These systems would process radioactive liquid, gaseous, and solid effluents to maintain releases within regulatory limits, as described in Section 3.4.3. The Radwaste Building would be located adjacent to the Turbine Building (shown as “03” in Figure 3-1). The Radwaste Building source terms are discussed in Chapter 12 of the ESBWR Design Control Document (DCD) (GEH 2010).

### ***Sanitary Waste Treatment Plant***

Sanitary waste systems needed at Fermi 3 during construction activities would consist of portable toilets supplied and serviced by an offsite vendor; there would be no sanitary waste system discharge into the effluent stream. During operations, the Fermi 3 wastewater treatment system would collect sewage and wastewater generated from portions of the plant that are outside radiological control areas. The system would use mechanical, chemical, and biological treatment processes. Sanitary effluent would be gathered and discharged to the Monroe Metropolitan Wastewater Treatment Facility and would be required to meet applicable NPDES permit requirements, health standards, regulations, and total maximum daily loads (TMDLs) set by the MDEQ and the U.S. Environmental Protection Agency (EPA) (EPA 2009).

Wastewater treatment operations for Fermi 3 would be similar to those for the existing Fermi 2 and those that are commonly used in wastewater treatment plants throughout the United States. Components of the Fermi 3 sanitary wastewater treatment system include waste basin, wet well, septic tank, settling tank, wet well pumps, sewage discharge pumps, and associated valves, piping, and controls. Chemical treatments applied to the waste would be those within the Monroe Metropolitan Wastewater Treatment Facility, in keeping with municipal sewage treatment standards.

### ***Power Transmission System***

Transmission lines and corridors are considered to interface with the environment during operation, because there are potential continuing impacts from electric fields, noise, and corridor maintenance.

A system impact study conducted for Fermi 3 identified the need for a new onsite 345-kilovolt (kV) switchyard and three new 345-kV transmission lines to connect Fermi 3 to the regional electrical grid (Detroit Edison 2011b). The new switchyard would be separate from the existing Fermi 2 switchyard and the onsite 120-kV transmission system.

A new 170-ft-wide transmission corridor (Figure 3-2) is planned on the Fermi site to service Fermi 3 (Detroit Edison 2011b). This transmission corridor would include two sets of towers that would carry both rerouted 345-kV lines that serve Fermi 2 and the new 345-kV lines that serve Fermi 3. The new transmission lines would transmit power from the Fermi 3 generator to the

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Fermi 3 switchyard at the intersection of Toll Road and Fermi Drive (Figure 3-2). Onsite 120-kV support for Fermi 2 would be routed underground along the Fermi Drive corridor.

The offsite route for the new lines will traverse approximately 30 mi within a 300-ft transmission line corridor along mostly existing corridors to the Milan Substation (Figure 3-8). The first 18.6 mi of transmission lines (going west and north from Fermi) would be installed alongside the 345-kV lines that are already in place (Figure 3-8). By reconfiguring conductors, new lines in this portion of the route could use existing towers, but placement of additional transmission infrastructure may be necessary. The remaining 10.8 mi of transmission lines to the Milan Substation would be located in an undeveloped portion of the transmission line corridor that was previously authorized for transmission use (Figure 3-8). Some transmission tower footings were installed as part of the original Fermi 3 plan, but the corridor has been minimally maintained. The 350-ft-by-500-ft Milan Substation may be expanded to an area about 1000 ft by 1000 ft to accommodate the Fermi 3 expansion (Detroit Edison 2011b).

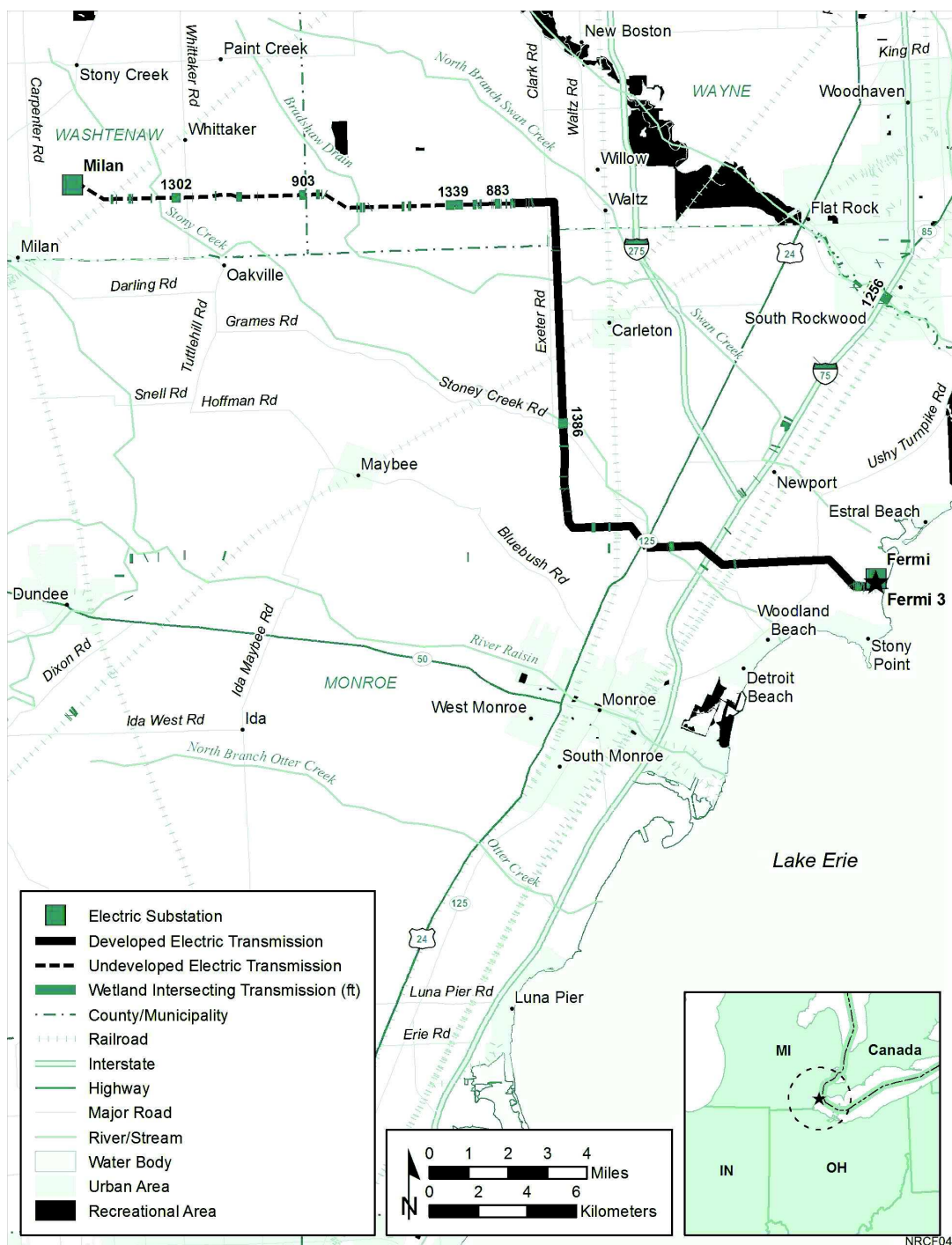
Most of the 18.6-mi portion of the route crosses agricultural land, but the undeveloped 10.8-mi portion crosses a variety of land cover types including forest, agricultural lands, rural residential areas, and a golf course.

ITC*Transmission* owns and operates the transmission system in southeastern Michigan. This system transfers power from regional power plants to local distribution systems, and carries power transfers from power plants to loads across the Eastern Interconnection (Detroit Edison 2011b). The offsite portions of the proposed Fermi 3 transmission system and associated corridors would be owned and operated by ITC*Transmission*. Detroit Edison has no control over the construction or operation of the transmission system and is not involved in the evaluation or decision making for proposed changes to or design of the transmission system. The two 345-kV transmission lines that would exit Fermi 3 would be owned by Detroit Edison up to the proposed new Fermi 3 switchyard. Detroit Edison would continue to own the onsite transmission corridor, but expects to contract with ITC*Transmission* to maintain these transmission lines and towers (Detroit Edison 2011b).

In addition to the new transmission lines and switchyard, upgrades to existing transmission lines would be needed to facilitate the new generation on the system (Detroit Edison 2011b). Transmission line and switchyard design would meet or exceed the requirements established in the National Electrical Safety Code (NESC) (IEEE 2007), which provides standards for electrical safety, electrical clearances, structural design loadings, and material strength factors. Modifications to the existing system would comply with relevant local, State, and industry standards, including NESC and various American National Standards Institute/Institute of Electrical and Electronic Engineers, Inc. (ANSI/IEEE) standards.



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**Figure 3-8.** Proposed Transmission Line Corridor from Fermi 3 to Milan Substation (Detroit Edison 2011b)

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### **3.2.2.4 Other Temporary Plant-Environment Interfacing Structures**

Temporary plant–environment interfacing structures include a concrete batch plant, construction laydown, a construction parking area, and groundwater dewatering systems.

#### ***Concrete Batch Plant***

An onsite concrete batch plant would be used to produce concrete during Fermi 3 construction. Lake Erie water would be used for concrete production. The plant would be equipped with a dust-control system that would be checked and maintained on a routine basis. The location of the concrete batch plant onsite is expected to result in fewer offsite dust impacts than if concrete were produced offsite and trucked to the construction area.

#### ***Construction Laydown Areas and Temporary Parking***

Portions of the Fermi site would be used for temporary construction parking and construction laydown (Figure 4-1). These areas would occupy a total of 143 ac (Detroit Edison 2011b). On completion of construction, these areas would be rehabilitated by removing gravel, replacing stocked topsoil, regrading, and revegetating.

#### ***Groundwater Wells and Dewatering Systems***

Groundwater is not used for Fermi 2 operations, and has not been proposed for use during construction or operation of Fermi 3. However, it is possible that groundwater may be supplied to certain outbuildings as potable water during the construction period (Detroit Edison 2011b). This water use would be expected to be minimal. Groundwater wells or sumps are planned to dewater deep excavations during construction; however, no permanent dewatering systems would be required for Fermi 3.

### **3.2.3 Structures with Minimal Plant-Environmental Interface**

The structures described in the following sections would have minimal interface with the environment during plant operation.

#### **3.2.3.1 Power Block**

Buildings and facilities within the power block would include the Reactor Building, Fuel Building, Control Building, Turbine Building, Radwaste Building, and several service buildings (e.g., Electrical Building, Service Water Building) (Figure 3-1).

The Reactor Building (shown as “01” in Figure 3-1) would house the reactor system, reactor support and safety systems, concrete containment, safety-related power supplies and

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equipment, steam tunnel, and refueling<sup>(a)</sup> area (GEH 2010). The Fuel Building (shown as “12” in Figure 3-1) would house the spent fuel pool, cask loading area, fuel equipment and storage areas, lower connection to the inclined fuel transfer system, and other plant systems and equipment. The Reactor and Fuel Buildings would share a common wall and a large common foundation mat. The radioactive sources in the spent fuel pool are discussed in Chapter 12 of the ESBWR Design Control Document (DCD) (GEH 2010).

The Control Building (shown as “04” in Figure 3-1) would house safety-related electrical, control, and instrumentation equipment and the control room for the Reactor and Turbine Buildings (GEH 2010). The Turbine Building (shown as “03” in Figure 3-1) would be the tallest building within the power block (171 ft tall and with a 234 ft ventilation stack) and would house the turbine generator, main condenser, condensate and feedwater systems, condensate purification system, offgas system, turbine-generator support systems, and bridge crane.

The Radwaste Building (shown as “10” in Figure 3-1) would house the equipment and floor drain tank(s), sludge phase separator(s), resin hold-up tank(s), detergent drain collection tank(s), concentrated waste tank(s), chemical drain collection tank(s), and associated pumps and systems for the radioactive liquid and solid waste treatment systems (GEH 2010). Tunnels would connect the Radwaste Building to the reactor and Fuel and Turbine Buildings. The radwaste facility is discussed in Section 3.2.2.

### 3.2.3.2 Cranes and Crane Footings

Mobile cranes and a stationary crane would be used to facilitate the construction of the Fermi 3 power block. The stationary crane would require that footings be fabricated and cranes be erected on the site.

### 3.2.3.3 Ultimate Heat Sink

The ESBWR design has no separate emergency water cooling system. The ultimate heat sink function would be provided by safety systems integral and interior to the reactor plant. These systems would ultimately use the atmosphere as the heat sink. The ultimate heat sink would not rely on cooling towers, basins, or cooling water intake/discharge structures external to the reactor plant. In the event of an accident, the ultimate heat sink would be provided by the Isolation Condenser/Passive Containment Cooling Pools, which would provide the heat transfer mechanism for the reactor and containment to the atmosphere.

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(a) Refueling is a process (one mode of plant operation) of replacing older fuel that can no longer produce electricity effectively from nuclear fission reactions with new fuel.

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### 3.2.3.4 Pipelines

New pipelines would be needed to provide makeup water from Lake Erie for the CIRC, PSWS, and FPS. Cooling tower blowdown water would be discharged via a new pipeline and discharge structure within Lake Erie. The review team assumed that pipelines would follow existing roads or roads created when building Fermi 3. Therefore, the installation of pipelines would be limited to areas already disturbed.

### 3.2.3.5 Permanent Parking

Two new multiple-level parking garages would be built to accommodate Fermi 2 and 3 operational workers (shown as “38” on Figure 3-1 and “31” on Figure 3-2). The two parking garages are sized to accommodate Fermi 2 and Fermi 3 operational parking.

### 3.2.3.6 New Meteorological Tower

A new meteorological tower would be built for the Fermi site and would be located near the southeastern boundary of the property (shown as “42” in Figure 3-2) (Detroit Edison 2011b). Relocating the existing meteorological tower would be necessary because the Fermi 3 cooling tower would interfere with the current meteorological tower location. The new meteorological tower would be a guyed open-latticed tower and would have a height of 197 ft.

### 3.2.3.7 Miscellaneous Buildings

Several small buildings would be built on the site to support worker, construction, and operational needs (e.g., shop buildings, construction support offices, warehouses, guard houses). Some buildings may be temporary and would be removed after the plant begins operation.

## 3.3 Preconstruction and Construction Activities

Although nuclear-plant construction activities are similar to those for other large industrial facilities, the NRC’s authority is limited to only those construction activities that have a “reasonable nexus to radiological health and safety or common defense and security” (72 *Federal Register* [FR] 57432). This definition of “construction” includes placement of fill, mud mat, concrete, or permanent retaining walls within an excavation for safety-related structures, systems, or components (SSCs) (but not the excavation activity itself); installation of foundations; or in-place assembly, erection, fabrication, or testing of any safety-related SSC. This definition also extends to SSCs needed to mitigate accidents that are used in plant emergency operating procedures or whose failure could cause a safety-related problem. Activities fitting this definition of “construction” can only occur after the NRC issues a COL or a Limited Work Authorization.

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**Table 3-3.** Summary of Parameters and Resource Commitments Associated with Building the Proposed Fermi 3

Resource	Value	Description and References
Disturbed land area footprint onsite	Approximately 301 ac total; of that approximately 154 ac would be permanently occupied; of the 301 ac, approximately 189 ac consists of currently undeveloped land	ER Section 4.1.1.1, p. 4-5 and Table 10.1-2, p. 10-8
Length of new transmission line corridors	<u>Onsite</u> : Less than 1 mi from Fermi 3 to switchyard	ER Section 2.2.2.2, p. 2-22
	<u>Offsite</u> : Approximately 29.4 mi (18.6 mi of currently developed corridor; 10.8 mi of undeveloped corridor)	ER Section 2.2.2.2, p. 2-23
Width of new transmission line corridors	<u>Onsite</u> : 170 ft	ER Section 2.2.2.2, p. 2-22
	<u>Offsite</u> : 300 ft	ER Section 2.2.2.2, p. 2-23
Disturbed land area in new onsite transmission corridor	Approximately 20 ac	Calculated from information in ER Section 2.2.2.2, p. 2-22
Disturbed land area for Milan Substation expansion	Approximately 19 ac	ER Section 2.2.2.2, p. 2-23
Land area permanently occupied by 29.4 mi offsite transmission corridor	Approximately 1069 ac; Approximately 393 ac in new corridor	ER Section 2.2.2.2, p. 2-23; Table 4.1-1, p. 4-23
Excavation depth to which dewatering would be required	40 ft to 50 ft below grade	Design Control Document, Rev. 6, Section 1.2.2.16; ER Section 4.2.1.5
Water use	350,000 to 600,000 gpd	Obtained from Lake Erie; ER Section 4.2.1.3, p. 4-26
Water discharge	200 gpm (288,000 gpd) dredge effluent discharge; no discharge of sanitary waste	Permitted discharge to Spoils Disposal Pond; ER Section 4.2.1.4, p. 4-24
Workforce	Increase from 150 workers in first 2 years to maximum 2900 workers	ER Section 4.4.2, p. 4-71
Duration of preconstruction and construction activities	9 to 12 years	ER Section 4.4.2, p. 4-71
Noise	89 dBA maximum construction noise level at 50 ft from activity; 63 dBA 1000 ft from activity	ER Section 4.4.1.1.3, Table 4.4-1, p. 4-90

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discussed in Section 4.4, with operations-related infrastructure impacts presented in Section 5.4.

Based on information provided by Detroit Edison, and the review team's independent evaluation, the review team concluded that the land use impacts of preconstruction and construction activities on the Fermi site would be SMALL and that mitigation measures beyond those required by Federal and State agencies would not be warranted. This conclusion recognizes that the impacts on the DRIWR are consistent with Detroit Edison's Cooperative Agreement with the FWS for management of the DRIWR, that Detroit Edison would ensure that the Fermi 3 project is consistent with Michigan's objectives for managing its coastal zone, and that Detroit Edison would perform compensatory mitigation required by the USACE and MDEQ for unavoidable losses of wetlands. It also recognizes that ITC*Transmission* would obtain a coastal zone consistency determination for that part of the proposed transmission line to be built on the Fermi site. Because NRC-authorized construction activities represent only a portion of the analyzed activities, the NRC staff concluded that the land use impacts of NRC-authorized construction activities would also be SMALL. As previously noted, the project would require certification from the State of Michigan that it would be consistent with Michigan's coastal zone management program.

### 4.1.2 Transmission Line Corridors and Other Offsite Facilities

Three new 345-kV transmission lines have been proposed to serve Fermi 3, and would extend offsite along a 29.4-mi route in Monroe, southwest Wayne County, and southeast Washtenaw County. Within the required corridor, approximately 18.6 mi of lines would be sited within established transmission line rights-of-way, and approximately 10.8 mi of the corridor would be sited along new undeveloped right-of-way (Detroit Edison 2011a). The lines would be connected to the ITC*Transmission* Milan Substation for distribution to the grid. New towers would require foundation excavations, and the new lines would be constructed, owned, and operated by ITC*Transmission*. The Milan Substation currently occupies 4 ac; it is likely that the substation footprint would be expanded to an area of approximately 23 ac, encompassing approximately 19 ac of additional land, to accommodate the three new transmission lines from Fermi 3 (Detroit Edison 2011a).

Approximately 1069 ac would be used for the proposed lines, assuming that a 300-ft-wide right-of-way (ROW) would be required for a distance of 29.4 mi (Detroit Edison 2011a). Additional acreage for laydown and other activities, located outside the corridors, might also be required. No new roadway access would be anticipated, with existing roads used for access and construction traffic. While the new lines are being built, the corridor areas might be fenced to prevent impacts on other land uses. Once the lines are installed, a small amount of land around the transmission tower bases would be lost from productive use in agricultural areas, while in forested areas, the corridor would remain cleared. Clearance of new corridor would result in vegetation removal and brush piles, disturbance of soils and soil erosion, and damage to



## Construction Impacts at the Proposed Site

culverts and roadways. Within the 300-ft corridor, there would be impacts on forest, agricultural lands, wetlands and streams, residences, undeveloped land, and recreational uses.

Practices used for extending the new transmission lines to the Milan Substation would be expected to comply with the requirements of local, State, and Federal environmental regulations. ITC*Transmission* has stated that industry standards for best environmental practices would be observed, including (1) continual and responsible management of wastes and chemicals to prevent and avoid pollution, (2) use of environmentally preferable materials, (3) reduction or elimination of wastes at the source, (4) appropriate storage and handling of wastes, (5) recycling and reuse of waste materials, and (6) sediment and erosion control (ITC 2010). Detroit Edison has stated that it expects ITC*Transmission* to largely restore existing land uses, other than forest, in the transmission line corridor once the transmission line is built (Detroit Edison 2011a).

Land use in each section of the corridor for the proposed new transmission lines is shown in local Township and County future use plans as being utility use, while land for the new corridor is shown as agricultural (Monroe County Planning Department and Commission 2010; James D. Anulewicz Associates, Inc., and McKenna Associates, Inc. 2003). Sections 460.551–460.575 of the Michigan Compiled Laws (MCL) authorize the Public Service Commission to regulate electric transmission lines. In siting the new transmission line, Detroit Edison would contact the State Historic Preservation Office (SHPO), FWS, MDEQ, and USACE.

Based on information provided by Detroit Edison, ITC*Transmission*, and the review team's own independent review, the review team concluded that the land use impacts of building the new transmission line would be SMALL, and no additional mitigation beyond that required by other environmental permits would be warranted. None of the impacts related to transmission lines would result from NRC-authorized activities.

## 4.2 Water-Related Impacts

Water-related impacts associated with building a nuclear power plant are similar to impacts associated with building any large industrial facility development project and to the impacts that occurred during the construction of Fermi 2. Prior to initiating onsite activities, including any site preparation work, Detroit Edison is required to obtain the appropriate authorizations that regulate alterations to the hydrological environment. These authorizations would likely include:

- Clean Water Act Section 404 Permit. This permit is required for the discharge of dredged and/or fill material into waters of the U.S.
- Clean Water Act Section 401 Water Quality Certification. This certification would be issued by the MDEQ to ensure that the project does not conflict with State and Federal water-quality management programs. Permit No. 10-58-0011-P was issued to Detroit Edison on

## Construction Impacts at the Proposed Site

would, therefore, be minimal. As shown in Table 4-1, temporary forest clearings would occur on only about 11 ac of the Fermi site.

Once no longer needed, temporarily disturbed vegetated areas would be revegetated with plants native to the project vicinity (Detroit Edison 2011a). EPA (2012) recommended that Detroit Edison take the following actions when revegetating temporarily disturbed habitats:

- Use native species appropriate to the sites to be revegetated;
- Prior to clearing and revegetating temporarily disturbed habitats, develop measures of success for the revegetation based on the percentages of the numbers and/or area covered by the planted native species and any non-native invasive species; and
- Where forested land needs to be cleared for overhead transmission lines, consider establishing low-growing native plants conducive to periodic mowing.

Because many of the areas that would be disturbed contain substantial amounts of nonnative invasive plant species, a restored vegetation community of predominantly native species eventually could provide higher-quality forage and shelter habitat than the existing vegetation community in those areas. However, especially for forested areas, several years would be needed for new vegetation to grow enough to replicate the ecological functions of the original vegetation.

As indicated in Section 4.3.1.3, approximately 34.5 ac of wetlands would be disturbed, including approximately 23.7 ac of temporary impacts, approximately 8.3 ac of permanent fill (conversion to non-wetland), and approximately 2.5 ac of forested wetland permanently cleared of trees (converted to emergent or scrub-shrub wetlands). This includes not only coastal emergent wetlands, as indicated in Table 4-1, but also some other areas within forest and other habitats that were delineated as wetlands. Both the USACE and MDEQ require compensatory mitigation for the unavoidable loss of wetlands that are regulated by these agencies. Approximately 1.9 ac is not regulated by either agency, and Detroit Edison has not proposed compensatory mitigation for this acreage. Wetland losses and mitigation are discussed in more detail in Section 4.3.1.3.

The potential for short-term impacts on undisturbed wetlands and terrestrial habitats would be minimized by using BMPs to reduce stormwater runoff and the risk of pollution from soil erosion and sediment and pollutant spills (Detroit Edison 2011a). Detailed measures for BMPs would be included in the SESC plan and PIPP for the project (see Section 4.2).

The U.S. Department of the Interior (DOI) (2012) recommended that Detroit Edison develop a wildlife management plan to compensate for the loss of wildlife habitat, including development of quality grassland habitat to offset the loss of the prairie restoration area and to provide



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demand in adjacent habitats, exceeding carrying capacity and ultimately resulting in higher mortality rates. Because most of the noise would be close to the existing Fermi structures, much of the wildlife in the area may have already adapted to industrial noise levels. It is therefore expected that the overall impact of construction noise on wildlife would be minimal.

Noise from site-preparation and site-development activities can affect wildlife by inducing physiological changes, nest or habitat abandonment, or behavioral modifications, or it may disrupt communications required for breeding or defense (Larkin 1996). However, it is not unusual for wildlife to adapt to such noise (Larkin 1996). Development activities that would generate noise include operation of equipment such as jackhammers, pile drivers, and heavy construction vehicles. Short-term noise levels from development activities onsite could be as high as 90 decibel(s) (acoustic) (dBA) at a distance of 50 ft from construction activity (Detroit Edison 2011a). That level would not extend far beyond the boundaries of the construction footprint. The threshold at which birds and small mammals are startled or frightened is 80 to 85 dBA (Golden et al. 1980). The review team expects that noise levels associated with creation of the transmission line corridor would be similar to noise levels associated with onsite development activities, but would be incurred for a more limited duration at any given location. Thus, impacts on wildlife from noise are expected to be negligible.

Accidental spills associated with construction activities could affect terrestrial wildlife but are of a greater concern to aquatic organisms (see Section 4.3.2). Refueling stations, fuel storage, oil storage, and storage of other fluids also pose a risk to surface waters that some wildlife species rely upon. However, activities and spill countermeasures, including the use of BMPs, would be implemented in a way that minimizes the potential for spills and limits the spread of spilled materials, thereby limiting mortality and morbidity of wildlife (Detroit Edison 2011a). As discussed in Section 4.2, a PIPP that addresses actions to be taken in the event of such spills would be implemented. Accordingly, impacts from a spill occurrence are expected to be minor, and no additional mitigation measures would be needed. BMPs related to the management of effluent and stormwater runoff as required by the Storm Water Management Plan and NPDES permit would also limit these impacts.

The DOI (2012) recommends that Detroit Edison implement several measures to reduce impacts on wildlife, especially migratory birds. First, DOI recommends restricting the timing of activities that disturb habitat for migratory birds to periods when migratory bird species known to use those habitats have migrated out of the area. Second, the DOI recommends that Detroit Edison complete removal of potential nesting habitat before spring nesting begins, or initiate removal after the breeding season has ended, to avoid take of migratory birds, eggs, young, and/or active nests. The DOI would prefer that no habitat disturbance, destruction, or removal occur between April 15 and August 15, to minimize potential impacts on migratory birds during their nesting season. The review team notes, however, that some species may initiate nesting before April 15.

## Construction Impacts at the Proposed Site

**4.3.1.2 Terrestrial Resources – Transmission Lines**

Building Fermi 3 would require installation of three new transmission lines in an assumed 300-ft-wide corridor from the Fermi site to the Milan Substation, a distance of approximately 29.4 mi. The proposed transmission line route is described and illustrated in Section 2.4.1.2 and Figure 2-5. The 345-kV transmission system and associated corridors are exclusively owned and operated by ITC *Transmission*. Detroit Edison would not control the development or operation of the transmission system. Accordingly, the impacts discussed for the proposed new transmission lines are based on publicly available information and reasonable expectations of the configurations and practices that ITC *Transmission* would likely follow based on standard industry practice. In general, the impacts on terrestrial resources from building new transmission lines for Fermi 3 would be similar to those for building onsite facilities, as described in Section 4.3.1.1.

***Impacts on Habitats***

Vegetation communities occurring along the transmission line route are similar to those away from the Lake Erie shoreline on the Fermi site, as described in Section 2.4.1.1. Impacts on vegetation in the initial 18.6 mi of the corridor are expected to be minimal because of the expected use of existing corridor and because access for installing new infrastructure is good. Potential impacts from building the transmission lines would, therefore, be limited primarily to the western 10.8 mi of the route. The level of vegetation maintenance to date within this undeveloped segment of the route has been minimal except to remove tall woody vegetation. Initial development of this segment would likely result in clearing of trees and other woody vegetation, followed by more intensive maintenance during operation of the transmission lines. Clearing and disposal of woody vegetation would have to be performed in a manner consistent with the provisions of the MDA Emerald Ash Borer Interior Quarantine on firewood and other ash tree products in effect at the time of site preparation activities to avoid spreading the emerald ash borer (MDA 2009). Access from existing roads is sufficient such that few, if any, new access roads would need to be built. Clearing would likely be necessary in areas of deciduous forest and forested wetlands.

Table 2-7 presents the vegetative cover types that occur within the 29.4-mi Fermi 3 transmission line corridor. Table 4-2 presents similar information for just the 10.8-mi segment of the transmission line corridor that is currently undeveloped. Most terrestrial ecology impacts would occur in this 10.8-mi segment. Based on the vegetation cover data in Table 4-2, the review team estimates that approximately 244 ac of forest cover would be permanently cleared to build the transmission line, including approximately 170 ac of deciduous forest and 74 ac of woody wetlands. The deciduous forest would be permanently converted to grassland or old field habitat, and the woody wetlands would be permanently converted to emergent wetlands. Because wetlands in the landscape traversed by the proposed transmission line corridor tend to occur in scattered locations close to streams and drainages, the review team expects that

## Construction Impacts at the Proposed Site

**Table 4-2.** Vegetative Cover Types Occurring in the Undeveloped 10.8-mi Segment of the Transmission Line Corridor

Plant Community	Acres in Corridor <sup>(a)</sup>	Percent of Vegetative Community in Region <sup>(b)</sup>	Acres in Region <sup>(b)</sup>
Open water	0	0	725,910
Developed	11	0.001	1,089,795
Barren land	0	0	10,346
Deciduous forest	170	0.06	282,046
Evergreen forest	0	0	6717
Mixed forest	0	0	5765
Shrub/scrub	6	00.19	3179
Grassland/herbaceous	10	0.02	41,308
Pasture/hay	45	0.02	219,241
Cultivated crop	90	0.007	1,217,689
Woody wetlands	74	0.06	128,090
Emergent herbaceous wetland	9	0.02	56,711
<b>Total</b>	<b>415</b>	<b>0.01<sup>(c)</sup></b>	<b>3,786,797</b>

Source: Adapted from Detroit Edison 2011a

(a) The number of acres in the corridor for each plant community was estimated by Detroit Edison using geographical information system (GIS) measurements of land cover data. The total area of these communities in the corridor sums to 415 ac, which is greater than the area within a 10.8 mi-long, 300 ft-wide corridor (393 ac). It is assumed that this difference results from slight inaccuracies in GIS measurements. This difference does not affect the analysis of impacts presented here.

(b) Region is defined as the area within a 50-mi radius of the Fermi site (see Section 2.2).

(c) Calculated using 415 as a percentage of 3,786,797.

ITC*Transmission* would be able to place the new towers in a way that would require permanent loss due to filling of no more than 0.5 ac of wetlands. Table 4-2 also indicates that even if all of the affected habitats in the 10.8-mi segment were permanently lost, the losses would be minimal when compared to the amount of the same cover types in the region.

As described in Section 4.3.1.1 for the site, most large or more mobile wildlife species present are expected to be sufficiently mobile and would temporarily move out of the way to avoid activity, but smaller ground- and cavity-dwelling animals, as well as nesting birds, would be more vulnerable to mortality from land clearing. Wildlife species that favor disturbed vegetation communities would be expected to benefit and use the newly cleared corridor following erection of the transmission lines. The impact on terrestrial wildlife resources would therefore be relatively minor, and no additional mitigation would be warranted beyond that typically used by ITC*Transmission*. Impacts on important species that may inhabit the transmission line corridor are discussed in Section 4.3.1.3.

## Construction Impacts at the Proposed Site

The State of Michigan has identified numerous State-listed species in Monroe and Wayne Counties, but the MDNR has not commented on which species may be present in the proposed transmission line corridors. A list of Federally and State-listed species that occur in Monroe, Washtenaw, and Wayne Counties and that may occur within the transmission line corridor is provided in Table 2-8. The Indiana bat, eastern prairie fringed orchid, Karner blue butterfly, and Mitchell's satyr butterfly are also State-listed as threatened or endangered. The eastern massasauga is State-listed as a species of special concern. Among other State-listed threatened or endangered species that may be present within the transmission line corridor are the eastern fox snake and barn owl (*Tyto alba*).

ITC*Transmission* would need to confer with the MDNR to determine which State-listed species could be affected by development of the transmission line. Once the exact corridor boundary has been defined, field surveys may be required prior to ground disturbance. Because ITC*Transmission* has some leeway in the locations of transmission line towers and because transmission line development does not require the level of disturbance that Fermi 3 would require, the impacts on terrestrial species from transmission line development are expected to be minimal, assuming that measures to avoid, minimize, and mitigate impacts on habitats and wildlife equivalent to those implemented on the Fermi site are implemented.

The impacts on important species from development of the proposed transmission lines are projected to be minimal, as long as ITC*Transmission* coordinates with the FWS, MDEQ, and MDNR and implements any avoidance, minimization, or mitigation measures those agencies require to minimize impacts on Federal and State-listed species.

### ***Important Terrestrial and Wetland Habitats – Transmission Lines***

Important habitats are defined in Section 2.4.1.2 and discussed for the proposed transmission line corridor in Section 2.4.1.4. Wetlands are the only important habitat crossed by the anticipated transmission line route. Approximately 93.4 ac of forested wetland occur within the expected transmission line corridor; most, if not all, would be permanently cleared of trees (Detroit Edison 2011a). These wetlands would be converted to scrub-shrub or emergent wetlands to maintain clearance for the conductors. No wetlands would be affected in the initial 18.6 mi of the route because adequate cleared corridor to accommodate the new transmission lines is already present. No wetlands are present in the area where the Milan Substation site would be expanded (Detroit Edison 2011a). The undeveloped western 10.8-mi section could require placing towers in wetlands that cannot be spanned (span distances usually cannot exceed 900 ft). The total potential permanent impact on wetlands from installation of all the towers is expected to be approximately 0.5 ac, based on the projected surface area needed to build tower foundations (Detroit Edison 2011a). Clearing trees from forested wetlands would be necessary to construct the transmission lines. After the transmission lines are in place, woody vegetation would be managed to maintain necessary clearance around the conductors; these impacts are discussed in Section 5.3.1.2. A conceptual transmission line corridor has been

## Construction Impacts at the Proposed Site

identified, but wetland delineation surveys have not yet been conducted to determine the precise locations and extent of wetlands. Permanent impacts on wetland areas would be mitigated according to a wetland mitigation plan *ITC Transmission* would develop in coordination with the MDEQ and/or USACE, as necessary. Any mitigation measures required for the impacts are expected to be determined by *ITC Transmission* in coordination with applicable regulatory agencies, which may include the MDEQ and/or USACE, at the time permit applications are submitted.

The impacts on wetlands from building the transmission system could be noticeable, due to the areal extent of the temporary impacts and the long-term conversion of forested wetlands to scrub-shrub or emergent wetlands. With the expected wetland mitigation, however, the review team expects these impacts to be minimal.

### 4.3.1.4 Terrestrial Monitoring

Detroit Edison has not proposed terrestrial monitoring during construction or preconstruction of Fermi 3. However, the MDEQ requires performance monitoring of the required wetland mitigation associated with Permit No. 10-58-0011-P issued to Detroit Edison on January 24, 2012 (MDEQ 2012). The USACE could require monitoring for compliance with USACE-issued permits. The USACE is expected to require short- and long-term monitoring of Detroit Edison's wetland mitigation activities if the USACE issues a permit for regulated activities associated with the Fermi 3 project. The State and other Federal agencies may also require monitoring for compliance with permits issued, including, but not limited to, regular inspection of silt fences and seeded areas and other erosion control activities. Detroit Edison plans to monitor all areas restored, enhanced, or created as part of building Fermi 3 facilities. Sampling would be conducted once site preparation work is complete and for a minimum of 5 years after completion of the site preparation and construction work (Detroit Edison 2012a).

### 4.3.1.5 Potential Mitigation Measures for Terrestrial Impacts

In determining the site layout for Fermi 3, Detroit Edison has made efforts to avoid or minimize impacts on wildlife habitat, wetlands, and local wildlife and habitat. Nonetheless, some impacts on these resources are unavoidable. Accordingly, Detroit Edison has identified a number of measures that would serve to mitigate impacts on terrestrial habitats and species. Each is described in the paragraphs below.

Detroit Edison (2011a) has stated its intention to avoid adverse impacts on the bald eagle by not performing most work within 660 ft of bald eagle nest sites during the nesting season (approximately mid-January through June in southeastern Michigan). If plan changes would result in the need for work within that distance, the work would be timed to take place outside of the nesting season.



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**4.3.1.6 Summary of Construction Impacts on Terrestrial and Wetland Resources**

Based on threatened and endangered species surveys, known threatened and endangered species locations, historical records, life history information, and information provided by Detroit Edison in its ER and Request for Additional Information (RAI) responses, and based on the review team's independent evaluation, the review team concludes that the impacts from construction and preconstruction activities for Fermi 3 on terrestrial resources on the Fermi site and transmission line corridor would be SMALL to MODERATE. This conclusion is based in part on the staff's independent review of mitigation measures proposed by Detroit Edison, especially the compensatory wetland mitigation required by the USACE and MDEQ, mitigation for American lotus impacts that would be required by the MDNR, Detroit Edison's stated intention of relocating affected American lotus, and Detroit Edison's proposed mitigation measures for the eastern fox snake (Detroit Edison 2012a). This conclusion is also based on conclusion of consultation with the FWS under the ESA. The potential for MODERATE impacts is limited to possible adverse effects on the eastern fox snake. The staff's evaluation of the potential impacts on the eastern fox snake recognizes the potential for mitigation measures proposed by Detroit Edison (Detroit Edison 2012a) and approved by the MDNR to significantly reduce impacts on that species, thereby leading to SMALL impacts, but acknowledges the possibility of MODERATE impacts if proposed mitigation is not implemented as described in their plan. The NRC staff concludes that the impacts of NRC-authorized activities on terrestrial resources would likewise be SMALL to MODERATE, with the potential for MODERATE impacts limited to possible adverse effects of construction equipment on the eastern fox snake.

**4.3.2 Aquatic Impacts**

Impacts on aquatic resources from building Fermi 3 would potentially affect Lake Erie and the north, central, and south canals; quarry lakes; Swan Creek; Stony Creek; and wetlands at the Fermi site. Activities that could affect these aquatic habitats include (1) building of a new intake structure, (2) building of a cooling water discharge structure, (3) construction of the barge slip, (4) building of a parking structure and a warehouse, (5) dewatering of the Fermi 3 excavation area, (6) culverting of the south canal; (7) filling of the north and central canal (Sections 3.2 and 3.3); and (8) building a fish return structure. Ground-disturbing activities that lead to soil erosion during site preparation and building of Fermi 3 could result in adverse effects on water quality in water bodies on or adjacent to the Fermi site including Lake Erie, the North and South Lagoons, Swan Creek, and wetlands. In addition, during building of new transmission lines, there is potential to affect stream habitats in Monroe, Washtenaw, and Wayne Counties. This subsection evaluates impacts that could occur on aquatic resources on or in the vicinity of the Fermi site during preconstruction and construction of Fermi 3 or during building of associated transmission lines. Preconstruction- and construction-related impacts on wetlands are described in detail in Section 4.3.1.3 of this EIS. As discussed in Section 2.4.2.1, drainage ditches and the circulating water reservoir on the Fermi site do not provide suitable aquatic habitat to support significant populations of aquatic organisms. Consequently, there would be

## Construction Impacts at the Proposed Site

Edison (2011a) indicated that water levels in the Quarry Lakes could drop between 1 and 2 ft as a result of dewatering operations for preconstruction and construction activities (see Section 4.2.2.2). Methods being considered by Detroit Edison for reducing the amount of groundwater that would be extracted during dewatering operations are described in Section 4.2.1.3. As identified in Section 2.4.2.1, the Quarry Lakes were created when water filled abandoned rock quarries used for site development and construction of Fermi 2. These small lakes are steep-sided, approximately 50 ft deep, and support aquatic species common to Lake Erie coastal marsh habitats. Because of the steep sides, a decrease in water depth of up to 2 ft would result in only small temporary changes in surface area and would expose only small areas of benthic habitat. Assuming a decrease in water depth of 2 ft, the overall change in water volume would be less than 5 percent. Based on the amount of aquatic habitat that would be affected and the nature of the aquatic organisms that occupy these lakes, the impacts associated with the estimated depth changes would be temporary and minor and no mitigation would be required.

### ***Swan Creek***

The entire Fermi site is located in the Swan Creek watershed. Although no preconstruction or construction activities would occur in Swan Creek, stormwater runoff into the creek from preconstruction and construction areas could occur, and water removed from the subsurface during excavation dewatering would be discharged into stormwater outfalls that flow to Swan Creek via the North Lagoon (see Section 4.2.1.3). As described in Section 4.2.3.1, Detroit Edison would obtain an NPDES stormwater construction permit that would require monitoring of construction-related discharges and soil erosion controls and other BMPs to comply with regulations designed to prevent the water quality in Swan Creek from being affected by runoff from construction areas. As a consequence, construction-related impacts on aquatic resources within Swan Creek and adjacent areas of Lake Erie would be temporary, easily mitigated, and minor, and no further mitigation measures beyond the identified BMPs would be warranted.

### ***Stony Creek***

The entire Fermi site is located in the Swan Creek watershed, and no preconstruction or construction activities for Fermi 3 are planned in the vicinity of Stony Creek or within the Stony Creek watershed. Consequently, there would be no construction-related impacts on aquatic resources within Stony Creek.

#### **4.3.2.2 Aquatic Resources – Transmission Lines**

A short length (less than 1 mi) of new transmission line corridor would be developed on the Fermi site to transmit power from the Fermi 3 generator to a new Fermi 3 switchyard. This new onsite transmission line corridor would be approximately 170 ft wide and include two sets of towers that would carry both rerouted Fermi 2 transmission lines and new Fermi 3 transmission

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lines (Detroit Edison 2011a). Surface water and wetland features located along the proposed onsite corridor include the south canal (see Section 2.4.2), a drainage area that is composed of a mosaic of emergent wetland, and some forested wetlands (Detroit Edison 2011a). There are no surface water features within the footprint for the new switchyard (Detroit Edison 2011a). Clearing of the onsite transmission line ROW, erecting the transmission towers, and stringing of the transmission lines would all be accomplished using methods that minimize impacts on wetlands and forest vegetation (Detroit Edison 2011a). The south canal and the drainage area within this portion of the Fermi site would be spanned by the transmission lines; impacts on the drainage area are expected to be minor because no activities associated with the transmission structure installation are expected to occur within the drainage channel (Detroit Edison 2011a).

Three new 345-kV transmission lines for Fermi 3 would be located within an assumed 300-ft-wide corridor from the Fermi site to the Milan Substation, a distance of approximately 29.4 mi. While the onsite Fermi 3 transmission lines would be owned by Detroit Edison up to the point of their interconnection with the new Fermi 3 switchyard, ITC *Transmission* would exclusively own and operate the offsite lines and other transmission system equipment between the Fermi 3 switchyard and the Milan Substation, and Detroit Edison would not control the building or operation of the transmission system. Detroit Edison expects to contract with ITC *Transmission* to maintain the transmission towers and lines located on Detroit Edison property (Detroit Edison 2011a).

The transmission line corridor route is described in Section 2.4.1.2 of this EIS and is illustrated in Figure 2-5. The three 345-kV lines for Fermi 3 would be built in an east-west common corridor that currently contains transmission lines for Fermi 2 for approximately 5 mi to a point just west of I-75. From this point, the three Fermi-Milan lines would be in a corridor shared with non-Fermi lines that travel to the west and north for approximately 13 mi. The last 10.8 mi of the proposed corridor that would proceed west to the Milan Substation are currently undeveloped, and no transmission infrastructure exists. This portion of the corridor has been under ITC *Transmission*'s control for future transmission development, but vegetation maintenance has been minimal except to remove tall, woody vegetation. According to FWS National Wetland Inventory mapping, the identified transmission route crosses about 30 wetlands or other waters that may be regulated by the USACE and/or MDEQ (FWS 2010). The 18.6-mi existing eastern section of the transmission route crosses 12 narrow agricultural drains and small streams; the undeveloped western 10.8-mi section of the route crosses nine drains and small streams. Reconfiguration of existing conductors would, for the most part, allow for the use of existing infrastructure to create the new lines, and access for installing additional lines is good because the vegetation has been managed to exclude tall woody vegetation. Therefore, preconstruction impacts on aquatic resources along the eastern 18.6 mi of the transmission line corridor are expected to be minor. Existing aquatic habitats in this portion of the corridor would be spanned, and BMPs would be used to protect aquatic habitats crossed by the new lines. Such BMPs include, but are not limited to, the use of silt fencing, hay bales, and



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similar practices to ensure the protection of aquatic habitats in close proximity to construction activity. Similarly, agricultural drains and small streams occurring in the undeveloped western corridor are narrow, and Detroit Edison anticipates using tower spans of 700–900 ft to avoid placing structures within stream channels (Detroit Edison 2011a). Roads in the vicinity are expected to provide sufficient access to this region of the corridor without the need for construction of new access roads. There are no aquatic habitats within the area that would be affected by the anticipated expansion of the Milan Substation. The review team concludes that impacts on aquatic habitats within the proposed transmission line corridor would be temporary, easily mitigated, and minor, and no additional mitigation would be required.

#### 4.3.2.3 Important Aquatic Species and Habitats

This section describes the potential impacts of building Fermi 3 facilities and associated 345-kV transmission lines on important aquatic species including species that have been listed under the ESA, species that are listed by the State, and commercially and recreationally important species. The magnitude of impacts resulting from preconstruction and construction activities would depend on the sensitivity of a species to localized disturbance and water quality changes, species-specific habitat requirements, critical time periods in a species' life cycle, and the intensity and duration of the disturbance. The general biology, status, and habitat requirements of important aquatic species are presented in Sections 2.4.2.

##### ***Commercially and Recreationally Important Species***

Commercially and recreationally important species that could occur in the vicinity of the Fermi site are identified in Section 2.4.2.3, along with information about their habitat requirements and life histories. Building the parking structure and a warehouse (both considered preconstruction activities) would result in filling the isolated central canal and portions of the north and south canals on the Fermi site, resulting in mortality to all aquatic organisms in the central canal and mortality to some aquatic organisms in the north and south canals. Commercially and recreationally important species that inhabit the canals include channel catfish (*Ictalurus punctatus*), common carp (*Cyprinus carpio*), gizzard shad (*Dorosoma cepedianum*), goldfish (*Carassius auratus*), and largemouth bass (*Micropterus salmoides*), among others (AECOM 2009), although no fishing activities are allowed within the onsite canals. As described in Section 2.4.2, surveys conducted in the vicinity of the Fermi site indicated that the species in the habitats that would be affected by filling were also found to be relatively abundant in other aquatic habitats in the vicinity of the Fermi site.

Approximately 4 ac of aquatic habitat in Lake Erie would be affected during modification and dredging of the intake bay (i.e., the area between the rock groins), building the new intake structure and the barge slip within the intake bay, and placement of the discharge structure for the facility. Although some commercially and recreationally important fish species are known to occur within the intake bay and in the area that would be affected during development of the

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discharge structure (AECOM 2009), most individuals are expected to temporarily move away from the immediate area during in-lake activities. This short-term displacement of individuals is not expected to have noticeable population-level impacts on commercial and recreational fish species. Migratory pathways for commercially or recreationally important species would not be physically blocked during in-lake activities.

As described in Section 4.2.3.1, the water quality of surface waters on or near the Fermi site could be affected by site-clearing and building activities. Stormwater runoff from the site into the North Lagoon (which drains to Swan Creek), South Lagoon, or Lake Erie could contain increased amounts of sediment or other pollutants, and installation of intake and discharge structures in and along the shoreline of Lake Erie would disturb sediments during building and dredging activities, potentially increasing turbidity near the Fermi site. Increased turbidity and noise could adversely affect migratory behavior, spawning behavior, and spawning success for some fish species.

To build and operate Fermi 3, Detroit Edison must obtain approvals from Federal and State regulatory agencies, including Section 10 and 404 permits from the USACE, Part 325 and 303 permit from the MDEQ, an NPDES construction stormwater permit from the MDEQ, and a Section 401 Water Quality Certification from the MDEQ. (MDEQ granted Section 401 Water Quality Certification on January 24, 2012; see Appendix H.) The MDEQ would also require Detroit Edison to develop both an SESC and a PIPP prior to obtaining the NPDES permit. With the implementation of preconstruction and construction-runoff and spill-control measures to be detailed in the PIPP and compliance with regulatory permits, it is unlikely that turbidity or contaminants from construction activities would be present at levels that would substantially affect fish migration or spawning.

As described in Section 2.4.2.2, there are no important commercial or recreational fisheries present within the assumed transmission line route due to the small sizes of the drainages crossed by the transmission line corridor. However, some of the streams to be crossed by the proposed transmission lines support some commercially or recreationally important species. Building of transmission lines could affect individuals in the vicinity of stream crossings because of soil erosion, sedimentation, accidental spills of fuel or lubricants from construction equipment, and temporary disturbance and/or displacement of aquatic biota. Along the eastern 18.6 mi of the proposed transmission line corridor, reconfiguration of existing conductors would allow for the use of existing infrastructure to create the new lines. Aquatic habitats in this portion of the corridor would be spanned and BMPs, such as placement of silt fencing, hay bales, and similar practices, would be implemented to protect aquatic habitats in close proximity to construction activity. Similarly, streams occurring in the western portion of the proposed corridor are narrow, and Detroit Edison anticipates using line spans of 700-900 ft to avoid erecting towers within the active channel and blockage of waterways. Existing roads in the vicinity are expected to provide sufficient access to this region of the corridor without the need for construction of new

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access roads. The MDEQ and/or USACE would perform additional regulatory review of proposed plans for building of the needed transmission lines, which would be built, owned, and maintained by ITC *Transmission*. Potential impacts on water quality are expected to be addressed through mitigation measures and BMPs required under issued permits.

On the basis of an evaluation of information presented in Detroit Edison's ER and other existing information, the review team concludes that construction and preconstruction impacts on commercially and recreationally important species in the vicinity of the Fermi site and along associated transmission line corridors would be mostly temporary and minor, and no additional mitigation would be expected. Preconstruction and construction activities are expected to affect relatively little habitat and few individuals of commercially and recreationally important species in areas affected by building activities. Implementation of BMPs and other mitigation measures stipulated in required permits would further reduce impacts.

### ***Federally and State-Listed Aquatic Species***

This section evaluates the potential for Federally and State-listed aquatic species to be adversely affected by preconstruction and construction activities for Fermi 3. Section 2.4.2.3 identifies and describes Federally and State-listed species that could occur in Monroe, Wayne, and Washtenaw Counties within which building activities related to development of Fermi 3 would be conducted.

Based on habitat requirements, current distributions, and survey data, aquatic species with a potential to occur in the vicinity of the Fermi site or the proposed transmission line route were identified in Section 2.4.2.3 (see Table 2-15). Three Federally listed aquatic species (northern riffleshell [*Epioblasma torulosa rangiana*]; rayed bean [*Villosa fabalis*]; and snuffbox mussel [*E. triquetra*]), all of which are freshwater mussels, were identified as having the potential to occur in Monroe, Washtenaw, or Wayne Counties in Michigan (Table 2-15). None of these species has ever been documented either on the Fermi site or along the proposed transmission line route, and, based on current population status, records of occurrence, and habitat preferences, only the rayed bean and the snuffbox mussel are believed to have the potential to occur on or in the immediate vicinity of the Fermi site.

The northern riffleshell is considered unlikely to occur on or adjacent to the Fermi site due to the lack of suitable stream habitat; it is unknown whether there could be suitable habitat for the northern riffleshell in portions of streams that would be crossed by the proposed transmission line route within Monroe or Wayne Counties, although the species has not been reported from the streams that would be crossed.

Including the species identified above, which also are all listed as endangered by the State of Michigan, the State-listed species that have been observed or that have a reasonable potential to occur on or adjacent to the Fermi site include three mussel species (rayed bean, salamander

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mussel [*Simpsonaias ambigua*], and snuffbox mussel) and three fish species (pugnose minnow [*Opsopoedus emiliae*], sauger [*Sander canadensis*], and silver chub [*Macrhybopsis storeriana*]) (Section 2.4.2.3; Table 2-15). Of these species, only the silver chub is known to occur at the Fermi site (Table 2-15).

The only known extant population of the white catspaw (*Epioblasma obliquata perobliqua*), which is Federally and State-listed as endangered, occurs in one stream drainage in Ohio. This species is presumed to be extirpated from Michigan; as a consequence, it is believed that this species would not be present near the Fermi site or in streams that would be crossed by the proposed transmission line corridor. Therefore, the review team concluded that the white catspaw would not be affected by preconstruction or construction activities for Fermi 3 and additional evaluation was not included in the final EIS or the BA.

There are other State-listed mussel and fish species, as shown in Table 2-15, that are considered unlikely to occur at the Fermi site but have the potential to occur in streams that would be crossed by the proposed transmission line corridor in Monroe, Wayne, or Washtenaw Counties. There is currently insufficient information to determine whether any of those species are present in the streams that would be crossed.

Building of offsite transmission lines could affect Federally and State-listed organisms in the vicinity of stream crossings in the same ways as described in the previous section for commercially and recreationally important species. Additional regulatory review of proposed plans for construction of the needed transmission lines, which would be built, owned, and maintained by ITCTransmission, may be conducted by the MDEQ and/or USACE, and potential impacts on Federally and State-listed aquatic species are expected to be addressed through mitigation measures and BMPs required under issued permits.

Potential impacts on Federally and State-listed species that were deemed to have a potential to occur in the waters on or in the immediate vicinity of the Fermi site or in streams that would be crossed by the proposed transmission line corridor, on the basis of previous records in the area or the expected overall range of the species, are evaluated in more detail in the following subsections.

### Northern Riffleshell (*Epioblasma torulosa rangiana*)

The northern riffleshell is Federally listed as endangered and is also listed as endangered by the State of Michigan. Because there is no suitable habitat for the northern riffleshell on the Fermi site or in adjacent waters of Lake Erie (Section 2.4.2.3), construction activities at the Fermi site would have no impact on this species. Although suitable habitat for the northern riffleshell could be present in some of the streams that would be crossed by the proposed transmission line corridor, extant populations of this species in Michigan are only known to be present in the Black River in Sanilac County and the Detroit River in Wayne County (Carman and

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Goforth 2000). Even if present in streams crossed by the transmission line corridors, the building of transmission lines for Fermi 3 is not expected to affect the northern riffleshell because aquatic habitats that are crossed by the corridor would be spanned without placement of structures within stream channels and because BMPs would be implemented to protect water quality in aquatic habitats located near construction activity. Additional regulatory review of proposed plans for construction of the transmission lines, which would be built, owned, and maintained by ITC *Transmission*, may be conducted by the MDEQ and/or USACE, and potential impacts on water quality are expected to be addressed through mitigation measures and BMPs required under issued permits. On the basis of this information, the review team concludes that preconstruction- and construction-related activities would have no effect on the northern riffleshell.

Pugnose Minnow (*Opsopoeodus emiliae*)

The pugnose minnow is listed as endangered by the State of Michigan and has the potential to occur in streams in Monroe and Wayne Counties. Although there is a potential for suitable habitat for the pugnose minnow to be present in the vicinity of the Fermi site, especially in weedy aquatic habitats such as those present in the North Lagoon or Swan Creek, no individuals were collected during recent surveys on the Fermi site and none were reported in past biological surveys of Stony Creek or the Swan Creek estuary near the Fermi site (AECOM 2009; MDEQ 1996, 1998; Francis and Boase 2007). If occasional individuals are present in the North Lagoon or near the mouth of Swan Creek, there is a potential for adverse effects due to water quality changes and increased turbidity related to stormwater runoff from preconstruction and construction areas (e.g., during building of the parking structure and warehouse) or due to discharge of water removed from the subsurface during excavation into stormwater outfalls that flow to Swan Creek via the North Lagoon (Section 4.2.1.3). As described in Section 4.2.3.1, Detroit Edison would obtain and implement an NPDES stormwater construction permit that would require monitoring of construction-related discharges and implement soil erosion controls and other BMPs to limit adverse effects on water quality due to runoff from construction areas. On the basis of this information, the review team concludes that preconstruction- and construction-related impacts on the pugnose minnow, if present, would be minor and that no additional mitigation would be required.

Rayed Bean (*Villosa fabalis*)

The rayed bean is Federally listed as endangered and is also listed as endangered by the State of Michigan. There are no streams on the Fermi site with conditions suitable for the rayed bean, and no extant populations are known to occur in the stream drainages that would be crossed by the proposed transmission line route. Although there are records of rayed bean specimens from shallow, wave-washed areas of western Lake Erie, information supplied by Detroit Edison suggests that it is unlikely that the species occurs in the vicinity of the Fermi site for a number of reasons: (1) approximately 30 years of information on mussels in the western basin of Lake



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Erie (including in the vicinity of the Fermi site) have been collected and evaluated by the USGS, and no rayed bean specimens have been identified; (2) the USACE conducted mussel surveys in Lake Erie approximately 2 mi south of the Fermi site and found no live specimens or shells of the rayed bean; (3) the rayed bean was not observed in surveys conducted by the Michigan Natural Features Inventory just north of the Fermi site near the mouth of Swan Creek; and (4) observations made by divers during sediment sampling and buoy maintenance activities within the exclusion zone for the Fermi site indicate that the sediment is predominantly clay hardpan, which is not suitable for the rayed bean (Detroit Edison 2010c). In addition, most of the area that would be affected by development of the intake structure, the barge slip, and the discharge structure for Fermi 3 has been previously disturbed by periodic maintenance dredging.

The building of transmission lines for Fermi 3 is not expected to affect the rayed bean because (a) the species has not been reported from the streams that would be crossed by the proposed transmission line corridor, (b) aquatic habitats that are crossed by the corridor would be spanned without placement of structures within stream channels, and (c) BMPs would be implemented to protect water quality in aquatic habitats located near construction activity. On the basis of this information, the review team concludes that preconstruction- and construction-related activities for Fermi 3 would not affect the rayed bean.

### Salamander Mussel (*Simpsonaias ambigua*)

The salamander mussel is listed as endangered by the State of Michigan and has the potential to occur in Monroe and Wayne Counties. There are no suitable stream habitats for the species on the Fermi site. There is the potential for suitable habitat and the appropriate host (mudpuppy; *Necturus maculosus*) for the salamander mussel to be present in Lake Erie near the Fermi site (see Section 2.4.2.3). Because the areas in Lake Erie that would be disturbed by modification and dredging of the intake bay, construction of the new intake structure, development of a barge slip within the intake bay, and placement of the discharge structure for the facility have either been previously disturbed by periodic maintenance dredging or have been identified as containing a clay hardpan substrate (Detroit Edison 2010c) and not the silt and sand substrate preferred by this species, it is considered unlikely that this species would be present.

Because no suitable habitat for this species (i.e., medium to large rivers or lakes) would be crossed by the proposed transmission line corridor, construction of the proposed transmission lines would not affect this species. On the basis of this information and the recommended mitigation described, the review team concludes that preconstruction- and construction-related impacts on the salamander mussel would be minor.

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Sauger (*Sander canadensis*)

The sauger is considered a species of special concern by the State of Michigan and has the potential to occur in Lake Erie. However, the last reported occurrence of sauger in Monroe County was in 1996, and no individuals were collected during recent surveys on the Fermi site, Stony Creek, or the Swan Creek estuary (AECOM 2009; MDEQ 1996, 1998; Francis and Boase 2007). If present in nearshore areas of Lake Erie that could be affected by construction activities, sauger would likely move away during dredging and building activities because of increased noise and turbidity levels, resulting in temporary displacement but negligible levels of mortality. Detroit Edison would obtain and implement an NPDES stormwater construction permit that would require monitoring of construction-related discharges and would implement soil erosion controls and other BMPs to comply with regulations designed to prevent degradation of water quality in Swan Creek and other areas near the Fermi site. The small streams that would be crossed by the proposed transmission line corridor do not provide suitable habitat for the sauger. On the basis of this information, the review team concludes that preconstruction- and construction-related impacts on the sauger would be temporary and minor, and no additional mitigation would be warranted.

Silver Chub (*Macrhybopsis storeriana*)

The silver chub is considered a species of special concern by the State of Michigan. A single silver chub specimen was collected in July 2009 during monthly fish surveys conducted near the mouth of Swan Creek from 2008 to 2009. Although no construction activities for Fermi 3 would occur in the area where the individual was captured, increased stormwater runoff into the creek from preconstruction areas (e.g., from the parking structure and warehouse areas) could occur and groundwater removed during excavation dewatering would be discharged into stormwater outfalls that flow to Swan Creek via the North Lagoon (Section 4.2.1.3). Little is known about the life history of the silver chub, especially its tolerance of siltation and turbidity (Derosier 2004). While some researchers have suggested that silver chub are intolerant of turbidity and silt, others note that silver chub are found in silty rivers (Derosier 2004). As described in Section 4.2.3.1, Detroit Edison would obtain and implement an NPDES stormwater construction permit that would require monitoring of construction-related discharges and implement soil erosion controls and other BMPs designed to prevent water quality in Swan Creek from being affected by runoff from construction areas. As a consequence, preconstruction- and construction-related impacts on silver chub would be temporary and minor, and no additional mitigation would be warranted.

Snuffbox mussel (*Epioblasma triquetra*)

The snuffbox mussel is Federally listed as endangered and is also listed as endangered by the State of Michigan. It has the potential to occur in Monroe, Wayne, and Washtenaw Counties. Although there are no suitable stream habitats on the Fermi site, there is the potential for

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suitable habitats in Lake Erie, and the host required by this species (logperch, *Percina caprodes*) has been collected near the Fermi site in Swan Creek and in Lake Erie near the South Lagoon (see Section 2.4.2.3). The areas in Lake Erie that would be disturbed during the building of Fermi 3 facilities have either been previously disturbed by periodic maintenance dredging or have a clay hardpan substrate (Detroit Edison 2010c) rather than the sand, gravel, or cobble substrate preferred by this species. Therefore, it is considered unlikely that this species would be present in the project area.

It is not known whether suitable stream habitat or populations of the snuffbox mussel occur along the proposed offsite transmission line corridor. It is anticipated that the small streams that would be crossed by the proposed transmission line corridor could be easily spanned without placing structures in stream channels and that BMPs would be implemented to protect water quality in streams during building activities. Additional regulatory review of proposed plans for construction of the offsite transmission lines, which would be built, owned, and maintained by ITCTransmission, may be conducted by the MDEQ and/or USACE, and potential impacts on water quality are expected to be addressed through mitigation measures and BMPs required under issued permits. On the basis of this information, the review team concludes that preconstruction- and construction-related activities for Fermi 3 would not affect the snuffbox mussel.

### Summary of Impacts on Federally and State-Listed Aquatic Species

Based on information provided by Detroit Edison and the review team's independent evaluation, the review team concludes that impacts of construction and preconstruction activities on threatened and endangered aquatic species would be minor. For the northern riffleshell, the review team concluded that there would be no effect from preconstruction and construction activities because any streams containing suitable habitat could be easily spanned by the proposed transmission lines. Preconstruction activities also include building and upgrading transmission lines for Fermi 3. NRC-authorized construction activities, which exclude the preconstruction activities described above, would have no direct effects on any listed species. In addition, the implementation of BMPs that would be identified in the required NPDES stormwater construction permits would further reduce the potential for impacts from preconstruction and construction activities. The NRC staff concludes that the impacts of NRC-authorized construction activities on aquatic threatened and endangered species would be minor, and no additional mitigation measures would be warranted.

In compliance with Section 7 of the ESA, the NRC began informal consultation by letter to the FWS dated December 23, 2008 (NRC 2008). The review team completed a BA assessing the impact on three Federally protected freshwater mussel species of building and operating Fermi 3. The conclusions in the BA on potential impacts are provided above. A copy of the BA is included in Appendix F of this final EIS. The BA was forwarded to the FWS on March 30, 2012 (NRC 2012). In a letter dated June 8, 2012 (FWS 2012), the FWS concurred with the



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review team's determination that building Fermi 3 would have no effect on the three freshwater mussel species that are Federally protected as endangered species.

### ***Critical Habitats***

There are no areas designated as critical habitat for aquatic species in the vicinity of the Fermi site or along the route of the proposed transmission line.

#### **4.3.2.4 Aquatic Monitoring**

No monitoring of aquatic resources is planned for the site preparation and development activities onsite or in the transmission line corridor. Fermi 2 NPDES monitoring, which requires monitoring of five outfalls, is anticipated to be ongoing during construction and preconstruction activities. However, the current NPDES permit for the Fermi site does not require monitoring of aquatic ecological resources, and there are no requirements in the license for Fermi 2 to conduct monitoring of aquatic resources, including specific aquatic ecological monitoring of the algal community, benthic invertebrates, or fish. The NPDES stormwater construction permit for Fermi 3 would require monitoring for turbidity of any discharge from the building areas; monitoring frequency and location would be identified during the permitting process (Section 4.2.4). Ecological monitoring of aquatic resources during preconstruction and construction activities could be required as a condition of permits issued by various regulatory agencies. For example, the MDEQ could request monitoring of specific ecological attributes as part of stormwater construction permits.

#### **4.3.2.5 Potential Mitigation Measures for Aquatic Impacts**

No additional mitigation measures, beyond those that may be identified in the required NPDES stormwater construction permit and in any current or future permits issued by the USACE and MDEQ would be needed to reduce potential impacts on water quality and aquatic resources.

#### **4.3.2.6 Summary of Impacts on Aquatic Resources**

Based on information provided by Detroit Edison and the review team's independent evaluation, the review team concludes that the impacts of preconstruction and construction activities on aquatic biota and habitats, including impacts on aquatic threatened and endangered species and other important species, would be SMALL, and no mitigation measures beyond those identified in the required NPDES stormwater construction permit, and in permits issued by the USACE and MDEQ, are proposed at this time. Based on the above analysis, and because NRC-authorized construction activities represent only a portion of the analyzed activities, the NRC staff concludes that the impacts of NRC-authorized construction activities would be SMALL. Any impacts on aquatic resources associated with the compensatory mitigation

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proposed by Detroit Edison would be evaluated by the USACE as part of the permitting process for that activity.

### 4.4 Socioeconomic Impacts

This section describes the socioeconomic impacts that might occur as a result of building activities for Fermi 3. Detroit Edison employed an initial workforce at the Fermi plant site in 2011 that primarily focused on activities related to Fermi 1 and Fermi 2. This first phase would occur over 2 years, and would contribute to readying the site for subsequent building of Fermi 3. Detroit Edison plans to begin the preconstruction work specific to Fermi 3 in 2013 and to complete all building activities in 2021. The size of the construction workforce over the first phase of activities would average 100 workers. During the second and main phase of building activity, the construction workforce would range from a minimum of 200 workers to a peak of approximately 2900 workers. The average size of the onsite workforce during the 10-year building period would be approximately 1000 workers (Detroit Edison 2011a).

The review team expects most of the socioeconomic impacts related to demographics, economy and taxes, as well as infrastructure and community services, to occur in the general vicinity of Fermi 3 and in the communities where the majority of the new construction workers recruited for the project (i.e., in-migrating workers) reside. The review team expects the characteristics of the workers recruited from outside the region to be similar to the current workforce with respect to choices and preferences (e.g., commute distance, available amenities), and that they will reside primarily in Monroe and Wayne Counties in Michigan and Lucas County in Ohio during the building period. More than 87 percent of the current Fermi 2 workforce resides in these three counties. Therefore, the review team expects that most of the construction workforce relocating into the area during the building of Fermi 3 would also reside in these three counties.

As discussed in Section 2.5, no more than 3.2 percent of the current Fermi 2 workforce resides in any one county outside Monroe, Wayne, and Lucas Counties. In addition, the current and projected populations of the regional area are so large that the current workforce at the Fermi site represents less than 1 percent of the total population in any of the counties or locations where these employees reside. Therefore, the review team expects that impacts beyond the three counties will be minor. The following discussion focuses on the three-county economic impact area.

Section 4.4.1 presents a summary of the physical impacts of the project. Section 4.4.2 provides a description of the demographic impacts. Section 4.4.3 describes the economic impacts, including impacts on the economy and tax revenue. Section 4.4.4 describes the impacts on the infrastructure and community services. Section 4.4.5 summarizes the socioeconomic impacts.

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unanticipated discovery; and notification of Detroit Edison's Engineering, Procurement, and Construction (EPC) Executive or his/her representative so that the Michigan SHPO and the Office of the State Archaeologist can be notified and determine the significance of the unanticipated discovery and what, if any, special disposition of the finds should be made (Detroit Edison 2009c, 2010b).

For the purposes of the review team's NEPA analysis, based on information provided by Detroit Edison, the review team's independent evaluation, and the review team's consideration of the intrinsic attributes of Fermi 1 that contributed to its cultural significance, the review team concludes that the impacts from building Fermi 3 on onsite historic properties would be MODERATE if the Fermi 1 structure is present when Fermi 3 construction activities begin. The attributes that make Fermi 1 eligible for listing in the NRHP are National Register Criterion A, for Fermi 1's role in the development of the nuclear power industry, and Criterion C, for the engineering design of the reactor and its associated components. Because access to the Fermi 1 site is restricted, the public will have an increased opportunity to learn about and understand Fermi 1's attributes once mitigation measures, which will consist of recordation documents and a public exhibit, are implemented. Thus, impacts on Fermi 1 are considered MODERATE because of these mitigation measures, even though its non-accessible external structure will be removed.

The review team concludes that the potential MODERATE impacts on cultural resources (i.e., Fermi 1) would be the result of NRC-authorized construction activities. The cumulative impacts on historic and cultural resources are analyzed and discussed in Chapter 7 of this EIS.

### 4.6.2 Offsite Historic and Cultural Resources Impacts

Offsite historic and cultural resources information is provided in Section 2.7. As explained in Section 2.7, previous cultural resource identification efforts indicated the presence of two archaeological resources and 83 architectural resources offsite, but within the indirect APE for Fermi 3. Neither of the two archaeological resources has been evaluated for NRHP eligibility (Demeter et al. 2008). Of the architectural resources, 21 were determined or recommended eligible for the NRHP listing under Criteria A, B, and/or C, and the remaining 62 have been recommended not NRHP-eligible (Demeter et al. 2008). The Michigan SHPO has indicated concurrence with the identification of historic properties for the Fermi 3 project in its letter dated May 9, 2011 (Conway 2011).

The process of building Fermi 3 would result in new facilities that would visually affect historic and cultural resources that are offsite, but within the indirect APE for the Fermi 3 project, and would have the potential to result in alterations to the visual landscape within the indirect APE for the Fermi 3 project. These alterations would consist of the introduction of new power plant facilities, including buildings and structures, into the existing viewsheds and settings of the 21 determined or recommended NRHP-eligible architectural resources and the settings of the

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two previously archaeological sites that have not been evaluated for NRHP eligibility. However, the existing viewsheds and settings of these 21 architectural resources and two archaeological sites include three existing power plant facilities along the shoreline of Lake Erie: the onsite decommissioned Fermi 1 facilities, the onsite operating Fermi 2 facilities, and the offsite operating Detroit Edison Monroe Power Plant to the south near the City of Monroe. As such, the indirect visual impacts that may result from building Fermi 3 would be consistent with existing landscape features in the viewsheds and settings of these 21 offsite architectural resources, such that there would be no new significant visual impacts that would affect the NRHP-eligibility determination or recommendations for the 21 offsite architectural resources that are within the indirect APE for the Fermi 3 project (Demeter et al. 2008). Similarly, there would be no new significant visual impacts on the two offsite archaeological resources that would affect NRHP-eligibility determinations or recommendations.

For the purposes of NHPA Section 106 consultation pursuant to 36 CFR 800.8, the NRC concludes with a finding of no adverse effect on offsite historic properties within the indirect APE, because, based on the characteristics of the existing offsite setting within the indirect APE, indirect visual impacts resulting from building Fermi 3 would be consistent with, and would not result in significant changes to, offsite historic properties within the indirect APE.

For the purposes of the review team's NEPA analysis, based on information provided by Detroit Edison, and the review team's independent evaluation, the review team concludes that the impacts from Fermi 3 construction and preconstruction activities on offsite cultural resources and/or historic properties within the indirect APE for the Fermi 3 project would be minor, because new facilities would be consistent with the landscape features within the existing setting of these offsite historic properties.

The portions of the proposed offsite transmission line route that are within the indirect APE for the Fermi 3 project will utilize an existing transmission line route, and will not result in new impacts on offsite historic or cultural resources within the Fermi 3 APE. The portion of the proposed offsite transmission line route that is located outside the Fermi 3 APE and extends north and west from the Fermi 3 project area to the Sumpter-Post Road junction in Wayne County will also utilize an existing transmission line route and will also result in no new impacts on offsite historic or cultural resources. The approximately 11-mi portion of the proposed offsite transmission line route from the Sumpter-Post Road junction in Wayne County to the Milan Substation in Washtenaw County will require a new transmission line route and may result in impacts on historic and/or cultural resources. The process of building new transmission lines may result in direct impacts on previously and as-yet-unidentified archaeological or architectural resources crossed by the proposed transmission lines or indirect visual impacts on as-yet-unidentified architectural resources in the vicinity of the new transmission lines. Cultural resource impacts would be evaluated during the siting process of transmission lines whose exact location is undetermined. Thus, the potential for direct and indirect or visual impacts

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exists, and in the absence of more detailed information, these impacts cannot be evaluated with certainty.

Detroit Edison has indicated that construction and operation of the transmission lines will be the responsibility of ITC *Transmission*, an intrastate transmission company. As such, any further investigations to identify the presence of cultural and historic resources and to evaluate the NRHP-eligibility of such resources would be the responsibility of ITC *Transmission*, who would conduct such investigations in accordance with applicable regulatory and industry standards to assess impacts (Detroit Edison 2011a).

Based on the review team's NEPA analysis of cultural resources, building the offsite transmission lines has the potential to impact cultural resources. Impacts could be minor if there are no significant alterations to the cultural environment. If these activities result in significant alterations to the cultural environment, the impact could be greater.

According to 10 CFR 50.10(a)(2)(vii), transmission lines are not included in the definition of construction and are not an NRC-authorized activity. Therefore, the NRC considers the offsite proposed transmission lines to be outside the NRC's APE and therefore not part of the NRC's consultation.

Section 2.7.3 contains a description of known cultural resources in the transmission line corridors. Cultural resources impacts related to construction of the proposed transmission lines are also discussed in Sections 10.2.1 and 10.4.1.5. Operational impacts of the proposed transmission lines on cultural resources are discussed in Section 5.6 and 10.2.2, and cumulative transmission line cultural resource impacts are discussed in Section 7.5.

## 4.7 Meteorological and Air Quality Impacts

Section 2.9 describes the meteorological characteristics and air quality of the Fermi site. The primary impacts that building Fermi 3 would have on local air quality would result from fugitive dust produced by soil disturbance, engine exhaust emissions from heavy construction equipment and machinery, concrete batch plant operations, and emissions from vehicles used to transport workers and materials to and from the site. Open burning of wastes is prohibited by the MDEQ (Detroit Edison 2011a).

### 4.7.1 Preconstruction and Construction Activities

Building the proposed Fermi 3 would result in temporary impacts on local air quality as a result of emissions associated with construction and preconstruction activities. Equipment and vehicle emissions from these activities would contain carbon monoxide, oxides of nitrogen, and volatile organic compounds (VOCs). As with any large-scale construction project, dust particle emissions would also be generated during land-clearing, grading, and excavation activities.

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water or dust-suppressant compound, and revegetating unneeded disturbed areas (Detroit Edison 2011a).

Engine exhaust would be minimized by maintaining equipment in good mechanical order. Detroit Edison stated that open burning or the operation of vehicles and other combustion-engine equipment will comply with applicable standards, regulations, and requirements (Detroit Edison 2011a). The exhausts from the vehicles and operation of machinery during construction would comply with the Clean Air Act and the National Emission Standards for Hazardous Air Pollutants (NESHAP). Detroit Edison would obtain all necessary air quality permits from the MDEQ.

Preconstruction and construction activities would occur away from the public. The nearest accessible public area is approximately 0.48 mi from the Fermi 3 construction site (Detroit Edison 2011a), and the nearest residence is approximately 0.60 mi from preconstruction and construction areas (Detroit Edison 2011a). On the basis of the dust suppression and vehicle exhaust mitigation measures discussed above and the general public's distance from the Fermi site, the staff concludes that the nonradiological health impacts on the public from construction activities would be minimal. As discussed in Section 4.7, additional mitigation may be warranted, depending on the outcome of conformity applicability analyses being performed by the NRC and USACE pursuant to the Clean Air Act Section 176 (42 USC 7506) and 40 CFR Part 93, Subpart B.

### 4.8.1.2 Construction Worker Health

In general, human health risks to construction workers and other personnel working onsite are dominated by occupational injuries (e.g., falls, electrocution, asphyxiation, burns). Prior to the start of preconstruction and construction activities, Detroit Edison proposes to develop and implement a safety plan that adheres to all OSHA safety and health regulations for construction (Detroit Edison 2011a).

In addition to onsite preconstruction and construction activities, three new transmission lines and a separate switchyard would be needed for Fermi 3 (Detroit Edison 2011a). Most of the transmission lines would be built within or adjacent to existing transmission line corridors, but 10.8 mi of the proposed line would be built within a new ROW (Section 2.4.2.9). The transmission system in southeastern Michigan is owned and operated by ITC *Transmission*. The transmission lines and associated switchyards would be built in accordance with the National Electrical Safety Code and applicable construction standards and codes (Detroit Edison 2011a).

National nonfatal injury and illness recordable rate in 2009 for construction workers, including specialty trade contractors, averaged 4.3 percent (USBLS 2010a). The recordable rate for construction workers in Michigan was 3.2 percent (USBLS 2010b). The recordable rate takes



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into account occupational injuries and illnesses as total recordable cases, which includes the cases that result in death, loss of consciousness, days away from work, restricted work activity or job transfer, or medical treatment beyond first aid. The average and maximum onsite preconstruction and construction workforce for Fermi 3 during the 8-year construction period would be 1000 and 2900 workers, respectively (Detroit Edison 2011a).

The estimated yearly average and maximum occupational injuries and illnesses associated with construction activities based on the National recordable rate would be 43 and 125, respectively. When interpreting these results, it is especially important to recall that they are gross (total) injury estimates. If the workers are not employed building Fermi 3, they would be doing other work or would be unemployed. As noted above, the injury rate for construction activities in Michigan was even lower. Thus, the estimates developed above are conservative worst-case estimates of the net impact of Fermi 3 construction activities on workplace injuries.

Other nonradiological impacts on workers who would be clearing land or building the facility would include noise, fugitive dust, and gaseous emissions resulting from site preparation and development activities. Mitigation measures discussed in this section for the public, such as operational controls and practices, would also help limit impacts on workers. Onsite impacts on workers also would be mitigated through training and use of personal protective equipment to minimize the risk of potentially harmful exposure. First-aid stations would be available in the Fermi 3 construction area (Detroit Edison 2011a). The NRC staff assumes that Detroit Edison would adhere to all applicable NRC, OSHA, and State safety standards, practices, and procedures during building activities.

### 4.8.1.3 Summary of Public and Construction Worker Health Impacts

On the basis of mitigation measures identified by Detroit Edison in its ER, permits and authorizations required by State and local agencies, and the review team's independent review, the review team concludes that the nonradiological health impacts on the public and workers from preconstruction and construction activities would be minimal, and additional mitigation beyond the actions stated above would not be warranted.

### 4.8.2 Noise Impacts

Development of a nuclear power plant is similar to that of other large industrial projects and involves many noise-generating activities. Regulations governing noise from construction activities are generally limited to worker health. Federal regulations governing construction noise are found in 29 CFR Part 1910 and 40 CFR Part 204. The regulations in 29 CFR Part 1910 deal with noise exposure in the construction environment, and the regulations in 40 CFR Part 204 generally govern the noise levels of compressors. The Fermi site is located in unincorporated Frenchtown Township in Monroe County. Currently, there are no county or State noise regulations for Monroe County or Michigan (Detroit Edison 2011a). The only local

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not contain measures that apply specifically to the Fermi site, and these plans would not be affected by Fermi 3 operation. Detroit Edison has not indicated that operation of Fermi 3 would interfere with any future land uses that it anticipates for the Fermi site.

The Fermi site and some areas in the vicinity of the site fall under the Coastal Zone Management Act, which is designed to ensure the reasonable use of coastal areas (see Section 3.1). As stated in Section 4.1.1, on January 24, 2012, the Michigan Department of Environmental Quality (MDEQ) issued Permit Number 10-58-0011-P to Detroit Edison (MDEQ 2012b). Issuance of this permit constitutes a coastal zone consistency determination from MDEQ. That consistency determination encompasses the entire anticipated operational life of the proposed Fermi 3 facilities.

As is true during the building of Fermi 3, some offsite land use changes could indirectly result from operation of Fermi 3. As discussed in Section 4.1.1, possible impacts include the conversion of some land in surrounding areas to housing developments (e.g., recreational vehicle parks, apartment buildings, single-family condominiums and homes, and manufactured home parks) and retail development to accommodate workers. Property tax revenue from the addition of Fermi 3 could induce additional growth in Monroe County as a result of infrastructure improvements (e.g., new roads and utility services). However, the employment offered during operations would generally be lower and less rapidly changing than during the building phase. Additional information on roads, housing, and construction-related infrastructure impacts is presented in Section 4.4.

Based on information provided by Detroit Edison and the review team's independent evaluation, the review team concludes that the land use impacts of operation of Fermi 3 would be SMALL, and additional mitigation would not be warranted.

### 5.1.2 Transmission Line Corridors and Other Offsite Facilities

The activities associated with transmission line operations that could affect land use include maintenance, inspection, and vegetation management in the corridors and at the Milan Substation. Impacts would be seasonal and would occur within a 500-ft onsite corridor (included in the scope of the analysis in Section 5.1.1 above), a 300-ft-wide offsite corridor, and the Milan Substation. Occasional access to the transmission line corridors by maintenance vehicles may cause some temporary erosion and compaction along certain areas, especially if heavy vehicles are used in wet weather conditions and on any access roads that have gravel or other unpaved surfaces (Detroit Edison 2011a). Siltation of streams and wetlands and the disturbance of wildlife and wildlife habitat may also occur during maintenance activities where the corridor crosses floodplains and wetlands. Vegetative cover would be seeded to stabilize the soil exposed by corridor maintenance activities and prevent erosion, and water diversion measures would be used to direct water off the sides of the access roads and prevent erosion impacts (Detroit Edison 2011a). The review team expects that Detroit Edison and the



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International Transmission Company (ITC*Transmission*) would be required in their operations to use best management practices (BMPs) outlined in a soil erosion and sedimentation control (SESC) plan or right-of-way (ROW) maintenance manual used by Detroit Edison and/or ITC*Transmission*.

Operation of the transmission facilities is not expected to interfere with adjacent land uses or with agricultural use of farmland spanned by transmission conductors.

It is expected that ITC*Transmission* would continue maintenance activities currently conducted on the existing transmission line corridors extending out from the Fermi site. It is expected that ITC*Transmission* would extend these same practices to the new corridor and substation facilities. These activities include periodic removal and trimming of trees, mowing of herbaceous and low woody vegetation and cutting of large shrubs, and the use of pesticides and herbicides applied with either ground or aerial spraying methods. The corridors would be periodically inspected by helicopter or ground-patrolled to ensure that they are in proper condition for safe operation of the transmission line (Detroit Edison 2011a). Vegetation clearing would be limited to the minimum needed to allow access for maintenance vehicles and to prevent the growth of trees and other vegetation that could interfere with the operation of the lines (Detroit Edison 2011a). Vegetation management on transmission line corridors is discussed in more detail in Section 5.3.

ITC*Transmission* is expected to implement BMPs involving minimal use of maintenance vehicles and access roads to the extent possible and limiting transmission line maintenance work during wet weather conditions (ITC*Transmission* 2010). Other BMPs would be outlined in a SESC plan or ROW maintenance manual used by ITC*Transmission*. Herbicides would be applied by licensed personnel in accordance with their labels, and only herbicides labeled for aquatic environments would be used in wetlands.

The review team concludes that the offsite land use impacts of operating Fermi 3 and its associated transmission lines would be SMALL, and additional mitigation would not be warranted.

## 5.2 Water-Related Impacts

This section discusses water-related impacts on the surrounding environment from operation of the proposed Fermi 3. The primary water-related impacts would be associated with Fermi 3's cooling water system. Details of the operational modes and cooling water systems associated with operation of the plant are presented in Section 3.2.2.

Managing water resources requires understanding and balancing the trade-offs between various, often conflicting, objectives. At the Fermi site, these objectives include navigation, recreation, visual aesthetics, a fishery, and a variety of beneficial consumptive uses of water.

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The review team completed an individualized evaluation of the possibility of vehicular collisions with the eastern fox snake, a Michigan State-listed threatened species known to inhabit terrestrial habitats on and near the Fermi site. Since the eastern fox snake's preferred habitat is emergent wetlands, open areas not shaded by trees are not barriers to their movement (Hoving 2010). This species has been observed in developed and undeveloped sections of the Fermi site (Detroit Edison 2011a). It is reasonable to conclude, therefore, that the snakes would be likely to cross roads as they move about the Fermi site, possibly for thermoregulation, and that the increased traffic anticipated from operation of Fermi 3 could increase the risk of mortality for the eastern fox snake. However, Detroit Edison has proposed monitoring and mitigation efforts to reduce the risks to the eastern fox snake posed from operations (Detroit Edison 2012c). See Section 5.3.1.3 for additional discussion, including a discussion of proposed mitigation measures.

### 5.3.1.2 Terrestrial Resources – Transmission Lines

Electricity transmission systems have the potential to affect terrestrial ecological resources through corridor maintenance, bird collisions with transmission lines and towers, and electromagnetic fields (EMFs) (NRC 1996).

#### **Vegetation**

Operations impacts in the transmission line corridor, including the western 10.6 mi, would be mainly limited to vegetation maintenance. Maintenance of the corridor would be conducted in accordance with ITC *Transmission's* Transmission Vegetation Management Plan, which was developed in compliance with the North American Electric Reliability Council Reliability Standard FAC-003-1 – Transmission Vegetation Management Program. The work would likely consist of periodic removal of trees from uplands and wetlands to provide adequate clearance from the lines. Pesticides and herbicides may also be used selectively as needed to maintain the corridor. Selective removal of undesirable species through cutting by hand and/or by mowing, as needed, would likely be the practice routinely used; this would encourage the growth of vegetation types that provide low-growing ground cover, erosion control, treatment of invasive species, and wildlife habitat. Vegetation management in wetlands, including cutting or removal of woody vegetation, would indefinitely maintain the wetland in a shrub/scrub or emergent state.

The corridor would typically be inspected by helicopter and ground-patrolled periodically to ensure that the corridor is in proper condition for safe operation of the transmission line (Detroit Edison 2011a). There would be occasional vehicular traffic in the corridor for maintenance purposes, which could result in only minimal impacts on vegetation and soils and minor amounts of soil erosion within the immediate area of the transmission line corridor. Impacts on natural vegetation during maintenance of the Milan Substation would be minimal. Where

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access is needed to sensitive areas along the corridor, such as wetlands, matting would be used to avoid soil disturbance and minimize damage to plants.

### **Wildlife**

Impacts of operating the transmission line system on wildlife (e.g., bird collisions and habitat loss) are expected to be minor. Section 4.5.6.2 of the GEIS for license renewal (NRC 1996) provides a thorough discussion of the topic and concludes that bird collisions associated with the operation of transmission lines do not typically cause long-term reductions in bird populations. The same document also concludes that the impacts on wildlife populations from continued ROW maintenance are not typically significant (NRC 1996).

The overall effect of operation of the new line on wildlife is expected to be minor because maintenance activities would be limited and because most of the corridor has been previously developed and, in less-maintained areas, there are existing disturbances such as farming, neighboring residences, and roadways. Because of these local conditions, it is expected that ITC *Transmission* would not implement any new wildlife management practices within the corridor.

Operation of the expanded substation at Milan would be expected to have minimal effect on wildlife in the area because area wildlife has adjusted to the existing substation, the substation expansion is confined to a relatively small area, and maintained grass and cropland habitat in the surrounding vicinity are already of low quality. The review team concludes that the overall impacts of transmission line maintenance, including maintenance activities in the corridor, on terrestrial resources would be minimal.

### **Impact of Electromagnetic Fields on Flora and Fauna**

EMFs are unlike other agents that have an adverse impact (e.g., toxic chemicals) in that dramatic acute effects cannot be demonstrated and long-term effects, if they exist, are subtle, according to the NRC's GEIS conclusions (NRC 1996). As discussed in the GEIS, a careful review of biological and physical studies of EMFs did not reveal consistent evidence linking harmful effects with field exposures. Thus, the conclusion presented in the GEIS was that the impacts of EMFs on terrestrial flora and fauna were not significant at operating nuclear power plants, including transmission line systems with variable numbers of power lines. On this basis, the review team concluded that the incremental EMF impacts posed by possible additions of new power lines for Fermi 3 would be minimal.

#### **5.3.1.3 Important Terrestrial Species and Habitats**

This section discusses the potential impacts of operating Fermi 3 on Federally and State-listed species and on other important species and/or habitats (including wetlands) as defined by the

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would not be used. As discussed in Section 5.3.1.1, salt deposition would be far below the levels that could cause damage to plants or soils. Operation of Fermi 3 is expected to have only minimal impact on any of these important habitats.

### ***Important Terrestrial Species – Transmission Lines***

Detroit Edison contacted the FWS and MDNR requesting information on known occurrences of Federally and State-listed protected species in the project vicinity (Detroit Edison 2011a). The review team has also researched Federal and State Web sites for information on Federal and State threatened and endangered species. Information available to the review team is summarized in Section 2.4.1.3. Based on information obtained from Web sites maintained by the FWS, there is currently no designated critical habitat for species listed under the ESA along the transmission line route (FWS 2010). According to information provided by ITC *Transmission* to Detroit Edison (Detroit Edison 2010b), ITC *Transmission* maintains access to a database of known occurrences of Federal and State threatened and endangered species obtained from the Michigan Natural Features Inventory (MNFI) to identify locations where seasonal constraints or other regulatory conditions affect vegetation management activities in habitats occupied by rare species. ITC *Transmission* also informed Detroit Edison that it operates in accordance with these seasonal constraints to the degree practicable.

### Federally Listed Species

The FWS has identified four terrestrial species that are Federally listed as threatened or endangered with the potential to occur in Monroe, Washtenaw, and Wayne Counties, the counties through which where the new transmission line would be constructed. The species include the Indiana bat, the Karner blue butterfly (*Lycaeides melissa samuelis*), Mitchell's satyr butterfly (*Neonympha mitchellii mitchellii*), and the eastern prairie fringed orchid (*Platanthera leucophaea*) (FWS 2009). Although the impacts of transmission line operation on Federally listed species are likely to be minimal, final corridor location information would have to be provided to FWS prior to ground disturbance for the transmission line in support of ITC *Transmission's* application for a CWA Section 404 wetlands permit. Site-specific biological surveys may also need to be conducted in coordination with threatened and endangered species review by the FWS.

### State-Listed Species

The MNFI lists nearly 100 terrestrial plant and animal species listed by the State of Michigan as either endangered or threatened (see Table 2-9). As discussed above with respect to Federally listed species, however, final corridor location information would have to be provided to the MDNR prior to building the transmission line. Site-specific biological surveys would also need to be conducted in coordination with the state species review by the MDNR. Impacts of transmission line operation on State-listed species are likely to be minimal as long as

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ITC*Transmission* adheres to all conditions that USACE and/or MDEQ may place on operations and management in the wetland permitting process.

### Wetlands and Floodplains

Only minimal impacts on wetlands and floodplains are anticipated from operation of the new transmission lines and Milan Substation. Vegetation management actions may include, but are not limited to, pruning, wall trimming, tree removal, mowing, and herbicide application. Work would be conducted under the direct supervision of appropriately qualified personnel. Wetlands within the corridor that have the potential to regenerate in forest vegetation are expected to be manually cleared of woody vegetation periodically for line safety clearance, thereby being kept in a low-growing scrub/shrub or emergent wetland state. Access to these areas for maintenance would likely be on foot or by the use of matting for vehicle equipment, so as not to disturb the soil. Detroit Edison expects that ITC*Transmission* would minimize the use of pesticides in wetland portions of the transmission corridor (Detroit Edison 2010b). The review team therefore expects potential impacts on wetlands from the operation of the transmission line system to be minimal.

#### **5.3.1.4 Terrestrial Monitoring during Operations**

The Conservation and Monitoring Plan for operations proposed by Detroit Edison and accepted by MDNR (Detroit Edison 2012c) calls for periodic monitoring for eastern fox snake mortality during the operations period. There appears to be no need for other terrestrial monitoring activities related to operation of Fermi 3.

#### **5.3.1.5 Potential Mitigation Measures for Operation-Related Terrestrial Impacts**

Except for impacts on eastern fox snake habitat, impacts on terrestrial ecosystems resulting from operation of the proposed Fermi 3 facilities are expected to be minor, and no mitigation appears to be warranted. As for impacts to the eastern fox snake, Detroit Edison has developed a Conservation and Monitoring Plan for operations that has been approved by MDNR (Detroit Edison 2012c). The staff expects that the risk of possible mortality of eastern fox snakes would be mitigated according to Detroit Edison's Conservation and Monitoring Plan (Detroit Edison 2012c), as incorporated into a State endangered species permit issued by the MDNR.

#### **5.3.1.6 Summary of Operational Impacts on Terrestrial Resources**

Given the information provided in the ER (Detroit Edison 2011a), the Habitat and Species Conservation Plans for operating activities (Detroit Edison 2012b), Detroit Edison's responses to RAIs, interactions with State and Federal agencies, the public scoping process, and the review team's independent assessment, the review team has concluded that impacts from operations on terrestrial resources would be SMALL to MODERATE. The potential for MODERATE

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through Detroit Edison's existing SWPPP, and diverse aquatic communities have been maintained in these areas.

On the basis of the planned implementation of a SWPPP similar to that currently in place for Fermi 2, the review team concludes that impacts on aquatic resources in Swan Creek and the north and south canals from stormwater runoff due to the operation of Fermi 3 would be minor and no mitigation measures beyond those identified in the SWPPP and in applicable NPDES permits would be warranted.

### **Quarry Lakes**

There are no plans to withdraw water from the Quarry Lakes as part of Fermi 3 operations. Stormwater runoff from areas surrounding the Quarry Lakes will continue to drain into the Quarry Lakes via NPDES-permitted outfalls (Outfall 004, Outfall 005, and Outfall 007, as shown in Figure 2-6). This would include runoff originating from buildings and landscaping associated with the proposed multiple-level parking garage, Fermi 3 simulator facility, and the joint Fermi 2/Fermi 3 administration building, as shown in Figure 3-1. On the basis of the planned implementation of a SWPPP for the Fermi site similar to that currently in place, the review team concludes that impacts on aquatic resources from permitted stormwater runoff drainage to the Quarry Lakes would be minor, and no additional mitigation beyond that required in the associated NPDES permits would be warranted.

### **Stony Creek**

The Stony Creek watershed is entirely outside the Fermi site. There are no plans to discharge stormwater runoff from Fermi 3 facilities into the Stony Creek watershed, and no water withdrawals or releases associated with operation of Fermi 3 would affect water quantity or water quality in Stony Creek. Consequently, there would be no operation-related impacts on aquatic resources within Stony Creek, and no mitigation would be warranted.

#### **5.3.2.2 Aquatic Resources – Transmission Lines**

Transmission lines from Fermi 3 would be owned by Detroit Edison up to the point of their interconnection with the proposed Fermi 3 switchyard. Outward from interconnection with the Fermi 3 switchyard, ITC *Transmission* would own the lines and other transmission system equipment. Although Detroit Edison will maintain ownership and control of the land in the new onsite transmission corridor, Detroit Edison expects to contract with ITC *Transmission* to maintain the transmission towers and lines located on Detroit Edison property (Detroit Edison 2011a). Accordingly, the impacts from operation and maintenance of transmission lines discussed in this EIS are based on publicly available information and reasonable expectations of the configurations and practices that ITC *Transmission* would likely follow based on standard industry practice. The operation and maintenance of electricity transmission systems have the



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potential to affect aquatic ecological resources primarily through corridor maintenance activities, such as vegetation management, which would affect shorelines or could introduce sediment from erosion or contaminants from vehicles or herbicide treatments into waterways. As identified in Section 4.3.2.2, the identified transmission line route crosses about 30 wetlands or other waters that may be regulated by MDEQ and/or USACE. The 18.6-mi existing eastern section of the transmission line route crosses 12 narrow agricultural drains and small streams, and the currently undeveloped 10.8-mi western section of the route crosses nine agricultural drains and small streams.

Maintenance activities along the proposed 345-kV transmission line corridor could lead to periodic temporary impacts on waterways crossed by the transmission lines. However, BMPs currently employed by ITC*Transmission* for the existing Fermi 2 facility transmission line corridors would likely be applied to the proposed transmission line corridor to limit the potential for impacts (Detroit Edison 2011a). As described in Section 5.3.1.3 for wetlands and floodplains, it is anticipated that vegetation clearing in proximity to waterways would be limited to the minimum needed to allow access by maintenance vehicles and to keep the transmission lines free from intrusion of trees that could interfere with safe, reliable operation. To the extent practicable, existing access roads are expected to be used for ROW maintenance in the portion of the proposed corridor that already has existing transmission facilities and existing roads, and new access roads would be used for the currently undeveloped 10.4-mi segment of the proposed transmission line corridors. However, as described in Section 5.3.1.2, there would be occasional vehicular traffic in the corridor for maintenance purposes, which could result in minor amounts of soil erosion within the immediate area of the transmission line corridor.

ITC*Transmission* is a member of the EPA's voluntary Pesticide Environmental Stewardship Program (PESP). PESP members adopt risk reduction strategies and undertake specific steps toward reaching their goals of pesticide practices that reduce risks to humans and the environment (Detroit Edison 2011a). As described for wetlands and floodplains in Section 5.3.1.3, it is anticipated that the application of pesticides and herbicides in riparian areas near waterways would be minimized to the greatest extent possible to protect ecological resources (Detroit Edison 2011a).

Because of the periodic nature and typically small areas being maintained at any one time, the limited number of aquatic habitats that would be crossed by the proposed transmission corridor for Fermi 3, and the anticipated implementation of maintenance protocols similar to those in effect for the existing Fermi 2 transmission line corridor (Detroit Edison 2011a), the effects of ROW area maintenance on aquatic resources are expected to be minor during operation of Fermi 3, and additional mitigation beyond that described above would not be warranted.

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**5.3.2.3 Important Aquatic Species and Habitats**

This section describes the potential impacts of the operation of Fermi 3 and associated 345-kV transmission lines on important aquatic species and habitats, including any species that have been listed under the ESA, species that are listed by the State, and commercially and recreationally important species. The general biology, status, and habitat requirements of important aquatic species, along with the potential for species to occur in the vicinity of the Fermi site are presented in Section 2.4.2. Potential impacts on important aquatic species from operation of Fermi 3 would primarily be associated with intake and consumption of water for cooling, discharge of cooling water, maintenance dredging, discharge of wastewater, and stormwater runoff. Transmission line impacts would primarily be associated with erosional effects from use of vehicles and other equipment and physical and chemical vegetation management activities that occur in the vicinity of aquatic habitats.

Operations of Fermi 3 have a potential to affect populations of important aquatic species due to impingement and entrainment mortality, as well as effect changes in water quality (including water temperatures) associated with the cooling water intake and discharge systems. The magnitude of impacts from operations of Fermi 3 would depend on the susceptibility of a species to impingement and entrainment at the intake structure, sensitivity of a species to water quality changes (including temperature changes) associated with the cooling water discharge structure and stormwater runoff, species-specific habitat requirements, critical time periods in a species' life cycle, and the intensity and duration of the disturbance.

***Commercially and Recreationally Important Species***

Commercially and recreationally important species that could occur in the vicinity of the Fermi site are identified in Section 2.4.2.3, along with information about their habitat requirements and life histories. In addition to the waters of Lake Erie, commercially and recreationally important species may also use nearshore ponds, marshes, and streams as spawning, nursery, or adult habitat. Consequently, the analysis of potential effects considered those species that could be present in aquatic habitats that could be reasonably affected by Fermi 3 operations including Lake Erie, the north and south canals, North and South Lagoons, Swan Creek, and streams that would be crossed by the proposed transmission line route. As identified in Section 5.3.2.1, impacts from Fermi 3 operations on aquatic resources present in the Quarry Lakes or other onsite aquatic habitats or on aquatic resources in Stony Creek are expected to be SMALL.

Eight fish species that are considered commercially or recreationally important in Lake Erie (bigmouth buffalo, channel catfish, freshwater drum, gizzard shad, largemouth bass, smallmouth bass, white perch, and yellow perch) were entrained or impinged during studies conducted at the Fermi 2 intake in 2008 and 2009 (Tables 5-5 and 5-6). Based on those studies, it is estimated that 24 to 1247 individuals of seven of these species (gizzard shad, white perch, bluegill, smallmouth bass, largemouth bass, channel catfish, and freshwater drum) would



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be impinged (Table 5-5) and approximately 100,000 to 25 million eggs and larvae of these species (Table 5-6) would be entrained annually at the cooling water intake for Fermi 3 with the intake pumps at full capacity. Considering the large numbers of these species that are commercially and recreationally harvested each year in Michigan waters of the western basin of Lake Erie, impingement mortality at the estimated levels would represent a negligible impact on populations of these species. The commercially and recreationally important species observed during entrainment studies are species that exhibit high fecundity and produce large numbers of eggs and larvae (Table 5-7), and the gizzard shad is a common forage species in the western basin of Lake Erie. Based on the low proportion of water that would be withdrawn from Lake Erie relative to the volume of water in the western basin, the use of closed-cycle cooling to minimize water withdrawals, the location of the intake bay away from any known sensitive spawning or nursery habitats, the historic impingement and entrainment rates for the existing Fermi 2, and the relatively high fecundities exhibited by the commercially and recreationally important species that are likely to be impinged or entrained, the review team concludes that impacts on commercially and recreationally important fish populations from impingement and entrainment during Fermi 3 operations would be minor.

During operation of Fermi 3, aquatic habitat in Lake Erie near the discharge would be affected by altered water quality, especially increased water temperature, in the vicinity of the cooling water discharge. As described in Section 5.3.2.1, the thermal and chemical impacts on aquatic habitats and biota from cooling water discharge due to Fermi 3 operations would be SMALL, because the thermal impacts would be confined to a small mixing zone area (1.3 ac or less) where water temperatures would exceed ambient temperatures, and because MDEQ would regulate the allowable thermal and chemical characteristics of the discharged waters through the NPDES permitting process. Scouring or other physical impacts due to cooling water discharge would also be limited (see Section 5.3.2.1). For these reasons, the review team concludes that impacts on commercially and recreationally important fish populations from the discharge of cooling water by Fermi 3 would be negligible.

As identified in Section 5.3.2.1, periodic maintenance dredging of the intake bay and permitted discharges of effluent and stormwater at the Fermi site could temporarily alter water quality in the vicinity of the intake bay. These are areas that have been periodically dredged as part of the maintenance activities at the Fermi site. Although the presence of some commercially and recreationally important fish species has been documented within the intake bay and in the area that would be affected during periodic maintenance dredging for the Fermi site (AECOM 2009a), it is anticipated that most individuals of commercially and recreationally important species would temporarily move away during dredging activities because of noise and increased turbidity. While this would result in temporary short-term displacement of individuals, it is anticipated that population-level impacts on commercially and recreational fish species would be negligible.

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Stormwater from the finished grade at Fermi 3 would be directed to a sump that would discharge to the north overflow canal via an outlet pipe. The overflow canal would discharge to the North Lagoon, which discharges to Swan Creek and eventually to Lake Erie. Stormwater may also travel directly either to the North Lagoon or to the South Lagoon. The South Lagoon also discharges to Lake Erie. Detroit Edison has stated that the Fermi 3 SWPPP and design features would be used to control stormwater runoff to the receiving water bodies to ensure that any increase in sediment loading to Swan Creek and/or Lake Erie is adequately controlled to minimize water quality impacts (Detroit Edison 2011a). On the basis of the planned implementation of a SWPPP similar to that currently in place for Fermi 2, the review team concludes that impacts from Fermi 3 operations on commercially and recreationally important aquatic species due to stormwater runoff would be SMALL and that no additional mitigation would be warranted.

As described in Section 2.4.2.2, there are no important commercial or recreational fisheries present within the assumed transmission line route because of the small sizes of the drainages crossed by the transmission line corridor. However, some of the streams to be crossed by the proposed transmission lines support some commercially or recreationally important species. Maintenance of transmission lines could periodically and temporarily affect individuals in the vicinity of stream crossings because of erosion of soils and deposition of sediment via runoff, potential pollutant discharge from maintenance equipment, and temporary disturbance and/or displacement of aquatic biota. As described in Section 5.3.2.2, it is anticipated that the proposed transmission line corridor would be operated and maintained by ITC *Transmission* in the same fashion as the existing transmission line corridor for Fermi 2 (Detroit Edison 2011a). Vegetation clearing is expected to be limited to the minimum needed to allow access by maintenance vehicles and to keep the transmission lines free from intrusion of trees that could interfere with safe, reliable operation (Detroit Edison 2011a), thereby reducing the potential for impacts on commercially or recreationally important species resulting from erosion, sedimentation, and disturbance.

As described in Section 5.3.2, pesticides and herbicides are expected to be used selectively, in accordance with specified labeling, and only where needed, thus minimizing the potential for significant impact on aquatic resources. Because of the periodic nature and typically small areas being maintained at any one time and the limited number of aquatic habitats that would be crossed by the proposed transmission line corridor for Fermi 3, the effects of ROW maintenance on commercially and recreationally important aquatic resources are expected to be SMALL during operation of Fermi 3.

On the basis of an evaluation of information presented in the ER and other existing information, the review team concludes that impacts on commercially and recreationally important species due to the operation of Fermi 3 and the associated transmission line corridors would be minor,

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and no additional mitigation would be warranted. Implementation of BMPs and other mitigation measures stipulated in required permits would further reduce impacts.

### **Federally and State-Listed Aquatic Species**

This section evaluates the potential for Federally and State-listed aquatic species to be affected by operation of Fermi 3. Federally and State-listed species that could occur in the counties (Monroe, Wayne, and Washtenaw Counties) within which activities related to operation of Fermi 3 would occur were identified in Section 2.4.2.3, along with information about their habitat requirements and life histories.

Based on habitat requirements, current distributions, and survey data, aquatic species with a potential to occur in the vicinity of the Fermi site or the proposed transmission line route were identified in Section 2.4.2.3 (see Table 2-13). Three species of freshwater mussels that are Federally listed as endangered (northern riffleshell [*Epioblasma torulosarangiana*]; rayed bean [*Villosa fabilis*]; and snuffbox mussel [*E. triquetra*]) were identified as having the potential to occur in Monroe, Washtenaw, or Wayne Counties, Michigan. None of these species have ever been documented either on the Fermi site or along the proposed transmission line route, and only the rayed bean and the snuffbox mussel have a potential to occur on the Fermi site based on information about the current status of populations, records of occurrence, and habitat preferences (Section 2.4.2.3). The northern riffleshell is considered unlikely to occur on or adjacent to the Fermi site because of the lack of suitable stream habitat; it is unknown whether there could be suitable habitat for the northern riffleshell in portions of streams that would be crossed by the proposed transmission line route within Monroe or Wayne Counties, although the species has not been reported from the streams that would be crossed.

Including the Federally listed species identified above, all of which are also listed as endangered by the State of Michigan, State-listed species that have been observed or that have a potential to occur on or adjacent to the Fermi site include three mussel species (rayed bean, salamander mussel [*Simpsonaias ambigua*], and snuffbox mussel) and three fish species (pugnose minnow [*Opsopoeodus emiliae*], sauger [*Sander canadensis*], and silver chub [*Macrhybopsis storeriana*]) (Section 2.4.2.3; Table 2-13). Of these species, only the silver chub is known to occur at the Fermi site (Table 2-13).

The only known existing population of the white catspaw (*Epioblasma obliquata perobliqua*), a freshwater mussel that is Federally and State-listed as endangered, occurs in one stream drainage in Ohio; the species is considered extirpated from Michigan. As a consequence, it is believed that this species would not be present near the Fermi site or in streams that would be crossed by the proposed transmission line corridor and that it would not be affected by operation of Fermi 3, and additional evaluation was not included in the FEIS or the BA.

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There are other State-listed mussel and fish species (as shown in Table 2-13) that are considered unlikely to occur at the Fermi site but have a potential to occur in streams that would be crossed by the proposed transmission line corridor in Monroe, Wayne, or Washtenaw Counties. Currently there is insufficient information to determine whether any of those species are present in the streams that would be crossed.

Maintenance of transmission lines could affect listed organisms in the vicinity of stream crossings because of erosion of soils and deposition of sediment via runoff, potential for pollutant discharge from maintenance equipment and vehicles, and temporary disturbance and/or displacement of individuals. As described in Section 5.3.2.2, it is assumed that BMPs employed by ITC *Transmission* for the existing Fermi 2 facility transmission line corridors would also be applied to the proposed transmission line corridor (Detroit Edison 2011a) to limit the potential for impacts on aquatic species, including listed species. ITC *Transmission* maintains a database of known occurrences of threatened and endangered species obtained from the MNFI to identify locations where seasonal constraints or other regulatory conditions need to be considered for vegetation management activities in habitats occupied by rare species (Detroit Edison 2010b). Because of the periodic nature of maintenance, the typically small areas being maintained at any one time, and the limited number of aquatic habitats that would be crossed by the proposed transmission line corridor for Fermi 3, the effects of ROW area maintenance on Federally and State-listed species are expected to be small during operation of Fermi 3.

Potential impacts on Federally and State-listed species that were deemed to have a potential to occur in the waters on or in the immediate vicinity of the Fermi site or in streams that would be crossed by the proposed transmission line corridor are evaluated in more detail in the following subsections.

Northern Riffleshell (*Epioblasma torulosa rangiana*)

The northern riffleshell is Federally listed as endangered and is also listed as endangered by the State of Michigan. Because there is no suitable habitat for the northern riffleshell on the Fermi site or in adjacent waters of Lake Erie (Section 2.4.2.3), operation of Fermi 3 would have no impact on this species. Although suitable habitat for the northern riffleshell could be present in some of the streams that would be crossed by the proposed transmission line corridor, it is not expected to occur along the transmission line route because extant populations of this species in Michigan are known to be present only in the Black River in Sanilac County and the Detroit River in Wayne County (Carman and Goforth 2000). Even if the northern riffleshell is present in streams crossed by the transmission line corridors, impacts on it from maintenance of transmission lines are unlikely, provided that BMPs identified in permits for the transmission lines are implemented. Additional regulatory review and permitting of proposed plans for maintenance of the transmission lines (e.g., for annual vegetation management plans) would be required prior to implementation (Detroit Edison 2011a). On the basis of this information, the review team concludes that operation of Fermi 3 would have no effect on the northern riffleshell.

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### Pugnose Minnow (*Opsopoeodus emiliae*)

The pugnose minnow is listed as endangered by the State of Michigan and has the potential to occur in streams in Monroe and Wayne Counties. Although there is a potential for suitable habitat for the pugnose minnow to be present in the vicinity of the Fermi site, especially in weedy aquatic habitats such as those present in the North Lagoon or Swan Creek, no individuals were collected during recent surveys on the Fermi site and none were reported in past biological surveys of Stony Creek or the Swan Creek estuary near the Fermi site (AECOM 2009a; MDEQ 1996, 1998; Francis and Boase 2007). If individuals are occasionally present in the North Lagoon or near the mouth of Swan Creek, there is a potential for adverse effects due to water quality changes and increased turbidity from stormwater runoff during operation of Fermi 3. Detroit Edison has stated that the Fermi 3 SWPPP and design features would be used to control stormwater runoff to ensure that any increase in sediment loading to Swan Creek and/or Lake Erie is adequately controlled to minimize water quality impacts (Detroit Edison 2011a). No suitable habitat is present for the pugnose minnow in the vicinity of the intake bay or the location of the outlet for the proposed cooling water discharge. Consequently, impacts from impingement, entrainment, thermal effects, or water quality changes associated with those structures are unlikely. On the basis of the planned implementation of a SWPPP similar to that currently in place for Fermi 2, the review team concludes that impacts from Fermi 3 operations on the pugnose minnow would be minor, and no additional mitigation would be required.

### Rayed Bean (*Villosa fabalis*)

The rayed bean is Federally listed as endangered and is also listed as endangered by the State of Michigan. If present, threats to the survival of the rayed bean include siltation, dredging, and channelization of inhabited areas and the introduction of exotic species, such as Asian clams (*Corbicula fluminea*), quagga mussels (*Dreissena rostriformi*), and zebra mussels (*Dreissena polymorpha*) (FWS 2002). As identified in Section 2.4.2.3, there are no streams on the Fermi site with conditions suitable for the rayed bean; no extant populations are known to occur in the stream drainages that would be crossed by the proposed transmission line route; and it is believed that the species is unlikely to be present in Lake Erie near the Fermi site. Because the intake bay would be periodically dredged, it is unlikely that the substrate would be suitable for the rayed bean to become established in this area.

As eggs, native unionid mussels are not likely to be affected by entrainment through the cooling water intake because they are not free-floating, but rather develop into larvae within the female. The glochidial stage, during which juvenile mussels attach to a suitable fish host, may be indirectly vulnerable through impingement and entrainment of host species. Post-glochidial and adult stages are not likely to be susceptible to entrainment because they bury themselves in sediment. As identified in Section 2.4.2.3, fish hosts for the glochidia of the rayed bean could include the Tippecanoe darter (*Etheostoma tippecanoe*), greenside darter (*Etheostoma*



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*blennioides*), rainbow darter (*Etheostoma caeruleum*), mottled sculpin (*Cottus bairdi*), and largemouth bass (*Micropterus salmoides*). Of these potential host species, only the largemouth bass was observed in fish collections in Lake Erie near the intake structure or near the discharge from the South Lagoon, and based on impingement studies conducted at the existing Fermi 2 intake in 2008 and 2009, it is estimated that small numbers of largemouth bass individuals (approximately 30) would be impinged annually with the intake pumps for Fermi 3 at full operating capacity (AECOM 2009a).

It is anticipated that operation of Fermi 3 would not result in water quality unsuitable for the rayed bean if a population were present in Lake Erie near the Fermi site. Thermal effects associated with cooling water discharge during operation of Fermi 3 would be unlikely to affect mussels, because the discharge ports would direct water upward and not toward the lake bottom. In addition, it is anticipated that suitable water quality would be maintained because (1) the NPDES permit for Fermi 3 would specify allowable concentrations of chemicals in the Fermi 3 discharge and would require regular testing to evaluate compliance, and (2) Detroit Edison has stated that the Fermi 3 SWPPP and design features would be used to control stormwater runoff to ensure that sediment loading to Swan Creek and/or Lake Erie is adequately controlled to minimize water quality impacts (Detroit Edison 2011a).

The operation and maintenance of transmission lines for Fermi 3 are not expected to affect the rayed bean because the species has not been reported from the streams that would be crossed by the proposed transmission line corridor, because structures requiring maintenance (e.g., transmission towers) would not be placed in aquatic habitats that are crossed by the corridor, and because BMPs would be implemented to protect water quality in aquatic habitats during maintenance activities such as vegetation management (Detroit Edison 2011a). On the basis of the above information, the review team concludes that of the operation of Fermi 3 would have no effect on the rayed bean.

Salamander Mussel (*Simpsonaias ambigua*)

The salamander mussel is listed as endangered by the State of Michigan and has the potential to occur in Monroe and Wayne Counties. Although there are no suitable stream habitats for the species on the Fermi site, there is the potential for suitable habitat and the mudpuppy (*Necturus maculosus*) host required by this species to occur in Lake Erie near the Fermi site (see Section 2.4.2.3). Because no suitable habitat for this species (i.e., medium to large rivers or lakes) would be crossed by the proposed transmission line corridor, operation and maintenance of the proposed transmission lines would have a negligible impact on this species.

Salamander mussels are not known from areas on or near the site that would be affected by the cooling water intake or discharge, by periodic maintenance dredging during the operation of Fermi 3, or by stormwater runoff. Identified threats to the survival of the salamander mussel

### Operational Impacts at the Proposed Site

include siltation and runoff from human activities and the introduction of exotic species such as Asian clams, quagga mussels, and zebra mussels (Section 2.4.2.3).

The areas in Lake Erie that would be disturbed by modification and dredging of the intake bay, development of a barge slip within the intake bay, and placement of the discharge structure for the facility either have been previously disturbed by periodic maintenance dredging (Detroit Edison 2011a) or have been identified as containing a clay hardpan substrate (Detroit Edison 2010c) and not the silt and sand substrate preferred by this species. Consequently, there is only a small potential for the species to be present in the area. Because the intake bay would be periodically dredged, it is unlikely that the substrate would be suitable for the salamander mussel to become established in this area.

As eggs, native unionid mussels are not likely to be affected by entrainment through the cooling water intake because they are not free-floating, but rather develop into larvae within the female mussel. The glochidial stage, during which juvenile mussels attach to a suitable host, may be indirectly vulnerable through impingement and entrainment of host species. Post-glochidial and adult stages are not likely to be susceptible to entrainment because they bury themselves in sediment. As identified in Section 2.4.2.3, the identified host for the glochidia of the salamander mussel is the mudpuppy. The mudpuppy was not observed during impingement studies conducted in 2008 and 2009 at the Fermi 2 intake, and it is considered highly unlikely that mudpuppies would occur within the intake bay because of the lack of suitable cover such as submerged rocks or logs.

It is anticipated that operations of Fermi 3 would not result in water quality unsuitable for the salamander mussel if a population was present in Lake Erie near the Fermi site. Thermal effects associated with cooling water discharge during operation of Fermi 3 would be unlikely to affect mussels because the discharge ports would direct water upward and not toward the lake bottom. In addition, it is anticipated that suitable water quality would be maintained because (1) the NPDES permit for Fermi 3 would specify allowable concentrations of chemicals in the Fermi 3 discharge and would require regular testing to evaluate compliance, and (2) Detroit Edison has stated that the Fermi 3 SWPPP and design features would be used to control stormwater runoff to ensure that sediment loading to Swan Creek and/or Lake Erie is adequately controlled to minimize water quality impacts (Detroit Edison 2011a).

On the basis of the above information, the review team concludes that the impacts of Fermi 3 operations on the salamander mussel would be minor.

### Sauger (*Sander canadensis*)

The sauger is considered a species of special concern by the State of Michigan and has the potential to occur in Lake Erie. However, the last reported occurrence of sauger in Monroe County was in 1996, and no individuals were collected during recent surveys on the Fermi site,

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Stony Creek, or the Swan Creek estuary (AECOM 2009a; MDEQ 1996, 1998; Francis and Boase 2007). If present in nearshore areas of Lake Erie, sauger could be affected by Fermi 3 operations because of impingement or entrainment at the intake structure, by changes in water temperatures associated with the cooling water discharge, by maintenance dredging, or by water quality changes associated with discharges and stormwater runoff from Fermi 3. Because no sauger were observed during impingement and entrainment studies conducted during 1991 and 1992 (Lawler, Matusky, and Skelly Engineers 1993) or during 2008 and 2009 (AECOM 2009a) at the Fermi 2 intake, it is considered unlikely that significant numbers would be affected by the intake of cooling water for operation of Fermi 3. As with most fish, it is anticipated that sauger in the project area would temporarily move away during dredging activities because of increased noise and turbidity levels, resulting in temporary displacement but negligible levels of mortality. As described in Section 5.3.2.1, MDEQ would specify allowable characteristics of the thermal plume and chemical concentrations associated with the cooling water discharge for Fermi 3 through the NPDES permitting process and Detroit Edison would implement a SWPPP to control stormwater runoff, thereby limiting the potential for water quality impacts on the sauger if individuals were to be present in the vicinity of the Fermi site. The small streams that would be crossed by the proposed transmission line corridor do not provide suitable habitat for sauger, and this species would not be affected by operation and maintenance of the transmission lines for Fermi 3. On the basis of this information, the review team concludes that impacts on the sauger from Fermi 3 operations would be minor, and no additional mitigation is warranted.

Silver Chub (*Macrhybopsis storeriana*)

The silver chub is considered a species of special concern by the State of Michigan. A single silver chub specimen was collected in July 2009 during monthly fish surveys conducted near the mouth of Swan Creek from 2008 to 2009 (AECOM 2009a). This species is typically found in deep waters of low-gradient streams and rivers and also in lakes. Little is known about the life history of the silver chub, especially its tolerance of siltation and turbidity (Derosier 2004). While some researchers have suggested that silver chub are intolerant of turbidity and silt, others note that silver chubs are found in silty rivers (Derosier 2004). If present in nearshore areas of Lake Erie, silver chubs could be affected by Fermi 3 operations because of impingement or entrainment at the intake structure, by changes in water temperatures associated with the cooling water discharge, by maintenance dredging, or by water quality changes associated with discharges and stormwater runoff from Fermi 3. Because no silver chubs were observed during impingement and entrainment studies conducted during 1991 and 1992 (Lawler, Matusky, and Skelly Engineers 1993) or during 2008 and 2009 (AECOM 2009a) at the Fermi 2 intake, it is considered unlikely that significant numbers would be affected by the intake of cooling water for operation of Fermi 3. It is anticipated that silver chub in the project area would temporarily move away during maintenance dredging activities because of increased noise and turbidity levels, resulting in temporary displacement but negligible levels of mortality. As described in



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Section 5.3.2.1, MDEQ would specify allowable characteristics of the thermal plume and chemical concentrations associated with the cooling water discharge for Fermi 3 through the NPDES permitting process, and Detroit Edison would implement a SWPPP to control stormwater runoff to Swan Creek and Lake Erie, thereby limiting the potential for water quality impacts on silver chub if individuals were present in the vicinity of the Fermi site.

Although suitable habitat for the silver chub could be present in some of the streams that would be crossed by the proposed transmission line corridor, it is currently unknown whether any populations are present. Even if the silver chub is present, impacts on it from the operation and maintenance of transmission lines for Fermi 3 are not anticipated because structures requiring maintenance (e.g., transmission towers) would not be placed in aquatic habitats that are crossed by the corridor and because BMPs would be implemented to protect water quality in aquatic habitats during maintenance activities such as vegetation management (Detroit Edison 2011a). On the basis of the available information, the review team concludes that impacts on the silver chub from Fermi 3 operations would be minor, and no additional mitigation is warranted.

### Snuffbox Mussel (*Epioblasma triquetra*)

The snuffbox mussel, which is Federally listed as endangered and is also listed as endangered by the State of Michigan, has the potential to occur in Monroe, Wayne, and Washtenaw Counties. Although there are no suitable stream habitats on the Fermi site, there is potential for suitable habitats in Lake Erie, and the host required by this species (logperch, *Percina caprodes*) has been collected from the Fermi site at sampling locations in Swan Creek and in Lake Erie near the South Lagoon (see Section 2.4.2.3). The intake bay would be periodically dredged, and it is unlikely that the substrate would be suitable for the snuffbox mussel to become established in this area.

As eggs, native unionid mussels are not likely to be affected by entrainment through the cooling water intake because they are not free-floating, but rather develop into larvae within the female. The glochidial stage, during which juvenile mussels attach to a suitable fish host, may be indirectly vulnerable through impingement and entrainment of host species. Post-glochidial and adult stages are not likely to be susceptible to entrainment because they bury themselves in sediment. As identified in Section 2.4.2.3, fish hosts for the snuffbox mussel include the logperch, which was observed in fish collections in Lake Erie near the discharge from the South Lagoon and in Swan Creek. Based on impingement studies conducted during 1991 and 1992, Lawler, Matusky, and Skelly Engineers (1993) estimated that approximately 31 logperch were impinged annually by the Fermi 2 cooling water intake. However, impingement studies conducted during 2008 and 2009 at the Fermi 2 intake did not observe impingement of any logperch (AECOM 2009a). Together, these two impingement studies suggest that small numbers of logperch could be impinged by the operation of the cooling water intake for Fermi 3.

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It is anticipated that operation of Fermi 3 would not result in water quality unsuitable for the snuffbox mussel if a population were present in Lake Erie near the Fermi site. Thermal effects associated with cooling water discharge during operation of Fermi 3 would be unlikely to affect mussels, because the discharge ports would direct water upward and not toward the lake bottom. In addition, it is anticipated that suitable water quality would be maintained because (1) the NPDES permit for Fermi 3 would specify allowable concentrations of chemicals in the Fermi 3 discharge and would require regular testing to evaluate compliance, and (2) Detroit Edison has stated that the Fermi 3 SWPPP and design features would be used to control stormwater runoff to ensure that sediment loading to Swan Creek and/or Lake Erie is adequately controlled to minimize water quality impacts (Detroit Edison 2011a).

It is not known whether suitable stream habitats for, or populations of, the snuffbox mussel occur along the proposed transmission line corridor. Even if the species were present, impacts on the snuffbox mussel from the operation and maintenance of transmission lines for Fermi 3 are not anticipated because structures requiring maintenance (e.g., transmission towers) would not be placed in aquatic habitats that are crossed by the corridor, and BMPs would be implemented to protect water quality in aquatic habitats during maintenance activities such as vegetation management (Detroit Edison 2011a). On the basis of the above information, the review team concludes that the operation of Fermi 3 would have no effect on the snuffbox mussel.

### ***Summary of Operational Impacts on Federally and State-Listed Aquatic Species***

Based on information provided by Detroit Edison and the review team's independent evaluation, the review team concludes that impacts of Fermi 3 operation on aquatic threatened and endangered species would be minor. For the three Federally listed mussel species, the review team determines that there would be no effect from operation of Fermi 3. Impacts on listed aquatic species from degradation of water quality would be limited by the implementation of BMPs that would be identified in the required NPDES discharge permit to be issued by MDEQ and in the SWPPP to be developed by Detroit Edison.

In compliance with Section 7 of the ESA, the NRC began informal consultation with the FWS in a letter dated December 23, 2008 (NRC 2008). The review team completed a BA assessing how building and operating Fermi 3 would impact three Federally protected freshwater mussel species potentially or historically known from the geographic area of interest. The BA's conclusions on potential impacts are provided above. A copy of the BA is included in Appendix F of this FEIS. The BA was forwarded to the FWS on March 30, 2012 (NRC 2012a). In a letter dated June 8, 2012 (FWS 2012), the FWS concurred with the review team's determination that operating Fermi 3 would have no effect on the three freshwater mussel species that are Federally protected as endangered species.

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### **Critical Habitats**

There are no areas designated as critical habitat for aquatic species in the vicinity of the Fermi site or along the route of the proposed transmission line.

### **Invasive Nuisance Organisms**

Invasive nuisance organisms that have been found or are presumed to occur in Lake Erie in the vicinity of the Fermi site include lyngbya (*Lyngbya wollei*), fishhook water flea (*Cercopagis pengoi*), spiny water flea (*Bythotrephes longimanus*), quagga mussel, zebra mussel, sea lamprey (*Petromyzon marinus*), and round goby (*Neogobius melanostomus*) (Section 2.4.2.3). None of these species are considered abundant in the vicinity of the Fermi site. While it is not clear that any of these species rely upon thermal refuge to tolerate the ambient wintertime water temperatures in Lake Erie, it is anticipated that the area of the thermal plume from Fermi 3 would not be large enough to provide substantial thermal refuge for invasive nuisance organisms. Detroit Edison reported that there has been no excessive growth of algae observed in the vicinity of the water discharge for Fermi 2.

The review team specifically evaluated the potential for algal blooms caused by species such as *Microcystis* spp., *Anabaena* spp., *Aphanisomenon* spp., and more recently, lyngbya. In addition, there have been extensive growths of *Cladophora* spp., an attached green alga, in the western basin of Lake Erie. The principal contributor to the development of algal blooms has long been attributed to increased nutrient levels (especially phosphorus concentrations) resulting from changes in land use practices, altered hydrology, and food web changes.

Large shoreline mats of lyngbya were first seen in western Lake Erie in Maumee Bay in 2006 (Bridgeman and Penamon 2010). Life history information for lyngbya is provided in Section 2.4.2.3. The review team considered the effects of temperature, nutrients, substrate type, and irradiance on lyngbya blooms and examined the history of algal blooms associated with the discharge for Fermi 2. Overall, it appears that the potential for excessive growth of lyngbya is related to the amount of light penetration into the water column (a function of water turbidity), water depth, nutrient availability, and the type of substrate that is present (Bridgeman and Penamon 2010; LaMP Work Group 2008). Additionally, it is thought that increased water temperatures could exacerbate the potential for algal blooms to occur.

Operation of Fermi 3 is not expected to alter turbidity levels or light penetration in the vicinity of the site compared to existing conditions. Although maintenance dredging activities could result in infrequent, temporary, and localized increases in turbidity, the frequency of dredging and the areas affected by dredging would be the same as for Fermi 2. Therefore, maintenance dredging during Fermi 3 operations would not alter the potential for algal blooms to occur.

## Operational Impacts at the Proposed Site

The nearest designated recreational areas are the beaches at Stony Point (2 mi south of the site) and Estral Beach (2 mi northeast of the site). Nearby State recreational areas include Point Mouillee State Game Area (3.1 mi to the northeast) and Sterling State Park (4.8 mi to the south-southwest). Scattered industrial facilities are located west and southwest of the Fermi site along the I-75 corridor and near the City of Monroe. Commercial development is present along major road corridors, including Dixie Highway, Telegraph Road, and I-75, and within the City of Monroe.

All activities related to operation of Fermi 3 would occur within the Fermi site boundary and would be performed in compliance with Occupational Safety and Health Administration (OSHA) standards, BMPs, and other applicable regulatory and permit requirements. While approximately 89,198 people live within 10 mi of the site, physical impacts attenuate rapidly with distance, intervening foliage, and terrain. Therefore, people who would be most exposed to noise, air emissions, and gaseous emissions resulting from operation of Fermi 3 would be the onsite workforce. People working or living immediately adjacent to the Fermi site, transient populations such as people using recreational facilities, or temporary employees of other businesses in the area would be minimally affected because of lack of access to the site and distance from the site, which would limit the effects of operational activities.

Operations workers would receive safety training and would be required to use personal protective equipment to minimize health and safety risks. Emergency first aid care would be available at the site, and regular health and safety monitoring would be conducted. People working onsite or living near the Fermi site would not experience any physical impacts greater than those that would be considered an annoyance or nuisance.

### 5.4.1.2 Noise

Primary noise sources associated with operation of Fermi 3 would be transformers, the cooling system, and transmission lines (Detroit Edison 2011a). Noise would be buffered by the distance between the plant and residences or recreational areas offsite, such that the ambient sound level should not increase appreciably. The review team expects average day-night noise levels from the Fermi 3 cooling towers will be less than 65 dBA at the nearest noise-sensitive receptor. Noise along the transmission lines would be very low, except possibly directly below the line on a quiet, humid day (Detroit Edison 2011a). Therefore, the review team concludes that physical impacts from noise will be minimal. Projected noise impacts from operation of Fermi 3 are discussed in further detail in Section 5.8.2.

### 5.4.1.3 Air Quality

Air emissions associated with operation of Fermi 3 would include stationary source emissions from two standby diesel generators (SDGs), two ancillary diesel generators (ADGs), an auxiliary boiler, and two diesel-driven fire pumps (FPs). These emissions sources would be small, would be used infrequently, and would be permitted for use by MDEQ. The cooling tower would emit

## Operational Impacts at the Proposed Site

### 5.5.2 Physical and Environmental Impacts

For the physical and environmental considerations described in Section 2.6.1, the review team determined through literature searches and consultations that (1) the impacts on the natural or physical environment would not be significant or result in any significant impacts on any population of interest; (2) there would be no disproportionately high and adverse impacts on minority or low-income populations of interest; and (3) the environmental effects would not occur on any minority or low-income populations that are already being affected by cumulative or multiple adverse exposures from environmental hazards. Sections 5.5.2.1 through 5.5.2.4 summarize the physical and environmental effects on the general population, and Section 5.5.2.5 provides an assessment of the potential for disproportionately high and adverse physical and environmental impacts on minority or low-income populations of interest.

The review team determined that the physical and environmental impacts from operation of Fermi 3 would attenuate rapidly with distance, intervening foliage, and terrain. There are four primary pathways in the environment: soil, water, air, and noise. The following four subsections discuss each of these pathways in greater detail.

#### 5.5.2.1 Soil

The review team did not identify any pathway by which operations-related impacts on soils at the Fermi site would impose a disproportionately high and adverse impact on any population of interest. The review team considers the risk of soil salinization from cooling towers to be low and limited to a distance less than the nearest population of interest. Maintenance of the transmission lines would require some vehicular traffic in the transmission line corridor. However, impacts on soils along the transmission line corridors would be minimal and are not expected to affect any offsite communities. The review team identified no other environmental pathways related to soils.

#### 5.5.2.2 Water

Operation of Fermi 3 would affect the water quality in Swan Creek and Lake Erie and water use of Lake Erie. Water quality impacts would result from increased stormwater runoff from the impervious surfaces of Fermi 3, thermal and chemical constituents in the cooling water discharges, and maintenance dredging of the intake canal. As discussed in Sections 5.2 and 5.3.2, operation of Fermi 3 would generate a small thermal plume from cooling water discharge piping into Lake Erie. Solutes in the effluent discharged would be diluted by the large water volume of the western basin of Lake Erie. In addition, discharges would be required to comply with limits imposed by permits. Consequently, the increase in temperature and concentration of these chemicals in Lake Erie would be negligible outside of the mixing zone of the discharge plume, and would have a negligible impact on aquatic biota or the general public (see

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Section 5.3.2.1). The discharge would be in a restricted area that would not be used for recreational activities such as swimming, diving, and other water sports.

Operation of Fermi 3 would require a withdrawal of approximately 34,000 gpm from Lake Erie, and approximately 17,000 gpm would be discharged to Lake Erie. As discussed in Section 5.2, the consumptive losses of water during normal Fermi 3 plant operations would result in no measurable effect on other users.

### 5.5.2.3 Air

Air emissions sources associated with operation of Fermi 3 would include two SDGs, two ADGs, an auxiliary boiler, and two diesel-driven FPs. These emissions sources would be small, would be used infrequently, and would be permitted for use by MDEQ. The cooling tower would emit small amounts of particulate matter, which would be further minimized by drift eliminators. Emissions from worker vehicles, onsite support vehicles and heavy equipment, and vehicles used in delivery of materials and fuels would also occur (Detroit Edison 2011a). However, emissions from these sources would be expected to minimally affect ambient air quality in offsite communities in the region. Therefore, the review team determines there is no air-related pathway by which minority or low-income populations of interest could receive a disproportionately high and adverse impact.

### 5.5.2.4 Noise

Primary noise sources associated with operation of Fermi 3 would be the cooling towers, transformers, and transmission lines. As noted in Section 5.8.2, noise from the transformers and cooling tower would be buffered by the distance of the plant from residences such that the ambient sound level should not increase appreciably. Day-night noise levels from the Fermi 3 cooling towers are anticipated to be less than 65 dBA at the nearest noise-sensitive receptor. Noise along the transmission lines would be very low, except possibly directly below the line on a quiet, humid day (Detroit Edison 2011a). Therefore, the review team determines there is no noise-related pathway by which minority or low-income populations of interest could receive a disproportionately high and adverse impact.

### 5.5.2.5 Summary of Physical and Environmental Impacts on Minority or Low-Income Populations

The review team's investigation and outreach did not reveal any unique characteristics or practices among minority or low-income populations that could result in physical or environmental impacts different from impacts on the general population.

As discussed in Section 2.6, most of the census block groups classified as minority or low-income lie to the north and south of the Fermi site, in Wayne and Lucas Counties, within and



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environmental, physical, or socioeconomic effects as a result of operation of Fermi 3; therefore, environmental justice impacts would be SMALL.

## 5.6 Historic and Cultural Resource Impacts from Operation

The National Environmental Policy Act of 1969 as amended (NEPA) requires Federal agencies to take into account the potential effects of their undertakings on the cultural environment, which includes archaeological sites, historic buildings, and traditional places important to local populations. The National Historic Preservation Act of 1966 as amended (NHPA) also requires Federal agencies to consider impacts on those resources if they are eligible for listing on the *National Register of Historic Places* (NRHP) (such resources are referred to as “Historic Properties” in NHPA). As outlined in 36 CFR 800.8, “Coordination with the National Environmental Policy Act of 1969,” the NRC is coordinating compliance with Section 106 of the NHPA in meeting the requirements of NEPA. For specific historic and cultural resources on the Fermi site, see Section 2.7.

Operating a new nuclear unit can affect either known or undiscovered cultural resources and/or historic properties. In accordance with the provisions of NHPA and NEPA, the NRC and the USACE are required to make a reasonable and good faith effort to identify historic properties in the area of potential effects (APE) and permit area, respectively, and, if historic properties are present, determine whether significant impacts are likely to occur. Identification of historic properties is to occur in consultation with the State Historic Preservation Officer (SHPO), American Indian Tribes, interested parties, and the public. If significant impacts are possible, then efforts should be made to mitigate them. As part of the NEPA/NHPA integration, even if no historic properties (i.e., places listed or eligible for listing on the NRHP) are present or affected, the NRC and the USACE are still required to notify the SHPO before proceeding. If it is determined that historic properties are present, the NRC and the USACE are required to assess and resolve adverse effects of their respective authorized activities for the undertaking.

During the operation of Fermi 3, the cooling tower vapor plume would be visible within the visual setting of the other 21 architectural resources that have been determined or recommended eligible for listing in the NRHP. The existing visual setting of these properties, which are all located offsite but within the indirect APE, currently includes existing vapor plumes from the active Fermi 2 power plant facilities on the Fermi property and from the active Monroe County coal-fired power plant to the south along the Lake Erie shoreline. Therefore, the Fermi 3 cooling tower plume would be consistent with the existing visual settings and views from these 21 architectural resources, and there would be no new significant visual impacts that would affect their NRHP eligibility determination or recommendations for their eligibility (Demeter et al. 2008). As such, indirect visual impacts resulting from operating Fermi 3 would be consistent with, and would not result in significant changes to, offsite historic properties within the indirect APE.



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For the purposes of NHPA Section 106 consultation (36 CFR 800.8), based on (1) the measures that Detroit Edison would take to avoid or limit adverse impacts on significant cultural resources, (2) the review team's cultural resource analysis and consultation, and (3) Detroit Edison's commitment to follow its procedures should ground-disturbing activities discover cultural and historic resources, the review team concludes with a finding of no historic properties affected by operation. Section 4.6 concludes with a finding of historic properties affected from construction activities.

For the purposes of the review team's NEPA analysis of the operation of Fermi 3, based on information provided by Detroit Edison and the review team's independent evaluation, the review team concludes that the impacts of Fermi 3 operation on historic and cultural resources within the Fermi 3 APE would be SMALL, because indirect visual impacts resulting from operating Fermi 3 would be consistent with, and would not result in significant changes to, offsite historic properties within the indirect APE.

The review team has considered impacts related to operation of the proposed transmission lines. Detroit Edison has indicated that operation of the transmission lines would be the responsibility of ITC *Transmission*, an intrastate transmission company. As such, any further investigations to identify the presence of cultural and historic resources and to evaluate the NRHP eligibility of such resources would be the responsibility of ITC *Transmission*, which would conduct such investigations in accordance with applicable regulatory and industry standards to assess impacts of operation (Detroit Edison 2011a).

According to 10 CFR 50.10(a)(2)(vii), transmission lines are not included in NRC's definition of construction and are not an NRC-authorized activity. Therefore, the NRC considers the offsite proposed transmission lines to be outside the NRC's APE and therefore not part of the NRC's consultation.

For the purposes of the review team's NEPA analysis, based on the review team's cultural resources analysis, operational impacts associated with proposed transmission lines are likely to be limited to maintenance of transmission lines, corridors, and access roads, and are not likely to result in new significant impacts on cultural resources or historic properties, once the transmission lines have been built. Impacts from operating the proposed transmission lines would be SMALL if there are no new significant alterations to the cultural environment. If these operating activities result in significant alterations to the cultural environment, the impacts could be greater.

Section 2.7.3 contains a description of cultural resources in the transmission line corridors. Cultural resource impacts related to construction of the proposed transmission lines are discussed in Sections 4.6, 10.2.1, and 10.4.1.5. Operational impacts of the proposed transmission lines on cultural resources are also discussed in Section 10.2.2, and cumulative transmission line cultural resource impacts are discussed in Section 7.5.

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adjust the differences in power generation capacity [1000 MW(e) versus 1535 MW(e)] between the reference plant and Fermi 3. Scaled plant operations and operations workforce emission estimates equate to about 13,500 tons/yr for Fermi 3. This also amounts to a small percentage of projected GHG emissions for Michigan and the United States.

Based on the small amount of Fermi 3 CO<sub>2</sub> emissions compared to the total Michigan and United States GHG emissions, the review team concludes that the atmospheric impacts of GHG emissions from plant operations would not be noticeable and additional mitigation would not be warranted.

EPA promulgated the Prevention of Significant Deterioration (PSD) requirements and Title V GHG Tailoring Rule on June 3, 2010 (75 FR 31514). This rule states that, among other items, new and existing sources not already subject to a Title V permit, or that have the potential to emit at least 100,000 tons/yr (or 75,000 tons/yr for modifications at existing facilities) CO<sub>2</sub>e, will become subject to the PSD and Title V requirements effective July 1, 2011. The rule also states that sources with emissions (PTE) below 50,000 tons/yr CO<sub>2</sub>e will not be subject to PSD or Title V permitting before April 30, 2016. Note that using the emission factors presented in ER Section 3.6.3.1 and assuming the SDGs, ADGs, and FPs operate 500 hr/yr each and the auxiliary boiler operates 8760 hr/yr, a combined CO<sub>2</sub> PTE of about 92,900 tons/yr was estimated. However, as discussed in Section 5.7.2.1, Fermi 3 could be exempted from GHG-related PSD or a Title V permit if it is eligible and chooses to be considered a “synthetic minor” source, which could significantly reduce the PTE emissions.

### 5.7.2.3 Summary of Air Quality Impacts

The review team has considered the timing and magnitude of atmospheric releases related to operation of Fermi 3, the existing air quality around the Fermi site, the distance to the closest Class I area, and the Detroit Edison commitment to manage and mitigate emissions in accordance with applicable regulations. On these bases, the review team concludes that the air quality impacts of operation of Fermi 3 would not be noticeable. Based on its assessment of the carbon footprint of plant operations, the review team concludes that the atmospheric impacts of GHGs from plant operations would not be noticeable.

### 5.7.3 Transmission Line Impacts

Impacts of existing transmission lines on air quality are addressed in the GEIS (NRC 1996). Small amounts of ozone and even smaller amounts of oxides of nitrogen are produced by transmission lines. The production of these gases was found to be insignificant for 745-kV transmission lines (the largest lines in operation) and for a prototype 1200-kV transmission line. In addition, it was determined that potential mitigation measures, such as burying transmission lines, would be very costly and would not be warranted.

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Three new 345-kV transmission lines would be constructed between the Fermi 3 switchyard and the Milan Substation to accommodate the new power generating capacity (Detroit Edison 2011a). This size is well within the range of transmission lines evaluated in NUREG-1437 (NRC 1996). The review team therefore concludes that air quality impacts from the transmission lines would not be noticeable and mitigation would not be warranted.

### 5.7.4 Summary of Meteorological and Air Quality Impacts

The review team evaluated potential impacts on air quality associated with criteria pollutants and GHG emissions from operating Fermi 3. The review team also evaluated potential impacts of cooling system emissions and transmission lines. In each case, the review team determined that the impacts would be minimal. On this basis, the review team concludes that the impacts of operation of Fermi 3 on air quality from emissions of criteria pollutants, CO<sub>2</sub> emissions, and cooling system emissions would be SMALL and that no additional mitigation is warranted.

## 5.8 Nonradiological Health Impacts

This section addresses the nonradiological health impacts of operating the proposed new Fermi 3 at the Fermi site. Health impacts on the public from operation of the cooling system, noise generated by operations, EMFs, transport operations, and transport of outage workers are discussed. Health impacts from these same sources on workers at Fermi 3 are also evaluated. Health impacts from radiological sources during operations are discussed in Section 5.9.

### 5.8.1 Etiological Agents

Operation of the proposed Fermi 3 would result in a thermal discharge to Lake Erie (Detroit Edison 2011a). Such discharges have the potential to increase the growth of etiological agents, both in the circulating water system and the lake. Etiological agents include enteric pathogens (such as *Salmonella* spp.), *Pseudomonas aeruginosa*, thermophilic fungi, bacteria (such as *Legionella* spp.), and free-living amoeba (such as *Naegleria fowleri* and *Acanthamoeba* spp.). These microorganisms could result in potentially serious human health concerns, particularly at high exposure levels.

The proposed discharge pipe from Fermi 3 would be located southeast of Fermi 2, extend approximately 1300 ft into Lake Erie, and include a high-rate effluent diffuser for enhanced mixing of the thermal effluent with the receiving waters (Detroit Edison 2011a). On the basis of a thermal plume analysis for the worst-case scenario, it is estimated that the total plume surface area would be only approximately 55,300 ft<sup>2</sup> (Detroit Edison 2011a). The heated effluent discharge from Fermi 3 would be in a restricted industrial area that would not be used for recreation activities, such as boating, swimming, diving, and other water sports. The thermal plume would be approximately 1291 ft from the shoreline (Detroit Edison 2011a) and thus offer only a very limited chance that people on the shoreline would contact the warm water that could

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would be expected at any of the noise-sensitive residences. Given the postulated noise levels for Fermi 3, the review team concludes that the noise increases would be SMALL and that mitigation would not be warranted.

### 5.8.3 Acute Effects of Electromagnetic Fields

Electric shock resulting from either direct access to energized conductors or induced charges in metallic structures is an example of an acute effect from EMFs associated with transmission lines (NRC 1996). In the ER, Detroit Edison (2011a) stated that three new transmission lines and a separate switchyard would be required to connect Fermi 3 to the existing transmission system. Onsite transmission lines that would connect Fermi 3 to the proposed new Fermi 3 switchyard would be constructed and owned by Detroit Edison (Detroit Edison 2011a). Transmission lines that serve Fermi 3 offsite would be created and operated by *ITCTransmission* (Detroit Edison 2011a), which also operates and manages the existing Fermi 2 transmission system at the Fermi site (Detroit Edison 2011a). The existing *ITCTransmission* system meets National Electric Safety Code (NESC) criteria for induced currents (Detroit Edison 2011a). Detroit Edison stated that all transmission lines would comply with applicable regulatory standards and that the design and construction of the proposed Fermi 3 substation and transmission circuits would comply with NESC provisions (Detroit Edison 2011a). *ITCTransmission* would ensure that the electric field strength under the new transmission lines would conform to NESC guidelines (less than 7.5 kV/m maximum within the ROW and less than 2.6 kV/m maximum at the edge of the ROW) (Detroit Edison 2011a).

Knowing that Detroit Edison is committed to ensuring that the design of new transmission lines meet NESC criteria, the review team concludes that the impact on the public from the acute effects of EMFs would be SMALL and that additional mitigation is not warranted.

### 5.8.4 Chronic Effects of Electromagnetic Fields

Power transmission lines in the United States operate at 60 Hz. The EMFs resulting from 60-Hz power transmission lines fall under the category of nonionizing radiation and are considered to be extremely low frequency (ELF) EMFs. Research on the potential for chronic effects from 60-Hz EMFs from energized transmission lines was reviewed by the NRC and is addressed in NUREG-1437 (NRC 1996). At the time of that review, research results were not conclusive. The National Institute of Environmental Health Sciences (NIEHS) directs related research through the DOE. An NIEHS report (NIEHS 1999) contains the following conclusion:

The NIEHS concludes that ELF-EMF (extremely low frequency-electromagnetic field) exposure cannot be recognized as entirely safe because of weak scientific evidence that exposure may pose a leukemia hazard. In our opinion, this finding is insufficient to warrant aggressive regulatory concern. However, because virtually everyone in the United States uses electricity and therefore is routinely exposed to ELF-EMF, passive regulatory action is

## Operational Impacts at the Proposed Site

warranted such as a continued emphasis on educating both the public and the regulated community on means aimed at reducing exposures. The NIEHS does not believe that other cancers or non-cancer health outcomes provide sufficient evidence of a risk to currently warrant concern.

The staff reviewed available scientific literature on chronic effects to human health from ELF-EMFs published since the NIEHS report and found that several other organizations reached the same conclusions (AGNIR 2006; WHO 2007a). Additional work under the auspices of the World Health Organization (WHO) updated the assessments of a number of scientific groups that reflected the potential for transmission line EMFs to cause adverse health impacts in humans. The monograph summarized the potential for ELF-EMFs to cause diseases such as cancers in children and adults; depression; suicide; reproductive dysfunction; developmental disorders; immunological modifications; and neurological disease. The results of the review by WHO (2007b) found that the extent of scientific evidence linking these diseases to EMF exposure is not conclusive.

These conclusions by four national and international groups are in agreement. The current scientific evidence regarding the chronic effect of ELF-EMFs does not conclusively link ELF-EMFs to adverse health impacts. The staff will continue to follow developments in this area.

### 5.8.5 Occupational Health

In general, occupational health risks for new units are expected to be dominated by occupational injuries (e.g., falls, electric shock, asphyxiation) to workers engaged in activities such as maintenance, testing, and plant modifications. The 2008 annual incidence rates (the number of injuries and illnesses per 100 full-time workers) for electrical power generation, transmission, and distribution workers for the State of Michigan and the United States are 3.7 and 3.2, respectively (USBLS 2009a, b). Historically, actual injury and fatality rates at nuclear reactor facilities have been lower than the average U.S. industrial rates, with a 2008 average incidence rate of 0.7 per hundred workers (USBLS 2009a). Based on the assumption of a total operations workforce of 900 (Detroit Edison 2011a), these rates suggest that operation of Fermi 3 would be associated with approximately 6 occupational injuries and illnesses per year. However, these are gross estimates and do not take into account risks workers would face if they are employed somewhere other than the Fermi 3. Occupational injury and fatality risks are reduced by strict adherence to NRC and OSHA safety standards (29 CFR Part 1910), practices, and procedures. Appropriate State and local statutes must also be considered when the occupational hazards and health risks associated with new nuclear unit operation are being assessed. The staff assumes adherence to NRC, OSHA, and State safety standards, practices, and procedures during Fermi 3 operations.

Additional occupational health impacts may result from exposure to hazards such as noise, toxic or oxygen-replacing gases, etiological agents in the condenser bays, and caustic agents.

## Operational Impacts at the Proposed Site

**Table 5-36.** Summary of Measures and Controls Proposed by Detroit Edison to Limit Adverse Impacts When Operating Fermi 3

Affected Environment/Resource Area	Specific Measures and Control
<b>Land Use Impacts</b>	
The site and vicinity	<ul style="list-style-type: none"> <li>• Adhere to applicable zoning regulations of Frenchtown Charter Township as well as Monroe County land use plans.</li> <li>• Minimize potential impacts through use of BMPs and compliance with SWPPP requirements.</li> <li>• Detroit Edison designed the onsite facilities to minimize the need for new roads; however, some new roads must unavoidably be built.</li> <li>• Incorporate drift eliminators into the design of the cooling towers to minimize the potential for salt deposition, especially on nearby agricultural lands. Salt drift mitigation beyond the proposed drift eliminators is not required.</li> <li>• Monitor natural draft and mechanical draft cooling towers and the heat dissipation system during operation under rules and regulations governing these systems.</li> </ul>
Transmission line corridors and offsite areas	<ul style="list-style-type: none"> <li>• The 345-kV transmission system and associated corridors would be exclusively owned and operated by <i>ITC Transmission</i>. Detroit Edison has no control over building or operation of the transmission system. The operational impacts are based on publicly available information and reasonable expectations on the configurations and practices that <i>ITC Transmission</i> is likely to use based on standard industry practice. Such efforts are assumed to include industry-standard BMPs that would minimize the operational effects on land use.</li> </ul>
<b>Water-Related Impacts</b>	
Hydrologic alterations	<ul style="list-style-type: none"> <li>• Develop and implement the SWPPP to manage stormwater runoff and prevent erosion. Surface water would be routed away from the nuclear plant through subgrade storm drains and off the slopes of the elevated area, as needed.</li> </ul>
Water use and quality	<ul style="list-style-type: none"> <li>• Comply with MDEQ Large Quantity Water Withdrawal Permit requirements.</li> <li>• Use Best Available Technology to reduce evaporative losses from cooling towers.</li> <li>• Develop and implement the SWPPP to manage stormwater runoff and prevent erosion.</li> <li>• Develop and implement a Pollution Incident Prevention Plan (PIPP).</li> </ul>



## Operational Impacts at the Proposed Site

Table 5-36. (contd)

Affected Environment/Resource Area	Specific Measures and Control
<b>Ecological Impacts</b>	
Terrestrial and wetland resources	<ul style="list-style-type: none"> <li>• Comply with requirements of CWA Section 404 permit, Section 402(p) NPDES permit, RHAA Section 10 permit, and MDEQ Act 451 Part 303 and 325 permit.</li> <li>• CWA Section 401 water quality certification and Coastal Zone Management Act certification.</li> <li>• Design cooling water discharge diffuser to minimize the size of the thermal mixing zone, in both lateral and vertical extent.</li> <li>• Design the cooling water discharge diffuser to minimize bottom scour and associated turbidity. Riprap may be required to reduce bottom scour.</li> <li>• Locate and orient the discharge structure to minimize siltation resulting from turbidity at the diffuser ports. Diffuser design would reduce concentrated silt buildup through discharge points spaced approximately 17 ft apart.</li> </ul>
Aquatic resources	<ul style="list-style-type: none"> <li>• Implement Operational Conservation and Monitoring Plan to mitigate operational impacts on the eastern fox snake, including measures to reduce traffic-induced mortality.</li> <li>• Implement measures in the SWPPP, PIPP, and permits for RHAA Section 10, CWA Section 404, and MDEQ Act 451 Parts 303 and 325 to minimize and mitigate impacts on aquatic resources, including jurisdictional wetlands. Wetland mitigation would be developed in consultation with MDEQ and USACE (Appendix K).</li> <li>• Develop and implement the SWPPP to manage stormwater runoff and prevent erosion.</li> <li>• Develop and implement a PIPP.</li> <li>• Use drift eliminators to keep solids deposition (assumed as salt) from cooling towers below NUREG-1555 significance level.</li> <li>• Develop NDCT lighting plans in coordination with the FAA and FWS to minimize avian impacts.</li> <li>• Although not under Detroit Edison's control, ITC <i>Transmission</i> would be expected to conform to industry-standard BMPs for transmission ROW maintenance to reduce impacts on terrestrial and wetland systems.</li> <li>• Implement measures in the SWPPP, PIPP, and permits for RHAA Section 10, CWA Section 404, and MDEQ Act 451 Parts 303 and 325.</li> <li>• Use a closed cycle cooling system to reduce impingement and entrainment of aquatic organisms.</li> <li>• Maintain a low intake velocity (<math>\leq 0.5</math> fps).</li> </ul>



## Operational Impacts at the Proposed Site

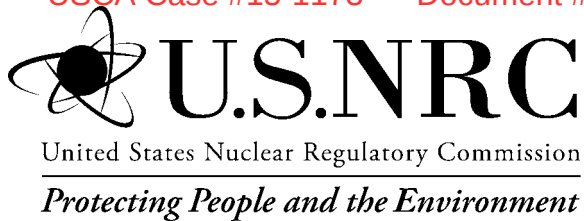
Table 5-36. (contd)

Affected Environment/Resource Area	Specific Measures and Control
<b>Socioeconomic Impacts</b>	<ul style="list-style-type: none"> <li>• Design intake screens with appropriate mesh size and include a trash rack. Regular washing of the intake screens will minimize impingement mortality.</li> <li>• Use a backwash system that would remove impinged organisms from intake screens and return them to the lake alive using a fish return system to Lake Erie outside the intake bay area.</li> <li>• If a shutdown of the proposed facility is planned during winter months, reduce the discharge of cooling water gradually in order to reduce the potential for cold shock to aquatic organisms.</li> <li>• Design cooling water discharge diffuser to minimize the size of the thermal mixing zone in both lateral and vertical extent.</li> <li>• Compliance with NPDES permit effluent limits and use of one Lake Erie outfall for Fermi 3 would minimize chemical impacts.</li> <li>• Avoid the use of phosphorus-containing corrosion and scale inhibitors in order to reduce nutrient loading that could contribute to algal blooms.</li> <li>• Minimize scouring through the use of riprap around the submerged discharge port, if necessary, and use an upward orientation of discharge ports.</li> <li>• Although not under Detroit Edison's control, ITC <i>Transmission</i> would be expected to conform to industry-standard BMPs that are protective of aquatic systems for transmission ROW maintenance.</li> <li>• Design transmission lines to avoid wetlands or other water bodies to the maximum extent possible. Any unavoidable impacts would be subject to regulatory permit conditions.</li> </ul>
<b>Environmental Justice</b>	<ul style="list-style-type: none"> <li>• No mitigating measures or controls required.</li> </ul>

## Operational Impacts at the Proposed Site

**Table 5-36.** (contd)

<b>Affected Environment/Resource Area</b>	<b>Specific Measures and Control</b>
<b>Historic Properties and Cultural Resources</b>	<ul style="list-style-type: none"> <li>• Operations are unlikely to affect archaeological sites. Appropriate controls would be used during post-construction excavation activities to ensure compliance with the NHPA.</li> <li>• Formal inadvertent discovery procedures would be in place to minimize impacts on potential onsite historic resources.</li> <li>• The closest offsite above-ground historic resource in the indirect area of potential effect is located approximately 1 mi from the proposed location of Fermi 3, and all others are located approximately 1.5 to 4.5 mi distant. Visual impacts are not substantial, and no measures or controls are necessary.</li> <li>• The Fermi site contains an existing power plant with two cooling towers. Operations would not introduce a new element that would contribute to the loss of historic integrity of historic above-ground resources in the site vicinity, and no measures or controls are necessary.</li> <li>• Although not under Detroit Edison's control, ITC <i>Transmission</i> would be expected to conform to regulatory requirements pertaining to historic and cultural resources that could be affected by transmission line operations.</li> </ul>
<b>Air Quality and Meteorology</b>	<ul style="list-style-type: none"> <li>• Comply with Federal, State, and local air permits; use cooling-tower drift eliminators; water, reseed, or pave areas used for construction.</li> <li>• Treat cooling water prior to discharge to reduce salt released into the atmosphere.</li> </ul>
<b>Nonradiological Health</b>	<ul style="list-style-type: none"> <li>• Use of biocides to reduce the levels of microbial populations in the cooling tower and condenser.</li> <li>• Comply with OSHA standards for Fermi 3 operational workers.</li> <li>• Control vehicle emissions by regularly scheduled maintenance.</li> <li>• Use standard sound attenuation measures for mechanical draft cooling towers. These should be sufficient to limit the noise impact. Infrequent operation of the mechanical draft cooling towers would further reduce noise impacts.</li> <li>• Monitor the release of nonradiological waste emissions and effluents.</li> </ul>
<b>Radiological Impacts of Normal Operations</b>	
Radiation doses to members of the public	<ul style="list-style-type: none"> <li>• Calculated radiation doses to members of the public within NRC and EPA standards (10 CFR Part 20, Appendix I of 10 CFR Part 50, and 40 CFR Part 190).</li> <li>• Radiological effluent and environmental monitoring programs would be implemented.</li> </ul>



NUREG-2105, Vol. 2

# **Environmental Impact Statement for the Combined License (COL) for Enrico Fermi Unit 3**

Final Report

Chapters 7 to Appendix D

U.S. Nuclear Regulatory Commission  
Office of New Reactors  
Washington, DC 20555-0001

Regulatory Office  
Permit Evaluation, Eastern Branch  
U.S. Army Engineer District, Detroit  
U.S. Army Corps of Engineers  
Detroit, MI 48226



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## Cumulative Impacts

and other development from occurring on undeveloped land used for agriculture that is close to the Fermi site (Monroe County Planning Department and Commission 2010).

Most undeveloped lands on the site are managed as part of the Detroit River International Wildlife Refuge (DRIWR), which extends along the shore of Lake Erie from the River Raisin in the south to the Detroit River in the north and contains habitat for wildlife, including some wetland and water-dependent species (FWS 2010). There are proposals to add to the land included in the DRIWR; these additions to recreational and conservation land uses in the vicinity of the Fermi site would be small and would not be constrained by development and operation of Fermi 3. There are currently no plans to remove land elsewhere from the DRIWR.

As described in Sections 4.1 and 4.3, building Fermi 3 would affect more than 301 ac of land, including conversion of approximately 197 ac of naturally vegetated land to industrial/utility land, at the site and could also indirectly result in some conversions of offsite land to residential areas, roads, and businesses in order to accommodate growth, new workers, and services related to the proposed nuclear facility. Other reasonably foreseeable future projects in the geographic area of interest (see Table 7-1) – such as anticipated commercial waterfront development – would also contribute to reductions in the amount of open, forested, and wetland areas and to increases in residential areas, roads, and business; however, these projects are expected to be consistent with Monroe County's land use plans. Cumulative land use impacts within the 15-mi geographic area of interest are generally expected to be consistent with existing land use plans and zoning.

Detroit Edison anticipates that three new 345-kV transmission lines would be needed to serve Fermi 3. These lines would connect Fermi 3 to the Milan Substation and would likely follow a single 29.4-mi route in Monroe County, southwest Wayne County, and southeast Washtenaw County (Detroit Edison 2011a). Approximately 18.6 mi of the route would follow an established transmission line corridor, and approximately 10.8 mi of the route would cross undeveloped rural land. The applicant also expects to have to expand the Milan Substation. Assuming that a 300-ft-wide right-of-way (ROW) would be required, approximately 1069 ac would be used for the proposed lines, approximately 19 ac would be needed to expand the Milan Substation, and additional acreage would be needed for laydown and other activities (Detroit Edison 2011a). Land use impacts resulting from these activities are expected to be minimal. Although the precise areas of impact are not yet known, these activities would result in the loss of small areas of forests, agricultural lands, wetlands, and streams. Once the lines were installed, only the land around the transmission tower bases would be unavailable for future agricultural use, and any forested areas that are cleared to establish the corridor would have to remain cleared over the operation life of the transmission lines. At this time, it is not known whether other utility transmission lines might be developed in the area that could contribute to cumulative impacts.

Climate change could increase precipitation and lake storm surges in the geographic area of interest (USGCRP 2009), thus changing land use as a result of the inundation of low-lying areas

## Cumulative Impacts

specific information about the location, extent, and design of future urban development, the review team draws general conclusions about the cumulative impacts on terrestrial ecological resources within the geographic area of interest. Urbanization could result in the conversion of some agricultural land, forest land, wetlands, and other wildlife habitat to urban uses. Urbanization-related activities, which usually involve the filling and/or draining of wetlands, operation of heavy equipment, and generation of noise from construction equipment, could result in many of the same terrestrial ecological impacts – including habitat loss from the clearing and grading of land (temporary and permanent), increased human activity in natural areas, increased traffic (resulting in increased wildlife mortality), and the spread of fugitive dust – as would the proposed action of building Fermi 3. Some of the effects of these activities, such as noise and dust, would be short term and localized in nature. The impacts caused by noise and dust would be temporary if routine best management practices are followed. Other effects, such as replacing wildlife habitat with urban features, would be permanent. The impacts from land clearing and grading, filling wetlands, increased human presence, and increased traffic would likely be permanent.

As temperatures increase under anticipated climate change, a long-term northward shift of plant species now associated with the southeastern United States could occur (USGCRP 2009). This shift could result in changes in the species composition of plant communities in the geographic area of interest. Higher temperatures could cause increased evaporation rates, which, along with the greater likelihood of drought, could reduce the extent of wetlands in the area. As discussed in Section 7.2.3, average annual air temperatures in the project area are projected to increase by between 2–3°F and 3–4°F by the year 2060 (USGCRP 2009). The review team concluded that the thermal impacts attributable to Fermi 3 would remain minor within the western basin of Lake Erie. Any effects on wetlands hydrologically connected to the western basin of Lake Erie would therefore similarly be minor. Impacts on forests could be mixed and represent a balance in which the benefits of higher levels of carbon dioxide might be offset by more frequent droughts and increases in destructive pests (USGCRP 2009). According to USGCRP (2009), “All major groups of [terrestrial] animals [...] will be affected by impacts on local populations, and by competition from other species moving into the Midwest region.”

Building Fermi 3 could contribute to the impacts discussed above. However, much of the area affected by building Fermi 3 has already experienced disturbance by past site activities or would be restored after development. Disturbances to terrestrial habitats and wetlands in the proposed transmission corridor would be mostly limited to the loss of forest cover and some limited areas used for grading tower pads and access roads. Forested areas within the corridor would be converted to herbaceous or shrubby vegetation. Building Fermi 3 would permanently fill approximately 8.3 ac of wetland and temporarily affect 23.7 ac of wetland (Detroit Edison 2011b). The temporarily impacted wetlands would be rehabilitated. See Section 4.3.1 for additional discussion of wetlands impacts and mitigation.

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As discussed in Section 4.3, preconstruction and construction activities would likely displace or destroy wildlife that inhabits affected areas. Other activities included in this cumulative analysis could affect wildlife in similar ways. In the case of some wildlife, including some individual State-listed eastern fox snakes and other Federally and State-listed species, displacement or mortality could occur during land clearing for any of the above projects. Local populations of wildlife would experience habitat loss, fragmentation, and competition for remaining resources. There would be a greater risk of mortality of less mobile animals, such as reptiles, amphibians, and small mammals, as a result of construction activities than there would be for more mobile animals, such as birds, many of which would be displaced to adjacent communities.

Wildlife would also be subjected to impacts from noise and traffic. Noise and traffic would result from other future development activities in the geographic area of interest, as well as from Fermi 3. The impact on wildlife from each noise-generating activity is expected to be temporary and minimal. Although the creation of new utility corridors, including but not limited to the proposed Fermi 3 transmission line corridors, could have negative effects on forest-dwelling birds, amphibians, reptiles, and other wildlife, some species might benefit, including those that inhabit early successional habitat or use forest-edge environments. Birds of prey that are more effective in hunting in open areas would likely exploit newly created hunting grounds.

The effects of the preconstruction and construction activities of Fermi 3 on wildlife would be limited to the Fermi site, transmission line corridors, and nearby areas. Because other reasonably foreseeable future projects would be widely dispersed in the geographic area of interest, the review team concludes that the cumulative impacts would be minimal, with the exception of wetland impacts discussed in Section 7.3.1.2.

As described in Section 5.3.1, potential operational impacts of Fermi 3 would include cooling-tower noise, salt drift from vapor plumes, bird collisions with tall structures, and transmission line operation and corridor maintenance. Even when combined with similar impacts from other past, present, and reasonably foreseeable future projects in the geographic area of interest, most would have only minimal impacts on wildlife and habitat, with the exception of the eastern fox snake impacts, as discussed in Section 7.3.1.2.

Among the past, present, and reasonably foreseeable future actions known to the review team, only future urbanization has the potential to substantially affect terrestrial ecological resources in a way similar to the operation of Fermi 3. Urbanization could lead to increases in noise, traffic, and human presence that could negatively affect some species, including the eastern fox snake, either indirectly by causing the species to avoid activities or directly through roadway mortality. Future urbanization in the region, however, is expected to be minimal. However, these impacts would be minor and dispersed and are not expected to be proximate enough to the Fermi site and transmission line to cumulatively affect terrestrial ecological resources on a substantial basis. The impacts of building or operating Fermi 3 are not expected to affect climate change on either an individual or cumulative basis with past, present, and reasonably foreseeable future



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projects in the geographic area of interest. However, the impacts on terrestrial habitats and wildlife from climate change could be detectable.

### 7.3.1.2 Important Species and Habitats

#### *Important Species*

Although the eastern fox snake, a State-listed species, may be adversely affected by preconstruction, construction, and/or operation of the Fermi 3 project, the project would not destabilize the regional population. Detroit Edison has prepared and submitted to the Michigan Department of Natural Resources (MDNR) the Fermi 3 Construction Habitat and Species Conservation Plan and the Fermi 3 Operational Conservation and Monitoring Plan for the eastern fox snake (Detroit Edison 2012a, b). The plans identify mitigation measures to protect the species and its habitat during preconstruction, construction, and operation of Fermi 3. The plans involve awareness training, education, signage, and other measures to reduce the likelihood of vehicular collisions with eastern fox snakes when using new and existing roadways on the Fermi site. Combined impacts from preconstruction, construction, and operation activities on the eastern fox snake could be regionally noticeable, but not destabilizing in the absence of mitigation; however, mitigation performed in accordance with the Construction Habitat and Species Conservation Plan prior to conducting site preparation, preconstruction, and construction activities and the Operational Conservation and Monitoring Plan during operations could reduce these impacts to minimal levels. The review team is not aware of other particular development proposals that may be planned and, consequently, cannot speculate on the locations, regulatory controls, and further effects on the eastern fox snake and its habitats beyond the areas covered by the Plans.

Small patches of the State-listed American lotus (State-listed as threatened) may be disturbed by preconstruction activities in emergent wetlands on the site. Detroit Edison has stated its intention to develop mitigation measures addressing American lotus before site preparation activities are initiated (Detroit Edison 2011a). Any future permits issued by the MDEQ and/or USACE involving wetlands are not likely to be granted without consideration of measures to prevent and mitigate adverse effects on Federal and State-listed species; consequently, future urbanization and other future projects are unlikely to contribute substantially to cumulative impacts on American lotus populations in southeast Michigan.

#### *Important Habitats*

Although much of the coastal wetland areas once present on the western shore of Lake Erie, where the Fermi site is located, have already been drained or filled by agricultural, industrial, or urban development, the Fermi project would impact only a small portion of the remaining wetlands, and State and Federal wetland protection regulations are expected to avoid, minimize, and compensate for future unavoidable losses of coastal (and other) wetlands as a



## Cumulative Impacts

result of future urbanization. All but 1.9 acres of the permanent wetland impacts described in Section 4.3.1 would be compensated for by the restoration of wetlands at an off-site location in the coastal zone of Lake Erie (Appendix K) (Detroit Edison 2012c), and the temporarily impacted wetlands on-site would be rehabilitated (Detroit Edison 2012d).

The transmission corridor, once exiting the Fermi site, would not traverse coastal wetlands but would cross several areas of noncoastal (inland lake and/or stream) wetlands. The review team assumes that the 93.4 ac of “woody wetlands” identified in Table 2-6 for the proposed corridor would be cleared of trees and converted to an herbaceous or shrub condition. State and/or Federal wetland regulations protect inland as well as coastal wetlands, although future urban development in the area can be expected to result in some limited losses of inland wetlands from permitted and exempted activities.

The EPA’s recent Great Lakes Restoration Initiative (GLRI) program funds a variety of restoration projects. The program’s action plan covers fiscal years 2010 through 2014 and addresses five urgent focus areas, including combating invasive species and restoring wetlands and other habitats. Several projects are currently funded and under way in the geographic area of concern (EPA 2011a), including one located in the Pointe Aux Peaux State Wildlife Area, which is south of and adjacent to the Fermi site. Detroit Edison’s proposed compensatory mitigation would complement and expand upon the benefits to the region from the GLRI wetland restoration projects.

Overall, the cumulative impacts of Fermi 3 and other past, present, and reasonably foreseeable future activities in the geographic area of interest on wetlands are not expected to be extensive.

### 7.3.1.3 Summary of Terrestrial and Wetland Impacts

The analysis of the cumulative impacts on terrestrial ecology is based on information provided by Detroit Edison and the review team’s independent evaluation. The review team concludes that the cumulative impacts of other past, present, and reasonably foreseeable future projects and the preconstruction, construction, and operation of Fermi 3 on terrestrial ecological resources would be SMALL to MODERATE. The potential for MODERATE cumulative impacts reflects possible adverse effects of Fermi 3 on the eastern fox snake. It also reflects the possible effects of climate change. The staff’s evaluation of the potential impacts on the eastern fox snake recognizes the potential for mitigation measures proposed by Detroit Edison (Detroit Edison 2012a, b) and approved by the MDNR to significantly reduce impacts from Fermi 3 on that species, thereby leading to SMALL impacts, but acknowledges the possibility of MODERATE impacts if proposed mitigation is not implemented as described in their plan. The incremental contribution of building and operating the Fermi 3 project could be noticeable (MODERATE) with respect to the eastern fox snake but would be minor (SMALL) for other terrestrial resources. The incremental contribution of NRC-authorized elements of the Fermi 3 project, which exclude preconstruction activities such as site preparation and building

## Cumulative Impacts

transmission lines, but which include operations, could likewise be noticeable (MODERATE) with respect to the eastern fox snake but would be minor (SMALL) with respect to other terrestrial resources.

### 7.3.2 Aquatic Resources

The description of the affected environment in Section 2.4.2 of this EIS provides the baseline for the cumulative impacts assessment for aquatic ecological resources. As described in Section 4.3.2, the impacts from NRC-authorized construction on aquatic ecological resources would be SMALL, provided that Detroit Edison implements the mitigation measures described in Section 4.3.2.5. The combined impacts from preconstruction and construction activities on aquatic resources of the Fermi site and transmission line corridor were described in Section 4.3.2 and were also determined to be SMALL for all aquatic species and habitats, provided that the potential mitigation measures identified in Section 4.3.2.5 are implemented.

As described in Section 5.3.2, the review team concluded that the impacts of operation of Fermi 3 and the transmission line on aquatic ecological resources would also be SMALL, provided that the mitigation measures described in Section 5.3.2.5 are implemented.

In addition to the impacts from preconstruction, construction, and operation of Fermi 3, the cumulative analysis considers other past, present, and reasonably foreseeable future actions that could affect aquatic resources within the watersheds that could be affected by construction and development of Fermi 3. The geographic area of interest for the cumulative impact analysis for aquatic resources includes primarily the lower Swan Creek watershed and the western basin of Lake Erie. This geographic area encompasses ecologically relevant aquatic habitat features and the associated populations of aquatic species that could be affected by construction and operation of the proposed Fermi 3.

Impacts on aquatic resources can result from changes in habitat availability or quality, degradation of water quality, and increased mortality of organisms. Impacts can include changes in populations or composition of communities. Activities and environmental changes that may contribute to cumulative impacts on aquatic resources within the geographic area of interest include building and operating the proposed Fermi 3, operation of other power plants (including the existing Fermi 2), discharge of treated wastewater, surface water runoff, increased urban development, agricultural activities, commercial and recreational fisheries, introduced invasive species, and global climate change. Human activities have resulted in considerable changes in the Lake Erie aquatic ecosystem during the past century (see Section 2.4.2.1 of the EIS). These changes have resulted from many causes, including overfishing, introduction and expansion of invasive exotic species, nutrient enrichment, dredging, degradation of tributary conditions and other habitat features, and introduction of contaminants.

## Cumulative Impacts

Impacts related to building the proposed Fermi 3, associated facilities, and transmission lines on aquatic habitat and biota could result from altered hydrology, erosion, stormwater runoff of soil and contaminants, and direct disturbance or loss of aquatic habitats. In addition to having a minor potential impact on recreationally or commercially important fish species that could occur in the vicinity of the Fermi site, building Fermi 3 could also affect some Federally or State-listed aquatic species in the western basin of Lake Erie or in the lower Swan Creek watershed, including northern riffleshell (*Epioblasma torulosa rangiana*), pugnose minnow (*Opsopoeodus emeiliae*), rayed bean (*Villosa fabalis*), salamander mussel (*Simpsonaias ambigua*), sauger (*Sander canadensis*), silver chub (*Macrhybopsis storeriana*), and snuffbox (*Epioblasma triquetra*) (Section 4.3.2.3). However, the likelihood that building activities could affect these species is low and, if mitigation identified in Section 4.3.2.5 is implemented, the impacts of Fermi 3 preconstruction and construction activities, including development of associated transmission lines, would be SMALL. These effects should not measurably increase cumulative impacts on those species within the geographic area of interest. Other construction projects that occur along the shores of Lake Erie's western basin or within watersheds that drain into the western basin would contribute in similar ways to the impacts on aquatic habitats and biota within the geographic area of interest, although the overall cumulative level of impact is difficult to quantify.

The Lake Erie aquatic ecosystem is also affected by urbanization, industrialization, and agriculture. The Lake Erie basin has a greater population than do the other Great Lakes and surpasses them in the amounts of effluent received from sewage treatment plants and of sediment loading (LaMP Work Group 2008). Development of Fermi 3 and other projects in the region, such as the proposed projects identified in Table 7-1, could result in increased population and additional urbanization, with subsequent impacts on aquatic resources within the western basin of Lake Erie or in the lower Swan Creek watershed. Increased urbanization within the region could affect aquatic resources by increasing the amount of impervious surface, non-point source pollution, and water use and by altering riparian and in-stream habitat and existing hydrology patterns. Agricultural development within the basin introduces large amounts of sediment to Lake Erie (LaMP Work Group 2008).

As identified in Table 7-1, there are currently five operational power plants within the geographic area of interest, including Fermi 2 (located on the Fermi site), the Detroit Edison Monroe Power Plant (6 mi southwest of the Fermi site), the J.R. Whiting Power Plant (14 mi south-southwest of the Fermi site), the Bayshore Power Plant (20 mi south-southwest of the Fermi site), and the Davis-Besse Nuclear Power Station Unit 1 (Davis-Besse) (27 mi southeast of the Fermi site). All of these power plants withdraw cooling water from and discharge heated effluent into the western basin of Lake Erie. Fermi 2 and Davis-Besse use closed cycle cooling; the Whiting, Bayshore, and Monroe power plants employ once-through cooling.

## Cumulative Impacts

There is a potential for minority and low-income populations to experience disproportionately high and adverse impacts from the activities of other past, present, and reasonably foreseeable future projects. However, the impact analyses in Chapters 4 and 5 are cumulative by nature. Environmental justice impacts associated with past and current activities listed in Table 7-1 have already been considered as part of the environmental justice baseline presented in Sections 2.6. Census block groups classified as minority or low-income lie to the north and south of the Fermi site, in Wayne and Lucas counties within and near Detroit and Toledo. The closest census block group with a population of interest is in Monroe County. It qualifies as both minority and low-income; it is located approximately 5 mi from the Fermi site. The review team did not identify environmental pathways that could result in disproportionately high and adverse human health, environmental, physical, or socioeconomic effects beyond those identified in Sections 4.5 and 5.5 on minority or low-income populations in the 50-mi region.

On the basis of the above considerations, information provided by Detroit Edison, and the review team's independent evaluation, the review team concludes that there would be no disproportionately high and adverse cumulative impacts on minority and low-income populations beyond those described in Chapters 4 and 5; therefore, the environmental justice impacts would be SMALL. The environmental justice impacts from NRC-authorized activities would be SMALL, and no further mitigation would be warranted.

## 7.5 Historic and Cultural Resources

The description of the affected environment in Section 2.7 serves as a baseline for this cumulative impacts assessment in this resource area. As described in Section 4.6, the staff concluded that the impacts on cultural resources from NRC-authorized construction would be MODERATE. As described in Section 5.6, the review team concluded that the impacts on cultural resources from operations would be SMALL. See Section 4.6 for a discussion of Detroit Edison's plan to develop the procedures or guidance necessary to address the steps that Detroit Edison and its contractors will follow for unanticipated discoveries. The review team does not expect that there would be unanticipated discoveries during operation of the plant because it is unlikely that activities would involve previously undisturbed areas.

The combined impacts from preconstruction and construction activities were described in Section 4.6 and determined to be MODERATE. If preconstruction activities associated with the offsite transmission lines resulted in significant alterations to the cultural environment, then the additional impacts could be realized. In addition to the impacts from preconstruction, construction, and operations, the cumulative analysis also considers past, present, and reasonably foreseeable future projects that could affect historic and cultural resources. For this cumulative analysis, the geographic area of interest is considered to be the areas of potential effects (APEs) defined in Section 2.7. The APEs were developed in consultation with the Michigan State Historic Preservation Office (SHPO).

## Cumulative Impacts

Projects identified in Table 7-1 that may impact historic and cultural resources include the decommissioning and demolition of Fermi 1, operation of the recently completed Fermi 2 Independent Spent Fuel Storage Installation (ISFSI) at the Fermi site, operation of the Ventower wind turbine tower manufacturing facility, construction of the Cleveland-Toledo-Detroit Passenger Rail Line (including a proposed Monroe station), operation of Fermi 2, operation of the Detroit Edison Monroe Power Plant, and future urbanization. Four of these projects – decommissioning and demolition of Fermi 1, operation of the Fermi 2 ISFSI at the Fermi site, continued operation of Fermi 2, and future urbanization – are or might be within the geographic area of interest as defined above. As part of its independent evaluation, the review team reviewed the cultural and historic information available at the SHPO. The activities at Fermi 1 are the only ones in the geographic area of interest to have undergone National Historic Preservation Act Section 106 review. As a result of this review, Fermi 1 was determined eligible for listing in the *National Register of Historic Places* (NRHP) and is considered a historic property. The review team concurs with the finding that the decommissioning of Fermi 1 has no adverse effect on historic properties (Conway 2011b). The review team also concurs with the finding that demolishing Fermi 1 in order to construct Fermi 3 would have an adverse effect on historic properties (Conway 2011a).

The NRC review team consulted with the Michigan SHPO, Detroit Edison, and Monroe County Community College and executed a Memorandum of Agreement (MOA) (ADAMS Accession No. ML12089A007) that stipulated measures to mitigate the adverse effects of demolishing Fermi 1 prior to building Fermi 3 (see Appendix F), pursuant to 36 CFR 800.6(c). See Sections 2.7.4 and 4.6 for discussions of the measures developed to resolve the adverse effect on the Fermi 1 historic property attributable to the proposed demolition of Fermi 1. Building and operating one additional unit at the Fermi site, in addition to the other projects identified above that could affect historic and cultural resources, would likely contribute to cumulative cultural resource impacts within the geographic area of interest for historic and cultural resources.

As described in Sections 4.6 and 5.6, the review team concludes that the incremental impacts from installation of offsite transmission lines would be minimal provided that there are no significant alterations (either physical alterations or visual intrusions) to the cultural environment. If these activities were to result in significant alterations to the cultural environment, then the additional impacts could be realized. Construction and operation of the offsite transmission lines would be the responsibility of ITC *Transmission* in consultation with the appropriate Federal and State regulatory authorities. Section 2.7.3 contains a description of known cultural resources in the transmission line corridors. Cultural resources impacts related to construction of the proposed transmission lines are discussed in Sections 10.2.1 and 10.4.1.5. Operation impacts of the proposed transmission lines on cultural resources are discussed in Sections 5.6 and 10.2.2.



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Historic and cultural resources are nonrenewable; therefore, the impacts on historic and cultural resources within the APEs are cumulative. Section 4.6 described how building activities for Fermi 3 would result in the demolition of one onsite property (Fermi 1) that is eligible for listing in the NRHP and located within the associated APEs. On the basis of its evaluation, the review team concludes that the cumulative impacts on historic and cultural resources from preconstruction, construction, and operation of Fermi 3 and from other projects listed in Table 7-1 that are in the geographic area of interest would be MODERATE. If activities related to offsite transmission lines and/or urbanization within the APEs would result in alterations to the cultural environment, then additional impacts could be realized. The review team further concludes that the incremental impacts associated with the onsite NRC-authorized activities would be MODERATE, because of the demolition of Fermi 1, and no mitigation measures would be warranted beyond those discussed in Sections 4.6 and 5.6.

## 7.6 Air Quality

The description of the affected environment in Section 2.9 serves as the baseline for the cumulative impact assessments for air quality. As described in Section 4.7, the NRC staff concludes that the impacts of NRC-authorized construction activities on air quality, including contribution to greenhouse gas (GHG) emissions, would be SMALL, although some mitigation may be warranted, depending on the outcome of conformity applicability analyses being performed by the NRC and USACE pursuant to the Clean Air Act Section 176 (42 USC section 7506) and 40 CFR Part 93, Subpart B (NRC 2011a). As described in Section 5.7, the review team concludes that the impacts of operations on air quality, including contribution to GHG emissions, would be SMALL, and no further mitigation would be warranted.

### 7.6.1 Criteria Pollutants

As was discussed in Section 2.9, the Fermi 3 site is located in an area that has been designated as being in nonattainment for the PM<sub>2.5</sub> (particulate matter with an aerodynamic diameter of less than or equal to 2.5 µm) National Ambient Air Quality Standards (NAAQS) and in maintenance for the 8-hour ozone NAAQS (EPA 2010a). In July 2011, the MDEQ submitted a request asking the EPA to redesignate southeast Michigan as being in attainment with the PM<sub>2.5</sub> NAAQS (MDEQ 2011a). In July 2012, the EPA issued a proposed rule designating southeastern Michigan as having attained both the 1997 annual PM<sub>2.5</sub> NAAQS and the 2006 24-hour PM<sub>2.5</sub> NAAQS, based on 2009–2011 ambient air monitoring data (77 FR 39659, dated July 5, 2012), but the final determination has yet to be made. The area around the Fermi 3 site is designated as in attainment for all other criteria pollutants.

Section 4.7 of this EIS examined air quality impacts associated with preconstruction and construction. Emissions associated with these activities would be predominately the fugitive dust from ground-disturbing activities and engine exhaust from heavy equipment and vehicles.

## Cumulative Impacts

SMALL. The incremental contribution of impacts on air quality resources from the NRC-authorized activities would also be SMALL.

## 7.7 Nonradiological Health

The description of the affected environment in Section 2.10 serves as a baseline for the cumulative analysis for nonradiological health. As described in Section 4.8, the impacts from NRC-authorized construction on nonradiological health would be SMALL, and no further mitigation would be warranted. As described in Section 5.8, the review team concludes that the impacts of operations on nonradiological health would also be SMALL, and no further mitigation would be warranted.

As described in Section 4.8, the combined nonradiological health impacts from construction and preconstruction activities would be SMALL, and no further mitigation would be warranted beyond what is described in Detroit Edison's ER. In addition to the impacts from preconstruction, construction, and operations, the cumulative analysis also considers other past, present, and reasonably foreseeable future actions that could contribute to cumulative impacts on nonradiological health (see Table 7-1).

Most of the nonradiological impacts of building and operation (e.g., noise, etiological agents, occupational injuries) would be localized and would not have a significant impact at offsite locations. However, impacts such as vehicle emissions arising from the activity of transporting personnel to and from the site would encompass a larger area. Therefore, for nonradiological health impacts, the geographic area of interest for cumulative impacts analysis includes projects within a 50-mi radius of Fermi 3 based on the influence of vehicle and other air emissions sources because Fermi 3 is in a nonattainment area (Section 7.6). For cumulative impacts associated with transmission lines, the geographical area of interest is the transmission line corridor (as described in Section 2.2.2). These geographical areas of interest are expected to encompass areas where public and worker health could be influenced by the proposed project and associated transmission lines, in combination with any past, present, or reasonably foreseeable future actions.

Current projects within the geographic area of interest that could contribute to cumulative nonradiological health impacts include the energy and mining projects in Table 7-1, as well as vehicle emissions and existing urbanization-related activities. Reasonably foreseeable future projects in the geographic area of interest that could contribute to cumulative nonradiological health impacts include the construction of the proposed Cleveland-Toledo-Detroit Passenger Rail Line, future transmission line development, and future urbanization.

There are no existing or future projects that could contribute to cumulative occupational injuries to workers at Fermi 3. Existing and potential development of new transmission lines could



## Cumulative Impacts

increase nonradiological health impacts from exposure to acute electromagnetic fields (EMFs). However, as stated in Section 5.8.3, adherence to Federal criteria and State utility codes would help keep any cumulative nonradiological health impacts at the minimal level. With regard to the chronic effects of EMFs, the scientific evidence on human health does not conclusively link extremely-low-frequency EMFs to adverse health impacts. Cumulative impacts from noise and vehicle emissions associated with current urbanization, current operations of Fermi 2, and decommissioning of Fermi 1 could occur. However, as discussed in Sections 4.8 and 5.8, the Fermi 3 contribution to these impacts would be temporary and minimal, and it is expected that existing facilities would comply with local, State, and Federal regulations governing noise and emissions. Section 7.11.2 discusses cumulative nonradiological health impacts related to additional traffic on the regional and local highway networks leading to and from the Fermi site, and the review team has determined that these impacts would be minimal.

The health impacts of operating the existing Fermi 2 and the proposed Fermi 3 at the Fermi site were evaluated relative to Lake Erie and the potential propagation of etiological microorganisms. As discussed in Section 5.8, the thermal discharges from the operation of Fermi 3 would not have detrimental impacts on the concentration levels of deleterious etiological microorganisms. No recreational activity occurs in the immediate vicinity of the proposed discharge structure for Fermi 3 that would have any bearing on potential nonradiological health impacts.

The review team is also aware of the potential climate changes that could affect human health; a recent compilation of the state of knowledge in this area (USGCRP 2009) has been considered in the preparation of this EIS. Projected changes in the climate for the region during the life of proposed Fermi 3 include the following:

- Reduced cooling system efficiency at Fermi 3 (and other power generation facilities), which would result in increased temperature of the cooling-tower discharge water and possible increased growth of etiological agents;
- Increased incidence of diseases transmitted by food, water, and insects following heavy downpours and severe storms; and
- Increased severity of water pollution associated with sediments, fertilizers, herbicides, pesticides, and thermal pollution caused by projected heavier rainfall intensity and longer periods of drought.

Although the changes that are attributed to climate change in these studies are not inconsequential, their relationship to Fermi 3 operations is not clear, and the review team did not identify anything that would alter its conclusion regarding the presence of etiological agents or the incidence of waterborne diseases.

## Cumulative Impacts

impacts of decommissioning nuclear power plants are bounded by the discussion in the assessment in Supplement 1 to NUREG-0586, *Generic Environmental Impact Statement on Decommissioning of Nuclear Facilities* (NRC 2002). In that document, the NRC found that the impacts from decommissioning a nuclear plant on the radiation dose to workers and the public, waste management, water quality, air quality, ecological resources, and socioeconomics would be small. In addition, the review team concluded in Section 6.3 of this EIS that the incremental contribution of the impact of greenhouse gas emissions on air quality during decommissioning would be small. Therefore, the cumulative impacts from decommissioning would be SMALL, and further mitigation would not be warranted.

## 7.12 Conclusions

The review team considered the potential cumulative impacts resulting from preconstruction, construction, and operation of one additional nuclear unit at the Fermi site together with past, present, and reasonably foreseeable future actions. The specific resources that could be affected by the proposed action and other past, present, and reasonably foreseeable future actions in the same geographical area were assessed. This assessment included the impacts of preconstruction activities as described in Chapter 4; impacts of construction and operations for the proposed new unit as described in Chapters 4 and 5; impacts of fuel cycle, transportation, radiological waste, and decommissioning as described in Chapter 6; and impacts of past, present, and reasonably foreseeable Federal, non-Federal, and private actions that could affect the same resources affected by the proposed action, as described in Table 7-1.

Table 7-3 summarizes the cumulative impacts by resource area. The cumulative impacts for the majority of resource areas would be SMALL, although there could be MODERATE and LARGE impacts for some resources, as presented below.

Cumulative land use impacts, including impacts associated with transmission line development, are anticipated to be SMALL primarily because few land use changes are anticipated from reasonably foreseeable projects, including building and operating Fermi 3, over the period of interest (i.e., approximately 2010–2060).

With projected climate change, the cumulative effects of past, present, and reasonably foreseeable future actions on the surface water quantity of Lake Erie would be SMALL to MODERATE, with MODERATE impacts possible under the highest predicted increases in air and water temperature. The cumulative effects of past, present, and reasonably foreseeable future actions combined with the predicted impacts of climate change on the quality of surface water in Lake Erie would be MODERATE. However, the incremental increases in water use and changes in water quality resulting from operation of Fermi 3 under projected climate change conditions should not be noticeable, and the incremental contribution of Fermi 3 would be SMALL. Cumulative impacts on groundwater use and quality would be SMALL.

## Environmental Impacts of Alternatives

activities not within the definition of construction in 10 CFR 50.10(a) and 51.4 may occur. The no-action alternative would result in the proposed facility not being built, and the predicted environmental impacts from the project would not occur. If no other facility would be built or strategy implemented to take its place, the electrical capacity to be provided by the proposed project would not become available. If no additional conservation measures were enacted to decrease the amount of electrical capacity that would otherwise be required for power in the ROI, the need for power discussed in Chapter 8 would not be met. Therefore, the purpose of and need for this project would not be satisfied if the no-action alternative was chosen and the need for power was not met by other means.

If other generating sources were built, either at another site or using a different energy source, the environmental impacts associated with these other sources would eventually occur. As discussed in Chapter 8, Detroit Edison has regulatory responsibilities in Michigan to provide electrical service in its service area. This needed power may be provided and supported through a number of energy alternatives and alternative sites, which are discussed in Sections 9.2 and 9.3, respectively.

## 9.2 Energy Alternatives

The purpose and need for the proposed project identified in Section 1.3.1 of this EIS is to provide for additional large baseload electricity-generating capacity to address Michigan's expected future peak electric demand. This section examines the potential environmental impacts associated with alternatives to construction of a new baseload nuclear generating facility. Section 9.2.1 discusses energy alternatives not requiring new generating capacity. Section 9.2.2 discusses energy alternatives requiring new generating capacity. Other alternatives are discussed in Section 9.2.3. A combination of alternatives is discussed in Section 9.2.4. Section 9.2.5 compares the environmental impacts from new nuclear, coal-fired, and natural-gas-fired generating units and a combination of energy technologies at the Fermi site. For analysis of energy alternatives, Detroit Edison assumed a bounding target value of 1535 megawatt electrical (MW(e)) (net) output. The review team also used this level of output in its analysis of energy alternatives.

### 9.2.1 Alternatives Not Requiring New Generating Capacity

Four alternatives to the proposed action that do not require Detroit Edison to construct new generating capacity involve taking some or all of the following actions:

- Purchase the needed electric power from other suppliers
- Reactivate retired power plants
- Extend the operating life of existing power plants

## Environmental Impacts of Alternatives

- Implement conservation or demand-side management (DSM) programs.

Power to replace the capacity of a new nuclear unit would have to be purchased from sources within the United States and/or from sources within Canada, and involve a generating technology likely to be one of those previously described by the NRC staff in its GEIS for license renewal (NRC 1996) or those currently in use for electricity production (e.g., coal, natural gas, nuclear, or renewable energy sources). The description of the environmental impacts of other technologies in the GEIS is representative of the impacts associated with the construction and operation of new generating units at the Fermi site. Under the purchased-power alternative, the environmental impacts of power production would still occur but would be located elsewhere within the region or nation or in Canada. The environmental impacts of electricity-generating technologies that are feasible alternatives to nuclear power are discussed in Section 9.2.2. In addition, purchased power is generally economically adverse in that the cost of generated power is typically less than the cost of the same power provided by a third party.

If the purchased-power alternative is implemented, the most significant environmental unknown is whether new transmission line corridors would be required. The construction of new transmission lines could have environmental consequences, particularly if new transmission line corridors were needed. The review team concludes that the local environmental impacts from purchased power would be SMALL when existing transmission line corridors with sufficient uncommitted current carrying capacity are used, and could range from SMALL to LARGE, depending on the nature of the affected environment, if the existing transmission infrastructure needed to be significantly upgraded (i.e., by adding circuits on existing support towers; by upgrading voltage, including when support tower replacements are necessary; or by adding a second transmission line in the existing or expanded right-of-way [ROW]) or if acquisition of a new ROW is required to meet new power transfer levels. The environmental impacts of power generation would depend on the generation technology and location of the generation site and, therefore, are unknown at this time.

Nuclear power facilities are initially licensed by the NRC for a period of 40 years. The operating license can be renewed for up to 20 years, and NRC regulations permit additional license renewals. Detroit Edison currently operates the Fermi 2 nuclear reactor under an NRC operating license. Detroit Edison plans to submit an application to the NRC for license renewal for Fermi 2 (Detroit Edison 2011c). The environmental impacts of continued operation of a nuclear power plant are significantly smaller than those of constructing a new plant. However, continued operation of an existing nuclear plant does not provide additional generating capacity.

Older operating fossil-fueled plants, predominantly coal-fired and natural-gas-fired plants, tend to be old enough that refurbishment to extend plant life and meet current environmental requirements would be costly. The review team concludes that the environmental impacts of a refurbishment scenario would be bounded by the coal- and natural gas-fired alternatives

## Environmental Impacts of Alternatives

natural draft cooling tower (NCDT), and for ancillary industrial applications. The review team also assumed that the same transmission infrastructure planned to support Fermi 3 would also serve the coal-fired or natural-gas-fired alternatives with no substantive modifications to either technical parameters or route.

**9.2.2.1 Coal-Fired Power Generation**

For the coal-fired generation alternative, the review team assumed construction and operation of supercritical pulverized coal (SCPC) units with a net electricity generation equivalent to Fermi 3. The review team also assumed that new transmission lines would be needed to deliver power from the alternative coal-fired plant and that these lines would be identical in both capacity and location to the lines being proposed to support Fermi 3. The coal plant is assumed to have an operating life of 60 years.

The review team also investigated an integrated gasification combined cycle (IGCC) coal-fired plant. IGCC is an emerging technology for generating electricity with coal that combines modern coal gasification technology with both gas turbine and steam turbine power generation. However, IGCC plants are expensive to build and operate, and the technology continues to be plagued by reliability problems, relatively high parasitic loads (primarily associated with operation of the gasifiers), and low-capacity factors. Therefore the review team determined that, at this time, IGCC is unsuitable as a baseload power alternative.

Finally, the review team also considered fluidized bed designs for the coal-burning alternative. However, while fluidized beds are the technology of choice for fuels that are difficult to burn or that have great variability in critical parameters, wall-fired pulverized coal boilers are the preferred technological approach for combustion of bituminous and subbituminous coals. Because Detroit Edison already has the infrastructure in place to receive, handle, and distribute substantial quantities of subbituminous coals and lesser but still significant amounts of bituminous coals for burning in its existing coal-fired units, these are coals likely to be used for a coal-fired alternative built at the Fermi site, thus favoring pulverized coal boiler technology. Finally, fluidized bed boilers are available in much smaller sizes than pulverized coal boilers, making them less attractive for baseload units.

Various sizes of pulverized coal boilers and steam turbine generators (STGs) are available; however, the review team recognizes that no single boiler/STG combination could match the net electrical generation capacity of the proposed Fermi 3 reactor. Clearly, multiple units would be required. To complete this analysis, the review team has elected not to specify the number or discrete sizes of the coal-fired units that could collectively serve as an alternative, but instead presumes that all units, regardless of size, would have the same features, operate at generally the same conditions, affect the environment to an extent proportional to their power capacity, and be equipped with the same pollution control devices, such that once all parasitic loads are

## Environmental Impacts of Alternatives

**Table 9-1.** Estimated Emissions (in tons/yr) of Criteria Pollutants and Carbon Dioxide from the Coal-Fired Power Generation Alternative

Pollutant	Annual Uncontrolled Emissions	Annual Controlled Emissions	Notes
SO <sub>2</sub>	54,381	2719	Assumes PRB coal at 0.48 percent sulfur and a 95 percent efficient limestone scrubber. Emission factor: 35× (percent sulfur) lb/ton of coal
NO <sub>x</sub>	23,953	3353	Assumes 86 percent efficient pre- and postcombustion NO <sub>x</sub> controls. Emission factor: 7.4 lb/ton of coal
CO	1618	1618	Assumes typical NSPS-compliant firing conditions. Emission factor: 0.5 lb/ton of coal
Particulates (filterable)	208,459	208	Assumes PRB coal at 6.44 percent ash and a 99.9 percent efficient fabric filter control device. Emission factor: 10× (percent ash) lb/ton of coal
Particulates (filterable) PM <sub>10</sub> <sup>(a)</sup>	47,829	48	Assumes 99.9 percent efficient fabric filter control device. Emission factor: 2.3× (percent ash) lb/ton of coal
CO <sub>2</sub>	12.1 million	12.1 million	Assumes no CO <sub>2</sub> capture. Emission factor: 212.7 lb/million Btu

(a) PM<sub>10</sub> = particulate matter with an aerodynamic diameter of less than or equal to 10 μm.

**Waste Management****Construction Waste Management**

Both sanitary wastes resulting from support of the construction crew and industrial wastes (some with hazardous character) would be generated during the construction of the coal-fired power plant alternative from activities such as clearing the construction site of vegetation, excavating and preparing the site surface before other crews begin actual construction of the plant, modifying existing infrastructure, and constructing any additionally required infrastructure. Minor amounts of industrial wastes will result from the onsite management of construction vehicles and equipment, the use of cleaning solvents, and the application of corrosion control coatings. Construction-related wastes are expected to be properly characterized and initially managed onsite and eventually removed to properly permitted offsite treatment or disposal facilities. New transmission lines identical to those proposed for the Fermi 3 reactor would be constructed to connect to the ITC *Transmission* Milan Substation. The existing rail spur would be sufficient to support both construction and operation of a coal-fired plant. Waste impacts from construction are expected to be SMALL.



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### ***Aquatic Ecology***

Lake Erie would be the primary source of water to support the construction and operation of the coal-fired alternative. Impacts on aquatic ecosystems during construction would be minimal, due to the relatively small amount of water required (compared to the volume of water in Lake Erie) and controls on the quality of surface water discharges imposed by a SWPPP permit issued by MDEQ. Impacts on aquatic ecosystems during operation would be virtually equivalent to projected impacts from Fermi 3 operation and would take the form of both impingement and entrainment impacts associated with water withdrawals to support the cooling system, as well as thermal impacts associated with blowdown discharges from that cooling system (which may be required to undergo treatment prior to discharge).<sup>(a)</sup> All such impacts would be controlled by an NPDES permit issued by MDEQ. The review team concludes, therefore, that impacts on aquatic ecology from the construction and operation of the coal-fired alternative would be SMALL.

### ***Terrestrial Ecology***

Detroit Edison estimates a 1600-MW(e) coal-fired plant would require approximately 2720 ac. As discussed earlier, a coal-fired alternative of equivalent power producing capability would have a gross nameplate rating of 1886 MW(e) to account for differences in capacity factors between the proposed nuclear reactor and the coal-fired alternative and to accommodate parasitic loads. By simple proportioning, a 1886 MW(e)-plant would require 3210 ac. The entire Fermi site including the existing facilities occupies only 1260 ac. Utilizing the Fermi site to the fullest possible extent to build a coal-fired plant and ancillary activities would not be possible without disturbing substantially greater areas of wetlands, including forested wetlands, than would be necessary for a nuclear facility. To avoid extensive wetland impacts, Detroit Edison would have to acquire additional contiguous parcels of land. Those parcels would most likely consist of a mix of land uses including agriculture and could include wetlands (Detroit Edison 2011a).

Onsite impacts on terrestrial ecology would generally be as described in Sections 4.3.1 and 5.3.1 for a nuclear project but would be substantially more extensive. Additional impacts would result from development of newly acquired parcels adjacent to the site, but terrestrial ecology impacts on those parcels could be limited because they consist largely of agricultural land. The review team assumes that a coal plant on the Fermi site would require building and operating the same new transmission lines described for the Fermi 3 nuclear project.

Coal-mining operations would also disturb terrestrial habitats in offsite coal-mining areas. Detroit Edison estimates that 35,200 ac would be required to mine the amount of coal needed to

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(a) Because of differences in operating temperatures, cooling demands for coal-fired plants are slightly smaller than cooling demands for similarly sized nuclear plants.



## Environmental Impacts of Alternatives

support a 1600-MW(e) plant. Using a 1886 MW(e) gross nameplate rating and a 79 percent capacity factor, the review team estimates that a coal-fired alternative would require 41,492 ac to mine the coal. For comparison, uranium mining to support a 1600-MW(e) nuclear reactor is estimated to require a 1600-ac uranium mine (Detroit Edison 2011a).

Onsite temporary storage of coal, CCR, spent catalysts, and scrubber sludge, as well as any offsite waste disposal by landfilling of CCR, would also affect terrestrial ecology by requiring conversion of existing habitat. Deposition of acid rain resulting from NO<sub>x</sub> or SO<sub>x</sub> emissions and deposition of other pollutants could also affect terrestrial ecology. Considering the emission controls discussed previously, air deposition impacts might noticeably affect terrestrial vegetation and wildlife but would likely not be regionally destabilizing. Operation of the cooling towers would cause some deposition of dissolved solids on surrounding vegetation and soil from cooling tower drift; however, these impacts would be generally be minimal, about the same as those that are now occurring from the operation of Fermi 2.

Primarily because of the potential disturbances to offsite habitats from coal mining and onsite and offsite impacts on wetlands caused by building the coal plant and associated facilities, impacts on terrestrial resources from a coal-fired power plant would be MODERATE. While the greatest impacts would result from the offsite coal mining, wetland losses resulting from building the onsite facilities would also be noticeable, although it might be possible to reduce the impacts through wetland mitigation. Impacts on terrestrial habitats caused by air emissions could also be noticeable.

### **Noise**

Coal-fired power generation would introduce mechanical sources of noise that would be audible offsite. Sources contributing to the noise produced by plant operation are classified as continuous or intermittent. Continuous sources include the mechanical equipment associated with normal plant operations and MCDTs. Intermittent sources include the equipment related to coal handling, solid waste disposal, transportation related to coal and lime/limestone delivery, use of outside loudspeakers, and the commuting of plant employees. Noise impacts associated with rail delivery of coal and lime/limestone would be most significant for residents living in the vicinity of the facility and along the rail route. Although noise from passing trains significantly increases noise levels near the rail corridor, the short duration of the noise reduces the impacts. Nevertheless, given the expected frequency of coal and limestone deliveries, the potential impacts of noise on residents in the vicinity of the facility and the rail line are considered MODERATE. Noise and light from the plant would be detectable offsite.

### **Land Use**

The following analysis of land use impacts focuses on land requirements for construction and operation of a new supercritical coal-fired power plant on the Fermi site. The review team

## Environmental Impacts of Alternatives

assumes that situating such a plant on the Fermi site would require building and operating the same new transmission lines described for the Fermi 3 nuclear project.

Detroit Edison indicated that approximately 1700 ac of land would be needed to support a 1000-MW(e) coal-fired plant (Detroit Edison 2011a). The review team has reviewed these estimates and found them to be reasonable and consistent with the GEIS (NRC 1996).

Although the power blocks of a nuclear plant and a similarly sized coal plant are approximately the same size, the coal plant would require additional land to support ancillary activities such as onsite storage and handling of coal (including sizing and blending, when required) and lime (or limestone) and temporary onsite storage of CCR and scrubber sludge. As discussed earlier, a coal-fired alternative of equivalent power-producing capability would have a gross nameplate rating of 1886 MW(e) to account for differences in capacity factors between the proposed nuclear reactor and the coal-fired alternative and to accommodate parasitic loads. By simple proportioning, a 1886-MW(e) plant would require 3210 ac.<sup>(a)</sup>

The Fermi site is approximately 1260 ac, including wetland areas. As noted earlier, new land parcels would need to be acquired to support a new coal-fired power plant on the Fermi site. Offsite land acquisition would likely involve mostly agricultural or forest land and may affect prime farmland.

Depending on how much offsite adjacent land can be obtained, development of the coal plant would almost certainly cause the loss of much of the land on the Fermi site that is managed as part of the Detroit River International Wildlife Refuge (DRIWR), especially upland areas that are not subject to wetland permitting limitations.

Offsite land use impacts would occur from coal mining. However, most of the land in existing coal-mining areas has already experienced some level of disturbance. Detroit Edison estimates that 35,200 ac would be required to mine the amount of coal needed to support a 1600-MW(e) plant. Using a 1886-MW(e) gross nameplate rating and a 79 percent capacity factor, the review team estimates that a coal-fired alternative would require 41,492 ac to mine the coal. Uranium mining to support a 1600-MW(e) nuclear reactor is estimated to require a 1600-ac uranium mine. The elimination of the need for uranium mining to supply fuel for the proposed reactor would partially offset the impact of this offsite land use. Additional land areas would be required for disposal of CCR, scrubber sludge (gypsum), and other operational solid wastes, although the land areas requirements for disposal would be affected by the extent to which operational wastes could be recycled.

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(a) Increasing the nameplate capacity of the boiler can be expected to result in only incremental changes in land requirements for the power block, supporting infrastructures, and ancillary activities such as coal and waste storage or onsite fuel blending. Consequently, using a simple ratio to calculate resulting increases in land area requirements is expected to produce a conservative result.

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transportation impacts to manageable levels. Traffic impacts would be greatly reduced after construction but would not disappear during plant operations.

Operations-related traffic impacts would result from (1) the commuting of the operating workforce, (2) rail deliveries of coal and limestone, and (3) large vehicles transporting CCR, scrubber sludge, and spent catalyst to recycling and/or disposal sites. Onsite coal storage facilities would be designed to have the capacity to receive several trainloads per day. Limestone delivered by rail could also add traffic, but it would be less than that generated by coal deliveries. By comparison, transportation-related impacts from the operation of a nuclear plant would be considerably smaller due to less frequent deliveries; however, transportation impacts from the commuting workforce would be greater due to the expected larger operating workforce for the reactor. The review team determines that because of the scale of deliveries of coal and limestone, combined with the large number of disposal truckloads leaving the plant, operating a new coal-fired power plant would result in MODERATE and adverse impacts on transportation. These impacts would be reduced by mitigation measures still in place after the construction period, but their presence would not reduce the assessed impact from MODERATE and adverse.

### ***Aesthetics***

Aesthetic impacts result primarily from the degree of contrast between the coal-fired power plant and the surrounding rural landscape, as well as the visibility of the coal-fired power plant in offsite areas. However, because there is industrial activity already on the site associated with operation of Fermi 2, the contrast between a coal plant at the site and the rural surroundings would be dramatically reduced.

Each power block building of a new coal-fired power plant would be up to 200-ft tall, which is somewhat taller than the proposed Fermi 3 reactor building. Each power block would also have an exhaust stack up to 500 ft in height, which would likely be taller and more prominent than the reactor's offgas stack and, during some weather conditions, release a visible plume resulting from water vapor and combustion gases. These structures would be high enough to require illumination, which would exacerbate their visibility in the night. The cooling towers would generate a condensate plume, but this would be no more noticeable than the plume expected from a similarly sized cooling system for the Fermi 3 reactor. The transmission lines supporting the coal-fired plant would be the same as those proposed for Fermi 3 and would, therefore, have identical aesthetic impacts. In Section 4.4.1.6 and 5.4.1.6, the review team concludes that visual impacts from the construction and operation of Fermi 3 would be SMALL and adverse. Given the similar appearance of a coal-fired alternative to a nuclear plant and the industrial character of the existing viewscape because of Fermi 2, the review team determined the aesthetic impacts associated with the construction and operation of the coal-fired power plant alternative at the Fermi site would be SMALL and adverse.

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the onsite wetland impacts would be similar to those for a nuclear facility. The review team believes that the footprint of the natural gas plant considered here would be generally the same size as the conventional natural gas boiler envisioned by Detroit Edison, and therefore concludes that sufficient land area would be available on the Fermi site to accommodate its natural gas alternative. Although the review team does not know exactly how much natural habitat on the Fermi site would have to be disturbed, it expects that the overall onsite terrestrial ecological impacts would be generally similar to those resulting from a nuclear facility.

The transmission line for a gas facility on the Fermi site would result in the same forest and wetland impacts as a transmission line for a nuclear facility. However, Detroit Edison estimates that an additional 200 ac would be disturbed to build the 10-mi natural gas pipeline needed to connect the Fermi site to the existing natural gas pipeline infrastructure. Although some of the affected land would be agricultural fields, where impacts would be largely temporary, installing the gas pipeline could require some forest clearing and fragmentation, as well as temporary disturbance of wetlands. Forest cover in the pipeline corridor, including wetlands in the corridor, would have to be kept clear during operation of the pipeline. The forest and wetland impacts from the gas pipeline would not be necessary for a nuclear facility.

Detroit Edison offered no estimates for additional land potentially needed for a new or upgraded compressor station. Given the large amount of agricultural land in the area, it is reasonable to conclude that a compressor station could be located on agricultural land, thereby minimizing terrestrial ecological impacts. Additional offsite impacts would occur at the locations where natural gas is extracted. In NRC (1996), the NRC staff estimated that approximately 3600 ac would be needed for a natural gas well field of sufficient size to support a 1000-MW(e) gas-fired plant. Correspondingly, a 1661-MW(e) facility would require approximately 6000 ac of gas well field. Existing natural gas fields would initially be expected to provide the necessary amount of gas for this facility. However, operation of the NGCC plant would contribute to a cumulative increase in the demand for gas, thereby contributing to a need to develop and exploit new gas sources.

Operation of the cooling towers would cause some deposition of dissolved solids on surrounding vegetation and soil from cooling tower drift. These impacts would be similar to but somewhat less than those that are now occurring from the operation of Fermi 2 and those that would result from operation of Fermi 3. As noted in Section 5.3.1, the terrestrial ecological impacts from cooling tower drift from Fermi 3 would be minimal.

Based on the above analysis, the review team concludes that impacts on terrestrial resources from the construction and operation of a NGCC alternative would be SMALL to MODERATE, similar to the impacts for the proposed nuclear unit. In addition to the onsite and transmission line impacts, as well as impacts from gas field development, impacts would also result from installation and maintenance of a new gas supply pipeline along an as-yet-unspecified route.

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gas distribution infrastructure. A new or expanded compressor station may also be required. Detroit Edison estimates offsite land impacts from the gas pipeline and compressor station to total 200 ac (Detroit Edison 2011a). The review team expects that at least some wetlands and prime farmland would be temporarily disturbed to install the pipeline.

In the GEIS (NRC 1996), the staff estimated that approximately 3600 ac would be needed for a natural gas well field of sufficient size to support a 1000-MW(e) gas-fired plant (NRC 1996). The 1661-MWe NGCC plant considered here would require more gas than the 1000-MWe reference plant evaluated in the GEIS, although that may not necessarily result in a proportional increase in land area for the gas field. Detroit Edison estimates that 5760 ac would be required to support the 1600-MWe natural gas alternative it evaluated. Although natural gas is widely available throughout the Detroit Edison service territory, it represented only 8.3 percent of the electricity generated in the State in 2009 (DOE/EIA 2011b).<sup>(a)</sup> The 12.4 million MWh of electricity that would be produced by a 1661-MWe NGCC power plant would be a substantial increase over the 8.4 million MWh of electricity produced from natural gas in 2009. The review team concludes that the impacts on land use from onsite activities and the 10-mi pipeline would be minor. It isn't clear to what extent well fields might have to be expanded. However, inasmuch as most of the land around wells can be used for other purposes (e.g., grazing livestock), the review team concludes that these impacts may also be minor.

The EIA reported that flow of natural gas into Michigan through 2007 amounted to 4820 million ft<sup>3</sup>/day, but delivery capacity into Michigan by existing interstate transmission pipelines was 9347 million ft<sup>3</sup>/day (through 2008), an unused delivery capacity of 4527 million ft<sup>3</sup> (DOE/EIA 2011c). As noted earlier, the NGCC alternative is projected to consume 73,900 million ft<sup>3</sup> of natural gas annually, or a daily average of 202 million ft<sup>3</sup>. The NRC review team concludes, therefore, that the existing interstate natural gas pipeline transmission infrastructure has sufficient, uncommitted capacity to accommodate a new NGCC facility without significant expansion. The review team further concludes that regardless of the interstate pipeline by which natural gas enters Michigan, the interstate and intrastate transmission pipeline infrastructures in Michigan are sufficiently complex that the required amount of gas could be delivered to the Fermi site. However modifications to the existing network (increasing flow capacity in certain segments, adding compressor stations) may nevertheless be required to ensure natural gas is provided to the Fermi site with sufficient flow and pressure to support the NGCC alternative.

Offsite land impacts for transmission lines would be minimal, since the NGCC plant is expected to connect to the ITC *Transmission* Milan Substation in existing transmission corridors owned by ITC *Transmission*. The review team expects that a gas-fired power plant at the Fermi site would require building the same transmission lines following the same route proposed for Fermi 3.

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(a) However, Detroit Edison notes in its ER that natural gas power plants represent as much as 29 percent of the State's generating capacity (Detroit Edison 2011a).



## Environmental Impacts of Alternatives

The transmission line impacts would be equivalent to those anticipated from the proposed Fermi 3 reactor.

Overall land use impacts from construction of a gas-fired power plant on the Fermi site would be SMALL; modifications to the existing pipeline infrastructure would also result in minor offsite land impacts; however, offsite land impacts would increase if expanded natural gas extraction activities were necessary to meet increased demand of the NGCC alternative.

### ***Socioeconomics***

Socioeconomic impacts are defined in terms of changes to the baseline demographic and economic characteristics and social conditions of a region, especially resulting from the creation of new jobs. Three types of job creation would result: (1) direct construction-related jobs, which are short term and less likely to have a long-term socioeconomic impact; (2) direct operation-related jobs in support of power plant operations and maintenance, which have the greater potential for permanent, long-term socioeconomic impacts; and (3) indirect jobs created by the economic stimulus of new workers and new jobs during the building and operation of the new plant. For the NGCC alternative, Detroit Edison estimates a peak employment construction workforce that would be less than the 2900 required for Fermi 3 and an operations workforce of 150. The review team finds both of these estimates to be reasonable and has used them to support its own analysis of socioeconomic impacts.

The review team expects the construction and operations workforces for an NGCC alternative at the Fermi site would be drawn from the same communities as those for the coal-fired alternative. The review team expects that the impacts on the local economy from construction and operation of an NGCC alternative would be less than the impacts for the proposed Fermi 3 reactor, because the NGCC alternative would require smaller construction and operations workforces and a shorter construction period, and have a much lower construction cost. Impacts on local tax bases, including property taxes, are expected to be SMALL and beneficial, except that the property tax impacts in Monroe County would be MODERATE and beneficial. Likewise, given the review team's assumptions regarding the distribution of construction and operations workers, the review team also expects the impacts on local infrastructure (e.g., housing, schools, and utilities) are likely to be SMALL and adverse for all areas in the 50-mi region.

### ***Traffic***

Traffic impacts associated with construction of the NGCC alternative would result from commuting construction and operating workforces and truck and rail deliveries of construction materials to the Fermi site. As noted above, the construction workforce for the NGCC alternative would be smaller than that projected for Fermi 3, and the construction period would be substantially shorter. Some major NGCC plant components, such as CTs and STGs, are

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likely to be delivered by rail via the existing onsite rail spur. Pipeline construction and modification of existing natural gas pipeline systems could also have a temporary impact on local traffic, especially if the new pipeline segment crosses existing road or rail infrastructure. The review team determined that in aggregate, all the traffic-related impacts for the NGCC alternative during construction would be SMALL and adverse. The operating workforce for the NGCC alternative, estimated by Detroit Edison to be approximately 150 full-time workers, would be substantially smaller than the workforce projected for Fermi 3 operation. Some equipment and material deliveries are expected to continue throughout operation, but traffic-related impacts from such deliveries would be negligible. The review team therefore concludes that the overall traffic-related impacts during operation would be SMALL and adverse.

### ***Aesthetics***

The aesthetics impact analysis focuses on the degree of contrast between the natural-gas-fired alternative and the surrounding landscape and the visibility of the natural-gas-fired plant. However, because there already is industrial activity on the site associated with operation of Fermi 2, the contrast between a natural-gas-fired power plant at the site and the rural surroundings is dramatically reduced.

The power block of the NGCC alternative (the turbine building) would have an appearance similar to the power block and containment building of the existing nuclear plant. Likewise, the NGCC NDCT, which is expected to be similar in appearance to that proposed for Fermi 3 cooling towers, would generate a condensate plume visible from great distances during certain meteorological conditions. The plume's visual impact would be additive to a similar plume emanating from the existing NDCTs for Fermi 2.

The NGCC cooling towers would each have an exhaust stack (or might share a common stack) that would be higher and more prominent than the offgas stack for the proposed Fermi 3. Given their expected height, the exhaust gas stacks of the NGCC alternative would also likely require lighting to comply with Federal Aviation Administration (FAA) regulations. The transmission lines supporting the NGCC plant would be the same as those proposed for Fermi 3 and would, therefore, have identical aesthetic impacts. Because transmission lines run from the Fermi site to support Fermi 2, the impacts of the NGCC alternative's transmission lines would be minimal.

In general, aesthetic changes would be limited to the immediate vicinity of the Fermi site and would likely be generally similar to impacts already occurring as well as similar to those expected from the proposed nuclear plant. Given the current industrial character of the Fermi site, aesthetic impacts of an NGCC alternative would be SMALL and adverse.



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support utility-scale wind generation. Similarly valued wind resource areas also exist in the western part of the State along the eastern shoreline of Lake Michigan; however, only the Thumb is within the Detroit Edison service area.

Detroit Edison undertook a study to identify wind resources of sufficient strength and accessibility within its service area with which it could expand its energy generation portfolio and comply with the then-proposed Michigan Renewal Portfolio Standard (RPS) (Detroit Edison 2009a). Comparing existing wind energy maps with exclusionary factors that could preempt wind farm development, Detroit Edison determined that 500 MW of wind energy potential could be realized and economically delivered to its major load centers over the existing transmission network, but a theoretical maximum development capacity of 2800 MW could be realized with appropriate upgrades and expansions to the transmission network. As discussed below, a 2009 collaborative study by ITC *Transmission* and Wolverine Power Supply Cooperative confirmed the inadequacy of the existing 120-kV transmission system in the Thumb and estimated the costs of various options for the major upgrades to transmission system capacity that would be required to effectively exploit wind resources in the Thumb (ITC and WPSCI 2009). Detroit Edison further anticipates a 30 percent capacity factor and 95 percent turbine availability factor, suggesting reasonably attainable estimates for maximum and minimum power outputs of 7000 GWh and 1300 GWh. (For comparison, the proposed 1535-MW(e) Fermi 3 reactor, operating at an expected capacity factor of 92 percent, would be expected to produce 12,400 GWh of baseload electricity each year.)

The MPSC Wind Energy Resource Zone Board undertook its own independent assessment of wind resources within the Thumb and concluded in its final report that potential generating capacity for land-based wind farms in the Thumb was between 2367 MW and 4236 MW (depending on how exclusionary siting criteria were applied) and that maximum buildout would result in potential annual electricity production of 12,000 GWh (Michigan Wind Energy Resource Zone Board 2009). In response to a legislative directive in Michigan's Clean, Renewable and Efficient Energy Act (295 MCL 1-6) and MPSC Order U-15899,<sup>(a)</sup> ITC Holdings Corporation's subsidiary, ITC *Transmission*, and Wolverine Power Supply Cooperative, Inc. (WPSCI) completed a joint transmission planning study for the Thumb, concluding that the two existing relatively low-capacity 120-kV transmission lines in the Thumb were inadequate to deliver wind-generated electricity to the grid for delivery to other portions of the Michigan's lower peninsula (ITC and WPSCI 2009). On August 19, 2010, the Midwest Independent System Operator (MISO) approved a proposal by ITC *Transmission* to expand the transmission infrastructure in the Thumb by construction of approximately 140 mi of double-circuit 345-kV transmission lines and three new 345-kV substations, forming a loop through the Thumb region (ITC Holdings 2010). Under the provisions of the Clean, Renewable and Energy Efficiency Act,

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(a) All documents filed with the MPSC relating to Order U-15899 are available through the MPSC Electronic Docket Web site at <http://efile.mpsc.state.mi.us/efile/viewcase.php?casenum=15899&submit.x=21&submit.y=13>.

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ITC *Transmission* was authorized to apply to MPSC for expedited siting approval of the project (which must be accomplished within 6 months of the application date). On August 30, 2010, ITC submitted its application to MPSC for an expedited siting certificate (see MPSC case U-16200).<sup>(a)</sup> The Commission granted the certificate on February 25, 2011.<sup>(b)</sup> ITC has targeted completion of the upgrade project by 2015 but has published no firm schedules.

The Wind Energy Resource Zone Board's estimate of 12,000 GWh, together with the announced and MISO-approved plans of ITC *Transmission* to upgrade the transmission infrastructure in the Thumb and the MPSC's Expedited Siting Certificate for that upgrade, promise improved efficiency of power distribution throughout the ITC *Transmission* grid in the lower peninsula and improved viability of wind energy in the Thumb. However, the Bureau of Energy Systems of the Michigan Department of Energy, Labor and Economic Growth (MDELEG) has reported that, as of the close of 2009, only two wind farms were operative in the Thumb, with a capacity of 122 MW of wind-generated electricity (MDELEG 2010).

The lack of a firm schedule for transmission infrastructure enhancements in the Thumb, the limited generating potential in the Thumb projected by MDELEG, the uncertainty about the extent to which that potential would ultimately be realized by yet-to-be-built wind farms, the anticipated relatively low capacity factors for the turbines of those future wind farms, and the substantial land requirements for utility-scale wind farms all contribute to a conclusion by the review team that wind farms in the Thumb area would not be a feasible discrete alternative to the Fermi 3 reactor.

Wind energy technology can also be deployed in offshore locations. Land-based wind turbines have individual capacities as high as 3 MW, with the 1.67-MW turbine being the most popular size installed in 2008 (offshore wind turbines have capacities as high as 5 MW).<sup>(c)</sup> The capacity factors of wind farms primarily depend on the constancy of the wind resource, and although offshore wind farms can have relatively high capacity factors due to high-quality winds throughout much of the day (resulting primarily from differential heating of land and water areas), land-based wind farms have capacity factors less than 40 percent, with 30 percent typically used for planning purposes.

The Great Lakes Wind Council (GLWC), an advisory body within the then-Michigan Department of Energy, Labor and Economic Growth, was charged with providing recommendations to State

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(a) All documents related to Case U-16200 can be accessed electronically at <http://efile.mpsc.state.mi.us/efile/viewcase.php?casenum=16200>.

(b) Three parties filed motions for stay of the Commission's February 25 Order. All three motions were denied by the Commission's Order of April 12, 2011.

(c) To date, the great majority of offshore turbine installations have occurred on the shallow continental shelves of Europe and the United States; however, it is feasible that turbines designed for offshore locations could also be installed off the shores of the Great Lakes, although current foundation technology would limit the depth of the water that could be tolerated at offshore locations.

## Environmental Impacts of Alternatives

**Table 9-5.** Summary of Environmental Impacts of a Combination Alternative

<b>Impact Category</b>	<b>Impact</b>	<b>Comment</b>
Land Use	MODERATE	<p>A natural-gas-fired plant would have land use impacts for a power block, new transmission line corridor, cooling towers and support systems, and connection to a natural gas pipeline.</p> <p>The footprint of the NGCC facility in the combination would be somewhat smaller than the discrete NGCC facility evaluated in Section 9.2.2.2 but would still have onsite land demands not substantially different from those of the proposed Fermi 3.</p> <p>Some expansion of gas well fields and modifications to the existing pipeline infrastructure may be necessary.</p> <p>No land use impacts would result from implementation and/or expansions of DSM programs.</p> <p>The wind power portion of this alternative has the potential to affect substantial areas of land, although most of that land could still be used for purposes such as farming. The small solar component would also have land use impacts.</p>
Air Quality	SMALL to MODERATE	<p>Emissions from the natural-gas-fired plant would be approximately:</p> <p>SO<sub>2</sub>, 93.9 tons/yr</p> <p>NO<sub>x</sub>, 359 tons/yr</p> <p>Particulate, 183 tons/yr (all as PM<sub>10</sub>)</p> <p>CO, 829 tons/yr</p> <p>N<sub>2</sub>O, 82.9 tons/yr</p> <p>VOC, 58 tons/yr</p> <p>CO<sub>2</sub>, 3.04 million tons/yr (without CCS)</p> <p>No air impacts are projected from any of the energy conservation and DSM programs or from the wind and solar power generation.</p>
Water Use and Quality	SMALL	<p>Impacts would be less than those of the proposed Fermi 3 nuclear plant located at the proposed site.</p>

## Environmental Impacts of Alternatives

**Table 9-5.** (contd)

Impact Category	Impact	Comment
Ecology	SMALL (aquatic) and SMALL to MODERATE (terrestrial)	<p>Potential MODERATE impacts limited to effects on eastern fox snake</p> <p>Impacts on terrestrial ecology and wetlands at the Fermi site would be generally similar to Fermi 3. In addition, the wind farms and solar facilities could have some impacts on terrestrial ecology.</p> <p>Offsite parcels may also be affected by construction of a 10-mi natural gas pipeline.</p> <p>Impacts on aquatic ecology from operation of the cooling system would be smaller than those anticipated from Fermi 3.</p> <p>Impacts on terrestrial ecology from cooling tower drift would be smaller than those anticipated from Fermi 3.</p> <p>Additional impacts are associated with natural gas extractions, which are expected to occur on gas fields.</p>
Waste Management	SMALL	The only significant waste would be from spent SCR catalyst used for control of NO <sub>x</sub> emissions.
Socioeconomics (economy and taxes)	SMALL to MODERATE (beneficial)	<p>Increased economic activity from new jobs and spending in the region would stimulate economic growth and tax revenues. The local property tax base would benefit Monroe County during construction and operations, but to a lower level than the impacts characterized for Fermi 3 because of the lower property values associated with the combination of technologies alternative. All beneficial tax-related impacts elsewhere in the 50-mi region would also be less than for the Fermi 3 plant because of the smaller workforce needed to operate the combination of technologies alternative.</p> <p>This stimulus would be SMALL beneficial for all areas except for property tax impacts in Monroe County, which would be MODERATE beneficial.</p>

## Environmental Impacts of Alternatives

**Table 9-5.** (contd)

<b>Impact Category</b>	<b>Impact</b>	<b>Comment</b>
Socioeconomics (all other categories)	SMALL to MODERATE	<p>Construction-related impacts would be limited and temporary (4 years for the NGCC plant).</p> <p>The construction workforce for the NGCC plant is projected to be less than the 2500 required for the coal-fired alternative and the 2900 required for the Fermi 3 reactor. The operating workforce for the NGCC plant is projected to be approximately 150, less than that expected for the coal-fired alternative and substantially less than would be required for Fermi 3 operation.</p> <p>The construction workforce is likely to originate primarily from the Detroit and Toledo MSAs.</p> <p>Impacts on local communities with regard to housing and services would be expected to be small and temporary for construction and small for operation.</p> <p>The NGCC plant and new transmission line would have aesthetic impacts comparable to those anticipated for Fermi 3. Wind turbines (565 MW(e)) would have noticeable aesthetic impacts. Overall increase in adverse impact on aesthetics is MODERATE.</p>
Human Health	SMALL	Regulatory controls and oversight would be protective of human health.
Historic and Cultural Resources	MODERATE	<p>Construction activities would involve removal of some portions of the NRHP-eligible Fermi1 and would thus have a MODERATE impact on historic and cultural resources. Any other potential impacts could likely be managed effectively. The NGCC power block and ancillary facilities would likely be built on previously disturbed ground on the Fermi site. Newly disturbed ground would result from construction of the necessary natural gas pipeline, transmission lines, wind turbines, and solar facilities. Surveys prior</p>
Environmental Justice	SMALL	<p>to construction and archiving of any identified resources would preempt adverse impacts.</p> <p>Population density around the site is low, and the closest Census Block Group to the Fermi site that qualifies as a minority or low-income population of interest is about 8 mi from the site, which is beyond the distance the review team expects for physical pathways to environmental justice impacts. Emission limits imposed by operating permits would ensure that those populations would not receive adverse air quality and noise impacts from the operation of the NGCC alternative. In Section 4.4.3 the review team concludes that there are no disproportionately large adverse impacts on minority or low-income populations from the construction and operation of Fermi 3, which serves as a bounding case for establishing environmental justice impacts for the NGCC alternative.</p>

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The site is owned by Detroit Edison, is zoned industrial, and hosts the existing Belle River and St. Clair power plants (Detroit Edison 2011a). There are a number of buildings onsite associated with the power plants. The proposed location for the new facility is approximately 1200 ac, located in the northwestern part of the existing site (Detroit Edison 2009b). Within the 1200 ac, the conceptual plant layout suggests that permanent land disturbance would be as much as 95 ac, and temporary land disturbance would be as much as 200 ac. There are no residential areas on the site, although there are a few residences within 2 mi (Detroit Edison 2011a). Topography is flat with very little variation, and outside of the developed areas around the existing coal plants, the site is primarily agricultural land (including possibly some prime farmland), grassland, and young mixed deciduous forest. There are 37 wetlands on the site, and several former utility ponds may have been abandoned for a sufficient period to be considered waters of the United States (see Section 9.3.3.3). Some parts of the site are within the Belle River floodplain (Detroit Edison 2011a). If the facilities associated with this alternative would extend into the Coastal Zone defined by the State of Michigan under the Coastal Zone Management Act, Detroit Edison would have to obtain a coastal zone consistency determination from the MDEQ.

National Wetland Inventory (NWI) maps suggest that a substantial area of wetlands, perhaps several hundred acres of mostly forested and scrub-shrub wetlands, lies within the 1200 ac. Drainage connections between the site and the St. Clair River could also be disturbed. The river is an adequate water source for the proposed plant and already supplies the existing Belle River and St. Clair power plants. No new offsite roadway would likely be needed during development or operation of the proposed facility (Detroit Edison 2011a).

The nearest recreational area to the site is East China Township Park, south of the site near the intersection of Recor Road and River Road (Detroit Edison 2011a). A number of smaller parks are present in the surrounding area, while Algonac State Park is approximately 8 mi south of the site. These recreational resources may be affected by increased user demand, by views of the proposed 600-ft cooling tower and condensate plume, or by access delays associated with increased traffic.

One or more new transmission line corridors would likely be needed to connect a new power plant at the Belle River-St. Clair site to the grid (Detroit Edison 2011a). Although a 345-kV transmission line already crosses the site, it is fairly congested, partly because of the recent loss of a critical double-circuit tower. Although transmission capacity and reliability in the area are considered to be fair, a load flow study of the transmission line is recommended (Detroit Edison 2011a). Environmental conditions along the transmission line corridor are similar to those of the site, with a mixture of cropland, wooded areas, and some wetlands. Because the transmission interconnection would be on the site, the review team concludes that the land use impacts of building and operating transmission lines for a new nuclear plant at the Belle River-St. Clair site would be minor.



## Environmental Impacts of Alternatives

Table 9-10. (contd)

Common Name	Scientific Name	Federal Status <sup>(a)</sup>	State Status <sup>(a)</sup>
Painted trillium	<i>Trillium undulatum</i>	NL	E
Pine-drops	<i>Pterospora andromedea</i>	NL	T
Pink milkwort	<i>Polygala incarnata</i>	NL	PE
Prairie buttercup	<i>Ranunculus rhomboideus</i>	NL	T
Purple milkweed	<i>Asclepias purpurascens</i>	NL	T
Purple prairie clover	<i>Dalea purpurea</i>	NL	PE
Scirpus-like rush	<i>Juncus scirpoides</i>	NL	T
Short-fruited rush	<i>Juncus brachycarpus</i>	NL	T
Showy orchis	<i>Galearis spectabilis</i>	NL	T
Skinner's gerardia	<i>Agalinis skinneriana</i>	NL	E
Slough grass	<i>Beckmannia syzigachne</i>	NL	T
Spearwort	<i>Ranunculus ambigens</i>	NL	T
Stiff gentian	<i>Gentianella quinquefolia</i>	NL	T
Sullivant's milkweed	<i>Asclepias sullivantii</i>	NL	T
Three-awned grass	<i>Aristida longespica</i>	NL	T
White gentian	<i>Gentiana flavida</i>	NL	E
White goldenrod	<i>Solidago bicolor</i>	NL	E
White lady slipper	<i>Cypripedium candidum</i>	NL	T
Wild rice	<i>Zizania aquatica</i> var. <i>aquatica</i>	NL	T
<b>Reptiles</b>			
Eastern fox snake	<i>Pantherophis gloydi</i>	NL	T
Spotted turtle	<i>Clemmys guttata</i>	NL	T

Source: MNFI 2010a

(a) E = listed as endangered, NL = not listed, PE = presumed extirpated, T = listed as threatened.

dead ash trees. If the bat uses the areas that would be disturbed, impacts could be kept to minimal levels by limiting tree clearing to the times of year when the bats are not in the region.

The agricultural land is not likely to provide habitat for State-listed species. An additional study would be necessary to adequately assess potential impacts on State-listed species, including the eastern fox snake.

Detroit Edison's plan layout for the new reactor avoids disturbing any known wetlands on the site (Detroit Edison 2009b), although considering the prevalence of hydric soils on the site, the layout likely affects unmapped wetlands.

Detroit Edison's ER states that studies would be needed to determine whether more transmission capacity would have to be built for a new power plant at this site. It is likely, however, that a new transmission line would be necessary for a number of reasons. A reactor built on the Belle River-St. Clair site would still be expected to serve the same load centers as if



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it were at the Fermi site, and the existing non-nuclear power plants on the site would continue operating, resulting in a low likelihood that sufficient uncommitted carrying capacity remains on the existing lines.

No information was provided on where a possible transmission line would be routed, how long it would be, or what terrestrial ecological resources might be affected by development or operation of such a transmission line. It may be possible, however, that new transmission lines could share or adjoin an existing transmission line corridor for some of its length and might use existing substations, thereby resulting in less ecological impact than completely new corridors and substations. The vicinity of the Belle River-St. Clair site is largely agricultural, with some forested areas. A complete assessment would require defining a route and obtaining site-specific information about wildlife and habitat. It is likely that building a new transmission line on any route would require clearing trees from substantial areas of forested wetlands.

### ***Operational Impacts***

During plant operation, wildlife, including the eastern fox snake, would be subjected to increased mortality from traffic, but it is not expected that such effects would destabilize the local or regional populations of the common species of the site (Forman and Alexander 1998). Information about the local occurrence of important species and habitats would be needed to conduct a more complete assessment of potential project effects on those resources at the Belle River-St. Clair site.

Direct mortality resulting from birds colliding with tall structures has been observed (Erickson et al. 2005). Factors that appear to influence the rate of bird impacts with structures are diverse and related to bird behavior, structure attributes, and weather. Migratory flight during darkness by flocking birds has contributed to the largest mortality events. Tower height, location, configuration, and lighting also appear to play a role in bird mortality. Weather, such as low cloud ceilings, advancing fronts, and fog, also contribute to this phenomenon (NRC 1996).

There would be a potential for bird mortality from collisions with the nuclear power plant structures at this site. Typically, the cooling tower and the meteorological tower are the structures likely to pose the greatest risk. The potential for bird collisions increases as structure heights and widths increase. MDCTs are of little concern because of their relatively low height compared with existing and proposed structures onsite. An NDCT, however, would be on the order of 600 ft high. Nonetheless, the NRC concluded that effects of bird collisions with existing cooling towers “involve sufficiently small numbers for any species that it is unlikely that the losses would threaten the stability of local populations or would result in a noticeable impairment of the function of a species within local ecosystems” (NRC 1996). Thus, the impacts on bird populations from collisions with the cooling tower are expected to be minimal.

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Impacts of the transmission system on wildlife (e.g., bird collisions and habitat loss) resulting from the addition of new lines and towers cannot be fully evaluated without additional information on the length and location of any new transmission facilities. Nonetheless, Section 4.5.6.2 of the GEIS for license renewal (NRC 1996) provides a thorough discussion of the topic and concludes that bird collisions associated with the operation of transmission lines would not cause long-term reductions in bird populations. The same document also concludes that once a transmission corridor has been established, the impacts on wildlife populations from continued transmission line corridor maintenance are not significant (NRC 1996).

Other potential impacts associated with transmission line operation would consist of habitat loss due to corridor maintenance, noise, and electromagnetic field (EMF) effects on flora and fauna.

ITC *Transmission* operates in accordance with industry standards for vegetation management (NERC 2010), including seasonal restriction on activities that could adversely affect important wildlife (Detroit Edison 2010a). According to ITC *Transmission*'s vegetation management policy, wetland areas within the corridor would be manually cleared of woody vegetation periodically for line safety, thereby keeping them in a scrub/shrub or emergent wetland state (ITC *Transmission* 2010). Other forested areas would be managed similarly to prevent tree regrowth that could present safety or transmission reliability problems. Access to these areas for maintenance would likely be on foot or by the use of matting for vehicles so as not to disturb the soil. Pesticides or herbicides would be used only occasionally in specific areas where needed. It is expected that the use of such chemicals in the transmission line corridor would be minimized to the greatest extent possible in wetland areas to protect these important resources (Detroit Edison 2010a). The impacts associated with corridor maintenance activities are loss of habitat, especially forested habitat, from cutting and herbicide application. The maintenance of transmission line corridors could be beneficial for some species, including those that inhabit early successional habitat or use edge environments. Detroit Edison provided no data on noise for the possible new reactor on the Belle River-St. Clair site, but it is likely that impacts would be minimal and similar to those of the Fermi 3 project.

EMFs are unlike other agents that have adverse biological impacts (e.g., toxic chemicals and ionizing radiation) in that dramatic acute effects cannot be demonstrated and long-term effects, if they exist, are subtle (NIEHS 2002). A review of biological and physical studies of EMFs did not reveal consistent evidence linking harmful effects with field exposures (NIEHS 2002). At a distance of 300 ft, the magnetic fields from many lines are similar to typical background levels in most homes (NIEHS 2002). Thus, impacts of EMFs from transmission systems with variable numbers of power lines on terrestrial flora and fauna are of small significance at operating nuclear power plants (NRC 1996). Since 1997, more than a dozen studies have been published that looked at cancer in animals that were exposed to EMFs for all or most of their lives (Moulder 2007). These studies have found no evidence that EMFs cause any specific types of cancer in rats or mice (Moulder 2007). A review of the literature on health effects of electric and

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magnetic fields conducted for the Oregon Department of Energy looked at the effects of strong electric and magnetic fields on various bird species. While some studies concluded that some species of birds exhibited changes in activity levels and some physiological metrics, no studies demonstrated adverse effects on health or breeding success (Golder Associates, Inc. 2009).

***Cumulative Impacts***

Several past, present, and reasonably foreseeable projects could affect terrestrial resources in ways similar to siting a new reactor at the Belle River-St. Clair site (see Table 9-9). The geographic area of interest for the following analysis is defined by a 25-mi radius extending out from the site

Past projects include, among others, the Belle River and St. Clair Power Plants, which are major coal-fired generating facilities belonging to Detroit Edison that occupy hundreds of acres on the east side of the site bordering the St. Clair River. Future activities in the region that could noticeably contribute to wildlife and habitat impacts in the geographic area of interest include the proposed Suncor Ethanol Projects in Sarnia and St. Clair Townships, Ontario, Canada; and future urbanization in the region. Although information on the area of land that would be converted to industrial and urban use is lacking, it is reasonable to conclude that such area would be substantial.

Urbanization would likely result in conversion of agricultural land, forest land, wetlands, and other habitat to urban uses. Urbanization would involve some of the same activities as building a new reactor, including land clearing and grading (temporary and permanent), increased human presence, heavy equipment operation, traffic (including resulting wildlife mortality), noise from construction equipment, and fugitive dust. Some of the effects of these activities, such as noise and dust, are short term and localized. The cumulative impacts of noise and dust from building a new reactor would be brief and negligible. Other effects, such as clearing wildlife habitat that will not be restored, would be permanent. The urbanization effects of land clearing and grading, filling of wetlands, increased human presence, and increased traffic would occur over a period of several years and in several locations.

Development of new energy facilities could result in increased employment and population within the geographic area of concern, which, in turn, could indirectly result in additional urbanization. Given the current populations of St. Clair County, Michigan, and Lambton County, Ontario, approximately 164,000 and 127,000, respectively, the additional impacts on ecological resources from urbanization indirectly resulting from a new nuclear power plant at the Belle River-St. Clair site and reasonably foreseeable projects are expected to be minor.

## Environmental Impacts of Alternatives

### ***Summary of Impacts on Terrestrial and Wetland Resources at the Belle River-St. Clair Site***

Impacts on terrestrial ecological resources and wetlands were estimated based on the information provided by Detroit Edison and the review team's independent review. Impacts at this site combined with past, present, and reasonably foreseeable future activities in the geographic area of interest are expected to be noticeable. Based on the conceptual layout (Detroit Edison 2009b), the permanently disturbed area could be as much as 95 ac and the temporarily disturbed area could be as much as 200 ac. Most of the project area is currently used for row crops and hay and provides relatively low wildlife habitat value. After construction and preconstruction at the site, habitat in temporarily disturbed areas would be expected to naturally regenerate. Wildlife would also recover but might not use the regenerated habitat to the same degree. Permanently disturbed areas would be converted to industrial use for the indefinite future. However, the presence of hydric soils on the site suggests that substantial impacts on wetlands might be unavoidable. Because the review team has no definitive information on the routing and length of a new transmission corridor, it cannot definitively evaluate impacts.

The review team concludes that the cumulative impacts on terrestrial ecological resources would be MODERATE for a new reactor at the Belle River-St. Clair site. Building and operating a new nuclear unit at the Belle River-St. Clair site would be a significant contributor to the MODERATE impact.

#### **9.3.3.4 Aquatic Resources**

Aquatic habitats associated with the Belle River-St. Clair site include 37 onsite wetlands, several small utility ponds, the St. Clair River, and the Belle River (Section 9.3.3.2). No information was available regarding the aquatic organisms in the onsite wetlands and utility ponds, and surveys would be needed to characterize the aquatic communities present. However, a variety of aquatic macroinvertebrates, such as mayflies, stoneflies, caddisflies, isopods, and chironomids, are likely to be present, along with fish common to Great Lakes coastal habitats, such as sunfishes (Family Centrarchidae), shiners (Family Cyprinidae), suckers (Family Catostomidae), and catfish (Family Ictaluridae) (Bolsenga and Herdendorf 1993).

The St. Clair River, which connects Lake Huron with Lake St. Clair, would likely serve as the source of cooling water intake and discharge for a new reactor on the Belle River-St. Clair site. The St. Clair River is 44 mi long and 833 ft to 3000 ft wide and is east of the site. Surface water quality in the St. Clair River is currently considered moderate to poor (see Section 9.3.3.2). The two existing power plants on the site (Belle River Power Plant and St. Clair Power Plant) employ once-through cooling systems, use the St. Clair River as a source of cooling water, and also discharge heated effluent into the river (Section 9.3.3.2).

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streams or ponds located directly within the construction footprint. Building a new cooling water intake and discharge pipeline would have the potential to affect aquatic habitat present along the pipeline corridor and could require dredging, pile driving, and other alterations to the shoreline and benthic habitat of the St. Clair River, potentially resulting in sedimentation, noise, turbidity, sediment removal, and accidental releases of contaminants. See Section 4.3.2 for a detailed description of potential impacts of construction activities on aquatic habitat and biota. The impacts on aquatic organisms would likely be temporary and largely mitigable through the use of BMPs. Preconstruction activities within the St. Clair River would require Section 10 and/or 404 permits from the USACE, as well as a separate permit from the MDEQ, and these permits would likely contain stipulations that would further reduce impacts. Overall, the impact of building the cooling water intake and discharge structures on aquatic resources would be minor.

As described in Section 4.3.2, building activities at the location of the new reactor, including an increase in impervious surface, vegetation removal, site grading, and dewatering, would have the potential to affect water quality and hydrology, and therefore aquatic biota in wetlands and ponds located in the vicinity. Stormwater runoff could carry soil as well as contaminants (e.g., spilled fuel and oil) from construction equipment into wetlands and ponds located onsite. Construction of the new reactor would not occur adjacent to the Belle River or the St. Clair River, making it unlikely that there would be effects of reactor facility construction on aquatic resources in these areas.

It is possible that the transmission line for a new reactor at the Belle River-St. Clair site could use existing substations and share or adjoin an existing transmission line corridor for some of its length. If so, building-related impacts on aquatic resources would be minimal. If a new transmission line is needed to service a new reactor at this site, there is the potential for the construction-related impacts described above to affect aquatic habitat and aquatic biota if the new transmission line passed near or crossed a surface water feature. Expansion of existing corridors would be expected to result in minor environmental impacts, while establishing new corridors could result in greater impacts. However, assuming required construction permits would be obtained from MDEQ and/or USACE and appropriate BMPs were implemented during building activities, the impacts on aquatic resources from development of additional transmission facilities would be temporary, easily mitigated, and minor.

NPDES and stormwater construction permits would stipulate the application of BMPs and other mitigation to reduce impacts on the St. Clair River and onsite wetlands and ponds resulting from the construction of a new reactor facility and cooling water intake structures. Adhering to appropriate BMPs would reduce the potential for sediments to enter surface water. Detroit Edison's suggested layout for a new reactor at the alternative Belle River-St. Clair site avoids disturbing any wetlands or water bodies on the site (Detroit Edison 2009b) and is located

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approximately 1 mi or more from the Belle River and St. Clair River, further reducing the potential for impacts on aquatic biota.

New reactor and transmission line construction is not expected to result in impacts on Federally or State-listed species, given the lack of suitable habitat at the reactor location and the use of BMPs to minimize potential construction-related impacts. However, threatened and endangered fish and mussels found in the St. Clair River may be affected by benthic disturbance associated with the building of cooling water intake and discharge structures. Threatened and endangered mussels potentially present in the St. Clair River include the eastern pondmussel, pink papershell, slippershell, and snuffbox mussel. As discussed above, the rayed bean is not likely to be present. Additional information would need to be collected and surveys may need to be conducted to evaluate the potential for threatened and endangered mussel species to be present in areas of the St. Clair River that would be disturbed by building activities. If threatened or endangered mussels were found, it is likely that mitigation measures would need to be developed to limit potential impacts. Habitat for State-listed fish species could be disturbed by shoreline and in-water construction activities. However, fish are highly mobile and would likely avoid the affected areas during construction. On the basis of this information and because construction and preconstruction activities would be temporary and largely mitigable, the review team concludes that impacts on threatened and endangered aquatic species would be minor.

### ***Operational Impacts***

Operational impacts on aquatic resources could result from water withdrawal from the St. Clair River, impingement and entrainment of aquatic biota by the cooling water system, transmission line and cooling water system maintenance, and alteration of water quality due to cooling water discharge.

Operational cooling water requirements would be the major water demand of a new reactor on the St. Clair River. Detroit Edison has indicated a closed-cycle recirculating cooling system would be used, which could reduce water use by 96 to 98 percent of the amount that the facility would use if it employed a once-through cooling system (66 FR 65256). Assuming that cooling water needs would be similar to those identified for the proposed Fermi 3 Unit, approximately 34,000 gpm, or 49 MGD, would be needed (Detroit Edison 2011a). The daily flow in the St. Clair River is adequate to support the closed-cycle cooling system and meet the proportional flow limitations of EPA's CWA Section 316(b) Phase I requirements for new facilities. Therefore the incremental impact from operating a new power plant at the Belle River-St. Clair site would be minor (see Section 9.3.3.2, Water Use and Quality). Consequently, the hydrologic impacts on aquatic habitat in the St. Clair River from water withdrawal should be minimal.

Periodic maintenance dredging of the water intake is necessary to maintain appropriate operating conditions for cooling water intake. Such dredging would likely be managed under



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thereby limiting the potential for impacts on aquatic organisms. As identified in Section 9.3.3.2, the high flow rate of the St. Clair River and associated mixing would limit the influence of chemical and thermal discharges on downstream surface water bodies. Assuming that NPDES permitting requirements are met, the impacts of discharges on aquatic habitats and biota would be minor.

At the Belle River-St. Clair site, impacts on aquatic resources from operation of a new reactor may include those associated with maintenance of new and existing transmission line corridors. ITC *Transmission* would be expected to construct and operate any new transmission line needed for a new reactor at the Belle River-St. Clair site, and it is assumed that it would follow existing maintenance practices designed to minimize impacts on wetlands, such as minimizing disturbance to riparian habitat and minimizing the application of pesticides and herbicides, which can enter aquatic habitat and adversely affect aquatic biota (Detroit Edison 2010a). As a result, impacts on aquatic habitats and biota from maintenance of transmission lines would likely be minor.

There is no suitable habitat for threatened and endangered mussels near the location of the reactor, but several of the species, including the rayed bean and the snuffbox mussel (both proposed for Federal listing as endangered) and the State-listed eastern pondmussel, the pink papershell, and the slippershell, are potentially found in the St. Clair River, and may therefore be vulnerable to cooling water intake and discharge operational impacts. As eggs, mussels are not likely to be affected by system operation, because they are not free-floating but rather develop into larvae within the female. The glochidial stage, during which juvenile mussels attach to a suitable fish host, is vulnerable indirectly through host impingement and entrainment. Hosts for the slippershell (johnny darter [*Etheostom anigrum*], mottled sculpin [*Cottus bairdii*]), snuffbox mussel (logperch), and rayed bean (largemouth bass [*Micropterus salmoides*]) are present in the St. Clair River and could be impinged during reactor operations. Post-glochidial and adult stages of mussels are not likely to be susceptible to entrainment or impingement because they bury themselves in sediment.

The channel darter (*Percina copelandi*) and eastern sand darter (*Ammocrypta pellucida*) are unlikely to be entrained because they bury themselves in sediment and remain near the bottom. Lake sturgeon are known to spawn in the St. Clair River near the opening into Lake St. Clair approximately 18 mi downstream of the site, and eggs or young of the State-listed mooneye and sauger could be present in the St. Clair River. A closed cycle cooling system for a new reactor on the Belle River-St. Clair site would withdraw river water at a maximum rate of 34,264 gpm, as discussed in Section 3.2.2.2. Compared to the average river flow of 121,000 MGD, this represents only 0.04 percent of the flow of the St. Clair River, and therefore early life stages of these species are not likely to be entrained or impinged in sufficient numbers to cause population-level effects.



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**Cumulative Impacts**

For the cumulative analysis of impacts on aquatic resources, the geographic areas of interest for the Belle River-St. Clair reactor are the St. Clair River (which connects Lake Huron with Lake St. Clair) and Lake St. Clair, because these are the areas potentially affected by a new reactor. Past, present, and reasonably foreseeable projects, facilities, and other environmental changes that contribute to cumulative impacts on aquatic resources in this area of interest are existing power plants on the St. Clair River (including the Belle River Power Plant and the St. Clair Power Plant on the Belle River-St. Clair site); ethanol production facilities in Ontario, Canada; and future urbanization in the region. In addition, aquatic resources in the region have been greatly affected by ecosystem changes from introduced dreissenid mussels (*Dreissena* spp.) and recreational and commercial fishing.

As discussed above, potential building-related impacts on aquatic habitat and biota could result from altered hydrology, erosion, and stormwater runoff of soil and contaminants and disturbance or loss of benthic habitat from construction of the reactor, associated transmission lines, and water intake and discharge system. The additional impacts on aquatic resources from building new ethanol plants would be minimal due to the small areas that would be developed and the distance to the Ontario sites. Urbanization can affect aquatic resources by increasing the impervious surface, non-point-source pollution and water use, and by altering riparian and in-stream habitat and existing hydrology patterns. Development of a new reactor on the Belle River-St. Clair site and the other projects in the region could result in some increased population and additional urbanization with subsequent impacts on aquatic resources.

The primary operational impacts on aquatic habitat and biota could result from impingement and entrainment of aquatic biota during cooling water intake, makeup water needs, transmission line maintenance, and alteration in water quality from cooling water discharge. Impingement and entrainment of aquatic biota from the St. Clair River due to a new reactor must be considered along with mortality resulting from existing power plants that already withdraw water from the St. Clair River, commercial and recreational fishing, and introduced zebra mussels (*Dreissena polymorpha*) and quagga mussels (*D. rostriformis*), which have dramatically reduced plankton abundance in the region.

The St. Clair River would be sufficient to support the makeup water needs of a new reactor in addition to the cooling water needed by existing U.S. and Canadian power plants and other projects listed in Table 9-9. However, as described in Section 7.2.1, the effect of climate change could noticeably decrease the availability of surface water resources in the Great Lakes region. If such a reduction in surface water were to occur, some aquatic habitat on the reactor site and in the St. Clair River may be altered, with potentially adverse consequences for aquatic habitat and biota.

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Discharges into the St. Clair River from a new nuclear power plant at the Belle River-St. Clair site must be considered along with discharges into the St. Clair River from the other projects identified in Table 9-9. NPDES permits would limit both chemical and thermal discharges into the St. Clair River. However, if climate change results in reduced water levels and increased water temperatures, impacts associated with contaminant concentrations and thermal stress from cooling water discharge into the St. Clair River could also increase. As identified in Section 9.3.3.2, the overall, cumulative surface water quality impacts associated with a new nuclear power plant at the Belle River-St. Clair site together with predicted climate change and other past, present, and reasonably foreseeable actions in the region are expected to be moderate. However, the construction and operation of a new nuclear power plant at the Belle River-St. Clair site is not expected to contribute significantly to the overall cumulative impacts on water quality in downstream surface water bodies (Section 9.3.3.2). Consequently, the incremental contribution of a new reactor at the Belle River-St. Clair site to cumulative impacts on aquatic biota from water quality changes due to operational discharges would be minor.

Based on its evaluation, the review team concludes that the cumulative impacts on aquatic resources, including threatened and endangered species, could be substantial due to the continued inadvertent introduction of invasive species, overfishing, and increased urbanization resulting in further degradation of water quality, and global climate change. However, the incremental impact from building and operating a new power plant at the Belle River-St. Clair site would not contribute measurably to the overall cumulative impacts in the geographic area of interest.

### ***Summary of Impacts on Aquatic Resources at the Belle River-St. Clair Site***

Impacts on aquatic habitats and associated biota within onsite ponds and wetlands and the St. Clair River could result from reactor, transmission line, and cooling water intake preconstruction and construction activities. However, the impacts on aquatic organisms would be temporary and could be largely mitigated by avoiding aquatic habitats during siting of facilities and activity areas and through the use of BMPs during preconstruction and construction.

Operational impacts on aquatic resources could result from cooling water withdrawal from the St. Clair River, impingement and entrainment of aquatic biota by the cooling water system, transmission line and cooling water system maintenance, and alteration of water quality by cooling water discharge. Impingement and entrainment would add to existing mortality sources for aquatic biota such as invasive species, commercial and recreational fishing, and the operation of other power plants using water from or discharging to the St. Clair River.

Impingement and entrainment of aquatic organisms in the St. Clair River would be minimized by complying with EPA's CWA Section 316(b) Phase I regulations. The St. Clair River could support the makeup water needs of a new reactor. However, climate change could noticeably

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No archaeological or architectural surveys have been conducted at the alternative site to identify additional cultural resources in the portion of the APE in Michigan and/or to determine or confirm the significance (NRHP-eligibility) of the previously identified cultural resources in the APE in Michigan. As currently designed, a new nuclear power plant at the Belle River-St. Clair site has the potential to affect two of the previously identified resources. The proposed layout for the Belle River-St. Clair site is proximate to archaeological sites 20SC153 and 20SC71 and may result in disturbance or destruction during preconstruction and construction activities. Site 20SC153 was previously determined not eligible for listing in the NRHP by the Michigan SHPO in 1999 (Lillis-Warwick et al. 2009). Because this archaeological resource is not considered a historic property, a new nuclear power facility at the Belle River-St. Clair site would have no effect on this resource pursuant to 36 CFR Part 800. Site 20SC71 would have to be evaluated for NRHP eligibility to determine the effect of a new nuclear power facility at the Belle River-St. Clair site on this resource, pursuant to 36 CFR Part 800. The proposed layout for the Belle River-St. Clair site includes structures (buildings and cooling towers) and operational activities (condensation plumes) that would be new landscape elements in viewsheds from East China Fractional District No. 2 School and would result in indirect (visual) impacts on this architectural resource. This architectural resource would have to be evaluated for NRHP eligibility to determine the effect of a new nuclear power facility at the Belle River-St. Clair site on this resource pursuant to 36 CFR Part 800.

Consultation with the Michigan SHPO would be necessary to determine the need for cultural resources investigations (including archaeological and architectural surveys) to identify cultural resources within the portion of the APE in Michigan and prior to any onsite ground-disturbing activities, to determine whether any identified cultural resources are eligible for inclusion in the NRHP, to evaluate the potential impacts on cultural resources and historic properties, and to determine the effect of a new nuclear power facility at the Belle River-St. Clair site pursuant to Section 106 of the NHPA. As part of this consultation, Detroit Edison would be expected to put protective measures in place to protect discoveries in the event that cultural resources were found during building or operation of a new plant. If an unanticipated discovery was made during building activities, site personnel would have to notify the Michigan SHPO and consult with it in conducting an assessment of the discovery to determine whether additional work is needed.

The incremental impacts from installation and operation of offsite transmission lines would be minimal if there were no significant alterations (either physical alteration or visual intrusion) to the cultural environment. If these activities resulted in significant alterations to the cultural environment, then the impact could be greater. Construction and operation of the offsite transmission lines would be the responsibility of a transmission company. For impacts greater than small, mitigation might be developed by the transmission company in consultation with the appropriate Federal and State regulatory authorities. Only Federal undertakings would require a Section 106 review.

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### 9.3.3.8 Air Quality

#### ***Criteria Pollutants***

For a plant with the same capacity as the proposed Fermi 3 plant, the emissions from building and operating a nuclear power plant at the Belle River-St. Clair site are assumed to be comparable to those from Fermi 3, as described in Chapters 4 and 5. The alternative site is located in St. Clair County, about 1 mi west of the United States–Canada border. St. Clair County is in the Metropolitan Detroit–Port Huron Intrastate Air Quality Control Region (AQCR) (40 CFR 81.37). Currently St. Clair County is designated as a nonattainment area for PM<sub>2.5</sub> NAAQS and as a maintenance area for 8-hr ozone NAAQS (EPA 2010b). In July 2011, the MDEQ submitted a request asking the EPA to redesignate Southeast Michigan as being in attainment with the PM<sub>2.5</sub> NAAQS (MDEQ 2011). In July 2012, the EPA issued a proposed rule designating southeastern Michigan as having attained both the 1997 annual PM<sub>2.5</sub> NAAQS and the 2006 24-hour PM<sub>2.5</sub> NAAQS, based on 2009–2011 ambient air monitoring data (77 FR 39659, dated July 5, 2012), but the final determination has yet to be made.

In Sections 4.7 and 5.7, the review team concludes that air quality impacts of building and operating a plant at Fermi 3, including those associated with transmission lines and cooling towers, would be SMALL, as long as appropriate measures are taken to mitigate dust during building activities. During operation, cooling towers would be the primary source of PM<sub>2.5</sub>, which accounts for most of the total PM<sub>2.5</sub> emissions of 9.51 tons/yr at Fermi 3. However, these emissions would be relatively small and thus are not anticipated to elevate PM<sub>2.5</sub> concentrations in a designated nonattainment area. With dust mitigation, the impacts of building and operating a plant at the Belle River-St. Clair site would also be SMALL. Any new industrial projects would either be small or subject to permitting by the MDEQ. State permits are issued under regulations approved by the EPA and deemed sufficient to attain and maintain the NAAQS and comply with other Federal requirements under the CAA. Thus, the cumulative air quality impacts of building and operating a plant at the Belle River-St. Clair site would be SMALL.

#### ***Greenhouse Gases***

The extent and nature of climate change is not sensitive to where GHGs are emitted, because the long atmospheric lifetimes of GHGs result in extensive transport and mixing of these gases. Since the emissions of a plant at the Belle River-St. Clair site would be comparable to those of a similar plant at the Fermi 3 site, the discussions of Sections 4.7 and 5.7 for Fermi 3 also apply to building and operating a similar plant at the Belle River-St. Clair site. Thus, the impacts of the plant's GHG emissions on climate change would be SMALL, but the cumulative impacts considering global emissions would be MODERATE. Building and operating a new nuclear unit at the Belle River site would not be a significant contributor to these impacts.

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**9.3.3.9 Nonradiological Health**

The following impact analysis considers nonradiological health impacts from building activities and operations on the public and workers from a new nuclear facility at the Belle River-St. Clair alternative site. The analysis also considers other past, present, and reasonably foreseeable future actions that affect nonradiological health, including other Federal and non-Federal projects and those projects listed in Table 9-9 within the geographic area of interest. The building-related activities with the potential to affect the health of members of the public and workers include exposure to dust and vehicle exhaust, occupational injuries, noise, and the transport of construction materials and personnel to and from the site. The operation-related activities with the potential to affect the health of members of the public and workers include exposure to etiological agents, noise, EMFs, and the transport of workers to and from the site.

Most of the nonradiological impacts of building and operation (e.g., noise, etiological agents, and occupational injuries) would be localized and would not have significant impact at offsite locations. However, activities such as vehicle emissions from transport of personnel to and from the site would encompass a larger area. Therefore, for nonradiological health impacts, the geographic area of interest for cumulative impacts analysis includes projects within a 50-mi radius of the Belle River-St. Clair site based on the influence of vehicle and other air emissions sources, because the site is in a nonattainment area (Section 9.3.3.8). For cumulative impacts associated with transmission lines, the geographical area of interest is the transmission line corridor. These geographical areas are expected to encompass areas where public and worker health could be influenced by the proposed project and associated transmission lines, in combination with any past, present, or reasonably foreseeable future actions.

***Building Impacts***

Nonradiological health impacts on the construction workers from building a new nuclear unit at the Belle River-St. Clair site would be similar to those for building Fermi 3 at the Fermi site as evaluated in Section 4.8. These impacts include occupational injuries, noise, odor, vehicle exhaust, and dust. Applicable Federal, State, and local regulations on air quality and noise would be complied with during the plant construction phase. The Belle River-St. Clair site does not have any characteristics that would be expected to lead to fewer or more construction accidents than would be expected for the Fermi site. The site is in a predominantly rural area, and construction impacts on the surrounding populations, which are classified as medium- and low-population areas, would likely be minimal. Access routes to the site for construction workers would include State Route 29, which is already a high-volume road. Mitigation may be necessary to ease congestion, thereby improving traffic flow and reducing nonradiological health impacts (i.e., traffic accidents, injuries, and fatalities) during the building period.



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with some young mixed deciduous woodland (Detroit Edison 2011a). Seven wetland areas have been identified on the site (see Section 9.3.4.3). Although the Federal Emergency Management Agency (FEMA) has not mapped the site for flood hazard, it is likely that the site is outside the Black River floodplain (Detroit Edison 2011a). If the facilities associated with this alternative would extend into the Coastal Zone defined by the State of Michigan under the Coastal Zone Management Act, Detroit Edison would have to obtain a coastal zone consistency determination from the MDEQ.

If a new nuclear power plant were constructed on the Greenwood site, about 360 ac of the 1280-ac tract would be disturbed, and some of the agricultural land (possibly including some prime farmland) and woodland areas on the tract would be disturbed. Drainage connections between the site and the Black River 3 mi east could also be disturbed. To supply cooling water, Detroit Edison would have to build a 10-mi water pipeline from Lake Huron, and although the amount of land required for a pipeline corridor is not known, some offsite land would be affected. The pipeline would likely disturb agricultural land, forest land, and wetlands and cross several railroad tracks and local roads. No new offsite roadway would likely be needed during construction or operation of the proposed facility (Detroit Edison 2011a).

The recreational areas nearest to the site are the Port Huron State Game Area and the Black River, about 3 mi east of the site. Lake Huron, as well as Lakeport State Park and Beach, are approximately 7 mi east. Several parks and beaches are located along the coast of Lake Huron. A number of State game areas are about 25 mi to the west of the site and a group of State parks and wildlife areas about 27 mi south of the site, near Anchor Bay in Lake St. Clair (Detroit Edison 2011a). Those recreational resources closest to the site may be affected by development and operation of a plant at the Greenwood site, including increased user demand associated with the projected increase in population with the in-migrating workforce and their families, an impaired recreational experience associated with the views of the proposed 600-ft cooling tower and condensate plume, or access delays associated with increased traffic from the construction and operations workforce on local roadways.

Although an existing 345-kV transmission line serves the site, it may need to be upgraded to serve a new nuclear facility (Detroit Edison 2011a). Upgrading the line might require expanding the corridor width and hence clearing forests and possibly interfering with some agricultural activities. Land uses along the transmission line corridor are generally similar to those on undeveloped portions of the site and lands adjoining the site, with a mixture of cropland, wooded areas, and some wetlands. Because of the short distances to the transmission interconnections, the review team concludes that the land use impacts of building and operating transmission lines for a new nuclear plant at the Greenwood site would be minor.

For cumulative land use analysis, the geographic area of interest is the 15-mi region surrounding the Greenwood site. This geographic area of interest includes the primary

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communities (Greenwood Township and Avoca Township) that would be affected by the proposed project if it were located at the Greenwood site.

A number of projects identified in Table 9-19 are likely to affect land use in the geographic area of interest around the Greenwood site. Upgrades and new construction of facilities at Fort Gratiot County Park on the lakeshore and the St. Clair County bike trail system are all proposed for locations within 10 mi of the proposed site, and all would require slight changes in land use around the Greenwood Energy Center. Other projects identified in Table 9-19 have contributed to or would contribute to some decreases in open lands, wetlands, and forested areas and generally result in increased urbanization and industrialization. However, several existing parks, reserves, and managed areas have been established to help preserve open lands, wetlands, and forested areas. Continued operation of existing facilities at the site is not likely to produce additional land use impacts. The review team concludes that the cumulative land use impacts of building and operating a new nuclear generating unit and associated transmission lines at the Greenwood site would be minimal, because the projects within the geographic area of interest identified in Table 9-19 would be consistent with applicable land use plans, undeveloped land at the existing energy center is readily available, and the distance to transmission interconnections are relatively short.

As described for the Fermi site in Section 7.1, climate change could increase precipitation and flooding around the Greenwood site, while increased lake evaporation and reduced lake ice accumulation could reduce lake levels, thus changing land use through an increase in low-lying lakeshore areas (USGCRP 2009). Forest growth may increase as a result of more carbon dioxide in the atmosphere, while existing parks, reserves, and managed areas would help preserve wetlands and forested areas to the extent that they are not affected by the same factors (USGCRP 2009). In addition, climate change could reduce crop yields and livestock productivity (USGCRP 2009), which might change portions of agricultural land uses in the geographical area of interest.

Based on the information provided by Detroit Edison and the review team's independent evaluation, the review team concludes that the cumulative land use impacts associated with siting a reactor at the Greenwood site would be SMALL and mitigation would not be warranted.

### 9.3.4.2 Water Use and Quality

Surface water features in the vicinity of the Greenwood Energy Center site include small creeks and ditches and an onsite cooling pond system for the existing power plants. Because the surface water resources near the site are poor, water for a reactor at the Greenwood site would most likely be obtained from Lake Huron, which is approximately 10 mi to the east. The site's existing power plants are supplied with lake water via a 10-mi-long pipeline system that has excess capacity of 40 MGD (Detroit Edison 2011a). However, the proposed Fermi 3's makeup water requirement is 34,000 gpm, or 49 MGD (Detroit Edison 2011a). It is unclear from this



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Table 9-20. (contd)

Common Name	Scientific Name	Federal Status <sup>(a)</sup>	State Status <sup>(a)</sup>
Pine-drops	<i>Pterospora andromedea</i>	NL	T
Pink milkwort	<i>Polygala incarnata</i>	NL	Presumed Extirpated
Prairie buttercup	<i>Ranunculus rhomboideus</i>	NL	T
Purple milkweed	<i>Asclepias purpurascens</i>	NL	T
Purple prairie clover	<i>Dalea purpurea</i>	NL	Presumed Extirpated
Scirpus-like rush	<i>Juncus scirpoides</i>	NL	T
Short-fruited rush	<i>Juncus brachycarpus</i>	NL	T
Showy orchis	<i>Galearis spectabilis</i>	NL	T
Skinner's gerardia	<i>Agalinis skinneriana</i>	NL	E
Slough grass	<i>Beckmannia syzigachne</i>	NL	T
Spearwort	<i>Ranunculus ambigens</i>	NL	T
Stiff gentian	<i>Gentianella quinquefolia</i>	NL	T
Sullivant's milkweed	<i>Asclepias sullivantii</i>	NL	T
Three-awned grass	<i>Aristida longespica</i>	NL	T
White gentian	<i>Gentiana flavida</i>	NL	E
White goldenrod	<i>Solidago bicolor</i>	NL	E
White lady slipper	<i>Cypripedium candidum</i>	NL	T
Wild rice	<i>Zizania aquatica</i> var. <i>aquatica</i>	NL	T
<b>Reptiles</b>			
Eastern fox snake	<i>Pantherophis gloydi</i>	NL	T
Spotted turtle	<i>Clemmys guttata</i>	NL	T

Source: MNFI 2010a

(a) E = listed as endangered, NL = not listed, T = listed as threatened.

Information about the Greenwood Energy Center alternative provided by Detroit Edison did not indicate whether any part or all of the seven wetland areas on the site would be affected by building the new reactor facilities (Detroit Edison 2009b, 2011a). Detroit Edison did state that a conceptual facility layout could affect approximately 1313 ft of Engles Drain (Detroit Edison 2009b), raising the possibility of affecting any wetlands that may be associated with Engles Drain. With the prevalence of hydric soils on the site, the layout likely affects unmapped wetlands

Detroit Edison's ER states that although there appears to be an open circuit on a 345-kV transmission line that enters the site, capacity and reliability are not likely to be adequate for a new nuclear power plant. It is likely, therefore, that a new transmission line would be necessary for a number of reasons. A reactor built on the Greenwood site rather than at the proposed Fermi site would still be expected to serve the same load centers as if it were at the Fermi site, and the existing power plants on the site would continue operating, resulting in little likelihood that there is sufficient uncommitted current-carrying capacity left on the existing

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lines. No information was provided on where a possible transmission line would be built, how long it would be, or what terrestrial ecological resources might be affected. It might be possible, however, that a new transmission line could share or adjoin an existing transmission line corridor for some of its length and use existing substations, thereby resulting in less ecological impact than completely new corridors and substations would cause. The vicinity of the Greenwood Energy Center site is largely agricultural, with some forested areas. Although it appears possible to avoid most, if not all, important habitat with a new transmission line, a complete assessment would require a corridor location and site-specific information about the wildlife and habitat within the corridor.

### ***Operational Impacts***

During plant operation, wildlife, including the eastern fox snake, could be subjected to increased mortality from traffic, but it is not expected that such effects would destabilize the local or regional populations of the common species of the site (Forman and Alexander 1998). Information about the local occurrence of important species and habitats would be needed to conduct a more complete assessment of potential project effects on those resources at the Greenwood Energy Center site. Potential impacts associated with transmission line operation would consist of bird collisions with transmission lines, habitat loss due to corridor maintenance, noise, and EMF effects on flora and fauna.

Direct mortality resulting from birds colliding with tall structures has been observed (Erickson et al. 2005). Factors that appear to influence the rate of bird collisions with structures are diverse and related to bird behavior, structure attributes, and weather. Migratory flight during darkness by flocking birds has contributed to the largest mortality events. Tower height, location, configuration, and lighting also appear to play a role in bird mortality. Weather, such as low cloud ceilings, advancing fronts, and fog, also contributes to this phenomenon.

There would be a potential for bird mortality from collisions with the nuclear power plant structures at this site. Typically, the cooling tower and the meteorological tower are the structures likely to pose the greatest risk. The potential for bird collisions increases as structure heights and widths increase. MDCTs are of little concern because of their relatively low height compared to existing and proposed structures onsite. An NDCT, however, would be on the order of 600 ft high. Nonetheless, the NRC concluded that bird collisions with existing cooling towers “involve sufficiently small numbers for any species that it is unlikely that the losses would threaten the stability of local populations or would result in a noticeable impairment of the function of a species within local ecosystems” (NRC 1996). Thus, the impacts on bird populations from collisions with the cooling tower are expected to be minimal.

Because the transmission line that runs through the site is fairly congested (Detroit Edison 2011a), the review team assumes that either an upgrade of existing transmission facilities or the addition of one or more new transmission lines would likely be constructed to

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serve a new reactor. The vicinity of this alternative site is primarily agricultural. Impacts on terrestrial ecological resources from constructing a new transmission line in agricultural land would likely be minimal. Actual impacts, however, would depend on the exact route and length of new transmission lines.

Impacts of the transmission system on wildlife (e.g., bird collisions and habitat loss) resulting from the addition of new lines and towers cannot be fully evaluated without additional information on the length and location of any new transmission facilities. Nonetheless, Section 4.5.6.2 of the GEIS for license renewal (NRC 1996) provides a thorough discussion of the topic and concludes that bird collisions associated with the operation of transmission lines would not cause long-term reductions in bird populations. The same document also concludes that once a transmission corridor has been established, the impacts on wildlife populations are from continued transmission line corridors maintenance and are not significant (NRC 1996).

ITC*Transmission* would construct and operate any new transmission line needed for a new reactor at the Greenwood Energy Center site. ITC*Transmission* operates in accordance with industry standards for vegetation management (NERC 2010), including seasonal restrictions on activities that could adversely affect important wildlife (Detroit Edison 2010a). According to ITC*Transmission*'s vegetation management policy, wetland areas within the corridor that have the potential to regenerate in forest vegetation would be periodically manually cleared of woody vegetation for line safety, thereby keeping them in a scrub-shrub or emergent wetland state (ITC*Transmission* 2010). Other forested areas would similarly be managed to prevent tree regrowth that could present safety or transmission reliability problems. Access to these areas for maintenance would likely be on foot or by the use of matting for vehicles so as not to disturb the soil. Pesticides or herbicides would be used only occasionally in specific areas in the corridor where needed. It is expected that the use of such chemicals in the transmission line corridor would be minimized to the greatest extent possible in wetland areas to protect these important resources (Detroit Edison 2010a). The impacts associated with corridor maintenance activities are loss of habitat, especially forested habitat, from cutting and herbicide application. The maintenance of transmission line corridors could be beneficial for some species, including those that inhabit early successional habitat or use edge environments. Impacts of transmission line corridor maintenance would depend on the types and extents of habitat crossed. Detroit Edison has not provided sufficient details to make a complete assessment of transmission line corridor maintenance impacts. In general, however, if a new transmission line is needed, the impacts from operation and maintenance of the line would likely be minimal.

Detroit Edison provided no data on noise for the possible new reactor on the Greenwood Energy Center site, but it is likely that impacts would be minimal and similar to those of the Fermi 3 project.

EMFs are unlike other agents that have an adverse impact (e.g., toxic chemicals and ionizing radiation) in that dramatic acute effects cannot be demonstrated and long-term effects, if they

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exist, are subtle (NIEHS 2002). A careful review of biological and physical studies of EMFs did not reveal consistent evidence linking harmful effects with field exposures (NIEHS 2002). At a distance of 300 ft, the magnetic fields from many lines are similar to typical background levels in most homes (NIEHS 2002). Thus, impacts of EMFs from transmission systems with variable numbers of power lines on terrestrial flora and fauna are of small significance at operating nuclear power plants (NRC 1996). Since 1997, more than a dozen studies have been published that looked at cancer in animals exposed to EMFs for all or most of their lives (Moulder 2007). These studies have found no evidence that EMFs cause any specific types of cancer in rats or mice (Moulder 2007). A review of the literature on health effects of electric and magnetic fields conducted for the Oregon Department of Energy looked at the effects of strong electric and magnetic fields on various bird species. While some studies concluded that some species of birds exhibited changes in activity levels and some physiological metrics, no studies demonstrated adverse effects on health or breeding success (Golder Associates, Inc. 2009).

***Cumulative Impacts***

Several past, present, and reasonably foreseeable projects could affect terrestrial resources in ways similar to siting a new reactor at the Greenwood Energy Center site (see Table 9-19). The geographic area of interest for the following analysis is defined by a 25-mi radius extending out from the site.

Past projects include two generation facilities belonging to Detroit Edison: the Greenwood Energy Center, a major oil-fired and natural-gas-generating facility, and the Belle River Power Plant, a major coal-fired power plant. Just beyond the 25-mi radius is the St. Clair Power Plant, a major coal- and oil-fired facility. The Greenwood facility belonging to Detroit Edison occupies hundreds of acres on the east side of the site. Future urbanization in the region could also noticeably affect wildlife and habitat in or near the geographic area of interest. Development of the site could result in increased employment and population within the geographic area of concern, and this, in turn, could indirectly result in additional urbanization. However, given the current populations of Lapeer, Sanilac, and St. Clair Counties, Michigan, and Lambton County, Ontario, approximately 90,000, 42,000, 164,000, and 127,000, respectively, the additional impact on ecological resources from urbanization resulting from development of the Greenwood site cumulative to past projects would be minor.

Urbanization would likely result in conversion of agricultural land, forest land, wetlands, and other habitat to urban uses. Urbanization would involve some of the same activities as building a new reactor, including land clearing and grading (temporary and permanent), increased human presence, heavy equipment operation, traffic (including resulting wildlife mortality), noise from construction equipment, and fugitive dust. The cumulative impacts of noise and dust from building a new reactor would be negligible. Some of the effects of these activities, such as noise and dust, are short term and localized. Other effects, such as clearing wildlife habitat that would not be restored, would be permanent. The effects of urbanization of land clearing and

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grading, filling of wetlands, increased human presence, and increased traffic would occur over a period of several years and in several locations.

With the presence of known wetlands and hydric soils on the site, it is likely that wetland habitat would be disturbed by building a new reactor at the Greenwood Energy Center site. Impacts from potential transmission line development cannot be assessed without more specific routing information. Because of the largely agricultural landscape of the Greenwood Energy Center site vicinity, it is likely that a transmission line corridor could be routed to minimize impacts on wildlife and habitat.

### ***Summary of Impacts on Terrestrial and Wetland Resources at the Greenwood Energy Center Site***

Impacts on terrestrial ecological resources and wetland resources were estimated based on the information provided by Detroit Edison and the review team's independent review of that and other relevant data. Based on the conceptual layout (Detroit Edison 2009b), the permanently disturbed area could be as much as 60 ac and the temporarily disturbed area could be as much as 200 ac. Much of the area that would be affected is currently used for row crops and hay and provides relatively low wildlife habitat value. After construction and preconstruction at the Greenwood Energy Center site, habitat resources in temporarily disturbed areas would be expected to naturally regenerate. Wildlife would also recover but might not use the regenerated habitat to the same degree. Permanently disturbed areas would be converted to industrial use for the indefinite future. However, because of the likelihood of wetland impacts at the site, impacts are expected to be noticeable. Because the review team has no definitive information on the routing and length of a new transmission corridor, it cannot estimate the extent of affected habitats.

The review team concludes that the cumulative impacts on terrestrial wildlife and habitat would be MODERATE for a new reactor at the Greenwood Energy Center site. Building and operating a new nuclear unit at the Greenwood site would be a significant contributor to the MODERATE impact.

#### **9.3.4.4 Aquatic Resources**

Surface water features associated with the Greenwood site include a small creek (Plum Creek), agricultural drains (e.g., Engles Drain), and an onsite cooling pond system for the existing power plants (Section 9.3.4.2). The Black River is 3 mi east of the Greenwood site, but the cooling water intake and discharge pipelines for a new reactor may cross the Black River in route to Lake Huron. The NWI does not identify wetlands on the site, but Detroit Edison determined that there are seven wetlands within the site, some of high quality (Detroit Edison 2011a). No information exists regarding the aquatic organisms in the onsite wetlands and utility ponds, and surveys would be needed to characterize the aquatic communities present. However, a variety



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the site was chosen for a new reactor facility consists primarily of agricultural land and woodland. The site's existing pipeline system may not be adequate to provide the needed cooling water for a new reactor. If the existing pipeline capacity is considered insufficient, construction of a 10-mi pipeline from the site to Lake Huron could result in building-related impacts near aquatic habitats located along the pipeline corridor including the likely crossing of the Black River. Building a new cooling water intake and discharge structure at Lake Huron would require dredging, pile driving, and other alterations to the shoreline and benthic habitat, potentially resulting in the temporary and permanent loss or alteration of aquatic habitat as well as injury, mortality, or temporary displacement of aquatic biota (see Section 4.3.2 for a detailed description of potential impacts of construction activities on aquatic habitat and biota). The impacts on aquatic organisms would be temporary and could be largely mitigated through the use of BMPs. Pipelines crossing streams would likely span the streams rather than being placed along the bottom, reducing impacts on aquatic communities. Preconstruction and construction activities within Lake Huron and the Black River would require Section 10 and/or Section 404 permits from USACE, as well as a regulatory permit from MDEQ, and these permits would likely contain stipulations that would further reduce impacts. Overall, the impact of building cooling water intake and discharge structures on the aquatic ecology of Lake Huron and the Black River would be minor.

As described in Section 4.3.2, building activities at the location of the new reactor, including an increase in impervious land surface, vegetation removal, site grading, and dewatering, would have the potential to affect water quality and hydrology and therefore aquatic biota in ditches, streams, and wetlands located within and downstream of the proposed site. Stormwater runoff could carry soil as well as contaminants (e.g., spilled fuel and oil) from construction equipment into onsite streams and drains. Drainage connections between the site and the Black River 3 mi to the east could also be disturbed. Information about the Greenwood site provided by Detroit Edison did not indicate whether any part or all of the seven wetland areas on the site would be affected by building the new reactor facilities (Detroit Edison 2011a). Additional project design details as well as surveys of aquatic habitat and biota would be needed to fully evaluate the potential for impacts on onsite aquatic resources. Although surface water quality may be affected by construction site discharges, the discharges would be regulated by NPDES and stormwater permits. Implementing appropriate BMPs would further reduce the potential for sediments to enter surface water.

It is possible that the transmission line for a new reactor at the Greenwood site could use existing substations and share or adjoin the existing 345-kV transmission line corridor for some of its length. If so, building-related impacts on aquatic resources would be minimal. If a new transmission line is needed to service a new reactor, there is the potential for the construction-related impacts described above to affect aquatic habitat and aquatic biota if the new transmission line passes near or crosses a surface water feature. Expansion of existing corridors would be expected to result in minor environmental impacts, while establishing new

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corridors could result in greater impacts. However, based on the assumptions that required construction permits are obtained from MDEQ and/or USACE and appropriate BMPs are implemented during building activities, the impacts on aquatic resources from development of additional transmission facilities would likely be temporary, easily mitigated, and minor.

Building a new reactor at the Greenwood site is not expected to result in impacts on threatened and endangered aquatic species, given the lack of suitable habitat at the reactor location and the use of BMPs to minimize potential construction impacts on aquatic habitats. However, any threatened or endangered fish and mussels found in Lake Huron and the Black River could be affected, because the cooling water intake and discharge structures may cross the Black River and would entail building activity in Lake Huron. Threatened or endangered mussels potentially present in the Black River and Lake Huron include the eastern pondmussel, pink papershell, and slippershell. As discussed above, the rayed bean is potentially, but not likely, present in Lake Huron, but the species has been found in the Black River as recently as 2001. Additional information would need to be collected and surveys may need to be conducted to evaluate the potential for Federally and State-listed mussel species to be present in areas of the Black River and Lake Huron that would be disturbed by building activities. If threatened or endangered mussels were found, it is likely that mitigation measures would need to be developed to limit potential impacts. Habitat for State-listed fish species could be disturbed by shoreline and in-water building activities. However, fish are highly mobile and would likely avoid the affected areas during construction. On the basis of this information and because construction and preconstruction activities would be temporary and mitigable, the review team concludes that impacts on threatened and endangered aquatic species would be minor.

### ***Operational Impacts***

Operational impacts on aquatic habitat and biota could result from cooling water consumption, transmission line maintenance, cooling water system maintenance, cooling water discharge, and impingement and entrainment of aquatic biota in Lake Huron by the cooling water intake system.

Withdrawal of cooling water by a new nuclear power reactor at the Greenwood site could affect the aquatic environment. Detroit Edison has proposed a closed cycle recirculating cooling system, which could reduce water use by 96 to 98 percent of the amount that the facility would use if it employed a once-through cooling system (66 FR 65256). Assuming that cooling water needs would be similar to those identified for the proposed Fermi 3, approximately 34,000 gpm, or 49 MGD, would be needed (Detroit Edison 2011a). The withdrawal of water would not disrupt natural thermal stratification or the turnover pattern for Lake Huron and would comply with EPA's CWA Section 316(b) Phase I regulations for new facilities. The water available from Lake Huron would be sufficient to support the makeup water needs of a new reactor, and therefore the incremental impact on water availability from operating a new power plant at the



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Greenwood site would be minor (see Section 9.3.4.2). Consequently, the hydrologic impacts on aquatic habitat in Lake Huron from water withdrawal should be minimal.

Periodic maintenance dredging of the area around the cooling water intake in Lake Huron would be necessary to maintain appropriate operating conditions. Such dredging would be managed under permits from the USACE and MDEQ and result in a temporary localized increase in turbidity in the vicinity of the intake bay. Dredged material is expected to be disposed of in a spoil disposal pond, where sedimentation would occur prior to discharge of the water back into Lake Huron. The periodic dredging of the intake bay, which would likely be similar to maintenance dredging activities for other existing power plants in the region, would result in minimal impacts on aquatic biota and habitats in Lake Huron.

The effect of impingement and entrainment of aquatic organisms from Lake Huron was evaluated by the review team. Entrainment could result in mortality to zooplankton and phytoplankton. Particularly vulnerable are invertebrates and early life stages of fish (eggs and larvae), which lack the ability to overcome intake suction and which are small enough to pass through the mesh of the intake screens. Juvenile fish may still be vulnerable, while adults of larger fish species are likely less vulnerable. The fish screens and the closed cycle recirculating cooling system proposed by Detroit Edison would reduce water intake and physical damage to aquatic organisms (Section 5.3.2). Based on the assumption of a closed cycle cooling system that meets the EPA's CWA Section 316(b) Phase I regulations for new facilities the Greenwood Energy Center, the anticipated impacts on aquatic populations from entrainment and impingement are expected to be minimal.

Discharge would include cooling tower blowdown, treated process wastewater, and processed radwaste wastewater, all of which could affect aquatic biota through mortality or sublethal physiological, behavioral, and reproductive impairment (see Section 5.3.2). In addition, aquatic organisms could be affected by cold shock and the scour of benthic habitat near the discharge pipe (see Section 5.3.2). However, proposed design features such as the presence of riprap around the submerged discharge ports and orientation of the discharge ports in an upward direction are intended to reduce scouring (Detroit Edison 2011a). As identified in Section 9.3.4.2, a NPDES permit from MDEQ would be required for discharges from a new nuclear power plant at the Greenwood site. Such a permit would likely specify limits for chemical and thermal discharges in order to protect water quality, thereby limiting the potential for impacts on aquatic organisms. Also, given the length of pipeline that would be required for a discharge system that extends to Lake Huron, at least partial temperature attenuation might take place prior to discharge in the lake. Assuming that NPDES permitting requirements are met, the impacts of discharges on aquatic habitats and biota would be minor.

Impacts on aquatic resources from operation of a new reactor at the Greenwood site may include those associated with maintenance of transmission line corridors located near surface water features. ITC *Transmission* would be expected to construct and operate any new

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transmission lines needed for a new reactor at the Greenwood site, and it is assumed that it would follow current maintenance practices designed to minimize impacts on drains, creeks, rivers, and wetlands, such as minimizing disturbance to riparian habitat and minimizing the application of pesticides and herbicides, which can enter aquatic habitat and adversely affect aquatic biota (Detroit Edison 2011a). Although impacts of transmission line corridor maintenance would depend, in part, on the types and extent of aquatic habitat located near the transmission line, impacts on aquatic habitats and biota from maintenance of transmission lines would likely be minor as long as maintenance practices currently followed by ITC *Transmission* are implemented.

There is no suitable habitat for threatened and endangered mussels near the proposed location for a reactor, but Federally and State-listed threatened and endangered species potentially found in surface waters located along the transmission line and cooling water intake and discharge pipelines, including the Black River, may be adversely affected by maintenance activities. The potential for impacts on threatened and endangered species could be minimized by avoiding streams and mitigated by following BMPs and surveying for the presence of mussel species before maintenance activities begin. Threatened and endangered mussels potentially present in Lake Huron include the rayed bean (Federally listed as endangered), and the State-listed eastern pondmussel, and pink papershell. These species may be vulnerable to cooling water intake operational impacts if present in the immediately affected areas. As eggs, mussels are not likely to be affected by system operation, because they typically develop into larvae within the female. The glochidial stage during which juvenile mussels attach to a suitable fish host is vulnerable indirectly through host impingement or entrainment. The presumed host for the rayed bean (largemouth bass) is present in Lake Huron and could be impinged during reactor operations. Post-glochidial and adult stages of mussels are not likely to be susceptible to entrainment or impingement because they bury themselves in sediment.

No recent records of State-listed northern madtoms, mooneye, and sauger exist for Lake Huron, and these species are not likely to be affected by reactor operations. Channel darters are closely associated with the sediment and may be less likely to be entrained. Early life stages of lake sturgeon could be vulnerable to impingement and entrainment, but mortality significant enough to affect lake sturgeon populations is not anticipated. Overall, impacts on threatened and endangered aquatic species from reactor operations are expected to be minor.

### ***Cumulative Impacts***

Past, present, and reasonably foreseeable projects, facilities, and other environmental changes that may contribute to cumulative impacts on aquatic resources in the area include activities and projects shown in Table 9-19 and current and future ecosystem variations from climate change, introduced dreissenid mussels, and recreational and commercial fishing. Environmental conditions in Lake Huron may be improved in the future by the Great Lakes Restoration Initiative, which is a multi-agency effort to reduce pollution and restore habitat in the Great

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No National Historic Landmarks, historic properties listed in the NRHP, or other cultural resources were identified within the APE (NPS 2010a, b; NRHP 2010; MSHDA 2010a; Lillis-Warwick et al. 2009). The closest cultural resources and/or historic properties identified within the general vicinity of the APE consist of two architectural resources (Detroit Edison 2011a). The first is the James McColl Residence (Site ID#P26144, also known as the James Godo Residence), a late-nineteenth century house, which is approximately 4 mi northwest of the APE in the town of Yale, St. Clair County. It was listed in the NRHP in 1985 (MSHDA 2010c) and is considered a historic property, pursuant to Section 106 of the NHPA. The second is the Ruby United Methodist Church, a late-nineteenth century church that was originally a store and was converted into a church in 1864. It was moved from its original location to its current location in 1928; the current location is approximately 7 mi south of the APE in Clyde Township, St. Clair County. It was listed in the Michigan SRHP in 1990 (MSHDA 2010d). It has not been included in, or determined to be eligible for inclusion in, the NRHP. Therefore, it is not considered a historic property pursuant to Section 106 of the NHPA. No archaeological and/or architectural surveys have been conducted at the alternative site to identify additional previously unrecorded cultural resources in the APE.

Consultation with the Michigan SHPO would be necessary to determine the need for cultural resources investigations (including archaeological and architectural surveys) to identify cultural resources within the APE prior to any onsite ground-disturbing activities; to determine whether any identified cultural resources are eligible for inclusion in the NRHP; to evaluate the potential impacts on cultural resources and/or historic properties; and to determine the effect of a new nuclear power facility at the Greenwood site pursuant to Section 106 of the NHPA. As part of this consultation, Detroit Edison would be expected to put measures in place to protect discoveries in the event that cultural resources are found during building or operation of a new plant. If an unanticipated discovery was made during building activities, site personnel would have to notify the Michigan SHPO and consult with them in conducting an assessment of the discovery to determine if additional work is needed.

The incremental impacts from installation and operation of offsite transmission lines and potential water intake and discharge pipelines to Lake Erie would be minimal, if there were no significant alterations (either physical alteration or visual intrusion) to the cultural environment. If these activities resulted in significant alterations to the cultural environment, then the impact could be greater. Although building and operating potential water intake and discharge pipelines would be the responsibility of Detroit Edison, building and operating the offsite transmission lines would be the responsibility of a transmission company. For impacts greater than small, mitigation may be developed in consultation with the appropriate Federal and State regulatory authorities. Only Federal undertakings would require a Section 106 review.

The APE does not contain any Indian Reservation land, and no Federally recognized Indian Tribes have indicated an interest in St. Clair County (BIA undated; NPS 2010c). However,

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consultation with Federally recognized Indian Tribes in the State of Michigan would be necessary in accordance with Section 106 of the NHPA. As part of this consultation, the NRC would consult with all 12 Federally recognized Indian Tribes that are located within the State of Michigan, as identified for the Fermi site (Michigan Department of Human Services 2001–2009). In addition, because of the APE's proximity to Canada, it is possible that prior to Euro-American settlement, the APE may have been settled and/or used by groups (First Nations) that are now located within Canada, as described in Section 9.3.3.7. One First Nation reserve is located outside, but in the general vicinity, of the APE in Ontario, Canada: Sarnia Reserve 45 (INAC 2010). Sarnia Reserve 45 is located approximately 15 mi southeast of the Greenwood site, on the eastern side of the St. Clair River south of Sarnia, Ontario. The Aamjiwnaang First Nation is associated with Sarnia Reserve 45. Additional First Nation reserves, which are more than 30 mi further to the south and east of the Greenwood site, in southern Ontario, would be the same as those identified for the Belle River-St. Clair site (see Table 9-18) (INAC 2010). The review team would consider the need to consult with INAC and First Nations to identify any concerns regarding physical (direct) or visual (indirect) impacts on cultural resources within the APE.

The following cumulative impact analysis for historic and cultural resources includes building and operating a new nuclear power facility at the Greenwood site. This analysis also considers other past, present, and reasonably foreseeable future actions that could affect historic and cultural resources, as identified in Table 9-19. The APE for the cumulative impact analysis for historic and cultural resources at the Greenwood site consists of the alternative site area and any new transmission line corridors, and a 1-mi buffer area around the site and the corridors.

The Greenwood site includes areas of agricultural land, woodland, wetland, and previous development (e.g., power plant, aboveground transmission lines, pipelines, roads, and railroads). Agricultural activities such as plowing, disking, and harvesting (whether historic or modern [mid-nineteenth to mid-twentieth century]) and logging or clearing of original forests (prior to the reestablishment of the existing woodland areas) are likely to have resulted in minimal subsurface disturbance, suggesting that at least some areas at the Greenwood site, which are currently used for agricultural purposes or as woodland, may have sustained minimal prior ground disturbance. However, historic aerial photography indicates that nearly the entire Greenwood site was cleared and graded in the past (Detroit Edison 2011a), suggesting that the site is likely to have undergone significant prior disturbance during previous development. Past actions at the Greenwood site that may have destroyed, disturbed, or otherwise affected onsite historic and cultural resources in the APE may have included construction and operation of the existing Greenwood Energy Center, Wilkes and Kilgore roads, a spur track of the CSX Transportation mainline rail line, and an existing 345-kV transmission line.

Construction and operation of the existing Greenwood Energy Center may have also indirectly (visually) affected cultural resources within the visual APE. Additional past actions, as identified

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from Table 9-19, such as construction and operation of the Belle River Power Plant, and the St. Clair Power Plant, approximately 24–25 mi southeast on the St. Clair River, would likely be too far away to incur cumulative indirect (visual) impacts on historic or cultural resources within the APE at the Greenwood site. Because a new nuclear power facility at the Greenwood site would be located on property that already contains the existing Greenwood Energy Center, it is likely that the proposed project would not result in new significant indirect (visual impacts) on cultural resources within the visual APE.

Based on reconnaissance-level information provided by Detroit Edison and identified by the review team and the review team's independent evaluation of this information, the review team concludes that the cumulative impacts on historic and cultural resources from building and operating a new nuclear power facility at the Greenwood site would be SMALL. This impact determination is based on available information, which indicates that nearly the entire Greenwood site was cleared and graded in the past, suggesting that the site has undergone prior subsurface ground disturbance; that no known historic properties are located within the APE; and that the existing and operating Greenwood Energy Center is already a landscape element within the existing visual setting for the site. However, cultural resources investigations within undisturbed portions of the APE and for any proposed transmission lines and water pipelines might reveal important historic properties that could result in greater cumulative impacts.

#### 9.3.4.8 Air Quality

##### *Criteria Pollutants*

For a plant with the same capacity as the proposed Fermi 3 plant, the emissions from building and operating a nuclear power plant at the Greenwood site are assumed to be comparable to those from Fermi 3, as described in Chapters 4 and 5. The alternative site would be located in St. Clair County, about 10 mi west of Lake Huron. St. Clair County is in the Metropolitan Detroit-Port Huron Intrastate AQCR (40 CFR 81.37). Currently, St. Clair County is designated as a nonattainment area for PM<sub>2.5</sub> NAAQS and as a maintenance area for 8-hr ozone NAAQS (EPA 2010b). In July 2011, MDEQ submitted a request asking the EPA to redesignate Southeast Michigan as being in attainment with the PM<sub>2.5</sub> NAAQS (MDEQ 2011). In July 2012, the EPA issued a proposed rule designating southeastern Michigan as having attained both the 1997 annual PM<sub>2.5</sub> NAAQS and the 2006 24-hour PM<sub>2.5</sub> NAAQS, based on 2009–2011 ambient air monitoring data (77 FR 39659, dated July 5, 2012), but the final determination has yet to be made.

In Sections 4.7 and 5.7, the review team concludes that air quality impacts of building and operating a plant at Fermi 3, including those associated with transmission lines and cooling towers, would be SMALL, as long as appropriate measures are taken to mitigate dust during building activities. During operation, cooling towers would be the primary source of PM<sub>2.5</sub>, which



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accounts for most of total  $PM_{2.5}$  emissions of 9.51 tons/yr at Fermi 3. However, these emissions would be relatively small and thus are not anticipated to elevate  $PM_{2.5}$  concentrations in a designated nonattainment area. With dust mitigation, the impacts of building and operating a plant at the Greenwood site would also be SMALL. Any new industrial projects would either be small or subject to permitting by MDEQ. State permits are issued under regulations approved by the EPA and deemed sufficient to attain and maintain the NAAQS and comply with other Federal requirements under the CAA. Thus, the cumulative air quality impacts of building and operating a plant at the Greenwood site would be SMALL.

### **Greenhouse Gases**

The extent and nature of climate change is not sensitive to where GHGs are emitted, because the long atmospheric lifetimes of GHGs result in extensive transport and mixing of these gases. Because the emissions of a plant at the Greenwood site would be comparable to those of a similar plant at the Fermi site, the discussions of Sections 4.7 and 5.7 for Fermi 3 also apply to building and operating a similar plant at the Greenwood site. Thus, the impacts of the plant's GHG emissions on climate change would be SMALL, but the cumulative impacts considering global emissions could be MODERATE. Building and operating a new nuclear unit at the Greenwood site would not be a significant contributor to these impacts.

#### **9.3.4.9 Nonradiological Health**

The following impact analysis considers nonradiological health impacts from building activities and operations on the public and workers from a new nuclear facility at the Greenwood Energy Center. The analysis also considers other past, present, and reasonably foreseeable future actions that affect nonradiological health, including other Federal and non-Federal projects and those projects listed in Table 9-19 within the geographic area of interest. The building-related activities that have the potential to affect the health of members of the public and workers include exposure to dust and vehicle exhaust, occupational injuries, noise, and the transport of construction materials and personnel to and from the site. The operation-related activities that have the potential to affect the health of members of the public and workers include exposure to etiological agents, noise, EMFs, and transport of workers to and from the site.

Most of the nonradiological impacts of building and operation (e.g., noise, etiological agents, occupational injuries) would be localized and would not have significant impact at offsite locations. However, activities such as vehicle emissions from transport of personnel to and from the site would encompass a larger area. Therefore, for nonradiological health impacts, the geographic area of interest for cumulative impacts analysis includes projects within a 50-mi radius of the Greenwood site based on the influence of vehicle and other air emissions sources, because the site is in a nonattainment area (Section 9.3.4.8). For cumulative impacts associated with transmission lines, the geographical area of interest is the transmission line corridor. These geographical areas are expected to encompass areas where public and worker

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health could be influenced by the proposed project and associated transmission lines, in combination with any past, present, or reasonably foreseeable future actions.

### ***Building Impacts***

Nonradiological health impacts on the construction workers from building a new nuclear unit at the Greenwood site would be similar to those from building Fermi 3 at the Fermi site, as evaluated in Section 4.8. They include occupational injuries, noise, odor, vehicle exhaust, and dust. Applicable Federal, State, and local regulations on air quality and noise would be complied with during the plant construction phase. The Greenwood site does not have any characteristics that would be expected to lead to fewer or more construction accidents than would be expected for the Fermi site. The site is in a predominantly rural area, and construction impacts would likely be minimal on the surrounding populations that are classified as medium- and low-population areas. Access routes to the site for construction workers would include State Route 136, approximately 1 mi south of the site, and Duce Road. Mitigation may be necessary to ease congestion, thereby improving traffic flow and reducing nonradiological health impacts (i.e., traffic accidents, injuries, and fatalities) during the building period.

### ***Operational Impacts***

Nonradiological health impacts on occupational health of workers and members of the public from operation of a new nuclear unit at the Greenwood site would be similar to those evaluated in Section 5.8 for the Fermi site. Occupational health impacts on workers (e.g., falls, electric shock, or exposure to other hazards) at the Greenwood Energy Center site would likely be the same as those evaluated for workers at the new Fermi site unit. Discharges to Lake Huron would be controlled by NPDES permits issued by MDEQ (Section 9.3.4.2). The growth of etiological agents would not be significantly encouraged at the Greenwood site because of the temperature attenuation in the length of the pipe required for a discharge system. Noise and EMF exposure would be monitored and controlled in accordance with applicable OSHA regulations. Effects of EMFs on human health would be controlled and minimized by conformance with NESC criteria. Nonradiological impacts of traffic during operations would be less than the impacts during building. Mitigation measures employed during building to improve traffic flow would also minimize impacts during operation of a new unit.

### ***Cumulative Impacts***

Past and present actions within the geographic area of interest that could contribute to cumulative nonradiological health impacts include the energy and mining projects in Table 9-19, as well as vehicle emissions and existing urbanization. Reasonably foreseeable future projects in the geographical area of interest that could contribute to cumulative nonradiological health impacts include construction of the Dawn Gateway Pipeline, and the I-94 Black River Bridge replacement in Port Huron, future transmission line development, and future urbanization.



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however, a small portion of Section 30 in the forested portion of the site appears on the FWS Wetland Inventory Map for the area. Groundwater resources in the area are present in the Silurian and Devonian bedrock aquifer, which is approximately 100 to 200 ft thick.

Ecology on the site is composed primarily of cropland (i.e., wheat, corn, soybeans). A 50-ac forest parcel contains second-growth ash, oak (*Quercus* spp.), cottonwood, and maple (*Acer* spp.), with some portion of the forested area permanently wet.

The closest population center is Toledo, Ohio, 8 mi southeast of the site, with a 2000 population of approximately 305,000. The nearest towns, Petersburg, Deerfield, and Dundee, have 2000 populations of 1157, 1005, and 3522, respectively.

### 9.3.5.1 Land Use

The following impact analysis considers impacts on land use from building activities and operations at the Petersburg site and within the geographic area of interest, which is the 15-mi region surrounding the Petersburg site. The analysis also considers past, present, and reasonably foreseeable future actions that affect land use, including other Federal and non-Federal projects and those projects listed in Table 9-28 within the geographic area of interest.

The Petersburg site is owned by a number of private individuals and is zoned as agricultural (Detroit Edison 2011a). The proposed location for the new facility is in the southern part of the approximately 1900-ac site. There are approximately 25 buildings on the site, including existing residences, new dwellings, and abandoned barns (Detroit Edison 2011a). Site topography is generally flat with very little variation and is mainly prime agricultural land with some young mixed deciduous woodland. At least one forested wetland occurs on the site (see Section 9.3.5.3), and the site is outside of mapped floodplains (Detroit Edison 2011a). If the facilities associated with this alternative would extend into the Coastal Zone defined by the State of Michigan under the Coastal Zone Management Act, Detroit Edison would have to obtain a coastal zone consistency determination from MDEQ.

If a new nuclear power plant were located on the Petersburg site, portions of the 1900-ac tract would be disturbed, and some of the farmland and woodland areas on the tract would likely be lost possibly including some prime farmland). Based on Detroit Edison's conceptual plant layout (Detroit Edison 2009b), the review team estimates that the project would permanently occupy as much as 80 ac and temporarily disturb as much as 200 ac. Intake and discharge pipelines built to transfer water to and from Lake Erie could result in some offsite land use impacts, and the pipelines would likely cross railroad tracks and local roads. No new offsite roadways are expected to be needed during development or operation of the proposed facility (Detroit Edison 2011a).

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The recreational area nearest to the site is the Petersburg State Game Management Area, approximately 1.5 mi northeast. There are several small local parks in Lambertville, about 6 mi southeast of the site (Detroit Edison 2011a). Recreational resources in Monroe County may be affected by development and operation of a plant at the Petersburg site, including increased user demand associated with the projected increase in population with the in-migrating workforce and their families; an impaired recreational experience associated with the views of the proposed 600-ft cooling tower and condensate plume; or access delays associated with increased traffic from the construction and operations workforce on local roadways.

An existing 120-kV and a 345-kV transmission line runs approximately 1.2 mi north of the site (Detroit Edison 2011a). Environmental conditions along the likely transmission line corridor are similar to those of the site, with a mixture of cropland, wooded areas, and some wetlands (Detroit Edison 2011a). Because of the short distance from the proposed site to the transmission interconnections, the review team concludes that the land use impacts of building and operating transmission lines for a new nuclear plant at the Petersburg site would be minor.

For cumulative land use analysis, the geographic area of interest is the 15-mi region surrounding the Petersburg site. This geographic area of interest includes the primary community (Summerfield Township) that would be affected by the proposed project if it were located at the Petersburg site.

There are a number of projects identified in Table 9-28 likely to affect land use in the geographic area of interest around the Petersburg site. The proposed Cleveland-Toledo-Detroit rail line project, which would be within 10 mi of the proposed site, would require slight changes in land use around the Petersburg site. Other projects identified in Table 9-28 have contributed or would contribute to some decreases in open lands, wetlands, and forested areas and generally result in increased urbanization and industrialization. However, the continued presence of existing parks, reserves, and managed areas would help preserve a substantial area of open lands, wetlands, and forested areas. The projects within the geographic area of interest identified in Table 9-28 would generally be consistent with applicable land use plans. The distance to transmission interconnections would be approximately 1.2 mi (Detroit Edison 2011a). Even with the new reactor facilities and other reasonably foreseeable development projects anticipated for the geographic area of interest, the currently rural character of the area would not likely be noticeably altered.

As described for the Fermi site in Section 7.1, climate change could increase precipitation and flooding in the area around the Petersburg site, while increased lake evaporation and reduced lake ice accumulation could reduce lake levels, thus changing land use through an increase in low-lying lakeshore areas (USGCRP 2009). Forest growth may increase as a result of more CO<sub>2</sub> in the atmosphere, while existing parks, reserves, and managed areas would help preserve wetlands and forested areas to the extent that they are not affected by the same factors

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reactor facilities (Detroit Edison 2009b, 2011a). The conceptual plan layout appears to site the facilities entirely on agricultural land.

Detroit Edison's ER states that 345-kV and 120-kV transmission lines pass about 1.2 mi north of the Petersburg site. The ER also states that capacity and reliability in the area are good and that there is an open circuit on the 345-kV line. Nonetheless, it is possible that a new transmission line would be necessary for a number of reasons. A reactor built on the Petersburg site rather than at the proposed Fermi site would still be expected to serve the same load centers as if it were at the Fermi site. Detroit Edison did not state whether there is sufficient uncommitted current transmission capacity left on the existing lines. No information was provided on where a possible transmission line would be built, how long it would be, or what terrestrial ecological resources might be affected by such a transmission line. It may be possible, however, that a new transmission line could share or adjoin an existing transmission line corridor for some of its length and use existing substations, thereby resulting in less ecological impact than would occur with completely new corridors and substations. The vicinity of the Petersburg site is largely agricultural, with some forested areas. Although it appears possible to avoid most, if not all, important habitat with a new transmission line, a complete assessment would require a corridor location and site-specific information about the wildlife and habitat within the corridor.

### ***Operational Impacts***

During plant operation, wildlife, including the eastern fox snake, would be subjected to increased mortality from traffic, but it is not expected that such effects would destabilize the local or regional populations of the common species of the site (Forman and Alexander 1998). Information about the local occurrence of important species and habitats would be needed to conduct a more complete assessment of potential project effects on those resources at the Petersburg site. Potential impacts associated with transmission line operation would consist of bird collisions with transmission lines, habitat loss due to corridor maintenance, noise, and EMF effects on flora and fauna.

Direct mortality resulting from birds colliding with tall structures has been observed (Erickson et al. 2005). Factors that appear to influence the rate of bird collisions with structures are diverse and related to bird behavior, structure attributes, and weather. Migratory flight during darkness by flocking birds has contributed to the largest mortality events. Tower height, location, configuration, and lighting also appear to play a role in bird mortality. Weather, such as low cloud ceilings, advancing fronts, and fog, also contribute to this phenomenon.

There would be a potential for bird mortality from colliding with the nuclear power plant structures at this site. Typically, the cooling tower and the meteorological tower are the structures likely to pose the greatest risk. The potential for bird collisions increases as structure heights and widths increase. MDCTs are of little concern, because of their relatively low height

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compared with existing and proposed structures onsite. An NDCT, however, would be on the order of 600 ft high. Nonetheless, the NRC concluded that effects of bird collisions with existing cooling towers “involve sufficiently small numbers for any species that it is unlikely that the losses would threaten the stability of local populations or would result in a noticeable impairment of the function of a species within local ecosystems” (NRC 1996). Thus, the impacts on bird populations from collisions with the cooling tower are expected to be minimal.

Operational impacts of the transmission system on wildlife (e.g., bird collisions and habitat loss) resulting from the addition of new lines and towers cannot be fully evaluated without additional information on the length and location of any new transmission facilities. Nonetheless, Section 4.5.6.2 of the GEIS for license renewal (NRC 1996) provided a thorough discussion of the topic and concluded that bird collisions associated with the operation of transmission lines would not cause long-term reductions in bird populations. The same document also concluded that once a transmission corridor has been established, the impacts on wildlife populations would be from continued maintenance of transmission line corridors and are not significant (NRC 1996).

ITC*Transmission* would build and operate any new transmission line needed for a new reactor at the Petersburg site. ITC*Transmission* operates in accordance with industry standards for vegetation management (NERC 2010), including seasonal restriction on activities that could adversely affect important wildlife (Detroit Edison 2010a). According to ITC*Transmission*'s vegetation management policy, wetland areas within the corridor that have the potential to regenerate in forest vegetation would be manually cleared of woody vegetation periodically for line safety, thereby keeping them in a scrub-shrub or emergent wetland state (ITC*Transmission* 2010). Other forested areas would be managed similarly to prevent tree regrowth that could present safety or transmission reliability problems. Access to these areas for maintenance would likely be on foot or by using matting for vehicles so as not to disturb the soil. Pesticides or herbicides would be used only occasionally in specific areas where needed in the corridor. It is expected that the use of such chemicals in the transmission line corridor would be minimized to the greatest extent possible in wetlands areas to protect these important resources (Detroit Edison 2010a). The impact associated with corridor maintenance activities is loss of habitat, especially forested habitat, from cutting and herbicide application. The maintenance of transmission line corridors could be beneficial for some species, including those that inhabit early successional habitat or use edge environments. Impacts of transmission line corridor maintenance would depend on the types and extents of habitat crossed. Detroit Edison has not provided sufficient details to make a complete assessment of transmission line corridor maintenance impacts. In general, however, if a new transmission line is needed, the impacts would likely be minimal.

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Detroit Edison provided no data on noise for the possible new reactor on the Petersburg site, but it is likely that impacts would be minimal and similar to those associated with the Fermi 3 project.

EMFs are unlike other agents that have an adverse impact (e.g., toxic chemicals and ionizing radiation) in that dramatic acute effects cannot be demonstrated and long-term effects, if they exist, are subtle (NIEHS 2002). A careful review of biological and physical studies of EMFs did not reveal consistent evidence linking harmful effects with field exposures (NIEHS 2002). At a distance of 300 ft, the magnetic fields from many lines are similar to typical background levels in most homes (NIEHS 2002). Thus, impacts of EMFs from transmission systems with variable numbers of power lines on terrestrial flora and fauna are of small significance at operating nuclear power plants (NRC 1996). Since 1997, more than a dozen studies have been published that looked at cancer in animals that were exposed to EMFs for all or most of their lives (Moulder 2007). These studies have found no evidence that EMFs cause any specific types of cancer in rats or mice (Moulder 2007). A review of the literature on health effects of electric and magnetic fields conducted for the Oregon Department of Energy looked at the effects of strong electric and magnetic fields on various bird species. While some studies concluded that some species of birds exhibited changes in activity levels and some physiological metrics, no studies demonstrated adverse effects on health or breeding success (Golder Associates, Inc. 2009).

### ***Cumulative Impacts***

Several past, present, and reasonably foreseeable projects could affect terrestrial resources in ways similar to siting a new reactor exist at the Petersburg site (see Table 9-28). The geographic area of interest for the following analysis is defined by a 25-mi radius extending out from the site

Past projects include three coal-fired generation facilities: the Detroit Edison Monroe power plant in Monroe, Michigan; the Bay Shore power plant in Oregon, Ohio; and the J.R. Whiting power plant in Luna Pier, Michigan. The Fermi 2 power plant is just inside the geographic area of interest, at a distance of approximately 25 mi. The three coal-fired plants are between 12 and 19 mi from the Petersburg site. All four power plants were constructed at least two decades ago. Any short-term impacts of plant construction ended years ago. The long-term effects on terrestrial ecological resources from operating a new reactor at the Petersburg site combined with the other power plants in the geographic area of interest would be minimal because of the low level of impacts of a new power plant and the distances to the other existing power plants.

Reasonably foreseeable projects within the geographic area of interest that could affect terrestrial resources include continued regional commercial and residential development and construction of a proposed Cleveland-Toledo-Detroit passenger rail line.

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Urbanization would likely result in conversion of agricultural land, forest land, wetlands, and other habitat to urban uses. Urbanization would involve some of the same activities as building a new reactor, including land clearing and grading (temporary and permanent), increased human presence, heavy equipment operation, traffic (with resulting wildlife mortality), noise from construction equipment, and fugitive dust. Some of the effects of these activities, such as noise and dust, are short term and localized. The impacts of noise and dust from building a new reactor would be negligible. Other effects, such as clearing wildlife habitat that would not be restored, would be permanent. The effects of urbanization, land clearing and grading, filling of wetlands, increased human presence, and increased traffic would occur over a period of several years and in several locations away from the Petersburg site.

The current status of the proposed passenger rail line from Cleveland through Toledo to Detroit is not known. As part of this project, a railway station could be built in the City of Monroe. The project would have some potential to encourage local economic development, including urbanization.

Development of the site could result in increased employment and population within the geographic area of interest, and this, in turn, could result in additional urbanization. Given the current population of Monroe County, Michigan, of 146,000, the additional urbanization would be minor.

Considering the presence of known wetlands and hydric soils on the site, building a new reactor at the Petersburg site would likely result in unavoidable wetland impacts. Impacts from potential transmission line development cannot be assessed without more specific routing information. Because of the largely agricultural landscape of the Petersburg vicinity, it is likely that a transmission line corridor could be routed to minimize impacts on wildlife and habitat.

### ***Summary of Impacts on Terrestrial and Wetland Resources at the Petersburg Site***

Impacts on terrestrial ecological resources and wetland resources were estimated based on information provided by Detroit Edison and the review team's independent review. Based on the conceptual layout (Detroit Edison 2009b), the permanently disturbed area could be as much as 80 ac, and the temporarily disturbed area could be as much as 200 ac. Much of the project area is currently used for row crops and hay and provides relatively low wildlife habitat value. After construction and preconstruction, habitat resources in temporarily disturbed areas would be expected to naturally regenerate. Wildlife would also recover but might not use the regenerated habitat to the same degree. Permanently disturbed areas would be converted to industrial use for the indefinite future. However, because of the likelihood of wetland impacts at the site, impacts are expected to be noticeable. Because the review team has no definitive information on the routing and length of a new transmission corridor, it cannot estimate the extent of affected habitats.



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**Table 9-30.** Federally and State-Listed Threatened and Endangered Aquatic Species That Have Been Reported from Monroe County, Michigan

Common Name	Scientific Name	Federal Status <sup>(a)</sup>	State Status <sup>(b)</sup>
<b>Fish</b>			
Channel darter	<i>Percina copelandi</i>	NL	E
Eastern sand darter	<i>Ammocrypta pellucida</i>	NL	T
Lake sturgeon	<i>Acipenser fulvescens</i>	NL	T
Pugnose minnow	<i>Opsopoeodus emiliae</i>	NL	E
River darter	<i>Percina shumardi</i>	NL	E
Sauger	<i>Sander canadensis</i>	NL	T
Silver chub	<i>Macrhybopsis storeriana</i>	NL	SC
<b>Invertebrates</b>			
Hickorynut	<i>Obovaria olivaria</i>	NL	E
Lilliput	<i>Toxolasma parvus</i>	NL	E
Northern riffleshell	<i>Epioblasma torulosa rangiana</i>	E	E
Rayed bean	<i>Villosa fabalis</i>	E	E
Round hickorynut	<i>Obovaria subrotunda</i>	NL	E
Slippershell	<i>Alasmidonta viridis</i>	NL	T
Snuffbox mussel	<i>Epioblasma triquetra</i>	E	E
Threehorn wartyback	<i>Obliquaria reflexa</i>	NL	E
Wavrayed lampmussel	<i>Lampsilis fasciola</i>	NL	T
White catspaw	<i>Epioblasma obliquata perobliqua</i>	E <sup>(c)</sup>	E

(a) Federal status rankings determined by the FWS under the Endangered Species Act: NL = not listed, E = endangered. Source: FWS 2010

(b) State species information provided by MNFI (2010b): E = endangered, T = threatened, SC = species of concern.

(c) The white catspaw is considered extirpated in Michigan.

fuel and oil) from construction equipment into wetlands located onsite. There is little high-quality aquatic habitat present at the Petersburg site, and impacts are expected to be minor.

Information about the Petersburg site provided by Detroit Edison indicated that no wetland areas would be affected by building the new reactor facilities (Section 9.3.5.3). Based on the assumptions that required construction permits are obtained from MDEQ and/or USACE and that appropriate BMPs are implemented during building activities, the impacts on aquatic resources from onsite development activities would be temporary, easily mitigated, and minor.

It is possible that the transmission line for a new reactor at the Petersburg site could use existing substations and share or adjoin an existing transmission line corridor for some of its length. If so, building-related impacts on aquatic resources would be minimal. If the new transmission line is needed to service a new reactor, there is the potential for the construction-related impacts described above to affect aquatic habitat and aquatic biota if a new transmission



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line passes near or crosses a surface water feature. Expansion of existing corridors would be expected to result in minor environmental impacts, while establishing new corridors could result in greater impacts. However, based on the assumption that required construction permits would be obtained from MDEQ and appropriate BMPs implemented during building activities, the impacts on aquatic resources from development of additional transmission facilities would likely be temporary, easily mitigated, and minor.

The impacts of building a new reactor at the Petersburg Site on threatened and endangered aquatic species potentially present in the River Raisin are expected to be minimal, because the land area that would be affected by reactor construction is located approximately 4 mi away and no water would be withdrawn from or discharged into the River Raisin. New reactor construction is also not expected to result in impacts on threatened and endangered aquatic species, given the lack of suitable habitat at the reactor location and the use of BMPs to minimize potential construction impacts. However, threatened and endangered mussels found in Lake Erie or in aquatic habitat located along the route of the transmission line or cooling water intake and discharge pipelines could be affected by disturbance from building activities. Threatened or endangered mussels potentially present in Lake Erie include the slippershell, round hickorynut, threehorn wartyback, lilliput, and snuffbox mussel. As discussed above, the rayed bean and threehorn wartyback are not likely to be present in Lake Erie. Additional information would need to be collected and surveys may need to be conducted to evaluate the potential for threatened and endangered mussel species to be present in aquatic habitat that would be disturbed by construction of cooling water intake and discharge facilities. If threatened and endangered mussels were found, it is likely that mitigation measures would need to be developed to limit potential impacts. Habitat for State-listed fish species could be temporarily disturbed by shoreline and in-water preconstruction activities. However, fish are highly mobile and would likely avoid the affected areas during construction. On the basis of this information and because construction and preconstruction activities would be temporary and mitigable, the review team concluded that impacts on threatened and endangered aquatic species would be minor.

### ***Operational Impacts***

Operational impacts on aquatic habitat and biota could result from cooling water consumption, transmission line maintenance, cooling water system maintenance, cooling water discharge, and impingement and entrainment of aquatic biota by the cooling water system.

Operational cooling water requirements would be the major water demand of a new nuclear power reactor at the Petersburg site. Detroit Edison has proposed a closed cycle recirculating cooling system, which could reduce water use by 96 to 98 percent compared to a once-through cooling system (66 FR 65256). Based on the assumption that cooling water needs would be similar to those identified for Fermi 3, approximately 34,000 gpm, or 49 MGD, would be needed (Detroit Edison 2011a). The withdrawal of water would not disrupt natural thermal stratification

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Impacts on aquatic resources from operation of a new reactor at the Petersburg site may include those associated with maintenance of transmission line corridors. The review team assumed that ITC *Transmission* would construct and operate any new transmission line needed and that it would follow current maintenance practices designed to minimize impacts on aquatic habitats and wetlands, such as minimizing disturbance to riparian habitat and minimizing the application of pesticides and herbicides, which can enter aquatic habitat and adversely affect aquatic biota (Detroit Edison 2011a). Although impacts of transmission line corridor maintenance would depend, in part, on the types and extent of aquatic habitat located near the transmission line, impacts on aquatic habitats and biota from maintenance of transmission lines would likely be minor as long as maintenance practices currently followed by ITC *Transmission* are implemented.

There is no suitable habitat for threatened and endangered mussels near the proposed location of the reactor, but species potentially found in surface waters located along the transmission line and cooling water intake and discharge pipelines could be adversely affected by maintenance activities. The potential for impacts on threatened and endangered species could be minimized by following BMPs. Mussels, including the round hickorynut, threehorn wartyback, lilliput, snuffbox mussel, and the rayed bean, are potentially present in Lake Erie, and these species may be vulnerable to cooling water intake and discharge operational impacts if present in the immediately affected areas. As eggs, mussels are not likely to be affected by system operation because the eggs are not free-floating but, rather, develop into larvae within the female. Mussels in the glochidial stage during which juveniles attach to a suitable fish host are vulnerable indirectly through host impingement and entrainment. Hosts for the snuffbox mussel (logperch), lilliput (several species of Centrachids), and rayed bean (largemouth bass) are present in Lake Erie and could be impinged during reactor operations. Fish hosts for the threehorn wartyback and round hickorynut are not known. Post-glochidial and adult-stage mussels are not likely to be susceptible to entrainment, because they bury themselves in sediment.

The State-listed sauger is not common in Lake Erie, but the lake sturgeon historically spawned along the shoreline of Lake Erie in Monroe County, and early life stages may be vulnerable to entrainment and impingement. However, spawning activity in this area appears to have diminished or ceased since the 1970s (Goforth 2000). The State-listed channel darter could occur in Lake Erie but may be less likely to be entrained, because it resides near the bottom. None of these species were observed during impingement and entrainment studies conducted during 2008 and 2009 (AECOM 2009) at the Fermi 2 intake in Lake Erie. Consequently, it is considered unlikely that significant numbers would be affected by cooling water intake for a new reactor at the Petersburg site. Overall, impacts on threatened and endangered species from reactor operations are expected to be minor.

## Environmental Impacts of Alternatives

part of his “Village Industries” experiment to determine whether factory work could be done in small town environments using water power. The Dundee Historic District was listed in the NRHP in 1990 (MSHDA 2010e) and is considered a historic property pursuant to Section 106 of the NHPA. This NRHP-listed property is outside of the indirect (visual) APE for the Petersburg site.

No archaeological and/or architectural surveys have been conducted at the alternative site to identify additional cultural resources in the APE and/or to determine or confirm the significance (NRHP eligibility) of the previously identified cultural resources in the APE at the Petersburg site. As currently designed, the proposed layout for a new nuclear power facility at the Petersburg site and potential water intake and discharge pipeline from Lake Erie would not affect any of the previously identified cultural resources within the APE. However, the proposed layout for a new nuclear power facility at the Petersburg site includes structures (buildings and cooling towers) and operational activities (condensation plumes) that would be new landscape elements within the APE at the Petersburg site.

Consultation with the Michigan SHPO would be necessary to determine the need for cultural resources investigations (including archaeological and architectural surveys) to (1) identify cultural resources within the APE prior to any on-site ground-disturbing activities; (2) determine whether any identified cultural resources are eligible for inclusion in the NRHP; (3) evaluate the potential impacts on cultural resources and/or historic properties; and (4) determine the effect of a new nuclear power facility at the Petersburg site pursuant to Section 106 of NHPA. As part of this consultation, Detroit Edison would be expected to put measures in place to protect discoveries in the event that cultural resources are found during building or operation of a new plant. If an unanticipated discovery was made during building activities, site personnel would have to notify the Michigan SHPO and consult with them in conducting an assessment of the discovery to determine whether additional work is needed.

The incremental impacts from installation and operation of offsite transmission lines and potential water intake and discharge pipelines to Lake Erie would be minimal if there are no significant alterations (either physical alteration or visual intrusion) to the cultural environment. If these activities result in significant alterations to the cultural environment, then the impact could be greater. Although building and operating potential water intake and discharge pipelines would be the responsibility of Detroit Edison, building and operating offsite transmission lines would be the responsibility of a transmission company. For impacts greater than small, mitigation may be developed in consultation with the appropriate Federal and State regulatory authorities. Only Federal undertakings would require a Section 106 review.

The APE at the Petersburg site does not contain any Indian Reservation land (BIA undated). However, consultation with Federally recognized Indian Tribes in the State of Michigan would be necessary in accordance with Section 106 of NHPA. In addition, two Federally recognized Indian Tribes located outside the State of Michigan – the Forest County Potawatomi Community

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of Wisconsin and the Ottawa Tribe of Oklahoma – have indicated an interest in Monroe County (NPS 2010d). As part of this consultation, the NRC would consult with all 12 Federally recognized Indian Tribes located within the State of Michigan (Michigan Department of Human Services 2001–2009), as identified for the Fermi site, and with the Forest County Potawatomi Community of Wisconsin and the Ottawa Tribe of Oklahoma.

The following cumulative impact analysis for historic and cultural resources includes building and operating a new nuclear power facility at the Petersburg site. This analysis also considers other past, present, and reasonably foreseeable future actions that could affect historic and cultural resources, as identified in Table 9-28. The APE for the cumulative impact analysis for historic and cultural resources for the Petersburg site consists of the alternative site area and any new transmission line corridors, and a 1-mi buffer area around the site and the corridors.

The Petersburg site is predominantly agricultural land, with one small area of second-growth woodland and two local roadways (Morocco Road [east–west] and Payne Road [north–south]). Although numerous farms are located within the APE, no previous industrial development (e.g., power plants, aboveground transmission lines, pipelines, and railroads) has occurred onsite. Agricultural activities such as plowing, disking, and harvesting (whether historic or modern [mid-nineteenth to mid-twentieth century]) and logging or clearing of original forests (prior to the reestablishment of the existing second-growth woodland area) are likely to have resulted in minimal subsurface disturbance, suggesting that areas at the Petersburg site that are currently used for agricultural purposes may have sustained minimal prior ground disturbance.

Additional past actions in the general vicinity of the Petersburg site, as identified from Table 9-28, may have also indirectly (visually) affected cultural resources within the visual APE. These past actions would have included construction and operation of the Holcim (US) Inc. Portland cement plant, approximately 7 mi north-northeast in Dundee, Michigan; the Stansley Mineral Resources, STONECO-Meanwell Road Site (Ida Road); and STONECO Inc.-Maybee sand, gravel, topsoil, and/or limestone mines or quarries, approximately 5 to 10 mi from the Petersburg site. However, the locations of these projects would likely be too far to result in cumulative indirect (visual) impacts on historic or cultural resources within the APE at the Petersburg site. Because a new nuclear power facility at the Petersburg site would be located on minimally developed agricultural property, it is likely that the proposed project would result in new significant indirect (visual) impacts on cultural resources that might be identified within the visual APE.

Based on reconnaissance-level information provided by Detroit Edison and identified by the review team and the review team's independent evaluation of this information, the review team concludes that the cumulative impacts on historic and cultural resources from building and operating a new nuclear power facility at the Petersburg site would be SMALL. This impact determination is based on available information, which indicates that no known historic properties would be affected (none of the cultural resources identified within the APE at the

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Petersburg site have been evaluated for NRHP eligibility), resulting in a SMALL impact determination. However, if a new nuclear power facility were to be developed at the Petersburg site, then cultural resources investigations within the APE and for any proposed transmission lines and water pipelines might reveal important historic or cultural resources that could be directly or indirectly affected, resulting in greater cumulative impacts.

### 9.3.5.8 Air Quality

#### ***Criteria Pollutants***

For a plant with the same capacity as the proposed Fermi 3 plant, the emissions from building and operating a nuclear power plant at the Petersburg site are assumed to be comparable to those from Fermi 3. The alternative site is located in Monroe County, about 7 mi north of the Michigan–Ohio boundary and 1 mi east of Lenawee County. Monroe County is in the Metropolitan Toledo Interstate AQCR (40 CFR 81.43), while Lenawee County is in the South Central Michigan Intrastate AQCR (40 CFR 81.196). Monroe County is designated as a nonattainment area for PM<sub>2.5</sub> NAAQS and as a maintenance area for 8-hr ozone NAAQS, while Lenawee County is in unclassifiable/attainment for all criteria pollutants, except in a maintenance area for 8-hr ozone NAAQS (EPA 2010b). In July 2011, MDEQ submitted a request asking the EPA to redesignate southeast Michigan as being in attainment with the PM<sub>2.5</sub> NAAQS (MDEQ 2011). In July 2012, the EPA issued a proposed rule designating southeastern Michigan as having attained both the 1997 annual PM<sub>2.5</sub> NAAQS and the 2006 24-hour PM<sub>2.5</sub> NAAQS, based on 2009–2011 ambient air monitoring data (77 FR 39659, dated July 5, 2012), but the final determination has yet to be made.

In Sections 4.7 and 5.7, the review team concludes that air quality impacts of building and operating a plant at Fermi 3, including those associated with transmission lines and cooling towers, would be SMALL, as long as appropriate measures are taken to mitigate dust during building activities. During operation, cooling towers would be the primary source of PM<sub>2.5</sub>, which accounts for most of total PM<sub>2.5</sub> emissions of 9.51 tons per year at Fermi 3. However, these emissions would be relatively small and thus are not anticipated to elevate PM<sub>2.5</sub> concentrations in a designated nonattainment area. With dust mitigation, the impacts of building and operating a plant at the Petersburg site would also be SMALL. Any new industrial projects would either be small or subject to permitting by MDEQ. State permits are issued under regulations approved by the EPA and deemed sufficient to attain and maintain the NAAQS and comply with other Federal requirements under the CAA. Thus, the cumulative air quality impacts of building and operating a plant at the Petersburg site would be SMALL.

#### ***Greenhouse Gases***

The extent and nature of climate change is not sensitive to where GHGs are emitted, because the long atmospheric lifetimes of GHGs result in extensive transport and mixing of these gases.



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Since the emissions of a plant at the Petersburg site would be comparable to those of a similar plant at the Fermi site, the discussions of Sections 4.7 and 5.7 for Fermi 3 also apply to building and operating a similar plant at Petersburg. Thus, the impacts of the plant's GHG emissions on climate change would be SMALL, but the cumulative impacts considering global emissions would be MODERATE. Building and operating a new nuclear unit at the Petersburg site would not be a significant contributor to these impacts.

**9.3.5.9 Nonradiological Health**

The following impact analysis considers nonradiological health impacts from building activities and operations on the public and workers from a new nuclear facility at the Petersburg alternative site. The analysis also considers other past, present, and reasonably foreseeable future actions that affect nonradiological health, including other Federal and non-Federal projects and those projects listed in Table 9-28 within the geographic area of interest. The building-related activities that have the potential to affect the health of members of the public and workers include exposure to dust and vehicle exhaust, occupational injuries, noise, and the transport of construction materials and personnel to and from the site. The operation-related activities that have the potential to affect the health of members of the public and workers include exposure to etiological agents, noise, EMFs, and the transport of workers to and from the site.

Most of the nonradiological impacts of building and operation (e.g., noise, etiological agents, occupational injuries) would be localized and would not have significant impact at offsite locations. However, activities such as vehicle emissions from transport of personnel to and from the site would encompass a larger area. Therefore, for nonradiological health impacts, the geographic area of interest for cumulative impacts analysis includes projects within a 50-mi radius of the Petersburg site based on the influence of vehicle and other air emissions sources, because the site is in a nonattainment area (Section 9.3.5.8). For cumulative impacts associated with transmission lines, the geographical area of interest is the transmission line corridor. These geographical areas are expected to encompass areas where public and worker health could be influenced by the proposed project and associated transmission lines, in combination with any past, present, or reasonably foreseeable future actions.

***Building Impacts***

Nonradiological health impacts on construction workers from building a new nuclear facility at the Petersburg site would be similar to those from building Fermi 3 at the Fermi site, as evaluated in Section 4.8. They include occupational injuries, noise, odor, vehicle exhaust, and dust. Applicable Federal, State, and local regulations on air quality and noise would be complied with during the plant construction phase. The Petersburg site does not have any characteristics that would be expected to lead to fewer or more construction accidents than would be expected for the Fermi site. The site is in a predominantly rural area, and construction

## Environmental Impacts of Alternatives

The South Britton site is owned by a number of private individuals and is zoned as agricultural (Detroit Edison 2011a). The proposed location for the new facility is in the southern part of the 1140-ac site. There are approximately 15 to 25 residential buildings on the site (Detroit Edison 2011a). Site topography is flat with very little variation and is primarily agricultural land, with some small areas of young mixed deciduous woodland. There are no mapped wetlands on the site (see Section 9.3.6.3). Although a tributary to the River Raisin runs through the site, it is outside the floodplain of the river (Detroit Edison 2011a). If the facilities associated with this alternative would extend into the Coastal Zone defined by the State of Michigan under the Coastal Zone Management Act, Detroit Edison would have to obtain a coastal zone consistency determination from MDEQ.

If a new nuclear power plant were sited on the South Britton site, a large portion of the 1140-ac tract would be disturbed, and some of the agricultural land (possibly including some prime farmland) and woodland areas on the tract would be lost. Based on Detroit Edison's conceptual plan layout (Detroit Edison 2009b), the review team estimates that the new facilities would permanently occupy as much as 100 ac and temporarily disturb as much as 200 ac. Although their lengths are unknown, intake and discharge pipelines constructed to transfer water to and from Lake Erie could result in some offsite land use impacts, and the pipelines would likely cross railroad tracks and local roads. No new offsite roadways are expected to be needed.

The recreational area nearest to the site is the River Raisin, located 5 mi south and 6 mi west of the site. There are also three small parks in Adrian, about 8 mi southwest of the site. The Hidden Lake Gardens, a nature preserve and conservatory, is located about 15 mi west-northwest (Detroit Edison 2011a). Although it is not known whether pipeline or transmission lines would cross recreational areas, these resources in Monroe County may be affected by construction and operation of a plant at the South Britton site, including increased user demand associated with the projected increase in population from the in-migrating workforce and their families; an impaired recreational experience associated with the views of the proposed 600-ft cooling tower and condensate plume; or access delays associated with increased traffic from the construction and operations workforces on local roadways.

Existing 120-kV and a 345-kV transmission lines run approximately 1 mi north of the site (Detroit Edison 2011a). Environmental conditions along the anticipated transmission line route are generally similar to those of the site, with a mixture of cropland, wooded areas, and some inland wetlands. Because of the short distances to the transmission interconnections, the review team believes that the land use impacts of building and operating transmission lines for a new nuclear plant at the South Britton site would be minor.

For cumulative land use analysis, the geographic area of interest is the 15-mi region surrounding the South Britton site. This geographic area of interest includes the primary communities (Britton Township and Dundee Township) that would be affected by the proposed project if it were located at the South Britton site.



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There are a number of projects identified in Table 9-36 likely to affect land use in the geographic area of interest around the South Britton site. All would require slight changes in land use around the South Britton site. The proposed Cleveland-Toledo-Detroit rail line project, which would be within 10 mi of the proposed site, would require slight changes in land use around the South Britton site. Other projects identified in Table 9-36 have contributed or would contribute to some decreases in open lands, wetlands, and forested areas and generally result in increased urbanization and industrialization. However, existing parks, reserves, and managed areas would help preserve open lands, wetlands, and forested areas. The review team concludes that the land use impacts of building and operating a new nuclear generating unit and associated transmission lines at the South Britton site would be minimal, because the projects within the geographic area of interest identified in Table 9-36 would be consistent with applicable land use plans and because the distance to the transmission interconnections is short.

As described for the Fermi site in Section 7.1, climate change could increase precipitation and flooding in the area of interest, while increased lake evaporation and reduced lake ice accumulation could reduce lake levels, thus changing land use through an increase in low-lying lakeshore areas (USGCRP 2009). Forest growth may increase as a result of more CO<sub>2</sub> in the atmosphere, while existing parks, reserves, and managed areas would help preserve wetlands and forested areas to the extent that they are not affected by the same factors (USGCRP 2009). In addition, climate change could reduce crop yields and livestock productivity (USGCRP 2009), which might change portions of agricultural land uses in the area of interest.

Based on the information provided by Detroit Edison and the review team's independent evaluation, the review team concludes that the cumulative land use impacts associated with siting a reactor at the South Britton site would be SMALL, and no mitigation would be warranted.

### 9.3.6.2 Water Use and Quality

Surface water features in the vicinity of the South Britton site include small creeks and ditches. Because the surface water resources near the site are poor, water for a reactor at the South Britton site was originally proposed to come from the River Raisin (Detroit Edison 2011a), which is about 5 to 6 mi southeast of the site. During the review team's visit in January 2009, the River Raisin was observed to be of moderate size with modest flow, and concern was expressed by the review team regarding the adequacy of the river as a source of cooling water for a power plant and the river's ability to accept heated and chemically treated cooling tower blowdown discharges. Detroit Edison (2009c) has since indicated that a pipeline to Lake Erie would be a possible method of providing a dependable water source for power plant operations. A representative route along State highways and county roads was provided by Detroit Edison, with a total pipeline length of more than 25 mi. A new intake structure would be necessary at the lake (constructed under USACE and MDEQ permits). Discharge would include cooling tower blowdown, treated process wastewater, and liquid radwaste. The receiving body of water

## Environmental Impacts of Alternatives

Table 9-37. (contd)

Common Name	Scientific Name	Federal Status <sup>(a)</sup>	State Status <sup>(a)</sup>
Virginia bluebells	<i>Mertensia virginica</i>	NL	E
Virginia snakeroot	<i>Aristolochia serpentaria</i>	NL	T
Virginia water-horehound	<i>Lycopus virginicus</i>	NL	T
Western mugwort	<i>Artemisia ludoviciana</i>	NL	T
White lady slipper	<i>Cypripedium candidum</i>	NL	T
Wideflower phlox	<i>Phlox ovata</i>	NL	E
Wild hyacinth	<i>Camassia scilloides</i>	NL	T
Woodland lettuce	<i>Lactuca floridana</i>	NL	T
<b>Reptiles</b>			
Kirtland's snake	<i>Clonophis kirtlandii</i>	NL	E
Spotted turtle	<i>Clemmys guttata</i>	NL	T

Source: MNFI 2010a

(a) E = listed as endangered, NL = not listed, T = listed as threatened.

bat uses the areas that would be disturbed, impacts could be kept to minimal levels by limiting tree clearing to the times of year when the bats are not in the region.

The agricultural land and the small areas of forest on this site are not likely to provide habitat for State-listed species, but additional study would be needed to more precisely assess potential impacts on terrestrial ecological resources on the site and its vicinity.

Information about the South Britton site provided by Detroit Edison did not indicate whether wetlands would be affected by building the new reactor facilities (Detroit Edison 2009b, 2011a). The conceptual plan layout appears to locate the facilities on agricultural land away from wetlands mapped by NWI. However, with the prevalence of hydric soils on the site, the layout likely affects unmapped wetlands not identified on NWI maps.

Detroit Edison's ER states that there appears to be an open circuit on a 345-kV transmission line that passes 1 mi north of the site and that capacity and reliability in the area are good. Nonetheless, it is possible that a new transmission line would be necessary for a number of reasons. A reactor built on the South Britton site rather than at the proposed Fermi site would still be expected to serve the same load centers as if it were at the Fermi site, and it is unclear whether there is sufficient uncommitted current carrying capacity left on the existing lines. No information was provided on where a possible transmission line would be constructed, how long it would be, or what terrestrial ecological resources might be affected by such a transmission line. It may be possible, however, that a new transmission line could share or adjoin an existing transmission line corridor for some of its length and use existing substations, thereby resulting in less ecological impact than completely new corridors and substations. The vicinity of the South Britton site is largely agricultural, with some forested areas. Although it appears possible to

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avoid most, if not all, important habitat with a new transmission line, a complete assessment would require a corridor location and site-specific information about the wildlife and habitat within the corridor.

### ***Operational Impacts***

During plant operation, wildlife would be subjected to increased mortality from traffic, but it is not expected that such effects would destabilize the local or regional populations of the common species of the site (Forman and Alexander 1998). Information about the local occurrence of important species and habitats would be needed to conduct a more complete assessment of potential project effects on those resources at the South Britton site. Potential impacts associated with transmission line operation would consist of bird collisions with transmission lines, habitat loss due to corridor maintenance, noise, and EMF effects on flora and fauna.

Direct mortality resulting from birds colliding with tall structures has been observed (Erickson et al. 2005). Factors that appear to influence the rate of bird collisions with structures are diverse and related to bird behavior, structure attributes, and weather. Migratory flight during darkness by flocking birds has contributed to the largest mortality events. Tower height, location, configuration, and lighting also appear to play a role in bird mortality. Weather, such as low cloud ceilings, advancing fronts, and fog, also contributes to this phenomenon.

There would be a potential for bird mortality from collisions with the nuclear power plant structures at this site. Typically, the cooling tower and the meteorological tower are the structures likely to pose the greatest risk. The potential for bird collisions increases as structure heights and widths increase. MDCTs are of little concern because of their relatively low height compared to existing and proposed structures onsite. An NDCT, however, would be on the order of 600 ft high. Nonetheless, the NRC concluded that effects of bird collisions with existing cooling towers “involve sufficiently small numbers for any species that it is unlikely that the losses would threaten the stability of local populations or would result in a noticeable impairment of the function of a species within local ecosystems” (NRC 1996). Thus, the impacts on bird populations from collisions with the cooling tower are expected to be minimal.

Operational impacts of the transmission system on wildlife (e.g., bird collisions and habitat loss) resulting from the addition of new lines and towers cannot be fully evaluated without additional information on the length and location of any new transmission facilities. Nonetheless, Section 4.5.6.2 of the GEIS for license renewal (NRC 1996) provides a thorough discussion of the topic and concludes that bird collisions associated with the operation of transmission lines would not cause long-term reductions in bird populations. The same document also concludes that once a transmission corridor has been established, the impacts on wildlife populations would be from continued maintenance of transmission line corridors and are not significant (NRC 1996).

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The review team assumed that ITC *Transmission* would construct and operate any new transmission lines needed for a new reactor at the South Britton site. ITC *Transmission* operates in accordance with industry standards for vegetation management (NERC 2010), including seasonal restriction on activities that could adversely affect important wildlife (Detroit Edison 2010a). According to ITC *Transmission*'s vegetation management policy, wetland areas within the corridor that have the potential to regenerate in forest vegetation would be periodically manually cleared of woody vegetation for line safety, thereby keeping them in a scrub-shrub or emergent wetland state (ITC *Transmission* 2010). Other forested areas would be managed similarly to prevent tree regrowth that could present safety or transmission reliability problems. Access to these areas for maintenance would likely be on foot or by using matting for vehicles so as not to disturb the soil. Pesticides or herbicides would be used only occasionally in specific areas where needed in the corridor. It is expected that the use of such chemicals in the transmission line corridor would be minimized to the greatest extent possible in wetland areas to protect these important resources (Detroit Edison 2010a). The impact associated with corridor maintenance activities is loss of habitat, especially forested habitat, from cutting and herbicide application. The maintenance of transmission line corridors could be beneficial for some species, including those that inhabit early successional habitat or use edge environments. Impacts of transmission line corridor maintenance would depend on the types and extents of habitat crossed. In general, however, if a new transmission line is needed, the impacts would likely be minimal.

Detroit Edison provided no data on noise for the possible new reactor on the South Britton site, but it is likely that impacts would be minimal and similar to those of the Fermi 3 project.

EMFs are unlike other agents that have an adverse biological impact (e.g., toxic chemicals and ionizing radiation) in that dramatic acute effects cannot be demonstrated and long-term effects, if they exist, are subtle (NIEHS 2002). A careful review of biological and physical studies of EMFs did not reveal consistent evidence linking harmful effects with field exposures (NIEHS 2002). At a distance of 300 ft, the magnetic fields from many lines are similar to typical background levels in most homes (NIEHS 2002). Thus, impacts on terrestrial flora and fauna of EMFs from transmission systems with variable numbers of power lines are of minor significance at operating nuclear power plants (NRC 1996). Since 1997, more than a dozen studies have been published that looked at cancer in animals that were exposed to EMFs for all or most of their lives (Moulder 2007). These studies have found no evidence that EMFs cause any specific types of cancer in rats or mice (Moulder 2007). A review of the literature on health effects of electric and magnetic fields conducted for the Oregon Department of Energy looked at the effects of strong electric and magnetic fields on various bird species. While some studies concluded that some species of birds exhibited changes in activity levels and some physiological metrics, no studies demonstrated adverse effects on health or breeding success (Golder Associates, Inc. 2009).

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### ***Cumulative Impacts***

Several past, present, and reasonably foreseeable projects could affect terrestrial resources in ways similar to siting a new reactor at the South Britton site (see Table 9-36). The geographic area of interest for the following analysis is defined by a 25-mi radius extending out from the site.

Past projects include three coal-fired generation facilities: the Detroit Edison Monroe power plant in Monroe, Michigan; the Bay Shore power plant in Oregon, Ohio; and the J.R. Whiting power plant in Luna Pier, Michigan. All three coal plants are at least 20 mi from the South Britton site. The Fermi 2 power plant is just outside the geographic area of interest, at a distance of approximately 26.4 mi. All four power plants were constructed at least two decades ago, and any short-term impacts of plant construction ended years ago. The long-term effects on terrestrial ecological resources from operating a new reactor at the South Britton site would be minimal, as evidenced by the low level of operational impacts described in the GEIS (NRC 1996) and the distances to the other existing power plants.

A future activity in the region that could noticeably affect wildlife and habitat in or near the geographic area of interest is future urbanization. Development of the South Britton site could result in increased employment and population within the geographic area of interest, which in turn could result in additional urbanization. Given the current populations of Lenawee, Washtenaw, and Monroe Counties, Michigan (approximately 99,000, 347,000, and 146,000, respectively), the additional impact on ecological resources from indirect urbanization if the South Britton site were developed would be minor.

Urbanization would likely result in conversion of agricultural land, forest land, wetlands, and other habitat to urban uses. Urbanization would involve some of the same activities as building a new reactor, including land clearing and grading (temporary and permanent), increased human presence, heavy equipment operation, traffic (including the resulting wildlife mortality), noise from construction equipment, and fugitive dust. Some of the effects of these activities, such as noise and dust, are short term and localized. The impacts of noise and dust from building a new reactor would be negligible. Other effects, such as clearing wildlife habitat that will not be restored, would be permanent. The effects of urbanization, including land clearing and grading, filling of wetlands, increased human presence, and increased traffic, would occur over a period of several years and in several locations away from the South Britton site.

Another project that has been proposed for the geographic area of interest is a passenger rail line that would run from Cleveland through Toledo to Detroit. As part of this project, a railway station could be built in the City of Monroe. The current status of this project is not known, but it would have some potential to encourage local economic development, including urbanization.

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With the presence of hydric soils and drainage ditches on the site, it is likely that wetland habitat not identified on NWI maps would be unavoidably disturbed by building a new reactor at the South Britton site. The review team cannot assess impacts from potential transmission line development without more specific routing information. Because of the largely agricultural landscape surrounding the South Britton site, however, it is likely a transmission line corridor could be routed to minimize impacts on wildlife and habitat.

***Summary of Impacts on Terrestrial and Wetland Resources at the South Britton Site***

Impacts on terrestrial ecological resources and wetland resources were estimated based on information provided by Detroit Edison and the review team's independent review. Based on the conceptual layout (Detroit Edison 2009b), the permanently disturbed area could be as much as 100 ac, and the temporarily disturbed area could be as much as 200 ac. Much of the project area is currently used for row crops and provides relatively low wildlife habitat value. After construction and preconstruction, habitat resources in temporarily disturbed areas would be expected to naturally regenerate. Wildlife would also recover but might not use the regenerated habitat to the same degree. Permanently disturbed areas would be converted to industrial use for the indefinite future. However, because of the likelihood of wetland impacts at the site, impacts are expected to be noticeable. Because the review team has no definitive information on the routing and length of a new transmission corridor, it cannot estimate the extent of affected habitats.

The review team concludes that the cumulative impacts on terrestrial wildlife and habitat would be MODERATE for a new reactor at the South Britton site. Building and operating a new nuclear plant at the South Britton site would be a significant contributor to this MODERATE impact.

**9.3.6.4 Aquatic Resources**

The primary surface water features that could be affected by the construction and operation of a new reactor at the South Britton site include onsite ditches and small tributaries of the River Raisin, as well as Lake Erie to the east. There are no NWI-designated wetlands on the site (Section 9.3.6.3). No information exists regarding the aquatic organisms in the ditches and tributaries located onsite, and surveys would be needed to characterize the aquatic communities present. However, a variety of aquatic macroinvertebrates, such as mayflies, stoneflies, caddisflies, isopods, and chironomids, are likely to be present, along with fish common to Great Lakes coastal habitats, such as sunfishes, shiners, suckers, and catfish (Bolsenga and Herdendorf 1993).

The western basin of Lake Erie would likely serve as the source of plant cooling water for a new reactor at the South Britton site. Lake Erie supports an important commercial and recreational fishery. Common nearshore forage species include the emerald shiner, gizzard shad, rainbow



## Environmental Impacts of Alternatives

potentially found in Lake Erie, although the sauger is uncommon (Goforth 2000; Derosier 2004b).

### ***Building Impacts***

Impacts on aquatic habitat and biota on the South Britton site and in Lake Erie could result from building the primary facilities, associated transmission lines, and the cooling water intake and discharge system for a new reactor at the South Britton site. As identified in Section 9.3.6.1, the area of the site that would be developed if the South Britton site were chosen for a new reactor facility consists primarily of agricultural land. There are not likely to be any aquatic habitats located directly within the construction footprint (Detroit Edison 2009b). Building a new cooling water intake and discharge pipeline between Lake Erie and the reactor site could affect aquatic habitat if present along the pipeline corridor and could require dredging, pile driving, and other alterations to the shoreline and benthic habitat of Lake Erie, potentially resulting in sedimentation, noise, turbidity, sediment removal, and accidental releases of contaminants (see Section 4.3.2 for a detailed description of potential impacts of construction activities on aquatic habitats and biota). The potential for impacts could be limited by avoiding surface water features, and any impacts on aquatic organisms would likely be temporary and could be largely mitigated through the use of BMPs. Preconstruction and construction activities within Lake Erie would require Section 10 and/or 404 permits from USACE, as well as a regulatory permit from MDEQ, and these permits would likely contain stipulations that would further reduce impacts. Overall, the impact of the building of cooling water intake and discharge structures on aquatic resources would be minor.

As described in Section 4.3.2, building activities at the location of the new reactor, including an increase in impervious land surface, vegetation removal, site grading, and dewatering, would have the potential to affect water quality and hydrology, and therefore aquatic biota in ditches and streams located within the South Britton site and in downstream areas outside of the site. Stormwater runoff could carry soil as well as contaminants (e.g., spilled fuel and oil) from construction equipment into onsite streams and ditches. There does not appear to be high-quality aquatic habitat present at the South Britton site, and impacts are expected to be minor. Impacts on aquatic resources from construction site discharges could be controlled by NPDES and stormwater permits. Implementation of appropriate BMPs would further reduce the potential for sediments to enter surface water.

It is possible that a new transmission line for a new reactor at the South Britton site could share or adjoin the existing 345-kV transmission line corridor located 1 mi from the site, where environmental conditions are similar to those of the site, with a mixture of cropland, wooded areas, and some wetlands. If so, building-related impacts on aquatic resources would be minimal. If a new transmission line is needed to service a new reactor, there is the potential for the building-related impacts described above to affect aquatic habitat and aquatic biota, if the new transmission line passes near or crosses a surface water feature. Expansion of existing



## Environmental Impacts of Alternatives

corridors would be expected to result in minor environmental impacts, while establishing new corridors could result in greater impacts. However, based on the assumptions that required construction permits were obtained from MDEQ and/or USACE and appropriate BMPs were implemented during building activities, the impacts on aquatic resources from development of additional transmission facilities would likely be temporary, easily mitigated, and minor.

Building a new reactor is not expected to result in impacts on threatened and endangered aquatic species, given the lack of suitable habitat at the location of the South Britton site. However, several threatened and endangered species of fish and freshwater mussels were historically present in the River Raisin drainage, and a tributary of the River Raisin is present at the South Britton site. The potential for construction-related impacts on threatened and endangered species can be minimized by avoiding construction near streams, surveying streams for species, and implementing BMPs. Threatened and endangered fish and mussels found in Lake Erie or in aquatic habitat located along the route of the transmission line or cooling water pipelines may be affected by disturbance from building activities. Based on recent records, the threatened or endangered mussels potentially present in Lake Erie include the round hickorynut, threehorn wartyback, lilliput, snuffbox mussel, and rayed bean. Additional information would need to be collected and surveys may need to be conducted to evaluate the potential for Federally and State-listed mussel species to be present in aquatic habitat that would be disturbed by building activities. If threatened or endangered mussels were found, it is likely that mitigation measures would need to be developed to limit potential impacts. Habitat for State-listed fish species could be temporarily disturbed by shoreline and in-water preconstruction activities. However, fish are highly mobile and would likely avoid the affected areas during these activities. On the basis of this information and because construction and preconstruction activities would be temporary and mitigable, the review team concludes that impacts on threatened and endangered aquatic species would be minor.

### ***Operational Impacts***

Operational impacts on aquatic resources could result from cooling water consumption, transmission line maintenance, cooling water system maintenance, cooling water discharge, and impingement and entrainment of aquatic biota in Lake Erie by the cooling water system.

Operational cooling water requirements would be the major water demand of a new nuclear power reactor at the South Britton site. Detroit Edison has indicated a closed cycle recirculating cooling system would be used, which could reduce water use by 96 to 98 percent compared to a once-through cooling system (66 FR 65256). Based on the assumption that cooling water needs would be similar to those identified for the proposed Fermi 3, approximately 34,000 gpm, or 49 MGD, would be needed (Detroit Edison 2011a). The withdrawal of water would not disrupt natural thermal stratification or turnover pattern for Lake Erie and would comply with EPA's CWA Section 316(b) Phase 1 regulations for new facilities. Water available from Lake Erie would be sufficient to support the makeup water needs of a new reactor (Section 9.3.6.2),

## Environmental Impacts of Alternatives

and therefore the incremental impact from operating a new power plant at the South Britton site would be minor (see Section 9.3.6.2). Consequently, the hydrologic impacts on aquatic habitat in Lake Erie from water withdrawal should be minimal.

Periodic maintenance dredging of the water intake area would likely be necessary to maintain appropriate operating conditions for cooling water intake. Such dredging would be managed under permits from USACE and MDEQ and could result in temporary localized increases in turbidity in the vicinity of the intake bay. Dredged material is expected to be disposed of in a spoil disposal pond, where sediment would settle out prior to discharge of the water back into Lake Erie as allowed and managed under existing NPDES permit regulations. The periodic dredging of the intake bay would result in minor impacts on aquatic biota and habitats in Lake Erie.

The effect of impingement and entrainment of aquatic organisms from Lake Erie was evaluated by the review team. Entrainment may result in mortality to zooplankton and phytoplankton. In addition, data from the Fermi 2 cooling water intake system (Section 5.3.2) suggests that demersal and pelagic fish species in Lake Erie would be vulnerable to entrainment and impingement. Particularly vulnerable are early life stages of fish (eggs and larvae), which lack the ability to overcome intake suction and which are small enough to pass through the mesh of the intake screens. The use of fish screens and a closed cycle recirculating cooling system as proposed by Detroit Edison would reduce water use and physical damage to aquatic organisms and decrease the impingement and entrainment of organisms (Section 5.3.2). Based on the assumption of a closed cycle cooling system that meets the EPA's CWA Section 316(b) Phase I regulations for new facilities, anticipated impacts on aquatic populations from entrainment and impingement are expected to be minor.

Discharge would include cooling tower blowdown, treated process wastewater, and processed radwaste wastewater, all of which could affect aquatic biota through mortality or sublethal physiological, behavioral, and reproductive impairment. In addition, aquatic organisms may be affected by cold shock and the scouring of benthic habitat near the discharge pipeline (see Section 5.3.2). However, proposed design features such as the presence of riprap around the submerged discharge ports and orientation of the discharge ports in an upward direction are intended to reduce scouring (Detroit Edison 2011a). As identified in Section 9.3.6.2, an NPDES permit from MDEQ would be required for discharges from a new nuclear power plant at the South Britton site. Such a permit would likely specify limits for chemical and thermal discharges in order to protect water quality, thereby limiting the potential for impacts on aquatic organisms. Given the length of pipeline that would be required for a discharge system, at least partial temperature attenuation may take place prior to discharge into Lake Erie (see Section 9.3.6.2). Based on the assumption that NPDES permitting requirements are met, the impacts of discharges on aquatic habitats and biota would be minor.

## Environmental Impacts of Alternatives

Impacts on aquatic resources from operation of a new reactor at the South Britton site may include those associated with maintenance of transmission line corridors. The review team assumed that ITC *Transmission* would construct and operate any new transmission line needed to service a new reactor at the South Britton site, and that it would follow current maintenance practices designed to minimize impacts on ditches, creeks, rivers, and wetlands, such as minimizing disturbance to riparian habitat and minimizing the application of pesticides and herbicides, which can enter aquatic habitat and adversely affect aquatic biota (Detroit Edison 2011a). Although impacts of transmission line corridor maintenance would depend, in part, on the types and extent of aquatic habitat located near the transmission line, impacts on aquatic habitats and biota from maintenance of transmission lines would likely be minor as long as maintenance practices currently followed by ITC *Transmission* are implemented.

Threatened and endangered aquatic species potentially found in surface waters located along the transmission line and cooling water intake and discharge pipelines could be adversely affected by maintenance activities. The potential for impacts on threatened and endangered aquatic species could be minimized by avoiding streams and following BMPs. Threatened or endangered mussels, including the round hickorynut, threehorn wartyback, lilliput, snuffbox mussel, and rayed bean, could be present in Lake Erie, and these species could be vulnerable to cooling water intake and discharge impacts. As eggs, mussels are not likely to be affected by operations because they are not free-floating, but rather develop into larvae within the female. Mussels in the glochidial stage, during which juveniles attach to a suitable fish host, are vulnerable indirectly through host impingement and entrainment. Hosts for the snuffbox mussel (logperch), lilliput (several species of Centrachids), and rayed bean (largemouth bass [*Micropterus salmoides*]) are present in Lake Erie and could be impinged during reactor operations. Fish hosts for the round hickorynut and threehorn wartyback are not known. Post-glochidial and adult stages of mussels are not likely to be susceptible to entrainment, because they bury themselves in sediment.

The State-listed channel darter and eastern sand darter may be less likely to be entrained, because they bury themselves in sediment and remain near the bottom. The State-listed sauger is not common in Lake Erie, but lake sturgeon were historically observed to spawn along the shoreline of Lake Erie in Monroe County, and early life stages may be vulnerable to entrainment and impingement. However, spawning activity in this area appears to have diminished or ceased since the 1970s (Goforth 2000). None of these species were observed during impingement and entrainment studies conducted during 2008 and 2009 (AECOM 2009) at the Fermi 2 intake in Lake Erie. Consequently, it is unlikely that significant numbers would be affected by the cooling water intake of a new reactor at the South Britton site. Overall, impacts on threatened and endangered species from reactor operations are expected to be minor.

## Environmental Impacts of Alternatives

Route 50 would have to be investigated to determine whether it aligns with the early to mid-nineteenth century La Plaisance Pike, determine the NRHP eligibility of any archaeological or aboveground resources associated with La Plaisance Pike, and determine the effect of potential pipelines on this resource pursuant to 36 CFR Part 800.

In addition, the proposed layout for a new nuclear power facility at the South Britton site includes structures (buildings and cooling towers) and operational activities (condensation plumes) that would be new landscape elements within the APE at the South Britton site, including within viewsheds from the apparent alignment of La Plaisance Pike. The indirect (visual) effect of a new nuclear power facility at the South Britton site on historic and cultural resources in the indirect (visual) APE would have to be evaluated pursuant to 36 CFR Part 800.

Consultation with the Michigan SHPO would be necessary to determine the need for cultural resources investigations (including archaeological and architectural surveys) to identify cultural resources within the APE prior to any onsite ground-disturbing activities, to determine whether any identified cultural resources are eligible for inclusion in the NRHP, to evaluate the potential impacts on cultural resources and/or historic properties, and to determine the effect of a new nuclear power facility at the South Britton site pursuant to Section 106 of the NHPA. As part of this consultation, Detroit Edison would be expected to put measures in place to protect discoveries in the event that cultural resources are found during building or operation of a new plant. If an unanticipated discovery were made during building activities, site personnel would have to notify the Michigan SHPO and consult with them in conducting an assessment of the discovery to determine whether additional work is needed.

The incremental impacts from installation and operation of offsite transmission lines and potential water intake and discharge pipelines to Lake Erie would be minimal if there are no significant alterations (either physical alteration or visual intrusion) of the cultural environment. If these activities result in significant alterations of the cultural environment, then the impacts could be greater. Although building and operating potential water intake and discharge pipelines would be the responsibility of Detroit Edison, building and operation offsite transmission lines would be the responsibility of a transmission company. For impacts greater than small, mitigation may be developed in consultation with the appropriate Federal and State regulatory authorities. Only Federal undertakings would require a Section 106 review.

The APE at the South Britton site does not contain any Indian Reservation land (BIA undated). However, consultation with Federally recognized Indian Tribes in the State of Michigan would be necessary in accordance with Section 106 of the NHPA. In addition, one Federally recognized Indian Tribe located outside the State of Michigan, the Forest County Potawatomi Community of Wisconsin, has indicated an interest in Lenawee County (NPS 2010c). As part of this consultation, the NRC would consult with all 12 Federally recognized Indian Tribes located within the State of Michigan (Michigan Department of Human Services 2001–2009), as identified for the Fermi site, and with the Forest County Potawatomi Community of Wisconsin.

## Environmental Impacts of Alternatives

The following cumulative impact analysis for historic and cultural resources considers building and operating a new nuclear power facility at the South Britton site. This analysis also considers other past, present, and reasonably foreseeable future actions that could affect historic and cultural resources, as identified in Table 9-36. The APE for the cumulative impact analysis for historic and cultural resources for the South Britton site consists of the alternative site area and any new transmission line corridors, and a 1-mi buffer area around the site and the corridors.

The South Britton site is predominantly agricultural land, with some small areas of second-growth woodland and two roads (Pocklington Road, east-west, and Downing Highway, north-south). No previous development (e.g., power plants, aboveground transmission lines, pipelines, railroads) has occurred onsite. Agricultural activities such as plowing, disking, and harvesting (whether historic or modern [mid-nineteenth to mid-twentieth century]) and logging or clearing of original forests (prior to the reestablishment of the existing second-growth woodland areas) are likely to have resulted in minimal subsurface disturbance, suggesting that at least some areas at the South Britton site, currently used for agricultural purposes, may have sustained minimal prior ground disturbance.

Additional past actions in the general vicinity of the South Britton site, as identified from Table 9-36, may have also indirectly (visually) affected cultural resources within the visual APE. These past actions would have included construction and operation of the Holcim (US) Inc.-Dundee Portland cement plant, approximately 7 mi east-northeast in Dundee, Michigan, and the Stansley Mineral Resources, STONECO-Meanwell Road Site (Ida Road), and STONECO Inc.-Maybee sand, gravel, topsoil, and/or limestone mines and quarries, located 9 to 15 mi from the South Britton site. However, the locations of these projects would likely be too far to incur cumulative indirect (visual) impacts on historic or cultural resources within the APE at the South Britton site. Because a new nuclear power facility at the South Britton site would be located on undeveloped property, it is likely that the proposed project would result in new significant indirect (visual impacts) on cultural resources that might be identified within the visual APE.

Based on reconnaissance-level information provided by Detroit Edison and identified by the review team and the review team's independent evaluation of this information, the review team concludes that the cumulative impacts on historic and cultural resources from building and operating a new nuclear power facility at the South Britton site would be SMALL. This impact determination is based on available information, which indicates that no known historic properties would be affected (none of the cultural resources identified within the APE at the South Britton site have been evaluated for NRHP eligibility), resulting in an impact determination of SMALL. However, if a new nuclear power facility was to be developed at the South Britton site, then cultural resources investigations within the APE and for any proposed transmission lines and water pipelines might reveal important historic or cultural resources that could be directly or indirectly affected, resulting in greater cumulative impacts.



## Environmental Impacts of Alternatives

### 9.3.6.8 Air Quality

#### ***Criteria Pollutants***

For a plant with the same capacity as the proposed Fermi 3 plant, the emissions from building and operating a nuclear power plant at the South Britton site are assumed to be comparable to those from Fermi 3, as described in Chapters 4 and 5. The alternative site is located in Lenawee County, 1 mi west of Monroe County. Lenawee County is in the South Central Michigan Intrastate AQCR (40 CFR 81.196), while Monroe County is in Metropolitan Toledo Interstate AQCR (40 CFR 81.43). Lenawee County is in unclassifiable/attainment for all criteria pollutants, except in a maintenance area for 8-hr ozone NAAQS, while Monroe County is designated as a nonattainment area for PM<sub>2.5</sub> NAAQS and as a maintenance area for 8-hr ozone NAAQS (EPA 2010b). In July 2011, MDEQ submitted a request asking the EPA to redesignate southeast Michigan as being in attainment with the PM<sub>2.5</sub> NAAQS (MDEQ 2011). In July 2012, the EPA issued a proposed rule designating southeastern Michigan as having attained both the 1997 annual PM<sub>2.5</sub> NAAQS and the 2006 24-hour PM<sub>2.5</sub> NAAQS, based on 2009–2011 ambient air monitoring data (77 FR 39659, dated July 5, 2012), but the final determination has yet to be made.

In Sections 4.7 and 5.7, the review team concludes that air quality impacts of building and operating a plant at Fermi 3, including those associated with transmission lines and cooling towers, would be SMALL, as long as appropriate measures are taken to mitigate dust during building activities. During operation, cooling towers would be the primary source of PM<sub>2.5</sub>, which accounts for most of total PM<sub>2.5</sub> emissions of 9.51 tons/yr at Fermi 3. However, these emissions would be relatively small and thus are not anticipated to elevate PM<sub>2.5</sub> concentrations in a designated nonattainment area. With dust mitigation, the impacts of building and operating a plant at the South Britton site would also be SMALL. Any new industrial projects would either be small or subject to permitting by MDEQ. State permits are issued under regulations approved by the EPA and deemed sufficient to attain and maintain the NAAQS and comply with other Federal requirements under the CAA. Thus, the cumulative air quality impacts of building and operating a plant at the South Britton site would be SMALL.

#### ***Greenhouse Gases***

The extent and nature of climate change is not sensitive to where GHGs are emitted because the long atmospheric lifetimes of GHGs result in extensive transport and mixing of these gases. Because the emissions of a plant at the South Britton site would be comparable to those of a similar plant at the Fermi site, the discussions of Sections 4.7 and 5.7 for Fermi 3 also apply to building and operating a similar plant at the South Britton site. Thus, the impacts of the plant's GHG emissions on climate change would be SMALL, but the cumulative impacts considering global emissions would be MODERATE. Building and operating a new nuclear unit at the South Britton site would not be a significant contributor to these impacts.

## Environmental Impacts of Alternatives

**9.3.6.9 Nonradiological Health**

The following impact analysis considers nonradiological health impacts from building activities and operations on the public and workers from a new nuclear facility at the South Britton alternative site. The analysis also considers other past, present, and reasonably foreseeable future actions that impact nonradiological health, including other Federal and non-Federal projects and those projects listed in Table 9-36 within the geographic area of interest. The building-related activities that have the potential to affect the health of members of the public and workers include exposure to dust and vehicle exhaust, occupational injuries, noise, and the transport of construction materials and personnel to and from the site. The operations-related activities that have the potential to affect the health of members of the public and workers include exposure to etiological agents, noise, EMFs, and impacts from the transport of workers to and from the site.

Most of the nonradiological impacts of building and operation (e.g., noise, etiological agents, occupational injuries) would be localized and would not have significant impact at offsite locations. However, activities such as vehicle emissions from transport of personnel to and from the site would encompass a larger area. Therefore, for nonradiological health impacts, the geographic area of interest for cumulative impacts analysis includes projects within a 50-mi radius of the South Britton site based on the influence of vehicle and other air emissions sources because neighboring Monroe County is in nonattainment (Section 9.3.6.8). For cumulative impacts associated with transmission lines, the geographical area of interest is the transmission line corridor. These geographical areas are expected to encompass areas where public and worker health could be influenced by the proposed project and associated transmission lines, in combination with any past, present, or reasonably foreseeable future actions.

***Building Impacts***

Nonradiological health impacts on the construction workers from building a new nuclear facility at the South Britton site would be similar to those from building Fermi 3 at the Fermi site, as evaluated in Section 4.8. They include occupational injuries, noise, odor, vehicle exhaust, and dust. Applicable Federal, State, and local regulations on air quality and noise would be complied with during the plant construction phase. The South Britton site does not have any characteristics that would be expected to lead to fewer or more construction accidents than would be expected for the Fermi site. The site is in a predominantly rural area, and construction impacts on the surrounding populations classified as medium- and low-population areas would likely be minimal. Access routes to the site for construction workers would include State Route 50 and minor local roads. Mitigation may be necessary to ease congestion, thereby improving traffic flow and reducing nonradiological health impacts (i.e., traffic accidents, injuries, and fatalities) during the building period.



## Conclusions and Recommendations

**Table 10-4.** Internal and External Costs of Building and Operating Fermi 3

Benefit-Cost Category	Description (except where noted, costs are in 2008 U.S. dollars)	Impact Assessment <sup>(a)</sup>
<b>Internal Costs<sup>(b)</sup></b>		
Construction cost	\$6.4 billion (overnight capital cost).	—
Operating cost	6.7–7.0 cents per kWh (levelized cost of electricity) (MIT 2010).	—
Spent fuel management	0.1 cent/kWh (WNA 2007). <sup>(c)</sup>	—
Decommissioning	0.1–0.2 cent/kWh (WNA 2007). <sup>(d)</sup>	—
Material and resources	460,000 yd <sup>3</sup> of concrete 46,000 tons of rebar 25,000 tons of structural steel 690,000 ft of piping 220,000 ft of cable tray 1,200,000 ft of conduit 1,400,000 ft of power cable 5,400,000 ft of control wire 740,000 ft of process and instrument tubing.	—
Tax payments	State income taxes of \$0.7 million annually during construction and operation (see Section 5.4.3.2).	SMALL
	Annual sales taxes of \$0.3 million during construction and of \$0.2 million during operations.	SMALL
	Approximately \$14 million per year in local property taxes paid by Detroit Edison over the 40-year life of the COL.	SMALL
Land use	Approximately 155 ac occupied on a long-term basis by the new nuclear reactor and associated infrastructure. An estimated 1069 ac of land for ROWs would need to be acquired and developed for electricity transmission (see Sections 4.1 and 5.1). An additional 19 ac would be developed to expand the Milan Substation.	SMALL
<b>External Costs</b>		
Land use	The onsite and offsite land devoted to the proposed Fermi 3 facilities would not be available for other land uses over the operational life of Fermi 3 (see Sections 4.1 and 5.1).	SMALL



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# Environmental Impact Statement for the Combined License (COL) for Enrico Fermi Unit 3

Final Report


Appendix E

U.S. Nuclear Regulatory Commission  
Office of New Reactors  
Washington, DC 20555-0001

Regulatory Office  
Permit Evaluation, Eastern Branch  
U.S. Army Engineer District, Detroit  
U.S. Army Corps of Engineers  
Detroit, MI 48226



**US Army Corps  
of Engineers®**

	
<b>United States Nuclear Regulatory Commission Official Hearing Exhibit</b>	
<b>In the Matter of:</b> DTE ELECTRIC CO. (Fermi Nuclear Power Plant, Unit 3)	
<b>Docket #:</b> 05200033 <b>Exhibit #:</b> NRC000010C-MA-CM01 <b>Admitted:</b> 2/4/2015 <b>Rejected:</b> <b>Other:</b>	<b>Commission Mandatory Hearing</b> <b>Identified:</b> 2/4/2015 <b>Withdrawn:</b> <b>Stricken:</b>

## **Appendix E**

### **Draft Environmental Impact Statement Comments and Responses**

## Appendix E

- Place mats under construction equipment to contain any spills. (0078-9 [Westlake, Kenneth A.] )

**Response:** *The review team agrees that these recommendations would help reduce wetland impacts while the proposed Fermi 3 facilities are being built. Although the NRC cannot require the applicant to implement the recommendations identified in this comment, the EIS has been revised to present the recommendations and describe how they could reduce wetland impacts if implemented. USACE may add special conditions to the Fermi 3 permit, if issued, when such conditions are necessary to comply with the Section 404(b)(1) Guidelines, the ESA, and other applicable statutes, and any requirements imposed by conditions of the State 401 water quality certification or to otherwise satisfy the public interest requirement. Permit conditions would be directly related to the impacts of the proposal, appropriate to the scope and degree of the impacts, and reasonably enforceable. USACE would consider the suggestions for inclusion as special conditions in the Fermi 3 permit, if issued, within the context explained above.*

**Comment:** EPA is pleased to see that all temporary and permanent forest clearings will occur on edges of forest patches and that no further forest fragmentation will occur at the Fermi site. We are also pleased to see that “temporarily disturbed vegetated areas would be revegetated with plants native to the project vicinity once no longer need” (page 4-24, lines 1-2). However, EPA is concerned about the amount of habitat lost in the transmission corridor and due to the proposed expansion of the Substation, at 1,069 and 21 acres, respectively. As outlined under Transmission Corridor and Substation, EPA views these developments as connected actions. Therefore, estimated impacts should be considered when preparing mitigation plans. This includes wetlands mitigation ratios. Recommendation: We recommend that all disturbed habitats are similarly revegetated using native species and that measures of success (e.g., percentages of allowed nonnative invasive species) are discussed in the Final EIS. While we understand that conversion of forested uplands to cleared grasslands is necessary for maintenance of the transmissions towers, we strongly encourage low-growing native plants conducive to periodic mowing be used instead. Clarify whether agricultural fields that will be used for construction staging will be returned to agricultural use or converted to upland habitat. Finally, EPA would like to know the fate of the restored tall grass prairie below the transmission lines on the Fermi site mentioned on page 2-10, lines 4-6. It is unclear if this area will be impacted and, if it is, whether it will be restored and what measures of success will be employed. Because of the low likelihood of successful restoration of tall grass prairies, EPA strongly encourages the Applicant to commit to avoiding this area. Lastly, EPA recommends that the Final EIS indicate what land, if any, will revert to or become part of the Detroit River International Wildlife Refuge. (0078-17 [Westlake, Kenneth A.] )

**Response:** *Although building the transmission lines and expanding the Milan substation are not under NRC’s regulatory jurisdiction and although these facilities would be built and operated by ITCTransmission rather than Detroit Edison, the EIS includes a discussion of the potential*

## Appendix E

*terrestrial impacts from their building and development in Section 4.3.1. The EIS discusses the potential terrestrial impacts from operating the subject facilities as part of Section 5.3.1. The potential effects of building and operating these facilities are also considered in the cumulative evaluation of terrestrial impacts in Section 7.3.*

*The review team agrees that the mitigation recommendations in this comment would help reduce wetland impacts resulting from building the proposed transmission lines and expanded substation. Although the NRC cannot require the applicant to implement the recommendations identified in this comment, the EIS has been revised to present these recommendations and describe how they could reduce wetland impacts if implemented. Part of the expanded discussion will explain how disturbed areas within the transmission line corridor could be revegetated with native species suited to the periodic mowing needed to maintain the transmission lines. Detroit Edison has determined that it would be necessary to build permanent Fermi 3 facilities, principally the new switchyard, using approximately 10 ac of the tallgrass prairie restoration area (Doub 2011). Detroit Edison, as part of its proposed 404(b)(1) analysis (Appendix J of the EIS), determined that the use of the prairie restoration area for the switchyard would contribute to the avoidance of wetlands to the extent practicable and reduce overall project impact on wetlands. Section 4.3.1 of the EIS has been revised to discuss in depth the reasons why the loss of the prairie restoration is unavoidable.*


*Detroit Edison has not indicated what would be done with the agricultural fields once the Fermi 3 facilities are built. Section 4.3.1 of the EIS has been revised to note that the fields could present an opportunity for restoration of the tallgrass prairie lost to building Fermi 3 facilities. However, the review team does not have the authority to require Detroit Edison to implement this mitigation measure.*

*As stated in Sections 4.1.1 and 4.3.1.3, approximately 45 ac on the Fermi site currently managed as part of the DRIWR would be used to develop Fermi 3, of which approximately 19 ac would remain permanently occupied and the remainder (approximately 26 ac) would be only temporarily occupied. As stated in Section 4.3.1.1 of the EIS, Detroit Edison plans to restore all temporarily disturbed land by establishing regionally indigenous vegetation. Detroit Edison plans to revise its cooperative agreement with FWS regarding the approximately 637 ac of natural habitat that it expects to be available for management by DRIWR after Fermi 3 is developed (Detroit Edison 2011a). This acreage would include the approximately 26 ac of restored temporarily disturbed land formerly managed as part of the refuge.*

**Comment:** As noted on page 4-23, lines 20 to 24, NRC staff will prepare the Biological Assessment (BA) under the Endangered Species Act prior to the issuance of the Final EIS. Recommendation: EPA expects to see the BA as an appendix to the Final EIS. Clarify in the Final EIS whether the findings of the U.S. Fish and Wildlife Service's (USFWS) Biological Opinion are incorporated into the Final EIS, and will be incorporated into the NRC license and the USACE ROD. EPA will also look for coordination with the Michigan Department of Natural



NUREG-2105, Vol. 4

	
In the Matter of: (Fermi Nuclear Power Plant, Unit 3)	
DTE ELECTRIC CO. Commission Mandatory Hearing	
Docket #: 05200033	Identified: 2/4/2015
Exhibit #: NRC000010D-MA-CM01	Withdrawn:
Admitted: 2/4/2015	Stricken:
Rejected:	
Other:	

# Environmental Impact Statement for the Combined License (COL) for Enrico Fermi Unit 3

Final Report

Appendices F to M

U.S. Nuclear Regulatory Commission  
Office of New Reactors  
Washington, DC 20555-0001

Regulatory Office  
Permit Evaluation, Eastern Branch  
U.S. Army Engineer District, Detroit  
U.S. Army Corps of Engineers  
Detroit, MI 48226



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## Appendix F



IN REPLY REFER TO:

## United States Department of the Interior

## FISH AND WILDLIFE SERVICE

East Lansing Field Office (ES)  
2651 Coolidge Road, Suite 101  
East Lansing, Michigan 48823-6316

COPY

June 8, 2012

Anthony H. Hsia, Chief  
United States Nuclear Regulatory Commission  
Environmental Projects Branch 2  
Division of New Reactor Licensing  
Office of New Reactors  
Washington, DC 20555-0001

RE: Endangered Species Act Section 7 Consultation for the Fermi 3 Nuclear Power Plant,  
Monroe County, Michigan

Dear Mr. Hsia:

We are in receipt of your cover letter dated March 30, 2012, with the accompanying biological assessment (BA) for the construction and operation of a proposed nuclear power plant. Detroit Edison (DTE) has submitted the application for a combined license (COL) for construction and operation of the proposed Fermi Nuclear Power Plant, Unit 3 (Fermi 3) to be located on approximately 1,260 acres along Lake Erie at the existing Enrico Fermi Nuclear Power in Monroe County, Michigan.

The Fermi site currently has one operating boiling water reactor, Unit 2, and Unit 1 has been defueled and is in the process of being decommissioned. The proposed construction of Fermi 3 is adjacent to the existing facilities in an area that has been previously disturbed. DTE has identified the need for transmission line upgrades and three new transmission line corridors and a separate switchyard. The siting area for the new transmission lines would include Monroe, southwest Wayne, and southeast Washtenaw Counties, Michigan.

Your analysis addresses the potential effects of the project on the federally listed Indiana bat (*Myotis sodalis*), Eastern prairie fringed orchid (*Platanthera leucophaea*), Karner blue butterfly (*Lyciaides melissa samuelis*), Mitchell's satyr (*Neonympha mitchellii mitchellii*), American burying beetle (*Nicrophorus americanus*), Northern riffleshell (*Epioblasma torulosa rangiana*), rayed bean (*Villosa fabalis*), and snuffbox (*Epioblasma triquetra*) mussels. You have also evaluated the potential effects of the project on the candidate Eastern massasauga rattlesnake (*Sistrurus catenatus*).



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You have determined the Fermi 3 project may affect but is not likely to adversely affect the Indiana bat, eastern prairie fringed orchid and the eastern massasauga rattlesnake. We concur with your determination that the construction and operation of the facility may affect, but is not likely to adversely affect the Indiana bat and eastern prairie fringed orchid.

Indiana Bat

In Michigan, summering Indiana bats roost in trees in riparian, bottomland, and upland forests from approximately April through October. Indiana bats may summer in a wide range of habitats, from highly altered landscapes to intact forests. Roost trees vary considerably in size, but those used by Indiana bat maternity colonies are typically greater than 9 inches dbh. Male Indiana bats have been observed roosting in trees as small as 3 inches dbh.

We concur that the proposed on-site actions are not likely to adversely affect the Indiana bat for the following reasons:

- There are currently no known locations of Indiana bats in Monroe County, and there is limited habitat on site.
- Given the small amount of potential habitat on-site, any effect on Indiana bats will be insignificant.

Eastern prairie fringed orchid

The eastern prairie fringed orchid (EPFO) may be found in lakeplain wet or wet-mesic prairie and will also persist in degraded prairie remnants, ditches, railroad rights-of-way, fallow agricultural fields, and similar habitats where artificial disturbance creates a moist mineral surface conducive to germination.

EPFO is not known to occur near the proposed project area. We concur that the proposed action is *not likely to adversely affect* the EPFO for the following reason:

- EPFO has not been observed on-site during the course of site surveys and suitable habitat is lacking.

Based upon this information, any effects on EPFO from this project would be discountable.

Eastern Massasauga Rattlesnake

The eastern massasauga rattlesnake occurs in a variety of wetland systems with adjacent upland habitat. Populations in southern Michigan typically use shallow, sedge- or grass-dominated wetlands, while those in northern Michigan prefer lowland coniferous forests, such as cedar swamps. This species requires open, sunny areas with scattered shade to assist with thermoregulation, but avoids heavily wooded or closed-canopy areas.

The species is currently a candidate under the Act and, as such, does not require consultation under section 7 of the Act. Although the Act does not extend protection to candidate species, we encourage and appreciate their consideration in project planning. Avoidance of unnecessary

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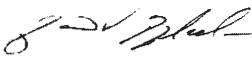
impacts to candidate species will reduce the likelihood that they will require the protection of the Act in the future.

Your BA also evaluated the effects to Karner blue and Mitchell's satyr butterflies, American burying beetle, the northern riffleshell, rayed bean and snuffbox mussels. You determined that the construction and operation of the facility will have "no effect" on these six federally-listed species. Although our concurrence with your "no effect" determination is not required under the Act, we are in agreement with your findings.

You have also made a determination of effects for the 29.4 miles of proposed transmission lines associated with the project. We are not able to concur with your effects determinations for the proposed transmission lines at this time. Your evaluation indicates that terrestrial and/or aquatic surveys for listed species will be conducted once the location of the transmission line corridors has been finalized. We will defer concurrence with your determinations until corridor locations are finalized and we have reviewed the results of future surveys. We also recommend that future surveys include those for the Indiana bat and for listed mussel species at stream crossings when the stream bottom is to be disturbed. Future consultation should be completed prior to submission of Michigan Department of Environmental Quality and/or the Army Corps of Engineers permit applications for stream crossings or wetland fill associated with the transmission line towers.

We appreciate this opportunity to provide comments and look forward to continued coordination in the future if necessary. Any questions should be directed to Mr. Burr Fisher at 517/351-8286 or [burr\\_fisher@fws.gov](mailto:burr_fisher@fws.gov).

Sincerely,

  
*Acting* to Scott Hicks  
Field Supervisor

cc: MDNR, Wildlife Division, Lansing, MI (Attn: Lori Sargent)  
Detroit River International Wildlife Refuge, Grosse Ile, MI (Attn: John Hartig)

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# **Biological Assessment**

**U.S. Fish and Wildlife Service**

## **Enrico Fermi Unit 3 Combined License Application**

**U.S. Nuclear Regulatory Commission Combined License Application**  
Docket No. 52-033

**U.S. Army Corps of Engineers Permit Application**  
Permit Application No. 10-58-0011-P

Monroe County, Michigan

March 2012

U.S. Nuclear Regulatory Commission  
Rockville, Maryland

U.S. Army Corps of Engineers  
Detroit District

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numbers of fish impinged at the plant (AECOM 2009). Overall, it is estimated that 3102 individual fish were impinged by the Fermi 2 cooling water intake during the 2008–2009 sampling period. No Federally listed aquatic species were observed during the impingement study.

### 2.3 Terrestrial Habitats – Transmission Line Corridors

To deliver the power generated by Fermi 3, existing transmission line corridors would need to be upgraded and new corridors, complete with transmission lines and substations, would need to be developed. The proposed and existing transmission line corridor routes are indicated in Figure 2-5.

The need for additional transmission towers and additional right-of-way (ROW) width would be evaluated by ITC *Transmission* when designing the Fermi 3 connection in the future. Detroit Edison expects that Fermi 3 would require three 345-kilovolt (kV) lines in a single 300-ft-wide corridor extending north from the Fermi site and then west to the Milan Substation, for a total distance of about 29.4 mi. The anticipated route crosses portions of Monroe, Wayne, and Washtenaw counties (Figure 2-5).

The first segment (approximately 18.6 mi) follows existing 345-kV lines. North from the Fermi site, this segment of the proposed transmission line corridor follows existing Fermi 2 transmission lines to a point just east of I-75. From there, it runs west and north following other existing non-Fermi lines. Detroit Edison expects that the new transmission infrastructure for this first segment would fit within the existing corridor width already established for the existing transmission lines (Detroit Edison 2011a). In addition, reconfiguration of existing conductors may allow the use of existing transmission infrastructure in places.

The final 10.8 mi of the route would cross agricultural land, forest, and rural residential land. Although ITC *Transmission* has already established this segment of ROW, it would require clearing vegetation for a new ROW and erecting new towers and stringing transmission lines.

The route crosses vegetative cover types similar to those on the Fermi site and its vicinity, but there are no areas of coastal emergent wetlands or coastal forest along the transmission line corridor (Detroit Edison 2011a). ITC *Transmission* has not conducted systematic terrestrial and aquatic surveys for the Fermi 3 lines. Instead, the BA relies on information about the possible occurrence of endangered or threatened species in counties crossed by the transmission lines from FWS records (FWS 2011a) and the Michigan Natural Features Inventory (MNFI) (MNFI 2007a). The route does not cross any areas designated as critical habitat for endangered species.

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## 2.4 Aquatic Habitats – Transmission Line Corridors

Aquatic habitats within or adjacent to the corridor for the transmission lines needed to deliver power from Fermi 3, and identified in Detroit Edison's ER (Detroit Edison 2011a), include several small streams and numerous small drains that transport runoff water from agricultural areas. The undeveloped ROW where new transmission lines will be constructed crosses nine small streams and agricultural drains, but does not cross any lakes, ponds, or reservoirs (Figure 2-5). Stony Creek, which is crossed by the previously developed eastern portion of the assumed transmission line route and would be crossed again by the currently undeveloped portion of the assumed transmission line route, is the largest stream crossed by the transmission line corridor and is described below. Because of the small size of the remaining streams and agricultural drainages present along the presumed transmission line path, information regarding the aquatic species present in these water bodies is not available. There are no areas containing designated critical habitat along the transmission corridor (Detroit Edison 2011a). ITC *Transmission* has not conducted systematic aquatic surveys for the Fermi 3 lines. Instead, the BA relies on information about the possible occurrence of endangered or threatened species in counties crossed by the transmission lines from FWS records (FWS 2011a) and the MNFI (MNFI 2007a).

Although the Fermi site lies entirely outside of the Stony Creek watershed, some transmission line facilities associated with the proposed Fermi 3 development could cross streams located within the Stony Creek watershed. Stony Creek is located generally to the west of the Fermi site in Washtenaw and Monroe Counties, Michigan, and drains directly into the western basin of Lake Erie at a location approximately 3 mi southwest of the Fermi site boundary. Overall, Stony Creek is about 35 mi long and is supported by many more miles of smaller tributaries that comprise the Stony Creek Watershed.

Some biological data have been collected from Stony Creek and its tributaries. The Stony Creek Watershed Project has performed studies focusing on water quality, nutrients, and indicator species, although the majority of the data from these studies were not collected near the Fermi site. A macroinvertebrate survey to assess water quality was conducted in 2004 at several sampling sites along Stony Creek. The nearest sampling site was located approximately 2.5 mi south-southwest of the Fermi site. Data about various hydrological parameters were collected in addition to the macroinvertebrate samples (Gustavson and Ohren 2005). Fish surveys conducted in portions of Stony Creek located in Monroe County during 1997 indicated that the fish community in Stony Creek was dominated by taxa that are tolerant of degraded water quality conditions, although the fish community was rated as acceptable (MDEQ 1998). Dominant species found to be present included green sunfish, rock bass (*Ambloplites rupestris*), common carp, and blackside darter (*Percina maculata*)

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populations of aquatic organisms. Consequently, there would be little to no building-related impact on aquatic resources within these surface water features.

### 3.2 Impacts from Building and Operation in Proposed Transmission Line Corridors

The transmission lines serving Fermi 3 would be owned and operated by ITC *Transmission*. Detroit Edison would not control the development or operation of the new transmission lines. Accordingly, the following discussion is based on publicly available information and reasonable expectations of how ITC *Transmission* would proceed, based on standard industry practice.

#### 3.2.1 Terrestrial Species

##### 3.2.1.1 Building

Building Fermi 3 would necessitate development of three new transmission lines in an assumed 300-ft-wide corridor from the Fermi site to the Milan Substation, a distance of approximately 29.4 mi. The first 18.6 mi (going west and north from Fermi) would be installed alongside the 345-kV lines that are already in place (see Figure 2-5). This 18.6-mi portion of the transmission line would be created largely by the reconfiguration of conductors on existing towers within the transmission ROW, but placement of additional transmission infrastructure may be necessary (Detroit Edison 2011a). A majority of the 18.6-mi portion of the route would cross large crop fields and would result in minimal impacts on habitat and wildlife.

The 10.8-mi portion of ROW between the existing transmission ROW and the Milan Substation would run through forests, rural residential areas, and agricultural fields. For the purpose of this BA, the 10.8-mi portion of the proposed route is presumed to have a ROW that is 300 ft wide. To accommodate erection of new transmission towers, including installation of steel poles, footings, and conductors along this portion of the corridor, Detroit Edison has indicated that acquisition and clearing of additional land adjacent to the existing ROW may be necessary for laydown and other building purposes (Detroit Edison 2011a).

The Milan Substation would probably be expanded from its current size of 350 ft by 500 ft to an area approximately 1000 ft by 1000 ft to accommodate the three new transmission lines from Fermi 3 (Detroit Edison 2011a). This expansion would encroach onto maintained grass and agricultural areas.

The exact locations (routes) for the new ROWs have not yet been finalized by ITC *Transmission*. Thus, the routes and corridor boundaries shown in Figure 2-5 are considered provisional and subject to change (Detroit Edison 2011a). Field surveys for Federally listed threatened and endangered species or species that are candidates for Federal listing have not yet been

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conducted in the proposed corridors. No Federally listed terrestrial species or species that are candidates for Federal listing are known to occur in the affected or directly adjoining habitats, but several Federally listed terrestrial species could potentially use the corridor and adjoining habitats (MNFI 2007a; FWS 2011a). Wetland delineation surveys have not yet been conducted to determine the precise locations and extent of wetlands.

Development of the western 10.8 mi of transmission line corridor would affect approximately 415 ac. Approximately 244 ac of forest, including approximately 74 ac of forested wetlands, would be cleared of trees and other woody vegetation and planted with grass to accommodate the proposed three new 345-kV transmission lines (Detroit Edison 2011a). Other land uses within the proposed transmission line corridor include approximately 9 ac of emergent wetlands, 10 ac with grass or herbaceous cover, and approximately 135 ac of cropland, pasture, and hayfield. Most of the forested wetlands would be converted in the long term to scrub-shrub or emergent wetland types by controlling the regrowth of trees and other woody vegetation during maintenance of the corridor. The total potential permanent impact on wetlands from installation of the towers is expected to be approximately 0.5 ac (Detroit Edison 2011a).

Activities associated with building the new transmission lines would include clearing land, erecting new poles or towers, stringing new conductors, and upgrading existing transmission lines. Figure 2-5 shows the proposed routing for the three new lines in the transmission line corridors.

Impacts on wildlife and habitat from transmission line development would be reduced to the extent practicable by using existing transmission towers and ROWs for approximately 18.6 of the 29.4 mi of its length. Most large wildlife species present are expected to be sufficiently mobile and would temporarily move out of the way to avoid building activity, but smaller ground- and cavity-dwelling animals would be more vulnerable to mortality from land clearing. Wildlife species that favor disturbed vegetation communities would be expected to benefit and use the newly cleared ROW following erection of the transmission lines. The impact on terrestrial wildlife resources would therefore be minor.

ITC *Transmission* would have to mitigate unavoidable permanent wetland impacts to comply with Federal and State regulations. ITC *Transmission* would likely design mitigation measures in consultation with applicable regulatory agencies, including the USACE and MNDR, prior to submitting their permit applications (Detroit Edison 2011a). Prior to applying for permits from USACE and MDNR, ITC *Transmission* would likely have to delineate wetlands and conduct targeted surveys for Federally listed species. ITC *Transmission* could use that information to identify span and tower locations that minimize potential impacts on wetlands and other important habitats. ITC *Transmission* would at that time identify specific locations of towers, construction access routes, and material storage areas.



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their interconnection with the new Fermi 3 switchyard, ITC *Transmission* will exclusively own and operate the offsite lines and other transmission system equipment between the Fermi 3 switchyard and the Milan Substation, and Detroit Edison will not control the building or operation of the transmission system. It is expected that Detroit Edison would contract with ITC *Transmission* to maintain the transmission towers and lines located on Detroit Edison property (Detroit Edison 2011a).

The transmission line corridor route is described in Section 2.4.1.2 of the EIS and is illustrated in Figure 2-5. The three 345-kV lines for Fermi 3 would be built in an east–west common corridor that currently contains transmission lines for Fermi 2 for approximately 5 mi to a point just west of I-75. From this point, the three Fermi-Milan lines would be in a corridor shared with other non-Fermi lines that travel to the west and north for approximately 13 mi. The last 10.8 mi of the proposed corridor that would proceed west to the Milan Substation are currently undeveloped, and no transmission infrastructure exists. This portion of the corridor has been under ITC *Transmission's* control for future transmission development, but vegetation maintenance has been minimal except to remove tall, woody vegetation. According to FWS's National Wetland Inventory mapping, the identified transmission route crosses about 30 wetlands or other waters that may be regulated by the USACE and MDEQ (FWS 2010). The 18.6-mi existing eastern section of the transmission route crosses 12 narrow agricultural drains and small streams; the undeveloped western 10.8-mi section of the route crosses nine drains and small streams.

Impacts of transmission line development on aquatic resources along the eastern 18.6 mi of the transmission line corridor are expected to be small, since the reconfiguration of existing conductors would, for the most part, allow for the use of existing infrastructure (e.g., transmission line towers) to create the new lines, and access for installing additional lines is good because the vegetation has been managed to exclude tall woody vegetation. Existing aquatic habitats in this portion of the corridor would be spanned, and BMPs would be used to protect aquatic habitats crossed by the new lines. This includes, but is not limited to, the use of silt fencing and hay bales, and similar practices to ensure the protection of aquatic habitats in close proximity to building activity. Similarly, agricultural drains and small streams occurring in the undeveloped western corridor are narrow, and it is anticipated that placement of structures within stream channels could be avoided by using tower spans of 700–900 ft (Detroit Edison 2011a). Roads in the vicinity are expected to provide sufficient access to this region of the corridor without the need for building new access roads. There are no aquatic habitats within the area that would be affected by the anticipated expansion of the Milan Substation. Impacts of transmission line development on aquatic habitats within the proposed transmission line corridor would be temporary, easily mitigated, and minor, and no additional mitigation would be necessary.

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it is considered unlikely for the species to occur in the vicinity of the Fermi site for a number of reasons, as presented in Section 4. In addition, most of the area that would be affected by development of the intake structure, barge slip, and the discharge structure for Fermi 3 has been disturbed previously by periodic maintenance dredging. On the basis of this information, the review team concludes that project-related building activities on the Fermi site would have no effect on the rayed bean.

***Snuffbox Mussel***

There are no recent records of occurrence of this species from the Fermi site or environs. Although there are no suitable stream habitats on the Fermi site, there is the potential for suitable habitats to exist in Lake Erie and the host required by this species (logperch, *Percina caprodes*) has been collected near the Fermi site in Swan Creek and in Lake Erie near the South Lagoon (AECOM 2009). The areas in Lake Erie that would be disturbed during the building of Fermi 3 facilities either have been previously disturbed by periodic maintenance dredging or have a clay hardpan substrate (Detroit Edison 2010) rather than the sand, gravel, or cobble substrate preferred by this species. Therefore, it is considered unlikely that this species would be present in the project area. On the basis of this information, the review team concludes that project-related building activities on the Fermi site would have no effect on the snuffbox mussel.

**5.1.2 Transmission Line Corridors**

Although ITC *Transmission* has not finalized the locations of the transmission line corridor or ancillary areas (e.g., laydown areas), Detroit Edison has indicated that the proposed route is the result of past analyses of routes conducted for the development of Fermi 2. The route analysis (Detroit Edison 2009b) followed guidance from the U.S. Department of the Interior and the Federal Power Commission for siting transmission lines. In addition, other criteria were considered to minimize environmental impacts (Detroit Edison 2011a).

**5.1.2.1 Terrestrial Species**

Because ITC *Transmission* has not yet performed on-the-ground field surveys for Federally listed species along the proposed routes, the review team consulted online sources, including the MNFI and the FWS Environmental Conservation Online System, to determine what information is currently available. Once final routes have been determined, ITC *Transmission* is expected to conduct on-the-ground field surveys for each line prior to completing applications for the required USACE and MDNR permits. ITC *Transmission* would likely have to implement BMPs to minimize any potential impacts on Federally listed species and critical habitats during transmission line development activities, based on USACE and MDNR permit conditions (Detroit Edison 2011a).

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The Milan substation is expected to be expanded from its current dimensions of 300 ft by 500 ft to approximately 1000 ft by 1000 ft. All of the area that would be used for the expansion is either cropland or mowed grass. Building an expanded substation would, therefore, have no effect on any of the Federally listed terrestrial species, including species that are candidates for Federal listing.

***Indiana Bat***

The Indiana bat has been observed in Washtenaw and Wayne counties (MNFI 2007a), and this species might occur in suitable habitat along the transmission line corridor. The review team believes that if Detroit Edison limits clearing of forest cover to between October 15 and March 31, it could avoid potentially adverse effects on Indiana bats (FWS 2009b). Detroit Edison and ITC *Transmission* could also avoid adverse effects by conducting surveys of suitable habitat trees similar to the survey conducted on the Fermi site in August 2011. If the results of such a survey failed to locate suitable habitat, the likelihood of Indiana bats being present and affected by building the transmission line would be minimal. Alternately, Detroit Edison or ITC *Transmission* could conduct targeted mist nest surveys of forested areas using an FWS-approved protocol (FWS 2011d) prior to disturbance and proceed only if the surveys reveal that no bats are present. Considering the ability to avoid adverse impacts, the review team concludes that building of the proposed transmission lines may affect, but is not likely to adversely affect, the Indiana bat.

***Eastern Massasauga Rattlesnake***

Because there is no record of occurrence of this species in Monroe County, it is unlikely to occur along the Monroe County segment of the transmission line route. Based on its known distribution, this snake could occur in wetlands and naturally vegetated upland habitats crossed by the Washtenaw County and Wayne County segments of the route. Clearing forested wetlands would be necessary to establish new transmission corridor. Forested wetlands within the transmission line ROW would be converted to emergent or scrub-shrub wetlands for the long term. Because the species favors both open and forested wetlands (MNFI 2007a), conversion of wetland from forested to emergent or scrub-shrub wetland is unlikely to adversely affect the species. The same is true for clearing upland forests for the transmission lines.

The greatest potential for impacts on this snake would be during ground disturbance of naturally vegetated areas to build tower pads and access roads. The eastern massasauga rattlesnake is a mobile snake, and active adults with a length of 2 to 3 ft would likely move out of the way before being crushed by construction equipment. However, ground disturbance of nests or underground hibernation areas could kill or injure individuals. ITC *Transmission* could reduce the potential for impacts by surveying areas subject to ground disturbance prior to clearing and grubbing, delaying work if hibernation areas or nests are discovered, and relocating discovered individuals to nearby naturally vegetated areas. Recognizing the possibility of these simple

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**5.1.2.2 Aquatic Species*****Northern Riffleshell***

Although suitable habitat for the northern riffleshell could be present in some of the streams that would be crossed by the proposed transmission line corridor, it is not expected to occur along the transmission line route because extant populations of this species in Michigan are only known to be present in the Black River in Sanilac County and the Detroit River in Wayne County (Carman and Goforth 2000a). Even if present in streams crossed by the transmission line corridors, building transmission lines for Fermi 3 is not expected to affect the northern riffleshell because aquatic habitats that are crossed by the corridor would be spanned without placement of structures within stream channels and because BMPs would be implemented to protect water quality in aquatic habitats located near building activity. Additional regulatory review of proposed plans for building of the transmission lines, which would be built, owned, and maintained by ITC *Transmission*, would be conducted by MDNR, and potential impacts on water quality are expected to be addressed through mitigation measures and BMPs required under other State- or Federally issued permits. On the basis of this information, the review team concludes that building of transmission lines for Fermi 3 would have no effect on the northern riffleshell.

***Rayed Bean***

No extant populations are known to occur in the stream drainages that would be crossed by the proposed transmission line route. The building of transmission lines for Fermi 3 is not expected to affect the rayed bean because the species has not been reported from the streams that would be crossed by the proposed transmission line corridor; aquatic habitats that are crossed by the corridor would be spanned without placement of structures within stream channels; and BMPs would be implemented to protect water quality in aquatic habitats located near building activity. On the basis of this information, the review team concludes that building transmission lines for Fermi 3 would have no effect on the rayed bean.

***Snuffbox Mussel***

It is not known whether suitable stream habitat or populations of the snuffbox mussel occur along the proposed offsite transmission line corridor. However, no extant populations of this species are known from stream drainages that would be crossed by the transmission lines. It is anticipated that the small streams that would be crossed by the proposed transmission line corridor could be easily spanned without placing structures in stream channels and that BMPs would be implemented to protect water quality in streams during building activities. Additional regulatory review of proposed plans for building the offsite transmission lines, which would be built, owned, and maintained by ITC *Transmission*, would be conducted by MDNR, and potential impacts on water quality are expected to be addressed through mitigation measures and BMPs

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required under other State- or Federally issued permits. On the basis of this information, the review team concludes that building the transmission lines for Fermi 3 would have no effect on the snuffbox mussel.

## 5.2 Operations Impacts

The following paragraphs describe the potential for operations-related impacts on the Federally listed species, including species that are proposed or candidates for Federal listing with the potential to occur on and within the vicinity of the Fermi site and transmission line corridors (see Table 1-1).

### 5.2.1 Fermi Site

#### 5.2.1.1 Terrestrial Species

##### *Indiana Bat*

This species has potential to occur in suitable habitat on the Fermi site. This species might roost and forage in forested and other naturally vegetated suitable habitats on the Fermi site. However, those habitats would not be disturbed by Fermi 3 operations. Therefore, the operation of Fermi 3 would have no effect on the Indiana bat on the Fermi site.

##### *Eastern Massasauga Rattlesnake*

There is no record of occurrence of this species in Monroe County (MNFI 2007a; FWS 2011b); thus, the snake is unlikely to occur on the Fermi site. Therefore, operation of Fermi 3 would have no effect on the eastern massasauga rattlesnake on the Fermi site.

##### *Karner Blue Butterfly*

The Karner blue butterfly has not been seen in Monroe County since 1986 (MNFI 2007a), and the FWS stated that this species is unlikely to occur in the project area (FWS 2011a). MDNR also stated that the probability of the Karner blue butterfly occurring on the Fermi site is very low. Therefore, the review team concludes that the operation of Fermi 3 would have no effect on the Karner blue butterfly on the Fermi site.

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***Mitchell's Satyr Butterfly***

Although MNFI records indicate this insect was observed in Washtenaw County in 2010, according to the FWS, this species is unlikely to occur in the project area (Fisher 2011). Therefore, the review team concludes that the operation of Fermi 3 would have no effect on the Mitchell's satyr butterfly.

***American Burying Beetle***

This species is presumed extirpated from the State and has not been seen in the project area since 1917 (MNFI 2007a). The FWS did not mention this species in its scoping letter (FWS 2009a). Therefore, operation of Fermi 3 would have no effect on this insect on the Fermi site.

***Eastern Prairie Fringed Orchid***

There are no recorded occurrences of this species on or near the Fermi site (MNFI 2007a; FWS 2011a). However, the plant is known mostly from lakeplain prairies around Saginaw Bay and western Lake Erie; therefore, this plant may occur on the Fermi 3 site. Nevertheless, even if specimens occurred in wetland habitats on the site, operations would not disturb wetland habitats. Therefore, the operation of Fermi 3 would have no effect on the Eastern prairie fringed orchid on the Fermi site.

**5.2.1.2 Aquatic Species*****Northern Riffleshell***

There are no recent records of occurrence of this species from the Fermi site or environs. As identified in Section 2.2, there are no streams on the Fermi site with conditions suitable for the northern riffleshell. In addition, the northern riffleshell is a riverine species that would not occur in Lake Erie (Section 2.2). Because there is no suitable habitat for the northern riffleshell on the Fermi site or in adjacent waters of Lake Erie, the operation of Fermi 3, including withdrawal and discharge of cooling water from or into Lake Erie and NPDES-permitted discharges waste water and storm water into onsite water bodies, would have no effect on this species. Further, it is anticipated that water quality would be maintained during operations because (1) the NPDES permit for Fermi 3 would specify allowable concentrations of chemicals in Fermi 3 discharges and would require regular testing to evaluate compliance, and (2) Detroit Edison has stated that the Fermi 3 SWPPP and design features would be used to control stormwater runoff to ensure that sediment loading to Swan Creek is adequately controlled to minimize water quality impacts (Detroit Edison 2011a). On the basis of this information, the review team concludes that operation of Fermi 3 would have no effect on the northern riffleshell.



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***Rayed Bean***

As identified in Section 2.2, there are no streams on the Fermi site with conditions suitable for the rayed bean and it is believed that the species is unlikely to be present in Lake Erie near the Fermi site. Even if the rayed bean was present in the vicinity of the Fermi site, periodic dredging would be unlikely to affect the species within the project area, because the intake bay has been dredged in the past. As a consequence, it is unlikely that the substrate within areas that would periodically require dredging during Fermi 3 operations would be suitable for the rayed bean.

As eggs, unionid mussels are not likely to be affected by entrainment through the cooling water intake because they are not free-floating, but rather develop into larvae within the female. The glochidial stage, during which juvenile mussels attach to a suitable fish host, may be indirectly vulnerable through impingement and entrainment of host species. Post-glochidial and adult stages are not likely to be susceptible to entrainment because they bury themselves in sediment. Fish hosts for the glochidia of the rayed bean could include the Tippecanoe darter (*Etheostoma tippecanoe*), greenside darter (*Etheostoma blennioides*), rainbow darter (*Etheostoma caeruleum*), mottled sculpin (*Cottus bairdi*), and largemouth bass (*Micropterus salmoides*). Of these potential host species, only the largemouth bass was observed in fish collections in Lake Erie near the intake structure or near the discharge from the South Lagoon. Based on impingement studies conducted at the existing Fermi 2 intake in 2008 and 2009, it is estimated that small numbers of largemouth bass individuals (approximately 30) would be impinged annually with the intake pumps for Fermi 3 at full operating capacity (AECOM 2009).

It is anticipated that operation of Fermi 3 would not result in water quality unsuitable for the rayed bean if a population were present in Lake Erie near the Fermi site. Thermal effects associated with cooling water discharge during operation of Fermi 3 would be unlikely to affect mussels, as the discharge ports would direct water upward and not toward the lake bottom. In addition, it is anticipated that suitable water quality would be maintained because (1) the NPDES permit for Fermi 3 would specify allowable concentrations of chemicals in the Fermi 3 discharge and would require regular testing to evaluate compliance, and (2) Detroit Edison has stated that the Fermi 3 SWPPP and design features would be used to control stormwater runoff to ensure that sediment loading to Swan Creek and/or Lake Erie is adequately controlled to minimize water quality impacts (Detroit Edison 2011a). On the basis of the above information, the review team concludes that of the operation of Fermi 3 would have no effect on the rayed bean.

***Snuffbox Mussel***

Although there are no suitable stream habitats on the Fermi site, there is potential for suitable habitats in adjacent areas of Lake Erie and the host required by this species (logperch, *Percina caprodes*) has been collected from the Fermi site at sampling locations in Swan Creek and in



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Lake Erie near the South Lagoon. Even if the snuffbox mussel was present in the vicinity of the Fermi site, periodic dredging would be unlikely to affect the species within the project area, because the intake bay has been dredged in the past. As a consequence, it is unlikely that the substrate within areas that would periodically require dredging during Fermi 3 operations would be suitable for the snuffbox mussel.

As eggs, unionid mussels are not likely to be affected by entrainment through the cooling water intake because they are not free-floating, but rather develop into larvae within the female. The glochidial stage, during which juvenile mussels attach to a suitable fish host, may be indirectly vulnerable through impingement and entrainment of host species. Post-glochidial and adult stages would not be susceptible to entrainment because they bury themselves in sediment. Fish hosts for the snuffbox mussel include the logperch, which was observed in fish collections in Lake Erie near the discharge from the South Lagoon and in Swan Creek. Based on impingement studies conducted during 1991 and 1992, Lawler, Matusky, and Skelly Engineers (1993) estimated that approximately 31 logperch were impinged annually by the Fermi 2 cooling water intake. However, impingement studies conducted during 2008 and 2009 at the Fermi 2 intake did not observe impingement of any logperch (AECOM 2009). Together, these two impingement studies suggest that small numbers of logperch could be impinged by the operation of the cooling water intake for Fermi 3.

It is anticipated that operation of Fermi 3 would not result in water quality unsuitable for the snuffbox mussel if a population were present in Lake Erie near the Fermi site. Thermal effects associated with cooling water discharge during operation of Fermi 3 would be unlikely to affect mussels, as the discharge ports would direct water upward and not toward the lake bottom. In addition, it is anticipated that suitable water quality would be maintained because (1) the NPDES permit for Fermi 3 would specify allowable concentrations of chemicals in the Fermi 3 discharge and would require regular testing to evaluate compliance, and (2) Detroit Edison has stated that the Fermi 3 SWPPP and design features would be used to control stormwater runoff to ensure that sediment loading to Swan Creek and/or Lake Erie is adequately controlled to minimize water quality impacts (Detroit Edison 2011a). On the basis of the above information, the review team concludes that the operation of Fermi 3 would have no effect on the snuffbox mussel.

### 5.2.2 Transmission Line Corridors

#### 5.2.2.1 Terrestrial Species

##### *Indiana Bat*

This species has potential to occur in suitable habitat along the transmission line corridor. This species might roost and forage in forested and other naturally vegetated suitable habitats on the

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Fermi site. However, those habitats would not be disturbed by operation of the Fermi 3 transmission lines. Therefore, the review team concludes that the operation of the Fermi 3 transmission lines would have no effect on the Indiana bat.

***Eastern Massasauga Rattlesnake***

This species may occur in Washtenaw and Wayne counties along the transmission line corridor. However, as discussed above, the eastern massasauga rattlesnake is a mobile snake and active adults with a length of 2 to 3 ft would likely move to avoid temporary impacts associated with transmission line corridor maintenance. Consequently, if Detroit Edison and ITC *Transmission* (1) conduct surveys to identify whether the eastern massasauga rattlesnake or its habitat occur along or adjacent to the proposed transmission line corridors, (2) are flexible in routing to avoid such sites, (3) implement BMPs to minimize impacts, and (4) adhere to Federal and State laws, the review team concludes that operation of the Fermi 3 transmission lines would have no effect on the eastern massasauga rattlesnake.

***Karner Blue Butterfly***

The Karner blue butterfly is listed as endangered and is recognized as potentially occurring in Monroe County (MNFI 2007a). It has not been seen in Monroe County since 1986 (MNFI 2007a; FWS 2011a). This butterfly has not been observed in Washtenaw or Wayne counties (MNFI 2007a) and is unlikely to occur along the proposed route. The review team therefore concludes that operation of the transmission line would have no effect on the Karner blue butterfly.

***Mitchell's Satyr Butterfly***

Although MNFI records indicate this insect was observed in Washtenaw County in 2010, according to the FWS, this species is unlikely to occur in the project area (Fisher 2011). Therefore, the review team concludes operation of the Fermi 3 transmission lines would not affect the Mitchell's satyr butterfly.

***American Burying Beetle***

The last reported observation of this species in the project area was in Washtenaw County in 1917 (MNFI 2007a). The State status of this insect is presumed extirpated. The FWS did not mention this species in its scoping letter (FWS 2009a). Therefore, the review team concludes operation of the Fermi 3 transmission lines would have no effect on the American burying beetle.

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***Eastern Prairie Fringed Orchid***

The Eastern prairie fringed orchid could potentially occur wherever suitable habitat exists along the proposed transmission line route. Therefore, the review team has determined that operation of the proposed project may affect the Eastern prairie fringed orchid in the proposed transmission line corridors. However, if Detroit Edison and ITC *Transmission* (1) conduct surveys to identify whether the Eastern prairie fringed orchid occurs along or adjacent to the proposed transmission line corridors, (2) are flexible in routing to avoid such sites, (3) implement BMPs to minimize impacts associated with vegetation control activities, and (4) adhere to Federal and State laws, the review team concludes operation of the Fermi 3 transmission lines may affect, but would not likely adversely affect, the Eastern prairie fringed orchid.

**5.2.2.2 Aquatic Species*****Northern Riffleshell***

Although suitable habitat for the northern riffleshell could be present in some of the streams that would be crossed by the proposed transmission line corridor, the species is not expected to occur along the transmission line route because extant populations in Michigan are only known to be present in the Black River in Sanilac County and the Detroit River in Wayne County (Carman and Goforth 2000a). Even if present in streams crossed by the transmission line corridors, impacts on the northern riffleshell from maintenance of transmission lines are unlikely, provided that BMPs identified in permits for the transmission lines are implemented. Additional regulatory review and permitting of proposed plans for maintenance of the transmission lines (e.g., for annual vegetation management plans) would be required prior to implementation (Detroit Edison 2011a). On the basis of this information, the review team concludes that operation and maintenance of transmission lines for Fermi 3 would have no effect on the northern riffleshell.

***Rayed Bean***

No extant populations of the rayed bean are known to occur in the stream drainages that would be crossed by the proposed transmission line route. The operation and maintenance of transmission lines for Fermi 3 are not expected to affect the rayed bean because the species has not been reported from the streams that would be crossed by the proposed transmission line corridor, because structures requiring maintenance (e.g., transmission towers) would not be placed in aquatic habitats that are crossed by the corridor, and because BMPs would be implemented to protect water quality in aquatic habitats during maintenance activities such as vegetation management (Detroit Edison 2011a). On the basis of this information, the review team concludes that operation and maintenance of transmission lines for Fermi 3 would have no effect on the rayed bean.

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***Snuffbox Mussel***

It is not known whether suitable stream habitats for, or populations of, the snuffbox mussel occur along the proposed transmission line corridor. However, no extant populations of this species are known from stream drainages that would be crossed by the transmission lines. Even if present, impacts on the snuffbox mussel from the operation and maintenance of transmission lines for Fermi 3 are not anticipated because structures requiring maintenance (e.g., transmission towers) would not be placed in aquatic habitats that are crossed by the corridor, and BMPs would be implemented to protect water quality in aquatic habitats during maintenance activities such as vegetation management (Detroit Edison 2011a). On the basis of this information, the review team concludes that operation and maintenance of transmission lines for Fermi 3 would have no effect on the snuffbox mussel.

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## 7.0 Conclusions

The potential impacts of building and operating the proposed Fermi 3 project, including the associated offsite transmission lines, on Federally listed terrestrial and aquatic species, including species that are candidates for Federal listing are identified in Table 7-1. The known and probable distributions of these species and the potential ecological impacts of building and operation on the species, their habitats, and the species they interact with have been considered in this BA. Building and operating the subject facilities at the Fermi site would not affect any critical habitat listed under the ESA because no designated critical habitat occurs in the vicinity of the Fermi site or along the route for the proposed transmission lines.

Building and operating the proposed Fermi 3 facilities is not likely to adversely affect terrestrial species listed under the ESA, including candidates for Federal listing, if Detroit Edison meets the conditions stated in Section 5.2. The Indiana bat may be affected but is unlikely to be adversely affected because of the lack of suitable habitat for the species on the Fermi site. The eastern massasauga rattlesnake is unlikely to occur on the Fermi site and would not be affected by building and operating the proposed Fermi 3 facilities. The Karner blue butterfly is unlikely to occur in the project area and therefore would not be affected by building and operating the proposed Fermi 3 facilities. The Mitchell's satyr butterfly is unlikely to occur in the project area and therefore would not be affected by building and operating the proposed Fermi 3 facilities. The American burying beetle is presumed extirpated from Michigan and therefore would not be affected by building and operating the proposed Fermi 3 facilities. Habitat for the eastern prairie fringed orchid is not present on the Fermi site. Therefore, building and operating the proposed Fermi 3 facilities would not affect the eastern prairie fringed orchid.

Clearing forest vegetation for new ROWs for proposed transmission lines (a preconstruction activity that is not a part of the NRC action) and operation of the transmission line would not likely adversely affect individuals of terrestrial species indicated in Table 7-1 if Detroit Edison and ITC *Transmission* meet the conditions stated in Section 5.2.

Habitat along the offsite transmission line corridor has not been surveyed for potential Indiana bat habitat and it is possible suitable habitat currently exists. Because Detroit Edison can avoid adverse impacts, building the proposed transmission lines may affect, but is not likely to adversely affect, the Indiana bat. The eastern massasauga rattlesnake could occur within the transmission line corridor. Because Detroit Edison has the ability to reduce impacts on the snake by simple management efforts, building the transmission line may affect, but is unlikely to adversely affect, the eastern massasauga rattlesnake.

## Appendix J

### **U.S. Army Corps of Engineers Public Interest Review Factors and Detroit Edison's Onsite Alternatives Analysis**

This appendix presents (1) a summary of the factors that are considered by the U.S. Army Corps of Engineers (USACE) in its public interest review of applications for a permit to perform regulated activities that would affect waters of the United States and (2) an onsite alternatives analysis prepared by Detroit Edison Company (Detroit Edison) to demonstrate that its proposed site layout chosen for the proposed new Enrico Fermi Unit 3 (Fermi 3) at the Enrico Fermi Atomic Power Plant (Fermi) site would minimize impacts to jurisdictional wetlands and waters of the United States. These topics are addressed in Sections J.1 and J.2 of this appendix, respectively.

#### **J.1 Public Interest Review Factors**

As set forth in Title 33 of the Code of Federal Regulations (CFR) Part 320, a public interest review must be completed prior to any Department of the Army (DA) permit decision by the USACE. The USACE decision on whether to grant or deny a permit is based, in part, on an evaluation of the probable impact of the proposed activity and its intended use on the public interest. This evaluation is referred to as the "public interest review." The public interest review requires a careful weighing of all relevant factors in a particular case. The specific weight of each factor is determined by its importance and relevance to the proposed project. Some public interest review factors may be given greater weight, while others may not be relevant or as important based on project characteristics. The USACE public notice (USACE 2011), the Draft EIS public comment process, DEIS public meetings, and the EIS public scoping process have been the primary methods used to solicit public comment on the project's effect on public interest factors. Full consideration and appropriate weight will be given to all comments, including those of Federal, State, and local agencies, and other experts on matters within their expertise. The benefits and detriments of a project are balanced by considering effects on such public interest factors as conservation, economics, aesthetics, general environmental concerns, wetlands, historic properties, fish and wildlife values, flood hazards, floodplain values, land use, navigation, shore erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs, considerations of property ownership, and, in general, the needs and welfare of the people. The conditions, including compensatory mitigation, under which a proposal would be allowed to go forward,

## Appendix J

would be developed and incorporated within the public interest review process to the extent that such conditions are found to be appropriate and practicable by the USACE. However, only the measures required to confirm that the project is not contrary to the public interest may be required in this specific context. This required public interest review ensures that a USACE permit decision reflects the National concern for both protection and utilization of important resources. The public interest review described above can be found in 33 CFR 320.4 and will be completed by the USACE as part of its evaluation of the Fermi 3 proposal for a DA permit.

### **J.2 Detroit Edison's Onsite Alternatives Analysis and Proposed Least Environmentally Damaging Practicable Alternative (LEDPA)**

Activities involving the discharge of dredged or fill material into waters of the United States, including wetlands, typically require authorization from the USACE under Section 404 of the CWA. The CWA Section 404(b)(1) Guidelines (40 CFR Part 230) (Guidelines) are the substantive criteria the USACE uses to determine a project activity's environmental impact on aquatic resources attributable to the discharge of dredged or fill material. Among other things, an applicant for a 404 permit must demonstrate to the USACE that proposed project-related dredge or fill activities satisfy the Guidelines and constitute the least environmentally damaging practicable alternative (LEDPA). An applicant would typically conduct analyses of the impacts of its proposed actions involving dredge or fill discharges into waters of the United States and of alternatives to avoid and minimize impacts to identify a proposed LEDPA that still allows accomplishment of the overall project purpose and demonstrates compliance with the Guidelines. As part of this process, an applicant would initially submit a conceptual plan to address the mitigation of any remaining unavoidable adverse impacts to aquatic resources that would still occur after all practicable avoidance and minimization measures were applied.

Based on guidance provided by the USACE regarding Guidelines compliance, Detroit Edison conducted an onsite alternatives analysis to identify a practicable alternative that would avoid and minimize adverse impacts to waters of the United States. This analysis includes Detroit Edison's proposed LEDPA and is included at the end of this appendix (Appendix J). USACE has not verified the adequacy of Detroit Edison's proposed LEDPA at this time. However, USACE is actively reviewing and coordinating with Detroit Edison regarding its proposed LEDPA. USACE could potentially identify additional practicable avoidance and/or minimization measures during its evaluation that could result in the USACE-identified LEDPA having fewer adverse impacts on waters of the United States than Detroit Edison's proposed LEDPA, as presented in its analysis. Any subsequent changes to the proposed site plan and/or activities as a consequence of the USACE-identified LEDPA would result in fewer adverse impacts on waters of the United States than identified in the Final EIS.



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To offset the Detroit Edison-identified unavoidable adverse impacts on aquatic resources as a result of its proposed LEDPA, Detroit Edison initially proposed a conceptual mitigation strategy that was included in Appendix K of the Draft EIS. The USACE LRE-2008-00443-1-S11 public notice (USACE 2011) provided additional opportunity for public comment on Detroit Edison's proposed LEDPA and concept mitigation strategy. Detroit Edison subsequently refined its mitigation strategy, based on coordination with USACE, and produced the mitigation plan that is now contained in Appendix K of this Final EIS. Detroit Edison's mitigation plan proposes to compensate for the unavoidable loss of aquatic function on the Fermi site by reestablishing comparable aquatic functions at an offsite location at an average replacement ratio of 3:1. The evaluation of alternative energy sources (e.g., power purchases, demand-side management,

fossil-fuel alternatives, and renewable energy alternatives), alternative sites (Fermi, Belle River–St. Clair, Greenwood, Petersburg, and South Britton), and system design alternatives (including heat dissipation and cooling system alternatives) are discussed in Chapter 9 of this EIS.

Section 4 of Detroit Edison's Joint Permit Application (Detroit Edison 2011), which presents their onsite alternatives analysis and proposed LEDPA determination, is provided in the remainder of this appendix.

## **Appendix M**

### **Environmental Impacts from Building and Operating Transmission Lines Proposed to Serve Fermi 3**

## Appendix M

### Environmental Impacts from Building and Operating Transmission Lines Proposed to Serve Fermi 3

The final environmental impact statement (EIS) presents integrated evaluations of potential environmental impacts from the proposed Fermi 3 facilities, organized by environmental resource. The review team's evaluation of potential environmental impacts from building and operating electrical transmission lines that may be built to serve the proposed Fermi 3 facility is found in those places in the final EIS text that address environmental resources that would be affected by the proposed transmission lines. Offsite transmission lines are not part of the Fermi 3 COL application, and any such lines would be built by ITC *Transmission* rather than Detroit Edison. Under NRC regulations in 10 CFR 50.10(a)(2)(vii), building of transmission lines is a preconstruction activity not subject to the Nuclear Regulatory Commission's regulatory authority. However, many preconstruction activities are within the regulatory authority of local, State, or other Federal agencies, and certain preconstruction activities require a permit from the U.S. Army Corps of Engineers.

This appendix provides a brief roadmap to where in the final EIS environmental impacts from transmission lines are addressed. In the final EIS, the environmental impacts of transmission lines are primarily described in terms of the following resource areas: (1) land use, (2) terrestrial ecology, (3) aquatic ecology, (4) historical and cultural resources, and (5) nonradiological health. The proposed route for the new transmission lines is described in Section 3.2.2.3 and shown in Figure 3-8. Table M-1 lists the sections/subsections of Chapter 2 (Affected Environment), Chapter 4 (Construction Impacts at the Proposed Site), Chapter 5 (Operational Impacts at the Proposed Site), and Chapter 7 (Cumulative Impacts) that contain pertinent information related to the review team's evaluation of potential impacts from the transmission lines.

The review team considered transmission line impacts for all environmental resource areas addressed in Chapters 2, 3, 4, 5, and 7, not just those resources highlighted in Table M-1. However, the discussion for other resources is limited in the final EIS text because construction and operation of transmission lines have limited relevance to impacts on these resource areas.

## Appendix M

**Table M-1.** Sections of the EIS in Which Potential Impacts from Transmission Lines Are Discussed

<b>Resource Area</b>	<b>Affected Environment</b>	<b>Construction and Preconstruction Impacts</b>	<b>Operations Impacts</b>	<b>Cumulative Impacts</b>
Land Use	2.2.2	4.1.2	5.1.2	7.1 <sup>(a)</sup>
Terrestrial Ecology	2.4.1.2	4.3.1.2	5.3.1.2	7.3.1 <sup>(a)</sup>
Aquatic Ecology	2.4.2.2	4.3.1.2	5.3.2.2	7.3.2 <sup>(a)</sup>
Historic and Cultural Resources	2.7.3	4.6.2	5.6 <sup>(a)</sup>	7.5 <sup>(a)</sup>
Nonradiological Health	2.10.4	4.8.1.2 <sup>(a)</sup>	5.8.3, 5.8.4	7.7 <sup>(a)</sup>
Summaries/Conclusions	Figure 2-5, Table 2-9, Table 2-63	Table 4-22, Table 4-23	Table 5-35, Table 5-36	Table 7-3 <sup>(b)</sup>

(a) Only certain parts of the indicated sections are specifically focused on transmission lines.

(b) Although Table 7-3 does not specifically mention transmission lines, the conclusions presented in the table account for transmission line impacts.

In addition, the review team considered the potential impacts of building and operating transmission lines associated with the use of each of the four alternative plant sites evaluated in Sections 9.3.3, 9.3.4, 9.3.5, and 9.3.6. The final conclusions and recommendations, summarized in Chapter 10 and in Tables 10-1, 10-2, and 10-4, regarding environmental impacts for the overall Fermi 3 project also account for potential transmission line impacts.

**CERTIFICATE OF SERVICE**

I hereby certify that a copy of the foregoing “Joint Appendix, Volume I” was deposited by me this 13th day of February, 2017 with the Clerk of the Court for the United States Court of Appeals for the D.C. Circuit by using the appellate CM/ECF system. Counsel for all parties are registered with the CM/ECF system and received service through that method.

/s/ Terry J. Lodge  
Terry J. Lodge  
Counsel for Petitioners

**IN THE UNITED STATES COURT OF APPEALS  
FOR THE DISTRICT OF COLUMBIA CIRCUIT**

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**Case No. 15-1173**

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*BEYOND NUCLEAR,*

Petitioner,

v.

*U.S. NUCLEAR REGULATORY COMMISSION,*

Respondent,

*DTE ELECTRIC COMPANY,*

Intervenor.

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PETITION FOR REVIEW OF FINAL ADMINISTRATIVE ACTION  
OF THE UNITED STATES NUCLEAR REGULATORY COMMISSION

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OF VIOLATION TO DETROIT  
EDISON COMPANY

556	INTERVENOR PRE-FILED HEARING EXHIBIT INTS 007 - DECLARATION OF ARNOLD GUNDERSEN SUPPORTING SUPPLEMENTAL PETITION OF INTERVENORS CONTENTION 15: DTE COLA LACKS STATUTORILY REQUIRED COHESIVE QA PROGRAM.	12/08/09 ML13270A005	1 – 2, 10 - 11	704 - 707
354	INTERVENOR PRE-FILED HEARING EXHIBIT INTS 068, TESTIMONY OF ARNOLD GUNDERSEN SUPPORTING OF INTERVENORS CONTENTION 15: DTE COLA LACKS STATUTORILY REQUIRED COHESIVE QA PROGRAM.	04/30/13 ML13280A282	1 – 3, 8 - 12 16 – 18, 20, 25 – 26, 31 - 35	708 - 726
790	OFFICIAL EXHIBIT - INTS071-00- BD01 - RIVER BEND UNIT 3 FSAR SECTION 17.1: QUALITY ASSURANCE DURING DESIGN.	1-/31/2013 ML13312B103	1	727
389	APPLICANT PRE-FILED EVIDENTIARY HEARING EXHIBIT DTE000047, "NRC3-07-0001, "VOLUNTARY RESPONSE TO RIS 2007-08: PLANS FOR THE SUBMITTAL OF A COMBINED LICENSE APPLICATION FOR THE DTE ENERGY FERMI SITE," DATED MAY 31, 2007	05/31/07 ML071580347	1 to 4	728 - 731
No Record #	Draft Environmental Impact Statement for Enrico Fermi Unit 3 (Vol. 1)	10/01/11 ML11287A108	Cover, p. 3-17	732 - 733
295	MEMORANDUM AND ORDER Denying Reconsideration of the Board's Order Denying Second Motion for Summary Disposition of Contention #8	01/30/13 ML13030A380	1, 5	734 – 735

**UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION**

**Before the Atomic Safety and Licensing Board**

In the Matter of:	)	
	)	Docket No. 52-033
The Detroit Edison Company	)	
(Fermi Nuclear Power Plant, Unit 3)	)	January 11, 2012
	)	
	;	
*	*	*

**MOTION FOR RESUBMISSION OF CONTENTION 10,  
TO AMEND/RESUBMIT CONTENTION 13,  
AND FOR SUBMISSION OF NEW CONTENTIONS 17 THROUGH 24**

Now come Intervenors Beyond Nuclear, *et al.*<sup>1</sup> (hereinafter “Intervenors”), by and through counsel, and move to resubmit Contention 10; to amend and resubmit Contention 13 for admission to these proceedings; and to submit proposed Contentions 17 through 24 for these proceedings.

**INTRODUCTION**

This combined license (COL) proceeding involves the application of Detroit Edison Company (DTE or Applicant) under 10 C.F.R. Part 52, Subpart C, to construct and to operate a GE-Hitachi Economic Simplified Boiling Water Reactor (ESBWR) designated Unit 3, on its existing Fermi nuclear facility site near Newport City in Monroe County, Michigan.

The Draft Environmental Impact Statement was made public on October 28, 2011, and

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<sup>1</sup>In addition to Beyond Nuclear, the Intervenors include: Citizens for Alternatives to Chemical Contamination, Citizens Environmental Alliance of Southwestern Ontario, Don’t Waste Michigan, Sierra Club (Michigan Chapter), Keith Gunter, Edward McArdle, Henry Newnan, Derek Coronado, Sandra Bihn, Harold L. Stokes, Michael J. Keegan, Richard Coronado, George Steinman, Marilyn R. Timmer, Leonard Mandeville, Frank Mantei, Marcee Meyers, and Shirley Steinman.

Mr. Keegan:

In response to your questions we recommend that you review the technical information cited as follows for the ESBWR design:

1. Fuel Enrichment Levels – Refer to ESBWR DCD Tier 2 Chapter 1 Table 1.3-1
2. Positive Void Coefficients – Refer to ESBWR DCD Tier 2 Chapter 4 Sections 4.3 and 4B.3

While Intervenors appreciate Mr. Hale's belated response, a review of his citations proves that nowhere in the Environmental Report or the DEIS is there any discussion of the potential of an accident scenario resulting from a "Positive Void Coefficient". With the ESBWR projected to use enriched fuel at 4.6% U-235 by weight and running at over 4500 MW thermal, and with so many firsts for this reactor design, the public can have little confidence that there are not present the dynamics for an unparalleled disaster. The lack of discussion of an accident scenario encompassing the potential of "Positive Void Coefficient" has been omitted from the NEPA process. NEPA's emphasis on "the importance of coherent and comprehensive up-front environmental analysis. . . ensure[s] informed decision-making to the end that the agency will not act on incomplete information, only to regret its decision after it is too late to correct." *Blue Mtns. Biodiversity Project v. Blackwood*, 161 F.3d 1208, 1216 (9th Cir. 1998). Because critical information has been omitted from the key NEPA disclosure document, Intervenors have no opportunity to conduct their own investigation with experts in engineering, nor to comment meaningfully under NEPA.

**Contention 23:** The high-voltage transmission line portion of the project involves a lengthy corridor which is inadequately assessed and analyzed in the Draft Environmental Impact Statement.

The discussion of the environmental impacts to the approximately 1,000 acres of transmission corridor is deficient in a host of ways. The DEIS admits that 80 wetlands and other



waters would be crossed by Fermi 3's proposed, up to 300-foot wide-transmission line corridor (Table 2-7. Page 2-46), NRC's determination that impacts will be minimal or small is not credible. NRC's analysis of the environmental impacts of the proposed Fermi 3 transmission line corridor is scattered throughout the DEIS, and is thus not coherent, is vague and shallow. NEPA requires a much more coherent, integrated, comprehensive, clear, and in-depth analysis. NRC's analysis flirts with illegal segmentation for not assembling NEPA disclosures associated with the transmission corridor in its own discrete section of the DEIS.

Nowhere in the DEIS are the cumulative impacts compiled in a meaningful way. The shallow descriptions of what is planned simply do not adequately discuss the interconnectedness of the corridor land uses with adjacent land uses. For example, will the transmission line corridor, by cutting down all the trees, and dramatically increasing evaporation, completely transform a wetland into at best intermittently mucky soil? A total change might even result in eradication of virtually all wetland functions. Ephemeral wetlands, for example, are vital frog habitat. By downgrading or destroying wetlands quality, NRC's DEIS must address the issue of whether mitigation should be considered, perhaps by creating wooded wetlands elsewhere. By not meaningfully disclosing mitigation arrangements, NRC's DEIS violates NEPA.

The CEQ's regulations define a project's cumulative impacts as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions." 40 C.F.R. § 1508.7; see also 40 C.F.R. § 1508.25 (requiring that agencies take cumulative impacts into consideration during NEPA review). The regulation states that "[c]umulative impacts can result from individually minor but

collectively significant actions taking place over a period of time." 40 C.F.R. § 1508.7. In that vein, a consideration of cumulative impacts must also consider "[c]losely related and proposed or reasonably foreseeable actions that are related by timing or geography." *Vieux Carre Prop. Owners, Residents, & Assocs., Inc. v. Pierce*, 719 F.2d 1272, 1277 (5th Cir.1983). The transmission corridor is an example of this to-be-avoided piecemealing, whereby the environment suffers death by a thousand clearcuts in the shadow cast by obscurity.

The record compiled by the agency must be sufficient to determine the mitigation measures being used to compensate for adverse environmental impacts stemming from the original proposal that, unmitigated, would be significant. *Spiller v. White*, 352 F.3d 235, 241 (5th Cir.2003) (quoting *Cabinet Mountains Wilderness v. Peterson*, 685 F.2d 678, 682 (D.C.Cir.1982)). Although proposed mitigation measures need not be laid out to the finest detail, even within the more labor-intensive context of an environmental impact statement, *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 352, 109 S.Ct. 1835, 104 L.Ed.2d 351 (1989) it is still required "that mitigation be discussed in sufficient detail to ensure that environmental consequences have been fairly evaluated." *Miss. River Basin Alliance v. Westphal*, 230 F.3d 170, 176-77 (5th Cir.2000) (quoting *Robertson*, 490 U.S. at 352, 109 S.Ct. 1835). Hence an EIS involving mitigation must include "a serious and thorough evaluation of environmental mitigation options for [a] Project to allow its analysis to fulfill NEPA's process-oriented requirements [.]” *Miss. River Basin Alliance*, 230 F.3d at 178.

On page 2-10, NRC admits that ITC Transmission has not yet even chosen the exact route for Fermi 3’s offsite transmission line corridor. Thus, “Detroit Edison expects that the remaining 10.8 miles [of new transmission line corridor], extending to the Milan Substation, would be built

within an undeveloped right-of-way (ROW)...No data are available on existing land uses in the anticipated 10.8-mi undeveloped ROW segment, but the review team expects that it crosses mostly agricultural and forest lands and scattered wetlands...[and] the route likely crosses some prime farmland.” This begs the question as to why the public is being asked to comment on such a half-baked DEIS, based on a half-baked ER, based on a half-baked ESBWR design and new reactor proposal? Not knowing the corridor route effectively makes environmental impact analysis impossible. DTE should be made to disclose precisely where the transmission line corridor will be, before this proceeding continues any further. NRC cannot attempt to duck its responsibilities under NEPA by echoing DTE, that the transmission line corridor belongs to ITC Transmission (as at 2.4.1.2 Terrestrial Resources – Transmission Lines, page 2-45). This is a new atomic reactor proposal. The transmission line corridor proposal is part and parcel of the Fermi 3 proposal under NEPA.

NRC reports that “the final western 10.8 miles of transmission lines would be built in an undeveloped segment of an existing transmission ROW...Some transmission tower footings were installed there as part of earlier plans but were never used.” NRC reports that the proposed new Fermi 3 transmission line corridor would cross open water, deciduous forest, evergreen forest, mixed forest, grassland, 93.4 acres of woody wetlands, and 13 acres of emergent herbaceous wetland. (Table 2-7, Vegetative Cover Types in the Proposed 29.4-mi Transmission Corridor, page 2-46). This shows what is at stake – major impacts, or perhaps even complete destruction, to irreplaceable habitat, vital for the viability of endangered and threatened species, as well as overall ecosystem health. At 4-2, “Vegetative Cover Types Occurring in the Undeveloped 10.8-mi Segment of the Transmission Line Corridor” (page 4-28), DEIS Table 4-2

repeats the sensitive vegetative cover forms at risk from the proposed Fermi 3 transmission corridor: 170 acres of deciduous forest, 74 acres of woody wetlands, and 9 acres of herbaceous emergent wetlands.

Evidently earlier transmission tower footings were previously installed for no good reason whatsoever, for projects that were never completed. Those footings did environmental harm, for no good reason. Presumably, they cannot be used now as part of the current proposal, but would have to be replaced, doubling that earlier, unnecessary impact, and risking that, if and when Fermi 3 is cancelled midstream, yet more unnecessary damage will have been inflicted on vital habitat and important species. This would be the antithesis of NEPA's purpose, to fully consider all aspects of major federal actions (such as NRC's approval of DTE's Fermi 3 plans) in advance, so that unnecessary damage to the environment can be avoided.

Although the NRC DEIS does mention that the platforms for the towers along the transmission line corridor will cover a relatively small area, NRC's DEIS nonetheless does not quantify changes to wetlands. For example, how much fill will be done? How much wetland will be destroyed? Such questions must be answered, in detail, now, not later, to fulfill NEPA's purposes under law.

NRC's DEIS section 2.4.1.4 Important Terrestrial Species and Habitats – Transmission Lines (page 2-60) also reports the high biological stakes. Important species may occur along transmission lines, “but because the exact route of the corridor has not been finally determined, no surveys have yet been conducted to confirm the presence of any species.” Again, the risks of irreparable harm are increased due to DTE's half-baked plans, as well as NRC's premature DEIS. However, table 2-9 (page 2-61) shows state-listed and federally-listed species which inhabit the

counties (Monroe, Washtenaw, Wayne) that would be crossed, including over 80 plant species, 8 insect species, 2 amphibian species, 4 reptile species (including the Eastern Fox Snake), a dozen bird species, and 2 mammal species. The Michigan Dept. of Natural Resources (MDNR/now DNRE) has not provided concurrence for the project to proceed, because DTE has provided no details about the transmission line corridor route for determining the damage that would be done to threatened and endangered species and their habitats. MDNR has identified five State-listed species likely present on the Fermi site, which could also be present along the proposed Fermi 3 transmission corridor. In addition to all of the above, the U.S. Fish and Wildlife Service has identified the eastern massasauga snake as a candidate species potentially inhabiting Washtenaw and Wayne Counties, and thus, at risk along the proposed new transmission corridor.

The DEIS refers to effects on major species. The Eastern Fox Snake is mentioned. Intervenors have raised contentions about the impacts on the endangered/threatened Eastern Fox Snake in the Fermi 3 COLA proceeding. There is valid concern that damage to, or destruction of, ephemeral and/or forested wetlands by Fermi 3's proposed transmission line corridor will deal a fatal blow to endangered and/or threatened species, including the Eastern Fox Snake.

At page 5-22. NRC's DEIS states (lines 22 to 32):

The Endangered Species Coordinator for the Michigan Department of Natural Resources (MDNR) has not yet reviewed Detroit Edison's proposed Habitat and Species Conservation Plan for the eastern fox snake, and has not yet commented on whether the plan's mitigation measures would be adequate to protect the eastern fox snake (Hoving 2010). The Coordinator stated, however, that monitoring of the eastern fox snake population during and after building of Fermi 3 could help determine whether the direct impacts from increased traffic warranted additional mitigation measures. An example of mitigation for traffic mortality impacts, if needed, would be installing fences along roads to serve as barriers to the snake and reduce the likelihood of snakes being hit by vehicles. Monitoring and implementing any necessary mitigation measures, as discussed in Section 5.3.1.1, would likely hold the effects on the eastern fox snake from project operation to minimal levels.

Given the lingering doubts and uncertainties about the well being of the endangered/threatened Eastern Fox Snake, it is essential that any negative impacts from the proposed Fermi 3 transmission line corridor be comprehensively and completely understood, so they can be prevented in the first place.

At 1.1.2 (page 1-6) Preconstruction Activities, NRC states that constructing transmission lines are preconstruction activities not needing its NEPA approval. The DEIS at page 3-22 states, “Activities associated with transmission line corridors are also considered preconstruction.” This implies an explanation for the inadequate transmission corridor analysis: the lead agency simply doesn’t care.

At 2.4.2.2 Aquatic Habitats – Transmission Lines (2-80), NRC joins DTE in a disconcerting dismissal of issues of species diversity – and the importance of the habitats on which those species depend – merely because the streams the transmission line corridor would cross are small. Also dismissed is the ecological significance of small drainages and their intermittent flows. Such habitat is vital for frogs and other critical reptilian species that serve as food for species higher up the food chain.

As reported at the DEIS at Page 2-64, the transmission lines would cross important habitats: 30 wetlands or other waters that may be regulated by the USACE and/or MDEQ, according to FWS National Wetland Inventory mapping. Several of the wetlands would require the placement of a transmission tower or pole within the wetland itself. The wetlands include woody and emergent herbaceous habitat. At 2.4.2.4, “Important Aquatic Species and Habitats – Transmission Lines” (page 2-123), NRC admits that “it is not known whether suitable habitat or populations of species identified in Table 2-16 occur in portions of the drainage that would be

crossed by the proposed transmission route. The FWS and MDEQ may require surveys of the proposed transmission line corridor to evaluate the presence of important species and habitat.”

Again, this is evidence that NRC’s DEIS, as with DTE’s ER and COLA, is premature. Table 2-16 shows what is at stake. The listed federal and state species include 16 species of mollusks, and 17 species of fish (pages 2-99 to 2-100).

There is no discussion in the DEIS of whether the wetlands in the transmission corridor are connected to close-by wetlands, themselves not under power lines or impacted by other human activities, and what effect denuding the forested wetlands of trees in the transmission corridor will have on overall wetland units in the ecosystem, such as “greenways” for species movement and hence genetic diversity. There is no clear, long-term management plan articulated in the DEIS. It is clear that the deforestation will be an indefinitely long, or even permanent, condition. Although herbicides designed for use in wetlands are mentioned, no specifics are given. The impact of these biocides on species inhabiting the corridor is thus impossible to analyze, given the lack of specificity. The downgrade in the ecological quality and quantity (or even permanent loss and complete destruction) of forested wetlands in an extended area along the Fermi 3 transmission line corridor is a major ecosystem impact, which currently goes unreflected. For example, at Wetlands and Floodplains (page 5-24), NRC states:

Vegetation management actions may include, but are not limited to, pruning, wall trimming, tree removal, mowing, and herbicide application... Wetlands within the corridor that have the potential to regenerate in forest vegetation are expected to be manually cleared of woody vegetation periodically for line safety clearance, thereby being kept in a low-growing scrub/shrub or emergent wetland state... Detroit Edison expects that ITC Transmission would minimize the use of pesticides in wetland portions of the transmission corridor (Detroit Edison 2010b).

Thus, the damage appears to be permanent. Detroit Edison “expects,” but is not certain, that



pesticide usage would be minimized. The permanence of the damage is again documented at 4.1.2, “Transmission Line Corridors and Other Offsite Facilities:” “...in forested areas, the corridor would remain cleared.” (page 4-8).

At page 2-47, “Existing Natural and Human-Induced Ecological Effects on the Transmission Corridor”, NRC admits “Corridor maintenance, including the removal of undesirable vegetation by mechanical means and herbicides, imposes stress on terrestrial resources.” But vegetation is desirable from a habitat and biological diversity perspective. The proposed Fermi 3 transmission corridor will inflict permanent damage on habitat, such as wetlands and forest, vital for protecting and preserving biological diversity, such as the survival of threatened and endangered species. The permanence of this destruction of habitat is documented at 3.4.2.2 Power Transmission System (page 3-31): “During operation of Fermi 3, the power transmission line system would need to be maintained free of vegetation by ITC Transmission. Vegetation removal activities would include trimming and application of herbicides periodically and on an as-needed basis along the transmission line corridor.”

At 3.3.1.8, “Transmission Line Corridors” (page 3-26), NRC admits that:

Installing transmission lines would require the removal of trees and shrubs along portions of the transmission line corridor, movement of construction equipment, and shallow excavation for the foundations of the transmission line towers... The 10.8 mi corridor to the Milan substation is currently undeveloped, and building this portion of the line could disturb 393 ac of mostly forested and agricultural lands. A total of 1069 ac of land would be occupied by the 29.4 mi long transmission line corridor.

There is no commitment documented in NRC’s DEIS that DTE and/or ITC Transmission will use the best available science in assessing damage and management planning along its proposed Fermi 3 transmission line corridor. There is also little to no discussion of best available science or best available technology to prevent or mitigate ecological harm caused by the proposed new

transmission line corridor.

Any inventory of the loss of wetlands functions due to damage done by the Fermi 3 transmission corridor is woefully inadequate, disjointed, and largely non-existent. These impacts on the ecosystem represent a significant change in the character of wetlands habitat, which is not captured by the DEIS.

An ironic part of the Fermi 3 transmission line corridor proposal is the plan to destroy restored prairie at/near the Fermi site. At 3.3.1.9, "Switchyard" (page 3-26), NRC reports: "Detroit Edison would build a new switchyard containing three 345-kV transmission lines to transport to (sic) power generated by Fermi 3. The Fermi 3 switchyard would be constructed on 10 ac of the prairie restoration area at the intersection of Fermi Drive and Toll Road (shown as "28" on Figure 3-2). The irony is that DTE often brags about its ecological "good citizenship," such as "nature preserves" it has established. For example, at both the NRC environmental scoping public meeting in January 2009, and again at the NRC DEIS public comment meeting in December 2011, DTE set up a large, glossy "informational display" in the lobby about its efforts to preserve and protect the environment in the Fermi plant vicinity. But this is mere PR green-washing, belied by DTE's readiness to destroy restored prairie to build a switchyard for Fermi 3. The DEIS does not disclose why the prairie was restored in the first place, nor what the history was that prompted DTE to preserve/restore it. If it were to mitigate other ecological destruction associated with the Fermi nuclear plant, DTE in its ER, and NRC in its EIS, surely must disclose those facts, as well as relevant laws, regulations, and commitments made to local, state, and/or federal government agencies.

NRC is required in its DEIS to describe in detail permits that are required, including

CWA 404 and Michigan state laws. State-required permits are needed since Michigan is deputized to enforce the Clean Water Act on inland wetland areas. Sufficient detail is missing currently from NRC's DEIS on these legal and regulatory matters.

The DEIS, at 2.7.3, "Historic and Cultural Resources within the Transmission Line Corridor," (page 2-205), raises social and environmental justice, as well as human rights and religious freedom issues. Also implicated are various treaty rights, established by treaties signed between the U.S. federal government and various Native American nations. These treaties, after all, are the highest law of the land, equal in stature to the U.S. Constitution itself. At page 2-206, again reflecting the premature nature of the DEIS, as well as the half-baked nature of the Fermi 3 proposal writ large (including its proposed new transmission corridor), NRC admits that "Efforts to identify cultural resources along the proposed transmission line route were limited..." Hence, culturally significant sites could be bulldozed by DTE and ITC Transmission for the Fermi 3 transmission line corridor, without the public or affected Native nations even knowing that culturally significant sites were at risk.

Table 2-63 on page 2-206 shows that the proposed new segment of the transmission line corridor would impact five "archaeological" or "prehistoric" sites, three of which are of unidentified prehistorical significance, two of which are identified as Late Woodland, and one of which is identified as Woodland. Given the lack of adequate NRC outreach and government to government consultation with affected units of Indian government, NRC's determination that these impacted sites are insignificant is entirely inappropriate. Affected tribal governments should be contacted, and allowed to determine for themselves the significance of these identified sites. To do otherwise in the year 2011 is entirely unacceptable, given the religious significance of burial

and other sacred sites to Native American Nations, for instance, as protected under law.

Compliance with the National Historic Preservation Act does not preclude the need to comply with NEPA with regard to impacts on historic and cultural aspects of the environment. Therefore, impacts on proposed historic districts must be evaluated and, if necessary, mitigation measures undertaken. *Philadelphia Electric Co.* (Limerick Generating Station, Units 1 & 2), LBP-83-11, 17 NRC 413, 435 (1983). See also *Hydro Resources, Inc.*, LBP-05-26, 62 NRC 442, 472 (2005) (To comply with NEPA in this regard, “an agency must reasonably (1) consider the historic and cultural resources in the affected area; (2) assess the impact of the proposed action, and reasonable alternatives to that action, on cultural resources; (3) disseminate the relevant facts and assessments for public comment; and (4) respond to legitimate concerns.”).

**Contention 24:** The public health effects and impacts from routine, licensed radiological emissions in air and water from the proposed Fermi 3 have been inadequately assessed, analyzed and disclosed in the Draft Environmental Impact Statement, in violation of NEPA.

About a quarter mile downstream of the Fermi 3 the cooling water intake and discharge pipe facilities planned for construction are two public water supply intakes on Lake Erie: the Frenchtown Water Plant, which uses 8 million gallons per day (MGD), and the Monroe County Water Plant, which uses 7.5 MGD (Frenchtown Charter Township 2010; AWWA 2009). The impacts of these two water plants and the other projects listed in Table 7-1 of the DEIS are considered in the analysis in Sections 4.2 and 5.2 and would not be detectable or would be so minor that they would not affect surface water use.

Because the chemical contents of the water vapor emitted from the cooling towers is unknown, there is a consequent omission to analyze the environmental impact of the contents of

Cite as 70 NRC 227 (2009)

LBP-09-16

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

## ATOMIC SAFETY AND LICENSING BOARD

## Before Administrative Judges:

Ronald M. Spritzer, Chairman  
Michael F. Kennedy  
Randall J. Charbeneau

In the Matter of

Docket No. 52-033-COL  
(ASLBP No. 09-880-05-COL-BD01)DETROIT EDISON COMPANY  
(Fermi Nuclear Power Plant,  
Unit 3)

July 31, 2009

This 10 C.F.R. Part 52 proceeding concerns the application of Detroit Edison Company (DTE) to construct and to operate a new boiling water reactor on its existing Fermi nuclear facility site near Newport City in Monroe County, Michigan. The proposed reactor is designated Unit 3 and would employ the GE-Hitachi Economic Simplified Boiling Water Reactor (ESBWR) design. The Licensing Board ruled that all the Petitioners met the necessary prerequisites for the Board to grant a hearing request by establishing standing to intervene in the proceeding and advancing, in part, four admissible contentions.

**RULES OF PRACTICE: STANDING; 50-MILE PROXIMITY  
PRESUMPTION**

NRC's proximity presumption does not disregard contemporaneous judicial concepts of standing, as suggested by the Applicant, but rather the Commission applied its expertise to determine that persons living within a 50-mile radius of a nuclear reactor "face a realistic threat of harm if a release of radioactive material were to occur from the facility." *Calvert Cliffs 3 Nuclear Project, LLC* (Calvert

we refer the reader to our ruling on Contention 6, *see supra* at p. 278, and do not further address these issues.

One exception is in regard to the Petitioners' concerns of health impacts from emissions from the cooling tower stacks and associated microorganisms. In support of this part of the contention, the Petitioners provide lengthy excerpts from the Applicant's ER, which in turn concludes that the human health impacts are localized and small. The Petitioners do not draw conflict with this conclusion nor do they challenge the methodology or analysis that led to the results summarized in the ER. No expert support is provided for this contention except for citations to the ER itself, and none of the conclusions from the ER are disputed in the contention; both of which are requirements needed for an admissible contention. *See* 10 C.F.R. § 2.309(f)(1)(v) and (vi).

For the reasons stated herein, and those provided for denying the admissibility of Contention 6, *supra* at p. 278, the Board finds Contention 14 inadmissible.

## VI. CONCLUSION AND ORDER

Based, therefore, upon the preceding findings and rulings, it is, this 31st day of July 2009, ORDERED as follows:

A. Petitioners Beyond Nuclear, Citizens for Alternatives to Chemical Contamination, Citizens Environmental Alliance of Southwestern Ontario, Don't Waste Michigan, Sierra Club, Keith Gunter, Edward McArdle, Henry Newman, Derek Coronado, Sandra Bihn, Harold L. Stokes, Michael J. Keegan, Richard Coronado, George Steinman, Marilyn R. Timmer, Leonard Mandeville, Frank Mantei, Marcee Meyers, and Shirley Steinman are admitted as parties in this proceeding and their Request for Hearing and Petition to Intervene are granted. A hearing is granted with respect to Contention 3 and Contention 8 as narrowed by the Board; and Contention 5 and Contention 6 are admitted in part and denied in part, as set forth herein. We found all the remaining contentions advanced by the Petitioners inadmissible.

B. This Order is subject to appeal to the Commission in accordance with the provisions of 10 C.F.R. § 2.311. Any petitions for review meeting applicable requirements set forth in that section must be filed within ten (10) days of service of this Memorandum and Order.

It is so ORDERED:

THE ATOMIC SAFETY AND  
LICENSING BOARD

Ronald M. Spritzer, Chairman  
ADMINISTRATIVE JUDGE

Michael F. Kennedy  
ADMINISTRATIVE JUDGE

Randall J. Charbeneau  
ADMINISTRATIVE JUDGE

Rockville, Maryland  
July 31, 2009

Copies of this notice and order were sent this date by the agency's E-Filing system to the counsel/representatives for (1) Applicant Detroit Edison Company; (2) Petitioners Beyond Nuclear *et al.*; and (3) NRC Staff.



Cite as 75 NRC 742 (2012)

LBP-12-12

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**ATOMIC SAFETY AND LICENSING BOARD**

**Before Administrative Judges:**

**Ronald M. Spritzer**, Chairman  
**Dr. Anthony J. Baratta**  
**Dr. Randall J. Charbeneau**

In the Matter of

**Docket No. 52-033-COL**  
**(ASLBP No. 09-880-05-COL-BD01)**

**DETROIT EDISON COMPANY**  
**(Fermi Nuclear Power Plant,**  
**Unit 3)**

**June 21, 2012**

This 10 C.F.R. Part 52 proceeding concerns the application of Detroit Edison Company (DTE) to construct and to operate a new boiling water reactor on its existing Fermi nuclear facility site near Newport City in Monroe County, Michigan. The proposed reactor is designated Unit 3 and would employ the GE-Hitachi Economic Simplified Boiling Water Reactor (ESBWR) design. The Licensing Board granted the Intervenor's motion for leave to file ten new or amended contentions but denied the contentions as inadmissible.

**RULES OF PRACTICE: NEW OR AMENDED CONTENTIONS,  
GOOD CAUSE**

A delay caused by the schedule of counsel in other matters can support a finding of good cause. *See Carolina Power & Light Co.* (Shearon Harris Nuclear Power Plant), LBP-00-19, 52 NRC 85, 92 (2000).

reactivity.”<sup>182</sup> In other words, the General Design Criteria require that the reactor exhibit a negative void coefficient in the power operating range. Consistent with this requirement, the DCD for the ESBWR shows that throughout core life the ESBWR exhibits a negative void coefficient.<sup>183</sup> Thus, there was no need for the DEIS to discuss accidents “encompassing the potential of ‘Positive Void Coefficient’” because the design does not exhibit such a characteristic. Here also, Intervenor fail to demonstrate a genuine dispute of material fact with the DEIS, as required by section 2.309(f)(1)(vi).

## **I. Contention 23**

Proposed Contention 23 reads as follows:

The high-voltage transmission line portion of the project involves a lengthy corridor which is inadequately assessed and analyzed in the Draft Environmental Impact Statement.

Intervenors allege that the discussion in the DEIS of “the environmental impacts to the approximately 1,000 acres of transmission corridor is deficient in a host of ways.”<sup>184</sup> They characterize the DEIS’s treatment of the topic as scattered, incoherent, shallow, and lacking a meaningful discussion of cumulative impacts or mitigation alternatives.<sup>185</sup>

### **1. Timeliness**

Both the NRC Staff and the Applicant argue that Contention 23 is not based on new or materially different information.<sup>186</sup> Rather, as the Applicant states, “the Intervenor’s challenges could have and should have been made in response to the ER.”<sup>187</sup> The Staff provides an exhaustive list of citations to portions of the ER that address the impacts of the proposed transmission corridor.<sup>188</sup>

Intervenors do not establish that the contention is based on any data or conclusions in the DEIS that are significantly different from those in the ER. We are satisfied that each of the issues that comprise the subject matter of the contention was discussed in the ER, including the route of the transmission

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<sup>182</sup> 10 C.F.R. Part 50, Appendix A, GDC 11.

<sup>183</sup> ESBWR DCD § 4.3.1.1, at 4B-5 to 4B-6.

<sup>184</sup> Motion to Admit at 41.

<sup>185</sup> *Id.* at 42-43.

<sup>186</sup> NRC Staff Answer at 56-57; Applicant Answer at 56-58.

<sup>187</sup> Applicant Answer at 58.

<sup>188</sup> NRC Staff Answer at 56 n.27.

corridor<sup>189</sup> and impacts from the corridor on historic and cultural resources,<sup>190</sup> on endangered or threatened species,<sup>191</sup> and on wetlands and vegetation.<sup>192</sup> Rather than put forward any information to show how the DEIS differs from the ER, Intervenor at several points acknowledge that the DEIS's treatment of the transmission corridor echoes the ER.<sup>193</sup> Because Contention 23 is not based on new or materially different information, it is not timely under section 2.309(f)(2). Nor have the Intervenor justified their nontimely filing under section 2.309(c).

## **2. Admissibility Requirements Under 10 C.F.R. § 2.309(f)(1)**

Although Contention 23 is untimely, it raises substantial questions concerning the adequacy of the DEIS that the NRC Staff should carefully consider in preparing the FEIS.

Intervenor present a number of criticisms of the DEIS's limited evaluation of the environmental impacts of the transmission line corridor. For example, Intervenor emphasize that substantial construction will take place in undeveloped wetlands, forests, and grasslands:

NRC reports that "the final western 10.8 miles of transmission lines would be built in an undeveloped segment of an existing transmission ROW . . . Some transmission tower footings were installed there as part of earlier plans but were never used." NRC reports that the proposed new Fermi 3 transmission line corridor would cross open water, deciduous forest, evergreen forest, mixed forest, grassland, 93.4 acres of woody wetlands, and 13 acres of emergent herbaceous wetland. (Table 2-7, Vegetative Cover Types in the Proposed 29.4-mi Transmission Corridor, page 2-46). This shows what is at stake — major impacts, or perhaps even complete destruction, to irreplaceable habitat, vital for the viability of endangered and threatened species, as well as overall ecosystem health. At 4-2, "Vegetative Cover Types Occurring in the Undeveloped 10.8-mi Segment of the Transmission Line Corridor" (page 4-28), DEIS Table 4-2 repeats the sensitive vegetative cover forms at risk from the proposed Fermi 3 transmission corridor: 170 acres of deciduous forest, 74 acres of woody wetlands, and 9 acres of herbaceous emergent wetlands.<sup>194</sup>

Intervenor also stress potential impacts to threatened and endangered species:

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<sup>189</sup> ER at 3-57.

<sup>190</sup> *Id.* at 4-19 to -22.

<sup>191</sup> *Id.* at 4-51 to -52.

<sup>192</sup> *Id.* at 4-12 to -16.

<sup>193</sup> See Motion to Admit at 44 ("NRC cannot attempt to duck its responsibilities under NEPA by echoing DTE"); Reply at 23 ("The DEIS (and before it, the ER) segmented the transmission line part of Fermi from the rest of the project.").

<sup>194</sup> Motion to Admit at 44-45.

NRC's DEIS section 2.4.1.4 Important Terrestrial Species and Habitats — Transmission Lines (page 2-60) also reports the high biological stakes. Important species may occur along transmission lines, “but because the exact route of the corridor has not been finally determined, no surveys have yet been conducted to confirm the presence of any species.” . . . [T]able 2-9 (page 2-61) shows state-listed and federally-listed species which inhabit the counties (Monroe, Washtenaw, Wayne) that would be crossed, including over 80 plant species, 8 insect species, 2 amphibian species, 4 reptile species (including the Eastern Fox Snake), a dozen bird species, and 2 mammal species. The Michigan Dept. of Natural Resources (MDNR/now DNRE) has not provided concurrence for the project to proceed, because DTE has provided no details about the transmission line corridor route for determining the damage that would be done to threatened and endangered species and their habitats. MDNR has identified five State-listed species likely present on the Fermi site, which could also be present along the proposed Fermi 3 transmission corridor. In addition to all of the above, the U.S. Fish and Wildlife Service has identified the eastern massasauga snake as a candidate species potentially inhabiting Washtenaw and Wayne Counties, and thus, at risk along the proposed new transmission corridor.<sup>195</sup>

Intervenors further argue that maintenance of the transmission corridor will continue to impact wetlands and other environmental resources after construction is completed. They note that, according to the DEIS, “[d]uring operation of Fermi 3, the power transmission line system would need to be maintained free of vegetation by ITC Transmission. Vegetation removal activities would include trimming and application of herbicides periodically and on an as-needed basis along the transmission line corridor.”<sup>196</sup> Intervenors complain of the failure to analyze the environmental consequences of these actions:

It is clear that the deforestation will be an indefinitely long, or even permanent, condition. Although herbicides designed for use in wetlands are mentioned, no specifics are given. The impact of these biocides on species inhabiting the corridor is thus impossible to analyze, given the lack of specificity. The downgrade in the ecological quality and quantity (or even permanent loss and complete destruction) of forested wetlands in an extended area along the Fermi 3 transmission line corridor is a major ecosystem impact, which currently goes unreflected.<sup>197</sup>

Although the DEIS acknowledges in general terms the types of environmental resources that the transmission corridor will affect, it provides little analysis of the actual environmental consequences. Intervenors criticize the DEIS for, among

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<sup>195</sup> *Id.* at 45-46.

<sup>196</sup> *Id.* at 49 (quoting DEIS at 3-31).

<sup>197</sup> *Id.* at 48.

other things, an inadequately defined route for the corridor,<sup>198</sup> a failure to identify endangered or threatened species along the corridor,<sup>199</sup> an inadequate discussion of impacts on wetlands and vegetation,<sup>200</sup> and a failure to adequately investigate historic or cultural resources that may be affected.<sup>201</sup> Given the very limited analysis in the DEIS of these and other environmental impacts arising from the transmission line corridor, these claims may have been admissible had they been filed in a timely manner.

The NRC Staff responds that the construction of a transmission line is defined as a “preconstruction activity.”<sup>202</sup> The Staff also maintains that the NRC lacks regulatory authority over construction of the transmission corridor, which will be built by an entity other than the Applicant.<sup>203</sup> To the extent these arguments imply that the DEIS need not evaluate in detail the environmental impacts of the transmission corridor, we are not persuaded. In order to avoid an unlawful segmentation of the project, the FEIS must evaluate the environmental impact not only of the construction and operation of Unit 3 itself but of all connected actions.<sup>204</sup> Even if the transmission corridor is a preconstruction activity and outside the NRC’s regulatory jurisdiction, the construction and maintenance of the transmission corridor likely qualifies as a connected action under governing NRC and Council on Environmental Quality (CEQ) regulations, and therefore must be analyzed in the FEIS.

The issue concerns the scope of the FEIS. The “scope” of an EIS is defined as “the range of action, alternatives, and impacts to be considered in an environmental impact statement.”<sup>205</sup> An NRC NEPA regulation directs the agency to use the CEQ regulations in defining the scope of its impact statements.<sup>206</sup> Under the

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<sup>198</sup> *Id.* at 43-44.

<sup>199</sup> *Id.* at 45-47.

<sup>200</sup> *Id.* at 47-50.

<sup>201</sup> *Id.* at 51-52.

<sup>202</sup> NRC Staff Answer at 57 (citing 10 C.F.R. §§ 50.10(a)(2)(iii), (vii), 51.4).

<sup>203</sup> *Id.*

<sup>204</sup> “‘Segmentation’ or ‘piecemealing’ occurs when an action is divided into component parts, each involving action with less significant environmental effects.” *Town of Huntington v. Marsh*, 859 F.2d 1134, 1142 (2d Cir. 1988) (citing *City of West Chicago v. NRC*, 701 F.2d 632, 650 (7th Cir. 1983)). “Segmentation is to be avoided in order to ‘insure that interrelated projects[,] the overall effect of which is environmentally significant, not be fractionalized into smaller, less significant actions.’” *Id.* (quoting *Taxpayers Watchdog, Inc. v. Stanley*, 819 F.2d 294, 298 (D.C. Cir. 1987)).

<sup>205</sup> 40 C.F.R. § 1508.25.

<sup>206</sup> The NRC regulation governing the scope of the EIS states that the agency should use the provisions of 40 C.F.R. § 1502.4 for that purpose. 10 C.F.R. § 51.29(a)(1). Section 1502.4 in turn directs that

(Continued)

CEQ regulations, the scope of the EIS must include all “connected actions.”<sup>207</sup> Another NRC NEPA regulation specifically adopts the CEQ regulation (40 C.F.R. § 1508.25) that defines “connected actions.”<sup>208</sup> Thus, the NRC’s regulations effectively direct the agency to use CEQ regulations in defining the scope of its impact statements. Under section 1508.25 of the CEQ regulations, separate actions are “connected” if, among other things, they “[c]annot or will not proceed unless other actions are taken previously or simultaneously,” or they “[a]re interdependent parts of a larger action and depend on the larger action for their justification.”<sup>209</sup> In general, “connected actions” are those that lack “independent utility.”<sup>210</sup>

It appears that the sole purpose of the new transmission corridor is to transmit electrical energy generated by Fermi Unit 3, and that it would serve no useful purpose absent the new nuclear power plant. If that is true, the transmission corridor lacks independent utility (i.e., it is a connected action) and must be fully evaluated in the FEIS.<sup>211</sup> This remains true even though the NRC may define construction of the transmission corridor as a preconstruction activity, it is owned by a company other than the Applicant, and it is outside the NRC’s regulatory jurisdiction. The NRC’s obligations under NEPA include evaluating all environmental effects of the proposed action (including connected actions) that it has the authority to prevent.<sup>212</sup> Even though the NRC does not license construction or operation of the transmission corridor, it has the authority to

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Agencies shall use the criteria for scope (§ 1508.25) to determine which proposal(s) shall be the subject of a particular statement. Proposals or parts of proposals which are related to each other closely enough to be, in effect, a single course of action shall be evaluated in a single impact statement.

40 C.F.R. § 1502.4(a).

<sup>207</sup> 40 C.F.R. § 1508.25(a)(1).

<sup>208</sup> 10 C.F.R. § 51.14(b).

<sup>209</sup> 40 C.F.R. § 1508.25(a)(1)(ii) and (iii). NRC’s NEPA regulations specifically adopt this definition. See 10 C.F.R. § 51.14(b).

<sup>210</sup> See *Society Hill Towers Owners’ Association v. Rendell*, 210 F.3d 168, 181 (3d Cir. 2000) (collecting cases); *Northwest Resource Information Center v. National Marine Fisheries Service*, 56 F.3d 1060, 1067-69 (9th Cir. 1995) (same).

<sup>211</sup> *Society Hill*, 210 F.3d at 181; *Northwest Resource*, 56 F.3d at 1067-69. Also, in order to require detailed analysis in the FEIS, the transmission corridor must be a proposed action rather than one that is merely contemplated. See *Kleppe v. Sierra Club*, 427 U.S. 390, 410 & n.20 (1976). But the DEIS and ER suggest that the action has advanced to the stage of a proposed action. The DEIS reports that “[t]hree new 345-kV transmission lines have been *proposed* to serve Fermi 3.” DEIS at 4-8 (emphasis added). The ER refers to “[t]he *proposed* route for the three new 345 kV transmission lines from Fermi to the Milan Substation . . . .” ER at 2-23 (emphasis added).

<sup>212</sup> *Department of Transportation v. Public Citizen*, 541 U.S. 752, 770 (2004) (“[W]here an agency has no ability to prevent a certain effect due to its limited statutory authority over the relevant actions, the agency cannot be considered a legally relevant ‘cause’ of the effect.”).

deny the license for Fermi Unit 3 if, for example, the total environmental costs of the new reactor and connected actions exceed the benefits.<sup>213</sup> Denial of the license would effectively prevent harmful environmental impacts resulting from construction and operation of the transmission corridor, given that its sole purpose appears to be transmitting electrical energy generated by Fermi Unit 3.

Although NEPA does not direct any particular substantive result,<sup>214</sup> all the environmental consequences of the proposed action, including connected actions, must be fully evaluated in the FEIS.<sup>215</sup> Moreover, only by evaluating all the environmental costs of the proposed action can the NRC adequately fulfill its obligation to “[d]etermine, after weighing the environmental, economic, technical, and other benefits against environmental and other costs . . . whether the combined license should be issued, denied, or appropriately conditioned to protect environmental values.”<sup>216</sup> Because Contention 23 was not timely filed and no sufficient showing has been made under section 2.309(c)(1) to justify the late filing, we are precluded from admitting it in this proceeding. But the “primary responsibility for compliance with NEPA lies with the Commission.”<sup>217</sup> We recommend, therefore, that the NRC Staff consider the issues raised by Intervenor when it prepares the FEIS.

#### J. Contention 24

Proposed Contention 24 reads as follows:

The public health effects and impacts from routine, licensed radiological emissions in air and water from the proposed Fermi 3 have been inadequately assessed, analyzed and disclosed in the Draft Environmental Impact Statement, in violation of NEPA.

Intervenor alleges that the DEIS omits an analysis of impacts from the chemical contents of water vapor emitted from the Fermi cooling towers, and relies on a flawed assumption that all of the dissolved solids in the water vapor would be salt.<sup>218</sup> They charge that the DEIS “fails to consider the impact of other chemicals

<sup>213</sup> See 10 C.F.R. § 51.107(a)(3); *Louisiana Energy Services, L.P.* (Claiborne Enrichment Center), CLI 98-3, 47 NRC 77, 88 (1998); *Calvert Cliffs Coordinating Committee v. AEC*, 449 F.2d 1109, 1123 (D.C. Cir. 1971).

<sup>214</sup> *Robertson v. Methow Valley Citizens Council*, 490 U.S. at 350.

<sup>215</sup> 40 C.F.R. § 1508.25(a)(1).

<sup>216</sup> 10 C.F.R. § 51.107(a)(3).

<sup>217</sup> *New York v. NRC*, 681 F.3d 471, 482 (D.C. Cir. 2012). *Accord Pa’ina Hawaii, LLC*, CLI-10-18, 72 NRC 56, 82 (2010).

<sup>218</sup> Motion to Admit at 52-53.



facts to support their assertion that the cooling tower vapor could be harmful in ways not considered by the DEIS. As a result, this portion of the contention is inadmissible for failure to allege facts or provide expert support under section 2.309(f)(1)(v) and failure to provide sufficient information establishing a genuine dispute under section 2.309(f)(1)(vi).

By raising the public health consequences of all radiological releases from Fermi 3, Intervenorors seem to suggest that any release, even those within limits set by NRC regulations, must be prohibited. As the Staff notes, “[t]he Intervenorors do not assert that any portion of the [DEIS’s radiological health effects] analysis is inadequate or incorrect, and do not allege that any legal dose limit is likely to be exceeded.”<sup>227</sup> Because this portion of the contention does not challenge the contents of the DEIS, it fails to present a genuine dispute, and is inadmissible under section 2.309(f)(1)(vi). Additionally, to the extent that Intervenorors challenge all radiological releases from nuclear power plants, the contention presents an impermissible challenge to the NRC’s regulations.<sup>228</sup>

## V. CONCLUSION

The Motion for Leave is GRANTED. Because Intervenorors have failed to proffer an admissible contention, the Motion to Admit is DENIED, except that we defer ruling on the two specific aspects of proposed Contentions 20 and 21, identified in our rulings on those contentions, that are related to the pending motions for summary disposition of previously admitted Contentions 6 and 8. Applicant’s Motion for Leave to File Surreply is DENIED.

Any party aggrieved by this Order may file a petition for interlocutory review by the Commission in accordance with the provisions of 10 C.F.R. § 2.341(f)(2). Any such petition for review must be filed within fifteen (15) days of service of this Memorandum and Order.

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<sup>227</sup> NRC Staff Answer at 66.

<sup>228</sup> See 10 C.F.R. § 2.335(a).

IT IS SO ORDERED.

THE ATOMIC SAFETY AND  
LICENSING BOARD

Ronald M. Spritzer, Chairman  
ADMINISTRATIVE JUDGE

Dr. Anthony J. Baratta  
ADMINISTRATIVE JUDGE

Dr. Randall Charbeneau  
ADMINISTRATIVE JUDGE

Rockville, Maryland  
June 21, 2012

**UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION**

**Before the Atomic Safety and Licensing Board**

In the Matter of:	)	
	)	Docket No. 52-033
The Detroit Edison Company	)	
(Fermi Nuclear Power Plant, Unit 3)	)	February 19, 2013
	)	

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**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**

Now come Intervenors Beyond Nuclear, *et al.*<sup>1</sup> (hereinafter “Intervenors”), by and through counsel, and move to resubmit amended Contentions 3 and 13, to resubmit amended Contention 23 or for its admission as a new contention, and for admission of two new contentions, referred to hereinafter as Contention 26 and Contention 27.

**I. INTRODUCTION**

This combined license (COL) proceeding involves the application of Detroit Edison Company (“DTE” or “Applicant”) under 10 C.F.R. Part 52, Subpart C, to construct and to operate a GE-Hitachi Economic Simplified Boiling Water Reactor (ESBWR) designated Unit 3 (“Fermi 3”), on its existing Fermi nuclear facility site near Newport City in Monroe County, Michigan.

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<sup>1</sup>In addition to Beyond Nuclear, the Intervenors include: Citizens for Alternatives to Chemical Contamination, Citizens Environmental Alliance of Southwestern Ontario, Don’t Waste Michigan, Sierra Club (Michigan Chapter), Keith Gunter, Edward McArdle, Henry Newnan, Derek Coronado, Sandra Bihn, Harold L. Stokes, Michael J. Keegan, Richard Coronado, George Steinman, Marilyn R. Timmer, Leonard Mandeville, Frank Mantei, Marcee Meyers, and Shirley Steinman.

The Final Environmental Impact Statement (“FEIS”) for Fermi 3 was formally released to the public on January 16, 2013. The scheduling order of the assigned Atomic Safety and Licensing Board (“ASLB”) requires that any proffered pleadings, amendments or legal submissions are due on February 19, 2013<sup>2</sup> (since February 18 is a legal holiday, Presidents’ Day).

## **II. STANDARDS FOR ADMISSIBILITY OF FEIS-RELATED CONTENTIONS**

The Nuclear Regulatory Commission (“NRC” or “Commission”), as lead agency for purposes of compliance with the National Environmental Policy Act (“NEPA”), must document and disclose the environmental issues which are engendered by this power plant project. *Crounse Corp. v. Interstate Commerce Comm’n*, 781 F.2d 1176 (6th Cir. 1986). NEPA imposes continuing obligations on the NRC, following completion of a preliminary environmental analysis, to re-evaluate its environmental disclosures in light of new and significant information received which casts doubt upon a previous environmental analysis. *Marsh v. Oregon Natural Resources Council*, 490 U.S. 360, 374 (1989). Legal harm is caused under NEPA when an agency makes a decision without sufficiently considering information which NEPA requires be placed before the decisionmaker and public. *Sierra Club v. Marsh*, 872 F.2d 497, 500 (1st Cir. 1989). “The injury of an increased risk of harm due to an agency's uninformed decision is precisely the type of injury (NEPA) was designed to prevent.” *Comm. to Save the Rio Hondo v. Lucero*, 102 F.3d 445, 448-49 (10th Cir. 1996).

Section 10 C.F.R. §2.309(f)(2) states that “[o]n issues arising under the National Environmental Policy Act, the petitioner shall file contentions based on the applicant's envi-

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<sup>2</sup>*Detroit Edison Company* (Fermi Nuclear Power Plant, Unit 3), ASLBP No. 09-880-05-COL-BD01 (December 12, 2012) (slip op.).

(North Anna Power Station, Units 1 & 2), LBP-85-34, 22 NRC 481, 491 (1985), quoting *Consumers Power Co.* (Big Rock Point Nuclear Plant), ALAB-636, 13 NRC 312, 332 (1981). A “factual basis” is missing from the NRC Staff’s presentation on need and demand in the FEIS. Intervenor must be accorded the right to adjudicate their claim that need and demand is woefully out of touch with reality in that document, and that consequently, NEPA has been violated.

## **VI. NEW/RESUBMITTED CONTENTION 23**

### **MOTION TO ADMIT NEW CONTENTION REGARDING THE ENVIRONMENTAL IMPLICATIONS OF THE TRANSMISSION CORRIDOR FOR THE FERMI 3 NUCLEAR POWER PLANT**

Now come Intervenor, by and through counsel, and hereby move to admit a new contention regarding the lack of NEPA compliance regarding the transmission corridor for the proposed Fermi 3 Nuclear Power Plant.

Pursuant to 10 C.F.R. § 2.309(f)(1), Intervenor asserts a new contention, or alternatively, resubmit their former Contention 23, as amended, seeking consideration of new and significant information from the Final Environmental Impact Statement (“FEIS”) for the COLA for Fermi 3 which is relevant to completion of NEPA analysis of the transmission corridor. Specifically, Intervenor requests a hearing on the inadequately-disclosed and -described environmental implications of having an operational transmission line corridor extending for nearly thirty (30) miles between the regional electric grid and Fermi 3.

Pursuant to the National Environmental Policy Act (“NEPA”), this contention comprises the only way of ensuring that the environmental implications of the transmission corridor will not be segmented from the Fermi 3 COLA, and disclosed, if at all, in a future environmental impact statement, instead of in this proceeding. The transmission lines comprise the *sine qua non* of the

Fermi 3 power plant project: if they are not constructed, then there is no interconnection between Fermi 3 and the electricity markets to which its power is to be dispatched. In the FEIS, the building of Fermi 3 and the transmission infrastructure are closely related (FEIS p. 3-18): "The 350-ft-by-500-ft Milan Substation may be expanded to an area about 1000 ft by 1000 ft to accommodate the Fermi 3 expansion (Detroit Edison 2011 b)." The extension of the transmission lines and the expansion of the substation are necessitated if Fermi 3 is built. There is much evidence from the NEPA document itself where the FEIS improperly falls short of detailing and analyzing many impacts from the corridor portion of the Fermi 3 project.

1. Statement of Contention 23 (New/Amended)

The FEIS for a combined operating license for Fermi 3 fails to satisfy the requirements of NEPA because it does not address the environmental effects of the associated transmission line corridor extending nearly thirty (30) miles from the proposed plant site, despite the fact that the transmission lines are indispensable to completion of the power plant project, and the NRC Staff was ordered to analyze the transmission corridor within the FEIS by the Atomic Safety and Licensing Board. The FEIS fails to disclose what the U.S. Army Corps of Engineers has determined to be the least environmentally damaging practical alternatives (LEDPA's) under the Clean Water Act, for some 30 jurisdictional wetlands and other water bodies within the transmission corridor, and there is no detailed discussion of mitigation measures which would be implemented to compensate for the water resource and upland damage.

2. Brief Explanation of the Basis for the Contention

This contention is based on the ASLB's June 21, 2012 ruling in this litigation. In its "Memorandum and Order (Ruling on Motion for Leave to Late-file Amended and New Con-

tentions and Motion to Admit New Contentions),” *Detroit Edison Company* (Fermi Nuclear Power Plant, Unit 3), LBP-12-12, ASLBP No. 09-880-05-COL-BD01 (June 21, 2012) at pp. 44-45, the ASLB wrote:

Although Contention 23 is untimely, it raises substantial questions concerning the adequacy of the DEIS that the NRC Staff should carefully consider in preparing the FEIS. Intervenor present a number of criticisms of the DEIS’s limited evaluation of the environmental impacts of the transmission line corridor. For example, Intervenor emphasize that substantial construction will take place in undeveloped wetlands, forests, and grasslands. . . . Intervenor also stress potential impacts to threatened and endangered species. . . . Intervenor further argue that maintenance of the transmission corridor will continue to impact wetlands and other environmental resources after construction is completed. . . .

The ASLB further found that there is a strong likelihood that NEPA compliance respecting the transmission corridor has been “segmented” from the power plant project, and that the NRC as a regulatory agency cannot credibly maintain that even if the transmission corridor construction falls in the category of “preconstruction activity,” that environmental impacts from that activity fall outside NRC authority:

It appears that the sole purpose of the new transmission corridor is to transmit electrical energy generated by Fermi Unit 3, and that it would serve no useful purpose absent the new nuclear power plant. If that is true, the transmission corridor lacks independent utility (*i.e.*, it is a connected action) and must be fully evaluated in the FEIS. though the NRC may define construction of the transmission corridor as a preconstruction activity, it is owned by a company other than the Applicant, and it is outside the NRC’s regulatory jurisdiction. The NRC’s obligations under NEPA include evaluating all environmental effects of the proposed action (including connected actions) that it has the authority to prevent. Even though the NRC does not license construction or operation of the transmission corridor, it has the authority to deny the license for Fermi Unit 3 if, for example, the total environmental costs of the new reactor and connected actions exceed the benefits. Denial of the license would effectively prevent harmful environmental impacts resulting from construction and operation of the transmission corridor, given that its sole purpose appears to be transmitting electrical energy generated by Fermi Unit 3.

*Id.* at pp. 47-48. The ASLB concluded that “the ‘primary responsibility for compliance with NEPA lies with the Commission.’ [Citation omitted]. We recommend, therefore, that the NRC



Staff consider the issues raised by Intervenor when it prepares the FEIS.” *Id.* at pp. 48-49.

In a later order, the ASLB noted that the transmission corridor includes habitat for the Eastern Fox Snake, a state-threatened reptile species that is the subject, as to the Fermi 3 plant site, of forthcoming adjudication (Contention 8):

[T]he review team concludes that *the impacts from construction and preconstruction activities for Fermi 3 on terrestrial resources on the Fermi site and transmission line corridor would be SMALL to MODERATE . . . .* The potential for MODERATE impacts is limited to possible adverse effects on the eastern fox snake. The staff’s evaluation of the potential impacts on the eastern fox snake recognizes the potential for mitigation measures proposed by Detroit Edison. . . and approved by the MDNR to significantly reduce impacts on that species, thereby leading to SMALL impacts, but acknowledges the possibility of MODERATE impacts if proposed mitigation is not implemented as described in their plan.

(Emphasis supplied). “Memorandum and Order (Denying Motion for Reconsideration of the Board’s Order Denying Second Motion for Summary Disposition of Contention 8),” *Detroit Edison Company* (Fermi Nuclear Power Plant, Unit 3), ASLBP No. 09-880-05-COL-BD01 (January 30, 2013), p. 5 (citing p. 4-47 of FEIS).

The ASLB *sua sponte* ordered NEPA consideration within the Final EIS of the effects of construction and the as-built presence of transmission lines through and within the corridor, which the ASLB also considers to be a zone of habitat for the state-threatened Eastern Fox Snake.

Intervenors urge that the ASLB’s order that the transmission corridor be fully considered and analyzed within the Fermi 3 EIS is valid and one upon which the Intervenor have a right to rely. A licensing board has the power to raise *sua sponte* any significant environmental or safety issue in operating license hearings. 10 C.F.R. § 2.340(a) (formerly § 2.760a); *Consol. Edison Co. of N.Y.* (Indian Point Nuclear Generating Units 1, 2& 3), ALAB-319, 3 NRC 188, 190 (1976);

*Houston Lighting & Power Co.* (South Texas Project, Units 1 & 2), LBP-85-8, 21 NRC 516, 519 (1985). The Board's independent responsibilities under NEPA may require it to raise environmental issues not raised by a party. *Tenn. Valley Auth.* (Hartsville Nuclear Plant, Units 1A, 2A, 1B & 2B), ALAB-380, 5 NRC 572 (1977). The ASLB has this prerogative especially where an issue is excluded from the proceeding because it has not been properly raised, rather than because it has been rejected on its merits. *Cleveland Elec. Illuminating Co.* (Perry Nuclear Power Plant, Units 1 & 2), LBP-82- 79, 16 NRC 1116, 1119 (1982). The Board need only give its reasons for raising the problem. *Southern Cal. Edison Co.* (San Onofre Nuclear Generating Station, Units 2 & 3), LBP-81-36, 14 NRC 691, 697 (1981).

Intervenors did not know what the NRC Staff's response to being ordered to include the transmission corridor within the FEIS would be prior to the availability of the FEIS in January 2013, and so are proffering this renewed and amended contention in a timely fashion.

#### A. Section 404 controversies

At Section 1.1.1.2 of the FEIS (p. 1-5) appears the statement that "This EIS provides environmental information the USACE needs to complete, in part, its NEPA and public interest factor reviews and draw conclusions regarding the least environmentally damaging practicable alternative (LEDPA) and the public good for its permitting decision." If that is correct, then the Corps of Engineers is a party to having piecemealed the findings it supposedly must have under § 404 of the Clean Water Act, 33 U.S.C. § 1344, into two (2) parts: NEPA and public interest factor reviews (although both are dubious based on the lack of fact-specific disclosures in the FEIS); and the findings which the Corps must render concerning least environmentally destructive practical alternatives (LEDPA's), which findings will be made well after completion

of the FEIS. Moreover, the Corps actually admits that it has piecemealed its § 404 permitting into pre-FEIS and post-FEIS stages:

The USACE's independent regulatory permit decision documentation will reference relevant analyses from the EIS and, as necessary, include a *supplemental* public interest factor review, a CWA 404(b)(1) evaluation, a *supplemental* evaluation of cumulative impacts, *and other information and evaluations* that may be outside the NRC's scope of analysis and not included in this EIS. . . .

(Emphasis supplied). There admittedly is no requirement that § 404 permitting be concluded contemporaneously to approval of the FEIS. But the § 404 permitting will not involve "supplementation," because 100% of the informational basis will be generated at the future point when the matter of wetlands permitting is taken up.

The NRC Staff (FEIS p. 1-5) claims that "In this EIS, USACE evaluates the impacts of certain construction and maintenance activities proposed in waters of the United States, including jurisdictional wetlands that would be affected by the proposed activities." But a term search for "jurisdictional wetlands" throughout the 4 volumes of the FEIS produces nothing but parrottings of the term "jurisdictional wetlands" as being part of the § 404 process. There are no maps, no coordinates, no legal descriptions, no location descriptors, no problem descriptions, identifications of transmission tower sites, or analysis of environmental effects whatsoever within "jurisdictional wetlands" known to be present in the transmission corridor. In fact, at FEIS p. F-54 it says, "Wetland delineation surveys have not yet been conducted to determine the precise locations and extent of wetlands." And at FEIS p. 4-44 appears the admission, "A conceptual transmission line corridor has been identified, but wetland delineation surveys have not yet been conducted to determine the precise locations and extent of wetlands." Finally, Appendix J, p. J-2 of the FEIS contains this unsupported and unequivocal admission that within

the FEIS there is no attempt to identify jurisdictional wetlands in the transmission corridor:

Any subsequent changes to the proposed site plan and/or activities as a consequence of the USACE-identified LEDPA would result in fewer adverse impacts on waters of the United States than identified in the Final EIS.

These admissions prove violations of NEPA's requirement that disclosure of direct and cumulative environmental impacts be disclosed within the FEIS. Where adverse effects can be predicted, and the agency is in the position of having to balance the adverse effects against the projected benefits, the matter must, under NEPA, be decided in light of an environmental impact statement. *Sierra Club v. Marsh*, 769 F.2d 868, 880 (1st Cir.1985); 40 C.F.R. § 1508.27(b)(1), which says that "[a] significant effect may exist even if the Federal agency believes that on balance the effect will be beneficial."

#### B. Disparate Assertion of Transmission Infrastructure Footprint

There is an additional basis for contention admissibility. There is a dispute of fact between the Environmental Report ("ER") and the DEIS and FEIS, upon which Intervenor should be allowed to resubmit their previous Contention 23. In the FEIS (at p. 2-46), it states:

For a portion of this eastern 18.6-mi segment of the proposed route, reconfiguring existing conductors may allow for the use of existing transmission infrastructure without the need for building additional transmission infrastructure.

In the Draft EIS (DEIS), the comparable/analogous statement on this issue was:

By reconfiguring conductors, new lines in this portion of the route could use existing towers, but placement of additional transmission infrastructure may be necessary.

DEIS p. 3-17. In the Environmental Report (p. 3-17) appears this passage:

The first 18.6 mi of transmission lines (going west and north from Fermi) would be installed alongside the 345-kV lines that are already in place (Figure 3-8). By reconfiguring conductors, new lines in this portion of the route could use existing towers, but placement of additional transmission infrastructure may be necessary.

To summarize, a change of direction by the NRC Staff took place somewhere between publication of the DEIS and the FEIS. Additional infrastructure development within the 18.6 mile stretch of the transmission corridor appears now to be passe. There is no explanation of that change of position, which is consistent with the unfortunate paucity of descriptive information in the NEPA documents about the anticipated footprint(s) from the transmission line infrastructure. And now, citing no specifics, the NRC Staff claims that instead of further disruption within the transmission corridor, there will be less. The Staff has changed its position on a major construction issue in the transmission corridor, yet provided the public with no supportive explanation.

3. Demonstration that the Contention is Within the Scope of the Proceeding

The contention is within the scope of the proceeding because it seeks compliance with NEPA and NRC-implementing regulations, as well as the Atomic Energy Act. The interconnection to the offsite regional grid which would be attained via the transmission corridor would comprise the primary electrical supply needed to run the safety and cooling systems which are key to controlling the temperature of the Fermi 3 core in the event of loss of onsite power and battery failure. Compliance with both federal statutes is obligatory before Fermi 3 may be licensed.

4. Demonstration that the Contention is Material to the Findings  
NRC Must Make to License Fermi 3

This contention challenges the NRC's failure to fully comply with the Atomic Energy Act as well as NEPA and its implementing federal regulations. Until the NRC complies with the procedural requirements of NEPA that are discussed in the contention, it cannot make a valid finding that Fermi 3 should be licensed. And if there is no NEPA compliance, it follows that the

Atomic Energy Act will be violated. Therefore the contention is material to the findings the NRC must make in order to license this facility.

5. Concise Statement of the Facts or Expert Opinion Supporting the Contention, Along With Appropriate Citations to Supporting Scientific or Factual Materials

A. ‘Preconstruction’ segmentation of transmission corridor from FEIS

Contrary to the Staff assertions (FEIS Appendix M, p. M-1) that “The final environmental impact statement (EIS) presents integrated evaluations of potential environmental impacts from the proposed Fermi 3 facilities, organized by environmental resource.” It is apparent that the Staff has intentionally failed to integrate the transmission line impacts into the FEIS, despite being ordered to do so by the ASLB. For example, at FEIS p. M-1 appears this obstinate statement of the Staff’s position, repeated at various turns throughout the FEIS:

Offsite transmission lines are not part of the Fermi 3 COL application, and any such lines would be built by ITCTransmission rather than Detroit Edison. Under NRC regulations in 10 CFR 50.10(a)(2)(vii), building of transmission lines is a preconstruction activity not subject to the Nuclear Regulatory Commission’s regulatory authority. However, many preconstruction activities are within the regulatory authority of local, State, or other Federal agencies, and certain preconstruction activities require a permit from the U.S. Army Corps of Engineers.

This flies in the face of the ASLB ruling. The NRC Staff remains stuck at its DEIS arguments and rationales, which the ASLB has firmly ruled were not persuasive in light of its finding of unacceptable segmentation under NEPA of the transmission corridor from the plant construction and licensing.

There is an additional fact that proves that the NRC Staff has illegally segmented the transmission corridor from consideration as part of the overall power plant project. Section 2.2.2.1 of the Environmental Report states, “The 345 kV transmission system which provides power to and receives power from Ferm 2 is anticipated to serve Fermi 3.” ER, Rev. 2, p.2-21

(Feb. 2011). In other words, a tie-in of Fermi 3 to the regional power grid is an obligatory safety step as well as the *sine qua non* of DTE's business plan. The Atomic Energy Act would be violated if there were no interconnection.

B. Void of discussion of pre-operational impacts during construction phase

Although the FEIS admits (FEIS p. 3-17) that “[t]ransmission lines and corridors are considered to interface with the environment during operation, because there are potential continuing impacts from electric fields, noise, and corridor maintenance,” there is no meaningful discussion of pre-operational impacts during construction. The thrust of the FEIS sections which mention the transmission corridor at all are speculative and do not reflect commitment to construction, much less to compliance with NEPA:

By reconfiguring conductors, new lines in this portion of the route could use existing towers, but placement of additional transmission infrastructure may be necessary. The remaining 10.8 mi of transmission lines to the Milan Substation would be located in an undeveloped portion of the transmission line corridor that was previously authorized for transmission use (Figure 3-8). Some transmission tower footings were installed as part of the original Fermi 3 plan, but the corridor has been minimally maintained. The 350-ft-by-500-ft Milan Substation may be expanded to an area about 1000 ft by 1000 ft to accommodate the Fermi 3 expansion (Detroit Edison 2011b). Most of the 18.6-mi portion of the route crosses agricultural land, but the undeveloped 10.8-mi. portion crosses a variety of land cover types including forest, agricultural lands, rural residential areas, and a golf course.

*Id.* DTE repeatedly distances itself from its NEPA responsibilities in the FEIS when it professes that “The offsite portions of the proposed Fermi 3 transmission system and associated corridors would be owned and operated by ITCTransmission. Detroit Edison has no control over the construction or operation of the transmission system and is not involved in the evaluation or decision making for proposed changes to or design of the transmission system.” FEIS p. 3-18. DTE may not insulate itself from the coverage of NEPA merely by conveniently eschewing its



obvious control over contracting.

### C. Dispersion of transmission corridor impacts discussion throughout FEIS

Discussions of the transmission corridor impacts are scattered widely in the FEIS - a practice that has been found to be a symptom of violation of NEPA. *National Parks & Conservation Ass'n v. Bureau of Land Management*, 586 F.3d 735, 750<sup>15</sup> (9<sup>th</sup> Cir. 2009). Table M-1 in the FEIS lists the sections and subsections of Chapter 2 (Affected Environment), Chapter 4 (Construction Impacts at the Proposed Site), Chapter 5 (Operational Impacts at the Proposed Site), and Chapter 7 (Cumulative Impacts) that contain pertinent information related to the review team's evaluation of potential impacts from the transmission lines. Then at p. M-1 appears this qualifier:

The review team considered transmission line impacts for all environmental resource areas addressed in Chapters 2, 3, 4, 5, and 7, not just those resources highlighted in Table M-1. *However, the discussion for other resources is limited in the final EIS text because construction and operation of transmission lines have limited relevance to impacts on these resource areas.*

(Emphasis supplied). So the scattered bits of discussion serve the purpose of diffusing public information and making meaningful analysis by Intervenors elusive at best.

### D. All aspects of the transmission corridor remain in play

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<sup>15</sup>“In determining whether an EIS fosters informed decision-making and public participation, we consider not only its content, but also its form. [Citation omitted]. Here, the discussion of eutrophication is neither full nor fair with respect to atmospheric eutrophication. A reader seeking enlightenment on the issue would have to cull through entirely unrelated sections of the EIS and then put the pieces together. To find the brief discussion of atmospheric eutrophication, a reader must begin in the ‘Biological Resources’ section, which then refers to data from the ‘Air Quality’ section, and then with respect to effects only on Joshua Tree, not the surrounding area. Rather than address eutrophication up front, the BLM instead attempts to cobble together a ‘hard look’ from various other analyses as varied as air quality and disease vector control. This patchwork cannot serve as a ‘reasonably thorough’ discussion of the eutrophication issue.

The route of the transmission lines will be brand new, and subject to change, until well after the FEIS stage. Everything remains in play.

The mysteries of the transmission corridor are not dispelled by language such as this (FEIS p. 2-10):

ITC Transmission *has not yet formally announced a route* for the offsite portion of the proposed new transmission line serving Fermi 3. *Detroit Edison expects that the proposed new transmission line would be built* within the existing Fermi 2 transmission corridor for approximately 18.6 mi extending outward from the Fermi site boundary. *Detroit Edison expects that the remaining 10.8 mi, extending to the Milan Substation, would be built* within an undeveloped right-of-way (ROW) possessed but not yet used by ITCTransmission (Detroit Edison 2011a). The route for the undeveloped ROW crosses mostly agricultural and forest land with scattered wetlands. No part of the route crosses designated or protected natural or recreational areas or areas with planned minerals development, although the route likely crosses some prime farmland. Land use restrictions within the corridor segments are governed by agreements between ITC Transmission and individual property owners along the corridor (Detroit Edison 2011a).

(Emphasis supplied). Obviously, wetlands and associated habitat of, for example, the Eastern Fox Snake could be eradicated by ITC Transmission without notification to the public. Since there has been no compliance with the federal Endangered Species Act, discussed *infra*, it is possible that as-yet unidentified plant or animal species could be wiped out. This is the danger of deferring the environmental investigation until after the licenses are granted. The FEIS is the final notification to the public. DTE's "expectations" of the route and its effects do not substitute for actual knowledge.

On FEIS pp. 4-8 to 4-9 appears mention that "approximately 10.8 mi of the corridor would be sited along new undeveloped right-of-way," the precise routing remaining undesignated. "New towers would require foundation excavations, and the new lines would be constructed, owned, and operated by ITCTransmission. The Milan Substation currently occupies 4 ac; it is likely that the substation footprint would be expanded to an area of approximately 23

ac, encompassing approximately 19 ac of additional land, to accommodate the three new transmission lines from Fermi 3 (Detroit Edison 2011a).” *Id.* This represents a four-fold expansion of the Milan substation, with no accompanying discussion of the effects of that much larger footprint. The FEIS continues:

The 10.8 mi corridor to the Milan substation is currently undeveloped, and building this portion of the line could disturb 393 ac of mostly forested and agricultural lands. A total of 1069 ac of land would be occupied by the 29.4-mi-long transmission line corridor.

FEIS p. 3-26. An additional 143 acres would be temporarily disrupted for temporary construction “laydown” activities:

A total of 143 ac have been identified for possible construction laydown areas (Detroit Edison 2011b): 60 ac in an agricultural field next to the proposed Fermi 3 switchyard, 20.5 ac north and west of the intersection of Fermi Drive and Doxy Road, and 61 ac located in separate parcels around the Quarry Lakes (Figure 3-2). Existing topsoil would be removed, geofabric would be laid down, and the areas would be surfaced with rock. It is anticipated that construction laydown areas would be used during construction and then restored following project completion.

FEIS p. 3-26. While there is mention of temporary disruption, there is no examination nor analysis of the disruptions to the environment that are likely. The use of temporary fencing while new lines are under construction could pose significant impacts for endangered, not to mention common, migrating species.

While “sediment and erosion control” will be used during construction, FEIS p. 4-9, it remains that forested areas will be denuded<sup>16</sup> and will be subjected to periodic clearcutting throughout the occupation by the transmission lines. Then, herbicides will be applied, which will

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<sup>16</sup>From FEIS p. 4-29: “the review team estimates that approximately 244 ac of forest cover would be permanently cleared to build the transmission line, including approximately 170 ac of deciduous forest and 74 ac of woody wetlands. The deciduous forest would be permanently converted to grassland or old field habitat, and the woody wetlands would be permanently converted to emergent wetlands.

not allow new sapling trees to grow to maturity. The deforestation will thus be permanent and biological and botanical diversity will be destroyed. The environmental effects remains undiscussed, other than to mention that deforestation will occur.

Since much of the acreage used for the corridor will be farmland, it is likely that livestock will graze beneath transmission lines, yet there is no discussion of the health and productivity effects from electromagnetism in proximity to 345Kv lines might have on agricultural animals (or their human tenders). There further is no mention of pesticide and herbicide exposure potential to livestock, nor how such exposures would harm the food supply.

#### E. Segmentation inhibits planning and disclosure of mitigation measures

With surprising alacrity, the NRC Staff admits to allowing segmentation of the transmission corridor from the remainder of the Fermi 3 project: “In siting the new transmission line, Detroit Edison would contact the State Historic Preservation Office (SHPO), FWS, MDEQ, and USACE.” FEIS p. 4-9. According to the FEIS (p. 4-52), “[a]ccording to FWS National Wetland Inventory mapping, the *identified transmission route crosses about 30 wetlands or other waters that may be regulated by the USACE and/or MDEQ* (FWS 2010)” (Emphasis supplied). Nevertheless, DTE and the NRC Staff have determined that mitigation measures which might be exacted by regulators will remain only prospective and that they will not be disclosed within the Fermi 3 FEIS.

For instance, water quality concerns in the wetlands are implicit in “vegetation management” - but use of herbicides, among other activities (FEIS ) remains undetailed. This is the principal narrative addressing the topic:

It is expected that ITCTransmission would continue maintenance activities currently conducted on the existing transmission line corridors extending out from the

Fermi site. It is expected that ITCTransmission would extend these same practices to the new corridor and substation facilities. These activities include periodic removal and trimming of trees, mowing of herbaceous and low woody vegetation and cutting of large shrubs, and the use of pesticides and herbicides applied with either ground or aerial spraying methods. The corridors would be periodically inspected by helicopter or ground-patrolled to ensure that they are in proper condition for safe operation of the transmission line (Detroit Edison 2011a). Vegetation clearing would be limited to the minimum needed to allow access for maintenance vehicles and to prevent the growth of trees and other vegetation that could interfere with the operation of the lines (Detroit Edison 2011a).

FEIS p. 5-4.

Ongoing maintenance activities associated with transmission line operations would also include “[o]ccasional access to the transmission line corridors by maintenance vehicles,” which “may cause some temporary erosion and compaction along certain areas, especially if heavy vehicles are used in wet weather conditions and on any access roads that have gravel or other unpaved surfaces (Detroit Edison 2011a).” FEIS p. 5-3. Essentially, the FEIS admits that there will be heavy equipment driven through wetland areas, without any examination or analysis of what those irregular intrusions would mean under § 404 of the Clean Water Act, 33 U.S.C. § 1344 . Nor is there revelation of potential connections between heavy equipment activity and the admitted “[s]iltation of streams and wetlands and the disturbance of wildlife and wildlife habitat” which “may also occur during maintenance activities where the corridor crosses floodplains and wetlands.” FEIS p. 5-3. And while there is an admission (FEIS pp. 5-3 to 5-4) that “water diversion measures would be used to direct water off the sides of the access roads and prevent erosion impacts,” it remains only that “[t]he review team expects that Detroit Edison and . . . ITC Transmission. . . would be required in their operations to use best management practices (BMPs) outlined in a soil erosion and sedimentation control (SESC) plan or right-of-way (ROW) maintenance manual used by Detroit Edison and/or ITCTransmission.” There is not even a

commitment, but only a speculation. There is no examination or analysis of what “water diversions” might mean to wetlands and ephemeral pools.

The nondisclosure within the FEIS of mitigation efforts aimed at the transmission corridor grossly violates NEPA. For agency decisions based on an EIS (*viz.*, this COLA proceeding), CEQ regulations explicitly require that “a monitoring and enforcement program shall be adopted and summarized where applicable for any mitigation.” 40 C.F.R. §1505.2( c). That is missing here. The NRC’s adaptation of NEPA mandates requires that the Record of Decision (ROD) “[s]ummarize any license conditions and monitoring programs adopted in connection with mitigation measures.” 10 C.F.R. §51.103. According to the CEQ Mitigation Guidance, “[a]gencies are expected to apply professional judgment and the rule of reason when identifying those cases that are important and warrant monitoring, and when determining the type and extent of monitoring they will use to check on the progress made in implementing mitigation commitments as well as their effectiveness. . . . The following are examples of factors that agencies should consider to determine importance: . . . Protected resources (*e.g., threatened or endangered species, cultural or historic sites*) and the proposed action's impacts on them. . . .” (Emphasis supplied). Council on Environmental Quality, “Final Guidance for Federal Departments and Agencies on the Appropriate Use of Mitigation and Monitoring and Clarifying the Appropriate Use of Mitigated Findings of No Significant Impact,” 76 Fed. Reg. 3843, 3849. The federal lead agency is to ensure “that the monitoring program tracks whether mitigation commitments are being performed as described in the NEPA and related decision documents - (*i.e.*, implementation monitoring), and whether the mitigation effort is producing the expected outcomes and resulting environmental effects (*i.e.*, effectiveness monitoring).” *Id.* at 3850.

CEQ regulations require an agency to discuss possible mitigation measures in defining the scope of the EIS, 40 CFR § 1508.25(b), in discussing alternatives to the proposed action, § 1502.14(f), and consequences of that action, § 1502.16(h), and in explaining its ultimate decision, § 1505.2(c).” It is not enough to merely list possible mitigation measures. *San Juan Citizens Alliance v. Stiles*, 654 F.3d 1038, 1053-54 (10<sup>th</sup> Cir. 2011), citing *Colorado Envtl. Coal. v. Dombeck*, 185 F.3d 1162, 1173 (10<sup>th</sup> Cir. 1999). Consistent with CEQ regulations, the EIS must include a “reasonably complete discussion of possible mitigation measures.” *Okanogan Highlands Alliance v. Williams*, 236 F.3d 468, 473 (9<sup>th</sup> Cir.2000). While according to *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 352-3 (1989), courts may not require “a fully developed plan that will mitigate environmental harm before an agency can act,” and there is no substantive requirement that mitigation measures be implemented, *id.* at 353, it remains that the agency must discuss mitigation measures “in sufficient detail to ensure that environmental consequences have been fairly evaluated. . . . A mere listing . . . is insufficient.” *Neighbors of Cuddy Mountain v. United States Forest Serv.*, 137 F.3d 1372, 1380 (9<sup>th</sup> Cir. 1998) (internal quotations and citations omitted); *San Juan Citizens Alliance v. Stiles*, *supra*, 654 F.3d 1053-54; *Northwest Indian Cemetery Protective Assoc. v. Peterson*, 795 F.2d 688, 697 (9<sup>th</sup> Cir. 1986), *rev’d on other grounds*, *Lyng v. Northwest Indian Cemetery Protective Assoc.*, 485 U.S. 439, 108 S.Ct. 1319, 99 L.Ed.2d 534 (1988). Some level of detail is necessary as a prerequisite to assuring that the agency has taken a “hard look” at the environmental consequences of its proposed action. *Robertson*, 490 U.S. at 352.

#### F. No Endangered Species Act consultation

Remarkably, DTE has not undertaken an Endangered Species Act consultation or



biological assessment respecting the transmission corridor, nor does the NRC Staff seem to understand that the NRC's own compliance with the ESA is pertinent to the FEIS:

FWS (2009) identified several terrestrial species that are listed under the ESA or candidates for listing that could occur in the area of the proposed offsite transmission line corridor, some of which are not known to occur at the Fermi site. Species identified as potentially present in Monroe County are the Indiana bat, Karner blue butterfly, and eastern prairie fringed orchid. For Wayne County, the species identified are the Indiana bat and eastern prairie fringed orchid. For Washtenaw County, the species identified are the Indiana bat, Mitchell's satyr butterfly, and eastern prairie fringed orchid. FWS also noted that the eastern massasauga, a candidate species, may be present in Washtenaw and Wayne Counties.

Prior to installation of the offsite transmission line, FWS and MDNR would need to review detailed information on the transmission line corridor. The agencies may, at that time, require surveys of the proposed transmission line corridor for the presence of important species and habitat.

FEIS p. 2-61. On FEIS pp. 2-62 through 2-65 are listed 108 "Federally and State-Listed Terrestrial Species That Have Been Observed in Monroe, Washtenaw, and Wayne Counties and May Occur within the Transmission Line Corridor" (108 species listed: 80 plants; 8 insects; 2 amphibians; 4 reptiles; 12 birds; 2 mammals). The absence of any consultations yet between DTE and the U.S. Fish and Wildlife Service and the Michigan Department of Natural Resources leaves the FEIS critically incomplete and as a practical matter leaves mitigation up to a contractor - ITC Transmission - which is not a party to these proceedings and which has not participated in any way in securing regulatory approvals which are disclosed within the FEIS.<sup>17</sup> Lack of biological

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<sup>17</sup>From FEIS p. 5-41: "Transmission lines from Fermi 3 would be owned by Detroit Edison up to the point of their interconnection with the proposed Fermi 3 switchyard. Outward from interconnection with the Fermi 3 switchyard, ITC Transmission would own the lines and other transmission system equipment. Although Detroit Edison will maintain ownership and control of the land in the new onsite transmission corridor, Detroit Edison expects to contract with ITC Transmission to maintain the transmission towers and lines located on Detroit Edison property (Detroit Edison 2011a).

Accordingly, the impacts from operation and maintenance of transmission lines discussed in this EIS are based on publicly available information and reasonable expectations of the configurations and practices that ITC Transmission would likely follow based on standard industry practice."

assessment and agency consultation deprives the public entirely of its participation/comment opportunity on Endangered Species Act considerations, and as to NEPA, participation and comment opportunity respecting state-endangered species.

For example, the fact that there will be a dramatic change in the wetland type of the 93.4 acres of wetlands in the as-yet undeveloped western, 10.8 mile stretch of corridor has serious but unknown scientific implications for flora and fauna:

Approximately 93.4 ac of forested wetland occur within the expected transmission line corridor; most, if not all, would be permanently cleared of trees (Detroit Edison 2011a). These wetlands would be converted to scrub-shrub or emergent wetlands to maintain clearance for the conductors.

FEIS p. 4-44. Other planned environmental changes will stress creatures, whether endangered or not:

Electricity transmission systems have the potential to affect terrestrial ecological resources through corridor maintenance, bird collisions with transmission lines and towers, and electromagnetic fields (EMFs) (NRC 1996).

FEIS p. 5-22. Herbicides and pesticides will be used in an area with at least 30 jurisdictional water courses or bodies of water, and there will be wetlands degradation from heavy vehicles.

And without a shred of site-specific data from a biological assessment or otherwise, the FEIS (at p. 5-23) relies on conclusory and dated 1996 NRC license renewal GEIS language to conclude that “bird collisions associated with the operation of transmission lines do not typically cause long-term reductions in bird populations” and that “the impacts on wildlife populations from continued ROW maintenance are not typically significant.” In the western 10.8 mile stretch, “three wetlands are much wider, at 1302 ft, 903 ft, and 1339 ft (Detroit Edison 2011a). Since the upper limit of spans between transmission structures is typically 900 ft, it is anticipated that development of this undeveloped segment of corridor might require the placement of one tower

or pole in each of these wetlands.” FEIS p. 2-65.

Despite this complex of human intrusions which will be visited upon wildlife and wild plants, the NRC Staff anomalously insists that “The overall effect of operation of the new line on wildlife is expected to be *minor* because maintenance activities would be limited and because most of the corridor has been previously developed and, in less-maintained areas, there are existing disturbances such as farming, neighboring residences, and roadways.” FEIS p. 5-23.

For any federal action that may affect a threatened or endangered species, the agency contemplating the action must undertake a "Section 7" consultation with the consulting agency to ensure that the federal action is not likely to jeopardize "the continued existence of" an endangered or threatened species and will not result in the "destruction or adverse modification" of the designated critical habitat of the listed species. 16 U.S.C. §1536(a)(2); *see Gifford Pinchot Task Force v. U.S. Fish and Wildlife Service*, 378 F.3d 1059, 1063 (9th Cir. 2004). Here, the NRC is required to ask FWS in writing whether, in its opinion, a listed or proposed species may be present in the action area. 16 U.S.C. §1536(c)(1). If FWS responds that no protected species are present, the consultation requirement ends. If, however, FWS responds that there may be an endangered or threatened species in the action area, the agency is required to prepare a biological assessment (“BA”), which identifies any listed species within the area and evaluates the potential effects of the action on those species. 16 U.S.C. §1536(c)(1); 50 C.F.R. §402.02.

The consultation process concludes with the consulting agency issuing a Biological Opinion. *See Ariz. Cattle Growers' Assoc. v. United States Fish and Wildlife Serv.*, 273 F.3d 1229, 1239 (9th Cir. 2001). This opinion must address both species jeopardy and critical habitat by considering the current status of the species, the environmental baseline, the effects of the

proposed action, and the cumulative effects of the proposed action. *Gifford Pinchot*, 378 F.3d at 1063. In formulating its biological opinion, the agency "shall use the best scientific and commercial data available." 16 U.S.C. § 1536(a)(2); *see* 50 C.F.R. § 402.14(g)(8); *Pacific Coast Fed'n of Fishermen's Ass'n, Inc. v. National Marine Fisheries Service*, 265 F.3d 1028, 1034 (9th Cir. 2001).

The BA requirement can be fulfilled as part of the agency's procedural requirements established by the NEPA. 16 U.S.C. §1536(c)(1). Similarly to NEPA, a BA is required for all federal actions which constitute a "major construction activity," whether or not a listed species is suspected in the area. 50 C.F.R. §402.12(b)(1). A "major construction activity" is defined as "a construction project (or other undertaking having similar physical impacts) which is a major Federal action significantly affecting the quality of the human environment as referred to in [NEPA]." 50 C.F.R. §402.02. The term "major" reinforces the term "significantly," but has no meaning independent of it. *Andrus v. Sierra Club*, 442 U.S. 347, 364 n. 23, 99 S.Ct. 2335, 2344 n. 23, 60 L.Ed.2d 943 (1979); 40 C.F.R. § 1508.18. The regulations promulgated to institute NEPA also specifically provide that "major" actions include approving permits for construction. 40 C.F.R. §1508.18(b)(4).

When an agency prepares an EIS, it is complying with the BA requirement of 16 U.S.C. § 1536( c), provided that one of the environmental impacts discussed is the impact on threatened and endangered species. *Sierra Club v. U.S. Army Corps Engineers*, 295 F.3d 1209, 1220 (9th Cir. 2002). The Fermi 3 FEIS reflects that threatened/endangered species impacts investigation and analysis has been done only for the site of the proposed plant, not the transmission corridor. There is no biological assessment included within the FEIS, merely a suggestion that one will be

performed in the future. This deprives the public of an adequate comment opportunity at the NEPA document stage; all it has before it is a “plan to have a plan.”

The harm to a public plaintiff in a NEPA circumstance is manifest when an agency makes a decision without sufficiently considering information NEPA requires be placed before the decision-maker and public. *Sierra Club v. Marsh*, 872 F.2d 497, 500 (1st Cir. 1989). That information includes comments and feedback from public participants. The courts expect that “Persons challenging an agency's compliance with NEPA must structure their participation so that it. . . alerts the agency to the [parties'] position and contentions, in order to allow the agency to give the issue meaningful consideration.” *Dep't of Transp. v. Pub. Citizen*, 541 U.S. 752, 764 (2004). Plaintiffs “waive their right to challenge [the final NEPA result]” if “they did not raise that issue during the administrative process.” *Protect Lake Pleasant, LLC v. Connor*, No. CIV 07-454-PHX-RCB, 2010 WL 5638735, at \*37 (D.Ariz. July 30, 2010).

Here, Intervenors and the public are being deprived of a procedural right accorded them under NEPA by not having access to the result of a transmission corridor-related ESA consultation and any biological assessment that results, as a part of the FEIS stage.

#### G. Number and location of high-voltage lines in corridor remains indeterminate

Detroit Edison anticipates that three new 345-kV transmission lines would be needed to serve Fermi 3. These lines would connect Fermi 3 to the Milan Substation and would likely follow a single 29.4-mi route. FEIS p. 7-7. From the lack of confirmation as to how many lines are to be strung, there can be no firm conclusion as to whether there will be multiple corridors, whether the corridors' footprint(s) can be minimized, nor how to measure the electromagnetic effects on flora and fauna, nor the bird collisions that might be occasioned. The environmental

effects could be multiples and are not even firmly routed.<sup>18</sup> This major activity remains unquantified, even at the end of the NEPA phase.

Approximately 10.8 miles of the 29.6 mile route would cross undeveloped rural land, where the environmental effects are considerably less documented. Making matters worse, the FEIS agrees that “[a]t this time, it is not known whether other utility transmission lines might be developed in the area that could contribute to cumulative impacts.”

This latter conclusion seems contrived. Without much data, the NRC Staff’s assumption is that environmental impacts will be “small,” but it is coupled with an admission that cumulative effects are unknown. In the following hubristic conclusion, the NRC Staff admits that cumulative effects should be considered, aren’t considered, but considered and mitigated, there should be no problem:

Impacts related to building the proposed Fermi 3, associated facilities, and transmission lines on aquatic habitat and biota could result from altered hydrology, erosion, stormwater runoff of soil and contaminants, and direct disturbance or loss of aquatic habitats. In addition to having a minor potential impact on recreationally or commercially important fish species that could occur in the vicinity of the Fermi site, building Fermi 3 could also affect some Federally or State-listed aquatic species in the western basin of Lake Erie or in the lower Swan Creek watershed, including northern riffleshell (*Epioblasma torulosa rangiana*), pugnose minnow (*Opsopoeodus emeiliae*), rayed bean (*Villosa fabalis*), salamander mussel (*Simpsonaias ambigua*), sauger (*Sander canadensis*), silver chub (*Macrhybopsis storeriana*), and snuffbox (*Epioblasma triquetra*) (Section 4.3.2.3). However, the likelihood that building activities could affect these species is low and, if mitigation identified in Section 4.3.2.5 is implemented, the impacts of Fermi 3 preconstruction and construction activities, including development of associated transmission lines, would be SMALL. These effects should not measurably increase cumulative impacts on those species within the geographic area of interest. Other

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<sup>18</sup>Indeed, DTE states, and the Staff echoes, that “the description presented here of the terrestrial resources that interface with the transmission line corridors is based on publicly available information and reasonable expectations of the configurations that ITC Transmission would likely use based on standard industry practice. The information described in this subsection does not imply commitments were made by ITC Transmission or Detroit Edison, unless specifically noted.” FEIS p. 2-45.

construction projects that occur along the shores of Lake Erie's western basin or within watersheds that drain into the western basin would contribute in similar ways to the impacts on aquatic habitats and biota within the geographic area of interest, although the overall cumulative level of impact is difficult to quantify.

FEIS p. 7-23. The NRC review team further decides that with projected climate change and past, present, and reasonably foreseeable future actions in the lower Swan Creek watershed and the western basin of Lake Erie, cumulative impacts on aquatic resources would be "moderate" but that within that framework since "incremental impacts from NRC-authorized activities would be SMALL," that "no further mitigation would be warranted." FEIS p. 7-27. It is outlandish and illogical (especially since unexplained) that the NRC Staff has concluded that a large, macro, environment-harming phenomenon which would cause "moderate" effects will have only "small" (and unstated and unanalyzed) effects on the Fermi 3 nuclear power plant construction project and its associated 30-mile transmission corridor.

#### H. No compliance in corridor with NHPA

The story is nearly identical in the realm of historical and cultural resources. The established 18.6 miles of transmission corridor has historic resources which have not been fully documented, while the undeveloped 10.8 mile stretch from the Sumpter-Post Road junction in Wayne County west to the existing Milan substation in Washtenaw County, has yet to be scrutinized under the National Historic Preservation Act.

There was no Phase 1, on-the-ground investigation of historic or cultural properties performed in the estimated transmission corridor. Instead, efforts to identify cultural resources along the proposed transmission line route consisted of "site file research for the entire proposed transmission line route and a field view of the proposed new portion of the route." FEIS p. 2-208. The APE [area of potential effects] for the site file search for the entire proposed trans-



mission line route was defined as a 1.5-mi area around the proposed route from the Fermi 3 site in Monroe County to the existing Milan Substation in Washtenaw County. Site file searches identified a total of 77 previously recorded archaeological resources within the proposed transmission line route APE; no previously recorded architectural resources or NRHP-listed or NRHP-eligible historic properties were identified (Detroit Edison Corporation 2011a). *Id.* Six of the 77 archaeological resources would be crossed by that portion of the proposed transmission line route that would require a new corridor. These six archaeological resources, which consist of five prehistoric archaeological sites and one historic archaeological site, were previously determined to not be NRHP-eligible (see Table 2-63). It bears noting that there is no disclosure of the process by which National Register eligibility was determined for these 6 sites, which can be of special importance when native American tribal participation must be solicited.

Even in the established offsite transmission corridor area of potential effect, not all historic resources have been investigated and a determination made as to their eligibility for the National Register of Historic Places: “[P]revious cultural resource identification efforts indicated the presence of two archaeological resources and 83 architectural resources offsite, but within the indirect APE for Fermi 3. Neither of the two archaeological resources has been evaluated for NRHP eligibility (Demeter et al. 2008).” FEIS p. 4-100. The Staff admits that building Fermi 3 would significantly affect the viewshed from the offsite APE’s (“These alterations would consist of the introduction of new power plant facilities, including buildings and structures, into the existing viewsheds and settings of the 21 determined or recommended NRHP-eligible architectural resources and the settings of the two previously archaeological sites that have not been evaluated for NRHP eligibility,” FEIS pp. 4-100 to 4-101).

And respecting the undeveloped prospective corridor area, there is even less information published in the FEIS:

The approximately 11-mi portion of the proposed offsite transmission line route from the Sumpter-Post Road junction in Wayne County to the Milan Substation in Washtenaw County will require a new transmission line route and ***may*** result in impacts on historic and/or cultural resources. The process of building new transmission lines ***may*** result in direct impacts on previously and as-yet-unidentified archaeological or architectural resources crossed by the proposed transmission lines or indirect visual impacts on as-yet unidentified architectural resources in the vicinity of the new transmission lines. Cultural resource impacts would be evaluated during the siting process of transmission lines whose exact location is undetermined. Thus, the potential for direct and indirect or visual impacts Construction Impacts at the Proposed Site exists, and ***in the absence of more detailed information, these impacts cannot be evaluated with certainty.***

Emphasis supplied. FEIS pp. 4-101 to 4-102. The NRC Staff, in its gross ignorance of the historic resources in the corridor nonetheless agreed that they will suffer potentially devastating effects without mitigation, and assigned a “moderate” effects - mid-range severity - rating: “The combined impacts from preconstruction and construction activities were described in Section 4.6 and determined to be MODERATE.” However, “[i]f preconstruction activities associated with the offsite transmission lines resulted in significant alterations to the cultural environment, then *additional impacts could be realized.*” (Emphasis added). FEIS p. 7-31. And the Staff clings to its all-purpose palliative, that the NRC really has no responsibility to protect those resources: “According to 10 CFR 50.10(a)(2)(vii), transmission lines are not included in the definition of construction and are not an NRC authorized activity. Therefore, the NRC considers the offsite proposed transmission lines to be outside the NRC’s APE and therefore not part of the NRC’s consultation.” FEIS p. 4-102.

This position derogates the ASLB’s cautions in LBP-12-12:

It appears that the sole purpose of the new transmission corridor is to transmit

electrical energy generated by Fermi Unit 3, and that it would serve no useful purpose absent the new nuclear power plant. If that is true, the transmission corridor lacks independent utility (*i.e.*, it is a connected action) and must be fully evaluated in the FEIS. This remains true even though the NRC may define construction of the transmission corridor as a preconstruction activity, it is owned by a company other than the Applicant, and it is outside the NRC's regulatory jurisdiction. The NRC's obligations under NEPA include evaluating all environmental effects of the proposed action (including connected actions) that it has the authority to prevent. Even though the NRC does not license construction or operation of the transmission corridor, it has the authority to deny the license for Fermi Unit 3 if, for example, the total environmental costs of the new reactor and connected actions exceed the benefits. Denial of the license would effectively prevent harmful environmental impacts resulting from construction and operation of the transmission corridor, given that its sole purpose appears to be transmitting electrical energy generated by Fermi Unit 3.

The ASLB should not countenance this persistent and clear intention of violating NEPA on the part of the NRC Staff.

6. Sufficient Information to Show the Existence of a Genuine Dispute With the Applicant and the NRC

A. For NEPA purposes, there is no distinction between preconstruction and other activities

Although the NRC does not consider "preconstruction" activities to be within the scope of the COL application, per 10 CFR § 51.45(c), that contravenes the express directives contained in that regulation:

The environmental report must include an analysis that considers and balances the environmental effects of the proposed action, the environmental impacts of alternatives to the proposed action, and alternatives available for reducing or avoiding adverse environmental effects. . . . An environmental report prepared at the early site permit stage under § 51.50(b), limited work authorization stage under § 51.49, construction permit stage under § 51.50(a), or combined license stage under § 51.50(c) *must include a description of impacts of the preconstruction activities* performed by the applicant at the proposed site (*i.e.*, those activities listed in paragraph (1)(ii) in the definition of "construction" contained in § 51.4), necessary to support the construction and operation of the facility which is the subject of the early site permit, limited work authorization, construction permit, or combined license application. The environmental report *must also contain an analysis of the cumulative impacts of the activities to be authorized by the limited work authorization, construction permit, or combined license in light of the*

*preconstruction impacts described in the environmental report.*

Emphasis supplied.

Moreover, “preconstruction activities” are within the scope of the NEPA review because they are all connected actions, per 40 C.F.R. § 1508.25(a)(1)(iii) as “interdependent parts of a larger action and depend on the larger action for their justification.” For example, Table 3-2 identifies “deep excavation” or the “excavation of the basemat for the reactor” as a preconstruction activity. However, but for the larger action (the issuance of the COL), the excavation of the basement for the reactor need not occur. Thus, all preconstruction activities should be analyzed as *direct* impacts. This might be a valid delineation if “preconstruction” activities were either completed or ongoing at the time of the document’s issuance. But as noted on FEIS page 4-62: “Detroit Edison plans to begin the preconstruction work specific to Fermi 3 in 2013 and to complete all building activities in 2021.” So even preconstruction activities are deemed to be “specific to Fermi 3,” bolstering the argument that they should be analyzed as direct impacts under NEPA. As direct impacts, the magnitudes of impacts described in the FEIS by NRC as SMALL, MODERATE, or LARGE significantly change, and warrant stronger or additional mitigation measures.

And as § 51.45( c) states, preconstruction activities should also be analyzed in terms of cumulative impacts. The FEIS should include activities specific to the Fermi 3 site that have been deemed “pre-construction,” rather than the generic activities listed in Table 3-2. Finally, if any construction-related activities have commenced, these should be identified in the FEIS.

#### B. The issues of fact are manifest within the FEIS

Even if the ASLB concludes that Intervenors have not shown that the FEIS contains new

data or conclusions that differ from those in the DEIS, §2.309(f)(2) provides another alternative.

It allows a new contention to be filed after the initial docketing with leave of the presiding officer upon a showing that:

- i. The information upon which the amended or new contention is based was not previously available;
- ii. The information upon which the amended or new contention is based is materially different than information previously available; and
- iii. The amended or new contention has been submitted in a timely fashion based on the availability of the subsequent information.

*Id.*

In the instance of the transmission corridor's exclusion from the EIS, the ASLB determined that Intervenor did not raise the controversy in 2009 with their initial petition. However, the ASLB proceeded in LBP-12-12, to order the corridor to be subjected to NEPA analysis, in an order grounded in extensive reasoning. The Staff appears to have almost entirely ignored that order. Intervenor had a right to expect that the ASLB order would be followed scrupulously by the Staff, and learned with the publication of the FEIS that the expectation had not been fulfilled. This is new information, materially different from that previously available, and Intervenor has timely proffered their amended or new contention on the corridor EIS.

The contemplated physical changes to the 1,069-acre transmission corridor include erection of major kilovoltage transmission lines and towers, clear-cutting hundreds of acres of trees, and major alterations of some wetlands. They collectively comprise a "major federal action significantly affecting the quality of the human environment." NEPA, 42 U.S.C. § 4332(2)(C)(i). This duty to carefully consider information regarding a project's environmental impacts is nondiscretionary. *Silva v. Romney*, 473 F.2d 287, 292 (1st Cir. 1973). Federal agencies are held to a "strict standard of compliance" with the Act's requirements. *Calvert Cliff's Coordinating*

*Commission v. AEC*, 449 F.2d 1109, 1112 (D.C. Cir. 1971).

The test for "major Federal action" and "significantly affecting" is fused into a single criterion: significance. An action is major if it is significant and if significant, requires preparation of an EIS. 40 C.F.R. § 1508.27. The degree of environmental impact determines significance. "Significantly" involves "intensity", which (40 C.F.R. § 1508.27(b)) "refers to the severity of impact" - *i.e.*, that environmentally negative consequences may occur in implementation of the project. Regarding "intensity," "one speaks of the severity of adverse impacts, not beneficial impacts." *Friends of Fiery Gizzard v. Farmers Home Administration*, 61 F.3d 501, 504 (6<sup>th</sup> Cir. 1995). At 40 C.F.R. § 1508.27(b) are 10 measures of "intensity" of an impact.

The public has no burden of showing significant effects: "To [require an EIS], a plaintiff need not show that significant effects will in fact occur ... *raising substantial questions whether a project may have a significant effect is sufficient.*" (Emphasis supplied). *Anglers of the Au Sable v. U.S. Forest Service*, Case #05-10152-BC (E.D. Mich. N.D. 2005) at 13-14, citing *Idaho Sporting Congress v. Thomas*, 137 F.3d 1146, 1149-50 (9th Cir. 1998) (EIS required if "substantial questions are raised" about effects on environmental quality).

Because the changes effected by the Fermi 3 project in the transmission corridor will be major, they must be analyzed in the FEIS. NEPA and the Council on Environmental Quality ("CEQ") regulations implementing NEPA are intended to ensure that environmental considerations are "infused into the ongoing programs and actions of the Federal Government," *Marsh v. Oregon Natural Res. Council*, 490 U.S. 360, 371 n.14 (1989), NEPA imposes on agencies a continuing obligation to gather and evaluate new information relevant to the environmental impact of its actions. *Warm Springs Dam Task Force v. Gribble*, 621 F.2d 1017, 1023-24 (9th

Cir. 1980) ; 40 C.F.R. § 1509(c)(1)(ii). “An agency that has prepared an EIS cannot simply rest on the original document. The agency must be alert to new information that may alter the results of its original environmental analysis, and continue to take a ‘hard look’ at the environmental effects of [its] planned action, even after a proposal has received initial approval.” *Friends of the Clearwater v. Dombeck*, 222 F.3d 552, 557-58 (9th Cir. 2000) (quoting *Marsh*, 490 U.S. at 373-74). The need to supplement under NEPA when there is new and significant information is found throughout the NRC regulations. *See* 10 C.F.R. §§ 51.92 (a)(2), 51.50(c)(iii), 51.53(b), 51.53(c )(3)(iv).

The ASLB’s June 21, 2012 injunction to the NRC Staff that +“the primary responsibility for compliance with NEPA lies with the Commission,” and that “We recommend . . . that the NRC Staff consider the issues raised by Intervenor when it prepares the FEIS,” *id.* at pp. 48-49, constitutes “new and significant information.” This finding thrust NEPA consideration of the transmission corridor onto the NRC Staff. The information is “new” because it arose, *sua sponte*, as an ASLB order finding that there was inadequate analysis under NEPA of the transmission corridor, which in the opinion of the Board, appeared to be segmented from the remainder of the Fermi 3 project.

The ASLB order to include the transmission corridor in the FEIS is “significant” because it required an extraordinary level of concern be given the reality that operation of Fermi 3 means completion of the corridor, and that use of the transmission corridor would necessarily affect “unique characteristics of the geographic area such as . . . prime farmlands, wetlands . . . or ecologically critical areas ” as well as “the degree to which the action may adversely affect an endangered or threatened species or its habitat.” 40 C.F.R. § 1508.27(b)(3) and (9).



As the fundamental purposes of NEPA are: (1) to guarantee that the government takes a “hard look” at all of the environmental consequences of proposed federal actions before the actions occur, *Roberson v. Methow Valley Citizens Council*, 490 U.S. 332, 350 (1989); and (2) to “guarantee[ ] that the relevant information will be made available to the larger audience that may also play a role in both the decisionmaking process and the implementation of that decision,” *id.* at 349, the NRC cannot meet the fundamental purposes of NEPA if it does not include all of environmental changes and the costs associated therewith from construction of, and ongoing use of, the transmission corridor. *See Sierra Club v. Sigler*, 695 F.2d 957, 979 (5th Cir. 1983) (“There can be no ‘hard look’ at the costs and benefits unless all costs are disclosed.”). “The discussion of steps that can be taken to mitigate adverse environmental consequences plays an important role in the environmental analysis under NEPA.” *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 351 (1989).

An EIS must also contain “means to mitigate adverse environmental impacts.” 40 C.F.R. 1502.16(h). It must be a “reasonably complete discussion of possible mitigation measures.” *Robertson*, 490 U.S. at 352. Mitigation measures may be found insufficient when the agency fails to study the efficacy of the proposed mitigation, fails to take certain steps to ensure the efficacy of the proposed mitigation (such as including mandatory conditions in permits), or fails to consider alternatives in the event that the mitigation measures fail. *Id.* Here, the NRC Staff has failed in each of these respects. “Even though the Commission’s application of its technical expertise demands the ‘most deferential’ treatment by the courts,” the NRC must nonetheless conduct “a thorough enough analysis” to merit deference from the courts. *State of New York v. Nuclear Regulatory Commission*, Case No. 11-1045 at 8 (D.C. Cir. June 8, 2012) (slip op.),

citing *Calvert Cliffs' Coordinating Comm., Inc. v. Atomic Energy Comm'n*, 449 F.2d 1109, 1118 (D.C. Cir. 1971).

## **VII. NEW CONTENTION 26**

### **MOTION FOR ADMISSION OF CONTENTION OF OMISSION FOR FAILURE TO UNDERTAKE AND CONCLUDE ENDANGERED SPECIES ACT CONSULTATION RELATIVE TO TRANSMISSION LINE CORRIDOR**

Now come Intervenors, by and through counsel, and hereby move to admit a new contention regarding the lack of federal Endangered Species Act (“ESA”) compliance concerning the proposed transmission line corridor for the proposed Fermi 3 Nuclear Power Plant.

Pursuant to 10 C.F.R. § 2.309(f)(1), Intervenors assert a new contention, seeking consideration of new and significant information from the Final Environmental Impact Statement (“FEIS”) for the COLA for Fermi 3 which is relevant to initiation and completion of a Section 7 Endangered Species Act consultation between the NRC Staff and appropriate personnel from the U.S. Fish and Wildlife Service. There has not been a biological assessment conducted of the 1,069-acre proposed transmission corridor area to identify federally- and state-threatened and -endangered plant and animal species, nor has the requisite interagency consultation occurred. The assessment and consultation process might resolve in the development of mitigation plan arrangements, and those mitigation arrangements must be disclosed in the FEIS for the Fermi 3 project. They do not presently appear in the FEIS because there has been no ESA compliance.

#### **1. Statement of Contention**

There has been no federal Endangered Species Act (“ESA”) biological assessment of the plant and animal species within the proposed transmission line corridor which itself is part of the proposed Fermi 3 power plant project and there are no ESA mitigation arrangements published in

the Fermi 3 FEIS for a combined operating license.

2. Brief Explanation of the Basis for the Contention

The COL applicant, DTE, has not undertaken an Endangered Species Act consultation or biological assessment respecting the transmission corridor, and the NRC Staff appears not to understand that the NRC's own compliance with the ESA is pertinent to the FEIS:

FWS (2009) identified several terrestrial species that are listed under the ESA or candidates for listing that could occur in the area of the proposed offsite transmission line corridor, some of which are not known to occur at the Fermi site. Species identified as potentially present in Monroe County are the Indiana bat, Karner blue butterfly, and eastern prairie fringed orchid. For Wayne County, the species identified are the Indiana bat and eastern prairie fringed orchid. For Washtenaw County, the species identified are the Indiana bat, Mitchell's satyr butterfly, and eastern prairie fringed orchid. FWS also noted that the eastern massasauga, a candidate species, may be present in Washtenaw and Wayne Counties.

Prior to installation of the offsite transmission line, FWS and MDNR would need to review detailed information on the transmission line corridor. The agencies may, at that time, require surveys of the proposed transmission line corridor for the presence of important species and habitat.

FEIS p. 2-61. On FEIS pp. 2-62 through 2-65 are listed 108 "Federally and State-Listed Terrestrial Species That Have Been Observed in Monroe, Washtenaw, and Wayne Counties and May Occur within the Transmission Line Corridor" (108 species listed: 80 plants; 8 insects; 2 amphibians; 4 reptiles; 12 birds; 2 mammals). The absence of any consultations yet between DTE and the U.S. Fish and Wildlife Service and the Michigan Department of Natural Resources leaves the FEIS critically incomplete and as a practical matter leaves mitigation up to a contractor - ITC Transmission - which is not a party to these proceedings and which has not participated in any way in securing regulatory approvals which are disclosed within the FEIS.<sup>19</sup> Lack of biological

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<sup>19</sup>From FEIS p. 5-41: "Transmission lines from Fermi 3 would be owned by Detroit Edison up to the point of their interconnection with the proposed Fermi 3 switchyard. Outward from interconnection with the Fermi 3 switchyard, ITC Transmission would own the lines and other transmission system

May 30, 2013

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of:	)	
	)	
DTE ELECTRIC COMPANY	)	Docket No. 52-033-COL
	)	
(Fermi Nuclear Power Plant, Unit 3)	)	

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DTE ELECTRIC'S REBUTTAL STATEMENT OF POSITION ON CONTENTION 15

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**DTE ELECTRIC'S REBUTTAL  
STATEMENT OF POSITION ON CONTENTION 15**

**I. INTRODUCTION**

Pursuant to 10 C.F.R. § 2.1207(a)(1) and the Licensing Board's Order (Modifying the Schedule), dated March 29, 2013, DTE Electric Company ("DTE") hereby submits this Rebuttal Statement of Position on Contention 15. This Rebuttal Statement of Position is supported by rebuttal testimony from Peter Smith, Stanley Stasek, Ronald Sacco, and Steven Thomas ("DTE Rebuttal Testimony") (Exh. DTE000101) and by the exhibits submitted concurrently.

For the reasons set forth below, the Intervenor's have utterly failed to identify any deficiencies in the quality measures applied during the site investigation, COL Application development, or COL Application review phases of the Fermi 3 project. The Intervenor's arguments and testimony contain wholly unsubstantiated claims regarding DTE management's commitment to quality measures. The Intervenor's and their witness distort the record by selectively quoting documents out of context. Based on the arguments and examples cited in their testimony and position statement,<sup>1</sup> the Intervenor's witness has not demonstrated even a

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<sup>1</sup> "Testimony of Arnold Gundersen Supporting of Intervenor's Contention 15: DTE COLA Lacks Statutorily Required Cohesive QA Program," dated April 30, 2013 ("Gundersen Testimony"); "Testimony of Arnold Gundersen Supporting of Intervenor's Contention 15: DTE COLA Lacks Statutorily Required Cohesive QA Program; Fermi 3 Expert Report

passable familiarity (much less a working knowledge) of the NRC's quality assurance regulations or the programs and procedures that have been applied to safety-related activities on the Fermi 3 project.

In the end, the record contains ample evidence to support a finding that there is reasonable assurance of the quality of the safety-related information in the COL Application, including information that is based on tests, investigations, or other safety-related activities conducted by DTE's contractor, Black & Veatch ("B&V"). DTE also has demonstrated its commitment to implementation of a Quality Assurance ("QA") program that complies with applicable NRC regulations and guidance. In contrast, the Intervenor's position is based on little more than a long-since-resolved, low-level enforcement action, augmented with unfounded speculation or mischaracterization of the DTE program, and spiced up with broad hyperbole. The Intervenor has failed to demonstrate any issue of material significance with respect to the quality of safety-related information in the COL Application or the implementation of the QA program for the Fermi 3 project. Contention 15 should be resolved in favor of DTE.

## II. APPLICANT WITNESSES

DTE's Written Rebuttal Testimony on Contention 15 is presented by Mr. Peter Smith, Mr. Stanley Stasek, Mr. Ronald Sacco, and Mr. Steven Thomas. All four individuals have extensive, recent experience with Appendix B QA programs and in-depth knowledge of the quality measures applied during the Fermi 3 project. Through the testimony and supporting

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Based Upon Proprietary Information," dated April 30, 2013 ("Gundersen Proprietary Testimony"). The Intervenor provided DTE's counsel with a copy of the proprietary testimony via e-mail. However, DTE was not served a copy of the proprietary testimony through the Electronic Information Exchange, as required by NRC regulations. Nevertheless, DTE has elected to respond to the claims, at this time, in order to ensure the availability of a comprehensive record. DTE is not waiving its right to address the proprietary testimony through a motion in limine.



exhibits, DTE's expert witnesses respond to the issues raised by the Intervenor's witness, Mr. Gundersen, and demonstrate that appropriate quality measures were applied to the development of safety-significant information in the COL Application, that there has been no breakdown in the QA program, and that the QAPD provided in the COL Application meets NRC's regulatory requirements.

### III. DISCUSSION

#### A. DTE Has Demonstrated Its Commitment to Quality Measures Throughout the Fermi 3 Project

Mr. Gundersen alleges that "DTE knowingly and deliberately minimized its corporate commitment to quality oversight."<sup>2</sup> But, he provides no basis for this assertion, which is contradicted by the record. Since the beginning of the Fermi 3 project, and prior to submittal of the COL Application, DTE has been committed to implementing quality assurance procedures for all aspects of work that are important to the safety of Fermi 3. In both the pre-application phase and the application review phase of the project, DTE has ensured, through systematic processes, that suppliers of safety-related equipment or services have met the applicable requirements of Appendix B. DTE knowingly and deliberately contracted with B&V to perform specific services under the B&V Appendix B QA Program. DTE took responsibility for the program, delegated the function to a qualified vendor, and exercised organizational oversight of that work. And, DTE subsequently implemented the ND QAPD before COL Application chapters were accepted from B&V and before the COL Application was submitted to the NRC. DTE did not, in any sense, "minimize its corporate commitment to quality oversight."<sup>3</sup>

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<sup>2</sup> Gundersen Testimony at ¶25.

<sup>3</sup> To the extent the Intervenor's are disparaging DTE's decision to delegate QA activities to B&V, they are challenging the regulations that specifically allow such an approach.

At the time of the COL Application, DTE also implemented the Fermi 3 QAPD. The Fermi 3 QAPD complies with Appendix B, as well as NQA-1, and is consistent with the NEI template for an acceptable COL application QAPD. The Fermi 3 QAPD has been reviewed and accepted by the NRC Staff. The Intervenor's have not shown (or even attempted to show) any current deficiency in that program.

The Intervenor's claim that in February 2008 DTE management "did not understand its organizational responsibilities concerning quality assurance oversight."<sup>4</sup> But, the supposed evidence provided to support that claim falls far short.

- In ¶35, Mr. Gundersen references an email sent by a licensing contractor, used by B&V, who was helping to prepare the content for Chapter 17 of the FSAR.<sup>5</sup> The email reflects nothing more than the contractor's efforts to gather information to support development of the text of the COL Application.<sup>6</sup>
- In ¶39, Mr. Gundersen highlights an email that he claims shows that DTE "had no intention of hiring QA professionals." But, the email shows no such thing. The email merely discusses the history of the Fermi 3 QA program development, including DTE's consideration of broader use of Owner's Engineer resources.<sup>7</sup>
- In ¶40, Mr. Gundersen describes an email that, he says, shows that DTE did not have a clear understanding of its organizational responsibilities. But, in fact, the email reflects appropriate and timely efforts by DTE's newly-hired QA Manager to understand the B&V processes and procedures being applied to the Fermi 3 project. This information would help inform the manner in which he would perform his duties as the QA Manager.<sup>8</sup>

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<sup>4</sup> Intervenor's Statement of Position at 14.

<sup>5</sup> As discussed in ¶70 of DTE's direct testimony, FSAR Chapter 17 addresses quality assurance.

<sup>6</sup> DTE Rebuttal Testimony at ¶34.

<sup>7</sup> *Id.* at ¶36.

<sup>8</sup> *Id.* at ¶37.

None of these examples, when considered in their historical and regulatory context, suggest a failure by DTE to “understand its organizational responsibilities.” Nor do they remotely reflect the “organizational chaos” alleged by the Intervenor.<sup>9</sup> The Intervenor’s claims are nothing more than distortions and unsubstantiated allegations that provide no support for Contention 15.

B. The Intervenor, Not DTE, Are Confused About the Fermi 3 QA Program

Mr. Gundersen claims that “confusion and lack of organizational control reigned” within DTE “for years prior to the COLA submittal and to this day.”<sup>10</sup> But, this claim has absolutely no basis in the record. If anything, it is Mr. Gundersen and the Intervenor who are confused. For example, Mr. Gundersen wrongly claims that DTE relied on the Fermi 2 QA program for geotechnical work without qualifying Fermi 2 as an approved vendor.<sup>11</sup> Geotechnical work was subject to the B&V Appendix B QA program.<sup>12</sup> Only Fermi 2 site procedures (*e.g.*, site access, control of contractors), not the Fermi 2 QA program, were applied to geotechnical work performed at the Fermi site.<sup>13</sup> Mr. Gundersen also wrongly claims that B&V attempted to “backfill” certifications of geotechnical contractors after work had begun. Inexplicably, the only support cited for the allegation is a “pre-work surveillance” by B&V of a geotechnical contractor, GEOVision, used to qualify GEOVision under the B&V QA program.<sup>14</sup>

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<sup>9</sup> Gundersen Testimony at ¶41; Intervenor’s Statement of Position at 14.

<sup>10</sup> Gundersen Testimony at ¶13.

<sup>11</sup> *Id.* at ¶¶18-19.

<sup>12</sup> DTE Rebuttal Testimony at ¶¶14, 20.

<sup>13</sup> *Id.* at ¶¶20, 22.

<sup>14</sup> Gundersen Testimony at ¶20.

These fundamental errors and mischaracterizations indicate an incomplete (at best) understanding of the issues involved Contention 15.

In another example, Mr. Gundersen complains (in ¶23) that he was unable to find a reference to the “New Plant Oversight Manager” position in the COL Application. But, as DTE explained in a summary disposition motion months ago, and again in DTE’s direct testimony at ¶85, the title of the person responsible for the QA program has evolved during the course of the project. The Nuclear Development QA Manager title was used while the ND QAPD was in effect. The duties of the Nuclear Development QA Manager were taken over by the New Plant Oversight Manager in Revision 0 of the Fermi 3 QAPD, and that position became the Director, Quality Management in Revision 1 of the Fermi 3 QAPD. All three positions have the same responsibilities. Mr. Gundersen’s complaint based on his own inadequate review of the information presented to him cannot support Contention 15.

Mr. Gundersen’s testimony also reflects his own confusion regarding application of the NEI QAPD template. Mr. Gundersen asserts in ¶24 (page 22) that DTE should have notified the NRC that it was deviating from the NEI template when it delegated QA activities to B&V for site investigation work. But, delegation is specifically addressed in the NEI QAPD template in Part 2, Section 2.2 (Exh. DTE000091 at 12).<sup>15</sup> There was therefore no “deviation” from the template. In ¶9, Mr. Gundersen claims that the supposed deviation from the NEI template “was memorialized” in the NOV issued to DTE. But, from a regulatory perspective, the requirement is for a QA program that meets Appendix B.<sup>16</sup> Use of the NEI QAPD template is a

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<sup>15</sup> Delegation is also explicitly permitted in 10 C.F.R. Part 50, Appendix B, Criterion I.

<sup>16</sup> DTE Rebuttal Testimony at ¶14.

tool to promote consistency and efficiency — it is not, in and of itself, a requirement. So, the NOV issued by the NRC reflects no such deviation from the NEI template.

Mr. Gundersen also wrongly asserts that DTE failed to notify the NRC of its intent to delegate QA functions to B&V. Contrary to his claim that there is “no record” of these interactions,<sup>17</sup> the NRC audit of pre-application subsurface activities, dated August 8, 2007 (Exh. DTE000084), specifically notes (at 3) that B&V quality assurance measures were being applied to the work. DTE also informed the NRC in a letter, dated May 31, 2007, that the B&V Quality Assurance Program was being applied to the geotechnical investigation work scope.<sup>18</sup>

C. There Are No Ongoing QA Issues

The Intervenor claim that “the problems that [DTE] is currently experiencing with its faulty foundation analysis” are “directly attributable” to decisions made at the beginning of the Fermi 3 project.<sup>19</sup> Mr. Gundersen also claims that “early QA problems are the root cause of the current site characterization issues that continue to plague” Fermi 3.<sup>20</sup> But, these assertions are invented out of whole cloth. Mr. Gundersen does not describe the supposedly “faulty” foundation analysis or link it to any information gathered during the site investigation phase. Nor does he identify the “early QA problems” or describe what effect the “early QA problems” supposedly have today.

As DTE’s expert explains (at ¶18), DTE is continuing to work on a Soil-Structure Interaction (“SSI”) analysis, but that work is unrelated to the site investigation for Fermi 3. In

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<sup>17</sup> Gundersen Proprietary Testimony at ¶1.

<sup>18</sup> Letter from D. Gipson, DTE, to NRC, NRC3-07-0002, dated May 31, 2007 (Exh. DTE000107).

<sup>19</sup> Intervenor’s Statement of Position at 14.

<sup>20</sup> Gundersen Testimony at ¶14.

Revision 7 of the Design Control Document (“DCD”) for the ESBWR, GE added a new specification relating to engineered backfill, which triggered the need for additional analysis by COL Applicants referencing the ESBWR design, including DTE.<sup>21</sup> That SSI analysis is ongoing. However, the SSI analysis (and the need for the analysis) had nothing to do with data gathered during the site investigation phase. Nor does it stem from any QA problems or concerns at the Fermi 3 project. There is simply no basis for the Intervenor’s unsubstantiated (and, in fact, imagined) claim of a connection between QA and the SSI analysis.

Mr. Gundersen also repeatedly charges DTE with relying on a “self-executing” QA program, but never explains what that means.<sup>22</sup> Review of one document that Mr. Gundersen cites as evidence of DTE relying on a “self-executing” QA program reveals selective editing by the Intervenor’s witness and mischaracterization of the document’s content.<sup>23</sup> The text that Mr. Gundersen references describes alternatives that DTE did not adopt. In the section entitled “Description of Solution” (*i.e.*, the alternative actually adopted), DTE explains that it will conduct the COL Application work production acceptance review in accordance with Standard Work Instructions (“SWIs”). DTE then did just that. DTE’s Nuclear Development staff reviewed individual FSAR chapters or sections as prescribed by SWI 03-001-001-0529, “COLA Section and Chapter Review and Acceptance Process” (Exh. DTE000050).<sup>24</sup> DTE

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<sup>21</sup> Revision 7 was submitted in March 2010 — nearly three years after the site investigation work.

<sup>22</sup> Indeed, the Intervenor’s themselves do not seem to understand what they mean by a self-executing QA program. *See* Intervenor’s Statement of Position at 15 (discussing the Intervenor’s claims regarding a supposedly “self-executing” QA program – whatever that really means”).

<sup>23</sup> The Intervenor’s did not introduce this document as an exhibit. DTE will refer to this as Exh. DTE000106.

<sup>24</sup> DTE Direct Testimony at ¶54.

reviewed the application work product against relevant regulatory guidance, information provided by DTE to B&V, and the Reference COL Application (R-COLA), as applicable. Comments were documented, provided to B&V for formal resolution, and resolved in accordance with procedures.

The other examples of alleged QA issues offered by the Intervenors do not indicate any “serial violation” of QA requirements or suggest any fundamental breakdown of the QA program. To the contrary, Mr. Gundersen’s examples relate to issues that were identified by DTE or B&V and entered into their respective Corrective Action Programs for resolution. Far from demonstrating an expectation of a “self-executing” QA program, the examples offered by the Intervenors highlight ongoing efforts to drive continuous improvement in performance. The examples — as well as the numerous exhibits previously introduced by DTE — actually demonstrate the effective functioning of the Fermi 3 QA program through verification activities (*e.g.*, self-assessments, performance trending, audits, surveillances, vendor reviews, and third party audits) and the Corrective Action Program.<sup>25</sup> Mr. Gundersen’s examples also are notably lacking any indication of an error in safety-related information gathered during the site investigation phase or sent to the NRC, much less a QA breakdown.<sup>26</sup> Altogether, the record includes ample examples of DTE taking proactive steps to improve the effectiveness of its programs as part of its continual improvement efforts.

D. Conclusions on Contentions 15A and 15B

The Intervenors have failed completely to demonstrate any safety-significant issue related to either the pre-application site investigation work or subsequent implementation

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<sup>25</sup> DTE Rebuttal Testimony at ¶42.

<sup>26</sup> *Id.*



of the Fermi 3 QAPD. As the record and testimony demonstrate, at the outset of the Fermi 3 COL Application development project in March 2007, DTE contractually delegated to B&V the responsibility for establishing and executing a QA program for the B&V scope of work on the project. DTE retained overall responsibility for the program. Moreover, DTE established an Appendix B program under the ND QAPD and developed procedures for review and acceptance of COL Application work product. The ND QAPD and implementing procedures provided additional assurance of quality beyond DTE's commercial contract oversight.

The testimony and exhibits also demonstrate that DTE has developed and implemented, and will continue to implement, an effective QA program that meets all relevant requirements, standards, and NRC guidance. DTE has demonstrated its commitment to QA from the start of the project by selecting a contractor with a proven Appendix B QA program, requiring by contract that work be performed under that program, establishing its own Appendix B QA program prior to accepting any information for use in the COL Application, and implementing the applicable QAPD program throughout ongoing COL-related work. DTE continues to implement the Fermi 3 QAPD through procedures based on the QAPD and NRC requirements.

#### IV. CONCLUSIONS

DTE has demonstrated its commitment to QA throughout the Fermi 3 project. All safety-related information was developed under an Appendix B QA program that met NRC requirements. There has been no pervasive breakdown in quality assurance and no issues of material safety significance have been identified. There is reasonable assurance that the Fermi 3 QA program meets NRC requirements and has been, and will be, implemented in accordance with the QAPD throughout the design, construction, and operations of Fermi 3. Accordingly, the Board should resolve Contentions 15A and 15B in favor of DTE.

May 30, 2013

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of:

DTE ELECTRIC COMPANY

(Fermi Nuclear Power Plant, Unit 3)

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Docket No. 52-033-COL

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WRITTEN REBUTTAL TESTIMONY OF DTE ELECTRIC  
WITNESSES PETER SMITH, STANLEY STASEK,  
RONALD SACCO, AND STEVEN THOMAS ON CONTENTION 15

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affect safety-related information in the COL Application, and that there are no outstanding QA issues related to Fermi 3.

***C. Response to Intervenor's Testimony***

**Q11. Have you reviewed the Intervenor's initial statement of position and testimony?**

A11. (PS, SS, RS, ST) Yes, we have reviewed the Intervenor's filing and testimony (both public and proprietary).

**Q12. What is your general reaction to the Intervenor's filing?**

A12. (PS, SS, RS, ST) We strongly disagree with the inferences and conclusions that the Intervenor draw from the information that they present. We will address specific issues raised by the Intervenor in the paragraphs that follow.

***1. Gundersen Testimony (Public)***

**Q13. Before getting into the specifics of Mr. Gundersen's testimony, do you have any initial observations?**

A13. (PS, SS) Yes. Mr. Gundersen identifies a number of documents and examples that, he claims, demonstrate problems in DTE's QA program. As discussed further below, Mr. Gundersen cites to text out of context or highlights discrete issues that were identified, investigated, and resolved under the Fermi 3 Corrective Action Program ("CAP"). The fact that issues are entered into the CAP is evidence that the program is working effectively. We would, frankly, be concerned if we were not finding any issues or areas for improvement. In any event, the documents and examples he cites do not suggest any problems with

safety-related information, nor do they indicate a pervasive failure in, or lack of commitment to, quality assurance.

**Q14. In Q8, Mr. Gundersen claims that DTE deviated from the NEI template, which had been approved by the NRC, without informing the NRC of the change. Is this an accurate description of the circumstances?**

A14. (PS, SS) No. First, from a regulatory perspective, the requirement is a QA program that meets Appendix B and NQA-1. Use of the NEI QAPD template is a tool to promote consistency and efficiency, but is not, in and of itself, a requirement. Second, delegation is specifically addressed in the NEI QAPD template in Part 2, Section 2.2 (Exh. DTE000091 at 12).<sup>1</sup> That section explains that the applicant/licensee may delegate to others all or part of the activities of planning, establishing, and implementing the program for which they are responsible, but must retain the responsibility for the program's effectiveness. Here, DTE delegated QA activities to B&V, while retaining overall responsibility for the program's effectiveness. There was therefore no "deviation" from the template. Third, the NRC was aware of DTE's plans to delegate certain QA activities to B&V during the site investigation phase. Specifically, the NRC audit of pre-application subsurface activities, dated August 8, 2007 (Exh. DTE000084), notes (at 3) that B&V QA measures are being applied to the work. DTE also informed the NRC in a letter, dated May 31, 2007, that the B&V QA Program was being applied to the geotechnical investigation work scope.<sup>2</sup> Thus, DTE

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<sup>1</sup> Delegation is also explicitly permitted in 10 C.F.R. Part 50, Appendix B, Criterion I.

<sup>2</sup> Letter from D. Gipson, DTE, to NRC, NRC3-07-0002, dated May 31, 2007 (Exh. DTE000107).

clearly informed the NRC that it was delegating some QA functions to B&V during the site investigation phase.

**Q15. In Q9, Mr. Gundersen asserts that the NOV issued by the NRC related to a deviation from the NEI template. Is that correct?**

A15. (PS, SS) No. As noted above, compliance with the NEI template is not itself a regulatory requirement and therefore could not be the basis for a NOV. The reasons for the NOV were discussed at length in ¶¶62-69 of our direct testimony. In brief, Violation A involved a failure to sufficiently *document* the basis for qualifying the B&V QA program for safety-related Fermi 3 COL activities. Violation B involved a failure to perform certain audits and trending of CARs that DTE committed to perform in the Fermi 3 QAPD. Neither involved a deviation from the NEI template.

**Q16. In Q12, Mr. Gundersen implies that there is some tension between the NRC's decision to withdraw the portion of the QA NOV for the pre-application period and DTE's recognition of the need for QA measures during the pre-application period. Can you respond?**

A16. (PS, SS) While there are no QA requirements that apply prior to submittal of a COL application — that is, before a company is an “applicant” — this does not mean that DTE ignored the need for quality work. A prospective applicant must conduct activities that are important to safety (particularly safety-related site investigation activities) in a manner such that the quality can be demonstrated to support the eventual application. This is precisely what DTE did for the Fermi 3 project. At all times, including both the pre-application and COL Application review phases, DTE ensured, through systematic processes, that suppliers of

safety-related equipment or services meet the applicable requirements of Appendix B.

**Q17. In Q12, Mr. Gundersen claims that the responsibility for the QA program was given to one division of B&V while DTE delegated all the Fermi 3 “Licensing Project Engineering” to a separate division within B&V. Is this accurate?**

A17. (PS, SS) No. As DTE explained in its direct testimony (at ¶51), the Owner’s Engineer was retained under a contract with the Ann Arbor, Michigan, office of B&V. This contract was separate and independent of the contract between DTE and the Overland Park, Kansas, office of B&V preparing the COL Application work product. As a matter of practice, the OE maintained separation from the B&V COL Application project and relied on different personnel. The OE was not, as Mr. Gundersen suggests, given responsibility for the QA program. Nor were QA responsibilities “divided” between the two offices of B&V. Each had distinct responsibilities. And, DTE at all times retained responsibility for the quality of COL Application material.

**Q18. In Q13, Mr. Gundersen claims that “early QA problems are the root cause of the current site characterization issues that continue to plague” Fermi 3. Do you know what he is referring to?**

A18. (PS, SS) No. We are aware of no outstanding site characterization issues relating to the Fermi 3 COL Application. Nor are we aware of any ongoing QA issues.

(PS) DTE is continuing to work on a Soil-Structure Interaction (“SSI”) analysis. But, that work is unrelated to the site investigation for Fermi 3. In Revision 7 of the Design Control Document (“DCD”) for the ESBWR, GE added a new



specification relating to engineered backfill, which triggered the need for additional analysis by COL Applicants referencing the ESBWR design, including DTE. That analysis is ongoing. However, the SSI analysis (and the need for the analysis) had nothing to do with data gathered during the site investigation phase. Revision 7 was submitted in March 2010 — nearly three years after the site investigation work. Nor does the need for the SSI analysis stem from any QA problems or concerns at the Fermi 3 project.

**Q19. Mr. Gundersen asserts in Q15 that the NRC Staff was wrong to decide that the requirement to have an Appendix B QA program applied only to applicants. Can you explain why, as you understand it, the NRC Staff reached its decision?**

A19. (PS, SS) Yes. Appendix B, Criterion I, states that the “applicant” shall be responsible for the establishment and execution of the QA program. Under a plain reading of Criterion I, the Appendix B requirements were not applicable to DTE prior to September 18, 2008, because DTE was not yet an applicant.<sup>3</sup> Therefore, the NRC cannot issue a violation for QA activities prior to the COL Application.

(PS, SS) Regardless, the NRC Staff expects quality work in the application. Accordingly, DTE did have in place a QA program that met Appendix B prior to submitting the COL Application. Indeed, the ND QAPD was in place in February 2008 — before DTE accepted any work product from B&V for use in the COL Application. DTE fully recognized that information developed in the preparation of a COL Application, including site investigation activities, needed to be

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<sup>3</sup> See also DTE Statement of Position on Contention 15 at 17-18.

conducted in a quality manner. DTE therefore took systematic and appropriate quality actions. DTE's approach to implementation of quality requirements was deliberate and timely, and provided the required level of quality as evidenced by the substantive and in-depth NRC Staff reviews.

**Q20. In Q18 and Q19, Mr. Gundersen claims that there were problems associated with geotechnical work performed at the site, including use of an unapproved vendor. Can you address his concerns?**

A20. (PS, RS, ST) Mr. Gundersen claims that DTE relied on the Fermi 2 QA program for geotechnical work without qualifying Fermi 2 as an approved vendor. While a nuclear QA program was applied to the Geotechnical Site Boring Program, Mr. Gundersen wrongly assumes that the operating Fermi 2 QA program was applied to that work. Instead, the geotechnical work was performed under the B&V Appendix B QA program.

(PS) As we explained in our initial testimony at ¶48, experienced DTE personnel provided direct oversight for all site work to provide the necessary interface between the COL project and Fermi 2 plant and to ensure compliance with existing Fermi 2 site programs (*e.g.*, for site access, work control, and contractor oversight). Work at the Fermi site is governed by the Fermi 2 site authority to ensure that there is no adverse impact of site activities on Fermi 2 and that activities are carried out in accordance with Fermi 2 site requirements. For example, Fermi 2 procedures were applied to ensure appropriate control of contractors (*i.e.*, no violations of site rules), and planned excavation activities

must be authorized in advance. But, the work was conducted under the B&V QA program, not the Fermi 2 QA program.<sup>4</sup>

**Q21. In Q20, Mr. Gundersen asserts that “after the geotechnical work had already begun in April 2007, Black & Veatch attempted to backfill the certifications of their non-nuclear contractors.” Is that an accurate characterization?**

A21. (PS, RS, ST) No. To the contrary, the “pre-work surveillance” of GEOVision referenced in the NOV response (emphasis added) was conducted in order to qualify GEOVision under the B&V QA program to perform work activities associated with seismic testing and data collection. The pre-work surveillance is therefore evidence of a functioning QA program and was in no way an attempt to “backfill” certifications after-the-fact.

**Q22. Mr. Gundersen claims in Q21 that “Fermi 2 is not an approved vendor.” Can you respond?**

A22. (PS, RS, ST) Yes. Mr. Gundersen is repeating the same error identified previously regarding the role of Fermi 2. As discussed above, the Fermi 2 QA program was not applied to site investigation activities. Instead, site investigation activities were conducted under the B&V QA program. There was no need to “qualify” Fermi 2 as a vendor because Fermi 2 performed no safety related work for Fermi 3. Applicable Fermi 2 site procedures were followed for reasons related

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In the NRC Staff testimony at ¶19, Mr. Lipscomb notes that at the beginning of the Fermi 3 COL Application, the NRC Staff was primarily familiar with applications that relied on QA programs associated with existing reactors. However, he notes that, since the Fermi 3 COL Application, other applicants have taken the same approach as DTE. Mr. Lipscomb notes that this approach “helps ensure that new applications are informed by current regulatory standards and guidance.”

to operation of Fermi 2, but not for the purpose of developing safety-related information in the COL Application for Fermi 3.

**Q23. In Q23 and Q24, Mr. Gundersen reiterates the issues that he identified earlier in this proceeding. Have you addressed these previously?**

A23. (PS, RS, ST) Yes. DTE addressed these issues in its Motion for Summary Disposition on Contention 15, dated April 17, 2012. Although the Board gave Mr. Gundersen an extension of time in which to prepare a response, Mr. Gundersen ultimately did not submit any testimony or otherwise respond. We also addressed his concerns in our direct testimony at ¶¶85-94. We briefly summarize those responses below.

**Q24. In Q23, Mr. Gundersen complains that he was unable to find a reference to the “New Plant Oversight Manager” position in the COL Application. Can you explain?**

A24. (PS, SS) Yes. As we explained in our direct testimony at ¶85, the title of the person responsible for the QA program has evolved over time. The Nuclear Development QA Manager existed only while the ND QAPD was in effect. The duties of the Nuclear Development QA Manager were taken over by the New Plant Oversight Manager (Revision 0 of the Fermi 3 QAPD), which became the Director, Quality Management (in Revision 1 of the Fermi 3 QAPD in October 2009).

(PS) Mr. Gundersen also claims that this reflects confusion within DTE over the conflicting roles of the two positions (New Plant Oversight Manager and Nuclear Development QA Manager). But, it instead appears that it is Mr. Gundersen who is confused about the evolution of the QAPDs applied to different stages of the

Fermi 3 project. Although they have different titles depending on which QAPD was in effect, all three positions — Nuclear Development QA Manager, New Plant Oversight Manager, and Director, Quality Management — have the same responsibilities.

**Q25. In Q24, Mr. Gundersen highlights “five additional major concerns” that he has. Have you addressed them previously?**

A25. (PS, SS) Yes. Each of his concerns has been addressed previously. As discussed in ¶88 of our direct testimony, there was no 3-month gap in QA oversight. Instead, there was continuous QA oversight during the relevant period. As discussed in ¶¶89-92, there was appropriate independence and reporting relationships within the QA Program during the relevant period. As discussed in ¶93, there was no deviation from the NEI QAPD template. As discussed in ¶94, there was no reference (nor should there have been any reference) to the Nuclear Development QA Manager in the Fermi 3 QAPD. Instead, the Nuclear Development QA Manager was a position that existed only while the ND QAPD was in effect.

(PS, SS) Overall, none of five “issues” raised by Mr. Gundersen have any validity, reflecting instead Mr. Gundersen’s misunderstanding of the evolution of the QA program for Fermi 3.

**Q26. In Q25, Mr. Gundersen claims that “DTE expected a *self-executing* QA program to be provided by its vendor.” Can you address his claim?**

A26. (PS, RS, ST) It is not clear what Mr. Gundersen means by a “self-executing” program. As we explained in our initial testimony at ¶23, a QA program includes

the following attributes: *administrative and programmatic controls* for safety-related activities; consistent and thorough *execution* of all work in accordance with the procedural requirements; *verification activities* that provide reasonable assurance that the execution of work is in conformance with the established procedural requirements, regulatory requirements, and industry standards; and a *corrective action program*. Consistent with DTE's expectations, both the B&V QA program and the Fermi 3 QA program include these attributes. These two QA programs both incorporate ongoing efforts to drive continuous improvement in performance and therefore are not expected to be "self-executing."

**Q27. In Q25, Mr. Gundersen also asserts that "DTE knowingly and deliberately minimized its corporate commitment to quality oversight." Can you comment?**

A27. (PS, SS) Since the beginning of the Fermi 3 project, and prior to submittal of the COL Application, DTE has been committed to implementing QA procedures for all aspects of work that are important to the safety of the Fermi 3. In both the pre-application and the COL Application review phases of the project, DTE has ensured, through systematic processes, that suppliers of safety-related equipment or services have met the applicable requirements of Appendix B. DTE knowingly and deliberately contracted with B&V to perform specific services under the B&V Appendix B QA Program. DTE did not, in any sense, "minimize its corporate commitment to quality oversight." DTE took responsibility for the program, delegated the function to a qualified vendor, and exercised organizational oversight of that work. And, the ND QAPD was subsequently approved for use before COL Application chapters were accepted from B&V and

before the COL Application was submitted. Finally, as discussed in ¶75 of our direct testimony, DTE is committed to implementing the QA Program in all aspects of work that are important to the safety of Fermi 3 as described in its QAPD.<sup>5</sup>

**Q28. In Q28 and Q30, Mr. Gundersen states that DTE had not yet selected the reactor technology when the site investigation began. Is this significant?**

A28. (PS, ST) While it is true that in March 2007 DTE had not yet made a final reactor technology selection, this has no bearing on the QA program applied to site investigation activities. The significance of the technology selection related only to the scope of the information that would need to be collected during the site investigation. Different reactor technologies have different footprints and therefore may require more or less (or different) information in order to demonstrate that site conditions are bounded by the certified reactor design. This is discussed further in our direct testimony at ¶¶25-27.

(PS, ST) The email referenced by Mr. Gundersen in Q28 discusses the work plans that would be shared with the Fermi 2 organization. As noted above, the Fermi 2 organization has responsibility for ensuring that work performed at the Fermi site (e.g., site investigations) complies with site procedures for, among others, access and control of contractors. The Fermi 2 organization also has

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<sup>5</sup> The Fermi 3 FSAR includes the Fermi 3 policy for “Quality Assurance During Construction and Operation.” The policy evidences a clear corporate commitment to implement the QAPD such that Fermi 3 is and will be designed, procured, constructed, and operated in a manner that ensures the safety of the public and workers.



responsibility for ensuring that on-site geotechnical investigations do not adversely impact Fermi 2 systems, structures, or components (“SSCs”).

**Q29. In Q29, Mr. Gundersen highlights an email that, he claims, demonstrates that DTE’s goal was to “avoid QA oversight.” Is that accurate?**

A29. (PS) No. As the email indicates and as discussed throughout our testimony, the site investigation work was performed under the B&V QA plan. The reference to QA audits referred only to my view that B&V’s qualifications were adequately demonstrated through Nuclear Procurement Issues Committee (“NUPIC”) audits and other utilities’ audits such that DTE did not need to perform a QA audit at that time.<sup>6</sup> These reviews by established nuclear organizations provided strong evidence that the B&V program was being properly implemented for nuclear work, including COL application work. In particular, at that time B&V was successfully leading the development of the Entergy River Bend COL application, which had a similar scope of work as the Fermi 3 COL Application. Moreover, as described in my direct testimony at ¶57, DTE has, subsequent to that email, performed numerous audits and surveillances of B&V’s QA program, including in April 2008, June 2008, July 2009, November 2011, and January 2012.

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<sup>6</sup> As discussed in DTE Testimony at ¶65, DTE based B&V’s qualification on the contract solicitation process, which referenced the basis for B&V QA qualification, including B&V QA program details and audits of the B&V program by other U.S. nuclear utilities. DTE’s Nuclear Development procedures also stated the basis for B&V’s qualifications to provide QA services. See NDP-NP-4.1, “Procurement of Services” (Exh. DTE000055).

**Q30. In Q30 and Q31, Mr. Gundersen focuses on the status of the DTE QA program in November 2007. Did DTE have a QA program at that time?**

A30. (PS) Beginning in November 2007, DTE began to develop a formal process for the receipt, review, and acceptance of COL Application work product from B&V for submittal to the NRC. As discussed in our direct testimony at ¶¶30, 55, and 63, no work product was accepted until after the Fermi 3 project had its own QA program in place — the ND QAPD — beginning in February 2008.

**Q31. In Q31, Mr. Gundersen questioned the role of “a DTE employee named Ashworth” who claimed to be the “DTE OE Quality Manager.” Can you explain?**

A31. (PS) Yes. As noted in our direct testimony at ¶34, DTE secured the services of an OE to support owner-related activities, including development of a QA program for the Fermi 3 project. In November 2007, DTE was still considering options for staffing the QA program, including use of OE resources. Mr. Craig Ashworth was a QA professional, working for the OE, who had been identified to serve in the Quality Manager role. In the end, DTE decided to staff the QA organization within DTE and rely less on OE resources. This decision is reflected in the ND QAPD, which was approved for use in February 2008, and DTE’s hiring of Mr. Werner (and then Mr. Stasek) to fill the QA Manager role.

**Q32. In Q33, Mr. Gundersen highlights an early draft of a QAPD and claims that “[i]t is clear based on the paragraphs detailed below that in 2007 DTE believed that it had organizational responsibility to oversee the COLA process.” Do you agree?**

A32. (PS) Yes. DTE had (and has) responsibility for the COL Application. At the outset of the Fermi 3 COL Application development project in March 2007, DTE contractually delegated to B&V the responsibility for establishing and executing a

QA program for the B&V scope of work on the project. DTE, however, retained overall responsibility for the program. And, in February 2008 DTE implemented the ND QAPD. No COL Application work product was accepted by DTE for use in the COL Application until after DTE had a QA program in place.

**Q33. In Q34, Mr. Gundersen quotes from a document that, he claims, shows that DTE chose to continue its “self-executing” QA program. Is that an accurate characterization of the document?**

A33. (PS) No. Mr. Gundersen cites to “DTE-00653, Nuclear Development Decision Document 12/17/07.”<sup>7</sup> But, he quotes selectively from the document. The text that Mr. Gundersen cites addresses alternatives that DTE did not adopt. In the section entitled “Description of Solution,” which reflects the approach that DTE adopted, DTE explained that it would conduct the COL Application work production acceptance review in accordance with Standard Work Instructions (“SWIs”). As discussed in ¶54 of our direct testimony, individual FSAR chapters or sections were reviewed by DTE’s Nuclear Development staff as prescribed by SWI 03-001-001-0529, “COLA Section and Chapter Review and Acceptance Process” (Exh. DTE000050). DTE reviewed the application work product against relevant regulatory guidance, information provided by DTE to B&V, and the Reference COL Application (“R-COLA”), as applicable. Comments were documented and provided to B&V for formal resolution. All comments were resolved in accordance with procedures.

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<sup>7</sup> The Intervenor did not introduce this document as an exhibit. DTE will refer to this as Exh. DTE000106.

**Q34. In Q35, Mr. Gundersen references an email that purports to show that “it is clear that any organizational knowledge of the existence of a quality program is also lacking.” Is this an accurate characterization?**

A34. (PS, ST) No. The email was sent by a licensing contractor, used by B&V, who was helping to prepare the content for Chapter 17 of the FSAR.<sup>8</sup> In the process of doing so, he noted the approaches used in the North Anna and Grand Gulf applications and asked others involved in the project about how DTE planned to address QA. The email therefore reflects nothing more than his efforts to gather information to support development of the text of the COL Application. As we explained in our initial testimony (at ¶28), DTE developed the QA program for the Fermi 3 project independent of the QA program for the operating Fermi 2 unit to minimize the burden on the operating plant organization. And, as Mr. Lipscomb noted in ¶19 of his direct testimony, other COL applicants have since taken the same approach as DTE. Mr. Lipscomb notes that this approach “helps ensure that new applications are informed by current regulatory standards and guidance.”

**Q35. In Q37 and Q38, Mr. Gundersen discusses an organizational chart, dated January 2008, and claims that it shows a lack of an independent reporting relationship for the QA program. Can you address his concern?**

A35. (PS, SS) Yes. First, Mr. Gundersen claims that the organizational chart shows a “Nuclear QA Oversight Quality Assurance Program” title that is not addressed in the QAPD. But, that is a placeholder for the QA organization itself — the QA “department” for the Fermi 3 project, including the manager and support staff — not the title of a specific position. Section 1.2.1.2.1 of the ND QAPD (Exh.

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<sup>8</sup> As discussed in ¶70 of DTE’s direct testimony, FSAR Chapter 17 addresses QA.

DTE000070) describes the ND Quality Assurance Manager (“QA Manager”) position and explains that the “Nuclear QA Oversight Quality Assurance function reports administratively to the Director & Project Manager Nuclear Development.” The organization chart therefore aligns with the ND QAPD.

(PS, SS) Second, Mr. Werner, who filled the ND QA Manager position, was hired in March 2008.<sup>9</sup>

(PS, SS) Third, independence was discussed in the description of the ND QA Manager function and in ND QAPD Section 1.4, “Quality Assurance Organizational Independence” (Exh. DTE000070).<sup>10</sup> In the pre-application phase the QA Manager reported directly to the Director & Project Manager Nuclear Development specifically to ensure that the personnel performing QA oversight functions were not subject to line organization influence.<sup>11</sup> This reporting relationship ensured that QA personnel were provided direct access to senior management that is independent of the line functions for reporting QA concerns.

(PS, SS) In addition, the position description for the Nuclear Development QA Manager included the following responsibility: “[i]f the [ND QA Manager] disagrees with any actions taken by the Nuclear Development organization and is unable to obtain resolution, the [QA Manager] shall bring the matter to the

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<sup>9</sup> This is discussed in more detail in ¶88 of DTE’s direct testimony.

<sup>10</sup> This is discussed in more detail in ¶89 of DTE’s direct testimony.

<sup>11</sup> The line organization is led by the Director, Nuclear Development Licensing and Engineering (P. Smith).

attention of the Senior Vice President DTE Energy who will determine the final disposition.” For the Fermi 3 project the ND QA Manager reported to the “Senior Nuclear Development Officer” — the Director & Project Manager, Nuclear Development. The reporting structure during this period was consistent with the NEI template.

**Q36. In Q39, Mr. Gundersen highlights an email for the proposition that DTE “had no intention of hiring QA professionals.” Is this accurate?**

A36. (PS) As discussed above in ¶31, at one point in the project, DTE had considered using OE resources to staff the QA program. DTE ultimately decided to staff the QA organization within DTE. The email cited by Mr. Gundersen merely discusses this history.

**Q37. In Q40, Mr. Gundersen describes an email that, he says, shows that DTE did not have a clear understanding of its organizational responsibilities. Do you agree?**

A37. (PS) No. As explained above, Mr. Werner, who was an experienced QA professional, joined the Fermi 3 project as the ND QA Manager in March 2008. Contrary to Mr. Gundersen’s assertion, the email does not show that Mr. Werner was asking B&V to tell him “what type of reviews DTE needs to perform in order to meet COLA requirements.” The email from Mr. Werner reflects his effort to better understand B&V’s processes and procedures being applied to the Fermi 3 project. This information would help inform the manner in which Mr. Werner would perform his duties as the ND QA Manager. Put simply, Mr. Werner was just doing his job.

**Q38. Do you agree with Mr. Gundersen's claims, in Q41, that DTE recognized "that its lack of a QA program had created organizational chaos"?**

A38. (SS) No. The presentation cited by Mr. Gundersen was given to an industry group working on QA issues for new plants shortly after the NRC issued its initial QA NOV to DTE. The presentation is not evidence of program failure. Instead, the purpose of the presentation was to generate conversation among QA professionals. The conclusions reflect nothing more than DTE's lessons-learned and continual improvement efforts.

## **2. Gundersen Testimony (Proprietary)**

**Q39. In Q1, Mr. Gundersen claims that there is "no record" of a meeting with the NRC on July 11, 2007, and states that Fairewinds Associates was unable to find any record. Was a meeting summary in fact available?**

A39. (PS, ST) Yes. The meeting with the NRC was documented in an audit report, "Audit of Combined License Pre-Application Subsurface Investigation Activities at Fermi (Project No. 757)" (ADAMS Accession No. ML072190660). The audit report, which was introduced in DTE's direct testimony as Exh. DTE000084, concluded that "work was being done in an appropriately controlled manner." NRC inspectors conducted the audit in accordance with Inspection Manual Chapter ("IMC") 2502, *Construction Inspection Program: Pre-Combined License (Pre-COL) Phase*, dated June 22, 2005.<sup>12</sup>

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<sup>12</sup> IMC 2502 invokes, for COL applications that do not reference an Early Site Permit (such as the Fermi 3 application), Inspection Procedure 35004, *Pre-Docketing Early Site Permit Quality Assurance Controls Inspection*, dated May 29, 2003.



**Q40. In Q2, Mr. Gundersen gives five examples of issues that, he claims, “are endemic of a systematic failure of the Quality Assurance function within DTE.” Do you agree with him?**

A40. (PS, SS) No. The examples that he cites in no way show a systemic failure of the QA function. To the contrary, they show that the QA program was functioning effectively. The examples provide evidence of quality processes working to identify and capture issues. The examples also demonstrate the relatively low threshold being applied for initiating condition reports (which is a desired attribute). Significantly, none of the examples involved safety-related information relied upon by DTE in the COL Application. The relevance of these examples to Contention 15 is therefore unclear.

**Q41. Can you provide a brief explanation of the examples listed by Mr. Gundersen?**

A41. (PS, ST) Yes. The first example cited by Mr. Gundersen was taken from a condition report prepared by B&V involving the Environmental Report (“ER”). The issue was identified by B&V and was entered into the B&V Corrective Action Program. Within the context of Contention 15, which relates to the quality of safety-related information in the COL Application, it is worth noting that the ER is not a safety-related document subject to a QA program.<sup>13</sup> In any event, the issue involved an error found in a *draft* revision of an ER section — specifically, wording in draft revision 3 was different than wording in draft revision 2, but the change was not identified as a proposed change and the basis for the change was not provided. After investigation, B&V determined that the issue was the result

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<sup>13</sup> DTE Direct Testimony at ¶25.

of a singular occurrence associated with the translation between text editing and document publication software. And, the issue was identified prior to the ER being submitted to the NRC. So, far from representing a breakdown in the DTE QA program, the issue represents effective functioning of the B&V QA program in that B&V identified the problem, researched its cause, and took steps to avoid recurrence.

(PS) The second example identified by Mr. Gundersen involved errors identified by DTE during its review of *draft* COL Application materials provided by B&V. The issues were identified during the Request for Review (“RFR”) process by which DTE reviewed and commented on draft COL Application work product prepared by B&V. A corrective action report (“CAR”) was prepared to document the errors, investigate the cause, and develop a response.<sup>14</sup> Based on a review of the issue, DTE concluded that the errors identified in the CAR were found as part of the normal COL Application review process and did not indicate a larger or programmatic issue. If anything, the fact that DTE identified and captured the errors before any materials were provided to the NRC demonstrates an effective quality assurance program.

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<sup>14</sup> The Fermi 3 CAP procedure, NP-16.1 (Exh. DTE000052), is designed to assist the Nuclear Development team with initiating, assigning, reviewing, dispositioning, and closing CARs. The person assigned a CAR will investigate the condition, determine causes, evaluate and implement measures to correct the condition, and document the resolution. DTE’s Nuclear Development CAR Review Committee, which is comprised of representative directors and managers from Nuclear Development, manages and oversees the effectiveness of the CAR process.

(PS) The third example cited by Mr. Gundersen involves a CAR documenting the discrepancy in the ER (which, again, is not a safety-related document) regarding the presence of Eastern Fox Snakes on the Fermi site.<sup>15</sup> Following an investigation, the discrepancy was resolved and changes were made to the ER. The issue was not found to be part of a larger problem, but rather reflected a discrete error involving reconciliation of documented fox snake sightings and anecdotal observations on the Fermi site.

(PS) The fourth example provided by Mr. Gundersen involved mistakes in the schedule provided by DTE to the NRC for responding to Requests for Additional Information (“RAIs”). Significantly, the mistakes only related to the schedule for providing responses and did not involve substantive errors in the response or errors in any safety-related information. This example reflects a simple human performance issue and does not have any bearing on the issues that are the subject of Contention 15.

(PS) The fifth example cited by Mr. Gundersen involved a CAR initiated by DTE to address perceived deficiencies in the rigor and thoroughness of actions to close CARs. The deficiencies were identified during ND Audit 09NI01 (Exh. DTE 000058). Following an assessment of the extent of condition, DTE initiated two reviews of the Fermi 3 CAP: an audit performed by the supervisor of audits for Fermi 2 and an external review by a contractor, Conger & Elsea, Inc. Based upon those reviews, DTE made some adjustments to the CAP process to improve

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<sup>15</sup> This discrepancy is the subject of Contention 8.

efficiency and enhance the process descriptions and level of detail in implementing procedures. The CAR does not suggest any issue with safety-related related information in the COL Application. In the end, this CAR provides evidence of DTE taking proactive steps to improve the effectiveness of the CAP as part of its continual improvement efforts.

**Q42. Based on the above examples, do you have any additional observations regarding Mr. Gundersen's conclusions?**

A42. (PS, SS) Yes. The examples cited by Mr. Gundersen are notably lacking any indication of an error in safety-related information gathered during the site investigation phase or sent to the NRC — much less a pervasive or programmatic breakdown in the QA program. Instead, the examples actually demonstrate the effective functioning of the Fermi 3 QA program through verification activities (*e.g.*, self-assessments, performance trending, audits, surveillances, vendor reviews, and third party audits) and the Corrective Action Program. CAP procedures were applied to assess performance gaps and areas for improvement; ensure that management was made aware of issues and that the cause was determined; and develop actions to address the gap and improve performance levels.

**CONCLUSIONS**

**Q43. Did Mr. Gundersen's testimony change your conclusions regarding Contention 15A?**

A43. (PS, ST, RS) No. As the record and testimony demonstrate, site investigation work was performed by B&V at DTE's direction and under B&V's established Appendix B QA program. The Fermi 3 Nuclear Development organization

May 30, 2013

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of:

THE DETROIT EDISON COMPANY

(Fermi Nuclear Power Plant, Unit 3)

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Docket No. 52-033-COL

APPLICANT'S BRIEF OPPOSING SUA SPONTE REVIEW OF  
ENVIRONMENTAL IMPACTS IN THE OFFSITE TRANSMISSION CORRIDOR

INTRODUCTION

As directed by the Memorandum and Order, dated April 30, 2013, DTE Electric Company ("DTE") hereby addresses whether the issues raised in proposed Contention 23 regarding the NRC Staff's consideration of offsite transmission impacts in the Fermi 3 Final Environmental Impact Statement ("FEIS") satisfy the criteria in 10 C.F.R. § 2.340(b) for *sua sponte* consideration by the Board.<sup>1</sup> For the reasons discussed below, the issues raised by the Intervenor do not involve a "serious" environmental matter, nor are "extraordinary circumstances" present. The NRC Staff has addressed impacts in the transmission corridor in a manner consistent with NRC guidance, Commission precedent, and the requirements of the National Environmental Policy Act ("NEPA"). As a result, *sua sponte* review and referral to the Commission are not warranted.

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<sup>1</sup>

Memorandum and Order (Denying Intervenor's 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), dated April 30, 2013 ("FEIS Order").

cumulative impacts.<sup>56</sup> Moreover, in its review of uncontested issues for the *Summer* COL, the Commission found the NRC Staff's treatment of offsite transmission impacts — that is, cumulative impacts involving “preconstruction” activities — to be acceptable.<sup>57</sup> The NRC Staff approach in the Fermi 3 FEIS is directly comparable. Thus, the Commission not only has made clear, by rule, that its definitions of construction and preconstruction do not cause improper segmentation, but also has confirmed that the NRC Staff's treatment of preconstruction impacts, as applied to a COL application, is acceptable.

Lastly, to the extent that the Board's concern is that the FEIS treats offsite transmission as a “preconstruction” activity evaluated as a cumulative impact, rather than as a connected action, the concern elevates form over substance. It matters not whether the impacts are considered “cumulative” or “connected” so long as they are addressed in the FEIS. Indeed, as the Board recognized and as discussed further below, the impacts from offsite transmission corridor construction are addressed throughout the FEIS.

C. The FEIS Satisfies NEPA

The adequacy of the Fermi 3 FEIS is subject to a “rule of reason.” The FEIS need not include all theoretically possible environmental effects and the discussion of the impacts need not be encyclopedic in scope or detail.<sup>58</sup> Nor must the NRC have complete information on

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<sup>56</sup> FEIS at 1-6 to 1-7, E-41, and E-56. Because the NRC considered the activities at the Fermi site and those in the transmission corridor together, the FEIS eliminates segmentation concerns.

<sup>57</sup> *South Carolina Electric & Gas Co. and Santee Cooper* (Virgil C. Summer Nuclear Station, Units 2 and 3), CLI-12-09, \_\_ NRC \_\_ (2012).

<sup>58</sup> *See, e.g., San Luis Obispo Mothers for Peace v. NRC*, 751 F.2d 1287, 1300-01 (D.C. Cir. 1984), *rehearing en banc granted on other grounds*, 760 F.2d 1320 (D.C. Cir. 1985); *see also* 40 C.F.R. § 1502.2(a) (“Environmental impact statements shall be analytic rather than encyclopedic.”).

all issues before proceeding.<sup>59</sup> It is enough that the NRC Staff takes a “hard look” at the likely impacts of offsite transmission corridor development and “comes to grips with all important considerations.”<sup>60</sup> Whether transmission impacts are characterized as preconstruction, connected actions, or cumulative impacts, and irrespective of which entity seeks the necessary permits or approvals related to construction and operation of offsite transmission lines, the FEIS fully considers the transmission corridor impacts based on presently available information, as required by NEPA and the NRC’s implementing regulations. Any dispute over the terminology used in the FEIS or the need for more detail is immaterial since the FEIS, as written, complies with NEPA.

The FEIS discusses transmission impacts in a consistent and logical fashion in order to ensure comprehensive treatment. The FEIS framework follows the format of the NRC’s Standard Review Plan as well as FEISs in other COL proceedings.<sup>61</sup> For example, the approach to transmission corridors in the FEIS tracks the NRC’s Environmental Standard Review Plan, NUREG-1555, at § 4.1.2, Revision 1 (July 2007), which provides:

In some cases transmission lines may be constructed and operated by an entity other than the applicant. In such cases, impact information may be

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<sup>59</sup> *Public Service Co. of Oklahoma* (Black Fox Station, Units 1 & 2), LBP-78-26, 8 NRC 102, 141 (1978).

<sup>60</sup> *Exelon Generation Co., LLC* (Early Site Permit for Clinton ESP Site), CLI-05-29, 62 NRC 801, 811 (2005).

<sup>61</sup> *See generally* NUREG-1555, “Environmental Standard Review Plan”; *see also* NUREG-1939, “Final Environmental Impact Statement for Combined Licenses for Virgil C. Summer Nuclear Station Units 2 and 3.” Following the convention used for other impacts, the FEIS identifies the affected environment in Chapter 2, the proposed activity in Chapter 3, construction impacts in Chapter 4, operational impacts in Chapter 5, and the cumulative impacts in Chapter 7.



limited and the reviewer should proceed with the assessment using the information that can be obtained.<sup>62</sup>

This guidance also follows the approach described in the Council on Environmental Quality's NEPA regulations<sup>63</sup> and cases addressing circumstances where information is not complete or available to an agency.<sup>64</sup>

In the end, the Fermi 3 FEIS meets the “hard look” standard by evaluating the likely effects of the offsite transmission corridor based on the information that could reasonably be obtained from *ITCTransmission*. There is therefore no need to “flyspeck” the FEIS or to add minor details or nuances to the analysis.<sup>65</sup> Because the FEIS as written satisfies NEPA, there would be no value in granting *sua sponte* review.

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<sup>62</sup> See also NUREG-1555, § 5.1.2, Revision 1 (July 2007) (same); NUREG-1555, § 9.4.3, Revision 1 (July 2007) (same).

<sup>63</sup> See 40 C.F.R. § 1502.22 (where there is “incomplete or unavailable information,” an EIS may be “based upon theoretical approaches or research methods generally accepted in the scientific community”).

<sup>64</sup> See, e.g., *Crounse Corp. v. Interstate Commerce Commission*, 781 F.2d 1176, 1193-96 (6th Cir. 1986) (ruling that the ICC had justified the limited scope of its analysis on the grounds that “the lack of final design and engineering plans made it impossible to conduct an in-depth analysis”); *Kleppe v. Sierra Club*, 427 U.S. 390, 412 (1976) (explaining that the scope of an EIS “requires the weighing of a number of relevant factors, including the extent of the interrelationship among proposed actions and practical considerations of feasibility”); *Env'tl. Prot. Info. Ctr. v. Blackwell*, 389 F.Supp.2d 1174, 1188 (N.D. Cal. 2004) (noting, in cases where information is not complete or is unavailable to an agency, that the agency need only make clear that information is lacking). See also *Duke Energy Corp.* (McGuire Nuclear Station, Units 1 and 2; Catawba Nuclear Station, Units 1 and 2), CLI-02-14, 55 NRC 278, 293 (2002) (denying a NEPA “segmentation” contention because it involved inchoate plans of the licensee and explaining that, to bring NEPA into play, a possible future action must at least constitute a “proposal” pending before the agency). There is no proposal relating to the offsite transmission corridor currently pending before the NRC or another agency.

<sup>65</sup> *Hydro Resources, Inc.*, CLI-01-04, 53 NRC at 71. It is not the role of the Board to address as a technical/environmental review body every potential problem with an FEIS.

**UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION  
Before the Commission**

In the Matter of:	)	
	)	Docket No. 52-033-COL
DTE Electric Company	)	
	)	June 17, 2014
(Fermi Nuclear Power Plant, Unit 3)	)	

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**INTERVENORS' PETITION FOR REVIEW  
OF LBP-14-07  
(RULING FOR APPLICANT ON QUALITY ASSURANCE)**

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**UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION  
Before the Commission**

In the Matter of:	)	
	)	Docket No. 52-033-COL
DTE Electric Company	)	
	)	June 17, 2014
(Fermi Nuclear Power Plant, Unit 3)	)	

**INTERVENORS' PETITION FOR REVIEW  
OF LBP 14-07  
(RULING FOR APPLICANT ON QUALITY ASSURANCE)**

**I. Introduction and Summary of Grounds for Petition**

Intervenors Beyond Nuclear, *et al.*<sup>1</sup> (hereinafter "Petitioners"), by and through counsel, pursuant to 10 C.F.R. § 2.341(b), hereby petition the U.S. Nuclear Regulatory Commission ("NRC" or "Commission") for review of LBP 14-07, "Partial Initial Decision (Ruling on Contentions 8 and 15)" in the Fermi 3 COLA proceeding. The Atomic Safety and Licensing Board ("ASLB") ruled in favor of the Applicant, DTE Electric Company on May 23, 2014 on Contention 15 and its subparts (A) and (B). Contention 15 challenged Quality Assurance ("QA") arrangements for the proposed nuclear power plant, both before submission of the COLA on September 18, 2008, and afterwards.

The scope of this Petition is restricted to Contention 15 and its subparts; Petitioners are not appealing Contention 8, related to habitat and mitigation concerns of the Eastern Fox Snake.

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<sup>1</sup>In addition to Beyond Nuclear, the Intervenors-Petitioners include: Citizens for Alternatives to Chemical Contamination, Citizens Environment Alliance of Southwestern Ontario, Don't Waste Michigan, Sierra Club (Michigan Chapter), Keith Gunter, Edward McArdle, Henry Newnan, Derek Coronado, Sandra Bihn, Harold L. Stokes, Michael J. Keegan, Richard Coronado, George Steinman, Marilyn R. Timmer, Leonard Mandeville, Frank Mantei, Marcee Meyers, and Shirley Steinman.

According to 10 C.F.R. § 2.341(b)(4), a petition for review may be granted in the discretion of the Commission, giving due weight to the existence of a substantial question with respect to certain enumerated considerations. Petitioners believe that the ASLB ruling on Contention 15 “is without governing precedent or is a departure from or contrary to established law;” that a “substantial and important question of law, policy, or discretion has been raised;” that the “conduct of the proceeding involved a prejudicial procedural error;” and that there are other considerations arising from the decision which the Commission “may deem to be in the public interest.” 10 C.F.R. § 2.341(b)(4)(ii)-(v). Petitioners submit that there is a substantial question raised by them respecting each of these considerations.

The ASLB’s finding in favor of the Applicant raises the following important questions of law, fact, and policy:

First, the Licensing Board wrongly excluded a number of Petitioners’ exhibits from the record for the nonevidentiary reason that they were filed in the docket one (1) day late. Most were cited and relied on by Petitioners’ expert witness in his prefiled testimony.

Second, the parties all concurred that reasonable assurance, not perfection, is the correct standard to be applied in this case, and that DTE’s burden was to show that the quality assurance procedures it implemented for safety-related COLA activities provide reasonable assurance that the plant, as built, can and will be operated without endangering the public health and safety. The determination of “reasonable assurance” is fact-rich. In Petitioners’ estimation, the ASLB ignored the greater weight of the evidence which proved misunderstanding of DTE’s role in establishing and maintaining a quality assurance effort and revealed management intentions of avoiding QA compliance, if possible. The ASLB correctly resolved the preliminary issue that

from 2007 forward, DTE has been an “applicant,” hence responsible for QA throughout. But the Board reached a conclusion which failed to reconcile DTE’s abiding problem with retaining responsibility for QA.

*Third*, even if the Board properly concluded (LBP-14-07 at 38) that “Appendix B permits DTE to delegate the work of establishing and executing the QA program” to the point that its oversight is essentially nonexistent, the means by which that finding was reached was by *de facto* granting an exemption or waiver of NRC regulations to DTE, which deprived the public of notice and an opportunity to adjudicate the basis for such an unprecedented QA program model.

Therefore, LBP-14-07 warrants review under 10 C.F.R. § 2.341(b)(4)(ii)-(v), and reversal as to the rulings excluding Petitioners’ evidentiary exhibits and finding that DTE has demonstrated “reasonable assurance” that the state of quality assurance is such that the plant will be built and operated safely .

## **II. Factual and Procedural Background**

### ***A. The ASLB Erred to Petitioners’ Prejudice By Excluding Certain Exhibits***

On September 20, 2013, some five weeks before adjudication, the Board issued an Order directing the NRC Staff and Petitioners to make technical corrections to their prefiled exhibits by September 26, 2013. On September 26, 2013, Petitioners filed a motion for an extension of time to file exhibits. On October 1, 2013, Petitioners filed a second motion for an extension of time. On October 3, 2013, the Board (1) granted both motions for extensions of time, (2) established October 4, 2013 as the final submission deadline for Petitioners’ exhibits, stating that “[n]o additional extensions will be granted, and (3) allowed the NRC Staff to submit objections to Petitioners’ exhibits. Petitioners filed exhibits from October 4 through October 7



## 17.0 QUALITY ASSURANCE

This chapter discusses the Quality Assurance (QA) Program, including the following:

- QA for design, fabrication, construction, testing, and operation
- Reliability Assurance Program (RAP)
- Maintenance Rule (MR) Program

### 17.0.1 Introduction

The QA Program for design, fabrication, construction, testing, and operation; the RAP; and the MR Program are discussed in this chapter.

### 17.0.2 Summary of Application

Section 17.0 of the Fermi 3 combined license (COL) Final Safety Analysis Report (FSAR), Revision 7, incorporates by reference Section 17.0 of the certified Economic Simplified Boiling-Water Reactor (ESBWR) Design Control Document (DCD), Revision 10, referenced in Title 10 of the *Code of Federal Regulations* (10 CFR) Part 52, "Licenses, Certifications, and Approvals for Nuclear Power Plants," Appendix E, "Design Certification Rule for the Economic Simplified Boiling-Water Reactor. In addition, in FSAR Section 17.0, the applicant provides the following:

#### Supplemental Information

- EF3 SUP 17.0-1

In Section 17.0 of the Fermi 3 COL FSAR the applicant provides supplemental information that states:

The QAPD [Quality Assurance Program Description] applicable to the COL licensee is described in Section 17.5. The licensee's QAPD describes the basis of the program, its scope of activities, and the control of work performed by suppliers.

### 17.0.3 Regulatory Basis

The regulatory basis of the information incorporated by reference is in NUREG-1966, "Final Safety Evaluation Report Related to the Certification of the Economic Simplified Boiling-Water Reactor." In addition, the relevant requirements of the Commission regulations for QA during the design phase, and the associated acceptance criteria, are in Sections 17.1 and 17.5 of NUREG-0800, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants (LWR Edition)" the Standard Review Plan (SRP).

### 17.0.4 Technical Evaluation

As documented in NUREG-1966, the U.S. Nuclear Regulatory Commission (NRC) staff reviewed and approved Section 17.0 of the certified ESBWR DCD. The staff reviewed Section 17.0 of the Fermi 3 COL FSAR and checked the referenced ESBWR DCD to ensure that the combination of the information in the COL FSAR and the information in the ESBWR

DCD appropriately represents the complete scope of information relating to this review topic.<sup>1</sup> The staff's review confirmed that the information in the application and the information incorporated by reference address the relevant information related to this section.

The staff reviewed the information in the Fermi 3 COL FSAR as follows:

Supplemental Information

- EF3 SUP 17.0-1

In Section 17.0 of the FSAR, the applicant states:

The QAPD applicable to the COL licensee is described in Section 17.5. The licensee's QAPD describes the basis of the program, its scope of activities, and the control of work performed by suppliers.

The staff's safety evaluation of Fermi 3 COL FSAR Section 17.0 is in Section 17.5 of this Safety Evaluation Report (SER).

The staff reviewed Supplemental Information EF3 SUP 17.0-1 and determined that it adequately references Section 17.5 of the Fermi 3 COL FSAR for a description of the basis of the QA Program, its scope of activities, and the control of work performed by suppliers.

**17.0.5 Post Combined License Activities**

There are no post COL activities related to this section.

**17.0.6 Conclusion**

The NRC staff's finding related to information incorporated by reference is in NUREG-1966. NRC staff reviewed the application and checked the referenced DCD. The staff's review confirms that the applicant has addressed the required information, and no outstanding information is expected to be addressed in the Fermi 3 COL FSAR related to this section. Pursuant to 10 CFR 52.63(a)(5) and 10 CFR Part 52, "Licenses, Certifications, and Approvals for Nuclear Power Plants," Appendix E, Section VI.B.1, all nuclear safety issues relating to this section that were incorporated by reference are resolved.

In addition, the staff compared the additional COL supplemental information in the application to the relevant NRC regulations, the guidance in Sections 17.1 and 17.5 of NUREG-0800, and other NRC regulatory guides (RGs). The staff's technical evaluation of Supplemental Information EF3 SUP 17.0-1 is part of the evaluations in Section 17.5 of this SER. The staff's review finds that the applicant has adequately addressed the supplemental information by referencing FSAR Section 17.5.

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<sup>1</sup> See "Finality of Referenced NRC Approvals" in SER Section 1.2.2 for a discussion on the staff's review related to verification of the scope of information to be included in a COL application that references a design certification.

## **17.1 Quality Assurance During Design**

### **17.1.1 Introduction**

This FSAR section addresses the QA Program related to the design phase, including the preparation of the COL application and site-specific design activities.

### **17.1.2 Summary of Application**

Section 17.1 of the Fermi 3 COL FSAR, Revision 7, incorporates by reference Section 17.1 of the certified ESBWR DCD, Revision 10, referenced in 10 CFR Part 52, Appendix E. In addition, in FSAR Section 17.1, the applicant provides the following:

#### Supplemental Information

- EF3 SUP 17.1-1

In FSAR Section 17.1, the applicant provides supplemental information that states:

QA applied during COL application preparation and site specific design activities is addressed in Section 17.5.

### **17.1.3 Regulatory Basis**

The regulatory basis of the information incorporated by reference is in NUREG–1966. In addition, the relevant requirements of the Commission regulations for QA during the design phase, and the associated acceptance criteria, are in Sections 17.1 and 17.5 of NUREG–0800.

### **17.1.4 Technical Evaluation**

As documented in NUREG–1966, NRC staff reviewed and approved Section 17.1 of the certified ESBWR DCD. The staff reviewed Section 17.1 of the Fermi 3 COL FSAR and checked the referenced ESBWR DCD to ensure that the combination of the information in the COL FSAR and the information in the ESBWR DCD appropriately represents the complete scope of information relating to this review topic.<sup>1</sup> The staff's review confirmed that the information in the application and the information incorporated by reference address the relevant information related to this section.

The staff reviewed the information in the Fermi 3 COL FSAR as follows:

#### Supplemental Information

- EF3 SUP 17.1-1

In FSAR Section 17.1, the applicant provides supplemental information that states:

QA applied during COL application preparation and site specific design activities is addressed in Section 17.5.

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<sup>1</sup> See "Finality of Referenced NRC Approvals" in SER Section 1.2.2 for a discussion on the staff's review related to verification of the scope of information to be included in a COL application that references a design certification.

The staff reviewed Supplemental Information EF3 SUP 17.1-1 and determined that it adequately references Section 17.5 of the Fermi 3 COL FSAR for a description of the QA Program applied during the design phase, including the COL application preparation and site-specific design activities.

#### **17.1.5 Post Combined License Activities**

There are no post COL activities related to this section.

#### **17.1.6 Conclusion**

The NRC staff's finding related to information incorporated by reference is in NUREG-1966. NRC staff reviewed the application and checked the referenced DCD. The staff's review confirms that the applicant has addressed the required information, and no outstanding information is expected to be addressed in the Fermi 3 COL FSAR related to this section. Pursuant to 10 CFR 52.63(a)(5) and 10 CFR Part 52, Appendix E, Section VI.B.1, all nuclear safety issues relating to this section that were incorporated by reference are resolved.

In addition, the staff compared the additional COL supplemental information in the application to the relevant NRC regulations, the guidance in Sections 17.1 and 17.5 of NUREG-0800, and other NRC RGs. The staff's review concludes that the applicant has adequately addressed the supplemental information by referencing FSAR Section 17.5.

### **17.2 Quality Assurance During Construction and Operations**

#### **17.2.1 Introduction**

This FSAR section addresses the QA Program during the construction and operations phases of the plant, including adapting the design to plant-specific implementation.

#### **17.2.2 Summary of Application**

Section 17.2 of the Fermi 3 COL FSAR, Revision 7, incorporates by reference Section 17.2 of the certified ESBWR DCD, Revision 10, referenced in 10 CFR Part 52, Appendix E. In addition, in FSAR Section 17.2, the applicant provides the following:

##### COL Items

- EF3 COL 17.2-1-A                      QA Program for the Construction and Operations Phases
- EF3 COL 17.2-2-A                      QA Program for Design Activities

In Section 17.2 of the FSAR, the applicant states:

The licensee's Quality Assurance Program in place during the construction and operations phases, including adapting the design to specific plant implementation, is described in Section 17.5.



### **17.2.5 Post Combined License Activities**

There are no post COL activities related to this section.

### **17.2.6 Conclusion**

The NRC staff's finding related to information incorporated by reference is in NUREG–1966. NRC staff reviewed the application and checked the referenced DCD. The staff's review confirms that the applicant has addressed the required information, and no outstanding information is expected to be addressed in the COL FSAR related to this section. Pursuant to 10 CFR 52.63(a)(5) and 10 CFR Part 52, Appendix E, Section VI.B.1, all nuclear safety issues relating to this section that were incorporated by reference are resolved.

In addition, the staff compared the additional information on COL items in the application to the relevant NRC regulations, the guidance in Sections 17.2 and 17.5 of NUREG–0800, and other NRC RGs. The staff's technical evaluation of COL Items EF3 COL 17.2-1-A and EF3 COL 17.2-2-A is in Section 17.5 of this SER. The staff's review finds that the applicant has adequately addressed the COL items by referencing FSAR Section 17.5.

## **17.3 Quality Assurance Program Description**

### **17.3.1 Introduction**

This FSAR section addresses the overall QA Program.

### **17.3.2 Summary of Application**

Section 17.3 of the Fermi 3 COL FSAR, Revision 7, incorporates by reference Section 17.3 of the certified ESBWR DCD, Revision 10, referenced in 10 CFR Part 52, Appendix E. In addition, in FSAR Section 17.3, the applicant provides the following:

#### COL Item

- EF3 COL 17.3-1-A Quality Assurance Program Document

In FSAR Section 17.3, the applicant states:

The Quality Assurance Program Document applicable to the licensee is described in Section 17.5.

### **17.3.3 Regulatory Basis**

The regulatory basis of the information incorporated by reference is in NUREG–1966. In addition, the relevant requirements of the Commission regulations for the QAPD, and the associated acceptance criteria, are in Sections 17.3 and 17.5 of NUREG–0800.

### **17.3.4 Technical Evaluation**

As documented in NUREG–1966, NRC staff reviewed and approved Section 17.3 of the certified ESBWR DCD. The staff reviewed Section 17.3 of the Fermi 3 COL FSAR and checked the referenced ESBWR DCD to ensure that the combination of the information in the COL



FSAR and the information in the ESBWR DCD appropriately represents the complete scope of information relating to this review topic.<sup>1</sup> The staff's review confirmed that the information in the application and the information incorporated by reference address the relevant information related to the QAPD.

The staff reviewed the information in the Fermi 3 COL FSAR as follows:

COL Item

- EF3 COL 17.3-1-A Quality Assurance Program Document

In FSAR Section 17.3, the applicant states:

The Quality Assurance Program Document applicable to the licensee is described in Section 17.5.

This COL Item is addressed in Section 17.5 of this SER.

The staff reviewed COL Item EF3 COL 17.3-1-A to determine whether it meets NRC regulations by following the guidance in SRP Section 17.5. SRP Section 17.5 provides an outline of a QA Program acceptable to the staff for the design certification, ESP, COL, construction permit, and operating license applicants. The staff developed SRP Section 17.5 using ASME NQA-1-1994, supplemented by additional regulatory and industry guidance for nuclear operating facilities. SRP Section 17.5 also addresses additional QA requirements in 10 CFR Part 50, Appendix A, GDC 1 and 10 CFR 50.34(f)(3)(ii) and (iii). GDC 1 requires that a QA Program be established and implemented. 10 CFR 50.34(f)(3)(ii) and (iii) specify design and construction QA requirements that must be addressed in a QAPD. The staff determined that COL Item EF3 COL 17.3-1-A adequately references FSAR Section 17.5 for details of the QAPD.

### **17.3.5 Post Combined License Activities**

There are no post COL activities related to this section.

### **17.3.6 Conclusion**

The NRC staff's finding related to information incorporated by reference is in NUREG-1966. NRC staff reviewed the application and checked the referenced DCD. The staff's review confirms that the applicant has addressed the required information, and no outstanding information is expected to be addressed in the COL FSAR related to this section. Pursuant to 10 CFR 52.63(a)(5) and 10 CFR Part 52, Appendix E, Section VI.B.1, all nuclear safety issues relating to the QAPD that were incorporated by reference are resolved.

In addition, the staff compared the additional information on the COL item in the application to the relevant NRC regulations, the guidance in Section 17.3 of NUREG-0800, and other NRC RGs. The staff's technical evaluation of the QAPD is in Section 17.5 of this SER. The staff's review finds that the applicant has adequately addressed the COL item by referencing FSAR Section 17.5.

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<sup>1</sup> See "Finality of Referenced NRC Approvals" in SER Section 1.2.2 for a discussion on the staff's review related to verification of the scope of information to be included in a COL application that references a design certification.



## **17.4 Reliability Assurance Program During Design Phase**

### **17.4.1 Introduction**

This FSAR section addresses the Commission's direction in the staff requirements memorandum (SRM) dated June 28, 1995, for Item E, "Reliability Assurance Program," of SECY-95-132, "Policy and Technical Issues Associated with the Regulatory Treatment of Non-Safety Systems (RTNSS) in Passive Plant Designs," dated May 22, 1995. The RAP is implemented using the guidance in Item E of SECY-95-132. The purposes of the RAP are to provide reasonable assurances that:

- A plant is designed, constructed, and operated consistent with the assumptions and risk insights for the structures, systems, and components (SSCs) in the scope of the RAP.
- These SSCs do not degrade to an unacceptable level of reliability, availability, or condition during plant operations.
- The frequency of transients that challenge these SSCs is minimized.
- These SSCs function reliably when challenged.

The purposes of the RAP can be achieved by implementing the program in two stages. The first stage applies to RAP activities that occur before the initial fuel load and is referred to as the Design Reliability Assurance Program (D-RAP). The goal of the D-RAP is to ensure that the plant design meets the considerations identified earlier through the plant design, procurement, fabrication, construction, and preoperational testing activities and programs. The second stage applies to RAP activities for the operations phase of the plant's life cycle. The objective during this stage is to ensure that the reliability for the SSCs within the scope of the RAP is maintained during plant operations. Implementation of the D-RAP by the COL licensee is verified using the inspections, tests, analyses, and acceptance criteria (ITAAC) process, as well as inspections conducted during the detailed design and construction phases before initial fuel load.

### **17.4.2 Summary of Application**

Section 17.4 of the Fermi 3 COL FSAR, Revision 7, incorporates by reference Section 17.4 of the certified ESBWR DCD, Tier 2, Revision 10, referenced in 10 CFR Part 52, Appendix E. In addition, in FSAR Section 17.4, the applicant provides the following:

#### **COL Item**

- STD COL 17.4-1-A Identifying Site-Specific Structures, Systems, and Components Within the Scope of the Reliability Assurance Program

In FSAR Section 17.4.1, "Introduction," the applicant states:

There are no site specific SSCs within the scope of the RAP. The quality elements for all SSCs within the scope of the D-RAP are in accordance with the QAPD.

In FSAR Section 17.4.6, "SSC Identification/Prioritization," the applicant states:

The list of risk-significant SSCs will be confirmed via ITAAC (see DCD Tier 1, Table 3.6-1).

- STD COL 17.4-2-A Operation Reliability Assurance Activities

In FSAR Section 17.1, the applicant adds the following:

The objectives of reliability assurance during the operations phase are integrated into the Quality Assurance Program (Section 17.5), the MR Program (Section 17.6), and other operational programs. Specific reliability assurance activities are addressed within operational programs (e.g., maintenance rule, surveillance testing, inservice testing, inservice inspection, and quality assurance) and the maintenance programs.

The MR Program incorporates the following aspects of operational reliability assurance (refer to Section 17.6):

- Use of probabilistic risk assessment (PRA) importance measures, the expert panel process, and deterministic methods to determine the list of risk-significant SSCs.
- Evaluation and maintenance of the reliability of SSCs in the scope of the D-RAP.
- Monitoring the effectiveness of maintenance activities needed for operational reliability assurance.
- Classifying initially as high-safety-significant all SSCs that are in the scope of the D-RAP or applying expert panel review for any exceptions.
- Use of historical data and industry operating experience on equipment performance as available.
- Use of specific criteria to establish the level of performance or condition being maintained for SSCs within the scope of the MR Program; and use of monitoring to identify declining trends between surveillances and to minimize the likelihood of undetected performance or condition degradation to unacceptable levels, to the extent possible.
- Use of maintenance programs to determine the nature and frequency of maintenance activities to be performed on plant equipment, including SSCs within the scope of the MR Program.

In FSAR Section 17.4.9, "Operational Reliability Assurance Activities," the applicant states:

Refer to Section 17.4.1 for the implementation of reliability assurance during the operations phase.

In FSAR Section 17.4.10, "Owner/Operator's Reliability Assurance Program," the applicant states:

The MR Program is described in Section 17.6. Refer to Section 17.4.1 for the implementation of reliability assurance activities.

#### 17.4.3 Regulatory Basis

The regulatory basis of the information incorporated by reference is in NUREG–1966.

In particular, the relevant guidance for the RAP, including the associated acceptance criteria, is in the following sources:

- Item E of SECY-95-132
- Section 17.4, “Reliability Assurance Program,” of NUREG–0800

#### 17.4.4 Technical Evaluation

As documented in NUREG–1966, NRC staff reviewed and approved Section 17.4 of the certified ESBWR DCD, Tier 2. The staff reviewed Section 17.4 of the Fermi 3 COL FSAR and checked the referenced ESBWR DCD to ensure that the combination of the information in the COL FSAR and the information in the ESBWR DCD appropriately represents the complete scope of information relating to this review topic.<sup>1</sup> The staff’s review confirmed that the information in the application and the information incorporated by reference address the relevant information related to the RAP.

The staff reviewed the information in the Fermi 3 COL FSAR as follows:

##### COL Items

- STD COL 17.4-1-A

In Section 17.4.13 of the referenced ESBWR DCD Tier 2, COL Item 17.4-1-A states:

The COL Applicant will identify the site-specific SSCs within the scope of the RAP, and describe the quality elements for developing and implementing the D-RAP (that is, Organization, Design Control, Procedures and Instructions, Records, Corrective Action, and Audit Plans) that will be applied prior to the initial fuel load (Subsection 17.4.1).

The applicant addresses this COL item in FSAR Section 17.4.1 by specifying the Commitment (COM 17.4-001) to identify the site-specific SSCs within the scope of the RAP, including a description of the quality elements for developing and implementing the D-RAP before the initial fuel loading.

Based on SECY-95-132 and SRP Section 17.4, the staff found that the applicant had not identified the site-specific RAP SSCs nor the quality elements for developing and implementing the D-RAP and therefore did not sufficiently address COL Item 17.4-1-A in the Fermi 3 COL FSAR, Revision 3. The ESBWR DCD, Tier 2 contains COL Item 17.4-1-A to ensure that COL applications referencing the ESBWR design contain a list of site-specific RAP SSCs (i.e., the RAP SSCs identified in Section 17.4 of the ESBWR DCD, Tier 2 and updated, as needed, using

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<sup>1</sup> See “Finality of Referenced NRC Approvals” in SER Section 1.2.2 for a discussion on the staff’s review related to verification of the scope of information to be included in a COL application that references a design certification.

COL site- and plant-specific information) and describe the quality elements for developing and implementing the plant-specific D-RAP. It is necessary to identify the site-specific RAP SSCs before the detailed design, procurement, fabrication, construction, inspection, and testing phases of the plant because the nonsafety-related RAP SSCs are subjected to the appropriate QA controls in accordance with SRP Section 17.5, SRP Acceptance Criterion V ("Nonsafety-Related SSC Quality Controls"). The quality elements of D-RAP are processes and controls implemented to ensure that the risk insights and key assumptions from probabilistic, deterministic, and other methods of analysis used to identify and quantify risk are consistent with the designed and constructed plant and that the list of RAP SSCs is appropriately developed, maintained, updated, and communicated to the appropriate organizations. These elements are applied during all plant design and construction activities before initial fuel load. The staff issued Request for Additional Information (RAI) 17.04-2 requesting the applicant to appropriately address COL Item 17.4-1-A in the Fermi 3 COL FSAR by identifying the site-specific RAP SSCs and describing the quality elements for developing and implementing the D-RAP.

In the response to RAI 17.04-2, dated May 25, 2011 (Agencywide Documents Access and Management System (ADAMS) ML11151A065), the applicant states that the list of SSCs within the scope of the RAP in ESBWR DCD Tier 2, Section 17.4 is incorporated by reference in FSAR Section 17.4, which includes all RTNSS SSCs identified in ESBWR DCD Tier 2, Appendix 19A. In addition, the applicant has reviewed the list of SSCs within the scope of the RAP that were incorporated by reference and concluded that no site-specific SSCs are within the scope of the RAP. In addition to the bounding treatment of PRA parameters, there are no departures from the standard design in any systems considered in the PRA model. Therefore, no site-specific design features affect the PRA because the boundary of the certified design covers all of the SSCs necessary for the PRA. Regarding RTNSS SSCs, the Fermi 3 COL FSAR incorporates by reference Appendix 19A of the ESBWR DCD Tier 2 with no departures or supplements. Furthermore, there are no site-specific nonsafety-related RTNSS systems beyond the scope of the DCD. Therefore, the applicant concludes that the list of SSCs within the scope of the RAP for Fermi 3 is identified in Section 17.4 of the ESBWR DCD Tier 2, which is incorporated by reference in the Fermi 3 COL FSAR.

The applicant also states that the QA controls for safety-related and nonsafety-related SSCs within the scope of the RAP are in accordance with the QAPD in FSAR Appendix 17AA. Part II of the QAPD provides the QA controls for safety-related SSCs. Part III of the QAPD provides the QA controls for nonsafety-related SSCs that significantly contribute to plant safety. In addition, the quality elements are incorporated by reference into Section 17.4.5 of the ESBWR DCD Tier 2. Furthermore, the applicant states that FSAR Section 17.4 will be revised to remove Commitment COM 17.4-001 and to include a statement that there are no site-specific SSCs within the scope of the RAP, and the quality elements for all SSCs within the scope of the RAP are in accordance with the QAPD.

The staff finds that the applicant's response has sufficiently addressed the issues raised in RAI 17.04-2. Also, the staff independently assessed the impact from the COL site- and plant-specific information on the list of SSCs within the scope of the RAP (i.e., additions or deletions to the list of SSCs within the scope of the RAP). The staff finds that the list of SSCs within the scope of the RAP for Fermi 3 is identified in Section 17.4 of ESBWR DCD Tier 2, which is incorporated by reference in the Fermi 3 COL FSAR. The applicant's proposed revision to Fermi 3 COL FSAR, Section 17.4, was tracked as Confirmatory Item 17.04-2. The NRC staff has verified that the applicant has incorporated the proposed changes into FSAR Section 17.4.



The fifth bullet in Section 17.4.10 of the ESBWR DCD Tier 2 describes the scope of the MR Program and states that it is the responsibility of the licensee. In the Fermi 3 FSAR, the applicant replaces the fifth bullet of the DCD with the following sentence:

MR Program: The MR Program is described in Section 17.6.

The staff finds this replacement acceptable because FSAR Section 17.6 describes the applicant's MR Program, which meets the scope defined under the fifth bullet in DCD Section 17.4.10. The staff's technical evaluation of the MR Program is in Section 17.6 of this SER.

The last sentence in ESBWR DCD Tier 2, Section 17.4.10 states: "See Subsection 17.4.1 for COL information requirements." In the Fermi 3 FSAR, the applicant replaces the sentence of the DCD with the following sentence:

Refer to Section 17.4.1 for the implementation of reliability assurance activities.

The staff finds this replacement appropriate.

Based on the above evaluation, the staff finds that the applicant has adequately addressed the required information relating to COL Items STD COL 17.4-1-A and STD COL 17.4-2-A consistent with the applicable requirements described in Section 17.4.3 of this SER. Therefore, these COL items are closed.

#### **17.4.5 Post Combined License Activities**

There are no post COL activities related to this section.

#### **17.4.6 Conclusion**

The NRC staff's finding related to information incorporated by reference is in NUREG-1966. NRC staff reviewed the application and checked the referenced DCD. The staff's review confirms that the applicant has addressed the required information relating to the RAP, and no outstanding information is expected to be addressed in the Fermi 3 COL FSAR related to this section. Pursuant to 10 CFR 52.63(a)(5) and 10 CFR Part 52, Appendix E, Section VI.B.1, all nuclear safety issues relating to the RAP that were incorporated by reference are resolved.

In addition, the staff compared the information in the COL application to the relevant NRC regulations, the guidance in Section 17.4 of NUREG-0800, and other NRC RGs. The staff's review finds that the applicant has provided sufficient information to address the COL items and to satisfy the NRC guidance in Section 17.4.3 of this SER.

### **17.5 Quality Assurance Program Description – Design Certification, Early Site Permits, and New License Applicants**

#### **17.5.1 Introduction**

This FSAR section discusses the overall QA Program, including the QA Program that is applicable during the design, construction, and operations phases of a nuclear power plant.







erecting, installing, inspecting, testing, operating, maintaining, repairing, refueling, and modifying these activities.

- 10 CFR 52.79(a)(17) requires that the application include information with respect to compliance with technically relevant positions of the Three Mile Island requirements of 10 CFR 50.34(f).
- 10 CFR 52.79(a)(25) requires that the description of the QA Program include a discussion of how the applicable requirements of Appendix B have been and will be satisfied and a discussion of how the QA Program will be implemented.
- 10 CFR 52.79(a)(27) requires that the application include information on the managerial and administrative controls to be used for a nuclear power plant and a discussion of how the applicable requirements of Appendix B will be satisfied.

#### **17.5.4 Technical Evaluation**

The staff reviewed Section 17.5 of the Fermi 3 COL FSAR and the Fermi 3 QAPD information in FSAR Appendix 17AA. This information is site-specific and is not part of the certified ESBWR DCD. In Supplemental Information EF3 SUP 17.5-2, the applicant discusses the QA Programs that were applied from project inception until 15 months after submitting the license application. The Fermi 3 QAPD addresses the QA Program that will be applied to activities after submitting the license application to adapt the design to plant-specific implementation, construction, and operations.

The staff reviewed and evaluated the Fermi 3 QAPD to determine whether it meets NRC regulations by following the guidance in SRP Section 17.5. SRP Section 17.5 provides an outline of a QA Program acceptable to the staff for the DC, ESP, COL, construction permit, and operating license applicants. The staff developed SRP Section 17.5 using ASME NQA-1-1994 supplemented by additional regulatory and industry guidance for nuclear operating facilities. SRP Section 17.5 also addresses additional QA requirements in 10 CFR Part 50, Appendix A, GDC 1 and 10 CFR 50.34(f)(3)(ii) and (iii). GDC 1 requires that a QA Program be established and implemented. 10 CFR 50.34(f)(3)(ii) and (iii) specify design and construction QA requirements that must be addressed in a QAPD.

The Fermi 3 QAPD is the top-level document that establishes the QA measures to be applied to the activities related to the design, construction, and operation of an ESBWR at the Fermi 3 site. The applicant states that the Fermi 3 QAPD is based on NEI 06-14A, Revision 7. The NRC finds that NEI 06-14A, Revision 7 provides an acceptable format and adequate guidance for establishing a QA Program that meets the requirements of 10 CFR Part 50, Appendix B, as documented in the related SER, "Quality Assurance Program Description," (ADAMS Accession No. ML101800497). Because the applicant claims to have followed an acceptable QA Program format, the following sections provide (1) additional information related to resolving the RAIs; (2) exceptions to industry standard commitments; and (3) cross-references to related SRP acceptance criteria guidance.

The staff conducted a specific comparison of the Fermi 3 QAPD against NEI 06-14A, Revision 7. The following discussion provides details of the staff's review and conclusions for each QAPD section.

#### **17.5.4.1 Organization**

The staff noted that the applicant's QAPD refers to Fermi 3 FSAR Chapter 13 for organizational information guiding the transition from construction to the operating phase. Many sections of the Fermi 3 FSAR, Chapter 13 refer to FSAR Section 17.5 for additional organizational information. The staff's review identified inadequate content, inconsistent organizational titles, and differing regulatory change requirements between FSAR Chapter 13 and Section 17.5. As a result, the staff issued RAIs 17.05-5 and 17.05-6 requesting the applicant to clarify methods for FSAR Chapter 13 content to further define Fermi 3 organizational responsibilities and structure, to provide organizational flowcharts, and to ensure consistent cross-references between FSAR Chapter 13 and Section 17.5. The applicant's response to these RAIs, dated September 30, 2009 (ADAMS Accession No. ML092790561), provides organizational flow charts with additional organizational details and amplifies regulatory change requirements for Fermi 3 FSAR Chapter 13 and QAPD Section 1, "Organization." However, a later staff review identified incomplete organizational information in Chapter 13 and in QAPD Section 1, which required additional clarification. As a result, the staff issued seven supplemental organizational RAI questions that are outlined below and closed RAIs 17.05-5 and 17.05-6.

In RAIs 17.05-10 and 17.05-21, the staff requested the applicant to address the eight notes of NEI 06-14 (previous version of NEI 06-14A), Part II, Section 1, including identifying each project phase and describing the process for an organizational transition between each phase. The applicant's responses to RAI 17.05-10, dated April 16, 2010 (ADAMS Accession No. ML101190369), and to RAI 17.05-21, dated August 13, 2010 (ADAMS Accession No. ML102290043), address the eight notes of NEI 06-14, Part II, Section 1, by outlining the three project phases and describing the transitional process between each phase. The staff reviewed the applicant's proposed changes to Fermi 3 COL FSAR, Chapter 13 and to the QAPD. The staff determined that the changes are consistent with NEI 06-14A, Revision 7, and are therefore acceptable. The staff verified that the applicant's proposed changes are included in Fermi 3 COL FSAR, Revision 3. Therefore, the staff determined that RAIs 17.05-10 and 17.05-21 are closed.

In RAIs 17.05-11, 17.05-13, and 17.05-22, the staff requested the applicant to (1) provide additional primary contractor details; (2) clarify organization sizing responsibility; (3) clarify transition points; and (4) clarify work locations of the described organization. The applicant's responses to these RAIs, dated April 16, 2010, and August 13, 2010 (ADAMS Accession Nos. ML101190369 and ML102290043, respectively), provide additional organizational details and proposed changes to the FSAR and the QAPD. The staff reviewed the applicant's proposed changes to FSAR Chapters 1 and 13 and the QAPD. The staff determined that the changes are consistent with NEI 06-14A, Revision 7 and are therefore acceptable. The staff verified that the applicant's proposed changes are included in the Fermi 3 FSAR, Revision 3. RAIs 17.05-11, 17.05-13, and 17.05-22 are therefore closed.

In RAIs 17.05-14 and 17.05-15, the staff requested the applicant to clarify the sections of the FSAR that describe the design and construction organization and when changes to organizational elements of Fermi 3 FSAR Chapter 13 will be reviewed under 10 CFR 50.54(a). The applicant's response to these RAIs, dated April 16, 2010 (ADAMS Accession No. ML101190369), clarifies the corporate executive, corporate support, and design and construction organizational structure. The applicant also states that the design, construction, technical support, and operating organizational changes will be reviewed under the provisions of 10 CFR 50.54(a). The staff reviewed the applicant's proposed changes to FSAR Chapter 13 and the QAPD. The staff determined that the changes are consistent with NEI 06-14A,

Revision 7 and are therefore acceptable. The staff verified that the applicant's proposed changes are included in the Fermi 3 COL FSAR, Revision 3. RAs 17.05-5, 17.05-6, 17.05-14, and 17.05-15 are therefore closed.

The staff finds that the applicant's QAPD follows the guidance of Section 17.5, SRP Acceptance Criterion A related to the organization, which is based on the following information. In the QAPD, the applicant assures compliance with the quality standards for QA organizations described by ASME in NQA-1-1994, Basic Requirement 1 and Supplement 1S-1. The QAPD describes and defines the responsibility and authority for planning, establishing, and implementing an effective overall QA Program. The QAPD describes an organization's structure; functional responsibilities; levels of authority; and the interfaces for establishing, executing, and verifying the QAPD implementation. The QAPD establishes independence between the organization responsible for overseeing a function and the organization that performs the function. In addition, the QAPD allows the applicant's management to size the QA organization commensurate with assigned duties and responsibilities.

#### **17.5.4.2 Quality Assurance Program**

The staff issued RA 17.05-7 requesting the applicant to describe the qualification requirements for the independent review staff, which should meet or exceed those described in Section 4.7 of American National Standard Institute/American Nuclear Society (ANSI/ANS)-3.1-1993, "American National Standard for Selection, Qualification, and Training of Personnel for Nuclear Power Plants"; and in RG 1.8, Revision 3, "Qualification and Training of Personnel for Nuclear Power Plants." The applicant's response to RA 17.05-7, dated September 30, 2009 (ADAMS Accession No. ML092790561), revises Section 2.7 of the QAPD to reflect acceptable qualification requirements for the members of the Independent Review Board. The staff reviewed the applicant's response and the proposed changes to Section 2.7 of the QAPD. The staff determined that the changes are consistent with NEI 06-14A, Revision 7 and are therefore acceptable. The staff verified that the applicant's proposed changes are included in the Fermi 3 COL FSAR, Revision 3. Therefore, RA 17.05-7 is closed. The staff also finds that the QAPD follows the guidance in Section 17.5 of NUREG-0800, SRP Acceptance Criterion W, for independent program reviews because the QAPD provides measures for establishing an independent review program for activities occurring during the operations phase.

Additionally, the staff finds that the QAPD follows the guidance related to training in Section 17.5 of NUREG-0800, SRP Acceptance Criteria S and T, which are based on information that follows. The QAPD describes measures that establish and maintain formal indoctrination and training programs for personnel performing, verifying, or maintaining activities within the scope of the QAPD. The purpose of these measures is to ensure that personnel achieve and maintain suitable levels of proficiency. The plant's technical specifications delineate the minimum qualifications for plant and support staff. Personnel are required to complete the training for positions identified in 10 CFR 50.120, "Training and qualification of nuclear power plant personnel," in accordance with programs accredited by the National Nuclear Accrediting Board of the National Academy for Nuclear Training. The QAPD also establishes minimum training requirements for managers responsible for implementing the QAPD and individuals responsible for planning, implementing, and maintaining the QAPD.

The applicant's QAPD provides assurance of compliance with the quality standards described in NQA-1-1994, Basic Requirement 2 and Supplements 2S-1, 2S-2, 2S-3, and 2S-4 with the following alternatives:

- NQA-1–1994, Supplement 2S-1 includes NQA-1–1994, Appendix 2A-1. The QAPD proposes the following alternatives to the implementation of Supplement 2S-1 and Appendix 2A-1:
  - NQA-1–1994, Supplement 2S-1 states that the organization designates those activities that require qualified inspectors and test personnel and establishes written procedures for the qualification of these personnel. As an alternative to this requirement, the QAPD proposes that a qualified engineer may plan inspections, evaluate the capabilities of an inspector, or evaluate the training program for inspectors. For the purposes of these functions, a qualified engineer is one who has a baccalaureate degree in engineering in a discipline related to the inspection or test activity (i.e., electrical, mechanical, or civil engineering) and has at least five years of engineering work experience, with at least two years of this experience related to nuclear facilities. The staff evaluated this proposed alternative and determined that the designation of a qualified engineer to plan inspections, evaluate inspectors, or evaluate the inspector qualification programs is consistent with the training and qualification criteria of 10 CFR Part 50, Appendix B, Criterion II, “Quality Assurance Program,” and NQA-1–1994, Supplement 2S-1. Therefore, the staff finds this alternative acceptable.
  - NQA-1–1994, Appendix 2A-1 provides guidance for qualifying inspection and test personnel as Level I, II, or III. As an alternative to this guidance, the QAPD proposes that personnel performing independent quality verification inspections, examinations, measurements, or tests will be required to possess qualifications equal to or better than those required for performing the task being verified. In addition, the verification performed must be within the skills of these personnel and addressed by procedures. These personnel will not be responsible for planning quality verification inspections or tests (i.e., establishing hold points and acceptance criteria in procedures and determining responsibility for performing the inspection), evaluating inspection training programs, or certifying inspection personnel. The staff evaluated this proposed alternative and determined that it is consistent with inspection and test personnel initial qualification requirements specified in Section 17.5 of NUREG–0800, SRP Acceptance Criterion T.5. Therefore, the staff finds this alternative acceptable.
  - NQA-1–1994, Supplement 2S-2 states that nondestructive examination personnel must be qualified. As an alternative to this requirement, the QAPD proposes to follow the applicable standard cited in Sections III and XI of the ASME Boiler and Pressure Vessel Code (ASME Code). 10 CFR 50.55a, “Codes and standards,” also requires the use of the latest edition and addenda in Sections III and XI of the ASME Code. The staff evaluated this proposed alternative and determined that it is consistent with the regulation in 10 CFR Part 50, Appendix B, Criterion II. Therefore, the staff finds this alternative acceptable.
  - NQA-1–1994, Supplement 2S-3 states that the prospective lead auditors must have participated in a minimum of five audits in the previous three years. As an alternative to this requirement, the QAPD proposes to follow the guidance of Section 17.5 of NUREG–0800, SRP Acceptance Criterion S.4.c, which states that prospective lead auditors shall demonstrate their ability (1) to properly conduct the audit process as implemented by the company; (2) to effectively lead



an audit team; and (3) to effectively organize and report results, including participation in at least one nuclear audit within the year preceding the date of qualification. The staff evaluated this proposed alternative and determined that it is consistent with the regulation in 10 CFR Part 50, Appendix B, Criterion II. Therefore, the staff finds this alternative acceptable.

The staff finds that the applicant's QAPD follows the guidance in Section 17.5 of NUREG-0800, SRP Acceptance Criterion B for the QA Program based on information that follows. The QAPD establishes measures to implement a QA Program to ensure that the design, construction, and operation of a nuclear power plant are in accordance with governing regulations and license requirements. The QA Program comprises those planned and systematic actions that are necessary to provide confidence that SSCs will perform their intended safety functions, including certain nonsafety-related SSCs and activities that are significant contributors to plant safety, as described in the Fermi 3 COL FSAR. The QA Program requires the maintenance of a list or system identifying SSCs and activities applicable to the QAPD.

Furthermore, the staff finds that the applicant's QAPD provides measures to assess the adequacy of the QAPD at least once each year or at least once during the existence of the activity, whichever is shorter. The program allows the period of time for assessing the QAPD during the operations phase to be extended to once every two years. In addition, the staff finds that the applicant's QAPD is consistent with Section 17.5 of NUREG-0800, SRP Acceptance Criterion B.8 because the QAPD applies a grace period of 90 days for activities that must be performed on a periodic basis. The next due date for the performance of an activity that invokes the 90-day grace period remains unchanged (i.e., the next due date is not advanced forward in time). The next due date for an activity performed before the scheduled due date is moved earlier (i.e., the next due date is advanced backward in time), so as not to exceed the interval prescribed for the performance of the activity.

#### **17.5.4.3    *Design Control***

The staff finds that the applicant's QAPD follows the guidance of Section 17.5 of NUREG-0800, SRP Acceptance Criterion C for design control based on information that follows. The QAPD establishes the necessary measures to control the design, design changes, and temporary modifications (e.g., temporary bypass lines, electrical jumpers and lifted wires, and temporary setpoints) of items that are subject to the provisions of the QAPD. The QAPD design process includes provisions to control design inputs, outputs, changes, interfaces, records, and organizational interfaces with the applicant and the plant's suppliers. These provisions ensure that the design inputs (i.e., design bases and the performance, regulatory, quality, and quality verification requirements) are correctly translated into design outputs (i.e., analyses, specifications, drawings, procedures, and instructions). The QAPD provides for individuals knowledgeable about QA principles to review design documents and ensure that they contain the necessary QA requirements. The applicant's QAPD also provides assurance of compliance with the quality standards described in NQA-1-1994, Basic Requirement 3 and Supplement 3S-1, Subpart 2.20 for the subsurface investigation requirements and Subpart 2.7 for the standards for computer software QA controls, to establish the program for design control and verification.

#### 17.5.4.4 **Procurement Document Control**

The staff determined that the applicant's QAPD provides assurance of compliance with the quality standards described in NQA-1–1994, Basic Requirement 4 and Supplement 4S-1, with the following alternatives:

- In NQA-1–1994, Supplement 4S-1, Section 2.3 states that procurement documents must require suppliers to have a documented QA Program that implements NQA-1–1994, Part I.
  - As an alternative to this requirement, the QAPD proposes that suppliers have a documented QA Program that meets the requirements of Appendix B to 10 CFR Part 50, as applicable to the circumstances of the procurement. The staff evaluated this proposed alternative and determined that it is consistent with Appendix B, Criterion IV, "Procurement Document Control." Therefore, the staff finds this alternative acceptable.
  - As an alternative to this requirement, the QAPD proposes that procurement documents could allow suppliers to work under the applicant's QAPD, including its implementation procedures, if suppliers do not have their own QA program. The staff evaluated this proposed alternative and determined that the applicant's QAPD follows the guidance of Section 17.5 of NUREG–0800, SRP Acceptance Criterion G, "Control of Purchased Material, Equipment, and Services." Specifically, the QAPD provides measures to evaluate prospective suppliers so that only qualified suppliers are selected, acceptance actions are performed for procuring products and services, and suppliers are periodically audited and evaluated to ensure that qualified suppliers continue to provide acceptable products and services. Therefore, the staff finds this alternative acceptable.
- In NQA-1–1994, Supplement 4S-1, Section 3 states that procurement documents are to be reviewed before awarding a contract. As an alternative to this requirement, the QAPD proposes to conduct the QA review of procurement documents through a review of the applicable procurement specifications, including the technical and quality procurement requirements, before awarding a contract. In addition, procurement document changes (e.g., scope, technical, or quality requirements) will also receive a QA review. The staff evaluated this proposed alternative and determined that it provides an adequate QA review of procurement documents before awarding a contract and after any changes. Therefore, the staff finds this alternative acceptable.
- In the QAPD, the applicant provides assurance that procurement documents prepared for commercial-grade items and procured as safety-related items shall contain technical and QA requirements to which the procured item can be appropriately dedicated. The staff evaluated and determined that it is consistent with staff guidance in Generic Letter (GL) 89–02, "Actions to Improve the Detection of Counterfeit and Fraudulently Marked Products," dated March 21, 1989, and GL 91–05, "Licensee Commercial-Grade Procurement and Dedication Programs," dated April 9, 1991, as delineated in Section 17.5 of NUREG–0800, SRP Acceptance Criteria U.1.d and U.1.e. Therefore, the staff finds this alternative acceptable.

The staff finds that the applicant's QAPD follows the guidance of Section 17.5 of NUREG-0800, SRP Acceptance Criterion D for procurement document control based on information that

follows. The QAPD establishes the necessary administrative controls and processes to ensure that procurement documents include or reference applicable regulatory, technical, and QA Program requirements. As noted in Section 17.5 of NUREG-0800, SRP Acceptance Criterion D.1, the applicable technical, regulatory, administrative, quality, and reporting requirements are invoked for the procurement of items and services. These requirements include specifications, codes, standards, tests, inspections, special processes, and the regulations in 10 CFR Part 21, "Reporting of Defects and Noncompliance."

#### **17.5.4.5 Instructions, Procedures, and Drawings**

The staff finds that the applicant's QAPD follows the guidance of Section 17.5 of NUREG-0800, SRP Acceptance Criterion E for instructions, procedures, and drawings based on information that follows. The QAPD establishes the necessary measures and governing procedures to ensure that activities affecting quality are prescribed by and performed in accordance with documented instructions, procedures, and drawings. The applicant's QAPD also provides assurance of compliance with the quality standards for instructions, procedures, and drawings described in NQA-1-1994, Basic Requirement 5 for establishing procedural controls.

#### **17.5.4.6 Document Control**

The staff finds that the applicant's QAPD follows the guidance of Section 17.5 of NUREG-0800, SRP Acceptance Criterion F for document controls based on information that follows. The QAPD establishes the necessary measures and governing procedures to control the preparation, review, approval, and issuance of and changes to documents that specify QA requirements or prescribe measures for controlling activities affecting quality, including organizational interfaces. The QAPD provides measures to ensure that the same organization that performed the original review and approval also reviews and approves revisions or changes to documents, unless other organizations are specifically designated.

Furthermore, a list of all controlled documents that identify the current approved revision or date is maintained so personnel can readily determine the appropriate document to use. To ensure effective and accurate procedures during the operational phase, applicable procedures are reviewed and updated as necessary, which is consistent with the staff guidance of Section 17.5 of NUREG-0800, SRP Acceptance Criterion F.8. The applicant's QAPD also provides assurance of compliance with the quality standards described in NQA-1-1994, Basic Requirement 6 and Supplement 6S-1, which establish document control provisions.

#### **17.5.4.7 Control of Purchased Material, Equipment, and Services**

The staff evaluated the QAPD and determined that the applicant provides assurance of compliance with the quality standards for the control of purchased materials, equipment, and services described in NQA-1-1994, Basic Requirement 7 and Supplement 7S-1, which establish procurement verification controls with the following exceptions and alternatives:

- NQA-1-1994, Basic Requirement 7 and Supplement 7S-1 state that procurement sources and suppliers' performance are to be evaluated. As an exception to these requirements, the QAPD proposes that other 10 CFR Part 50 licensees, authorized nuclear inspection agencies, the National Institute of Standards and Technology (NIST), and other State and Federal agencies that may provide items or services to the applicant are not required to be evaluated or audited.



The staff acknowledged that 10 CFR Part 50 licensees, authorized nuclear inspection agencies, the National Voluntary Laboratory Accreditation Program (NVLAP) administered by NIST, and other State and Federal agencies perform work under QA Programs that are acceptable to the NRC, and no additional audits or evaluations are required. However, the applicant remains responsible for ensuring that procured items or services conform to Appendix B to 10 CFR Part 50; to applicable ASME Code requirements; and to other regulatory requirements and commitments. The applicant also remains responsible for ensuring that the items or services are suitable for the intended application and for documenting the evaluations that support this conclusion. The staff finds this exception consistent with NEI 06–14A, Revision 7 and therefore acceptable.

- In Section 17.5 of NUREG–0800, SRP Acceptance Criterion L.8 establishes provisions for the procurement of commercial-grade calibration services for safety-related applications. As an exception to these provisions, the QAPD proposes that procurement source evaluations and selection measures not be required provided that all of the following conditions are met:
  - Purchase documents will impose additional technical and administrative requirements to satisfy any licensee-specific QAPD and technical requirements.
  - Purchase documents will require reporting of as-found calibration data when calibrated items are found to be out of tolerance.
  - The supplier's accreditation will require a documented review that verifies the following:
    - 1) The calibration laboratory holds a domestic accreditation from any one of the following accrediting bodies, which are recognized by the International Laboratory Accreditation Cooperation Mutual Recognition Arrangement:
      - a. NVLAP, administered by NIST
      - b. American Association for Laboratory Accreditation (A2LA), as recognized by the NVLAP
      - c. ACLASS Accreditation Services (ACLASS)
      - d. International Accreditation Service (IAS)
      - e. Laboratory Accreditation Bureau (L-A-B)
      - f. Other NRC-approved laboratory accrediting bodies
    - 2) The accreditation encompasses the ANSI/International Organization for Standardization International Electrotechnical Commission 17025, "General Requirements for the Competence of Testing and Calibration Laboratories."
    - 3) The published scope of accreditation for the calibration laboratory covers the necessary measurement parameters, ranges, and uncertainties.

The staff evaluated and found the ACLASS, IAS, L-A-B, NVLAB, and A2LA accreditation programs consistent with NEI 06-14A, Revision 7 and thus acceptable.

- In NQA-1–1994, Supplement 7S-1, Section 8.1 states that documented evidence must conform to procurement documents and be available at the nuclear facility site before installation or use. As an alternative to the requirement that documented procurement evidence be available at the nuclear facility site during construction, the QAPD proposes that documented evidence may be stored in physical or in electronic form under the control of the applicant or its supplier(s) and at a location(s) other than the nuclear facility site as long as the documents can be accessed at the nuclear facility site during construction. The applicant states that after the completion of construction, sufficient as-built documentation will be available to the licensee to support operations.

The staff determined that implementation of this alternative would allow access to and review of the necessary procurement documented evidence at the nuclear facility site, both before installation and before use. Therefore, the staff finds that this alternative is acceptable.

- As an alternative to the requirements that control commercial-grade items and services in NQA-1–1994, Supplement 7S-1, Section 10, the applicant provides assurance in the QAPD to follow the NRC guidance discussed in GLs 89–02 and 91–05. In addition, the applicant established and described special quality verification requirements in applicable documents to assure that the commercially procured items will perform satisfactorily and the documents will determine critical characteristics, technical evaluations, receipt requirements, and quality evaluations of the items to ensure that they are suitable for their intended use. In addition, the applicant provides assurance in the QAPD to use other appropriate and approved regulatory means and controls to support the applicant's commercial-grade dedication activities. The applicant will also assume 10 CFR Part 21 reporting responsibility for all items that are dedicated as safety related.

The staff determined that this alternative improves the likelihood of detecting counterfeit and fraudulently marked products and improves the commercial-grade dedication programs. This alternative is consistent with the guidance of Section 17.5 of NUREG-0800, SRP Acceptance Criteria U.1.d and U.1.e. Therefore, the staff finds this alternative acceptable.

The staff finds that the applicant's QAPD follows the guidance of Section 17.5 of NUREG-0800, SRP Acceptance Criterion G for the control of purchased materials, equipment, and services based on information that follows. The QAPD establishes the necessary measures and governing procedures to control the procurement of items and services and to ensure conformance with specified requirements. The program provides measures for evaluating prospective suppliers so that only qualified suppliers are selected. In addition, the program requires that suppliers be periodically audited and evaluated to ensure that qualified suppliers continue to provide acceptable products and services.

Furthermore, the program provides for acceptance actions that include source verification, receipt inspection, pre- and post-installation tests, and the review of documentation, such as certificates of conformance, to ensure that procurement, inspections, and test requirements have been satisfied before relying on the item to perform its intended safety function. Purchased items (such as components, spares, and replacement parts necessary for plant operation, refueling, maintenance, and modifications) and services are subject to quality and

technical requirements at least equivalent to those specified for original equipment, or properly reviewed and approved revisions, to ensure that the items are suitable for the intended service and are of an acceptable quality that is consistent with their effect on safety.

#### **17.5.4.8 Identification and Control of Materials, Parts, and Components**

The staff finds that the applicant's QAPD follows the guidance of Section 17.5 of NUREG-0800, SRP Acceptance Criterion H for the identification and control of materials, parts, and components (material traceability) based on information that follows. The QAPD establishes the necessary measures for the identification and control of items such as materials—including consumables and items with limited shelf life, parts, components, and partially fabricated subassemblies. The identification of items is maintained throughout fabrication, erection, installation, and use, so that the item can be traced to its documentation consistent with the item's effect on safety. The applicant's QAPD also provides assurance to comply with the quality standards for material traceability described in NQA-1–1994, Basic Requirement 8 and Supplement 8S-1, which establish provisions for the identification and control of items.

#### **17.5.4.9 Control of Special Processes**

The staff finds that the applicant's QAPD follows the guidance of Section 17.5 of NUREG-0800, SRP Acceptance Criterion I, for the control of special processes based on information that follows. The QAPD establishes programs, procedures, and processes to ensure that special processes requiring interim controls to maintain quality such as welding, heat treating, chemical cleaning, and nondestructive examinations are implemented and controlled in accordance with applicable codes, specifications, and standards. The applicant's QAPD also provides assurance to comply with the quality standards for the control of special processes described in NQA-1–1994, Basic Requirement 9 and Supplement 9S-1, which establish measures for the control of special processes.

#### **17.5.4.10 Inspection**

The Fermi 3 QAPD provides assurances of compliance with QA standards for inspections described in NQA-1–1994, Basic Requirement 10, Supplement 10S-1 and Subparts 2.4, 2.5, and 2.8 establishing inspection requirements with the following provisions:

- NQA-1–1994, Subpart 2.4 requires the use of the Institute of Electrical and Electronics Engineers (IEEE) Standard (Std) 336–1985, "IEEE Standard Installation, Inspection, and Testing Requirements for Power, Instrumentation, and Control Equipment at Nuclear Facilities." IEEE Std 336–1985 refers to IEEE 498–1985, "IEEE Standard Requirements for the Calibration and Control of Measuring and Test Equipment Used in Nuclear Facilities." Each of these standards uses the definition of safety systems equipment from IEEE Std 603–1980, "IEEE Standard Criteria for Safety Systems for Nuclear Power Generating Stations." IEEE Std 603–1980 defines "safety system" as:

Those systems (the reactor trip system, an engineered safety feature, or both, including all their auxiliary supporting features and other auxiliary feature) which provide a safety function. A safety system is comprised of more than one safety group of which any one safety group can provide the safety function.

In the QAPD, the applicant provides information to satisfy the IEEE Std 603–1980 definition of safety systems equipment to appropriately implement NQA-1–1994, Subpart 2.4. This definition applies only to equipment in the context of NQA-1–1994, Subpart 2.4. The staff evaluated the QAPD and determined that the use of the definition of safety systems equipment is acceptable and is consistent with the requirements in NQA-1–1994, Subpart 2.4.

- In NQA-1–1994, Supplement 10S-1, Section 3.1 states that inspection personnel will not report to the immediate supervisor responsible for performing the work being inspected. As an alternative to this requirement, the QAPD proposes that QA inspectors will report to quality control management while performing these inspections. The staff determined that this alternative is consistent with Section 17.5 of NUREG–0800, SRP Acceptance Criterion J.1. Therefore, the staff finds that this alternative is acceptable.

The staff finds that the applicant's QAPD follows the guidance of Section 17.5 of NUREG-0800, SRP Acceptance Criterion J, for inspections based on information that follows. The QAPD establishes the necessary measures for implementing inspections to ensure that items, services, and activities affecting safety meet established requirements and conform to applicable documented specifications, instructions, procedures, and design documents. The inspection program establishes requirements for planning inspections, determining applicable acceptance criteria, setting the frequency of inspections, and identifying special tools needed to perform the inspection. Properly qualified personnel independent of those who performed or directly supervised the work are required to perform the inspections.

#### **17.5.4.11 Test Control**

The staff determined that the Fermi 3 QAPD implements the guidance of Section 17.5 of NUREG–0800, SRP Acceptance Criterion K, for test control based on information that follows. The QAPD establishes the necessary measures and governing provisions to demonstrate that items subject to the provisions of the QAPD will perform satisfactorily in service, that the plant can be operated safely as designed, and that the operation of the plant as a whole is satisfactory. The applicant's QAPD also provides assurance to comply with the quality standards for test control described in NQA-1–1994, Basic Requirement 11 and Supplement-11S-1, to establish provisions for testing. Furthermore, the applicant also provides assurance in the QAPD to comply with the quality standards for software test control described in NQA-1–1994, Supplements 11S-2 and Subpart 2.7, to establish provisions to ensure that computer software used in applications affecting safety be prepared, documented, verified, tested, and used in a manner that obtains the expected outputs and maintains configuration control.

#### **17.5.4.12 Control of Measuring and Test Equipment**

The Fermi 3 QAPD provides assurances of compliance with QA standards for measuring and test equipment (M&TE) described in NQA-1–1994, Basic Requirement 12 and Supplement 12S–1 and establishes provisions that control the M&TE with the following clarification and exception:

- The QAPD clarifies that the out-of-calibration conditions described in paragraph 3.2 of Supplement 12S-1 of NQA-1–1994 refer to cases where the M&TE is found to be out of the required accuracy limits (i.e., out of tolerance) during calibration. The staff

determined that this clarification for the out-of-calibration conditions is consistent with Supplement 12S-1. Therefore, the staff finds that this clarification is acceptable.

- As an alternative to NQA-1–1994, Subpart 2.4, Section 7.2.1, “Calibration Labeling Requirements,” the QAPD proposes that when it is impossible or impractical to mark equipment with required calibration information because of equipment size or configuration, the required calibration information will be documented and traceable to the equipment. The staff determined that this alternative is consistent with NRC staff guidance provided in Section 17.5 of NUREG–0800, SRP Acceptance Criterion L.3. Therefore, the staff finds that this alternative is acceptable.

The staff evaluated and determined that the applicant’s QAPD follows the guidance of Section 17.5 of NUREG–0800, SRP Acceptance Criterion L, for the control of M&TE based on information that follows. The QAPD establishes the necessary measures to control the calibration, maintenance, and use of the M&TE that provide information important to safe plant operations.

#### **17.5.4.13 Handling, Storage, and Shipping**

The staff determined that the Fermi 3 QAPD provides assurances of compliance with QA standards for handling, storage, and shipping described in NQA-1–1994, Basic Requirement 13 and Supplement 13S-1, which establish provisions for handling, storage, and shipping. In the QAPD, the applicant also provides assurance to comply with the quality standards described in NQA-1–1994, Subpart 2.1, Subpart 2.2, Subpart 2.3, and Subpart 3.2, Appendix 2.1 during the construction and operational phases of the plant, as applicable, with the following clarifications and alternatives:

- In NQA-1–1994, Subpart 2.1, Section 3.1 and 3.2 establish criteria for classifying items into cleanliness classes and requirements for each class. The QAPD proposes establishing cleanliness requirements on a case-by-case basis consistent with the other provisions of Subpart 2.1. The QAPD clarifies that appropriate cleanliness controls for work on safety-related equipment will minimize introduction of foreign materials and will maintain system/component cleanliness throughout maintenance or modification activities, including documented verification of the absence of foreign materials before system closure. The staff finds that this alternative and clarification are consistent with NEI 06–14A, Revision 7, and therefore acceptable.
- In NQA-1–1994, Subpart 2.2, Section 2.2 establishes criteria for classifying items into protection levels. Instead of classifying items into protection levels during the operational phase, the QAPD proposes to establish controls for the packaging, shipping, handling, and storage of such items on a case-by-case basis with due regard for the item’s complexity, use, and sensitivity to damage. The QAPD clarifies that before installation or use, the items will be inspected and serviced as necessary to assure that no damage or deterioration exists that could affect their functions. The staff finds that this alternative and clarification are consistent with NEI 06–14A, Revision 7, and therefore acceptable.
- In NQA-1–1994, Subpart 2.2, Section 6.6 states that the preparation of records must include information on personnel access to QA records. The QAPD establishes the necessary measures for documenting personnel authorized to access storage areas and record personnel access. However, the QAPD proposes not to consider these



documents as QA records. As an alternative, the applicant will retain these documents in accordance with plant administrative controls. The staff determined that these records did not meet the classification of a QA record as defined in NQA-1-1994, Supplement 17S-1, Section 2.7. Therefore, the staff finds that this alternative is acceptable.

- In NQA-1-1994, Subpart 2.2, Section 7.1 refers to Subpart 2.15 for requirements related to handling items. The QAPD clarifies that the scope of Subpart 2.15 includes hoisting, rigging, and transporting items for nuclear power plants during construction. The staff determined that this clarification is acceptable because it distinguishes between the requirements for construction and operations.
- In NQA-1-1994, Subpart 2.3, Section 2.3 requires the establishment of five zone designations for housekeeping cleanliness controls. Instead of the five-level zone designations, the QAPD proposes to control housekeeping activities based on considerations of what is necessary and appropriate for the activity involved. The QAPD clarifies that the controls are implemented through procedures or instructions. The QAPD states that the factors considered in developing the procedures and instructions include cleanliness control, personnel safety, fire prevention and protection, radiation control, and security. The staff finds that this alternative and clarification are consistent with NEI 06-14A, Revision 7, and therefore acceptable.
- In NQA-1-1994, Subpart 3.2, Appendix 2.1 establishes cleaning and cleanliness controls for fluid systems and associated components. The QAPD clarifies Section 3 precautions in accordance with RG 1.37, Revision 1, "Quality Assurance Requirements for Cleaning of Fluid Systems and Associated Components of Water-Cooled Nuclear Power Plants." The QAPD states that a suitable chloride stress-cracking inhibitor should be added to the fresh water used to flush systems containing austenitic stainless steels. The staff finds that this clarification is consistent with NEI 06-14A, Revision 7, and is therefore acceptable.

The staff evaluated and determined that the applicant's QAPD follows the guidance of Section 17.5 of NUREG-0800, SRP Acceptance Criterion M for handling, storage, and shipping based on information that follows. The QAPD establishes the necessary measures to control the handling, storage, packaging, shipping, cleaning, and preservation of items to prevent inadvertent damage or loss and to minimize deterioration.

#### **17.5.4.14 Inspection, Test, and Operating Status**

The staff evaluated and determined that the applicant's QAPD follows the guidance of Section 17.5 of NUREG-0800, SRP Acceptance Criterion N on the inspection, testing, and operating status of items subject to QA oversight based on information that follows. The QAPD establishes the necessary measures to identify the inspection, testing, and operating status of items and components subject to the provisions of the QAPD to maintain personnel and reactor safety and to avoid the inadvertent operation of equipment. The applicant's QAPD provides assurances to comply with the quality standards in this area described in NQA-1-1994, Basic Requirement 14, to establish control over activities related to their inspection, testing, and operating status.

**17.5.4.15 Nonconforming Materials, Parts, or Components**

The staff evaluated and determined that the applicant's QAPD follows the guidance of Section 17.5 of NUREG-0800, SRP Acceptance Criterion O for nonconforming materials, parts, or components based on information that follows. The QAPD establishes the necessary measures to control items, including services that do not conform to specified requirements, to prevent inadvertent installation or use. Instances of nonconformance are evaluated for their impact on the operability of quality SSCs to ensure that the final condition does not adversely affect the safety, operation, or maintenance of the item or service. The results from evaluations of conditions adverse to quality are analyzed to identify quality trends that are documented and reported to upper management, in accordance with the applicable procedures. In addition, the QAPD provides for the necessary measures to implement the requirements of 10 CFR Part 52, 10 CFR 50.55(e), and/or 10 CFR Part 21 during COL design and construction; and 10 CFR Part 21 during operations. The applicant's QAPD also provides assurances to comply with the quality standards for nonconforming materials, parts, or components described in NQA-1-1994, Basic Requirement 15 and Supplement 15S-1, to establish measures for nonconforming materials.

**17.5.4.16 Corrective Action**

The staff issued RAI 17-05.2 requesting the applicant to clarify how the effectiveness of specific reporting programs referenced in the QAPD will be monitored. The applicant's response to RAI 17.05-2 dated September 30, 2009 (ADAMS Accession No. ML092790561), clarifies how the applicant will implement and monitor reporting programs that are applicable to safety-related activities and services. The staff reviewed the applicant's response and proposed changes to Section 16.1 of the QAPD. The staff determined that the changes are consistent with NEI 06-14A, Revision 7, and are therefore acceptable. The staff verified that the applicant has incorporated the proposed changes in the Fermi 3 COL FSAR, Revision 3. Therefore, RAI 17.05-2 is closed.

The staff evaluated and determined that the applicant's QAPD follows the guidance of Section 17.5 of NUREG-0800, SRP Acceptance Criterion P, for corrective action programs based on information that follows. The QAPD establishes the necessary measures to promptly identify, control, document, classify, and correct conditions that are adverse to quality. The QAPD requires personnel to identify these known adverse conditions in reports that are analyzed to identify trends. Significant conditions adverse to quality are documented and reported to the responsible management. In the case of suppliers working on safety-related activities or in similar situations, the applicant may delegate specific responsibility for the Corrective Action Program. However, the applicant maintains responsibility for the program's effectiveness. In addition, the QAPD establishes the measures necessary for implementing a reporting program in accordance with the requirements of 10 CFR Part 52, 10 CFR 50.55(e), and/or 10 CFR Part 21 during COL design and construction; and 10 CFR Part 21 during operations. The applicant's QAPD also provides assurance to comply with the quality standards described in NQA-1-1994, Basic Requirement 16, to establish a Corrective Action Program.

**17.5.4.17 Quality Assurance Records**

The staff evaluated and determined that in the Fermi 3 QAPD, the applicant provides assurance to comply with the quality standards for QA records described in NQA-1-1994, Basic Requirement 17 and Supplement 17S-1, for establishing provisions for records with the following alternative:



- In NQA-1–1994, Supplement 17S-1, Section 4.2(b) states that records must be firmly attached in binders or placed in folders or envelopes for storage in steel file cabinets or on shelving in containers. As an alternative to this requirement, the QAPD proposes that hard-copy records be stored in steel cabinets or on shelving in containers, except that methods other than binders, folders, or envelopes may be used to organize records for storage.

The staff finds that this alternative is consistent with NEI 06–14A, Revision 7, and is therefore acceptable.

The staff evaluated and determined that the applicant's QAPD follows the guidance of Section 17.5 of NUREG–0800, SRP Acceptance Criterion Q, for QA records based on information that follows. The QAPD establishes the necessary measures to ensure that sufficient records of items and activities affecting quality are generated, identified, retained, maintained, and able to be retrieved. Concerning the use of storage and retrieval systems for electronic records, the applicant complies with the NRC guidance in GL 88–18, "Plant Record Storage on Optical Disks," dated October 20, 1988; and the applicant will manage the storage of QA records consistent with Regulatory Issue Summary 2000-18, "Guidance on Managing Quality Assurance Records in Electronic Media," dated October 23, 2000; and associated Nuclear Information and Records Management Association (NIRMA) Technical Guide (TG) 11-1998, "Authentication of Records and Media"; TG 15-1998, "Management of Electronic Records"; TG 16-1998, "Software Configuration Management and Quality Assurance"; and TG 21-1998, "Electronic Records Protection and Restoration".

#### **17.5.4.18 Quality Assurance Audits**

The staff evaluated and determined that the applicant's QAPD follows the guidance of Section 17.5 of NUREG–0800, SRP Acceptance Criterion R, for QA audits based on information that follows. The QAPD establishes the necessary measures to implement audits verifying that activities covered by the QAPD are performed in conformance with the documented requirements. The audits will be reviewed for effectiveness as part of the overall audit process. Additionally, the QAPD provides for the applicant to conduct periodic internal and external audits. Internal audits are conducted to determine the adequacy of programs and procedures being audited (by representative sampling) and whether they are meaningful and comply with the overall QAPD. External audits determine the adequacy of supplier and contractor QA Programs.

Furthermore, internal audits of organization and facility activities conducted before placing the facility in operation should be performed in such a manner, so as to ensure that an audit of all applicable QA Program elements is completed for each functional area at least once each year or at least once during the life of the activity—whichever is shorter. Internal audits conducted after placing the facility in operation are performed with a frequency commensurate with the safety significance of the program or activity, and in such a manner as to ensure that an audit of all applicable QA program elements is completed for each functional area within a period of 2 years. Internal audit frequencies of well-established activities conducted after placing the facility in operation may be extended one year at a time beyond the above two-year interval based on the results of an annual evaluation of the applicable functional area and on objective evidence that the functional area activities are being satisfactorily accomplished. However, the internal audit frequency interval should not exceed a maximum of 4 years.

The applicant also ensures that audits are documented and audit results are reviewed. In accordance with the QAPD, the applicant will respond to all audit findings and initiate appropriate corrective actions. Where corrective actions are indicated, the applicant will document the follow-up of applicable areas through inspections, reviews, repeat audits, or other appropriate means to verify the implementation of assigned corrective actions.

The applicant's QAPD also provides assurance to comply with the standards for QA audits described in NQA-1-1994, Basic Requirement 18 and Supplement 18S-1, to establish an independent audit program.

#### **17.5.4.19 Nonsafety-Related SSC Quality Assurance Control**

##### **17.5.4.19.1 Nonsafety-Related SSCs – Significant Contributors to Plant Safety**

The staff evaluated and determined that the applicant's QAPD follows the guidance of Section 17.5 of NUREG-0800, SRP Acceptance Criterion V.1, on controls related to nonsafety-related SSCs based on information that follows. The QAPD establishes program controls and applies them to nonsafety-related SSCs that are significant contributors to plant safety and to which Appendix B to 10 CFR Part 50 does not apply. The QAPD applies specific controls to these items in a selected manner to target the characteristics or critical attributes that render the SSCs significant contributors to plant safety consistent with applicable sections in the QAPD.

##### **17.5.4.19.2 Nonsafety-Related SSCs Credited for Regulatory Events**

The staff evaluated and determined that the applicant's QAPD follows the guidance of Section 17.5 of NUREG-0800, SRP Acceptance Criterion V.2, which establishes the quality requirements for nonsafety-related SSCs credited for regulatory events based on information that follows. In the Fermi 3 QAPD, the applicant provides assurance to comply with the following regulatory guidance:

- The applicant shall implement QA provisions for the fire protection system in accordance with Regulatory Position 1.7, "Quality Assurance," in RG 1.189, Revision 2, "Fire Protection for Operating Nuclear Power Plants," as identified in FSAR Chapter 1.
- The applicant shall implement QA provisions for anticipated transient without scram equipment in accordance with Part III, Section 1 of the QAPD.
- The applicant shall implement QA provisions for station blackout equipment in accordance with Part III, Section 1 of the QAPD.

##### **17.5.4.20 Regulatory Commitments**

To determine how the applicant meets all of the regulatory requirements, the staff identified regulatory commitment information requiring further clarification. The staff issued RAI 17.05-23 requesting the applicant to clarify (1) the RG commitments in QAPD Part IV, "Regulatory Commitments"; (2) the evaluation of RG conformance in FSAR Table 1.9-202; and (3) the regulatory commitment change process. The staff also requested additional details on the applicant's regulatory commitments in RAIs 17.05-24, 17.05-25, and 17.05-26.

The applicant's response to RAI 17.05-23, dated September 2, 2010 (ADAMS Accession No. ML102570700), and the applicant's responses to RAIs 17.05-24 through 17.05-26, dated

November 19, 2010 (ADAMS Accession No. ML103260455), clarify the RG commitments; the evaluation of RG conformance; and the regulatory commitment change process. The applicant states that QAPD Part IV, "Regulatory Commitments," and Part V, "Additional Quality Assurance and Administrative Controls for the Plant Operational Phase," are updated and incorporate NEI 06-14, Revision 9 (issued as NEI 06-14A, Revision 7). The updated Part IV of the QAPD includes commitments to RG 1.8, Revision 3 and RG 1.28, Revision 3, "Quality Assurance Program Requirements (Design and Construction)." The applicant also adds verification that the QAPD incorporates the administrative controls in ANSI N18.7-1976/ANS-3.2, "Administrative Controls and Quality Assurance for the Operational Phase of Nuclear Power Plants," and RG 1.33, Revision 2, "Quality Assurance Program Requirements (Operations)," which are not included in NQA-1-1994 as an alternative to RG 1.33.

The staff reviewed the applicant's proposed changes to Fermi 3 COL FSAR, Table 1.9-202 and to the QAPD. The staff determined that the changes are consistent with NEI 06-14A, Revision 7, and are therefore acceptable. The staff verified that the applicant's proposed changes are included in the Fermi 3 COL FSAR, Revision 3. Therefore, RAIs 17.05-23 through 26 are closed.

The staff evaluated and determined that the applicant's QAPD follows the guidance of SRP Section 17.5 of NUREG-0800, SRP Acceptance Criterion U, for describing regulatory commitments based on information that follows. The QAPD establishes QA Program commitments. The applicant's QAPD provides assurance of compliance with the following RGs and other QA standards that are consistent with NEI 06-14A, Revision 7, to supplement and support the QAPD:

- RG 1.8, Revision 3.
- RG 1.26, Revision 4, "Quality Group Classification and Standards for Water-, Steam-, and Radioactive-Waste-Containing Components of Nuclear Power Plants." In the QAPD, the applicant provides assurance of compliance with the regulatory positions of this guidance for site-specific SSCs not classified by the ESBWR.
- RG 1.28, Revision 3.
- RG 1.29, Revision 4, "Seismic Design Classification." In the QAPD, the applicant provides assurance of compliance with the regulatory positions of this guidance for site-specific SSCs not classified by the ESBWR.
- RG 1.37, Revision 1.
- RG 1.54, Revision 2, "Service Level I, II, and III Protective Coatings Applied to Nuclear Power Plants."
- ASME NQA-1-1994 (Parts I, II, and III).
- NIRMA TGs, as described in Section 17 of the QAPD.

#### **17.5.4.21 Additional Quality Assurance and Administrative Controls for the Plant Operational Phase**

The staff evaluated and determined that Part V, "Additional Quality Assurance and Administrative Controls for the Plant Operational Phase," of the QAPD provides requirements for meeting the regulatory positions of RG 1.33 Revision 2, as an alternative to RG 1.33. In a letter dated November 19, 2010 (ADAMS Accession No. ML103260455), the applicant verifies that the Fermi 3 QAPD has incorporated the administrative controls in ANSI N18.7-1976/ANS-3.2 and RG 1.33 Revision 2, which are not included in NQA-1-1994. The applicant also provides an annotated version of NEI 06-14A, Revision 7, Appendix 1, "Table of Where Regulatory Guide 1.33, Revision 2, and ANSI N18.7-1976 Requirements are Addressed by NQA-1-1994 Standards and/or the NEI 06-14 QAPD," which documents this verification. The staff reviewed Part V of the QAPD and the annotated version of NEI 06-14A, Revision 7, Appendix 1. The staff evaluated and determined that the alternative is consistent with the guidance in NEI 06-14, Subsection 3.2.3.1, "Alternative for Commitment to RG 1.33," (ADAMS Accession No. ML101800497) and is therefore acceptable.

Additionally, the staff verified that a sample of the administrative controls included in NEI 06-14A, Revision 7, Appendix 1, was incorporated in the Fermi 3 COL FSAR. The staff finds the sample to be appropriately incorporated. The staff therefore accepted the applicant's verification that all of the required administrative controls have been incorporated in the Fermi 3 QAPD.

Based on the preceding information, the staff finds that the applicant's QAPD follows the guidance in NEI 06-14A, Revision 7, for describing additional QA and administrative controls during the operational phase and is therefore acceptable.

#### **17.5.4.22 Staff Review of Quality Assurance Program**

The staff reviewed and evaluated the applicant's QA Program for attributes outside of the Fermi 3 QAPD, as discussed above. This section provides the details of the staff's review and includes:

- Resolution of COL Items
- Evaluation of Supplemental Information EF3 SUP 17.5-2
- Resolution of Fermi 3 QA implementation inspection violations
- Resolution of remaining staff's QA RAIs

##### COL Items

- |                    |   |
|--------------------|---|
| • EF3 COL 17.2-1-A | QA Program for the Construction and Operations Phases |
| • EF3 COL 17.2-2-A | QA Program for Design Activities                      |
| • EF3 COL 17.3-1-A | Quality Assurance Program Document                    |

The applicant provides the Fermi 3 QAPD to address and resolve ESBWR DCD COL Items 17.2-1-A, 17.2-2-A, and 17.3-1-A. FSAR Appendix 17AA includes the Fermi 3 QAPD applicable to activities that adapt the design to plant-specific implementation, construction, and operations. The applicant states that the Black and Veatch (B&V) 10 CFR Part 50, Appendix B/NQA-1 QA Program is used for safety-related COL application preparation activities

and delegated quality functions. Initially, Detroit Edison controlled these activities contractually; then under the Nuclear Development (ND) QA Program Description (ND QAPD) as it was implemented; and finally under the Fermi 3 QAPD (after September 18, 2008).

The staff evaluated and determined that the Fermi 3 QAPD meets NRC regulatory requirements by adhering to the guidance of SRP Section 17.5. SRP Section 17.5 provides a QA Program outline acceptable to the staff for the preparation of the DCD, ESP, and COL applications.

Additionally, the staff finds that the Fermi 3 QAPD appropriately addresses site- and plant-specific COL Items EF3 COL 17.2-1-A, EF3 COL 17.2-2-A, and EF3 COL 17.3.1-A.

#### Supplemental information

- EF3 SUP 17.5-2

This supplemental information (EF3 SUP 17.5-2) describes the QA Programs that applied to the Fermi 3 COL application and supported activities through late 2009. The applicant states that (1) Detroit Edison contractually delegated the work of establishing and executing the QA Program to B&V for development activities related to the COL application and secured the services of an Owner's Engineer to support owner-related activities; (2) COL application development commenced under the B&V 10 CFR Part 50, Appendix B/NQA-1 QA Program; (3) subsequent to contracting with B&V, Detroit Edison developed the ND QAPD and procedures for implementing those elements of the ND QAPD associated with the activities Detroit Edison had planned to perform at the time (e.g., review of the B&V COL application work product); (4) the Fermi 3 QAPD (FSAR Chapter 17, Appendix 17AA) supersedes the ND QAPD and applies to activities after the application to adapt the design to specific plant implementation, construction, and operations; and (5) Detroit Edison continued to delegate the execution of quality- and safety-related services associated with the COL application revision and to review support to the B&V 10 CFR Part 50, Appendix B/NQA-1 QA Program under the Fermi 3 QAPD.

In RG 1.206, "Combined License Applications for Nuclear Power Plants (LWR Edition)," Regulatory Position C.I.17.5.3 states that the FSAR should describe how the applicant will retain responsibility for and maintain control over those portions of the QA Program that are delegated to other organizations. To clarify whether the applicant meets the expectations of RG 1.206, the staff used a combination of licensing reviews (RAIs) and inspection activities. For the licensing review, the staff issued RAI 17.05-3 and RAI 17.05-4 requesting the applicant to describe how the applicant retains responsibility for and maintains control over those portions of the QA Program delegated to B&V. The RAIs also asked for a description of how the applicant will verify the effective implementation of delegated QA functions and the expected scope of work for each QAPD. For inspections, the staff conducted a limited scope inspection at the Detroit Edison facility in Detroit, Michigan, in August 2009. The purpose of the NRC inspection was to verify that the applicant had effectively implemented the QA processes and procedures related to the Fermi 3 COL FSAR.

#### Inspection report, initial Notice of Violation (NOV), and applicant's responses

The staff documented the Fermi 3 inspection and three violations of regulatory requirements in Inspection Report Number 05200033/2009-201 on October 5, 2009 (ADAMS Accession No. ML092740064). The applicant's letter dated November 9, 2009 (ADAMS Accession No. ML093160318), responding to the Inspection Report contested all violations based in part on (a) Detroit Edison was not an applicant until September 18, 2008; and (b) the cited



requirements from the Fermi 3 QAPD and implementation procedures were not enforceable, because they had not been accepted by the NRC or incorporated into a license condition.

#### Revised NOV and resolution of applicant's responses

The staff reviewed the applicant's responses to the inspection report and, after consultation with the NRC Office of Enforcement (OE) and Office of the General Counsel (OGC), the staff issued a revised NOV in a letter on April 27, 2010 (ADAMS Accession No. ML100330687). The staff stated in the revised NOV letter that the applicant must demonstrate compliance with Appendix B in order to receive a COL, and the staff cannot issue a NOV for actions or omissions that occurred before the applicant had submitted the Fermi 3 COL application to the NRC. As the result of the OE and OGC consultation, the staff modified the initial NOV and issued a revised NOV that identified two violations of NRC requirements for activities performed after the date of the COL application (September 18, 2008). For activities occurring before the date of the COL application, the staff issued a series of RAIs (as outlined below) to evaluate the applicant's control over QA Program elements delegated to other organizations and compliance with Appendix B.

The first violation cited the applicant for failing to perform an evaluation of the B&V QA Program and to adequately document the basis for qualifying B&V to perform safety-related Fermi 3 COL activities. The second violation cited the applicant for failing to complete internal audits of applicable QA programmatic areas and for failing to document any trending evaluations conducted to identify and correct recurring conditions adverse to quality for Fermi 3 COL application activities, in accordance with applicable applicant procedures.

#### Resolution of inspection violations

The applicant responded to the first violation in a letter dated May 26, 2010 (ADAMS Accession No. ML101480046). In that letter, the applicant acknowledges the violation and outlines the corrective steps taken and results achieved to address the concerns noted in the violation. Specifically, the applicant (1) has initiated a plan to establish a more comprehensive vendor qualification review and acceptance program; (2) has conducted an audit of B&V that verified the effective implementation of the B&V QA Program for Fermi 3 COL application activities; and (3) has confirmed that the safety-related activities performed by B&V before the B&V audit were completed in accordance with the 10 CFR Part 50, Appendix B requirements.

The staff accepted the applicant's response to the second violation based on the applicant's original inspection report reply letter dated November 9, 2009 (ADAMS Accession No. ML093160318). In that letter, the applicant outlines the corrective steps and the results achieved to address the concerns noted in the violation and assures the staff that all COL application activities continue to be conducted at a level of quality necessary to support future safety-related activities. Specifically, the applicant (1) conducted an internal audit; (2) updated the applicable implementation procedures for reviewing potential Corrective Action Report (CAR) trends; and (3) documented a trend review of all ND CARs

The staff reviewed the applicant's letters, the reasons for the violations, the corrective steps implemented, and the results achieved. The staff finds that (a) the letters were responsive to the revised NOV, (b) the implemented corrective actions were appropriate; and (c) the activities cited in the revised NOV are again consistent with the requirements of Appendix B to 10 CFR Part 50. The staff documented the acceptance of the applicant's responses to the revised NOV in a letter dated June 4, 2010 (ADAMS Accession No. ML101530596).

### Resolution of staff RAIs

The staff received the applicant's responses to RAI 17.05-3 and RAI 17.05-4 in a letter dated September 30, 2009 (ADAMS Accession No. ML092790561). In these responses, the applicant separates the Fermi 3 project into three distinct periods and discusses the project for each period beginning with the inception of the project in 2007. The responses also provide additional information on the previous and expected scope of work for the various QAPDs.

The staff reviewed the applicant's letter and determined that the applicant's responses to RAIs 17.05-3 and 17.05-4 had led to a better understanding of the history of the Fermi 3 project, but they did not fully address the four attributes in Regulatory Position C.I.17.5.3 of RG 1.206. As a result, the staff issued RAI 17.05-19 requesting the applicant to describe how the four attributes in RG 1.206 Regulatory Position C.I.17.5.3 were met for each of the three distinct project periods of the Fermi 3 project. Additionally, to determine whether Fermi 3 safety-related activities are consistent with the requirements of Appendix B to 10 CFR Part 50, the staff issued RAI 17.05-16 through RAI 17.05-18, which requested detailed information regarding QA activities that were taking place before the Fermi 3 COL application submittal date of September 18, 2008.

The staff received the applicant's responses to RAI 17.05-16 through RAI 17.05-19 in a letter dated May 10, 2010 (ADAMS Accession No. ML101320254). In these responses, the applicant provides amplifying details associated with the conduct and development of the safety-related COL application sections for the Fermi 3 project, from its January 2007 inception to the present.

In the responses to RAI 17.05-16 through RAI 17.05-18, the applicant provides detailed information outlining QA support for Fermi 3 safety-related activities completed before the Fermi 3 COL application date. The applicant also outlines proposed changes to the Fermi 3 FSAR. Specifically, the applicant provides (1) a list of safety-related activities and safety-related COL application sections; (2) dates of the activity or section creation; (3) the contracting entity conducting the activity/section creation and governing the QAPD; (4) the QA organization responsible for oversight of the activity/section creation; (5) dates and type of any specific contractor conducting the QA oversight activities (e.g., surveillance, document review, etc.); (6) contractor approval date; (7) dates of applicant's review and approval; (8) dates and type of any specific applicant QA oversight activities (e.g., surveillance, document review, etc.); (9) background personnel information (including QA qualification types, type of QA support provided, and number of support hours) for both applicant and contractor organizations; and (10) a summary of the various versions of the Fermi 3 QAPD and the implementation procedures.

Additionally, in the response to RAI 17.05-19, the applicant provides detailed information outlining how the Fermi 3 project meets the four attributes in RG 1.206, Regulatory Position C.I.17.5.3 for each of the three distinct project periods. Specially, the applicant's response describes (1) how the applicant retains responsibility for and maintains control over those portions of the QA Program delegated to other organizations; (2) the responsible organization and the process for verifying that delegated QA functions are being effectively implemented; (3) the major work interfaces for activities affecting QA; and (4) how clear and effective lines of communication between the applicant and the principal contractors are maintained to assure coordination and control of the QA Program.

The staff evaluated the applicant's RAI response letters; proposed changes to FSAR Table 1.9-203, "Conformance with the FSAR Content Guidance in RG 1.206"; changes to FSAR



Chapter 17.5; the various Fermi 3 inspection-related documents mentioned above to determine whether the applicant has maintained control over QA Program elements delegated to other organizations; and whether safety-related activities for the Fermi 3 project are in compliance with Appendix B. In the process of the evaluation, the staff determined that Fermi 3 project control (oversight) of QA Program elements delegated to other organizations (contracted activities) may affect compliance with Appendix B for safety-related activities. NRC quality program requirements differ based on when the activities occurred—before or after the date of the COL application.

#### Staff conclusions for pre-application activities

For activities occurring before the date of the COL application, the staff determined that the applicant had contractually delegated to B&V the tasks of establishing and executing a QA Program and thus satisfied the requirements of 10 CFR Part 50, Appendix B for COL application development. Furthermore, the staff determined that because B&V had an established 10 CFR Part 50, Appendix B and ASME NQA-1 Program, internal oversight of safety-related activities was inherent in the B&V program. The staff also determined that the applicant was not required to implement a QA Program in compliance with the Appendix B criterion. However, the applicant did establish applicable portions of an Appendix B program by creating the ND QAPD and by creating procedures for implementing those elements of the ND QAPD associated with the planned activities in support of the review and acceptance of the B&V COL application work product. Furthermore, the staff determined that the applicant was not required to provide specific quality oversight measures; although the ND QAPD and associated implementation procedures had provided additional measures of oversight beyond the applicant's commercial contractual oversight.

As a result, the staff finds that the applicant has provided adequate assurance that the requirements of Appendix B have been met for safety-related activities supporting the Fermi 3 COL application by appropriately contracting with B&V and by providing satisfactory commercial oversight of contracted activities occurring before the date of the COL application.

#### Staff conclusions for post-application activities

For activities occurring after the date of the COL application, the staff determined that the applicant has continued to contractually delegate safety-related activities to B&V in support of the Fermi 3 project, and these activities continued to be performed under the B&V QA Program. However, the applicant now controlled safety-related activities under the Fermi 3 QAPD. Details of the staff's review of the programmatic aspects of the Fermi 3 QAPD are included above (see Subsections 17.5.4.1 through 17.5.4.21). The staff verified by inspection the implementation of the Fermi 3 QAPD.

After reviewing the applicant's responses to RAI 17.05-16 through RAI 17.05-19, the proposed changes to the FSAR, and the various Fermi 3 inspection-related documents mentioned above, the staff finds that for safety-related activities occurring after the date of the COL application, the applicant has provided adequate assurance that the Fermi 3 project has met the requirements of Appendix B by establishing and implementing the Fermi 3 QAPD. The staff also finds that the applicant has provided satisfactory oversight of the contracted activities by implementing the applicable oversight components of the QA Program.

Furthermore, the staff evaluated and determined that the changes to the FSAR are acceptable because they adequately resolve the above RAIs. The staff verified that the applicant's proposed changes are included in the COL application, Revision 3. Therefore, RAI 17.05-3, RAI 17.05-4, and RAIs 17.05-16 through 17.05-19 are closed.

#### **17.5.5 Post Combined License Activities**

There are no post COL activities related to this section.

#### **17.5.6 Conclusion**

NRC staff reviewed Section 17.5 of the Fermi 3 COL FSAR and the Fermi 3 QAPD. The staff's review of the Fermi 3 QAPD is based on the review guidance of SRP Section 17.5 and the requirements of 10 CFR 52.79(a)(17); 10 CFR 52.79(a)(25); 10 CFR 52.79(a)(27); and 10 CFR Part 50, Appendix B.

NRC staff reviewed the Fermi 3 COL FSAR and the Fermi 3 QAPD and finds the following:

- The QAPD provides adequate guidance for Detroit Edison to describe the authority and responsibility of management and supervisory personnel, performance/verification personnel, and self-assessment personnel.
- The QAPD provides adequate guidance for Detroit Edison to provide for organizations and persons to perform verification and self-assessment functions with the authority and independence to conduct their activities without undue influence from those directly responsible for costs and schedules.
- The QAPD provides adequate guidance for Detroit Edison to apply a QAPD to activities and items that are important to safety.
- The QAPD provides adequate guidance for Detroit Edison to establish controls that, when properly implemented, comply with 10 CFR Part 52, Appendix B to 10 CFR Part 50, 10 CFR Part 21, and 10 CFR 50.55(e); with the acceptance criteria associated with Section 17.5 of NUREG-0800; and with the commitments to the applicable regulatory guidance.

The Detroit Edison Fermi 3 QAPD addresses site- and plant-specific COL Items EF3 COL 17.2-1-A, EF3 COL 17.2-2-A, and EF3 COL 17.3.1-A.

Based on the information provided by the applicant, the staff finds that Section 17.5 of the Fermi 3 COL FSAR and the Fermi 3 QAPD meet the requirements of Appendix B to 10 CFR Part 50; 10 CFR 52.79(a)(17); 10 CFR 52.79(a)(25); and 10 CFR 52.79(a)(27) and are therefore acceptable.

### **17.6 Maintenance Rule Program**

#### **17.6.1 Introduction**

This FSAR section addresses the program for MR implementation based on the requirements of 10 CFR 52.79(a)(15) and 10 CFR 50.65, "Requirements for monitoring the effectiveness of maintenance at nuclear power plants"; and on the guidance in RG 1.160, Revision 3. RG 1.160

endorses Nuclear Management and Resource Council (NUMARC) 93-01, Revision 4A, "Industry Guideline for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," which provides one acceptable method for implementing the MR.

### 17.6.2 Summary of Application

In Fermi 3 COL FSAR Section 17.6, Revision 7, the applicant provides the following:

#### COL Items

- STD COL 17.4-2-A Maintenance Rule Program

In FSAR Section 17.6, the applicant incorporates by reference NEI 07-02A, "Generic FSAR Template Guidance for Maintenance Rule Program Description for Plants Licensed Under 10 CFR Part 52," with supplemental information.

#### Supplemental Information

- STD SUP 17.6-1

In FSAR Section 17.6, the applicant states:

The text of the template provided in NEI 07-02A is generically numbered as "17.X." When the template is incorporated by reference into this section, numbering is changed from "17.X" to "17.6."

- STD SUP 17.6-2

In FSAR Section 17.6.3, "Maintenance Rule Program Relationship with Reliability Assurance Activities," the applicant states:

Reliability during the operations phase is assured through the implementation of operational programs, i.e., the MR Program (Section 17.6), the Quality Assurance Program (Section 17.5), the Inservice Inspection Program (Subsection 5.2.4, Section 6.6, and Subsection 3.8.1.7.3), and the Inservice Testing Program (Subsection 3.9.6, and Subsection 3.9.3.7.1(3)e), as well as the Technical Specifications Surveillance Requirements (Chapter 16), and maintenance programs.

- STD SUP 17.6-3

In FSAR Subsection 17.6.1.1, "Maintenance Rule Scoping per 10 CFR 50.65(b)," the applicant states:

In Paragraph 17.6.1.1.b, replace "(DRAP - see FSAR Section 17.Y)" with the following text "(See Section 17.4)".

- STD SUP 17.6-4

In FSAR Section 17.6.4, "Maintenance Rule Program Relationship with Industry Operating Experience Activities," the applicant states:

Condition monitoring of underground or inaccessible cables is incorporated into the MR Program. The cable condition monitoring program incorporates lessons learned from industry operating experience (e.g., GL 2007-01, NUREG/CR-7000), addresses regulatory guidance, and utilizes information from detailed design and procurement documents to determine the appropriate inspections, tests and monitoring criteria for underground and inaccessible cables within the scope of the maintenance rule (10 CFR 50.65).

### **17.6.3 Regulatory Basis**

The regulatory basis of the information incorporated by reference is in the NRC final safety evaluation for NEI 07-02A, Revision 0 (Corrected), dated January 24, 2008 (ADAMS Accession No. ML073650081). NEI 07-02A, Revision 0, provides a complete generic program description for developing the section of the COL FSAR associated with Section 17.6 of NUREG-0800.

In addition, the regulatory basis for accepting the MR Program is in the following:

- 10 CFR 50.65, "Requirements for monitoring the effectiveness of maintenance at nuclear power plants"
- 10 CFR 52.79(a)(15), which requires a COL FSAR to contain a description of the program and its implementation for monitoring the effectiveness of maintenance necessary to meet the requirements of 10 CFR 50.65
- RG 1.206, Regulatory Position C.I.17.6, "Description of the Applicant's Program for Implementation of 10 CFR 50.65, the Maintenance Rule"

### **17.6.4 Technical Evaluation**

The staff reviewed Section 17.6 of the Fermi 3 COL FSAR and checked the referenced Topical Report NEI 07-02A template guidance to ensure that the combination of the information in the COL FSAR and the information in the NEI 07-02A report appropriately represents the complete scope of information relating to this review topic. The staff's review confirmed that the information in the application and the information incorporated by reference address the required information relating to this MR Program.

The staff reviewed the information in the Fermi 3 COL FSAR as follows:

#### *COL Items*

- STD COL 17.4-2-A Maintenance Rule Program

The applicant incorporates by reference NEI 07-02A with the following supplemental information. The text in the NEI template guidance is generically numbered as "17.X." The staff approved this template for FSAR Section 17.6 with site-specific input (ADAMS Accession No. ML073650081).

#### *Supplemental Information*

- STD SUP 17.6-1

Because the NEI template guidance is generically numbered as “17.X,” the applicant has appropriately changed the numbering from “17.X” to “17.6.” The staff finds this change acceptable.

- STD SUP 17.6-2

In FSAR Section 17.6.3, the applicant specifies the various FSAR sections that discuss the relationship of the MR Program to the RAP activities. The applicant states that the reliability of the SSCs during the operations phase is assured through the implementation of the MR Program in Section 17.6; the QA Program in Section 17.5; the Inservice Inspection Program in Section 5.2.4, Section 6.6, and Subsection 3.8.1.7.3; the Inservice Testing Program in Section 3.9.6 and Subsection 3.9.3.7.1(3)e; the Technical Specifications Surveillance Requirements in Chapter 16; and maintenance programs. The staff finds that the applicant has adequately addressed this information in FSAR Section 17.6.3.

- STD SUP 17.6-3

Because the NEI template guidance is generically numbered as “17.X” in Paragraph 17.6.1.1.b, the applicant appropriately replaces “(DRAP - see FSAR Section 17.Y)” with the following text, “(See Section 17.4).” The staff finds this change acceptable.

- STD SUP 17.6-4

In FSAR Section 17.6.4, the applicant provides supplemental information that discusses the MR Program relationship with the industry operating experience activities. In this section, the applicant incorporates condition monitoring of underground or inaccessible cables into the MR Program. The applicant states that the Cable Condition Monitoring Program (1) incorporates lessons learned from industry operating experience (e.g., GL 2007-01, “Inaccessible or Underground Power Cable Failures that Disable Accident Mitigation Systems or Cause Plant Transients,” and NUREG/CR-7000, “Essential Elements of an Electric Cable Condition Monitoring Program”); (2) addresses regulatory guidance; and (3) uses detailed design and procurement information to establish appropriate inspections, tests, and monitoring criteria for underground and inaccessible cables within the scope of the MR (10 CFR 50.65).

The staff evaluated this information as part of the underground electrical cable monitoring program in Section 8.2.4 of this SER. The staff’s review finds that the applicant’s Cable Condition Monitoring Program is acceptable because it satisfies the recommendations of GL 2007-1; the guidance of NUREG/CR-7000; and the guidance of SRP Section 8.2, Review Procedure 1.L.

In addition, the staff reviewed Fermi 3 COL FSAR, Table 13.4-201, “Operational Programs Required by NRC Regulations.” The staff determined that the applicant has identified the MR Program and its associated implementation milestones. The License Condition for the operational program implementation schedule, which includes the MR Program, is in Section 13.4.4, “Post Combined License Activities,” of this SER.

The staff finds that the applicant’s information in FSAR Section 17.6 meets the NRC requirements and is thus acceptable.

**17.6.5 Post Combined License Activities**

The License Condition for the operational program implementation schedule, which includes the Maintenance Rule Program, is in Section 13.4.4, "Post Combined License Activities," of this SER.

**17.6.6 Conclusion**

NRC staff reviewed and approved NEI 07-02A for use as a generic FSAR template for the development of the MR Program. The staff reviewed the application and checked the referenced NEI 07-02A template guidance. The staff's review confirms that the applicant has addressed the required information relating to the MR Program, and no outstanding information is expected to be addressed in the COL FSAR related to this section.

In addition, the staff compared the supplemental information in the COL application to the relevant NRC regulations, the guidance in Section 17.6 of NUREG-0800, and other NRC RGs. The staff's review finds that the applicant has provided adequate information to address COL Item STD COL 17.4-2-A. Therefore, the staff finds that the information in Section 17.6 of the Fermi 3 COL FSAR is acceptable and meets the requirements of 10 CFR 52.79(a)(15) and 10 CFR 50.65.

Cite as 80 NRC 157 (2014)

**CLI-14-10**

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**COMMISSIONERS:**

Allison M. Macfarlane, Chairman  
Kristine L. Svinicki  
William C. Ostendorff  
Jeff Baran  
Stephen G. Burns

**In the Matter of**

**Docket No. 52-033-COL**

**DTE ELECTRIC COMPANY  
(Fermi Nuclear Power Plant,  
Unit 3)**

**December 16, 2014**

**REVIEW, DISCRETIONARY**

The Commission will grant a petition for review at its discretion, upon a showing that the petitioner has raised a substantial question as to whether: (i) a finding of material fact is clearly erroneous or in conflict with a finding as to the same fact in a different proceeding; (ii) a necessary legal conclusion is without governing precedent or is a departure from or contrary to established law; (iii) a substantial and important question of law, policy, or discretion has been raised; (iv) the conduct of the proceeding involved a prejudicial procedural error; or (v) any other consideration that the Commission may deem to be in the public interest.

**STANDARD OF REVIEW, FINDINGS OF FACT**

The Commission gives substantial deference to licensing board findings of fact, and it will not overturn a board's factual findings unless they are not even plausible in light of the record viewed in its entirety.



## **RULES OF PRACTICE, FAIRNESS**

Regardless of a party's resources, fairness to all involved in NRC's adjudicatory procedures requires that every participant fulfill the obligations imposed by and in accordance with applicable law and Commission regulations.

## **STANDARD OF REVIEW**

The Commission gives broad discretion to licensing boards in the conduct of NRC adjudicatory proceedings, and it generally defers to board case-management decisions.

## **LICENSING BOARDS, CASE MANAGEMENT**

Licensing boards are expected to set procedures to ensure the case is managed efficiently, in a manner that is fair to all of the parties.

## **LICENSING BOARDS, AUTHORITY, CASE MANAGEMENT**

A board may take disciplinary action against a party that fails to comply with any prehearing order, as long as the action is just.

# **MEMORANDUM AND ORDER**

Intervenors<sup>1</sup> challenge the Atomic Safety and Licensing Board's ruling on the merits of Contention 15A/B in favor of the applicant, DTE Electric Company.<sup>2</sup> For the reasons set forth below, we deny the petition for review.

## **I. BACKGROUND**

This proceeding concerns DTE's combined license application to construct and operate a GE-Hitachi Economic Simplified Boiling Water Reactor (ESBWR)

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<sup>1</sup> Intervenors are Beyond Nuclear, Citizens for Alternatives to Chemical Contamination, Citizens Environmental Alliance of Southwestern Ontario, Don't Waste Michigan, Sierra Club, Keith Gunter, Edward McArdle, Henry Newman, Derek Coronado, Sandra Bihn, Harold L. Stokes, Michael J. Keegan, Richard Coronado, George Steinman, Marilyn R. Timmer, Leonard Mandeville, Frank Mantei, Marcee Meyers, and Shirley Steinman.

<sup>2</sup> Intervenors' Petition for Review of LBP-14-07 (Ruling for Applicant on Quality Assurance) (June 17, 2014) (Petition). *See generally* LBP-14-7, 79 NRC 451 (2014).

on the Fermi site in Monroe County, Michigan.<sup>3</sup> In November 2009, after they were admitted as parties to the proceeding, Intervenor filed Contention 15, a new contention regarding DTE's quality assurance program.<sup>4</sup> In June 2010, the Board admitted and reformulated the contention into two subparts, A and B.<sup>5</sup>

In support of their contention, Intervenor relied on an NRC Staff notice of violation that was issued to DTE in October 2009 for failure to comply with the quality-assurance requirements in 10 C.F.R. Part 50, Appendix B from March 2007 to February 2008 while Black and Veatch, a contractor for DTE, performed site-investigation activities for the development of DTE's combined license application.<sup>6</sup> As reformulated by the Board, the introductory language of Contention 15 referenced the Staff's findings in the October 2009 notice of violation.<sup>7</sup> In Subpart A of the contention, Intervenor argued that the NRC

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<sup>3</sup> See 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, 74 Fed. Reg. 836 (Jan. 8, 2009). Intervenor petitioned for leave to intervene, proposing fourteen contentions. The Board admitted four: Contentions 3, 5, 6, and 8. *Detroit Edison Co.* (Fermi Nuclear Power Plant, Unit 3), LBP-09-16, 70 NRC 227, 306 (2009). In three separate opinions, the Board granted summary disposition of Contentions 3, 5, and 6 in favor of DTE. See Order (Granting Motion for Summary Disposition of Contention 3) (July 9, 2010) (unpublished); Order (Granting Motion for Summary Disposition of Contention 5) (Mar. 1, 2011) (unpublished); *Detroit Edison Co.* (Fermi Nuclear Power Plant, Unit 3), LBP-12-23, 76 NRC 445, 452 (2012) (among other things, granting summary disposition of Contention 6). In the decision challenged here, the Board found in favor of the Staff on the merits of Contention 8. LBP-14-7, 79 NRC at 454; see *infra*. We will address in a separate decision the Board's request for *sua sponte* review of issues related to Intervenor's proposed Contention 23. See *Detroit Edison Co.* (Fermi Nuclear Power Plant, Unit 3), LBP-14-9, 80 NRC 15 (2014).

<sup>4</sup> Supplemental Petition of Beyond Nuclear, Citizens for Alternatives to Chemical Contamination, Citizens Environmental Alliance of Southwestern Ontario, Don't Waste Michigan, Sierra Club, Keith Gunter, Edward McArdle, Henry Newman, Derek Coronado, Sandra Bihn, Harold L. Stokes, Michael J. Keegan, Richard Coronado, George Steinman, Marilyn R. Timmer, Leonard Mandeville, Frank Mantei, Marcee Meyers, and Shirley Steinman for Admission of a Newly-Discovered Contention, and for Partial Suspension of COLA Adjudication (Nov. 6, 2009) (Proposed Contention 15).

<sup>5</sup> *Detroit Edison Co.* (Fermi Nuclear Power Plant, Unit 3), LBP-10-9, 71 NRC 493, 499 (2010).

<sup>6</sup> See Proposed Contention 15, at 1-5.

<sup>7</sup> LBP-10-9, 71 NRC at 510 ("Detroit Edison (DTE) failed to comply with Appendix B to 10 C.F.R. Part 50 to establish and implement its own quality assurance (QA) program when it entered into a contract with Black and Veatch (B&V) for the conduct of safety-related combined license (COL) application activities and to retain overall control of safety-related activities performed by B&V. This violation began in March 2007 and continued through at least February 2008. Further, DTE failed to complete internal audits of QA programmatic areas implemented for the Fermi 3 COL Application, and DTE also has failed to document trending of corrective actions to identify recurring conditions adverse to quality since the beginning of the Fermi Unit 3 project in March 2007."). The Staff issued a revised notice of violation in April 2010 after a response from DTE. See *id.* at 500-01. The admitted contention, however, focused on the October 2009 notice of violation.

may not issue a combined license for Fermi Unit 3 until DTE either corrects the information obtained from Black and Veatch's site-investigation activities or demonstrates that its quality was not affected by the violation.<sup>8</sup> And in Subpart B of the contention, Intervenor challenged DTE's general commitment to comply with NRC quality-assurance regulations. Intervenor asserted that the NRC cannot issue a license until DTE demonstrates that it has adopted and implemented a sufficient quality assurance program.<sup>9</sup>

DTE later moved for summary disposition of Contention 15A/B, which the Staff supported.<sup>10</sup> The Board denied DTE's motion, however, and found that genuine issues of material fact remained in dispute between the parties.<sup>11</sup> Thus, Contention 15A/B proceeded to an evidentiary hearing along with Intervenor's Contention 8, which challenged the adequacy of the Staff's final environmental impact statement with regard to the effects of construction and operation of Fermi Unit 3 on the eastern fox snake, a state-listed threatened species, as well as the adequacy of the mitigation measures planned for its protection.<sup>12</sup> The Board held the evidentiary hearing on October 30 and 31, 2013.<sup>13</sup> After weighing the parties' testimony and exhibits, the Board ruled on the merits of both contentions and found in favor of the Staff on Contention 8 and DTE on Contention 15A/B.<sup>14</sup>

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<sup>8</sup> *Id.* at 510-11 ("These deficiencies adversely impact the quality of the safety-related design information in the FSAR [(Final Safety Analysis Report)] that is based on B&V's tests, investigations, or other safety-related activities. Because the NRC may base its licensing decision on safety-related design information in the FSAR only if it has reasonable assurance of the quality of that information, it may not lawfully issue the COL until the deficiencies have been adequately corrected by the Applicant, or until the Applicant demonstrates that the deficiencies do not affect the quality of safety-related design information in the FSAR.").

<sup>9</sup> *Id.* at 511 ("Although DTE claims that in February 2008 it adopted a QA program that conforms to Appendix B, DTE has failed to implement that program in the manner required to properly oversee the safety-related design activities of B&V. This demonstrates an ongoing lack of commitment on the part of DTE's management to compliance with NRC QA regulations. The NRC cannot support a finding of reasonable assurance that the plant, as built, can and will be operated without endangering the public health and safety until DTE provides satisfactory proof of a fully implemented QA program that will govern the design, construction, and operation of Fermi Unit 3 in conformity with all relevant NRC regulations.").

<sup>10</sup> Applicant's Motion for Summary Disposition of Contention 15 (Apr. 17, 2012); NRC Staff Answer to Applicant's Motion for Summary Disposition of Contention 15 (May 7, 2012). Intervenor opposed summary disposition. *See* Intervenor's Response in Opposition to Applicant's Motion for Summary Disposition of Contention 15 (May 17, 2012).

<sup>11</sup> LBP-12-23, 76 NRC at 480.

<sup>12</sup> *See generally* LBP-09-16, 70 NRC at 285-92 (admitting Contention 8); *Detroit Edison Co.* (Fermi Nuclear Power Plant, Unit 3), LBP-11-14, 73 NRC 591, 604 (2011) (denying DTE's first motion for summary disposition of Contention 8); LBP-12-23, 76 NRC at 465 (denying DTE's second motion for summary disposition of Contention 8).

<sup>13</sup> Tr. at 271-712.

<sup>14</sup> LBP-14-7, 79 NRC at 454.

Intervenors' petition for review followed. Intervenors challenge only the Board's ruling on the quality-assurance issues in Contention 15A/B; they do not seek review of the Board's ruling on Contention 8.<sup>15</sup> DTE and the Staff oppose the petition for review.<sup>16</sup>

## II. DISCUSSION

We will grant a petition for review at our discretion, upon a showing that the petitioner has raised a substantial question as to whether

- (i) a finding of material fact is clearly erroneous or in conflict with a finding as to the same fact in a different proceeding;
- (ii) a necessary legal conclusion is without governing precedent or is a departure from or contrary to established law;
- (iii) a substantial and important question of law, policy, or discretion has been raised;
- (iv) the conduct of the proceeding involved a prejudicial procedural error; or
- (v) any other consideration that we may deem to be in the public interest.<sup>17</sup>

Intervenors argue that review is warranted here because they have raised a substantial question as to each of these considerations.<sup>18</sup> We disagree. Intervenors

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<sup>15</sup> Petition at 1.

<sup>16</sup> Applicant's Answer Opposing Petition for Review of LBP-14-07 (July 14, 2014) (DTE Opposition); NRC Staff's Answer to Intervenors' Petition for Review of LBP-14-07 (July 14, 2014) (Staff Opposition). On July 25, 2014, Intervenors e-mailed a request for an extension of time to file a reply until July 28, 2014, because Intervenors' counsel experienced problems with his computer hard drive. Intervenors' Motion for Enlargement of Time to Reply in Support of Petition for Review (July 30, 2014), at 1-2 & n.1. Intervenors e-mailed their replies on July 28, 2014, and on July 30, 2014, they filed the replies and the motion for extension of time on the electronic hearing docket. Intervenors' Reply to NRC Staff Answer to Petition for Review of LBP-14-07 (Ruling for Applicant on Quality Assurance) (July 30, 2014) at i n.1; Intervenors' Reply to DTE Answer Opposing Petition for Review of LBP-14-07 (Ruling for Applicant on Quality Assurance) (July 30, 2014) at i n.1. Because Intervenors' extension request is unopposed and because Intervenors have shown good cause for the modest extension, we grant the motion. *See* 10 C.F.R. § 2.307(a). In addition, we grant Intervenors an enlargement of the page limit for their petition for review. *See* DTE Opposition at 2; 10 C.F.R. § 2.341(b)(2) (Intervenors' petition exceeded the limit by three pages). *But see infra* note 41.

<sup>17</sup> 10 C.F.R. § 2.341(b)(4)(i)-(v).

<sup>18</sup> *See* Petition at 2. Although Intervenors cite only the considerations in section 2.341(b)(4)(ii) through (v), they also invoke subsection (i) as a basis for review, arguing that the Board "ignored the greater weight of the evidence" with respect to the adequacy of DTE's quality assurance oversight of the safety-related preapplication services performed by its contractor, Black and Veatch. *See id.* at 2-3.

have not presented a substantial question that would justify review of the Board's ruling on Contention 15A/B.

Intervenors argue that the Board erred in finding that DTE demonstrated by a preponderance of the evidence that it appropriately remained responsible for quality assurance over Black and Veatch, DTE's contractor for preapplication, site-investigation activities.<sup>19</sup> But for many of Intervenors' attempts in their petition for review to point to information in the record that supports their view — i.e., that safety-related information in DTE's application is “unreliable” or that DTE lacks a “commitment” to comply with the NRC's quality-assurance requirements — DTE and the Staff point to information in the record that demonstrates that Intervenors may have misinterpreted the evidence or failed to demonstrate its relevance to the issues in dispute.<sup>20</sup>

For example, Intervenors challenge the reliability of Black and Veatch's subsurface site investigations for DTE during the preapplication period, claiming that those investigations were the “root cause of . . . site characterization issues that continue to plague the Fermi 3 Licensing Project.”<sup>21</sup> But DTE witnesses explained at the hearing that recent seismic and geotechnical work on the proposed Fermi 3 site is related to ESBWR design changes and lessons-learned activities from the March 11, 2011, Fukushima accident in Japan.<sup>22</sup> And Intervenors cite a DTE presentation to an industry working group in response to the October 2009 notice of violation as evidence that DTE's quality assurance program was poorly managed.<sup>23</sup> But DTE witnesses referenced the presentation as evidence of its “willingness to discuss lessons-learned with the industry as well as its continual improvement efforts.”<sup>24</sup>

We give substantial deference to licensing board findings of fact, and we will not overturn a board's factual findings unless they are “not even plausible in light of the record viewed in its entirety.”<sup>25</sup> The Board made extensive factual findings to support its conclusion that DTE satisfied the requirements of 10 C.F.R. Part 50, Appendix B, all of which were supported by the evidence presented by DTE and the Staff. Specifically, the Board noted that DTE used a vendor with an Appendix

<sup>19</sup> See *id.* at 2-3.

<sup>20</sup> Compare *id.* at 12-23, with Staff Opposition at 13-17, and DTE Opposition at 8-13.

<sup>21</sup> Petition at 13 (internal quotation marks omitted).

<sup>22</sup> See Staff Opposition at 16 (citing Tr. at 541-42).

<sup>23</sup> Petition at 15 (citing Ex. INTS 068, Testimony of Arnold Gundersen Supporting [ ] Intervenors Contention 15: DTE COLA Lacks Statutorily Required Cohesive QA Program (Apr. 30, 2013), at 35 (Gundersen Testimony)). The testimony of Intervenors' witness on this point referenced an excluded exhibit. See *id.* at 4-5 (citing Ex. INTS 068, Gundersen Testimony at 35); see also text accompanying notes 27-43.

<sup>24</sup> DTE Opposition at 12.

<sup>25</sup> David Geisen, CLI-10-23, 72 NRC 210, 224-25 (2010) (internal quotation marks omitted); *Private Fuel Storage, L.L.C.* (Independent Spent Fuel Storage Installation), CLI-03-8, 58 NRC 11, 26 (2003).



B quality assurance program, required by contract that Black and Veatch's work conform with that program, reviewed a prior audit of that program, employed an owner's engineer to oversee Black and Veatch's quality assurance efforts, and ultimately did not accept work from Black and Veatch until DTE established its own quality assurance program.<sup>26</sup> Moreover, the Board may reject evidence that it finds unpersuasive or not credible. Therefore, we see nothing that would suggest that the Board's findings were implausible or not supported by the record.

Intervenors also argue that the Board committed prejudicial procedural error by excluding from the record a number of Intervenors' late-filed exhibits.<sup>27</sup> Intervenors assert that the Board should have overlooked their late filing because Intervenors' expert relied on the exhibits in his prefiled testimony.<sup>28</sup> They claim that this error was prejudicial because the exhibits, which included internal DTE e-mails and presentations, demonstrated that DTE lacked a sufficient quality assurance program during the development of its application.<sup>29</sup>

But the Board provided Intervenors multiple opportunities to file these exhibits in a timely manner.<sup>30</sup> Intervenors requested two extensions of the original filing deadline, which the Board granted.<sup>31</sup> And after the Board made it clear that no further extensions would be granted, Intervenors nevertheless failed to meet the Board's final exhibit-filing deadline.<sup>32</sup> The Board also provided Intervenors an opportunity to seek reconsideration of its decision to exclude the late-filed

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<sup>26</sup> LBP-14-7, 79 NRC at 485-86.

<sup>27</sup> Petition at 2.

<sup>28</sup> *Id.* at 2, 6.

<sup>29</sup> *See id.* at 3-6.

<sup>30</sup> *See* Order (Adopting Transcript Corrections, Denying Intervenors' Post-Hearing Motion for Admission for Excluded Exhibits, and Closing the Record) (Feb. 4, 2014) at 2-5 (unpublished) (Post-Hearing Board Order).

<sup>31</sup> *See* Order (Granting Intervenors' Motions for Extension of Time, Requesting List of Objections from the NRC Staff, and Explaining Board Procedure in the Event of a Continued Government Shutdown) (Oct. 3, 2013), at 2 (unpublished) (October 3 Board Order); *see generally* Intervenors' Motion for Extension of Time for Submission of Exhibits and Prefiled Testimony with Exhibit References (Sept. 26, 2013); Intervenors' Second Motion for Extension of Time for Submission of Exhibits and Prefiled Testimony with Exhibit References (Oct. 1, 2013). Intervenors originally filed all of their exhibits for Contention 15 as one document. *See* Tr. at 239-41. The Board directed Intervenors to refile them by September 26, 2013, a date that Intervenors' counsel stated could be met "easily." Order (Summarizing Pre-hearing Conference) (Sept. 20, 2013) at 2 (unpublished); Tr. at 241.

<sup>32</sup> October 3 Board Order at 2. Although the Board stated that no further extension would be granted past October 4, 2013, Intervenors continued to file their exhibits through October 7, 2013. *See* Post-Hearing Board Order at 3.

exhibits “as soon as possible after the close of the hearing.”<sup>33</sup> Intervenor filed their motion for reconsideration almost 2 months later.<sup>34</sup>

Although Intervenor claim to have “vastly inferior litigation resources,” they are represented by counsel.<sup>35</sup> But even if Intervenor were appearing *pro se*, we would still expect adherence to board directives.<sup>36</sup> Regardless of a party’s resources, “[f]airness to all involved in NRC’s adjudicatory procedures requires that every participant fulfill the obligations imposed by and in accordance with applicable law and Commission regulations.”<sup>37</sup>

Moreover, we give broad discretion to our licensing boards in the conduct of NRC adjudicatory proceedings, and we generally defer to board case-management decisions.<sup>38</sup> Licensing boards are expected to set procedures to ensure the case is managed efficiently, in a manner that is fair to all of the parties.<sup>39</sup> And a board may take disciplinary action against a party that “fails . . . to comply with any

<sup>33</sup> Tr. at 649-50; *see also id.* at 709-10.

<sup>34</sup> Intervenor’s Post-Hearing Motion for Reconsideration for Admission of Excluded Intervenor Exhibits on Contention 15 (Dec. 27, 2013). DTE and the Staff objected to the timing of the motion for reconsideration due to its arrival during the parties’ preparation of proposed findings of fact and conclusions of law. Applicant’s Response to Intervenor’s Motion to Reconsider Exclusion of Untimely Exhibits (Jan. 6, 2014), at 1-2 & n.5; NRC Staff Answer Opposing Intervenor’s Post-Hearing Motion for Reconsideration of Excluded Exhibits on Contention 15 (Jan. 6, 2014) at 4. Intervenor claimed that they were merely providing the rationale for their timely oral motion at the hearing. Reply in Support of Intervenor’s Post-Hearing Motion for Reconsideration of Admission of Excluded Intervenor Exhibits on Contention 15 (Jan. 13, 2014) at 1. Our rules require motions for reconsideration to be filed within 10 days of the action for which reconsideration is requested. 10 C.F.R. § 2.323(e).

<sup>35</sup> Petition at 6.

<sup>36</sup> *See* Entergy Nuclear Generation Co. (Pilgrim Nuclear Power Station), CLI-10-14, 71 NRC 449, 469 (2010); *accord Statement of Policy on Conduct of Adjudicatory Proceedings*, CLI-98-12, 48 NRC 18, 21-22 (1998) (*1998 Policy Statement*) (noting the obligation of all parties to follow the procedures in 10 C.F.R. Part 2 and board scheduling orders).

<sup>37</sup> *Statement of Policy on Conduct of Licensing Proceedings*, CLI-81-8, 13 NRC 452, 454 (1981) (*1981 Policy Statement*).

<sup>38</sup> *See* 10 C.F.R. § 2.319 (“A presiding officer has the duty to conduct a fair and impartial hearing according to law, to take appropriate action to control the prehearing and hearing process, to avoid delay and to maintain order. The presiding officer has all the powers necessary to those ends . . . .”); *Entergy Nuclear Operations, Inc.* (Indian Point, Units 2 and 3), CLI-07-28, 66 NRC 275, 275 (2007); *see also* 10 C.F.R. § 2.321(c).

<sup>39</sup> 10 C.F.R. § 2.319(k) (authorizing boards to “[s]et reasonable schedules for the conduct of the proceeding and take actions reasonably calculated to maintain overall schedules”); *see also 1998 Policy Statement*, CLI-98-12, 48 NRC at 19 (“Current adjudicatory procedures and policies provide a latitude to the Commission, its licensing boards, and presiding officers to instill discipline in the hearing process and ensure a prompt yet fair resolution of contested issues in adjudicatory proceedings.”); *1981 Policy Statement*, CLI-81-8, 13 NRC at 453 (“The Commission’s Rules of Practice provide the board with substantial authority to regulate hearing procedures.”).



prehearing order,” as long as the action is just.<sup>40</sup> The Board’s actions in this case are consistent with our expectations for orderly case management.<sup>41</sup>

In any event, the Board “reviewed the parties’ filings and the [excluded] exhibits . . . and found that they would not add anything of significance to the record.”<sup>42</sup> We are not persuaded by Intervenor’s arguments on appeal that the excluded evidence would have done otherwise — i.e., that it would have changed the Board’s findings on Contention 15.<sup>43</sup> Given all of these considerations, we see no reason to disturb the Board’s decision to exclude Intervenor’s late-filed exhibits.

Finally, Intervenor’s argument that review is warranted because the Board’s decision constituted a *de facto* exemption or waiver of the NRC’s quality-assurance regulations that “deprived the public of notice and an opportunity to adjudicate the basis for [DTE’s] unprecedented [quality assurance] program model.”<sup>44</sup> Intervenor’s argument that the Board granted DTE an exemption from the quality-assurance requirements in 10 C.F.R. Part 50, Appendix B, or applicable quality-assurance guidance, is incorrect.<sup>45</sup> The Board disagreed with Intervenor’s interpretation that Appendix B requires an applicant to have its own in-house quality assurance program in order to satisfy the requirement that an applicant “retain responsibility” over the services of a contractor for certain safety-related activities.<sup>46</sup> Rather, the Board found that DTE appropriately delegated to Black and Veatch the establishment and implementation of the quality assurance program for preapplication activities and maintained “direct supervision, oversight, and contractual control of [Black and Veatch] and its [quality assurance] program.”<sup>47</sup>

The plain language of Appendix B supports the Board’s view and demonstrates that Intervenor fails to raise a substantial question with respect to the purported exemption. Criterion I of Appendix B expressly authorizes an applicant to

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<sup>40</sup> 10 C.F.R. § 2.320.

<sup>41</sup> In other proceedings we have imposed or upheld disciplinary measures against parties and their representatives when they failed to comply with board directives and procedural rules. *See, e.g., Indian Point*, CLI-07-28, 66 NRC at 275; *Dominion Nuclear Connecticut, Inc.* (Millstone Nuclear Power Station, Units 2 and 3), CLI-06-4, 63 NRC 32, 38-39 (2006); Order of the Secretary (Dec. 19, 2007) (unpublished) (ADAMS Accession No. ML073531806) (*Indian Point* license renewal proceeding).

<sup>42</sup> Post-Hearing Board Order at 5.

<sup>43</sup> *See Pilgrim*, CLI-10-14, 71 NRC at 470-71; *see generally* Petition at 4-6. Furthermore, as a practical matter, the Board had an opportunity to consider the exhibits as part of Intervenor’s prefiled testimony, which quoted or referenced some of the excluded material. *See* Ex. INTS 068, Gundersen Testimony at 26-36.

<sup>44</sup> Petition at 3.

<sup>45</sup> Intervenor incorrectly asserts that DTE was required to obtain an exemption from NEI 06-14A, which is a nonbinding guidance document. *See id.* at 25.

<sup>46</sup> LBP-14-7, 79 NRC at 477.

<sup>47</sup> *Id.* at 486.

“delegate to others, such as contractors, agents, or consultants, the work of establishing and executing the quality assurance program, or any part thereof, but shall retain responsibility for the . . . program.”<sup>48</sup> The analysis of whether an applicant has “retained responsibility” is a factual issue, and, as discussed above, Intervenor has not shown that the Board’s resolution of this issue in favor of DTE was “clearly erroneous.”<sup>49</sup>

Moreover, the NRC provided members of the public an opportunity to request a hearing on all safety and environmental issues within the scope of DTE’s combined license application, including quality assurance. Indeed, the Board admitted this very challenge to DTE’s quality assurance program, and provided Intervenor with a full and fair opportunity to question its sufficiency.<sup>50</sup> We therefore reject Intervenor’s claim that the Board “deprived the public of notice and . . . opportunity to adjudicate”<sup>51</sup> this issue.

### III. CONCLUSION

Intervenor has failed to raise a substantial question warranting review of the Board’s ruling on Contention 15A/B. We therefore *deny* the petition for review.

IT IS SO ORDERED.<sup>52</sup>

For the Commission

ROCHELLE C. BAVOL

Acting Secretary of the Commission

Dated at Rockville, Maryland,  
this 16th day of December 2014.

<sup>48</sup> 10 C.F.R. Part 50, App. B (I. Organization).

<sup>49</sup> *Id.* § 2.341(b)(4)(i); *see also supra* note 25 and accompanying text.

<sup>50</sup> In addition, the evidentiary hearing was open to the public. *See* Tr. at 271-712. The Board also held a limited appearance session for members of the public to comment on DTE’s combined license application. *See* Tr. at 1-79 (Oct. 29, 2013); *see generally* 10 C.F.R. § 2.315(a).

<sup>51</sup> Petition at 3.

<sup>52</sup> During the pendency of this appeal, Intervenor moved to recuse then-Commissioner William D. Magwood, IV from participating in this decision. Intervenor’s Motion for Recusal of Commissioner Magwood from Participating in Deliberations on Petition for Review of LBP-14-07 (June 25, 2014). Commissioner Magwood denied the motion on July 14, 2014. Decision on the Motion of Beyond Nuclear for Recusal from Participation in Deliberations on Petition for Review of LBP-14-07 (July 14, 2014). Commissioner Magwood has since left the agency and did not participate in this decision.

Cite as 81 NRC 1 (2015)

CLI-15-1

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

## COMMISSIONERS:

Stephen G. Burns, Chairman  
Kristine L. Svinicki  
William C. Ostendorff  
Jeff Baran

In the Matter of

Docket No. 52-033-COL

DTE ELECTRIC COMPANY  
(Fermi Nuclear Power Plant,  
Unit 3)

January 13, 2015

## REVIEW, DISCRETIONARY

The Commission will grant a petition for review at its discretion, upon a showing that the petitioner has raised a substantial question as to whether: (i) a finding of material fact is clearly erroneous or in conflict with a finding as to the same fact in a different proceeding; (ii) a necessary legal conclusion is without governing precedent or is a departure from or contrary to established law; (iii) a substantial and important question of law, policy, or discretion has been raised; (iv) the conduct of the proceeding involved a prejudicial procedural error; or (v) any other consideration that the Commission may deem to be in the public interest.

RULES OF PRACTICE: *AMICUS CURIAE*

The Commission's rules of practice permit persons who are not parties to file a brief *amicus curiae* if a matter is taken up by the Commission under 10 C.F.R. § 2.341 or *sua sponte*.

**RULES OF PRACTICE: CONTENTIONS**

The Commission's rules of practice require contentions to be raised at the earliest possible opportunity.

**RULES OF PRACTICE: CONTENTIONS, NATIONAL ENVIRONMENTAL POLICY ACT**

Although environmental contentions are, in essence, challenges to the Staff's compliance with the National Environmental Policy Act, those contentions must be raised, if possible, in response to an applicant's environmental report.

**RULES OF PRACTICE: CONTENTIONS, NEW OR AMENDED**

Petitioners who choose to wait to raise contentions that could have been raised earlier do so at their peril. They risk the possibility that there will not be a material difference between the application and the Staff's review documents, thus rendering any newly proposed contention on previously available information impermissibly late.

**RULES OF PRACTICE: CONTENTIONS, NEW OR AMENDED**

The Commission's rules of practice require a material difference between the information on which the contention is based and the information that was previously available — for example, a difference between the environmental report and the draft environmental impact statement (EIS) or the draft EIS and the final EIS.

***SUA SPONTE* ISSUES**

Section 2.340(b) sets forth the standard for *sua sponte* review in a combined license proceeding. With the Commission's express approval, a licensing board may make findings on a serious safety, environmental, or common defense and security matter not put into controversy by the parties. This authority shall be used only in extraordinary circumstances.

**MEMORANDUM AND ORDER**

Today we rule on the Atomic Safety and Licensing Board's request to review, *sua sponte*, issues relating to the environmental impacts of the proposed

transmission-line corridor for Fermi Unit 3.<sup>1</sup> For the reasons set forth below, we deny the Board's request for *sua sponte* review. In addition, we deny Intervenor's petition for review of the Board's dismissal of Contention 23, also relating to transmission-corridor environmental impacts.<sup>2</sup>

## I. BACKGROUND

This proceeding concerns DTE's combined license application to construct and operate a GE-Hitachi Economic Simplified Boiling Water Reactor (ESBWR) on the Fermi site in Monroe County, Michigan.<sup>3</sup> Intervenor sought a hearing and originally proposed fourteen contentions; the Board granted a hearing and admitted four of those contentions.<sup>4</sup> Since their entry into the proceeding in July 2009, Intervenor has proposed several additional contentions, including Contention 23, their challenge to the NRC Staff's compliance with the National Environmental Policy Act of 1969 (NEPA) as it pertains to the anticipated environmental impacts of the proposed transmission-line corridor for Fermi Unit 3, the subject of our decision today.

Intervenor first proposed Contention 23 after the Staff issued the draft Environmental Impact Statement (EIS) for DTE's application.<sup>5</sup> Later, after the Board dismissed the contention as late, Intervenor resubmitted Contention 23 in

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<sup>1</sup> LBP-14-9, 80 NRC 15 (2014).

<sup>2</sup> Intervenor's Petition for Review of Atomic Safety and Licensing Board's Dismissal of Contention 23 for Lack of Timeliness (Oct. 6, 2014) (Petition). Intervenor are Beyond Nuclear, Citizens for Alternatives to Chemical Contamination, Citizens Environmental Alliance of Southwestern Ontario, Don't Waste Michigan, Sierra Club, Keith Gunter, Edward McArdle, Henry Newman, Derek Coronado, Sandra Bihn, Harold L. Stokes, Michael J. Keegan, Richard Coronado, George Steinman, Marilyn R. Timmer, Leonard Mandeville, Frank Mantei, Marcee Meyers, and Shirley Steinman.

<sup>3</sup> See 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, 74 Fed. Reg. 836 (Jan. 8, 2009).

<sup>4</sup> The Board admitted Contentions 3, 5, 6, and 8. LBP-09-16, 70 NRC 227, 306 (2009). In three separate opinions, the Board granted summary disposition of Contentions 3, 5, and 6 in favor of DTE. See Order (Granting Motion for Summary Disposition of Contention 3) (July 9, 2010) (unpublished); Order (Granting Motion for Summary Disposition of Contention 5) (Mar. 1, 2011) (unpublished); LBP-12-23, 76 NRC 445, 452 (2012) (among other things, granting summary disposition of Contention 6). After an evidentiary hearing, the Board ruled on the merits of Contention 8 in favor of the NRC Staff and ruled on the merits of a new admitted contention pertaining to quality assurance, Contention 15, in favor of DTE. LBP-14-7, 79 NRC 451 (2014). In a separate decision, we denied Intervenor's petition for review of the Board's ruling on the merits of Contention 15. See CLI-14-10, 80 NRC 157 (2014).

<sup>5</sup> See Motion for Resubmission of Contention 10, to Amend/Resubmit Contention 13, and for Submission of New Contentions 17 through 24 (Jan. 11, 2012) at 1-2, 41-52 (Original Contention 23).

response to the Staff's final EIS.<sup>6</sup> The Board again dismissed the contention as late.<sup>7</sup> In Contention 23, as both originally proposed and resubmitted, Intervenor challenged the adequacy of the Staff's consideration of the environmental impacts of building new transmission lines for Fermi Unit 3.<sup>8</sup>

Although the Board did not admit Contention 23, it found some merit to Intervenor's arguments.<sup>9</sup> In its first ruling dismissing the contention, the Board suggested that the contention might have been admissible if not for its tardiness and recommended that the Staff consider Intervenor's concerns when preparing the final EIS.<sup>10</sup> In its second ruling, the Board again found the contention to be unjustifiably late, but it reiterated its view that Intervenor had raised "a substantial . . . issue that might have been admissible had it been timely filed."<sup>11</sup> The Board further observed that the adequacy of the Staff's review of transmission-corridor impacts might be appropriate for the Board's consideration *sua sponte*, pursuant to 10 C.F.R. § 2.340(b).<sup>12</sup> The Board thus sought briefing from the parties on the appropriateness of the Board's taking review of the issues raised in Contention 23 on its own motion.<sup>13</sup> Intervenor supported *sua sponte* review; DTE and the Staff opposed it.<sup>14</sup>

As it considered the parties' views on *sua sponte* review, the Board proceeded to hearing on Intervenor's then-pending admitted contentions and issued an initial decision ruling on those contentions in favor of the Staff and DTE.<sup>15</sup> The Board returned to the *sua sponte* issue shortly thereafter. In LBP-14-9, the Board determined that the issues raised in Contention 23 merited *sua sponte* review.<sup>16</sup> In

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<sup>6</sup> See LBP-12-12, 75 NRC 742, 776-80 (2012); 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 (Feb. 19, 2013) at 2, 21-53 (Resubmitted Contention 23).

<sup>7</sup> Licensing Board Memorandum and Order (Denying Intervenor's 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) (Apr. 30, 2013) at 21 (unpublished) (Second Board Ruling).

<sup>8</sup> Compare Original Contention 23 at 41-52, with Resubmitted Contention 23 at 21-53.

<sup>9</sup> See LBP-12-12, 75 NRC at 776-80; Second Board Ruling at 22-23.

<sup>10</sup> LBP-12-12, 75 NRC at 776, 780.

<sup>11</sup> Second Board Ruling at 23.

<sup>12</sup> See *id.*

<sup>13</sup> *Id.* at 23-24.

<sup>14</sup> Intervenor's Memorandum in Support of *Sua Sponte* ASLB Referral of Transmission Line Corridor NEPA Compliance Issue (May 30, 2013); Applicant's Brief Opposing *Sua Sponte* Review of Environmental Impacts in the Offsite Transmission Corridor (May 30, 2013); NRC Staff Response to Board Order Concerning Proposed *Sua Sponte* Review of Contention 23 (May 30, 2013).

<sup>15</sup> See *supra* note 4.

<sup>16</sup> LBP-14-9, 80 NRC at 27.



accordance with section 2.340(b), the Board requested our approval to undertake that review.<sup>17</sup>

We now have before us the briefs that we invited from the parties in response to the Board's *sua sponte* request,<sup>18</sup> as well as a motion from the Nuclear Energy Institute (NEI) to file a brief as *amicus curiae* in this matter.<sup>19</sup> Also pending before us is Intervenor's petition for review of the Board's dismissal of Contention 23.<sup>20</sup> It makes sense for us to review first whether the Board properly dismissed

<sup>17</sup> *Id.* at 37-38, 69-70.

<sup>18</sup> Applicant's Opposition to *Sua Sponte* Consideration of Transmission Corridor Issues (July 28, 2014) (DTE Brief); NRC Staff Response to Commission's Order Inviting Comments on the Board's Request for Approval to Conduct *Sua Sponte* Review of Contention 23 (Transmission Lines) (July 28, 2014) (NRC Staff Brief); Intervenor's Motion for Commission Approval of LBP-14-09 (Memorandum Determining That Issues Related to Intervenor's Proposed Contention 23 Merit *Sua Sponte* Review Pursuant to 10 C.F.R. § 2.340(b) and Requesting Commission Approval) (e-mailed July 28, 2014 and refiled on July 30, 2014); Applicant's Reply Brief Opposing *Sua Sponte* Consideration of Transmission Issues (Aug. 7, 2014); NRC Staff Reply to Other Parties' Pleadings Related to the Board's Request for Approval to Conduct *Sua Sponte* Review of Contention 23 (Transmission Lines) (Aug. 7, 2014); Intervenor's Corrected Reply Memorandum in Support of Motion for Commission Approval of LBP-14-09 (Aug. 8, 2014) (Intervenor's Reply Brief). Intervenor apparently experienced technical difficulties that prevented their use of the agency's e-filing system on July 28, 2014. They e-mailed their reply on July 28, 2014, and then properly refiled the document on July 30, 2014. Although they did not request leave to file their reply out of time, we note that counsel for Intervenor also filed the same day a declaration that detailed these technical difficulties in the context of a separate filing in this proceeding. *See* Intervenor's Motion for Enlargement of Time to Reply in Support of Petition for Review (July 30, 2014); *see also* Intervenor's Reply to DTE Answer Opposing Petition for Review of LBP-14-07 (Ruling for Applicant on Quality Assurance) (July 30, 2014) at n.1; Intervenor's Reply to NRC Staff Answer to Petition for Review of LBP-14-07 (Ruling for Applicant on Quality Assurance) (July 30, 2014), at n.1. We therefore will consider Intervenor's reply for good cause shown. The same is true for Intervenor's refiled reply dated August 8, 2014 (in which only the caption appears to have been corrected from what was filed on August 7, 2014). *But see* CLI-14-10, 80 NRC at 165 n.41 (observing that failure to comply with agency procedural rules could result in disciplinary action).

<sup>19</sup> Motion of the Nuclear Energy Institute, Inc. for Leave to File Amicus Curiae Brief in Response to the Commission's July 11, 2014 Briefing Order (July 28, 2014); *Amicus Curiae* Brief of the Nuclear Energy Institute, Inc. in Response to the Commission's July 11, 2014 Briefing Order (July 28, 2014). Our rules of practice permit persons who are not parties to file a brief *amicus curiae* "if a matter is taken up by the Commission under [10 C.F.R.] § 2.341 or *sua sponte*." 10 C.F.R. § 2.315(d). Although this rule does not squarely apply here, it is within our discretion to grant leave for participation as *amicus curiae*. *See Calvert Cliffs 3 Nuclear Project, LLC* (Calvert Cliffs Nuclear Power Plant, Unit 3), CLI-13-4, 77 NRC 101, 104 n.9 (2013). NEI's motion is unopposed, and we find that its brief would further contribute to the record. We exercise our discretion and consider NEI's brief.

<sup>20</sup> *See generally* Petition; Order of the Secretary (Sept. 10, 2014) (unpublished) (amending the deadline to file a petition for review of the Board's ruling on Contention 23 "[b]ecause the issues raised . . . in [that contention] are intertwined with the Board's [*sua sponte*] request"). DTE and the Staff oppose Intervenor's petition for review. Applicant's Opposition to Petition for Review on Contention 23 (Oct. 31, 2014) (DTE Response to Petition); NRC Staff Response to Intervenor's

(Continued)



the contention to determine whether the transmission-corridor impacts issue is litigable in the traditional sense — as a contested matter between the parties — before turning to the Board's *sua sponte* request. Therefore, we rule on both Intervenor's petition for review and the Board's *sua sponte* request in today's decision.<sup>21</sup>

## II. DISCUSSION

### A. Intervenor's Petition for Review

We will grant a petition for review at our discretion, upon a showing that the petitioner has raised a substantial question as to whether

- (i) a finding of material fact is clearly erroneous or in conflict with a finding as to the same fact in a different proceeding;
- (ii) a necessary legal conclusion is without governing precedent or is a departure from or contrary to established law;
- (iii) a substantial and important question of law, policy, or discretion has been raised;
- (iv) the conduct of the proceeding involved a prejudicial procedural error; or
- (v) any other consideration that we may deem to be in the public interest.<sup>22</sup>

Intervenor's seek review of the Board's dismissal of the resubmitted version of Contention 23; they do not request review of the Board's dismissal of the contention as originally proposed.<sup>23</sup>

Intervenor's claim that the Board erred when it found late the version of Contention 23 that was submitted in response to the Staff's final EIS.<sup>24</sup> Intervenor's focus their argument on dicta in the Board's first ruling in which the Board recommended that the Staff consider Intervenor's transmission-corridor claims when preparing the final EIS.<sup>25</sup> They assert that the Board's recommendation to

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Petition for Review of Atomic Safety and Licensing Board's Dismissal of Contention 23 for Lack of Timeliness (Oct. 30, 2014) (NRC Staff Response to Petition). Intervenor's filed a reply. Intervenor's Reply in Support of Petition for Review of Atomic Safety and Licensing Board's Dismissal of Contention 23 for Lack of Timeliness (Nov. 10, 2014) (Reply).

<sup>21</sup> Intervenor's expressed concern in their petition for review that we would treat their contention as "legally intertwined" with the Board's request. Petition at 11-13; Reply at 1-5. We clarify that we do not view the two matters as legally intertwined but rather factually (and procedurally) intertwined. Although we address both matters in this decision, we consider them separately.

<sup>22</sup> 10 C.F.R. § 2.341(b)(4)(i)-(v).

<sup>23</sup> See Petition at 1. We discuss both Board decisions here, however, for completeness.

<sup>24</sup> *Id.* at 2-3.

<sup>25</sup> *Id.* at 2-3, 6-11.

the Staff constituted new information, a new “dispute” with the draft EIS, that cured the contention’s lateness the second time around.<sup>26</sup> Intervenor also assert that language in the final EIS relating to the transmission corridor is materially different from that in the draft EIS. They argue that this language raises an issue suitable for a new contention.<sup>27</sup>

Intervenor acknowledges that they could have raised Contention 23 at the outset of this proceeding.<sup>28</sup> They assert that they purposely waited to see whether the Staff would supplement the analysis provided in DTE’s environmental report at the draft EIS stage and that they again waited to see whether the Staff would take on the Board’s recommendation in the final EIS. But our rules of practice require contentions to be raised at the earliest possible opportunity.<sup>29</sup> And although environmental contentions are, in essence, challenges to the Staff’s compliance with NEPA, those contentions must be raised, if possible, in response to an applicant’s environmental report.<sup>30</sup> Petitioners who choose to wait to raise contentions that could have been raised earlier do so at their peril. They risk the possibility that there will not be a material difference between the application and the Staff’s review documents, thus rendering any newly proposed contention on previously available information impermissibly late.<sup>31</sup>

Contrary to Intervenor’s claims, the Board’s recommendation to the Staff in its first decision did not create a new reference point for determining whether the information raised in the second iteration of Contention 23 was timely raised. Our rules of practice require a material difference between the information on which the contention is based and the information that was previously available — for example, a difference between the environmental report and the draft EIS or the draft EIS and the final EIS.<sup>32</sup> In both of its contention admissibility decisions

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<sup>26</sup> *Id.* at 7-8.

<sup>27</sup> *Id.* at 8-11.

<sup>28</sup> *See id.* at 3-4, 6.

<sup>29</sup> *See* 10 C.F.R. § 2.309(b)(3)(i), (c). We amended our rules of practice in 2012, including the provision governing new or amended contentions in section 2.309(c). The standard for admitting a new or amended contention, however, was simplified rather than overhauled. *See* Final Rule: “Amendments to Adjudicatory Process Rules and Related Requirements,” 77 Fed. Reg. 46,562, 46,571 (Aug. 3, 2012) (Part 2 Amendment). Both before and after the 2012 amendment, proponents of new or amended contentions were, and are, required to demonstrate “good cause” for their filing, which includes a demonstration that the information on which the new or amended contention is based is materially different from information previously available. *See* 10 C.F.R. § 2.309(c)(1)(i)-(iii); Part 2 Amendment, 77 Fed. Reg. at 46,571 (focusing the requirements on the factor given the most weight — “good cause”).

<sup>30</sup> 10 C.F.R. § 2.309(f)(2); *see also* Part 2 Amendment, 77 Fed. Reg. at 46,566-67.

<sup>31</sup> *See* 10 C.F.R. § 2.309(c); *see also* *Entergy Nuclear Generation Co.* (Pilgrim Nuclear Power Station), CLI-12-10, 75 NRC 479, 492-94 (2012).

<sup>32</sup> 10 C.F.R. § 2.309(c), (f)(2); *see also* *Pilgrim*, CLI-12-10, 75 NRC at 488-89; *Pa’ina Hawaii, LLC*, CLI-10-18, 72 NRC 56, 87-88 (2010).

the Board noted Intervenor's failure to point to any material difference between DTE's or the Staff's environmental documents. The Board was "satisfied that each of the issues that comprise the subject matter of the contention was discussed in the [Environmental Report]" and that "[t]he same issues were also reviewed in the [draft] EIS."<sup>33</sup> We see nothing that would cause us to disturb the Board's rulings on the timeliness of Contention 23 in this regard.

On appeal, Intervenor's point to language in the final EIS that they claim is materially different from information in the draft EIS.<sup>34</sup> But as the Staff and DTE point out, Intervenor's compare language from two distinct sections of the Staff's review documents.<sup>35</sup> When the same sections of both documents are properly aligned, there is in fact no difference between the draft EIS and the final EIS, let alone a material difference.<sup>36</sup> Therefore, this claim must fail. Because Intervenor's have not demonstrated a substantial question warranting review of the Board's dismissal of their contention, we deny their petition for review.

## B. The Board's Request for *Sua Sponte* Review

We turn now to whether issues pertaining to transmission-corridor environmental impacts should nevertheless be litigated in a contested proceeding before the Board. The Board specifically requests our approval to review two issues *sua sponte*:

(1) "[w]hether the building of offsite transmission lines intended solely to serve . . . Fermi Unit 3 qualifies as a connected action under NEPA and, therefore, requires the Staff to consider its environmental impacts as a direct effect of the construction of Fermi Unit 3"; and

(2) "[w]hether the Staff's consideration of environmental impacts related to the transmission corridor, performed as a cumulative impact review, satisfied NEPA's hard look requirement."<sup>37</sup>

Section 2.340(b) sets forth the standard for *sua sponte* review in a combined

<sup>33</sup> Second Board Ruling at 21; *see also* LBP-12-12, 75 NRC at 775-76.

<sup>34</sup> *See* Petition at 8-11.

<sup>35</sup> NRC Staff Response to Petition at 13-14; DTE Response to Petition at 10-12.

<sup>36</sup> *Compare* "Draft Environmental Impact Statement for Combined License (COL) for Enrico Fermi Unit 3" (Draft Report for Comment), NUREG-2105 (Oct. 2011), at 2-45, 3-17 (ADAMS Accession No. ML13274A468 (package)) (DEIS), *with* "Environmental Impact Statement for the Combined License (COL) for Enrico Fermi Unit 3" (Final Report), NUREG-2105, Vols. 1-4 (Jan. 2013), at 2-46, 3-18 (ADAMS Accession Nos. ML12307A172, ML12307A176, ML12307A177, and ML12347A202) (FEIS).

<sup>37</sup> LBP-14-9, 80 NRC at 37.

license proceeding. With our express approval, a licensing board may make findings on a “serious safety, environmental, or common defense and security matter” not put into controversy by the parties.<sup>38</sup> This authority shall be used only in extraordinary circumstances.<sup>39</sup> We find that the two issues identified by the Board do not merit *sua sponte* review.

The Board appears to have focused on the distinctions between a direct impacts analysis and a cumulative impacts analysis, with the underlying conclusion that a cumulative impacts analysis will yield a shallower analysis than a direct impacts analysis. While that may be true in other cases, here the Staff has included what appears to be a comprehensive analysis of transmission-corridor impacts throughout the final EIS. Without commenting on the sufficiency of the Staff’s review, we note that the Staff discussed transmission-corridor impacts in Chapters 2, 3, 4, 5, 9, and 10 of the final EIS, in addition to referencing those impacts in the cumulative impacts analysis in Chapter 7.<sup>40</sup>

The final EIS itself is a source of minor confusion. Despite the final EIS’s introductory statement that preconstruction activities (which would include transmission-line development) are not part of the proposed action and are discussed in the context of cumulative impacts,<sup>41</sup> the Staff further stated that it included “pertinent information related to . . . potential impacts from the transmission lines” as part of its “integrated evaluations of potential environmental impacts from the proposed Fermi 3 facilities.”<sup>42</sup> Consequently, the Board’s discussion as to whether development of the transmission corridor is a “connected action” under NEPA, while thorough, is inapposite.<sup>43</sup> The Board’s treatment of this issue does not acknowledge that the Staff did discuss the proposed transmission corridor in

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<sup>38</sup> 10 C.F.R. § 2.340(b).

<sup>39</sup> *Statement of Policy on Conduct of Adjudicatory Proceedings*, CLI-98-12, 48 NRC 18, 22-23 (1998). The Board notes the absence of an express regulatory requirement that the authority for *sua sponte* review be used “sparingly” or in “extraordinary circumstances.” LBP-14-9, 80 NRC at 38-40. But our 1998 Policy Statement, which instructs boards to limit their use of *sua sponte* review, remains valid. Further, section 2.340(b) references the standard for Commission review in sections 2.323 and 2.341, both of which, we have held, require a heightened showing to prevent overuse, including a demonstration of “extraordinary circumstances.” See 10 C.F.R. §§ 2.323(f), 2.341(f)(1) (governing referred rulings or certified questions that raise “significant and novel legal or policy issues” or issues whose early resolution “would materially advance the orderly disposition of the proceeding”); *Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), CLI-12-13, 75 NRC 681, 685 (2012); cf. *Diablo Canyon*, CLI-12-13, 75 NRC at 687 (regarding the standard for interlocutory review). The Board correctly notes that “a request to engage in *sua sponte* review should not be undertaken lightly.” LBP-14-9, 80 NRC at 39.

<sup>40</sup> See FEIS at M-1 to M-2.

<sup>41</sup> FEIS at 1-7. The Board referenced this statement in its *sua sponte* request. See LBP-14-9, 80 NRC at 36.

<sup>42</sup> FEIS at M-1.

<sup>43</sup> See LBP-14-9, 80 NRC at 40-57.

the final EIS, across multiple chapters, together with the impacts of constructing and operating Fermi Unit 3.<sup>44</sup> The first issue proposed for review would therefore appear to be moot.<sup>45</sup>

Moreover, much of the Board's request fundamentally challenges the agency's Limited Work Authorization Rule.<sup>46</sup> For example, the Board takes issue with the Staff's classification of the proposed transmission lines as a "preconstruction activity" rather than "construction."<sup>47</sup> In the Limited Work Authorization Rule, however, we expressly excluded transmission lines from the delineated "construction" activities that would require NRC approval before being undertaken.<sup>48</sup> We would not allow a litigant to challenge a rule in an NRC adjudicatory proceeding absent a showing of special circumstances;<sup>49</sup> we likewise will not allow the Board to do the same.<sup>50</sup>

The Board's second issue proposed for review, aside from its reference to cumulative impacts, is in essence a concern about the overall sufficiency of the Staff's transmission-corridor analysis. But this is a potentially amorphous issue that does not appear to lend itself well to a contested proceeding, and the Board has not given us the benefit of a roadmap of what specifically would be litigated with regard to the Staff's analysis. For example, the Board opines that the Staff must evaluate reasonable alternatives as well as measures to mitigate any detrimental environmental impacts.<sup>51</sup> But again, without making a sufficiency finding, the Staff discussed the proposed transmission corridor in its alternatives analysis (including alternative sources of electricity and alternative sites) and also discussed potential mitigation measures for constructing new transmission lines

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<sup>44</sup> See, e.g., FEIS at 4-3 (explaining that due to its collaboration with the United States Army Corps of Engineers in the environmental review, "the combined impacts of . . . preconstruction and construction activities . . . are presented in [Chapter 4]" even though "the environmental effects of preconstruction activities on each resource area would be addressed as cumulative impacts normally presented in Chapter 7").

<sup>45</sup> In any event, the Board apparently has already established a position on this issue — after briefing from the parties — that the transmission corridor is "connected" to the licensing decision for Fermi Unit 3. See LBP-14-9, 80 NRC at 46-47 (opining, "based on the information . . . before the Board," that the transmission corridor appears to be a proposed action and that it has "'no discernible purpose' apart from connecting Fermi 3 to the grid"). For these reasons, further litigation of this issue would not significantly inform the record on the "connected action" question.

<sup>46</sup> See, e.g., LBP-14-9, 80 NRC at 48-57; see generally Final Rule: "Limited Work Authorizations for Nuclear Power Plants," 72 Fed. Reg. 57,416 (Oct. 9, 2007) (Limited Work Authorization Rule).

<sup>47</sup> LBP-14-9, 80 NRC at 36.

<sup>48</sup> See 10 C.F.R. §§ 50.10(a)(2)(vii), 51.4 (defining "construction"); see also Limited Work Authorization Rule, 72 Fed. Reg. at 57,417 (requiring NRC authorization "only before undertaking activities that have a reasonable nexus to radiological health and safety and/or common defense and security").

<sup>49</sup> See 10 C.F.R. § 2.335(a), (b).

<sup>50</sup> See LBP-14-9, 80 NRC 49-50.

<sup>51</sup> See *id.* at 43-44, 64.



in its main analysis of the impacts of constructing and operating Fermi Unit 3.<sup>52</sup> Our rules of practice are designed to avoid such an unfocused inquiry in contested proceedings.<sup>53</sup>

In February of this year, we will be holding the uncontested hearing on the *Fermi* combined license application. The uncontested hearing will provide us with an opportunity to review the sufficiency of the Staff's environmental (and safety) analyses. Given that the Board's request, at bottom, questions the sufficiency of the Staff's consideration of the environmental impacts of the proposed new transmission lines for Fermi Unit 3, the issue whether the Staff has taken a "hard look" at the environmental impacts of the transmission corridor is among the range of issues that are appropriately before us in the uncontested hearing.<sup>54</sup> Thus, as part of this hearing, we will take the Board's concerns regarding examination of the environmental impacts of the transmission corridor in the final EIS under advisement.

### III. CONCLUSION

Intervenors have failed to raise a substantial question warranting review of the Board's dismissal of Contention 23. We therefore *deny* the petition for review. In addition, we *deny* the Board's request for *sua sponte* review. We will review the adequacy of the Staff's environmental review, including consideration of transmission-corridor environmental impacts, as part of the uncontested hearing.

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<sup>52</sup> See, e.g., FEIS at 4-60 (noting "that the small streams that would be crossed by the proposed transmission line corridor could be easily spanned without placing structures in stream channels and that [best management practices] would be implemented to protect water quality in streams during building activities"); *id.* at 9-7 (noting that "new transmission lines would be needed to deliver power from the alternative coal-fired plant and that these lines would be identical in both capacity and location to the lines being proposed to support Fermi 3"); *id.* at 9-87 (noting that "[e]nvironmental conditions along the transmission line corridor [for the alternative Belle River-St. Clair site] are similar to those of the site, with a mixture of cropland, wooded areas, and some wetlands").

<sup>53</sup> See 10 C.F.R. § 2.309(f)(1)(i)-(vi). The Board, to be sure, is not strictly bound by the contention admissibility rules when requesting approval to review issues *sua sponte*. But our contested proceedings must be governed by some level of specificity to ensure the proceeding is conducted efficiently, with fairness to all of the parties. Cf. Final Rule: "Rules of Practice in Domestic Licensing Proceedings — Procedural Changes in the Hearing Process," 54 Fed. Reg. 33,168, 33,179 (Aug. 11, 1989) (amending the rules of practice to "ensure[ ] that the resources of all participants in NRC proceedings are focused on real issues and disputes among the parties").

<sup>54</sup> We reject Intervenors' argument that the uncontested hearing "is not a serious avenue of relief." Intervenors' Reply Brief at 10. As the Intervenors note, compliance with NEPA is the responsibility of the NRC. See Petition at 3, 6. In the uncontested hearing it is our duty to ensure, among other things, that we have adhered to our obligations under that statute. See 10 C.F.R. § 51.107(a). We therefore find the uncontested proceeding to be an appropriate venue in which to address the transmission-corridor issue.

IT IS SO ORDERED.

For the Commission

ANNETTE L. VIETTI-COOK  
Secretary of the Commission

Dated at Rockville, Maryland,  
this 13th day of January 2015.



**Concurring Opinion of Commissioner Baran**

I concur in the result of the Memorandum and Order but write separately to respectfully express my disagreement with the majority's treatment of the Board's request for *sua sponte* review in Section II.B. In my view, this portion of the opinion would benefit from a more tailored discussion of only those issues necessary to reach a decision. I do not believe it is necessary for the opinion to characterize the Board's request for *sua sponte* review as "fundamentally challeng[ing]" the Limited Work Authorization Rule, the Board as having "already established a position" on the question of whether the transmission corridor construction is a connected action under NEPA, or the requested review of the Staff's transmission corridor analysis as "potentially amorphous" and "unfocused." I also do not believe that it makes sense for the opinion to state that "the Staff has included what appears to be a comprehensive analysis of transmission-corridor impacts throughout the final EIS." This description of the Staff's analysis as "comprehensive" could leave readers with the impression that the Commission is prejudging the sufficiency of the final EIS in advance of the uncontested hearing. The juxtaposition of this description with the subsequent statement that the Commission is not "commenting on the sufficiency of the Staff's review" may also confuse readers.

For these reasons, this section of the Memorandum and Order could simply state:

With respect to whether the building of offsite transmission lines for Fermi Unit 3 qualifies as a connected action under NEPA, the Board's request for *sua sponte* review appears relevant only to determining if an analysis of the direct effects of such activities is warranted. However, the Staff examined the impacts of the proposed transmission corridor on land use, terrestrial ecology, aquatic ecology, historic and cultural resources, and nonradiological health in Chapters 2, 3, 4, 5, 9, and 10 of the final EIS, in addition to referencing those impacts in the cumulative impacts analysis in Chapter 7. Without commenting on the sufficiency of the review, there is no question that the Staff discussed the environmental impacts of the proposed transmission corridor in multiple chapters of the final EIS. Consequently, a *sua sponte* review by the Board of the legal question of whether a direct effects analysis was required is unnecessary. At their core, both issues raised by the Board relate to the sufficiency of the Staff's consideration of the environmental impacts of the proposed new transmission corridor for Fermi Unit 3. The upcoming uncontested hearing is a natural time for the Commission to examine whether the Staff has taken the requisite "hard look" at the environmental impacts of the transmission corridor in its final EIS.

Cite as 81 NRC 555 (2015)

CLI-15-13

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

## COMMISSIONERS:

Stephen G. Burns, Chairman  
Kristine L. Svinicki  
William C. Ostendorff  
Jeff Baran

In the Matter of

Docket No. 52-033-COL

DTE ELECTRIC COMPANY  
(Fermi Nuclear Power Plant,  
Unit 3)

April 30, 2015

## MANDATORY HEARINGS

Atomic Energy Act § 189a requires that the Commission hold a hearing on each application to construct a nuclear power plant, regardless of whether an interested member of the public requests a hearing on the application. The Notice of Hearing for the “uncontested” or “mandatory” portion of the proceeding outlines the standards for the Commission’s review.

## MANDATORY HEARINGS: SAFETY ISSUES

On the safety side, the Commission must determine whether: (1) the applicable standards and requirements of the Atomic Energy Act and the Commission’s regulations have been met; (2) any required notifications to other agencies or bodies have been duly made; (3) there is reasonable assurance that the facility will be constructed and will operate in conformity with the license, the provisions of the Atomic Energy Act, and the Commission’s regulations; (4) the applicant is technically and financially qualified to engage in the activities authorized by the license; and (5) issuance of the license will not be inimical to the common defense and security or to the health and safety of the public.

**MANDATORY HEARINGS: NATIONAL ENVIRONMENTAL POLICY ACT**

On the environmental side, the Commission must consider and determine: (1) whether the requirements of NEPA § 102(2)(A), (C), and (E), and the applicable regulations in 10 C.F.R. Part 51 (the NRC regulations implementing NEPA), have been met; (2) the final balance among conflicting factors contained in the record of the proceeding with a view to determining the appropriate action to be taken; after weighing the environmental, economic, technical, and other benefits against environmental and other costs, and considering reasonable alternatives, whether the combined license should be issued, denied, or appropriately conditioned to protect environmental values; and (4) whether the NEPA review conducted by the Staff has been adequate.

**MANDATORY HEARINGS**

The Commission does not review DTE's application *de novo*; rather, it considers the sufficiency of the Staff's review of the application — that is, whether the Staff's review was sufficient to support the required findings.

**MANDATORY HEARINGS**

The scope of an uncontested proceeding is defined by the scope of the contested proceeding: all of the safety and environmental issues in DTE's combined license application, except for the contested matters, are subject to the Commission's review in the uncontested proceeding.

**LICENSING BOARDS: JURISDICTION**

The Board's jurisdiction terminates when there are no longer any contested matters pending before it.

**ADJUDICATORY PROCEEDINGS: MOTIONS**

When a party requests action from the presiding officer in an NRC adjudicatory proceeding, the request must come in the form of a motion.

**NATIONAL ENVIRONMENTAL POLICY ACT, ENDANGERED SPECIES ACT**

Section 7 of the Endangered Species Act requires an agency, in consultation with and with the assistance of the Secretary of the Interior or the Secretary of

Commerce (as appropriate), to ensure that “any action authorized, funded, or carried out by such agency . . . is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of critical habitat of such species.”

#### **NATIONAL ENVIRONMENTAL POLICY ACT**

NEPA § 102(2)(A) requires agencies to use “a systematic, interdisciplinary approach which will insure the integrated use of the natural and social sciences and the environmental design arts” in decisionmaking that may impact the environment.

#### **NATIONAL ENVIRONMENTAL POLICY ACT**

NEPA § 102(2)(E) calls for agencies to study, develop, and describe appropriate alternatives.

#### **NATIONAL ENVIRONMENTAL POLICY ACT**

NEPA § 102(2)(C) requires agencies to assess the relationship between local short-term uses and long-term productivity of the environment, to consider alternatives, and to describe the unavoidable adverse environmental impacts and the irreversible and irretrievable commitments of resources associated with the proposed action.

### **MEMORANDUM AND ORDER**

On February 4, 2015, we held a hearing on DTE Electric Company’s combined license application to construct and operate a new nuclear reactor at the Fermi Nuclear Power Plant site in Monroe County, Michigan.<sup>1</sup> The purpose of the evidentiary hearing was to consider the sufficiency of the NRC Staff’s review of DTE’s application. As discussed below, we conclude that the Staff’s review has been adequate to support the findings set forth in 10 C.F.R. §§ 52.97(a) and 51.107(a). We authorize issuance of the combined license.

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<sup>1</sup> See *In the Matter of DTE Electric Company, Combined License for Enrico Fermi Unit 3*; Notice of Hearing, 79 Fed. Reg. 72,215, 72,216 (Dec. 5, 2014) (Notice of Hearing); Tr. at 1-217 (attached as Appendix B to Order of the Secretary (Adopting Proposed Transcript Corrections and Admitting Post-Hearing Exhibits) (Mar. 9, 2015) (unpublished) (Transcript Correction Order)).

## I. BACKGROUND

### A. Proposed Action

DTE seeks to build a GE-Hitachi Economic Simplified Boiling Water Reactor (ESBWR) at the Fermi Nuclear Power Plant site in Monroe County, Michigan. Two units currently exist at the site: Unit 1 was permanently shut down in 1972; Unit 2 began commercial operation in 1988 and is operating today.<sup>2</sup> DTE submitted its combined license application for Unit 3 on September 18, 2008. The Staff docketed and accepted the application for review shortly thereafter.<sup>3</sup>

Over the past 6 years, the Staff has spent approximately 52,000 hours reviewing DTE's application to determine whether it complies with the Atomic Energy Act of 1954, as amended, and the NRC's regulations.<sup>4</sup> The Staff's review included an analysis of the environmental impacts of constructing and operating Fermi Unit 3 in accordance with the National Environmental Policy Act of 1969 (NEPA), on which the Staff has spent another 17,000 hours.<sup>5</sup> In a separate rulemaking proceeding, the Staff reviewed GE-Hitachi's application to certify the design for the ESBWR. The Staff completed the rulemaking and issued the final ESBWR design certification rule, following our approval, in October 2014.<sup>6</sup> DTE's combined license application incorporates by reference the ESBWR certified design.<sup>7</sup>

The Office of New Reactors led the review and provided much of the expertise, with support from the Office of Nuclear Security and Incident Response,

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<sup>2</sup> DTE submitted an application to renew the operating license for Fermi Unit 2 for an additional 20 years. *See* DTE Electric Company; Fermi Unit 2, 79 Fed. Reg. 34,787 (June 18, 2014). The Atomic Safety and Licensing Board designated to preside over the *Fermi* license renewal proceeding granted two petitions to intervene. *DTE Electric Co. (Fermi Nuclear Power Plant, Unit 2)*, LBP-15-5, 81 NRC 249 (2015). DTE has appealed the Board's decision. Applicant's Notice of Appeal of LBP-15-5 (Mar. 3, 2015); Applicant's Brief in Support of Appeal of LBP-15-5 (Mar. 3, 2015) (ADAMS Accession No. ML15062A634).

<sup>3</sup> *See* 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, 74 Fed. Reg. 836 (Jan. 8, 2009).

<sup>4</sup> Tr. at 49 (Mr. Tracy).

<sup>5</sup> *Id.*

<sup>6</sup> *See* 10 C.F.R. Part 52, App. E; Final Rule: "Economic Simplified Boiling-Water Reactor Design Certification," 79 Fed. Reg. 61,944 (Oct. 15, 2014) (ESBWR Final Rule). The final rule became effective on November 14, 2014. ESBWR Final Rule, 79 Fed. Reg. at 61,944.

<sup>7</sup> *See generally* Ex. NRC000006A to NRC000006H and NRC000006J, DTE Energy, Fermi 3 Combined License Application (Oct. 2014) (DTE Combined License Application). Portions of DTE's combined license application contain sensitive unclassified nonsafeguards information and are not publicly available.

the Office of Nuclear Material Safety and Safeguards, the Office of Nuclear Reactor Regulation, the Office of the General Counsel, and NRC Regions I and III.<sup>8</sup> The Staff held approximately eighty public meetings on the Fermi Unit 3 combined license application.<sup>9</sup> In its environmental review, the Staff worked closely with the U.S. Army Corps of Engineers, a cooperating agency.<sup>10</sup> Other federal agencies, including the U.S. Department of Homeland Security and the U.S. Fish and Wildlife Service, also contributed to the Staff's review of DTE's license application.<sup>11</sup> In addition, the Staff consulted with state, local, and tribal organizations — both in the United States and in Canada — concerning a variety of issues, including issues arising under the National Historic Preservation Act.<sup>12</sup> The Advisory Committee on Reactor Safeguards (ACRS), a committee of technical experts advising the Commission, provided an independent assessment of the safety aspects of the application, as required by our regulations.<sup>13</sup>

DTE did not pursue an early site permit for Fermi Unit 3.<sup>14</sup> Therefore, all relevant site characteristics, including site geology, hydrology, seismology, and man-made hazards, as well as the potential environmental impacts of the project, were studied as part of the Staff's combined license review and are within the scope of our decision today.

## B. Review Standards

The Atomic Energy Act, section 189a, requires that we hold a hearing on each

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<sup>8</sup> See Tr. at 51-52 (Tracy); Staff Witness List (Jan. 14, 2015), Attachment A, at 1-3 (Staff Witness List).

<sup>9</sup> Ex. NRC000001, Staff Statement in Support of the Uncontested Hearing for Issuance of Combined License for the Fermi Nuclear Plant Unit 3, Commission Paper SECY-14-0132 (Nov. 20, 2014) at 4 (Staff Information Paper).

<sup>10</sup> See Tr. at 59 (Mr. Delligatti).

<sup>11</sup> See Ex. NRC0000001, Staff Information Paper at 5; Tr. at 51 (Mr. Tracy), 60 (Mr. Delligatti), 152 (Ms. Sutton).

<sup>12</sup> Ex. NRC0000001, Staff Information Paper at 5.

<sup>13</sup> 10 C.F.R. §§ 1.13, 52.87; see Stetkar, John W., Chairman of the ACRS, Letter to Allison M. Macfarlane, Chairman of the NRC (Sept. 22, 2014) (ADAMS Accession No. ML14252A294) (ACRS Letter). The ACRS concluded that “[t]here is reasonable assurance that Fermi Unit 3 can be built and operated without undue risk to the health and safety of the public” and recommended that the combined license application “be approved following its final revision.” ACRS Letter at 1. It also found that there is reasonable assurance that the ESBWR design and the Fermi Unit 3 site satisfy NRC requirements that were imposed as part of the agency's lessons learned from the Fukushima Dai-ichi accident on March 11, 2011. *Id.* at 2. The Staff responded to other, generic recommendations in the ACRS letter. See Satorius, Mark A., Executive Director for Operations, Letter to John W. Stetkar, Chairman of the ACRS (Nov. 14, 2014) (ADAMS Accession No. ML14293A058) (Staff Response to ACRS).

<sup>14</sup> See 10 C.F.R. Part 52, Subpart A.

application to construct a nuclear power plant, regardless of whether an interested member of the public requests a hearing on the application.<sup>15</sup> Our Notice of Hearing for the “uncontested” or “mandatory” portion of this proceeding outlines the standards for our review.<sup>16</sup> On the safety side, we must determine whether:

- (1) the applicable standards and requirements of the Atomic Energy Act and the Commission’s regulations have been met;
- (2) any required notifications to other agencies or bodies have been duly made;
- (3) there is reasonable assurance that the facility will be constructed and will operate in conformity with the license, the provisions of the Atomic Energy Act, and the Commission’s regulations;
- (4) the applicant is technically and financially qualified to engage in the activities authorized by the license; and
- (5) issuance of the license will not be inimical to the common defense and security or to the health and safety of the public.<sup>17</sup>

On the environmental side, we must consider and determine:

- (1) whether the requirements of NEPA § 102(2)(A), (C), and (E), and the applicable regulations in 10 C.F.R. Part 51 (the NRC regulations implementing NEPA), have been met;
- (2) the final balance among conflicting factors contained in the record of the proceeding with a view to determining the appropriate action to be taken;
- (3) after weighing the environmental, economic, technical, and other benefits against environmental and other costs, and considering reasonable alternatives, whether the combined license should be issued, denied, or appropriately conditioned to protect environmental values; and
- (4) whether the NEPA review conducted by the Staff has been adequate.<sup>18</sup>

We do not review DTE’s application *de novo*; rather, we consider the sufficiency

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<sup>15</sup> AEA § 189a, 42 U.S.C. § 2239(a).

<sup>16</sup> See Notice of Hearing, 79 Fed. Reg. at 72,216.

<sup>17</sup> 10 C.F.R. § 52.97(a).

<sup>18</sup> *Id.* § 51.107(a).



of the Staff's review of the application — that is, whether the Staff's review was sufficient to support the required findings.<sup>19</sup>

### C. Contested Proceeding

When the Staff docketed DTE's combined license application, it also provided interested persons an opportunity to challenge the application in a contested proceeding, in accordance with Atomic Energy Act § 189a.<sup>20</sup> Nineteen individuals and environmental groups (collectively, Intervenors) submitted a request for hearing and petition to intervene with fourteen proposed contentions.<sup>21</sup> A Licensing Board comprised of three administrative judges, one with legal expertise and two with technical expertise, granted Intervenors' request for hearing and admitted Contentions 3, 5, 6, and 8.<sup>22</sup> Contention 3 pertained to the management of Class B and C low-level waste, Contention 5 pertained to hydrology at the Fermi site, Contention 6 concerned aquatic impacts from algae, and Contention 8 concerned potential adverse impacts on the eastern fox snake, a state-listed endangered species.<sup>23</sup>

The Board granted summary disposition of Contentions 3, 5, and 6 in favor of DTE.<sup>24</sup> And after an evidentiary hearing, the Board resolved Contention 8 in favor of the Staff. The Board also held a hearing on a new contention that concerned DTE's compliance with the NRC's quality assurance regulations, Contention 15A/B, which was resolved in favor of DTE.<sup>25</sup> Intervenors petitioned for review

<sup>19</sup> *South Carolina Electric & Gas Co. (Virgil C. Summer Nuclear Station, Units 2 and 3)*, CLI-12-9, 75 NRC 421, 428 (2012); *Southern Nuclear Operating Co. (Vogtle Electric Generating Plant, Units 3 and 4)*, CLI-12-2, 75 NRC 63, 74 (2012).

<sup>20</sup> See 74 Fed. Reg. at 836.

<sup>21</sup> Intervenors are Beyond Nuclear, Citizens for Alternatives to Chemical Contamination, Citizens Environmental Alliance of Southwestern Ontario, Don't Waste Michigan, Sierra Club, Keith Gunter, Edward McArdle, Henry Newman, Derek Coronado, Sandra Bihn, Harold L. Stokes, Michael J. Keegan, Richard Coronado, George Steinman, Marilyn R. Timmer, Leonard Mandeville, Frank Mantei, Marcee Meyers, and Shirley Steinman.

<sup>22</sup> LBP-09-16, 70 NRC 227, 306 (2009). DTE challenged the Board's ruling on standing and argued that the 50-mile "proximity presumption" should no longer apply in reactor licensing proceedings based on DTE's interpretation of contemporaneous judicial concepts of standing. It did not challenge the Board's contention admissibility ruling. We affirmed the Board's ruling on standing and upheld the validity of the proximity presumption. CLI-09-22, 70 NRC 932, 933 (2009) (citing *Calvert Cliffs 3 Nuclear Project, LLC* (Calvert Cliffs Nuclear Power Plant, Unit 3), CLI-09-20, 70 NRC 911 (2009)).

<sup>23</sup> LBP-09-16, 70 NRC at 256, 272, 277, 285-86.

<sup>24</sup> See Order (Granting Motion for Summary Disposition of Contention 3) (July 9, 2010) (unpublished); Order (Granting Motion for Summary Disposition of Contention 5) (Mar. 1, 2011) (unpublished); LBP-12-23, 76 NRC 445, 452 (2012) (among other things, granting summary disposition of Contention 6).

<sup>25</sup> LBP-14-7, 79 NRC 451, 454 (2014). See generally LBP-10-9, 71 NRC 493, 499 (2010).

of the Board's ruling on Contention 15A/B; they did not seek review of the Board's decisions resolving the other admitted contentions.<sup>26</sup> We later denied intervenors' petition for review of the Board's dismissal of Contention 15A/B.<sup>27</sup>

Shortly after it ruled on intervenors' last remaining admitted contentions, the Board requested our permission to hold an evidentiary hearing on intervenors' proposed Contention 23, which challenged the Staff's discussion of the environmental impacts of building a new transmission-line corridor for Fermi Unit 3.<sup>28</sup> The Board did not admit the contention because the Board found that intervenors had filed it impermissibly late.<sup>29</sup> Nonetheless, the Board determined that Contention 23 presented issues that warranted the Board's review *sua sponte* and sought our approval to undertake such a review. Intervenors also filed a petition for review of the Board's dismissal of Contention 23.<sup>30</sup> We denied intervenors' petition for review.<sup>31</sup> And we denied the Board's request for *sua sponte* review and concluded that the environmental impacts of the transmission corridor were among the issues appropriate for resolution in this uncontested proceeding.<sup>32</sup> We discuss the Staff's review of the transmission-line corridor as part of today's decision.

Also during the pendency of the contested proceeding, the U.S. Court of Appeals for the District of Columbia Circuit vacated and remanded our 2010 Waste Confidence Decision and Temporary Storage Rule, which for various NRC licensing actions served as part of the environmental analysis of the impacts of spent fuel storage after the end of a reactor's license term pending ultimate disposal in a repository.<sup>33</sup> In light of the D.C. Circuit's vacatur and remand of the rule, and in response to a number of suspension petitions filed on multiple dockets, we held the issuance of final licensing decisions for affected matters, including this one, while

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<sup>26</sup> Intervenors' Petition for Review of LBP-14-07 (Ruling for Applicant on Quality Assurance) (June 17, 2014).

<sup>27</sup> CLI-14-10, 80 NRC 157 (2014).

<sup>28</sup> LBP-14-9, 80 NRC 15, 37 (2014).

<sup>29</sup> See *id.* at 34. Intervenors filed proposed Contention 23 a second time after the Staff issued the Final Environmental Impact Statement (FEIS). The Board again dismissed the contention as impermissibly late. See *id.* at 36-37.

<sup>30</sup> Intervenors' Petition for Review of Atomic Safety and Licensing Board's Dismissal of Contention 23 for Lack of Timeliness (Oct. 6, 2014); see Order of the Secretary (Sept. 10, 2014) (unpublished) (amending the deadline for intervenors' petition for review).

<sup>31</sup> CLI-15-1, 81 NRC 1 (2015).

<sup>32</sup> *Id.* at 11.

<sup>33</sup> See *New York v. NRC*, 681 F.3d 471 (D.C. Cir. 2012). See generally Final Rule: "Consideration of Environmental Impacts of Temporary Storage of Spent Fuel After Cessation of Reactor Operation," 75 Fed. Reg. 81,032 (Dec. 23, 2010); Waste Confidence Decision Update, 75 Fed. Reg. 81,037 (Dec. 23, 2010).

we addressed the court's remand.<sup>34</sup> To address the court's remand and provide a comprehensive analysis of the environmental impacts of continued storage, we issued a final Continued Storage Rule and supporting Generic Environmental Impact Statement.<sup>35</sup> Concurrent with this action, we lifted the licensing suspension and dismissed, or directed licensing boards to dismiss, proposed contentions that had been filed with the multidocket suspension petitions and held in abeyance.<sup>36</sup> The Board dismissed Intervenor's continued storage contention consistent with our direction.<sup>37</sup> Separately, the Staff considered whether the Continued Storage Rule and the associated Generic Environmental Impact Statement presented new and significant information such that a supplement to the Final Environmental Impact Statement for Fermi Unit 3 (FEIS) was required.<sup>38</sup> The Staff compared the fuel cycle impacts analysis in the FEIS with the analysis in the Generic Environmental Impact Statement for Continued Storage and concluded that the information in the Generic Environmental Impact Statement did 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.<sup>39</sup> Therefore, the Staff determined that a supplement to the FEIS was not required.<sup>40</sup>

Thereafter, Intervenor's sought leave to file a new contention that would require the NRC to make safety-related findings for the Continued Storage Rule and suspend licensing decisions until completing that action.<sup>41</sup> We exercised our supervisory authority to consider this and other substantively similar filings,

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<sup>34</sup> *Calvert Cliffs 3 Nuclear Project, LLC* (Calvert Cliffs Nuclear Power Plant, Unit 3), CLI-12-16, 76 NRC 63, 67 (2012).

<sup>35</sup> *Calvert Cliffs 3 Nuclear Project, LLC* (Calvert Cliffs Nuclear Power Plant, Unit 3), CLI-14-8, 80 NRC 71, 77 (2014). See generally Final Rule: "Continued Storage of Spent Nuclear Fuel," 79 Fed. Reg. 56,238 (Sept. 19, 2014); Generic Environmental Impact Statement for Continued Storage of Spent Nuclear Fuel, 79 Fed. Reg. 56,263 (Sept. 19, 2014); Generic Environmental Impact Statement for Continued Storage of Spent Nuclear Fuel, NUREG-2157, Vols. 1 and 2 (Sept. 2014) (ADAMS Accession Nos. ML14196A105 and ML14196A107).

<sup>36</sup> *Calvert Cliffs*, CLI-14-8, 80 NRC at 79-80.

<sup>37</sup> Order (Denying Motion to Admit Waste Confidence Contention) (Oct. 6, 2014) at 3 (unpublished).

<sup>38</sup> See Ex. NRC000004, NRC Staff Responses to Commission Pre-Hearing Questions (Jan. 14, 2015) at 42-43 (Staff Responses to Initial Pre-Hearing Questions) (citing Consideration of New Information Regarding the Impacts of the Continued Storage of Spent Fuel for the Fermi Nuclear Power Plant, Unit 3, Combined License Application (Nov. 20, 2014) (ADAMS Accession No. ML14318A477) (Staff's New and Significant Information Analysis)).

<sup>39</sup> *Id.* at 43 (citing Staff's New and Significant Information Analysis).

<sup>40</sup> *Id.*

<sup>41</sup> Intervenor's Motion for Leave to File a New Contention Concerning the Absence of Required Waste Confidence Safety Findings in the Combined Operating Licensing Proceeding for Fermi 3 Nuclear Power Plant (Sept. 29, 2014); Petition to Suspend Final Decisions in All Pending Reactor Licensing Proceedings Pending Issuance of Waste Confidence Safety Findings (Sept. 29, 2014) (errata Oct. 1, 2014; amended and corrected petition Oct. 6, 2014).

dismissed the proposed “waste confidence safety contention,” and denied the suspension petitions.<sup>42</sup>

Finally, Beyond Nuclear, a party to the contested proceeding, joined a group of petitioners in a multidocket petition to supplement the environmental impact statements for a number of applications, including DTE’s combined license application for Fermi Unit 3, to incorporate by reference the analysis in the Generic Environmental Impact Statement for Continued Storage.<sup>43</sup> Beyond Nuclear also filed a new contention, accompanied by a motion to reopen the record, as a “placeholder” to permit it to challenge the Staff’s Final Environmental Impact Statement for Fermi Unit 3 (FEIS) assuming that Beyond Nuclear is successful in its pending challenge to the Continued Storage Rule in the D.C. Circuit.<sup>44</sup> We denied the petition to supplement and declined to admit Beyond Nuclear’s “placeholder” contention.<sup>45</sup> The Board has terminated its jurisdiction.<sup>46</sup>

#### D. Uncontested Proceeding

The scope of an uncontested proceeding is defined by the scope of the contested proceeding: all of the safety and environmental issues in DTE’s combined

<sup>42</sup> *DTE Electric Co.* (Fermi Nuclear Power Plant, Unit 3), CLI-15-4, 81 NRC 221, 223-24, 225 (2015); *DTE Electric Co.* (Fermi Nuclear Power Plant, Unit 3), CLI-14-9, 80 NRC 147, 149-50 (2014). Some of the parties challenging DTE’s application in the contested proceeding also joined other multidocket suspension petitions that we later denied. See *DTE Electric Co.* (Fermi Nuclear Power Plant, Unit 3), CLI-14-7, 80 NRC 1, 5 & n.11, 10 (2014) (denying suspension request that would have halted final licensing decisions pending action on a petition for rulemaking regarding the Staff’s review of the potential expedited transfer of spent fuel from pools to dry casks); *Union Electric Co.* (Callaway Plant, Unit 2), CLI-11-5, 74 NRC 141, 146, 177-78 (2011) (requesting suspension of proceedings and other relief after the March 11, 2011, accident at Fukushima Dai-ichi).

<sup>43</sup> See Petition to Supplement Reactor-Specific Environmental Impact Statements to Incorporate by Reference the Generic Environmental Impact Statement for Continued Spent Fuel Storage (Jan. 28, 2015).

<sup>44</sup> Beyond Nuclear’s Motion to Reopen the Record of Combined License Proceeding for Fermi Unit 3 Nuclear Power Plant (Feb. 12, 2015) at 1-2; Beyond Nuclear’s Hearing Request and Petition to Intervene in Combined License Proceeding for Fermi Unit 3 Nuclear Power Plant (Feb. 12, 2015) at 1-3. See generally *New York v. NRC*, Nos. 14-1210, 14-1212, 14-1216, and 14-1217 (Consolidated) (D.C. Cir.) (Beyond Nuclear filed its petition for review in the D.C. Circuit on October 29, 2014).

<sup>45</sup> *DTE Electric Co.* (Fermi Nuclear Power Plant, Unit 3), CLI-15-10, 81 NRC 535 (2015); CLI-15-12, 81 NRC 551 (2015).

<sup>46</sup> LBP-15-12, 81 NRC 452 (2015); see also *Virginia Electric and Power Co.* (North Anna Power Station, Unit 3), CLI-12-14, 75 NRC 692, 693, 699-701 (2012). As the Board observed, a number of matters remained pending before the Commission after the Board resolved the final contention pending before it. LBP-15-12, 81 NRC at 454-55. To clarify an understandable point of confusion, the Board’s jurisdiction terminates when there are no longer any contested matters pending before it. In this instance, the Board’s jurisdiction terminated when we exercised supervisory authority over the “waste confidence safety contention” in CLI-14-9.

license application, except for the contested matters, are subject to our review in the uncontested proceeding.<sup>47</sup> Before we held the first mandatory hearings for combined license applications, we directed the Staff to provide us with an information paper on its review of each application at the time the Staff issues its final safety or environmental review document.<sup>48</sup> The Staff issued the FEIS for Fermi Unit 3 in January 2013 and the final Safety Evaluation Report (SER) in November 2014, which triggered the start of the uncontested portion of this proceeding.<sup>49</sup> We received the Staff's information paper on November 20, 2014, shortly after the Staff's issuance of the SER.<sup>50</sup>

### *1. Prehearing Activities*

We issued the Notice of Hearing on December 1, 2014, and set the schedule for the parties — the Staff and DTE — to file their lists of witnesses, as well as for DTE to provide its prefiled testimony.<sup>51</sup> We also issued several questions on environmental and safety-related topics to DTE and the Staff to answer in writing before the hearing.<sup>52</sup> In addition, we invited interested states, local government bodies, and federally recognized Indian tribes and Canadian Provinces, local government bodies, and First Nations to provide statements of issues for us to consider as part of the uncontested proceeding.<sup>53</sup> We received one response from

<sup>47</sup> See Notice of Hearing, 79 Fed. Reg. at 72,216.

<sup>48</sup> See generally Staff Requirements — SECY-10-0082 — Mandatory Hearing Process for Combined License Application Proceedings Under 10 C.F.R. Part 52 (Dec. 23, 2010) at 1-2 (ADAMS Accession No. ML103570203) (SRM-SECY-10-0082).

<sup>49</sup> See Ex. NRC0000010A to NRC0000010D, Environmental Impact Statement for the Combined License (COL) for Enrico Fermi Unit 3 (Final Report), NUREG-2105, Vols. 1-4 (Jan. 2013) (FEIS); Ex. NRC0000008A to NRC0000008B, Final Safety Evaluation Report for the Fermi 3 Combined License Application (Nov. 18, 2014) (SER). Portions of the SER contain sensitive unclassified nonsafeguards information and are not publicly available.

<sup>50</sup> See Ex. NRC000001, Staff Information Paper at 1.

<sup>51</sup> Notice of Hearing, 79 Fed. Reg. at 72,216. The Staff's information paper serves as its prefiled testimony.

<sup>52</sup> See Order of the Secretary (Transmitting Additional Pre-Hearing Questions) (Jan. 16, 2015) (unpublished) (Transmission-Line Corridor Questions); Order of the Secretary (Transmitting Pre-Hearing Questions) (Dec. 30, 2014) (unpublished) (Initial Pre-Hearing Questions). We also issued a question that contains sensitive unclassified nonsafeguards information and was therefore filed on the nonpublic docket for the proceeding. The parties' responses to that question were likewise filed on the nonpublic docket.

<sup>53</sup> Notice of Hearing, 79 Fed. Reg. at 72,216-17.

the Delaware Nation, which stated that it declined to participate because the Fermi Unit 3 project does not lie within its area of interest.<sup>54</sup>

## 2. *The Hearing*

The Secretary of the Commission transmitted a scheduling note to DTE and the Staff setting the topics for and the order of presentations at the hearing.<sup>55</sup> In the first panel, witnesses for DTE and the Staff provided an overview of DTE's combined license application and the Staff's review. The next two panels focused on safety-related issues, and the final two panels focused on environmental issues.

The Staff made available seventy-eight witnesses at the hearing.<sup>56</sup> Twelve of these witnesses were scheduled panelists; the remainder stood by to answer questions on topics relating to their expertise.<sup>57</sup> A total of twelve witnesses offered testimony on behalf of DTE on panels at the hearing and in prefiled written testimony.<sup>58</sup>

### a. *Summary of the Overview Panels*

Peter Smith, Director of Nuclear Development for DTE, and Ron May, Sr., Executive Vice President of DTE, represented DTE on the overview panel.<sup>59</sup> Mr. Smith provided background on the development of DTE's license application, including DTE's decision to pursue a combined license, its selection of the ESBWR for the reactor design, and the selection of the Fermi site.<sup>60</sup> He also provided an overview description of the Fermi site and the features of the ESBWR.<sup>61</sup>

<sup>54</sup> E-mail from Corey Smith, Assistant Director, Delaware National Cultural Preservation, to Hearing Docket, NRC (Jan. 20, 2015) (ADAMS Accession No. ML15022A627). The Delaware Nation requested, however, that "should th[e] project inadvertently uncover an archaeological site or object(s)" that "you halt all construction and ground disturbance activities and immediately contact the appropriate state agencies, as well as our office (within 24 hours)." *Id.*

<sup>55</sup> See Vietti-Cook, Annette, Secretary of the Commission, Memorandum to Counsel for DTE and the Staff (Jan. 30, 2015) (Scheduling Note) (revising the scheduling note issued on January 22, 2015).

<sup>56</sup> See Staff Witness List at 1-3; Tr. at 14-15.

<sup>57</sup> See Scheduling Note at 1-5; Tr. at 14-15.

<sup>58</sup> See Ex. DTE000004, Applicant's Witness List for the Fermi Unit 3 Hearing on Uncontested Issues (Jan. 14, 2015); Tr. at 12-13, 132-33; Ex. DTE000001, Applicant's Pre-filed Written Testimony in Support of the Hearing on Uncontested Issues for Fermi Unit 3 (Jan. 14, 2015) (DTE Pre-filed Testimony).

<sup>59</sup> Tr. at 18.

<sup>60</sup> See Ex. DTE000005, Fermi 3, Combined License Mandatory Hearing, Introduction & Overview (Jan. 28, 2015) at 1-4 (DTE Overview Presentation); *see also* Tr. at 19-33.

<sup>61</sup> See Ex. DTE000005, DTE Overview Presentation at 5-9.



Glenn Tracy, Director of the Office of New Reactors, Frank Akstulewicz, Director of the Division of New Reactor Licensing in the Office of New Reactors, and Mark Delligatti, Deputy Director of the Division of New Reactor Licensing in the Office of New Reactors, provided background on the Staff's review of the Fermi Unit 3 combined license application.<sup>62</sup> In particular, Mr. Akstulewicz described the "design-centered review approach," a review methodology that we have endorsed, where the Staff performs a single technical review for standard issues involving a particular design that are then applied to other combined license applications referencing the same design.<sup>63</sup> When DTE submitted its application, the combined license application for a new nuclear plant at the North Anna Power Station was designated as the "reference application," the "Reference COL" or "RCOL," for the ESBWR design-centered review.<sup>64</sup> DTE was a "subsequent application," "Subsequent COL" or "SCOL."<sup>65</sup> In May 2010, the Fermi application took over as the reference application after the North Anna applicant selected a different reactor design.<sup>66</sup> The Staff verified that the standard content in the North Anna safety evaluation report directly applied to Fermi Unit 3, and DTE provided information to address the open items in that report.<sup>67</sup> Mr. Akstulewicz completed his testimony with a summary of the Staff's findings under 10 C.F.R. § 52.97(a).<sup>68</sup> Mr. Delligatti provided background on the Staff's environmental review, including a summary of the Staff's findings in accordance with NEPA § 102(2)(A), (C), and (E) and 10 C.F.R. § 51.107(a).<sup>69</sup>

*b. Summary of the Safety Panels*

The first safety panel focused on the soil-structure interaction and seismic analyses for Fermi Unit 3.<sup>70</sup> Peter Smith testified for DTE.<sup>71</sup> With him on the panel were Javad Moslemian, Engineering Manager, Sargent and Lundy, and

<sup>62</sup> See Tr. at 48.

<sup>63</sup> Ex. NRC000011, Combined License Application Review, Fermi 3, Overview (Jan. 28, 2015) at 5 (Staff Overview Presentation); Tr. at 53-54; see also *Summer*, CLI-12-9, 75 NRC at 427 & n.17 (discussing the design-centered review approach with respect to the AP1000 reactor design).

<sup>64</sup> Ex. NRC000011, Staff Overview Presentation at 6-7.

<sup>65</sup> *Id.*

<sup>66</sup> Tr. at 54 (Mr. Akstulewicz).

<sup>67</sup> Ex. NRC000011, Staff Overview Presentation at 8.

<sup>68</sup> *Id.* at 11-13.

<sup>69</sup> Tr. at 58-65; Ex. NRC000011, Staff Overview Presentation at 14-20.

<sup>70</sup> See Ex. DTE000006, Fermi 3 COLA, Combined License Mandatory Hearing, Safety — Panel 1 (Jan. 28, 2015) (DTE Safety Panel 1 Presentation); Ex. NRC000012, Combined License Application Review, Fermi 3, Safety Panel 1 (Jan. 28, 2015) (Staff Safety Panel 1 Presentation).

<sup>71</sup> Tr. at 83-85.



Steven Thomas, Engineering Manager, Black and Veatch.<sup>72</sup> Adrian Muniz, Lead Project Manager for the Fermi Unit 3 Application Review, Licensing Branch 3, Office of New Reactors, Sara Tabatabai, Seismologist, Structural, Geotechnical and Seismic Engineering Branch, Office of Research, and Manas Chakravorty, Senior Structural Engineer, Structural Engineering Branch 2, Office of New Reactors, provided testimony for the Staff.<sup>73</sup> In addition to the soil-structure interaction and seismic analyses, the first ten chapters of the Fermi 3 SER were subject to our examination during the first safety panel.<sup>74</sup>

The second safety panel focused on Fermi SER Chapter 20, which covered the Staff's activities relating to recommendations from the Near-Term Task Force established in response to the accident at Fukushima Dai-ichi on March 11, 2011, and the discussion of Fukushima-related regulatory actions in DTE's application and the Staff's SER.<sup>75</sup> Peter Smith provided testimony for DTE, with David Hinds, Technical Engineering Manager, GE-Hitachi, and Steven Thomas, Black and Veatch, on the panel.<sup>76</sup> Adrian Muniz, Angelo Stubbs, Senior Reactor Systems Engineer, Plant Systems Branch, Office of New Reactors, Raul Hernandez, Reactor Systems Engineer, Plant Systems Branch, Office of New Reactors, and Dan Barss, Team Leader, Division of Preparedness and Response, Office of Nuclear Security and Incident Response, provided testimony for the Staff.<sup>77</sup> Chapters 11 through 19 of the Fermi 3 SER were also subject to our examination during the second safety panel.<sup>78</sup>

*c. Summary of the Environmental Panels*

The first environmental panel provided an overview of the Staff's review process for the Fermi Unit 3 FEIS, including a summary of its development, the Staff's analysis of alternatives, and a summary of the Staff's conclusions and recommendations.<sup>79</sup> Peter Smith testified for DTE, with Randall Westmoreland,

<sup>72</sup> Tr. at 82; Scheduling Note at 2.

<sup>73</sup> Tr. at 85-92; Scheduling Note at 2. During her review of DTE's application, Ms. Tabatabai worked in the Office of New Reactors. Tr. at 87.

<sup>74</sup> Scheduling Note at 2-3.

<sup>75</sup> See Ex. DTE000007, Fermi 3, Combined License Mandatory Hearing, Safety — Panel 2 (Jan. 28, 2015) (DTE Safety Panel 2 Presentation); Ex. NRC000013, Combined License Application Review, Fermi 3, Safety Panel 2 (Jan. 28, 2015) (Staff Safety Panel 2 Presentation).

<sup>76</sup> Tr. at 114; Scheduling Note at 3.

<sup>77</sup> Tr. at 116-17; Scheduling Note at 3.

<sup>78</sup> Scheduling Note at 3.

<sup>79</sup> See Scheduling Note at 4; Ex. DTE000008, Fermi 3, Combined License Mandatory Hearing, Environmental Overview — Panel 1 (Jan. 28, 2015) (DTE Environmental Panel 1 Presentation); Ex. NRC000014, Combined License Application Review, Fermi 3, Environmental Panel 1 (Jan. 28, 2015) (Staff Environmental Panel 1 Presentation).

Technical Expert and Environmental Lead, DTE, and Steven Thomas from Black and Veatch.<sup>80</sup> Jennifer Dixon-Herrity, Chief of the Environmental Projects Branch in the Office of New Reactors, Mallecia Sutton, Lead Environmental Project Manager, Environmental Projects Branch, Office of New Reactors, and Andrew Kugler, Senior Environmental Project Manager, Technical Support Branch, Office of New Reactors, provided testimony for the Staff.<sup>81</sup> The second environmental panel focused on compliance with the National Historic Preservation Act with regard to the permanently shutdown Fermi Unit 1, which DTE plans to demolish, as well as interactions between the Staff and international organizations over the course of the Staff's environmental review.<sup>82</sup> The same witnesses for the first environmental panel testified for the second environmental panel.<sup>83</sup>

### 3. *Post-Hearing Questions*

After the hearing, we issued additional questions for written answers from DTE and the Staff.<sup>84</sup> In addition to admitting DTE's and the Staff's responses as exhibits, as well as additional exhibits from DTE, we adopted corrections to the hearing transcript.<sup>85</sup> In its response to our post-hearing questions, the Staff provided a clarification to its hearing testimony.<sup>86</sup> The Staff also filed four additional exhibits — NRC000018, NRC000019, NRC000020, and NRC000021 — relating to recent Staff activities under the Endangered Species Act.<sup>87</sup> We admit these exhibits and close the evidentiary record for the uncontested hearing.

<sup>80</sup> Tr. at 139; Scheduling Note at 4.

<sup>81</sup> Tr. at 142; Scheduling Note at 5.

<sup>82</sup> See Ex. DTE000009, Fermi 3, Combined License Mandatory Hearing, Environmental Overview — Panel 2 (Jan. 28, 2015) (DTE Environmental Panel 2 Presentation); Ex. NRC000015, Combined License Application Review, Fermi 3, Environmental Panel 2 (Jan. 28, 2015) (Staff Environmental Panel 2 Presentation).

<sup>83</sup> Tr. at 180.

<sup>84</sup> Order of the Secretary (Transmitting Post-Hearing Questions) (Feb. 11, 2015) (unpublished).

<sup>85</sup> Transcript Correction Order at 1.

<sup>86</sup> Ex. NRC000017, NRC Staff Responses to Commission Post-Hearing Questions (Feb. 19, 2015) at 1 (Staff Responses to Post-Hearing Questions). Although we allow this clarification, which reiterated statements in the Staff's response to Prehearing Question 33, Ex. NRC000004, Staff Responses to Initial Pre-Hearing Questions at 30, we remind the Staff that when a party requests action from the presiding officer in an NRC adjudicatory proceeding, the request must come in the form of a motion. See 10 C.F.R. § 2.323.

<sup>87</sup> See Roach, Kevin C., Counsel for the Staff, Letter to the Commissioners (Apr. 5, 2015) at 1 (April 5 Commission Notification); Ex. NRC000018, Supplemental Biological Assessment, U.S. Fish and Wildlife Service, Enrico Fermi Unit 3 Combined License Application (Feb. 2015) (Supplemental Biological Assessment); Ex. NRC000019, Hicks, Scott, U.S. Fish and Wildlife Service, Letter to

(Continued)

## II. DISCUSSION

### A. Site-Specific Issues Addressed in the Proceeding

Although our review encompassed the entire application, we discuss here a brief selection of the topics discussed at the hearing and in responses to written questions before and after the hearing.

#### 1. Safety-Related Issues

##### a. Soil-Structure-Interaction Analysis

The first safety issue that the Staff identified in its information paper and the first safety topic discussed at the hearing involved the soil-structure-interaction analysis for the Fermi site.<sup>88</sup> The design control document for the ESBWR is based on a generic set of site parameters. When evaluating an application that references the ESBWR for a specific site, the Staff focuses on whether the characteristics of the specific site fall within the parameters specified in the design control document.<sup>89</sup> As the Staff explained in its information paper, the partial bedrock embedment of the Reactor Building/Fuel Building and Control Building structures at the Fermi 3 site “deviates from the foundation configurations considered in the ESBWR [design control document]. In addition, the Fermi 3 site does not meet the minimum backfill shear wave velocity requirement of the ESBWR [design control document].”<sup>90</sup> Consequently, “site-specific soil structure interaction . . . analyses need[ed] to be performed to confirm that the certified design is adequate for the site.”<sup>91</sup> DTE thus provided analyses to address these issues.<sup>92</sup>

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Jennifer L. Dixon-Herrity, NRC (Mar. 23, 2015) (March 23 Letter from the Fish and Wildlife Service); Roach, Kevin C., Counsel for the Staff, Letter to the Commissioners (Apr. 29, 2015), at 1 (April 29 Commission Notification); Ex. NRC000020, Supplemental Biological Assessment to the U.S. Fish and Wildlife Service for the Enrico Fermi Unit 3 Combined License Application (Apr. 3, 2015) (Supplemental Biological Assessment (Northern Long-Eared Bat)); Ex. NRC000021, Hicks, Scott, U.S. Fish and Wildlife Service, Letter to Jennifer L. Dixon-Herrity, NRC (Apr. 28, 2015) (April 28 Letter from the Fish and Wildlife Service); *see also* Smith, Tyson R., Counsel for DTE, Letter to the Commissioners (Apr. 10, 2015), at 1-2. The exhibits were not accompanied by a motion. *See supra* note 86. Nevertheless, DTE has not opposed their admission and we find that they further contribute to the record.

<sup>88</sup> *See* Ex. NRC000001, Staff Information Paper at 14; Tr. at 83 (Mr. Smith).

<sup>89</sup> *See* Ex. NRC000001, Staff Information Paper at 14; *see also* 10 C.F.R. § 52.79(d)(1) (requiring applicants referencing a certified design to provide sufficient information for the Staff to determine whether the site’s characteristics fall within the design’s parameters).

<sup>90</sup> Ex. NRC000001, Staff Information Paper at 14; *see also* Ex. DTE000006, DTE Safety Panel 1 Presentation at 3 (depicting partial embedment and backfill).

<sup>91</sup> Ex. NRC000001, Staff Information Paper, at 14.

<sup>92</sup> *Id.*; Tr. at 83 (Mr. Smith).

At the hearing, Peter Smith, testifying for DTE, explained that because the timing of its analyses coincided with the Staff's post-Fukushima activities, DTE voluntarily updated its soil-structure-interaction analyses using inputs from the Central and Eastern U.S. Seismic Source Characterization for Nuclear Facilities (CEUS-SSC).<sup>93</sup> DTE also added margin to these inputs. DTE provided the results of its analyses, showing that the Fermi Unit 3 foundation response spectra using the updated inputs as well as updated inputs with added margin fell within the seismic design response spectra for the ESBWR.<sup>94</sup> DTE also provided comparisons of the in-structure response spectra and concluded that the ESBWR certified design envelopes the Fermi 3 site with "considerable margin."<sup>95</sup> The Staff reviewed DTE's analyses, performed additional analyses, and "confirmed that at the Fermi 3 site, the site-specific seismic demand is bounded by the [ESBWR design control document] analyses."<sup>96</sup> The Staff concluded that DTE provided sufficient information to demonstrate the suitability of the ESBWR for the Fermi site.<sup>97</sup>

*b. Regulatory Treatment of Non-Safety Systems Equipment*

In another area that focused on features of the ESBWR design and their applicability to the Fermi site, we asked prehearing questions on the protection of Regulatory Treatment of Non-Safety Systems (RTNSS) equipment from external hazards at the site.<sup>98</sup> This equipment is used to maintain core, containment, and spent fuel pool cooling after the reactor has been shut down for 72 hours

<sup>93</sup> Tr. at 83; Ex. DTE000006, DTE Safety Panel 1 Presentation at 2; *see also* Tr. at 87 (Ms. Tabatabai) (explaining that applicants like DTE were requested, not required, to consider using the updated model). The CEUS-SSC constitutes a key input to a probabilistic seismic hazard analysis. The probabilistic seismic hazard analysis is used as a method for accounting for uncertainty in seismic design and in calculating seismic risk. The seismic source characterization model describes where earthquakes will occur, how big they will be, and how often they will happen. The CEUS-SSC model includes consideration of an up-to-date database, full assessment and incorporation of uncertainties, and the range of diverse technical interpretations from the larger technical community. Central and Eastern United States Seismic Source Characterization for Nuclear Facilities, NUREG-2115, Vol. 1 (Jan. 2012), at ix-x (ADAMS Accession No. ML12048A804).

<sup>94</sup> Ex. DTE000006, DTE Safety Panel 1 Presentation at 4; Tr. at 84 (Mr. Smith).

<sup>95</sup> Tr. at 85 (Mr. Smith); *see also* Ex. DTE000006, DTE Safety Panel 1 Presentation at 5.

<sup>96</sup> Ex. NRC000001, Staff Information Paper at 14; *see also* Ex. NRC000012, Staff Safety Panel 1 Presentation at 5-6 (showing similar results between the Staff's confirmatory probabilistic seismic hazard analysis and DTE's analyses and that they are enveloped by the ESBWR certified seismic design response spectrum).

<sup>97</sup> Ex. NRC000001, Staff Information Paper at 14; Ex. NRC000012, Staff Safety Panel 1 Presentation at 10; *see also* Tr. at 89 (Ms. Tabatabai).

<sup>98</sup> Initial Pre-Hearing Questions at 6-7, 12-13.

following an accident.<sup>99</sup> RTNSS equipment is not relied on in the first instance in an accident or event; rather, the ESBWR's passive safety system performs that function.<sup>100</sup> DTE's application for Fermi Unit 3 incorporates by reference the RTNSS equipment from the ESBWR design control document; there are no departures from the ESBWR design with respect to the RTNSS equipment.<sup>101</sup> Nevertheless, we considered certain aspects of RTNSS equipment in the uncontested hearing because it may be relied on to address certain post-Fukushima mitigation strategies for beyond-design-basis external events requirements after 72 hours.<sup>102</sup> These post-Fukushima requirements are discussed further in Section C, below.

In its letter summarizing its independent review of the safety aspects of DTE's application, the ACRS noted that seismic Category NS (nonseismic) and Category II structures that house RTNSS equipment must be evaluated for hurricane-generated missiles, but it also noted that there is no corresponding requirement for tornado-generated missiles.<sup>103</sup> The ACRS expressed some concern

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<sup>99</sup> Ex. NRC000008B, SER at 20-11. "RTNSS" refers to the regulatory oversight given to items that are not safety-related but perform risk-significant functions in passive reactor designs. *See, e.g.*, Ex. NRC000008A, SER at 3-1. As the Staff explained, "[b]y definition, RTNSS [structures, systems, and components] are nonsafety equipment and should not be treated as safety-related." Ex. NRC000004, Staff Responses to Initial Pre-Hearing Questions at 14. The RTNSS concept was developed in the 1990s, in the context of the Staff's review of reactor designs with passive safety systems that also use active systems (as a backup to the passive system) to replenish coolant after a 72-hour period following an accident. The Staff sought to ensure that proper regulatory oversight was given to these systems, even though they were not safety-related, given uncertainties associated with passive safety system performance identified by the Staff. The Staff therefore determined that it "will not require that these active systems meet all the safety-related criteria, but will expect a high level of confidence that active systems which have a significant safety role are available when challenged." *See* Policy and Technical Issues Associated with the Regulatory Treatment of Non-Safety Systems (RTNSS) in Passive Plant Designs (SECY-94-084), Commission Paper SECY-95-132 (May 22, 1995), Attachment 2, at 2-3 (ADAMS Accession No. ML003708005); Staff Requirements — SECY-95-132 — Policy and Technical Issues Associated with the Regulatory Treatment of Non-Safety Systems (RTNSS) in Passive Plant Designs (SECY-94-084) (June 28, 1995) (ADAMS Accession No. ML003708019); *see also* Callan, L. Joseph, Executive Director for Operations, to Commissioners, Implementation of Staff Position in SECY-96-128, "Policy and Key Technical Issues Pertaining to the Westinghouse AP600 Standardized Passive Reactor Design," Related to Post-72 Hour Actions (June 23, 1997), at 2-3 (ADAMS Accession No. ML003708229); Policy and Key Technical Issues Pertaining to the Westinghouse AP600 Standardized Passive Reactor Design, Commission Paper SECY-96-128 (June 12, 1996) (ADAMS Accession No. ML003708224); Ex. NRC000004, Staff Responses to Initial Pre-Hearing Questions at 14.

<sup>100</sup> *See* Tr. at 96 (Mr. Nolan); Ex. NRC000004, Staff Responses to Initial Pre-Hearing Questions at 14.

<sup>101</sup> Tr. at 97 (Mr. Smith).

<sup>102</sup> Ex. NRC000008B, SER at 20-11.

<sup>103</sup> ACRS Letter at 4; *see also* ESBWR Design Control Document, Tier 2, Chapter 3, Design of  
(Continued)

that the ability of these structures to withstand tornado-driven missiles had not been evaluated either with regard to the ESBWR design or for the Fermi Unit 3 site, making it “unclear that structures . . . hous[ing] RTNSS equipment that is credited for mitigation of beyond-design-basis external events will survive” the impact of a tornado-driven missile.<sup>104</sup> Nonetheless, the ACRS acknowledged the ESBWR’s passive design and the ESBWR’s ability to maintain passive core cooling, containment functions, and spent fuel cooling for at least 72 hours after the plant is shut down.<sup>105</sup> It noted that RTNSS equipment would not be required for the first 72 hours after loss of AC power, and that equipment from national response centers could provide defense-in-depth mitigating strategies if RTNSS equipment is not available thereafter.<sup>106</sup>

In its response to our prehearing questions, the Staff explained that when it developed the policy for the protection of RTNSS equipment from certain external events in the 1990s, it required some RTNSS equipment to withstand hurricane loads and missiles, but not tornado loads or tornado missiles.<sup>107</sup> The Staff focused on the external events that could potentially result in widespread damage — hurricanes, floods, and seismic events — over the more localized damage from a tornado.<sup>108</sup> The Staff represented that it has applied this approach consistently since that time to all passive reactor designs, including the ESBWR.<sup>109</sup>

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Structures, Components, Equipment, and Systems, Rev. 10 (Apr. 2010), at 3.3-1 (ADAMS Accession No. ML14104A929 (package)) (ESBWR DCD) (“Seismic Category I structures are designed for tornado and extreme wind phenomena. Seismic Category II structures are designed for extreme and tornado wind (excluding tornado missiles),” and “Seismic Category NS buildings that house RTNSS equipment are designed to withstand hurricane Category 5 wind velocity at 87.2 m/s (195 mph), 3-second gust.”). Section 3.2.1 of the ESBWR design control document defines the seismic categories: Seismic Category I structures “must remain integral with systems and components (including their foundations and supports) that must remain functional or retain their pressure integrity in the event of a safe-shutdown earthquake.” Seismic Category II structures, systems, and components “perform no safety-related function, but . . . [their] structural failure or interaction could degrade the functioning of a Seismic Category I item to an unacceptable level of safety or could result in incapacitating injury to occupants of the main control room.” They “are designed to structurally withstand the effects of a [safe-shutdown earthquake].” “Seismic Category II structures, systems and components that are also classified as . . . [RTNSS] Criterion B in [design control document] Tables 19A-2 and 19A-3 are required to remain functional following a seismic event.” All other structures, systems, and components are designated Seismic Category NS, and “are designed for seismic requirements in accordance with the International Building Code.” ESBWR DCD at 3.2-1 to 3.2-2.

<sup>104</sup> ACRS Letter at 4.

<sup>105</sup> *See id.*

<sup>106</sup> *Id.*

<sup>107</sup> Ex. NRC000004, Staff Responses to Initial Pre-Hearing Questions at 14.

<sup>108</sup> *Id.* at 14-15.

<sup>109</sup> *Id.* at 15. In its response to the ACRS on this issue, the Staff stated that it has since updated  
(Continued)



Specifically with regard to the application for Fermi Unit 3, the RTNSS B long-term cooling equipment is located in a seismic Category I structure that is “designed to provide protection from design-basis storms, tornados, and floods” so that the effects of natural phenomena do not adversely affect long-term core and spent fuel pool cooling.<sup>110</sup> The Staff stated that the diesel-driven or motor-driven fire pumps housed within that enclosure can be used to provide makeup water to the passive safety system after the first 72 hours following an external event.<sup>111</sup> For the ancillary diesel generator, an item that is housed within a Category II structure and used to power the motor-driven fire pump, the Staff explained that the diesel-driven pumps or power sources brought from offsite could support mitigation if the structure housing the ancillary diesel generator does not survive an external event.<sup>112</sup>

*c. Staff Activities Relating to Fukushima Lessons Learned*

The Staff, in its prehearing information paper, described its review of DTE’s combined license application relative to regulatory actions that the NRC has taken in response to lessons learned from the Fukushima Dai-ichi accident.<sup>113</sup> The Staff requested DTE to “provide an evaluation of the Fermi 3 site for updated seismic hazards”; “develop mitigating strategies for beyond-design-basis external events”; “provide reliable spent fuel pool instrumentation”; and “evaluate emergency preparedness staffing and communications.”<sup>114</sup> The Staff stated that DTE provided the requested information and updated its application accordingly.<sup>115</sup> We asked the Staff a prehearing question regarding the Staff’s verification of the adequacy of DTE’s use of the Electric Power Research Institute’s (EPRI) 2004/2006 ground motion model rather than EPRI’s 2013 ground motion model to update its seismic hazard analysis.<sup>116</sup>

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its RTNSS guidance to include tornado-missiles. *See* Staff Response to ACRS at 6. The Staff was asked at the hearing whether it was concerned that the updated guidance was not used in the review of DTE’s application. Tr. at 108-09 (Commissioner Baran). Ryan Nolan, Reactor Systems Engineer, Balance of Plant Branch, Office of New Reactors, stated that the Staff had no concern and reiterated that the RTNSS equipment is not safety-related and therefore not held to the standard of safety-related equipment and that the conservatism of the new guidance may vary depending on the site. *Id.* (Mr. Nolan).

<sup>110</sup> Ex. NRC000004, Staff Responses to Initial Pre-Hearing Questions at 28; *see also* Ex. DTE000002, DTE Response to Initial Pre-Hearing Questions at 11.

<sup>111</sup> *Id.*

<sup>112</sup> *Id.*

<sup>113</sup> Ex. NRC000001, Staff Information Paper at 14-15.

<sup>114</sup> *Id.*

<sup>115</sup> *Id.* at 15.

<sup>116</sup> Initial Pre-Hearing Questions at 11-12.



In Safety Panel 2, DTE and the Staff addressed the Fukushima-related requests for additional information.<sup>117</sup> Mr. Smith for DTE stated that its responses to the Staff's information requests were primarily administrative in nature and none of them required changes to the design.<sup>118</sup> He explained that the Staff will impose license conditions for: (1) implementing mitigation strategies under the NRC-endorsed "FLEX" approach proposed by the Nuclear Energy Institute (NEI);<sup>119</sup> (2) operator training on external power for the ESBWR's spent fuel pool instrumentation; and (3) reevaluating staffing and communications for emergency preparedness.<sup>120</sup>

The Staff described three of its Fukushima-related requests for additional information and provided its findings at the hearing.<sup>121</sup> First, the Staff discussed its assessment of the agency's 2012 order imposing requirements for mitigation strategies for beyond-design-basis external events.<sup>122</sup> The Staff explained that the ESBWR passive design provides mitigation for 72 hours following a beyond-design-basis external event, or "initial phase mitigation."<sup>123</sup> Because the passive design provides mitigation for up to 72 hours without AC power, and installed RTNSS equipment could enhance the time period for transition to 7 days, the Staff found that it provides sufficient time to transition to the final stage "without necessarily relying upon a transition phase."<sup>124</sup> After that time frame, DTE will rely on the ESBWR's passive design and offsite resources to maintain cooling for the core, containment, and spent fuel pool for "final phase mitigation."<sup>125</sup> The

<sup>117</sup> See Ex. DTE000007, DTE Safety Panel 2 Presentation at 2; Ex. NRC000013, Staff Safety Panel 2 Presentation at 3-16.

<sup>118</sup> Tr. at 115.

<sup>119</sup> See NEI 06-12, *Diverse and Flexible Coping Strategies (FLEX) Implementation Guide*, Rev. 0 (Aug. 2012) (ADAMS Accession No. ML12242A378) (proposing the flexible use of onsite and offsite equipment to cope with beyond-design-basis external events). The Staff endorsed the FLEX approach in JLD-ISG-2012-01, *Interim Staff Guidance, Compliance with Order EA-12-049, Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events*, Rev. 0 (Aug. 29, 2012) (ADAMS Accession No. ML12229A174).

<sup>120</sup> *Id.* at 115-16; see also Ex. DTE000007, DTE Safety Panel 2 Presentation at 2.

<sup>121</sup> With respect to the Staff's request for additional information concerning DTE's seismic hazard analysis, DTE updated the information in its application using inputs from the Central and Eastern U.S. Seismic Source Characterization Model. Ex. NRC000001, Staff Information Paper at 15. The Staff then performed its own calculations and confirmed that DTE's updated calculations "accurately characterize the ground motion at the Fermi 3 site." *Id.*; see also *supra* notes 88-97 and accompanying text.

<sup>122</sup> Ex. NRC000013, Staff Safety Panel 2 Presentation at 3 (citing Order EA-12-049, "Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events" (ADAMS Accession No. ML12054A736 (package))).

<sup>123</sup> Tr. at 120 (Mr. Stubbs).

<sup>124</sup> Ex. NRC000008B, SER at 20-10.

<sup>125</sup> Ex. NRC000013, Staff Safety Panel 2 Presentation at 4-7; Tr. at 121 (Mr. Stubbs).

Staff concluded that the Fermi 3 mitigating strategies provide the core cooling, containment, and spent fuel pool cooling capabilities required in the mitigation strategies order.<sup>126</sup> The Staff also discussed the proposed license condition that would require DTE to implement the guidance and strategies in the NEI “FLEX” plan prior to fuel load.<sup>127</sup>

Second, with regard to spent fuel pool instrumentation, the Staff explained that the ESBWR design provides instruments that measure the level of water in the spent fuel pool which are full-range, safety-related, Seismic Category I, and permanently installed. The instruments are also protected from internally and externally generated missiles, physically separated from each other, and powered from separate power sources.<sup>128</sup> The ESBWR level instrument description will include “independent power source connectivity and instrument design accuracy.”<sup>129</sup> The Staff proposed a license condition that would require DTE to implement a training program on establishing the alternate power connections to the level instruments.<sup>130</sup>

Finally, the Staff discussed the license condition that it would impose to ensure that DTE performs an assessment of communications systems and equipment needed during a prolonged station blackout and the staffing capability needed to respond to a multiunit event.<sup>131</sup> DTE would need to complete this assessment 18 months before the last date scheduled for completing the inspections, tests, analyses, and acceptance criteria (ITAAC) in the combined license.<sup>132</sup> The Staff found this approach acceptable because it would be imposed as a condition in the license and because DTE committed to using NRC-endorsed guidance when conducting its assessment.<sup>133</sup>

#### *d. Emergency Planning*

In its prehearing information paper, the Staff identified the proximity of the Fermi site to the Canadian border as a novel issue in its environmental review.<sup>134</sup> We considered this issue in the context of the safety review as well and asked the Staff prehearing questions in recognition of the fact that the Canadian border lies

<sup>126</sup> Tr. at 121 (Mr. Stubbs).

<sup>127</sup> *Id.* (Mr. Stubbs); Ex. NRC000013, Staff Safety Panel 2 Presentation at 9.

<sup>128</sup> Ex. NRC000013, Staff Safety Panel 2 Presentation at 11; Tr. at 122 (Mr. Hernandez).

<sup>129</sup> Ex. NRC000013, Staff Safety Panel 2 Presentation at 11.

<sup>130</sup> *Id.* at 12; Tr. at 123 (Mr. Hernandez).

<sup>131</sup> Ex. NRC000013, Staff Safety Panel 2 Presentation at 13.

<sup>132</sup> *Id.* at 15. The Staff modified the license condition proposed by DTE from a completion date of 2 years before initial fuel load. *Id.*

<sup>133</sup> *Id.* at 15-16; Tr. at 124 (Mr. Barss).

<sup>134</sup> Ex. NRC000001, Staff Information Paper at 17-19.

within the 10-mile emergency planning zone for Fermi Unit 3.<sup>135</sup> In particular, we asked whether NRC regulations require an applicant to make protective action recommendations to Canadian officials in the event of an emergency at the Fermi site.<sup>136</sup> In addition, we asked how protective action recommendations to state, local, or provincial officials would be made regarding members of the public (for example, boaters) within the United States and Canadian portions of the plume exposure pathway emergency planning zone.<sup>137</sup> We also asked how the proximity of proposed Fermi Unit 3 to Canada affected the Staff's emergency planning review overall.<sup>138</sup>

In response, the Staff noted that the NRC's emergency planning regulations do not address areas outside of the United States and therefore there is no requirement for DTE to make protective action recommendations to Canada.<sup>139</sup> The Staff explained, however, that DTE's emergency plan takes the Canadian border into account. It provides for an initial notification to the Province of Ontario, Canada, in several circumstances: in the event of an initial emergency classification; a classification escalation; the issuance of, or change to, a protective action recommendation for the general public; the state of a radiological release status; and event de-escalation, termination, or entry into recovery phase.<sup>140</sup> The Staff also stated that state and local officials are responsible for implementing protective action recommendations and that if informed of a general emergency, the State of Michigan would request assistance from the U.S. Coast Guard (through the National Response Framework) for protective actions affecting activities on Lake Erie, including Canadian waters.<sup>141</sup> The Province of Ontario and the appropriate local officials would be responsible for implementing protective actions in the Province and would respond in accordance with the Provincial Nuclear Emergency Response Plan.<sup>142</sup> In addition, the Staff noted that our agency and the Canadian Nuclear Safety Commission have formally agreed to notify each other "promptly of any significant radiological event, accident, or emergency that occurs in activities under . . . [our] respective jurisdictions."<sup>143</sup> The Staff stated that its review "was not materially affected by the proximity to Canada."<sup>144</sup>

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<sup>135</sup> Initial Pre-Hearing Questions at 3-4.

<sup>136</sup> *Id.* at 3.

<sup>137</sup> *Id.*

<sup>138</sup> *Id.*

<sup>139</sup> Ex. NRC000004, Staff Responses to Initial Pre-Hearing Questions at 4-5.

<sup>140</sup> *Id.* at 5.

<sup>141</sup> *Id.* at 6.

<sup>142</sup> *Id.* at 5-6.

<sup>143</sup> *Id.* at 5 (citing "Arrangement Between USNRC and CNSC for the Exchange of Technical Information and Cooperation in Nuclear Safety Matters" (ADAMS Accession No. ML12152A096)).

<sup>144</sup> *Id.*

e. *Squib Valves*

We also asked the Staff to discuss its review of squib valves, which were the topic of considerable discussion during the mandatory hearings for the Vogtle and Summer combined license applications, which referenced the AP1000 certified design.<sup>145</sup> This topic was of particular focus for the *Vogtle* and *Summer* hearings because the inservice testing and inspection program for squib valves in those applications would have relied on an American Society of Mechanical Engineers (ASME) code provision that was still under development at the time.<sup>146</sup>

In the event of a severe accident in an AP1000, squib valves, which are explosively activated, reduce pressure and inject water as needed into the reactor vessel.<sup>147</sup> The squib valves are subject to ITAAC specified in the AP1000 DCD. The purpose of the testing program required by ITAAC is to ensure that the valves operate as intended under design conditions.<sup>148</sup> Although we found the Staff's review of the Vogtle and Summer applications rigorous, we shared a concern initially raised by ACRS regarding the status of the inservice inspection/in-service testing program for this component and imposed a condition in the Vogtle and Summer licenses that requires the implementation of a squib-valve surveillance program prior to fuel load.<sup>149</sup>

The Vogtle and Summer applications and the Fermi Unit 3 application reference entirely different reactor designs: the Vogtle and Summer applications referenced the AP1000 certified design, and the Fermi Unit 3 application, as discussed above, references the ESBWR certified design. Nevertheless, the ESBWR also uses squib valves as part of its passive safety system, and the Staff has proposed a license condition, based on the experience licensing Vogtle and Summer, that would require a surveillance program for squib valves prior to fuel load to supplement the inservice testing requirements.<sup>150</sup> We asked the Staff a prehearing question on this issue; the Staff also provided testimony at the hearing.<sup>151</sup>

The Staff explained that the 2012 edition of the ASME code, which the Staff is in the process of incorporating by reference into 10 C.F.R. § 50.55a, includes

<sup>145</sup> See *Vogtle*, CLI-12-2, 75 NRC at 90-96; *Summer*, CLI-12-9, 75 NRC at 460-64.

<sup>146</sup> *Vogtle*, CLI-12-2, 75 NRC at 91; *Summer*, CLI-12-9, 75 NRC at 461.

<sup>147</sup> See *Vogtle*, CLI-12-2, 75 NRC at 90; *Summer*, CLI-12-9, 75 NRC at 461.

<sup>148</sup> See *Vogtle*, CLI-12-2, 75 NRC at 90; *Summer*, CLI-12-9, 75 NRC at 461.

<sup>149</sup> *Vogtle*, CLI-12-2, 75 NRC at 93-95; *Summer*, CLI-12-9, 75 NRC at 461-63.

<sup>150</sup> Tr. at 98-99 (Mr. Scarbrough) (explaining that there is a wider size range of squib valves in the ESBWR than in the AP1000); Ex. NRC000008A, SER at 3-88 to 3-90; Ex. NRC000002, Draft Combined License, Enrico Fermi Nuclear Plant Unit 3, DTE Electric Company, Docket No. 52-033 (Dec. 4, 2014), at 12-14 (Draft Combined License).

<sup>151</sup> Initial Pre-Hearing Questions at 9-10; Tr. at 98-100.

preservice and inservice surveillance provisions for squib valves.<sup>152</sup> After the rule-making is completed, licensees for new reactors will be required to comply with the ASME code surveillance provisions under 10 C.F.R. § 50.55a(f)(4)(i).<sup>153</sup> Until that time, however, the surveillance provisions will be imposed by a condition in the license.<sup>154</sup> At the hearing, Thomas Scarbrough, Senior Mechanical Engineer, Mechanical Engineering Branch, Office of New Reactors, explained that the proposed license condition for Fermi Unit 3 has more specific requirements than the ASME code provision.<sup>155</sup> He stated that the license condition specifically requires surveillance of squib valves in the gravity-driven cooling system and the automatic depressurization system but that it is consistent with the ASME code provision.<sup>156</sup>

*f. Knowledge Management*

DTE has not set a date to begin construction of Fermi Unit 3 and has acknowledged that construction may not begin immediately after the issuance of a license for Fermi Unit 3.<sup>157</sup> At the hearing, we explored DTE's and the Staff's plans to maintain the knowledge gained during the combined license review, should DTE receive our approval for a license and wait for some period of months or years to begin construction.<sup>158</sup> DTE and the Staff were asked to address the challenges they see, if any, in preserving knowledge between receipt of a combined license and future construction.<sup>159</sup>

Mr. Smith for DTE explained that over the past 2 years DTE has been in the process of establishing a "holder project" that will provide the "infrastructure" to comply with NRC requirements as a licensee "for an indefinite period of time," including funds in its "long-term planning budget."<sup>160</sup> Mr. Smith also explained that the continued operation of Fermi Unit 2 provides a "ready pool of resource[s]."<sup>161</sup>

Mr. Tracy, responding for the Staff, explained that the question goes to the heart of the Staff's plans for the future of the new reactor program.<sup>162</sup> He acknowledged

<sup>152</sup> Ex. NRC000004, Staff Responses to Initial Pre-Hearing Questions at 19.

<sup>153</sup> *Id.*; Tr. at 100 (Mr. Scarbrough).

<sup>154</sup> Ex. NRC000004, Staff Responses to Initial Pre-Hearing Questions at 19.

<sup>155</sup> Tr. at 99.

<sup>156</sup> *Id.*; *see also* Ex. NRC000004, Staff Responses to Initial Pre-Hearing Questions at 20.

<sup>157</sup> *See* Tr. at 209 (Mr. Smith).

<sup>158</sup> *See id.* at 209-12.

<sup>159</sup> Tr. at 209 (Chairman Burns).

<sup>160</sup> *Id.* at 209-10.

<sup>161</sup> *Id.* at 210.

<sup>162</sup> *See id.*

the need to retain knowledge and experience between NRC Headquarters and NRC Region II for license issuance and proper oversight.<sup>163</sup> Mr. Akstulewicz expanded on this response, breaking down the knowledge-management issue into two time periods — the near term (5 years) and the long term (beyond 5 years).<sup>164</sup> Over the next 5 years, Mr. Akstulewicz stated that the Staff will remain busy working through the detailed design of the ESBWR as the licensing review continues for the North Anna combined license application, whose applicant is again referencing the ESBWR design.<sup>165</sup> Beyond that time frame, as DTE provides its regular updates to the Final Safety Analysis Report (FSAR), Mr. Akstulewicz stated that the Staff will need to ensure that knowledge and staffing resources are maintained to address potentially evolving technical issues.<sup>166</sup>

## 2. *Environmental Issues*

### a. *Historic Preservation of Fermi Unit 1*

The Staff identified two novel environmental issues in its information paper that it discussed at the hearing — the historic preservation of Fermi Unit 1, and the Staff's interaction with international organizations due to the Fermi site's proximity to the Canadian border.<sup>167</sup> DTE's plans for constructing Fermi Unit 3 require the demolition of Fermi Unit 1, a prototype 94-megawatt electric fast breeder reactor that began commercial operation in 1957 and was permanently shut down in 1972.<sup>168</sup> The American Nuclear Society designated Fermi Unit 1 as a Nuclear Historic Landmark in 1986.<sup>169</sup> In addition, Fermi Unit 1 is eligible for listing in the National Register of Historic Places.<sup>170</sup>

As part of its compliance with section 106 of the National Historic Preservation Act, the Staff determined that “if demolition of Fermi Unit 1 is required to build Fermi 3, this will result in a finding of adverse effect under [the] applicable

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<sup>163</sup> *Id.*

<sup>164</sup> *Id.* at 211.

<sup>165</sup> *Id.*

<sup>166</sup> *Id.* at 212.

<sup>167</sup> Ex. NRC000001, Staff Information Paper at 16-19. The Staff also discussed its implementation of the Continued Storage Rule, but this became a potentially contested issue after the Staff submitted its paper and responded to prehearing questions on the topic. *See* Ex. NRC000001, Staff Information Paper at 19-20; Ex. NRC000004, Staff Responses to Initial Pre-Hearing Questions at 42-44. The parties were asked not to discuss the issue at the uncontested hearing. Tr. at 176-77 (Chairman Burns).

<sup>168</sup> Tr. at 180-81 (Ms. Sutton).

<sup>169</sup> Tr. at 181 (Ms. Sutton); Ex. NRC000015, Staff Environmental Panel 2 Presentation at 2.

<sup>170</sup> Ex. NRC000015, Staff Environmental Panel 2 Presentation at 2.



... criteria in 36 CFR [§] 800.5.”<sup>171</sup> The Staff, the Michigan State Historic Preservation Officer, and DTE entered into a memorandum of agreement to mitigate the adverse effect finding.<sup>172</sup> DTE agreed to preserve artifacts from Fermi Unit 1 in a permanent exhibit at the Monroe County Community College; the exhibit opened in August 2013.<sup>173</sup> It also sent a documentation package on Fermi Unit 1 to the Michigan State Archives.<sup>174</sup> On January 31, 2014, DTE notified the Staff that it had completed work on the exhibit.<sup>175</sup> The Staff concluded that DTE had met the terms of the memorandum of agreement.<sup>176</sup>

*b. International Cooperation*

The Staff found its interactions with international organizations to be an important part of its environmental review for Fermi Unit 3, given that the international boundary between the United States and Canada is just over 7 miles (11 kilometers) from the Fermi site.<sup>177</sup> Even though NRC regulations do not require the Staff to analyze the environmental impacts of NRC licensing actions “upon the environment of foreign nations,” the Staff explained that it extended its outreach to international organizations “to inform its analysis of the potential environmental impacts of the Fermi project.”<sup>178</sup> DTE, for its part, explained that cross-border interaction with Canada, although not usually pertaining to environmental concerns, is not new; it meets regularly with Canadian officials primarily with regard to emergency planning for Fermi Unit 2.<sup>179</sup> Mr. Smith testified for DTE; he explained that DTE addressed the potential trans-boundary impacts in its Environmental Report and that none of them were unique or unusual.<sup>180</sup>

The Staff stated that it contacted two environmental organizations — the International Joint Commission’s Great Lakes Water Quality Board and the Great Lakes Fisheries Commission.<sup>181</sup> The International Joint Commission’s Great

<sup>171</sup> Tr. at 181 (Ms. Sutton). *See generally* National Historic Preservation Act of 1966, as amended, § 106, 16 U.S.C. § 470f.

<sup>172</sup> Tr. at 181 (Ms. Sutton).

<sup>173</sup> *Id.* at 182 (Ms. Sutton); Ex. DTE000009, DTE Environmental Panel 2 Presentation at 3.

<sup>174</sup> Ex. NRC000015, Staff Environmental Panel 2 Presentation at 3.

<sup>175</sup> Tr. at 182 (Ms. Sutton).

<sup>176</sup> *Id.* (Ms. Sutton).

<sup>177</sup> Ex. NRC000001, Staff Information Paper at 17-18.

<sup>178</sup> *Id.* (quoting 10 C.F.R. § 51.10(a)).

<sup>179</sup> Ex. DTE000009, DTE Environmental Panel 2 Presentation at 4; Tr. at 179 (Mr. Smith).

<sup>180</sup> Ex. DTE000009, DTE Environmental Panel 2 Presentation at 4; Tr. at 180.

<sup>181</sup> Ex. NRC000001, Staff Information Paper at 18; Tr. at 183 (Ms. Sutton); *see also* Ex. NRC-000010B, FEIS at D-7, D-77 to D-78.



Lakes Water Quality Board is made up of federal, state, provincial, local, and tribal government officials in the United States and Canada, as well as representatives from business and environmental organizations.<sup>182</sup> The Great Lakes Fisheries Commission is made up of federal, state, and provincial government officials from the United States and Canada, as well as academic experts.<sup>183</sup> The information that the Staff gathered from these organizations informed the Staff's analysis in the FEIS.<sup>184</sup> For example, in a letter responding to the Staff's request for comments, the Great Lakes Water Quality Board cited a number of its reports on water quality in the Great Lakes Basin, and the Staff considered this information when evaluating the impacts from operation of Fermi Unit 3.<sup>185</sup>

The Staff also contacted the U.S. Fish and Wildlife Service for information relating to trans-boundary impacts to the Detroit River International Wildlife Refuge, which Fish and Wildlife manages jointly with the Canadian government.<sup>186</sup> In 2003, DTE placed portions of the Fermi site under management of the Detroit River International Wildlife Refuge.<sup>187</sup> Fish and Wildlife commented during the scoping process for the Fermi Unit 3 application that it would "continue to work with DTE on wildlife management during the Fermi 3 planning process."<sup>188</sup> The Staff used the information obtained from Fish and Wildlife regarding the refuge to inform its land use and terrestrial ecology impact determinations.<sup>189</sup> Overall, the Staff found that the information it obtained through its international outreach "supported the thoroughness of . . . [its] review."<sup>190</sup>

*c. Proposed Transmission-Line Corridor*

In its Environmental Report, DTE described a proposed transmission corridor to deliver electricity from the new plant to the grid.<sup>191</sup> DTE explained that the International Transmission Company (ITC*Transmission*) plans to install three new 345-kV transmission lines from Unit 3 to a substation northwest of the plant.<sup>192</sup> The proposal would place the lines in existing corridors of Fermi and

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<sup>182</sup> Ex. NRC000001, Staff Information Paper at 18.

<sup>183</sup> *Id.*

<sup>184</sup> *Id.*

<sup>185</sup> See Ex. NRC000010B, FEIS at D-78.

<sup>186</sup> Ex. NRC000001, Staff Information Paper at 18.

<sup>187</sup> *Id.*; see also Ex. NRC000010B, FEIS at D-54.

<sup>188</sup> Ex. NRC000001, Staff Information Paper at 18.

<sup>189</sup> *Id.*

<sup>190</sup> *Id.* at 19.

<sup>191</sup> Ex. NRC000006F, DTE Combined License Application at 1-4 to 1-5, 2-22 to 2-26.

<sup>192</sup> *Id.* at 1-4 to 1-5.

non-Fermi lines for 18.6 miles (29.9 kilometers).<sup>193</sup> The lines would then continue to the Milan substation in a mostly undeveloped corridor for 10.8 miles (17.4 kilometers).<sup>194</sup> DTE stated that ITC *Transmission* would own and operate the lines in the proposed corridor.<sup>195</sup>

DTE's Environmental Report discussed potential environmental impacts along the potential transmission corridor.<sup>196</sup> DTE concluded that the environmental impacts of transmission-line development likely would be small because most of the development would likely take place along an existing corridor.<sup>197</sup> Further, DTE reasoned that the proposed shorter, 10.8-mile (17.4-kilometer) undeveloped corridor would be expected to experience minimal impacts because best management practices likely would be used and only a limited area around the bases of the towers would be disturbed.<sup>198</sup> The NRC Staff incorporated this information into the FEIS along with its own review. Appendix M of the FEIS provides a roadmap of the Staff's discussion of transmission-line impacts.<sup>199</sup>

As discussed above, intervenors in the contested proceeding twice proposed a contention challenging DTE's and the Staff's discussion of transmission-corridor impacts. The Board dismissed those challenges as impermissibly late, but requested our permission to review the adequacy of the Staff's consideration of transmission-corridor impacts *sua sponte*. We denied the Board's request, which left the issue uncontested and therefore suitable for our review in the mandatory hearing. Thereafter, we explored with DTE and the Staff the environmental impacts of the proposed transmission-line corridor before and during the hearing.<sup>200</sup>

Building transmission lines is not considered "construction" within the scope of the NRC's regulatory authority.<sup>201</sup> As such, the Staff ordinarily evaluates the environmental impacts of building transmission lines as part of its cumulative impacts analysis.<sup>202</sup> However, the U.S. Army Corps of Engineers — a cooperating

<sup>193</sup> *Id.* at 2-23.

<sup>194</sup> *Id.*

<sup>195</sup> *Id.* at 1-5.

<sup>196</sup> *See, e.g.*, Ex. NRC000006F, NRC000006G, NRC000006H, DTE Combined License Application at 2-22 to 2-26, 2-469 to 2-473, 4-12 to 4-22, 5-5 to 5-10.

<sup>197</sup> *See* Ex. NRC000006G, DTE Combined License Application at 4-12 to 4-22.

<sup>198</sup> *See id.* at 4-15 to 4-16.

<sup>199</sup> Ex. NRC000010D, FEIS at M-1 to M-2.

<sup>200</sup> *See* Transmission-Line Corridor Questions; Tr. at 154-58 (Commissioner Baran); Ex. NRC-000016, NRC Staff Responses to Commission Additional Pre-Hearing Questions, Proposed Corrections to Draft COL, and Updated Exhibit Table (Jan. 30, 2015).

<sup>201</sup> *See id.* §§ 50.10(a)(2)(vii), 51.4 (defining "construction"); *see also* Final Rule: "Limited Work Authorizations for Nuclear Power Plants," 72 Fed. Reg. 57,416, 57,417 (Oct. 9, 2007) (Limited Work Authorization Rule) (requiring NRC authorization "only before undertaking activities that have a reasonable nexus to radiological health and safety and/or common defense and security").

<sup>202</sup> Limited Work Authorization Rule, 72 Fed. Reg. at 57,421.

agency in the environmental review of DTE's combined license application — considered preconstruction activities like the proposed transmission-line corridor to be within the direct impacts of the Fermi Unit 3 project.<sup>203</sup> Therefore, the Staff considered the impacts of the proposed transmission-line corridor for Fermi Unit 3, normally a “preconstruction activity,” together with the impacts of “construction” activities within the NRC's regulatory purview.<sup>204</sup> The Staff also discussed measures to mitigate any adverse impacts from the transmission lines, as well as considered transmission-line impacts in its alternatives analysis.<sup>205</sup>

The Staff explained at the hearing that there would have been no difference in its FEIS analysis of transmission-corridor impacts had the Staff considered their development a “direct impact” of licensing Fermi Unit 3.<sup>206</sup> Given that there has been no formal proposal by *ITCTransmission* announcing the route of the proposed transmission line for Fermi Unit 3, the Staff performed its analysis using the best information available.<sup>207</sup> The Staff expected that the U.S. Army Corps of Engineers and state agencies, including the Michigan Department of Environmental Quality, would perform additional environmental analyses when *ITCTransmission* applies for the permits it will need to build any new transmission lines.<sup>208</sup>

*d. Consultation Under the Endangered Species Act*

Section 7 of the Endangered Species Act requires an agency, in consultation with and with the assistance of the Secretary of the Interior or the Secretary of Commerce (as appropriate), to ensure that “any action authorized, funded, or carried out by such agency . . . is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of critical habitat of such species.”<sup>209</sup> As part of its environmental review, the Staff prepared a biological assessment discussing the potential impacts of constructing and operating Fermi Unit 3 on federally listed

<sup>203</sup> See Ex. NRC000010A, FEIS at 1-7 to 1-8, 4-1 to 4-4.

<sup>204</sup> See *id.* at 4-3; Ex. NRC000010D, FEIS at M-1 to M-2.

<sup>205</sup> See, e.g., *id.* at 4-25 (citing the Environmental Protection Agency's recommendation that when clearing forested land for transmission lines that DTE “consider establishing low-growing native plants conducive to periodic mowing”); *id.* at 4-9 (noting *ITCTransmission*'s statement that it would use best practices for minimizing environmental impacts); Ex. NRC000010B, FEIS at 9-4 (discussing transmission-corridor impacts relative to alternative sources of energy); *id.* at 9-81, 9-95 to 9-96, 9-263 (considering transmission-corridor impacts in the comparison of alternative sites).

<sup>206</sup> See Tr. at 155-58.

<sup>207</sup> See *id.* at 155; Ex. NRC000010A, FEIS at 2-10.

<sup>208</sup> See, e.g., Ex. NRC000010A, FEIS at 2-61, 4-8, 4-11.

<sup>209</sup> Endangered Species Act § 7(a)(2), 16 U.S.C. § 1536(a)(2).

threatened or endangered species and species that are candidates for federal listing.<sup>210</sup> The Staff found that no listed species were likely to be adversely affected by the project, and the respective federal resource agencies agreed.<sup>211</sup> After the Staff finalized the FEIS, and shortly before the hearing, however, the U.S. Fish and Wildlife Service listed a new threatened species, the rufa red knot bird.<sup>212</sup>

At the hearing, the Staff provided the status of ongoing interactions with Fish and Wildlife concerning the rufa red knot bird.<sup>213</sup> Mallecia Sutton testified that the Staff contacted Fish and Wildlife and planned to issue a supplemental biological assessment for the rufa red knot.<sup>214</sup> The Staff has since notified us that it submitted its biological assessment to Fish and Wildlife on February 20, 2015.<sup>215</sup> The Staff determined that the proposed action may affect but is not likely to adversely affect the rufa red knot.<sup>216</sup> The Fish and Wildlife Service concurred with the Staff's conclusion.<sup>217</sup>

The Staff also provided a status update on Fish and Wildlife's then-proposed listing of the northern long-eared bat as a threatened or endangered species.<sup>218</sup> We note that the Fish and Wildlife Service listed the northern long-eared bat as a threatened species on April 2, 2015.<sup>219</sup> Subsequently, the Staff submitted a biological assessment to the Fish and Wildlife Service that concluded that construction and operation of Fermi Unit 3 may affect but is not likely to adversely affect the northern long-eared bat.<sup>220</sup> The listing of the northern long-eared bat will not be effective until May 4, 2015.<sup>221</sup> In the meantime, however, the Fish and Wildlife Service has concurred with the Staff's conclusion.<sup>222</sup>

<sup>210</sup> See Ex. NRC000010D, App. F.

<sup>211</sup> Tr. at 152 (Ms. Sutton).

<sup>212</sup> See Ex. NRC000014, Staff Environmental Panel 1 Presentation at 12.

<sup>213</sup> See *id.*

<sup>214</sup> Tr. at 152, 158-59.

<sup>215</sup> See April 5 Commission Notification at 1.

<sup>216</sup> *Id.*; see also Ex. NRC000018, Supplemental Biological Assessment at 25.

<sup>217</sup> April 5 Commission Notification; see also Ex. NRC000019, March 23 Letter from the Fish and Wildlife Service at 1-2.

<sup>218</sup> Ex. NRC000014, Staff Environmental Panel 1 Presentation at 12.

<sup>219</sup> See Endangered and Threatened Wildlife and Plants; Threatened Species Status for the Northern Long-Eared Bat with 4(d) Rule, 80 Fed. Reg. 17,974 (Apr. 2, 2015) (Northern Long-Eared Bat Listing); April 5 Commission Notification at 1.

<sup>220</sup> Ex. NRC000020, Supplemental Biological Assessment (Northern Long-Eared Bat).

<sup>221</sup> Northern Long-Eared Bat Listing, 80 Fed. Reg. at 17,974.

<sup>222</sup> April 29 Commission Notification; Ex. NRC000021, April 28 Letter from the Fish and Wildlife Service.

## B. Findings

We have conducted an independent review of the sufficiency of the Staff's safety findings, with particular attention to the topics discussed above. Our findings, however, are based on the entire record. Based on the evidence presented in the uncontested hearing, including the Staff's review documents and the testimony provided, we find that the applicable standards and requirements of the Atomic Energy Act and the NRC regulations have been met. The required notifications to other agencies or bodies have been duly made. DTE is technically and financially qualified to engage in the activities authorized.<sup>223</sup> We find that there is reasonable assurance that the facility will be constructed and operated in conformity with the license, the provisions of the Atomic Energy Act, and the NRC's regulations and that issuance of the license will not be inimical to the common defense and security or to the health and safety of the public. Additionally, we find that the Staff's proposed license conditions are appropriately drawn<sup>224</sup> and sufficient to provide reasonable assurance of adequate protection of public health and safety.

We also conducted an independent review of the Staff's environmental analysis in the FEIS taking into account the particular requirements of NEPA. NEPA § 102(2)(A) requires agencies to use "a systematic, interdisciplinary approach which will insure the integrated use of the natural and social sciences and the environmental design arts" in decisionmaking that may impact the environment.<sup>225</sup> We find that the environmental review team used the systematic, interdisciplinary

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<sup>223</sup> As part of its financial qualification review, the Staff found that DTE had met the requirements for financial protection and onsite property insurance for Fermi Unit 3. Ex. NRC000008A, SER at 1-37 to 1-38. The Staff stated that it would issue DTE an amended indemnity agreement to include Fermi Unit 3 upon issuance of the combined license. *Id.* at 1-38. The Staff has since provided an update on the status of its amendment to the indemnity agreement. Particularly, the Staff represented that American Nuclear Insurers has committed to "endorse a site insurance policy that includes the Fermi 3 site concurrent with the NRC's issuance of a . . . [combined license] to DTE" and concurrent with the amendment of the indemnity agreement. Roach, Kevin C., Counsel for the Staff, Letter to the Commissioners (Mar. 24, 2015) at 1. The Staff further represented that it will coordinate with DTE and American Nuclear Insurers so that the amended policy is effective as of the date of the combined license and the amended indemnity agreement. *Id.* The Staff thus confirmed its financial protection finding. *Id.* at 1-2 (citing Ex. NRC000002, Draft Combined License at 1 ("The Fermi owner has satisfied the applicable provisions of 10 [C.F.R.] Part 140; "Financial Protection Requirements and Indemnity Agreements[.]")).

<sup>224</sup> However, we direct the Staff to make the changes to the draft combined license that it identified during this proceeding. See Ex. NRC000004, NRC Staff Responses to Commission Initial Pre-Hearing Questions at 28-30; Ex. NRC000016, Staff Responses to Additional Pre-Hearing Questions, Attachment B; April 5 Commission Notification; see also Ex. NRC000002, Draft Combined License.

<sup>225</sup> NEPA § 102(2)(A), 42 U.S.C. § 4332(2)(A).

approach that NEPA requires.<sup>226</sup> The environmental review team consisted of more than forty individuals with expertise in disciplines including ecology, geology, hydrology, radiological health, socioeconomics, and cultural resources.<sup>227</sup>

NEPA § 102(2)(E) calls for agencies to study, develop, and describe appropriate alternatives.<sup>228</sup> The alternatives analysis is the “heart of the environmental impact statement.”<sup>229</sup> Based on the Staff’s testimony at the hearing, as well as the discussion in the FEIS, we find that the environmental review identified an appropriate range of alternatives with respect to alternative power sources, alternative sites, and alternative system designs and adequately described the environmental impacts of each alternative.<sup>230</sup> We find reasonable the Staff’s conclusion that none of the alternatives considered is environmentally preferable to the proposed action.<sup>231</sup>

NEPA § 102(2)(C) requires us to assess the relationship between local short-term uses and long-term productivity of the environment, to consider alternatives, and to describe the unavoidable adverse environmental impacts and the irreversible and irretrievable commitments of resources associated with the proposed action.<sup>232</sup> The discussion of alternatives is in Chapter 9 of the FEIS; the other items are discussed in Chapter 10.<sup>233</sup> The environmental review team found extensive short-term benefits of the project from the production of electrical energy and the economic productivity of a site that “is not currently available for agricultural or industrial uses.”<sup>234</sup> In terms of long-term productivity, the review team found that “the enhancement of regional productivity that would result from the electrical energy produced by Fermi 3 would lead to a correspondingly large increase in regional long-term productivity that would not be equaled by any other long-term use of the site.”<sup>235</sup>

Chapter 10 of the FEIS includes a chart of the unavoidable adverse environmental impacts during preconstruction, construction, and operation, along with actions to mitigate those impacts.<sup>236</sup> The environmental review team found that the unavoidable adverse impacts during preconstruction and construction

<sup>226</sup> See, e.g., Tr. at 144-48 (Ms. Dixon-Herrity) (providing an overview of the Staff’s environmental review methodology); Ex. NRC000014, Staff Environmental Panel 1 Presentation at 3-8.

<sup>227</sup> See Ex. NRC000010B, FEIS at A-1 to A-2.

<sup>228</sup> NEPA § 102(2)(E), 42 U.S.C. § 4332(2)(E).

<sup>229</sup> 10 C.F.R. Part 51, Subpart A, App. A, § 5.

<sup>230</sup> See, e.g., Tr. at 148-50 (Mr. Kugler); Ex. NRC000010B, FEIS Ch. 9.

<sup>231</sup> See, e.g., Tr. at 149-50 (Mr. Kugler); Ex. NRC000010B, FEIS at 10-25 to 10-26.

<sup>232</sup> NEPA § 102(2)(C)(ii)-(v), 42 U.S.C. § 4332(2)(C)(ii)-(v).

<sup>233</sup> Ex. NRC000010B, FEIS Ch. 9-10.

<sup>234</sup> *Id.* at 10-21.

<sup>235</sup> *Id.* at 10-22.

<sup>236</sup> *Id.* at 10-4 to 10-21.



would be small for all resource areas except for terrestrial and wetland resources, socioeconomics, and historical and cultural resources, which could be small to moderate based on potential impacts to the eastern fox snake, increased traffic during construction, and demolition of Fermi Unit 1, respectively.<sup>237</sup> For operation, the review team found that the unavoidable adverse impacts during operation would be small for all resource areas with the exception of terrestrial and wetland resources and socioeconomics, which could be small to moderate based on potential impacts to the eastern fox snake and increased traffic during outages, respectively.<sup>238</sup>

Finally, with regard to irreversible and irretrievable commitments of resources, the environmental review team concluded that preconstruction and construction activities on the Fermi site, including the proposed transmission corridor, “would permanently convert some portions of terrestrial and aquatic habitats.”<sup>239</sup> The Staff also concluded that during the construction of Fermi Unit 3, the materials used and energy consumed, “while irretrievable, would be of small consequence with respect to the quantities of such resources that are available.”<sup>240</sup> With regard to operation of Fermi Unit 3, the review team determined that uranium would be irretrievably committed, “but that this irreversible and irretrievable commitment . . . [would] be negligible.”<sup>241</sup>

We must weigh these unavoidable adverse environmental impacts and resource commitments — the environmental “costs” of the project — against the project’s benefits.<sup>242</sup> Considering the need for power in the region and the expected increase in productivity, jobs, and tax revenue as described during the hearing and in the FEIS, we find that the benefits of the project outweigh the costs described above. Moreover, we have considered each of the requirements of NEPA § 102(2)(C) and find nothing in the record that would lead us to disturb the Staff’s conclusions on those requirements.

In sum, for each of the topics discussed at the hearing and in today’s decision, we find that the Staff’s review was reasonably supported in logic and fact and sufficient to support the Staff’s conclusions.<sup>243</sup> Based on our review of the FEIS,

<sup>237</sup> See *id.* at 10-5 to 10-9.

<sup>238</sup> See *id.* at 10-12 to 10-19.

<sup>239</sup> *Id.* at 10-23.

<sup>240</sup> *Id.* at 10-25.

<sup>241</sup> *Id.*

<sup>242</sup> 10 C.F.R. § 51.107(a).

<sup>243</sup> Our finding includes the Staff’s consideration of the proposed transmission-line corridor for Fermi Unit 3. We are satisfied that the Staff took a hard look at the environmental impacts of the transmission-line corridor, regardless of whether the Staff’s analysis is characterized as a cumulative impacts analysis or a direct impacts analysis. In substance, the Staff reviewed and discussed potential

(Continued)



we also find that the remainder of the FEIS was reasonably supported and sufficient to support the Staff's conclusions.

Therefore, as a result of our review of the FEIS environmental analysis, and in accordance with the Notice of Hearing for this uncontested proceeding, we find that the requirements of NEPA § 102(2)(A), (C), and (E), and the applicable regulations in 10 C.F.R. Part 51, have been satisfied with respect to the combined license application. We independently considered the final balance among conflicting factors contained in the record of this proceeding. We find, after weighing the environmental, economic, technical, and other benefits against environmental and other costs, and considering reasonable alternatives, that the combined license should be issued.

### III. CONCLUSION

We find that, with respect to the safety and environmental issues before us today, the Staff's review of DTE's combined license application was sufficient to support the findings in 10 C.F.R. §§ 52.97(a) and 51.107(a). We *authorize* the Director of the Office of New Reactors to issue the combined license for the construction and operation of Fermi Nuclear Power Plant Unit 3 subject to the directions and modifications contained herein.<sup>244</sup> We *authorize* the Staff to issue the record of decision, subject to its revision as necessary to reflect the findings in this decision and the results of the Staff's analysis of environmental impacts on recently listed species.<sup>245</sup>

IT IS SO ORDERED.

For the Commission

ANNETTE L. VIETTI-COOK  
Secretary of the Commission


Dated at Rockville, Maryland,  
this 30th day of April 2015.

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transmission-corridor impacts together with other preconstruction and construction impacts on the environment from construction and operation of Fermi Unit 3. We find that the Staff's approach was reasonable and that its consideration of this issue satisfied NEPA.

<sup>244</sup> See *supra* note 224.

<sup>245</sup> See Ex. NRC000003, Draft Record of Decision, U.S. Nuclear Regulatory Commission Docket No. 52-033, Combined License Application for Enrico Fermi Nuclear Plant Unit 3 (Dec. 5, 2014). The Staff may issue the license notwithstanding the pendency of a petition for reconsideration under 10 C.F.R. § 2.345, a petition for review under 10 C.F.R. § 2.341, a motion for stay under 10 C.F.R. § 2.342, or a petition for action under 10 C.F.R. § 2.206. 10 C.F.R. § 2.340(i).

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DTE000015

April 30, 2013

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of:

DTE ELECTRIC COMPANY

(Fermi Nuclear Power Plant, Unit 3)

Docket No. 52-033-COL

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INITIAL WRITTEN TESTIMONY OF DTE ELECTRIC  
COMPANY WITNESSES PETER SMITH, STANLEY STASEK,  
RONALD SACCO, AND STEVEN THOMAS ON CONTENTION 15

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UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of:

DTE ELECTRIC COMPANY

(Fermi Nuclear Power Plant, Unit 3)

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Docket No. 52-033-COL

**INITIAL WRITTEN TESTIMONY OF DTE ELECTRIC  
COMPANY WITNESSES PETER SMITH, STANLEY STASEK,  
RONALD SACCO, AND STEVEN THOMAS ON CONTENTION 15**

**EXPERT WITNESSES**

**A. Peter Smith**

**Q1. Please state your full name.**

A1. Peter W. Smith ("PS").

**Q2. By whom are you employed and what is your position?**

A2. (PS) I am employed by DTE Electric Company<sup>1</sup> as the Director, Nuclear Development – Licensing and Engineering. I have served in that position since 2007. I have overall responsibility for the Fermi Unit 3 ("Fermi 3") project, including the combined license ("COL") application and other State and Federal permits and approvals. I report to the Senior Vice President for Major Enterprise Projects and the Chief Nuclear Officer. I am specifically responsible for the implementation of Quality Assurance ("QA") measures specified by the Fermi 3 Quality Assurance Program Description ("QAPD"), including management of the corrective action and non-conformance process.

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<sup>1</sup> DTE Electric formerly operated under the name Detroit Edison Company. The name change was effective on January 1, 2013. For simplicity, the name "DTE" will be used throughout this testimony.

**Q3. Please summarize your education and professional qualifications.**

A3. (PS) A copy of my qualifications statement is attached to Exhibit DTE000017.

**Q4. What is the purpose of your testimony?**

A4. (PS) The purpose of my testimony is to address the issues raised in Intervenor's Contention 15. Put simply, since the beginning of the Fermi 3 project, and prior to submittal of the COL Application, DTE has been committed to implementing quality assurance procedures for all aspects of work that are important to the safety of the Fermi 3 nuclear plant. I will describe the evolution of the QA program in the pre-application phase through the current application review phase. In particular, I will describe the QA programs implemented during the development of the COL Application. I will also describe the Fermi 3 Quality Assurance Program Description ("QAPD") that applied during the NRC Staff's review of the COL Application. I will describe how the Fermi 3 QAPD meets NRC and industry standards, and will address the specific issues identified by the NRC Staff during a QA program inspection conducted in August 2009 — two Severity Level IV Notices of Violation ("NOVs") issued in April 2010 — as well as the corrective actions that responded to the findings. In total, in both the pre-application phase and the COL Application review phase of the project, DTE has ensured, through systematic processes, that suppliers of safety-related equipment or services meet the applicable requirements of 10 C.F.R. Part 50, Appendix B. The oversight that has been conducted over specific safety-related activities assures the quality of information in the Fermi 3 COL Application. Finally, I will

address some specific concerns that have been identified by the Intervenor's witness, Mr. Gundersen, in this proceeding.

**Q5. What documents have you reviewed to prepare your testimony?**

A5. (PS) I am very familiar with the various QAPDs, the NRC's issues in 2009, as well as the audits and other reports that will be referenced in this testimony. Additionally, to prepare this testimony I have reviewed the filings made to date by the Intervenor, including the Declaration of Mr. Gundersen filed in support of Contention 15,<sup>2</sup> the second Declaration of Mr. Gundersen filed in support of Contention 15,<sup>3</sup> and the Declaration of Mr. Gundersen filed in opposition to DTE's motion for summary disposition.<sup>4</sup>

**B. Stanley Stasek**

**Q6. Please state your full name.**

A6. Stanley Stasek ("SS").

**Q7. By whom are you employed and what is your position?**

A7. (SS) I am employed by DTE as Director, Quality Management, for the Fermi 3 project. In this position, I am responsible for developing and maintaining the

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<sup>2</sup> "Declaration of Arnold Gunderson Supporting Petition of Intervenor's Contention 15: DTE COLA Lacks Statutorily Required Cohesive QA Program" (December 8, 2009) ("Gundersen Dec. 1").

<sup>3</sup> "Second Declaration of Arnold Gundersen Supporting Supplemental Contention 15: DTE COLA Lacks Statutorily Required Cohesive QA Program" (June 11, 2010) ("Gundersen Dec. 2").

<sup>4</sup> "Second Declaration of Arnold Gundersen Supporting Supplemental Petition of Intervenor's Contention 15: DTE Cola Lacks Statutorily Required Cohesive QA Program" (May 17, 2012) ("Gundersen Dec. 3").



Fermi 3 QAPD, evaluating compliance with the program, and managing the QA organization resources.

**Q8. Please summarize your education and professional qualifications.**

A8. (SS) A copy of my professional qualifications statement is attached to Exhibit DTE000018.

**Q9. What is the purpose of your testimony?**

A9. (SS) The purpose of my testimony is also to address issues raised in Contention 15. The Fermi 3 QAPD submitted with the COL Application, and implemented since that date, meets applicable regulatory requirements. The program is functioning in accordance with the NRC's regulations. I will explain that program, as well as various benchmarks and metrics for the program. I will also address the only "discrepant" conditions identified by the Intervenor — the two Severity Level IV NOV's issued in April 2010. These do not demonstrate either a pervasive breakdown of the Fermi 3 QA program or a lack of commitment to continue to implement the program as broadly alleged by the Intervenor. The NRC Staff also has not found any ongoing compliance issues, much less a programmatic breakdown, in the Fermi 3 QA program.

**Q10. What documents have you reviewed to prepare your testimony?**

A10. (SS) I am very familiar with the Fermi 3 QAPD, the implementing procedures, and the audits and other reports that will be referenced in this testimony. Additionally, to prepare this testimony I have reviewed the filings made to date by

the Intervenors, including the declarations of Mr. Gundersen filed in support of Contention 15 to date, and cited by Mr. Smith above.

**C. Ronald Sacco**

**Q11. Please state your full name.**

A11. Ronald Sacco (“RS”).

**Q12. By whom are you employed and what is your position?**

A12. (RS) I am employed by Black & Veatch (“B&V”) as the Director of Nuclear Quality Assurance for B&V Energy in Overland Park, Kansas.

**Q13. Please summarize your education and professional qualifications.**

A13. (RS) A copy of my professional qualifications statement is attached to Exhibit DTE000016.

**Q14. What is the purpose of your testimony?**

A14. (RS) The purpose of my testimony is to assist my company’s client, DTE, in responding to Intervenors’ Contention 15 by specifically addressing the QA program implemented by B&V and applied to safety-related work for the Fermi 3 COL Application project. I will describe the B&V QA Program that has been applied during the B&V scope of work and our basis for assurance that the work — in particular, the work prior to September 2008 — met NRC QA requirements.

**Q15. What documents have you reviewed to prepare your testimony?**

A15. (RS) I am very familiar with the B&V QA program and implementing procedures, as well as audits and surveillances conducted under the B&V program for the Fermi 3 project. To prepare this testimony I have also reviewed the

declarations of Mr. Gundersen filed in support of Contention 15 to date, and cited by Mr. Smith above.

***D. Steven Thomas***

**Q16. Please state your full name.**

A16. Steven Thomas (“ST”).

**Q17. By whom are you employed and what is your position?**

A17. (ST) I am employed by B&V as an Engineering Manager in Overland Park, Kansas. I have been in that position since 2007 and was responsible for all engineering and technical activities necessary to develop the Fermi 3 COL Application. Since the application was submitted to the NRC, I have been responsible for responding to requests for information and resolving technical issues arising during the regulatory review. I also supported DTE during their meetings on the application with the Advisory Committee on Reactor Safeguards (“ACRS”).

**Q18. Please summarize your education and professional qualifications.**

A18. (ST) A copy of my professional qualifications statement is attached to Exhibit DTE000019.

**Q19. What is the purpose of your testimony?**

A19. (ST) The purpose of my testimony is to assist my company’s client, DTE, in responding to Intervenor’s Contention 15 by specifically addressing the work controls implemented under the B&V QA program and applied to safety-related work for the Fermi 3 project. I will describe the specific scope of safety-related

work performed by B&V and its contractors and my basis for assurance that the work was of high quality and consistent with NRC expectations.

**Q20. What documents have you reviewed to prepare your testimony?**

A20. (ST) I am very familiar with the work control procedures employed for Fermi 3 COL Application development activities. To prepare this testimony I have also reviewed the declarations of Mr. Gundersen filed in support of Contention 15 to date, and cited by Mr. Smith above.

**QUALITY ASSURANCE REQUIREMENTS AND STANDARDS**

**Q21. What NRC QA requirements apply to pre-application activities?**

A21. (PS, SS) There are no QA requirements that apply prior to submittal of a COL application — that is, before a company is an “applicant.” Rather, implicitly, the prospective applicant must conduct activities that are important to safety (particularly safety-related site investigation activities) in a manner such that the quality can be demonstrated to support the eventual application.

**Q22. What QA requirements apply to COL applicants and licensees?**

A22. (PS, SS) Once a COL application is submitted, the applicant is explicitly subject to 10 C.F.R. Part 50, Appendix B, and therefore must establish and implement a compliant program. In particular, every applicant for a COL is required to include in its Final Safety Analysis Report (“FSAR”) a description of the managerial and administrative controls applied to the design, fabrication, construction, and testing of the safety-related structures, systems, and components

of the facility and to be used to assure safe operation.<sup>5</sup> The application includes a QAPD that the NRC must find to be acceptable in order to issue the COL. Thereafter, an approved QAPD is subject to regulatory control in accordance with 10 C.F.R. § 50.54(a).

(PS, SS) Further standards are detailed in industry and NRC guidance documents, including American Society of Mechanical Engineers (“ASME”) Standard NQA-1, “Quality Assurance Requirements for Nuclear Facility Applications.” NQA-1-1994 is an NRC-approved standard for a Quality Assurance program. NQA-1 provides additional detailed guidance on how to implement the requirements of Part 50, Appendix B. NRC guidance on QA is set forth in Regulatory Guide 1.28, “Quality Assurance Program Requirements (Design and Construction),” Revision 3. In Reg. Guide 1.28, Rev. 3, the NRC endorsed NQA-1. The Fermi 3 QAPD is based on NQA-1.

**Q23. What are the key attributes of a nuclear QA program for a COL applicant?**

A23. (PS, SS) QA programs typically have four basic attributes in common:

- Establishes *administrative and programmatic controls* for safety-related activities that reflect compliance with regulatory requirements, industry standards of performance, and management expectations. For the Fermi 3 project, these controls primarily consist of the QAPD and implementing procedures.
- Requires consistent and thorough *execution* of all work in accordance with the aforementioned procedural requirements. DTE personnel are trained and qualified to perform their assigned tasks to support this attribute.
- Includes *verification activities* that provide reasonable assurance that the execution of work is in conformance with the established procedural

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<sup>5</sup> 10 C.F.R. § 50.34(b)(6)(ii).

requirements, regulatory requirements, and industry standards. These verification activities may take the form of management reviews, peer checks, self-assessments, and performance trending, which typically are functions of the line organization, and audits, surveillances, vendor reviews, and third party audits, which are typically independent activities led by or involving the QA organization.

- Includes a *corrective action program* so that if any performance gaps or areas for improvement are identified — whether from verification activities or otherwise — management is made aware, the cause is determined, and actions then taken to address the gap and improve performance levels.

### **QUALITY ASSURANCE FOR THE FERMI 3 COL APPLICATION**

#### **A. Quality Affecting Activities in COL Application**

##### **Q24. When did DTE begin to develop the COL Application for Fermi 3?**

A24. (PS) The Fermi 3 COL project was initiated in December 2006. In late April 2007, DTE formally established the Fermi 3 Nuclear Development (“ND”) project group to oversee the COL Application project. The COL Application was ultimately submitted to the NRC on September 18, 2008.

##### **Q25. Describe in broad terms the scope of activities involved to prepare a COL Application?**

A25. (PS, ST) Primarily the COL Application involves preparation of an FSAR to support the NRC Staff’s technical review and an Environmental Report (“ER”) to support the environmental review. The major activities to develop the Fermi 3 COL Application therefore involved site characterization, information gathering, and preparation of the FSAR and ER. The ER is not a safety-related document subject to a QA program. With respect to the site characterization and information gathering for the FSAR, the principal safety-related activities were:

- Site geotechnical and hydrogeological investigations,

- Seismic analysis, and
- Meteorological analysis.

These are the work activities that had at least the potential to influence the design of safety-related structures, systems, and components. Information incorporated into the COL Application addressing the safety-related topics would be developed under controlled processes defined under a QA program.

**Q26. How does the scope of work for the Fermi 3 COL Application relate to the Design Certification activities for the ESBWR?**

A26. (PS, ST) The Fermi 3 COL Application references the General Electric Economic Simplified Boiling Water Reactor (“ESBWR”) Design Certification being pursued in parallel by the reactor vendor. Design work within the scope of the proposed design certification is subject to the reactor vendor’s 10 C.F.R. Part 50, Appendix B, QA Program, and is beyond the scope of the COL Application. In this regard, it is important to point out that for Fermi 3 there is relatively little site-specific safety-related design engineering. The safety-related aspects of the ESBWR design are encompassed within the ESBWR Design Certification Document (“DCD”). Unlike other reactor designs, there are no site-specific safety-related design features for the ESBWR. The Fermi 3 COL Application simply demonstrates that the Fermi 3 site characteristics are bounded in the ESBWR design. And, DTE did not propose any departures from the ESBWR design certification for Fermi 3 that involve new, site-specific safety-related work. As a result, the safety-related information in the Fermi 3 COL Application was ultimately limited to Chapter 2 and portions of Chapters 3 and 6 of the FSAR.



**Q27. Explain what is in those chapters of the FSAR.**

A27. (PS, ST) Chapter 2 of the FSAR addresses site characteristics, including geography and demography, nearby industrial and military activities, meteorology and air quality, hydrology (flooding hazards), geology, seismology and geotechnical engineering. Only discrete portions of this information are safety-related. The principal safety-related site activities involved (1) gathering of meteorological data from the Fermi 2 meteorological tower and (2) core borings and test wells to determine whether hydrogeological characteristics and site seismic hazards fall within the bounds of the ESBWR design certification.

In the original COL Application submitted in September 2008 there was no site-specific safety-related information in Chapter 3. Information was incorporated from the ESBWR DCD. Subsequently, in 2010, a site-specific soil structure interaction analysis was initiated to demonstrate conformance with the ESBWR DCD. This was not part of the information developed prior to the submittal of the COL Application in 2008.

The site-specific safety-related information in Chapter 6 is related to demonstrating that the ESBWR Control Room habitability analysis is bounding for the Fermi 3 site. This analysis draws upon the site-specific meteorology data described in Chapter 2.

***B. QA Program During Application Development***

**Q28. Was there a QA program for COL Application development and supporting work?**

A28. (PS, SS, RS, ST) Yes. From the outset of the Fermi 3 COL Application development project in March 2007, DTE contracted with B&V for the COL Application development work.<sup>6</sup> Under the contract DTE delegated to B&V the responsibility for establishing and executing a QA program for the B&V scope of work on the project. Fermi 3 was, and remains, a corporate initiative conducted independent of the operating Fermi unit (Fermi 2) to minimize the burden on the operating plant organization and reduce distractions. As such, the Fermi 3 COL project was initiated independent of the Fermi 2 QA program.

**Q29. Was this delegation to B&V allowed by regulation?**

A29. (PS, SS, RS) Yes. Delegation is explicitly permitted in 10 C.F.R. Part 50, Appendix B, Criterion I, which states:

The applicant shall be responsible for the establishment and execution of the quality assurance program. The applicant may delegate to others, such as contractors, agents, or consultants, the work of establishing and executing the quality assurance program, or any part thereof, but shall retain responsibility for the quality assurance program.

Further, as the NRC Staff noted in a Part 52 rulemaking, services (*e.g.*, geologic or seismic analyses) that are safety-related and could be relied upon in the siting, design, and construction of a nuclear power plant, are to be treated as basic

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<sup>6</sup> DTE required all potential COL Application contractors to have an Appendix B QA program.

components as defined in Part 21.<sup>7</sup> According to the NRC, these site-specific safety-related services must be purchased as basic components, requiring the service provider to have an Appendix B to Part 50 QA program, as well as its own Part 21 program, or the applicant could dedicate the service in accordance with Part 21, which requires the dedication process itself to be controlled under an Appendix B QA program. DTE followed the former approach, purchasing the services from B&V, which had its own Appendix B program.

**Q30. How did DTE “retain responsibility” for the QA program during this time?**

A30. (PS) First, DTE retained responsibility as a commercial or contract matter. DTE began the process by preparing a formal Request for Proposals (“RFP”) from contractors to perform the activities necessary to prepare a COL application. Proposals were solicited only from contractors who were established in the nuclear services business, and who were currently executing comparable projects for other potential applicants. The RFP required bidders to demonstrate as a prerequisite that they had an established Appendix B QA program. Bidders were also required to explain how their Appendix B QA program would be applied to the Fermi 3 COL Application development project. DTE made the contractor selection and negotiated specific contract terms with respect to QA.

Second, after contract award, DTE retained responsibility for the QA program as a practical and organizational matter. B&V reported to the Fermi 3 Nuclear Development organization, which had responsibility for the COL Application.

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<sup>7</sup> “Licenses, Certifications, and Approvals for Nuclear Power Plants; Final Rule,” 72 Fed. Reg. 49352, 49424 (August 28, 2007).

The Nuclear Development organization, under the Director & Project Manager Nuclear Development, reported to the DTE Senior Vice President, Major Enterprise Projects. The Nuclear Development organization exercised management oversight and supervision over B&V and their work activities. We will discuss this oversight in more detail later in this testimony.

Third, beginning in November 2007, DTE began a formal process for the receipt, review, and acceptance of COL Application work product from B&V for submittal to the NRC. No work product was accepted until after the Fermi 3 project had its own QA program in place beginning in February 2008. We will discuss this later in the testimony as well.

After the COL Application was submitted in September 2008, DTE has through the Nuclear Development organization continued to manage the project activities, including B&V's work, to update the application, respond to NRC Staff Requests for Additional Information ("RAIs") on the application, and otherwise support the NRC Staff and ACRS reviews of the application.

**Q31. Why was B&V selected to develop the Fermi 3 COL Application and implement the Appendix B QA program?**

A31. (PS) In February 2007 DTE received several proposals in response to the RFP. DTE eventually selected B&V, based on several factors, including the fact that B&V maintains an Appendix B QA program based on the standards of NQA-1. As noted earlier, NQA-1 is the NRC-approved standard for QA programs and is the standard being applied for current COL applicants.

In making the selection there was documentation available to DTE of oversight and reviews of the B&V QA program conducted by other established Appendix B QA programs, including reviews by Entergy, American Electric Power Company, and Nebraska Public Power District. These reviews by established nuclear organizations provided strong evidence that the B&V program was being properly implemented for nuclear work, including COL application work. In particular, at that time B&V was successfully leading the development of the Entergy River Bend COL application, which had a similar scope of work as the Fermi 3 COL Application.

**Q32. What were the QA requirements for B&V established in the contract?**

A32. (PS, ST, RS) In April 2007, DTE established the contract with B&V to develop the Fermi 3 application. The contract specified:

- The scope of work to be performed by B&V;
- Technical requirements for the application in accordance with 10 C.F.R. Parts 20, 50, 51, and 52, NUREG-0800, NUREG-1555, Reg. Guide 1.206, and others;
- Acceptance requirements and control measures for DTE's evaluation of the application and intermediary work product developed by B&V;
- Organizational responsibilities (including reporting and communication methods);
- 10 C.F.R. Part 50 Appendix B/NQA-1 requirements, to be applied to FSAR Chapters 2 through 9, 14, 15, 16, 18 and 20, the geotechnical site boring program, radiological analyses, and meteorological analyses associated with the radiological analyses;
- Access to B&V's facilities and records for inspection or audit by DTE;

- Documentation requirements and the required dates for submission to DTE; and
- Requirements for reporting and disposition of non-conformances in accordance with 10 C.F.R. §50.55(e) and Part 21.

**Q33. Why did the contract specify that Appendix B QA applied to FSAR chapters beyond those you discussed earlier?**

A33. (PS, ST) The scope of FSAR chapters specified as being subject to Appendix B QA requirements was conservatively broad. At that time DTE had not made a reactor technology selection. As noted above, once the ESBWR was selected, the potential scope of site-specific safety-related design work was reduced. Accordingly, ultimately only Chapters 2, 3, and 6 incorporated safety-related work. However, as a practical matter, development of the originally specified chapters was subject to the B&V QA program.

**Q34. Was there any other oversight of the B&V program by DTE in the pre-application period?**

A34. (PS) As discussed above, the DTE Nuclear Development group, under the DTE Major Enterprises organization, had the functional responsibility for oversight of the project contractors. To assist in this, DTE also secured the services of an Owner's Engineer ("OE") to support owner-related activities. The scope of this support was envisioned to include reactor technology selection, development of project cost estimates, development of a DTE QA program for the Fermi 3 project, engineering support services, and COL Application contractor oversight.

**Q35. When did DTE implement its own QA program and QA organization for the Fermi 3 project?**

A35. (PS, SS) DTE first established its own QA program for the project under the Nuclear Development Quality Assurance Program Description (“ND QAPD”), which was approved for use on February 4, 2008 — seven months prior to submitting the COL Application to the NRC.<sup>8</sup> In order to develop and implement the ND QAPD, in November 2007 DTE began to develop the necessary staffing, including experienced QA personnel. DTE drafted the ND QAPD and implementing procedures specifically for the scope of activities to be performed by DTE in reviewing and accepting the COL Application being developed by B&V.

**Q36. When did DTE establish the current QAPD for Fermi 3?**

A36. (PS, SS) The Fermi 3 QAPD, Rev. 0, was submitted to the NRC on September 18, 2008 — the date of the COL Application for Fermi 3. The Fermi 3 QAPD was submitted as part of the COL Application in FSAR Chapter 17 and Appendix 17A. It became effective on October 8, 2008 and replaced the ND QAPD. On that date, the ND QAPD — which had the specific focus of review and acceptance of COL Application work — was superseded by the Fermi 3 QAPD.<sup>9</sup> Under the Fermi 3 QAPD there is a Nuclear Quality Management Organization responsible for the QA/oversight function. The Nuclear Quality Management

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<sup>8</sup> The ND QAPD is Exh. DTE000070.

<sup>9</sup> During this time, there was a transition from COLA development, which was led by B&V and supported by DTE, to COLA maintenance, which was led by DTE and supported by B&V.



Organization is responsible for independently planning and performing activities to verify effective implementation of the Fermi 3 QAPD.<sup>10</sup> The verification activities address engineering, licensing, document control, the corrective action program, and procurement for Fermi 3, among others. The QA organization's function includes:

- Coordinating the development of audit schedules,
- Auditing, performing surveillances, and evaluating suppliers of quality services,
- Supporting general QA indoctrination and training for DTE personnel performing activities covered by the QAPD, and
- Quality Control.

***C. COL Application Quality Prior to February 2008***

**Q37. What specific quality-affecting activities that were conducted in the pre-application period would be of concern?**

A37. (PS, ST) As previously noted, the pre-application safety-related activities specific to Fermi 3, and within the scope of the COL (as opposed to the Design Certification), involved certain site investigation activities. Specifically, meteorological data was obtained from DTE. That data was obtained from the Fermi 2 meteorological tower, which operates under the longstanding Fermi 2 QA program. The geological, hydrogeological, and seismic information was developed from borings and test wells at the Fermi site completed by B&V and its subcontractors during the time frame April 2007 - September 2007.

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<sup>10</sup> As discussed later in the testimony, similar functions also existed under the ND QAPD.

**Q38. Do you have confidence in the quality affecting activities completed during the pre-application period? If so, what is your basis?**

A38. (PS, SS, RS, ST) Yes. We can point to multiple programmatic controls that existed to assure the quality of safety-related work documented in the COL Application (FSAR):

- The B&V Appendix B QA Program, including (1) specific work controls implemented under the B&V QA Program; (2) training for personnel and subcontractors; and (3) B&V QA oversight.
- Oversight by the DTE Fermi 3 Project, as augmented by DTE's Owner's Engineer.
- NRC inspections.

Quality is assured by the performance of activities under the controls required and established in accordance with a QAPD and implemented by the organization doing the work. Oversight involves an assessment — on a sample basis and based on record reviews and personal observations — of implementation of quality controls by the line organization.

***1. B&V QA Program***

**Q39. Describe the B&V QA program? What standards does it meet?**

A39. (RS, ST) As discussed previously, the B&V QA Program complies with 10 C.F.R. Part 50, Appendix B, and NQA-1. Appendix B consists of 18 criteria, and NQA-1 establishes 18 requirements to address the Appendix B criteria. These include:

- Organization;
- QA Program;
- Design Control
- Instructions, Procedures, and Drawings;

- Test Control;
- Control of Measuring and Test Equipment;
- Inspection;
- Corrective Action;
- QA Records; and
- Audits

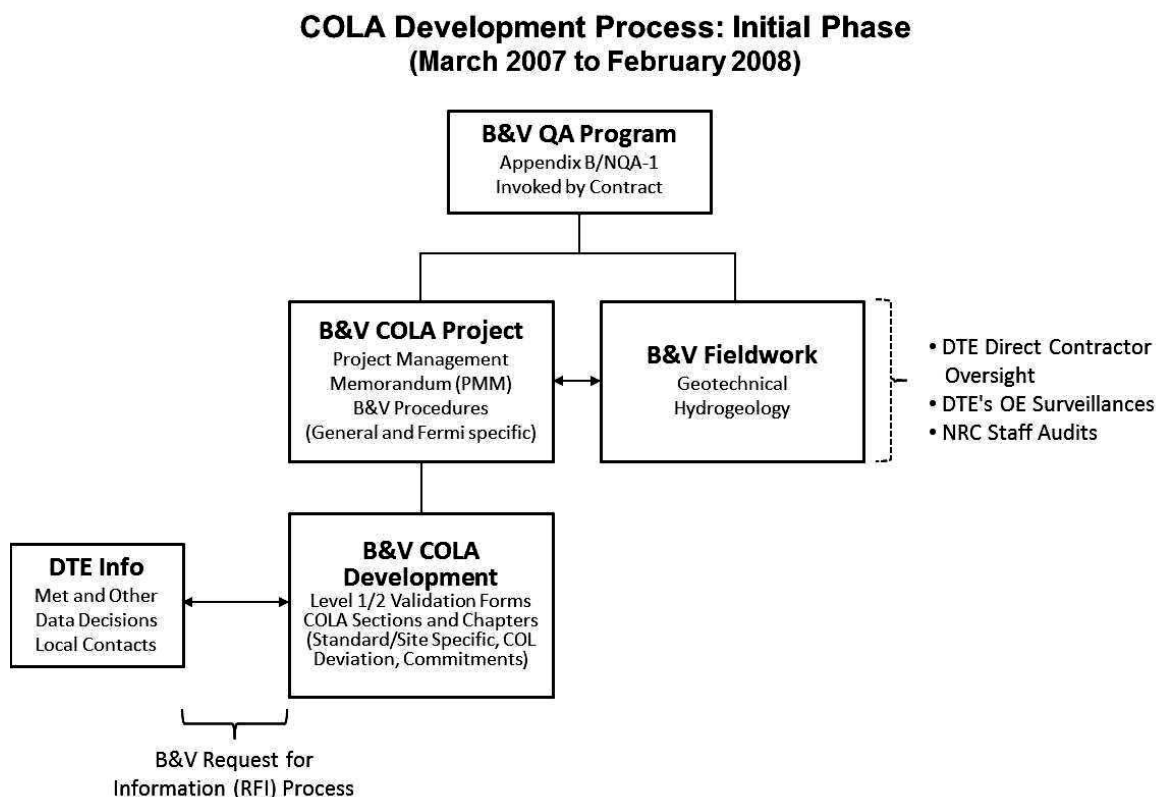
All of these elements existed within the B&V program that applied to the Fermi 3 information gathering and safety-related site activities. The B&V QA program is implemented through a set of procedures written to comply with the NQA-1 requirements.

**Q40. How was the B&V QA program implemented for the Fermi 3 project?**

A40. (PS, RS, ST) Major work interfaces for activities affecting COL Application development, including clear and effective lines of communication, were established through the implementation of a B&V Project Management Memorandum (“PMM”) (Exh. DTE000056). The PMM is a controlled project document and serves as the B&V mechanism for addressing how project activities will be conducted, including organization, responsibilities, QA, interfaces, and communication mechanisms with DTE. Consistent with the requirements of the contract, the PMM identified the quality attributes required for the B&V work activities. The PMM and its revisions specifically identified the applicability of Appendix B requirements to B&V subcontractors. Lastly, any information to be obtained from DTE for the COL Application was requested through a formal Request for Information (“RFI”) process.

**Q41. Can you illustrate how this process worked?**

A41. (PS, RS, ST) Yes. Exhibit DTE000020 (excerpted below) is an illustration of the process: “COL Application Development: Initial Phase (March 2007 through February 2008).” The B&V QA program applied to safety-related activities. Field work (geotechnical, hydrogeology) was subject to specific implementing procedures. As also mentioned previously, other data (most particularly including meteorological data) was obtained from DTE via the RFI process.

**Q42. How did this process apply to the hydrogeology investigations?**

A42. (PS, ST, RS) All work was controlled as described in the PMM. B&V professionals on the project were trained in accordance with B&V nuclear and

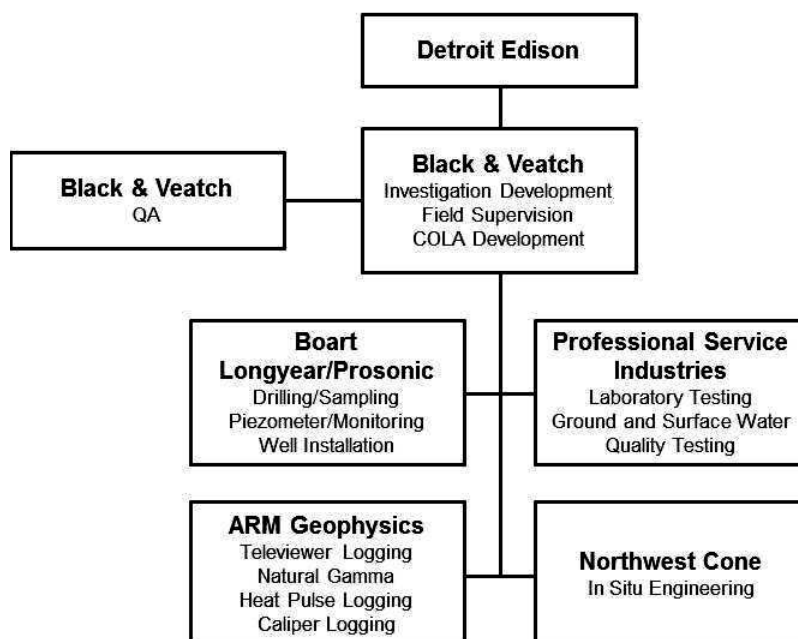
project-specific procedures. The training requirements were also applied to subcontractors working under the B&V QA program.

Specific project documents were issued for the hydrogeology investigations. The documents were reviewed in accordance with a B&V document review and approval procedure and a B&V design verification procedure. Vendor test reports (down hole and laboratory) were also provided to B&V for review and acceptance in accordance with a B&V review and approval procedure.

Consistent with the PMM, during the on-site investigation B&V assigned a geotechnical/geology expert to each of the drill rigs to record data and provide oversight of the site activities. Data collected was recorded in a boring log in accordance with a project instruction.

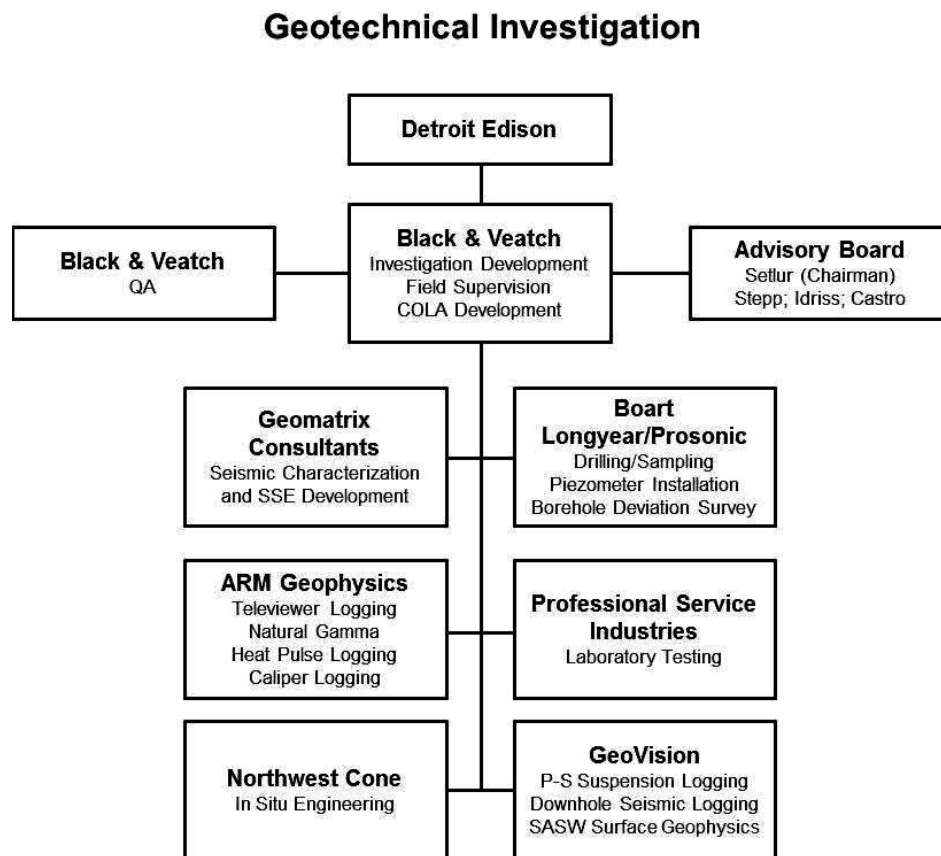
Data collected during the investigation was used as an input for various analyses. The analyses were prepared in accordance with a B&V procedure for calculations and verified in accordance with B&V verification procedures. Laboratory testing was performed by PSI. The following chart demonstrates the relationships for the hydrogeology investigations:

## Hydrogeology Investigation



**Q43. Were there similar process controls for the geotechnical investigations?**

A43. (PS, ST, RS) Yes. Again, work was conducted under the PMM with training of professionals in accordance with procedures. Specific project documents were developed and issued to control the work plan, data collection, and investigation. Laboratory testing, vendor test reports, and seismic analyses were performed under the B&V program and established nuclear procedures. Boart Longyear/Prosonic, ARM Geophysics, GEOvision, Northwest Cone Exploration were the contractors. All four worked under the B&V QA program. PSI performed laboratory testing. The following chart demonstrates the relationship for the geotechnical investigations:



**Q44. Was meteorological data developed differently?**

A44. (PS, ST, RS) As noted above, meteorological data was provided to B&V by DTE under an RFI. Information obtained by B&V from DTE to support development of the COL application was reviewed and accepted by B&V consistent with B&V's QA program and procedures. B&V examined the meteorological data to validate its integrity. This review was documented in a calculation prepared in accordance with a B&V nuclear procedure, and verified in accordance with a B&V design verification procedure. The subsequent meteorological analyses were prepared using the QA calculation and design verification procedures.



B&V, and the Reference COL Application (R-COLA), as applicable. By early September 2008, DTE completed the review of application work product. Comments were documented and provided to B&V for formal resolution. All comments were resolved in accordance with procedures.

**Q55. Did DTE utilize any data in the COL Application that it obtained from B&V before DTE had its own Fermi 3 QA Program?**

A55. (PS, ST) No. As mentioned above, all data from B&V was accepted after the ND QAPD was in place to apply to the application product acceptance process.

**Q56. What was the role of the Nuclear Development QA Manager?**

A56. (PS, SS) The Nuclear Development QA Manager (“QAM”) position was established in March 2008 under the ND QAPD. This individual was responsible for independently planning and performing activities to verify the development and effective implementation of the DTE ND QAPD with respect to those activities that supported the COL Application. The Nuclear Development QA Manager was also responsible for evaluating compliance with regulatory requirements and procedures through audits and technical reviews, monitoring organization processes to ensure conformance to licensing document requirements, and ensuring that vendors providing quality services to DTE in support of the COL Application were meeting the requirements of Appendix B. The Nuclear Development QA Manager position was initially filled by an engineer (J. Werner) with over twenty years of nuclear experience, including four years’ experience as lead auditor.

Cite as 71 NRC 493 (2010)

LBP-10-9

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**ATOMIC SAFETY AND LICENSING BOARD**

**Before Administrative Judges:**

**Ronald M. Spritzer**, Chairman  
**Dr. Michael F. Kennedy**  
**Dr. Randall J. Charbeneau**

**In the Matter of**

**Docket No. 52-033-COL**  
**(ASLBP No. 09-880-05-BD01)**

**DETROIT EDISON COMPANY**  
**(Fermi Nuclear Power Plant,**  
**Unit 3)**

**June 15, 2010**

**RULES OF PRACTICE: NEW OR AMENDED CONTENTIONS**

Several Licensing Boards have recently recognized a dichotomy between “new” contentions filed under 10 C.F.R. § 2.309(f)(2) and “nontimely” contentions filed under 10 C.F.R. § 2.309(c), based on both the regulatory text and the apparent absurdity of requiring intervenors with contentions rooted in new material information (“new” contentions) to make the same showing as intervenors who have simply delayed filing their contentions until after expiration of the regulatory deadline (“nontimely” contentions).

**RULES OF PRACTICE: NEW OR AMENDED CONTENTIONS;  
GOOD CAUSE**

Intervenors acted reasonably in waiting for NRC Staff to announce the results of its inspection and its determination, based on the Inspection Report, that DTE had in fact violated Appendix B requirements in three specific ways. To force intervenors to file contentions before the results of an ongoing NRC investigation are announced to the public would effectively force intervenors to speculate about

licensing board pending completion of the rulemaking, but for a board to take that action the contention must be “otherwise admissible.” Licensing Boards have interpreted “otherwise admissible” to mean a contention that meets the contention admissibility requirements of 10 C.F.R. § 2.309(f)(1) but for the fact that it challenges a yet-to-be-certified reactor design.

## ORDER

### (Ruling on Proposed New Contentions 15 and 16)

This combined license (COL) proceeding involves the application of Detroit Edison Company (DTE or Applicant) under 10 C.F.R. Part 52, Subpart C, to construct and to operate a GE-Hitachi Economic Simplified Boiling Water Reactor (ESBWR)<sup>1</sup> designated Unit 3, on its existing Fermi nuclear facility site near Newport City in Monroe County, Michigan.<sup>2</sup>

Intervenors<sup>3</sup> have submitted two new contentions, 15 and 16, for the Board’s consideration.<sup>4</sup> In Contention 15, Intervenors allege that DTE failed to implement a quality assurance (QA) program under 10 C.F.R. Part 50 Appendices A and

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<sup>1</sup> The ESBWR design is the subject of an ongoing rulemaking proceeding under Docket No. 52-010. *See* General Electric Company; Notice of Acceptance of Application for Final Design Approval and Standard Design Certification of the ESBWR Standard Plant Design, 70 Fed. Reg. 73,311 (Dec. 9, 2005).

<sup>2</sup> On September 18, 2008, DTE submitted its COL Application for Fermi Unit 3 to the NRC. *See* 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, 74 Fed. Reg. 836 (Jan. 8, 2009) [hereinafter Notice of Hearing]. The NRC accepted and docketed the Application on November 25 and December 2, 2008, respectively. On January 8, 2009, the Commission published in the *Federal Register* a notice of hearing and opportunity to petition for leave to intervene on the COL Application for Fermi Unit 3. *Id.* The Commission instituted this adjudicatory proceeding after Petitioners submitted a petition to intervene on March 9, 2009. *See* Petition of Beyond Nuclear, Citizens for Alternatives to Chemical Contamination, Citizens Environmental Alliance of Southwestern Ontario, Don’t Waste Michigan, Sierra Club, et al. for Leave to Intervene in Combined Operating License Proceedings and Request for Adjudication Hearing (Mar. 9, 2009). In July 2009, the Board found that Petitioners had standing to participate in this proceeding, admitted four of the contentions that Petitioners submitted for litigation, and granted Petitioners’ hearing request. LBP-09-16, 70 NRC 227 (2009), *aff’d*, CLI-09-22, 70 NRC 932, 933 (2009).

<sup>3</sup> Intervenors are Beyond Nuclear, Citizens for Alternatives to Chemical Contamination, Citizens Environmental Alliance of Southwestern Ontario, Don’t Waste Michigan, the Sierra Club (Michigan Chapter), and numerous individuals.

<sup>4</sup> Supplemental Petition of Beyond Nuclear, Citizens for Alternatives to Chemical Contamination, Citizens Environmental Alliance of Southwestern Ontario, Don’t Waste Michigan, Sierra Club, et al. for Admission of a Newly-Discovered Contention, and for Partial Suspension of COLA

(Continued)

B during preparation of its COL Application (COLA) for Fermi Unit 3.<sup>5</sup> In Contention 16, Intervenor's allege QA deficiencies in the ESBWR reactor design certification application.<sup>6</sup> Both Applicant and Nuclear Regulatory Commission (NRC) Staff oppose admission of Contentions 15 and 16.<sup>7</sup>

For the reasons explained in Section II below, the Board concludes that Contention 15, as clarified by the Board, is admissible. We deny, however, Intervenor's request to suspend partially the adjudication of the Fermi Unit 3 COLA.<sup>8</sup>

The Board concludes that Contention 16 is inadmissible, as described in Section III, below. We also deny Intervenor's requests to suspend partially the Fermi Unit 3 COLA adjudication and to suspend the ESBWR design activities.

## I. BACKGROUND

Contentions 15 and 16 arose following the October and November 2009 NRC Staff issuance of Notices of Violation (NOV) to DTE or to GE-Hitachi Nuclear Americas LLC (GEH) for various QA violations related to the Fermi Unit 3 COLA.

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Adjudication (Nov. 6, 2009) [hereinafter Contention 15]; Second Supplemental Petition of Beyond Nuclear, Citizens for Alternatives to Chemical Contamination, Citizens Environmental Alliance of Southwestern Ontario, Don't Waste Michigan, Sierra Club, et al. for Admission of a New Contention on ESBWR Quality Assurance, and for Partial Suspension of COLA Adjudication (Dec. 14, 2009) [hereinafter Contention 16].

<sup>5</sup> See Contention 15 at 2-6.

<sup>6</sup> See Contention 16 at 2-3.

<sup>7</sup> See Applicant's Response to Proposed Supplemental Contention (Dec. 1, 2009) [hereinafter Applicant Answer to 15]; NRC Staff Answer to Supplemental Petition for Admission of a Newly-Discovered Contention, and for Partial Suspension of COLA Adjudication (Dec. 1, 2009) [hereinafter NRC Staff Answer to 15].

<sup>8</sup> We note that Intervenor's request at least three different types of "suspension" in Contentions 15 and 16. The titles of both Contentions 15 and 16 include the phrase "request . . . for partial suspension of COLA adjudication." In Contention 15, Intervenor's move for suspension of "part of the adjudication of the Fermi 3 COLA, except for their proffered Contention 15, indefinitely until there is satisfactory proof positive of a fully-implemented quality assurance program for Fermi 3 which integrates all previous and contemplated QA revisions." Contention 15 at 2. In Contention 16, however, it appears that Intervenor's request both suspension of the COLA adjudication (as the title of the document suggests) and suspension of ESBWR design activities "by DTE until the quality problems at GEH are resolved . . ." Contention 16 at 3. Later in Contention 16, Intervenor's state that "adjudication on the COLA must be delayed until the rulemaking on the ESBWR is complete." Contention 16 at 17. Suspending design activities until the quality problems at GEH are resolved would involve stopping work by either the Applicant or its reactor vendor (GEH). That request is different from a request for suspension of this adjudication proceeding, which would involve a halt to this Board's activities.

## II. RULING ON CONTENTION 15

Contention 15 states:

Detroit Edison has failed to comply with Appendix B to 10 C.F.R. Part 50 to establish and maintain a quality assurance (QA) program since March 2007 when it entered into a contract with Black and Veatch (B&V) for the conduct of safety-related combined license (COL) application activities and to retain overall control of safety-related activities performed by B&V. DTE further has failed to complete any internal audits of QA programmatic areas implemented for Fermi 3 COLA activities performed to date. And DTE also has failed to document trending of corrective actions to identify recurring conditions adverse to quality since the beginning of the Fermi 3 project in March 2007.<sup>31</sup>

### A. Timeliness

We first consider whether this new contention may be filed after the expiration of the deadline for filing contentions established in the notice of opportunity for a hearing.

A new contention may be filed after the deadline found in the notice of hearing with leave of the presiding officer upon a showing that:

- (i) The information upon which the amended or new contention is based was not previously available;
- (ii) The information upon which the amended or new contention is based is materially different than information previously available; and
- (iii) The amended or new contention has been submitted in a timely fashion based on the availability of the subsequent information.<sup>32</sup>

Given that NOV first became available on October 7, 2009, NRC Staff acknowledges that Contention 15 was timely filed<sup>33</sup> under the Board's scheduling order for this case.<sup>34</sup> DTE, however, contends that Contention 15 was untimely.<sup>35</sup> Recognizing that Contention 15 is based upon the NOV, DTE argues that information upon which the NOV was based — although not the NOV itself — was available before October 7, 2009.<sup>36</sup> DTE points to documents related to the QA

<sup>31</sup> Contention 15 at 2-3.

<sup>32</sup> 10 C.F.R. § 2.309(f)(2).

<sup>33</sup> NRC Staff Answer to 15 at 9.

<sup>34</sup> Licensing Board Order (Establishing Schedule and Procedures to Govern Further Proceedings) (Sept. 11, 2009) at 2 (unpublished) [hereinafter Scheduling Order].

<sup>35</sup> Applicant Answer to 15 at 8.

<sup>36</sup> *Id.* at 8-12.

issue that predate the NOV, including its own submittals to the agency stating its intent to rely on the B&V QA program; an NRC Staff internal memorandum that, according to DTE, “highlighted the precise issues that are the basis for the Notice of Violation”; and Requests for Additional Information (RAIs) related to the QA issue.<sup>37</sup> DTE maintains that the NOV contains no information that is materially different from that previously available to the Intervenor.<sup>38</sup>

We disagree. The NOV is not simply a reiteration of information and NRC Staff conclusions contained in the various documents cited by DTE. On the contrary, the NOV Letter explains that the NOV is based on the results of an inspection conducted on August 18-21, 2009, during which an “NRC inspection team reviewed certain portions of [DTE’s] quality assurance (QA) program implementation to ensure that they were effectively implemented with respect to the Fermi Unit 3 combined license . . . application.”<sup>39</sup> The NOV Letter and its attachments announced the results of the August 18-21 inspection and NRC Staff’s finding of three specific violations of Appendix B requirements based on those results.<sup>40</sup> Both the Inspection Report and the three specific violations listed in the NOV constitute new information that was materially different from that previously available to Intervenor.<sup>41</sup>

We are not persuaded by DTE’s argument for an additional reason. As the Board in the *Prairie Island* relicensing proceeding stated, “we are ‘not impressed with arguments suggesting that, in order to raise a timely contention, a party must piece together disparate shreds of information that, standing alone, have little apparent significance.’”<sup>42</sup> The *Prairie Island* Board rejected such an argument, explaining:

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<sup>37</sup> *Id.* at 9-10.

<sup>38</sup> *Id.* at 10.

<sup>39</sup> NOV Letter at 1.

<sup>40</sup> By contrast, although the June 23, 2009 Staff memo cited by DTE indicates that NRC Staff had concerns about DTE’s QA program, it also states that “[t]hese concerns will be assessed during an inspection . . . .” See Memorandum from John Nakoski, NRC, to Jeffrey Cruz, NRC, “Fermi 3 Application Quality Assurance (QA) Program” (June 23, 2009) (ADAMS Accession No. ML091671550). Thus, the June 23, 2009 Staff memo contemplates further investigation by the NRC Staff before it decides whether any violations occurred. We will not deem Contention 15 untimely merely because Intervenor waited for the NRC’s investigatory process to be concluded and the Staff to announce its determination.

<sup>41</sup> The Board reviewed the documents posted in ADAMS on the Fermi Unit 3 docket between August 18, 2009 (the start date of NRC Staff’s QA inspection) and October 5, 2009 (the NOV issuance date). This review confirmed that the Inspection Report was not available on ADAMS until after October 5, 2009. See *supra* notes 11, 16-17 and accompanying text.

<sup>42</sup> *Northern States Power Co.* (Prairie Island Nuclear Generating Plant, Units 1 and 2), Order (Narrowing and Admitting PIIC’s Safety Culture Contention) (Jan. 28, 2010) at 6 (unpublished) (quoting *U.S. Department of Energy* (High-Level Waste Repository), LBP-09-29, 70 NRC 1028, 1036 (2009)).

Applicant and NRC Staff . . . claim that [the Petitioner] could have filed this contention in the wake of numerous events that transpired since late 2008. Those events include meetings and reports on the cavity leakage issue, the issuance of yellow and white findings in early 2009, NSPM's responses to the NRC Staff's requests for additional information (RAIs), and issuance of the preliminary SER in June 2009, which identified the cavity leakage issue as an open item. All of those events revealed fragments of the story that PIIC would ultimately fashion into a contention. But none of those events, by itself, fully captured the scope of PIIC's concerns related to safety culture. We would not expect PIIC to "piece together" those "shreds of information" and formulate its contention prior to issuance of the final SER. Accordingly, we find that PIIC's contention meets all of the criteria at 10 C.F.R. § 2.309(f)(2).<sup>43</sup>

Similarly, we do not expect Intervenor to have pieced together various shreds of information to conclude that DTE violated QA requirements in the three specific ways stated in the NOV even before NRC Staff itself announced its determination.

The only remaining issue is whether Intervenor filed Contention 15 in compliance with the requirements of our scheduling order once the NOV was issued. We agree with NRC Staff that they did. The scheduling order states that "a proposed new or amended contention shall be deemed timely under 10 C.F.R. § 2.309(f)(2)(iii) if it is filed within thirty (30) days of the date when the new and material information on which it is based first becomes available."<sup>44</sup> The NOV is dated October 5, 2009; it was posted on ADAMS on October 7, 2009; and Contention 15 was filed on November 6, 2009.

We therefore conclude that Contention 15 satisfies the criteria of 10 C.F.R. § 2.309(f)(2). DTE maintains that we must also determine whether Contention 15 may be admitted under the balancing test in 10 C.F.R. § 2.309(c), which applies to nontimely contentions.<sup>45</sup> We doubt that this is correct.<sup>46</sup> Nevertheless, we will

<sup>43</sup> *Id.* at 6-7.

<sup>44</sup> Scheduling Order at 2.

<sup>45</sup> Applicant Answer to 15 at 2.

<sup>46</sup> "[S]everal Licensing Boards have [recently] recognized a dichotomy between 'new' contentions filed under [10 C.F.R. §] 2.309(f)(2) and 'nontimely' contentions filed under 10 C.F.R. § 2.309(c), based on both the regulatory text and the apparent absurdity of requiring intervenors with contentions rooted in new material information ('new' contentions) to make the same showing as intervenors who have simply delayed filing their contentions until after expiration of the regulatory deadline ('nontimely' contentions)." *Virginia Electric and Power Co.* (North Anna Power Station, Unit 3), LBP-09-27, 70 NRC 992, 998 (2009); *see also Shaw AREVA MOX Services* (Mixed Oxide Fuel Fabrication Facility), LBP-07-14, 66 NRC 169, 210 n.95 (2007); *AmerGen Energy Co., LLC* (Oyster Creek Nuclear Generating Station), LBP-06-11, 63 NRC 391, 396 n.3 (2006); *Entergy Nuclear Vermont Yankee, LLC* (Vermont Yankee Nuclear Power Station), LBP-06-14, 63 NRC 568, 573-74 (2006); *Entergy Nuclear Vermont Yankee, LLC* (Vermont Yankee Nuclear Power Station), LBP-05-32, (Continued)



apply the section 2.309(c) criteria to remove any lingering question concerning the timeliness issue.

Section 2.309(c) sets forth eight factors that apply to nontimely intervention petitions, hearing requests, and contentions.<sup>47</sup> Even if we assume *arguendo* that Contention 15 was nontimely, we conclude that Intervenor's have on balance satisfied the section 2.309(c) factors. The Commission has long affirmed that "[g]ood cause" is the most significant of the late-filing factors set out [in] 10 C.F.R. § 2.309(c)."<sup>48</sup> Recently, the Commission upheld the *Crow Butte* Licensing Board's finding that a petitioner demonstrated "good cause" for its late filing.<sup>49</sup> In this case, Intervenor's have shown good cause. For the reasons we have previously explained, they acted reasonably in waiting for NRC Staff to announce the results of its August 18-21 inspection and its determination, based on the Inspection Report, that DTE had in fact violated Appendix B requirements in three specific ways. To force intervenors to file contentions before the results of an ongoing NRC investigation are announced to the public would effectively force intervenors to speculate about the results of such investigations and the conclusions the Staff might reach. We doubt the Commission would want to encourage the filing of such speculative contentions.

Most of the other factors also weigh in favor of Intervenor's.<sup>50</sup> We have

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62 NRC 813, 821 n.21 (2005). Simply put, "[i]f a contention satisfies the timeliness requirement of 10 C.F.R. § 2.309(f)(2)(iii), then, by definition, it is *not* subject to 10 C.F.R. § 2.309(c) which specifically applies to 'nontimely filings.'" *Vermont Yankee*, LBP-06-14, 63 NRC at 573 n.14 (emphasis in original).

<sup>47</sup> The criteria are:

- (i) Good cause, if any, for the failure to file on time;
- (ii) The nature of the [petitioner's] right under the Act to be made a party to the proceeding;
- (iii) The nature and extent of the [petitioner's] property, financial or other interest in the proceeding;
- (iv) The possible effect of any order that may be entered in the proceeding on the [petitioner's] interest;
- (v) The availability of other means whereby the [petitioner's] interest will be protected;
- (vi) The extent to which the [petitioner's] interests will be represented by existing parties;
- (vii) The extent to which the [petitioner's] participation will broaden the issues or delay the proceeding; and
- (viii) The extent to which the [petitioner's] participation may reasonably be expected to assist in developing a sound record.

10 C.F.R. § 2.309(c)(1).

<sup>48</sup> *Crow Butte Resources, Inc.* (North Trend Expansion Project), CLI-09-12, 69 NRC 535, 549 n.61 (2009); *Dominion Nuclear Connecticut, Inc.* (Millstone Nuclear Power Station, Units 2 and 3), CLI-05-24, 62 NRC 551, 558 (2005); *Private Fuel Storage, L.L.C.* (Independent Fuel Storage Installation), CLI-00-2, 51 NRC 77, 79 (2000).

<sup>49</sup> *North Trend*, CLI-09-12, 69 NRC at 549.

<sup>50</sup> 10 C.F.R. § 2.309(c)(1)(ii)(vi), (viii).

already ruled that Intervenor have standing based upon their proximity to the proposed Fermi Unit 3, admitted four of their contentions, and granted their request for a hearing.<sup>51</sup> They have therefore established their right to be parties to the proceeding.<sup>52</sup> The nature of their interest in the proceeding is based upon the fact that members of the Intervenor organizations reside, work, or recreate within 50 miles of the proposed nuclear power plant.<sup>53</sup> Any order that may be entered in this proceeding concerning QA issues may affect those interests.<sup>54</sup> As Intervenor state, “[i]f the NRC de-emphasizes quality concerns in plant design and construction, the margin of public safety, including the safety of [Intervenor] or their members, will be directly affected.”<sup>55</sup> And, although the NRC has issued an NOV to DTE on the subject of QA, the scope of the issues in this licensing proceeding is potentially broader. Intervenor claim, for example, that “the FSAR’s accuracy in explicating accident scenarios and probabilities” is brought into question by DTE’s QA violations.<sup>56</sup> By contrast, the NOV does not address the impact of the alleged QA violations on the FSAR. We therefore cannot say that means other than this proceeding are available to protect Intervenor’s interests.<sup>57</sup> Although NRC Staff is a party to this proceeding, Intervenor appear to have much broader concerns with the impact of DTE’s QA violations than NRC Staff has articulated in its filings before the Board. We therefore doubt that Intervenor’s interests will be represented by the existing parties to this proceeding.<sup>58</sup> Finally, Intervenor have directed the Board to various internal NRC documents that appear relevant to the QA issue, and they have provided the declaration of an expert witness concerning the extent of DTE’s QA violations.<sup>59</sup> This suggests they may be able to assist the Board in developing a sound record.<sup>60</sup>

The one factor that may not favor Intervenor is “[t]he extent to which the [Intervenor’s] participation will broaden the issues or delay the proceeding.”<sup>61</sup> Contention 15 will broaden the issues in this proceeding because none of the other admitted contentions concern QA violations. This might delay the proceeding to some extent, although we doubt any delay would be significant. To the extent there will be any delay, it is the price for affording the public the opportunity to

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<sup>51</sup> LBP-09-16, 70 NRC at 227, *aff’d*, CLI-09-22, 70 NRC 932 (2009).

<sup>52</sup> 10 C.F.R. § 2.309(c)(1)(ii).

<sup>53</sup> LBP-09-16, 70 NRC at 242.

<sup>54</sup> 10 C.F.R. § 2.309(c)(1)(iii).

<sup>55</sup> Contention 15 at 11.

<sup>56</sup> Contention 15 at 12.

<sup>57</sup> 10 C.F.R. § 2.309(c)(1)(v).

<sup>58</sup> 10 C.F.R. § 2.309(c)(1)(vi).

<sup>59</sup> See Gunderson Decl., discussed *supra* note 18 and accompanying text.

<sup>60</sup> 10 C.F.R. § 2.309(c)(1)(viii).

<sup>61</sup> 10 C.F.R. § 2.309(c)(1)(vii).

litigate questions arising from an applicant's failure to comply with QA requirements. Licensing boards have recognized compliance with QA requirements as an important factor in the licensing decision,<sup>62</sup> and we are reluctant to deny Intervenor's the chance to address this important issue based solely on the possibility of a minor delay.

Because the most important factor, the "good cause" issue, favors Intervenor's, and because most of the other factors also weigh in their favor, we may admit Contention 15 even if it was nontimely.

## B. Admissibility

Having concluded that Contention 15 was timely filed, we next consider whether it satisfies the admissibility requirements of 10 C.F.R. § 2.309(f)(1).

In order to be admissible, a proposed contention must include specific statements of law or fact to be raised or controverted, as required by section 2.309(f)(1)(i), and provide a brief explanation of the basis for the contention, as required by section 2.309(f)(1)(ii). In opposing the new contention, NRC Staff complains that Contention 15 merely restates the violations alleged in the NOV, without identifying the specific issues to be raised or controverted.<sup>63</sup> NRC Staff acknowledges, however, that "[i]n their discussion of proposed Contention 15, the Intervenor's do attempt to explain the significance of the violations cited in the NOV and to link them to issues they wish to litigate in this proceeding."<sup>64</sup> We can identify from Intervenor's discussion of Contention 15 two specific issues related to the licensing decision that Intervenor's intend to litigate.

The first issue concerns the reliability of safety-related information in the FSAR. Intervenor's complain that DTE's failure to comply with Appendix B requirements infects the safety-related information in the FSAR that is based on B&V's tests, investigations, or other safety-related activities, thereby precluding the NRC from relying on such information in its licensing decision. Intervenor's note that, "[b]efore issuing a COL, the NRC staff must complete safety and environmental reviews of the application" and that the COLA "must comply with . . . NRC regulations and all applicable laws."<sup>65</sup> They state that

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<sup>62</sup> *Commonwealth Edison Co.* (Braidwood Nuclear Power Station, Units 1 and 2), LBP-85-11, 21 NRC 609, 632-33 (1985). *See also Philadelphia Electric Co.* (Limerick Generating Station, Units 1 and 2), LBP-83-39, 18 NRC 67, 89 (1983) (noting "the importance of the subject of QA/QC").

<sup>63</sup> NRC Staff Answer to 15 at 10-14.

<sup>64</sup> *Id.* at 14. NRC Staff maintains, however, that those issues are "outside the subject matter covered by the NOV, and in some cases . . . outside the scope of this licensing proceeding." *Id.* We disagree, for the reasons explained *infra*.

<sup>65</sup> Contention 15 at 16.

[s]ince there has apparently not been a genuine QA program administered by DTE in the Fermi 3 preconstruction phase, the lack of QA infects all of the steps taken to date, and a halt to COLA processing is needed because of the potentially large revisions which might become necessary to it.<sup>66</sup>

Intervenors further argue that “the FSAR’s accuracy in explicating accident scenarios and probabilities is brought into question by the claimed utter lack of ongoing quality assurance activity.”<sup>67</sup> Thus, Intervenors’ first argument is that safety-related information in the FSAR is unreliable and should not be used to support the licensing decision because it is based in whole or in part on tests, investigations, or other safety-related activities performed by B&V during the period when DTE had neither established nor implemented its own Appendix B QA program to govern those activities.

We understand Intervenors’ second argument to be that, given DTE’s history of QA violations and perceived lack of commitment to compliance with Appendix B requirements, the NRC cannot make the safety findings necessary to support issuance of the COL. Intervenors state at the beginning of Contention 15 that “DTE . . . appears to be serially in violation of NRC regulations requiring the implementation of a Quality Assurance program during the planning and development stages of the Economic Simplified Boiling Water Reactor design which it proposes for the proposed Fermi 3 nuclear reactor.”<sup>68</sup> Intervenors also state that DTE’s failure to comply with General Design Criteria #1<sup>69</sup> “suggests that DTE’s corporate management has little concern for nuclear quality assurance, as they allowed the situation to become serious for more than two (2) years, without intervening,” and that “[b]y willingly and deliberately choosing not to comply with 10 CFR part 50 since the inception of the COLA proceeding, DTE cannot provide adequate assurance that Fermi 3 can ever comply.”<sup>70</sup>

In rebuttal to NRC Staff’s argument that DTE’s QA violations were much less extensive than Intervenors claim,<sup>71</sup> Intervenors maintain in their Reply that “the lack of a meaningful, DTE-run quality assurance program continues right down to the present.”<sup>72</sup> Intervenors attached to their Reply the Declaration of Arnold Gundersen, a nuclear engineer, who had examined various internal NRC Staff e-mails stating that, in fact, DTE was out of compliance with some Appendix

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<sup>66</sup> *Id.*

<sup>67</sup> *Id.* at 12.

<sup>68</sup> *Id.* at 1-2.

<sup>69</sup> General Design Criterion #1 is contained in 10 C.F.R. Part 50, Appendix A, and it requires a COLA submitted under 10 C.F.R. § 52.79 to establish and to implement a QA program.

<sup>70</sup> *Id.* at 3, 7.

<sup>71</sup> See NRC Staff Answer to 15 at 14-16.

<sup>72</sup> Intervenors’ Reply at 2.

B requirements as late as June 2009, well after the date by which, according to NRC Staff's Answer, the issue of DTE's noncompliance had been resolved.<sup>73</sup> Intervenor contend that they "have articulated evidence that there has been a breakdown of DTE's QA program for Fermi 3 'sufficient to raise legitimate doubt as to whether the plant can be operated safely.'"<sup>74</sup> Intervenor demand that DTE "provide satisfactory proof positive of a fully-implemented quality assurance program which integrates all previous and contemplated QA revisions."<sup>75</sup>

Given our understanding of Intervenor's arguments, we can restate Contention 15 to satisfy the requirement that it identify the specific issues to be litigated. As we noted in our previous ruling on contention admissibility, boards have the discretion to reformulate contentions so as to clarify the issues for litigation.<sup>76</sup> We therefore need not reject a contention based solely on technical pleading defects. Instead, the Board will restate the contention as follows to clarify the specific issues arising from the NOV that Intervenor want to litigate and that relate to the licensing decision for Fermi Unit 3.

*Contention 15 (including subparts A & B):*

Detroit Edison (DTE) failed to comply with Appendix B to 10 C.F.R Part 50 to establish and implement its own quality assurance (QA) program when it entered into a contract with Black and Veatch (B&V) for the conduct of safety-related combined license (COL) application activities and to retain overall control of safety-related activities performed by B&V. This violation began in March 2007 and continued through at least February 2008. Further, DTE failed to complete internal audits of QA programmatic areas implemented for the Fermi 3 COL Application, and DTE also has failed to document trending of corrective actions to identify recurring conditions adverse to quality since the beginning of the Fermi Unit 3 project in March 2007.

*Contention 15A:* These deficiencies adversely impact the quality of the safety-related design information in the FSAR that is based on B&V's tests, investigations, or other safety-related activities. Because the NRC may base its licensing decision on safety-related design information in the FSAR only if it has reasonable assurance of the quality of that information, it may not lawfully issue the COL until the deficiencies have been adequately corrected by the Applicant, or until the Applicant

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<sup>73</sup> *Id.* at 3-5.

<sup>74</sup> *Id.* at 7 (quoting *Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), ALAB-756, 18 NRC 1340, 1344-45 (1983)) (other citations omitted).

<sup>75</sup> *Id.* at 14.

<sup>76</sup> LBP-09-16, 69 NRC at 256 (quoting *North Trend*, CLI-09-12, 69 NRC at 552 (quoting *Shaw Areva MOX Services* (Mixed Oxide Fuel Fabrication Facility), LBP-08-11, 67 NRC 460, 482 (2008) (emphasis omitted))); *see also* *Pennsylvania Power & Light Co.* (Susquehanna Steam Electric Station, Units 1 and 2), LBP-79-6, 9 NRC 291, 295-96 (1979).

demonstrates that the deficiencies do not affect the quality of safety-related design information in the FSAR.

*Contention 15B:* Although DTE claims that in February 2008 it adopted a QA program that conforms to Appendix B, DTE has failed to implement that program in the manner required to properly oversee the safety-related design activities of B&V. This demonstrates an ongoing lack of commitment on the part of DTE's management to compliance with NRC QA regulations. The NRC cannot support a finding of reasonable assurance that the plant, as built, can and will be operated without endangering the public health and safety until DTE provides satisfactory proof of a fully-implemented QA program that will govern the design, construction, and operation of Fermi Unit 3 in conformity with all relevant NRC regulations.

As clarified by the Board, Contention 15 includes two specific statements of law or fact to be raised or controverted and briefly explains the bases of these statements.<sup>77</sup> Contention 15A questions the reliability of safety-related design information in the FSAR that is based in whole or in part on B&V tests, investigations, or other activities conducted during any period when DTE lacked the required QA program to oversee those activities, or failed to implement the QA program. Contention 15A maintains that such safety-related design information is not reliable given the deficiencies in Applicant's QA program, and that, accordingly, the NRC may not rely upon such analyses and data in deciding whether a license should be granted. Contention 15B contends that the NRC lacks reasonable assurance that DTE will implement the QA program required by Appendix B during future phases of the Fermi Unit 3 project, including any future safety-related design work,<sup>78</sup> construction of the plant, and operation. This is based on the ongoing pattern of QA violations described above and the perceived lack of corporate commitment to compliance with Appendix B requirements.

Contentions 15A and 15B are within the scope of this proceeding, as required by section 2.309(f)(1)(iii).<sup>79</sup> The scope of the proceeding is defined by the Commission in its initial hearing notice and order referring the proceeding to the Licensing Board; any contention that falls outside the specified scope of the proceeding is inadmissible. The Notice of Hearing for this proceeding explained that the Licensing Board would consider DTE's Application under Part 52 for a COL for Fermi Unit 3. Because Contentions 15A and 15B concern alleged violations of NRC regulations in connection with the preparation of the FSAR for Fermi Unit 3, they fall within the scope of this proceeding, as section 2.309(f)(1)(iii) requires.

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<sup>77</sup> 10 C.F.R. § 2.309(f)(1)(i) and (ii).

<sup>78</sup> This might include, for example, responses to Requests for Additional Information (RAIs) issued by NRC Staff or future departures from the Standard ESBWR design.

<sup>79</sup> 10 C.F.R. § 2.309(f)(1)(iii).

Section 2.309(f)(1)(iv) requires that the issues raised by a contention be material to the licensing decision. The issues raised by both subparts of the revised Contention 15 satisfy this requirement. “[T]he Board regards potential QA/QC problems as serious and significant considerations bearing heavily on the issuance of a license to operate a nuclear facility.”<sup>80</sup> Contrary to DTE’s argument<sup>81</sup> that Contention 15 raises matters of compliance rather than the adequacy of the COLA, the quality of the information presented in the FSAR is at the heart of the issues considered in this licensing proceeding. Before it may issue a combined license for a nuclear power plant, the Commission is required by its regulations to find (among other things) that “[t]here is reasonable assurance that the facility will be constructed and will operate in conformity with the license, the provisions of the Act, and the Commission’s regulations”; “[t]he applicant is technically . . . qualified to engage in the activities authorized”; and “[i]ssuance of the license will not be inimical to . . . the health and safety of the public.”<sup>82</sup> In order to make these findings, the agency must rely on extensive safety-related information that the applicant provides in the FSAR. As the Board explained in the *Diablo Canyon* licensing proceeding,

Normally, an effectively functioning design quality assurance program ensures that the design of a nuclear power plant is in conformance with the design criteria and commitments set forth in an applicant’s PSAR [Preliminary Safety Analysis Report] and FSAR [Final Safety Analysis Report]. In the case of Diablo Canyon, however, this confidence has been seriously eroded by the existence of significant evidence that the design quality assurance program was faulty (i.e. it failed to comply with 10 C.F.R. Part 50, Appendix B). Hence, there is now substantial uncertainty whether any particular structure, system or component was designed in accordance with stated criteria and commitments.<sup>83</sup>

DTE’s QA violations have the same confidence-eroding effect on the safety-related design information in the FSAR for Fermi Unit 3 that the defects in the design QA program for the Diablo Canyon plant had on the agency’s confidence in the design of that facility. DTE’s QA violations thereby create substantial uncertainty over whether the agency can rely on the tainted information in the FSAR to make the safety-related findings required to issue the license. In short, the quality of the safety-related information in the FSAR is material to the

<sup>80</sup> *Braidwood*, LBP-85-11, 21 NRC at 632-33.

<sup>81</sup> Applicant Answer to 15 at 13.

<sup>82</sup> 10 C.F.R. § 52.97(a)(1)(iii), (a)(1)(iv), and (a)(1)(v).

<sup>83</sup> *Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), ALAB-763, 19 NRC 571, 576 (1984) (quoting that Board’s Scheduling Order).



licensing decision, and Contention 15A, by calling into question the quality of that information, raises a material issue.<sup>84</sup>

The question asserted in Contention 15B of whether the COL applicant will in fact implement the QA program required by Appendix B is also material to the licensing decision. If the NRC is not confident that DTE will implement the QA program described in the FSAR, this would certainly raise a substantial question whether the agency could find “reasonable assurance that the facility will be constructed and will operate in conformity with the license, the provisions of the Act, and the Commission’s regulations,” and that “[i]ssuance of the license will not be inimical to . . . the health and safety of the public.”<sup>85</sup>

Section 2.309(f)(1)(v) requires that a contention be supported by a concise statement of the alleged facts or expert opinions, including references to specific sources and documents, that support Intervenor’s position and upon which they intend to rely at the hearing.<sup>86</sup> As the Commission has explained, however, an intervenor need not provide all supporting facts for a contention in the original submission or prove its case to have the contention admitted.<sup>87</sup> Intervenor in this proceeding, by citing and quoting the NOV, have provided documentation to show that DTE may not have complied with QA requirements with respect to the safety-related COLA activities of its contractor. Contention 15 also cited factual support for Intervenor’s allegations that DTE’s violations of some QA requirements continued well after February 2008. Intervenor quoted the statement in the NOV (Violation B)<sup>88</sup> that, contrary to Criterion XVIII (“Audits”) of Appendix B, “as of August 21, 2009, DECo QA personnel had not completed any internal audits of QA programmatic areas implemented for Fermi 3 COL application activities performed to date.”<sup>89</sup> The failure to perform required audits raises an implementation issue, and thus the statement in the NOV supports Intervenor’s contention that DTE was not fully implementing a QA program in compliance with Appendix B even after the COLA was filed with the NRC. In

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<sup>84</sup> In its Response to the NOV, DTE disagreed that violations occurred, arguing that the QA program was not necessary because it had delegated QA responsibilities to B&V. However, DTE did acknowledge that alleged deficiencies in QA could create an issue for the license review: “It follows that deficiencies in quality would affect the licensing review, but there is no suggestion that there are requirements enforceable by the issuance of a Notice of Violation (NOV).” DTE NOV Reply, Attachment 1 at 5. DTE’s statement is consistent with our conclusion that the alleged QA violations are material to the licensing decision.

<sup>85</sup> 10 C.F.R. § 52.97(a)(iii), (v).

<sup>86</sup> 10 C.F.R. § 2.309(f)(1)(v).

<sup>87</sup> *Louisiana Energy Services, L.P.* (National Enrichment Facility), CLI-04-35, 60 NRC 619, 623 (2004).

<sup>88</sup> See *supra* notes 13-17 and accompanying text.

<sup>89</sup> Contention 15 at 4 (quoting the NOV at 2).

addition, Intervenor's allegations of ongoing QA violations are supported by the Gundersen Declaration and the NRC Staff e-mails cited in it.

Thus, Intervenor has provided a concise statement of the alleged facts or expert opinions, including references to specific sources and documents, that support their position and upon which they intend to rely at the hearing. This is all that section 2.309(f)(1)(v) demands. To be sure, Applicant contends it did not violate any QA requirement,<sup>90</sup> and NRC Staff maintains that DTE's QA violations are less extensive than Intervenor alleges.<sup>91</sup> These disputes go to the merits, however, and we need not resolve them now in order to admit Contentions 15A and 15B.

NRC Staff argues that we should not consider the Gundersen Declaration, or any of the NRC Staff's e-mails quoted in the Declaration, because the Declaration was submitted with Intervenor's Reply Brief.<sup>92</sup> We agree that, as a general matter, a party may not present a new contention, or a new basis for a proposed contention, in its reply.<sup>93</sup> But that is not what Intervenor has done by submitting the Gundersen Declaration. Contention 15 alleged an ongoing failure by DTE to implement the QA program required by Appendix B, and, as we have just explained, NOV Violation B provides some support for that claim.<sup>94</sup> Nevertheless, in its response, NRC Staff argued that Intervenor had significantly overstated the extent of DTE's QA violations.<sup>95</sup> To challenge this NRC Staff argument, Intervenor submitted the Gundersen Declaration with their reply.<sup>96</sup> The Declaration quoted and relied on a series of NRC Staff e-mails showing that NRC Staff itself did not believe DTE had a fully implemented Appendix B QA program in place as late as June of 2009. For example, one e-mail from NRC Staff member Aida Rivera-Varona, dated June 11, 2009, explains that

Fermi is not meeting the requirements of [10 C.F.R. §] 52.79(a)(25), which requires the applicant to provide a QA program consistent with AppB to 10 CFR Part 50 for design, fabrication and construction activities. Although we understand that the FSAR is not a quality document and is a licensing document subject to 52.6, all design activities performed in support of the FSAR (e.g., siting [sic], geotechnical, departures from the DCD) are quality activities subject to AppB requirements. At

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<sup>90</sup> Applicant Answer to 15 at 8, 12.

<sup>91</sup> NRC Staff Answer to 15 at 7-8, 14-16.

<sup>92</sup> NRC Staff Reply to Intervenor's Reply at 6.

<sup>93</sup> See *Louisiana Energy Services, L.P.* (National Enrichment Facility), CLI-04-25, 60 NRC 223, 225 (2004), *reconsideration denied*, CLI-04-35, 60 NRC 619 (2004).

<sup>94</sup> See *supra* notes 88-89 and accompanying text.

<sup>95</sup> NRC Staff Answer to 15 at 14-16. For example, the Staff stated that "DTE put its Fermi 3 QA program into place in February 2008 and issued implementing procedures at that time." *Id.* at 15 (citations omitted).

<sup>96</sup> See Gundersen Decl.

this time, the application is not providing an applicant's QA program for these activities as required by 52.79(a)(25). Fermi [did submit] with the application a QA program for construction and operations.

Second, we understand that the regulations allow[ ] for delegation of QA programs to other organizations. However the Reg Guide 1.206 is very clear that the FSAR should also clearly delineate those QA functions that are implemented within the applicant's QA organization and those that are delegated to other organizations. In addition, the Reg guide states that the FSAR should describe how the applicant will retain responsibility for, and maintain control over, those portions of the QA program delegated to other organizations. Based on the application and the phone calls we have done with DTE, there is no description of how they are maintaining this responsibility and under which program. The Reg Guide clearly states that the FSAR should identify the responsible organization and the process for verifying that delegated QA functions are effectively implemented. Also, based on the calls we have had, DTE has rel[ied] on others for verification of implementation.<sup>97</sup>

By citing this and other NRC Staff e-mails, Intervenors have not attempted to amend or provide a different basis for Contention 15. Instead, they have responded to NRC Staff's argument that they significantly overstated the extent of DTE's QA violations, and they have provided additional factual support for Contention 15's assertion that DTE "appears to be serially in violation of NRC regulations requiring the implementation of a Quality Assurance program . . . ."<sup>98</sup> Although Intervenors did not cite the June 2009 e-mails in Contention 15, our contention admissibility rules do not require an intervenor to provide all supporting facts for a contention or prove its case on the merits in its original submission.<sup>99</sup> When the NRC Staff's Answer accused Intervenors of overstating the extent of the violations identified in the NOV, it was appropriate for Intervenors to respond by citing statements of NRC Staff that appear consistent with Intervenors' position.<sup>100</sup>

Nevertheless, given that Intervenors did not cite the June 2009 e-mails in Contention 15, we permitted NRC Staff and Applicant to file replies to Inter-

<sup>97</sup> June 11, 2009 e-mail from Aida Rivera-Varona (quoted in Gundersen Decl. at 13).

<sup>98</sup> Contention 15 at 1-2.

<sup>99</sup> LES, CLI-04-35, 60 NRC at 623.

<sup>100</sup> Thus, Intervenors responded to a specific argument made by NRC Staff in its answer to Contention 15. Intervenors thereby complied with the requirement that replies should be "narrowly focused on the legal or logical arguments presented in the [answers] on a request for hearing/petition to intervene." *South Carolina Electric and Gas Co.* (Virgil C. Summer Nuclear Station, Units 2 and 3), CLI 10-1, 70 NRC 1, 7 n.32 (2010) (quoting "Final Rule: "Changes to Adjudicatory Process," 69 Fed. Reg. 2182, 2203 (Jan. 14, 2004)). See also *PPL Bell Bend, LLC* (Bell Bend Nuclear Power Plant), CLI 10-7, 70 NRC 133 (2010).

venors' Combined Reply to address the issues raised by the e-mails.<sup>101</sup> In addition to the procedural objections discussed above, NRC Staff argues that the June 2009 e-mails were "predecisional," that the NOV was the product of additional investigation and represents the Staff's final position concerning the extent of DTE's QA violations, and that the NOV contradicts Intervenor's position that those violations continued through June 2009.<sup>102</sup> NRC Staff maintains that when "a contention is based on a factual underpinning in a document that has been essentially repudiated by the source of that document, the contention may be dismissed unless the intervenor offers another independent source."<sup>103</sup>

NRC Staff emphasizes the statement in NOV Violation A that DTE "failed to establish and implement a Fermi Unit 3 quality assurance (QA) program between March 2007 . . . [and] February 2008 . . . ."<sup>104</sup> Apparently NRC Staff interprets NOV Violation A to mean that after February 2008 DTE did establish and implement a Fermi Unit 3 QA program. Even if this is correct, we do not understand the June 2009 e-mails to focus on the general question whether DTE had any QA program whatsoever for Fermi Unit 3 after February 2008, but on the more specific question whether DTE's QA program provided the required level of supervision of the safety-related activities of B&V. In particular, the e-mails raise the question whether B&V's safety-related COLA activities were being performed pursuant to DTE's QA program or still being delegated to B&V to perform pursuant to its own QA program. For example, one message states that as of June 2009, DTE lacked its own QA program for plant-specific design activities, relying instead on the B&V QA program.<sup>105</sup> Another asserts that all design activities performed in support of the FSAR, such as siting, geotechnical investigations, and departures from the DCD, are quality activities subject to Appendix B requirements, but that "[a]t this time, the application is not providing an applicant's QA program for these activities as required by [10 C.F.R. § 52.79(a)(25)]."<sup>106</sup> A third e-mail complains that the FSAR fails to describe how Applicant will retain responsibility for, and maintain control over, those portions of the QA program delegated to other organizations (such as B&V).<sup>107</sup> We do

<sup>101</sup> Absent permission from the Board, neither NRC Staff nor DTE could have filed a reply to Intervenor's Combined Reply in support of Contention 15. Scheduling Order at 2; 10 C.F.R. § 2.309(h)(3).

<sup>102</sup> NRC Staff Reply to Intervenor's Reply at 8-12.

<sup>103</sup> *Id.* at 10 (quoting *Public Service Co. of New Hampshire* (Seabrook Station, Units 1 and 2), CLI-89-3, 29 NRC 234, 241 (1989); *Georgia Power Co.* (Vogtle Electric Generating Plant, Units 1 and 2), ALAB-872, 26 NRC 127, 136 (1987)).

<sup>104</sup> NRC Staff Answer to 15 at 7-8 (quoting NOV Violation A at 1).

<sup>105</sup> June 10, 2009 e-mail from Mark Tonacci (quoted in Gundersen Decl. at 10).

<sup>106</sup> June 4, 2009 e-mail from Aida Rivera-Varona (quoted in Gundersen Decl. at 7).

<sup>107</sup> June 11, 2009 e-mail from Aida Rivera-Varona (quoted in Gundersen Decl. at 13).

not read the NOV as repudiating these or similar statements. On the contrary, NOV Violation B, concerning DTE's failure to audit B&V's activities, alleges violations that continued through August 2009. Thus, NRC Staff concluded that at least some of DTE's QA violations continued well into 2009.

At bottom, NRC Staff's argument concerns the interpretation of debatable evidence and is therefore inappropriate in the context of a contention admissibility ruling, where we do not decide the merits or draw factual inferences in favor of the party opposing the admission of a contention. We therefore are not persuaded by NRC Staff's argument that we should ignore its June 2009 e-mails. Such arguments belong at the evidentiary stage of this proceeding. We therefore conclude that Contentions 15A and 15B satisfy 10 C.F.R. § 2.309(f)(1)(v).

The final requirement is that Intervenor provide sufficient information to show that a genuine dispute exists in regard to a material issue of law or fact, including references to specific portions of the application that Intervenor dispute, or, in the case when the application is alleged to be deficient, the identification of such deficiencies and supporting reasons for this belief.<sup>108</sup> Both DTE and NRC Staff allege that the proposed contention is not admissible because it fails to directly challenge the COLA. NRC Staff focuses upon Intervenor's statement that Contention 15 is a "contention of omission."<sup>109</sup> NRC Staff points out that Chapter 17 of the FSAR and Appendix 17AA describe DTE's QA program.<sup>110</sup> Thus, in their view, the FSAR satisfies 10 C.F.R. § 52.79(a)(25). In addition, NRC Staff and DTE argue that, although Intervenor quote and rely on the NOV, they fail to explain how the violations in the NOV give rise to a dispute of material fact with the Application.<sup>111</sup>

We agree with NRC Staff and DTE that, to the extent Contention 15 alleges that the COLA fails to include a description of DTE's QA program, the contention is not admissible because the FSAR does include such a description. But, unlike NRC Staff and DTE, we do not understand the primary concern of Contention 15 to be that DTE failed to describe a QA program. Although Intervenor do characterize Contention 15 as a contention of omission,<sup>112</sup> they refer on the next page of Contention 15 to "DTE's lack of a *meaningful* QA program."<sup>113</sup> We understand this statement to refer to the entire pattern of DTE's QA violations, including both the complete lack of a DTE QA program between March 2007 and February 2008 and the claim that, even after February 2008, DTE failed to consistently implement a QA program that complies fully with Appendix B.

<sup>108</sup> 10 C.F.R. § 2.309(f)(1)(vi).

<sup>109</sup> NRC Staff Answer to 15 at 7 (citing Contention 15 at 12).

<sup>110</sup> *Id.* at 8.

<sup>111</sup> *See id.* at 12-16; Applicant Answer to 15 at 13-14.

<sup>112</sup> Contention 15 at 12.

<sup>113</sup> *Id.* at 13 (emphasis added).

Intervenors also assert that DTE cannot be relied upon to implement a compliant QA program in the future. Accordingly, the fact that FSAR Chapter 17 describes a QA program does not render Contention 15 inadmissible.

NRC Staff argues that Intervenors must do more than restate the QA violations in the NOV. In order to show that Contention 15 concerns a dispute of material fact with the Application, NRC Staff maintains that they must tie the QA violations in the NOV to some defect in the COLA.<sup>114</sup> “We agree in general with the Applicant and Staff that the mere recitation of unrelated adverse findings in reports of inspections and audits performed by the Staff and Applicant does not supply information on what specifically would be litigated.”<sup>115</sup> But “[t]his is to be contrasted with proceedings where particular allegations of specific patterns of QA/QC problems, often based on inspection reports, have been litigated.”<sup>116</sup> Here, the NOV describes a “specific pattern[] of QA/QC problems.”<sup>117</sup> These include DTE’s failure between March 2007 and February 2008 to establish and implement a QA program to govern safety-related COLA activities, retain overall control of safety-related activities performed by B&V, complete internal audits of QA programmatic areas implemented for Fermi Unit 3 COLA activities, and document trending of corrective actions to identify recurring conditions adverse to quality.<sup>118</sup> Intervenors also allege that DTE’s failure to implement the QA program required by Appendix B continues to the present day. The alleged violations are thus not isolated instances of noncompliance, but rather reflect a pattern of violations that Intervenors claim continued throughout the period during which the COLA was under preparation, and arose from DTE’s failure to establish and implement its own QA program under Appendix B for safety-related COLA activities.

Intervenors have also cited language in the NOV which shows that, during the period when DTE lacked its own QA program, B&V was performing safety-related work connected with the preparation of the COLA. The NOV states that between March 2007 and February 2008, DTE failed to “retain overall control of safety-related activities performed by B&V,” “classify safety-related B&V COL application and OE contracts as safety-related,” and “adequately document the qualification of B&V to perform safety-related COL application activities.”<sup>119</sup> If we take these statements in the NOV at face value, they confirm that B&V was performing safety-related work at the time of the QA violations in the NOV.

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<sup>114</sup> NRC Staff Answer to 15 at 12-16.

<sup>115</sup> *Limerick*, LBP-83-39, 18 NRC at 89.

<sup>116</sup> *Id.*

<sup>117</sup> *Id.*

<sup>118</sup> NOV at 1-2.

<sup>119</sup> Contention 15 at 4 (quoting NOV at 1).



In addition, as we have previously explained, Intervenor's allege that the FSAR is infected by DTE's QA violations.<sup>120</sup> In particular, Intervenor's state that "the FSAR's accuracy in explicating accident scenarios and probabilities is brought into question by the claimed utter lack of ongoing quality assurance activity."<sup>121</sup> They maintain that such tainted parts of the FSAR should not be used by the NRC as a basis for issuing the COL. It is true that Intervenor's allege only that the FSAR's accuracy is "brought into question," not that it actually provides false information. But to argue that they must show specific information in the FSAR to be false to have Contention 15 admitted misapprehends the effect of QA violations. The effect of a pattern of QA violations is not necessarily to show that particular safety-related information is false, but, as the Appeal Board stated in the *Diablo Canyon* licensing proceeding, to erode the confidence the NRC can reasonably have in, and create substantial uncertainty about the quality of, the work that is tainted by the alleged QA violations.<sup>122</sup> To be sure, this does not lead inexorably to the conclusion that the work must be rejected or the application denied.

[P]erfection in plant construction and the facility construction quality assurance program is not a precondition for a license under either the Atomic Energy Act or the Commission's regulations. What is required instead is reasonable assurance that the plant, as built, can and will be operated without endangering the public health and safety.<sup>123</sup>

Similarly, in the *Callaway* licensing proceeding, the Appeal Board stated:

In any project even remotely approaching in magnitude and complexity the erection

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<sup>120</sup> See *supra* Section II.B.

<sup>121</sup> Contention 15 at 12. Accident scenarios and probabilities are evaluated in Chapter 15 of the FSAR. Although Intervenor's specifically identify only the "the FSAR's accuracy in explicating accident scenarios and probabilities" as brought into question by the alleged pattern of QA violations, we do not interpret Contention 15A as limited to only those specific safety issues. As we have explained, we understand Contention 15A to challenge the quality of the safety-related information in the FSAR that is based on B&V's tests, investigations, or other safety-related activities performed when DTE failed to establish and implement its own QA program that conformed to the requirements of Appendix B. Thus, Contention 15A potentially implicates other parts of the FSAR, including Chapters 5, 6, and 15.

<sup>122</sup> *Diablo Canyon*, ALAB-763, 19 NRC at 576 (quoting that Board's Scheduling Order).

<sup>123</sup> *Diablo Canyon*, ALAB-756, 18 NRC at 1345 (citing 42 U.S.C. §§ 2133(d), 2232(a); 10 C.F.R. § 50.57(a)(3)(i); *Power Reactor Development Co. v. International Union of Electrical, Radio and Machine Workers, AFL-CIO No. 315*, 367 U.S. 396, 407 (1961); *Maine Yankee Atomic Power Co. (Maine Yankee Atomic Power Station)*, ALAB-161, 6 AEC 1003, 1004 (1973), *aff'd sub nom. Citizens for Safe Power v. NRC*, 524 F.2d 1291 (D.C. Cir. 1975)). See also *Union Electric Co. (Callaway Plant, Unit 1)*, ALAB-740, 18 NRC 343, 346 (1983).



of a nuclear power plant, there inevitably will be some construction defects tied to quality assurance lapses. It would therefore be totally unreasonable to hinge the grant of an NRC operating license upon a demonstration of error-free construction. Nor is such a result mandated by either the Atomic Energy Act of 1954, as amended, or the Commission's implementing regulations. What they require is simply a finding of reasonable assurance that, as built, the facility can and will be operated without endangering the public health and safety. 42 U.S.C. §§ 2133(d), 2232(a); 10 C.F.R. § 50.57(a)(3)(i). Thus, in examining claims of quality assurance deficiencies, one must look to the implication of those deficiencies in terms of safe plant operation.<sup>124</sup>

Nevertheless, while perfection in the applicant's QA program is not required, once a pattern of QA violations has been shown, the license applicant has the burden of showing that the license may be granted notwithstanding the violations. For example, in the *Diablo Canyon* proceeding, petitioners successfully obtained reopening of the record with regard to design QA. The Appeal Board conducted an adjudicatory hearing to determine whether the applicant's design verification program established the adequacy of the unit's design notwithstanding the QA violations.<sup>125</sup> The Appeal Board made clear that the applicant, not the petitioners, had the burden of proof on that issue.

The [Appeal Board's scheduling order] . . . indicated we would take our lead from the Commission and permit the applicant's various verification efforts "to substitute for, and supplement, the applicant's design quality assurance program in order to demonstrate that the Diablo Canyon plant is correctly designed." It concluded by stating that the "real issue . . . has, in effect, moved beyond the question of what deficiencies existed in the applicant's Diablo Canyon design quality assurance program to the question whether *the applicant can demonstrate* that [its verification efforts] verify the correctness of the Diablo Canyon design."

. . . .

In order to prevail on each of the remaining factual issues, *the applicant's position must be supported by a preponderance of the evidence*. . . . [W]e must independently determine whether the verification programs and their results placed before us in the reopened operating license proceeding are sufficient to verify the adequacy of the Diablo Canyon design. To do this, *the applicant's efforts* must be measured against the same standard as that set forth in the Commission's quality assurance criteria, 10 C.F.R. Part 50, Appendix B: whether the verification program provides "adequate confidence that a [safety-related] structure, system, or component will perform satisfactorily in service." If the *applicant's verification efforts* meet this standard, then there will be reasonable assurance with respect to the design of the

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<sup>124</sup> Callaway, ALAB-740, 18 NRC at 346 (footnote omitted).

<sup>125</sup> See *Deukmejian v. NRC*, 751 F.2d 1287, 1321 (D.C. Cir. 1984).

Diablo Canyon facility that it can be operated without endangering the health and safety of the public.<sup>126</sup>

Thus, once the petitioners in the *Diablo Canyon* proceeding established that the plant's design was infected by a pattern of QA violations, the burden shifted to the applicant to reestablish confidence in the adequacy of the design. The implication of that ruling for the present case is that Intervenor need show only that safety-related design information in the FSAR is infected by a pattern of QA violations. The burden would then shift to DTE to reestablish confidence in the safety-related aspects of the design. As we have explained, Intervenor point to a pattern of QA violations that coincides with the period when DTE's contractor was performing safety-related tests, investigations, and other activities in support of the FSAR. Intervenor allege that the FSAR is therefore infected by this pattern of QA violations. Because this places upon DTE the burden of removing the taint of the QA violations, Intervenor have established in Contention 15A a dispute of material fact with a specific portion of the application (the FSAR), as required by 10 C.F.R. § 2.309(f)(1)(vi).<sup>127</sup>

Intervenor also claim that DTE's alleged failure to consistently implement a QA program precludes the NRC from finding that the program will be implemented during future stages of the Fermi Unit 3 project. This claim also presents a dispute of material fact with a specific portion of the Application. Chapter 17 of the FSAR, as we have noted, describes DTE's QA program. "The description of the quality assurance program for a nuclear power plant must include a discussion of how the applicable requirements of appendix B to 10 CFR part 50 have been and will be satisfied, including a discussion of how the quality assurance program will be implemented."<sup>128</sup> FSAR § 17.5 purports to satisfy this requirement.<sup>129</sup> In Contention 15B, however, Intervenor dispute whether DTE's QA program will in fact be implemented, thus taking issue with a material aspect of FSAR Chapter 17. In the *Callaway* licensing proceeding, the Appeal Board recognized

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<sup>126</sup> *Diablo Canyon*, ALAB-763, 19 NRC at 576-78 (quoting that Board's Scheduling Order) (emphasis added). The quotation concerns the allocation of the burden of proof at an evidentiary hearing. There would be even less justification to impose a more demanding burden upon Intervenor at the contention admissibility stage, where they are not required to prove their case on the merits.

<sup>127</sup> NRC Staff notes a July 2007 NRC Staff audit of B&V's subsurface investigations that were carried out to support site characterization. The audit found that "drilling and field testing activities were controlled by adequate procedures and standards with an appropriate level of supervisory and quality assurance oversight." NRC Staff Answer to 15 at 16 n.4. However, NRC Staff has not called to our attention any other record of a QA audit of other safety-related work that may have been performed by B&V.

<sup>128</sup> 10 C.F.R. § 52.79(a)(25).

<sup>129</sup> Fermi 3 COL Application, Part 2, Final Safety Analysis Report, Rev. 1 (March 2009) at 17-4.

the viability of a claim that, even when an applicant shows that all ascertained construction errors have been cured,

there may remain a question whether there has been a breakdown in quality assurance procedures of sufficient dimensions to raise legitimate doubt as to the overall integrity of the facility and its safety-related structures and components. A demonstration of a pervasive failure to carry out the quality assurance program might well stand in the way of the requisite safety finding.<sup>130</sup>

Intervenors here allege such a pervasive failure.

We therefore conclude that both subparts of Contention 15 (A and B) meet the requirements of 10 C.F.R. § 2.309(f)(1). We agree with DTE and NRC Staff, however, that Intervenors have provided no legal or factual basis for the Board to order partial suspension of the COLA adjudication.<sup>131</sup> We see no realistic prospect of injury to Intervenors if the adjudication continues because Intervenors will have the opportunity to fully litigate Contentions 15A and 15B before the Commission makes a final decision whether to issue the license. The Commission's general policy is to avoid unnecessary delays in adjudicatory proceedings,<sup>132</sup> and Intervenors have not provided a sufficient justification to show that a delay in this proceeding is necessary.

We accordingly admit Contentions 15A and 15 B but deny Intervenors' request for partial suspension of the COLA adjudication.<sup>133</sup>

### III. RULING ON CONTENTION 16

Contention 16 states:

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<sup>130</sup> *Callaway*, ALAB-740, 18 NRC at 346.

<sup>131</sup> Applicant Answer to 15 at 18; NRC Staff Answer to 15 at 18-19.

<sup>132</sup> *See Statement of Policy on Conduct of Adjudicatory Proceedings*, CLI-98-12, 48 NRC 18, 19 (1998).

<sup>133</sup> NRC Staff's April 2010 decision to grant DTE's appeal of NOV Violation A does not affect our decision. *See supra* note 16 and accompanying text. No party has called that decision to our attention, much less suggested that it should affect our ruling on the admissibility of Contention 15. We also note that the decision to partially grant DTE's appeal seems to rest on NRC Staff's view that it lacks legal authority to issue a NOV for Appendix B violations that occurred prior to the date the COLA was filed with the NRC. *Id.* The issue before us, however, is not the extent of NRC Staff's legal authority to issue a NOV, but the effect of DTE's alleged QA violations on the quality of safety-related design information in the FSAR and the confidence the NRC can reasonably have in DTE's commitment to implementing QA requirements. NRC Staff's April 2010 decision does not appear to affect those issues. Moreover, even if it did so, we are not bound by NRC Staff's position or by changes in that position. *See Entergy Nuclear Vermont Yankee, LLC* (Vermont Yankee Nuclear Power Station), LBP-08-25, 68 NRC 763, 824-25 (2008).

licensing board pending completion of the rulemaking, but for a board to take that action the contention must be “otherwise admissible.”<sup>158</sup> Licensing Boards have interpreted “otherwise admissible” to mean a contention that meets the contention admissibility requirements of 10 C.F.R. § 2.309(f)(1) but for the fact that it challenges a yet-to-be-certified reactor design.<sup>159</sup>

Contention 16 is not “otherwise admissible” under this interpretation. The issue only leads back to the problem we previously identified: Contention 16 does not adequately assert a point of law or fact to be challenged, much less explain the reasoning for that challenge. Contention 16 could be interpreted as a vague challenge to either the ESBWR design certification application or the Fermi Unit 3 COLA, but under either interpretation it fails to identify a genuine dispute of material fact with the application. Therefore, because Contention 16 fails to meet the contention admissibility requirements of 10 C.F.R. § 2.309(f)(1), it is not otherwise admissible and may not be held in abeyance.

We therefore do not admit Contention 16.

#### IV. CONCLUSION AND ORDER

For the foregoing reasons:

- A. Contentions 15A and 15B are admitted.
- B. Contention 16 is not admitted.
- C. The Board denies Intervenors’ requests to suspend partially the Fermi Unit 3 COLA adjudication and to suspend the ESBWR design activities.

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<sup>158</sup> 73 Fed. Reg. at 20,972; *Progress Energy Carolinas, Inc.* (Shearon Harris Nuclear Power Plant, Units 2 and 3), CLI-09-8, 69 NRC 317, 324 (2009).

<sup>159</sup> See, e.g., *Luminant Generation Co., LLC* (Comanche Peak Nuclear Power Plant, Units 3 and 4), LBP-09-17, 70 NRC 311, 333-34 (2009); *Progress Energy Carolinas, Inc.* (Shearon Harris Nuclear Power Plant, Units 2 and 3), LBP-08-21, 68 NRC 554, 561-64 (2008).

It is so ORDERED.

THE ATOMIC SAFETY AND  
LICENSING BOARD

Ronald M. Spritzer, Chairman  
ADMINISTRATIVE JUDGE

Michael F. Kennedy  
ADMINISTRATIVE JUDGE

Randall J. Charbeneau  
ADMINISTRATIVE JUDGE

Rockville, Maryland  
June 15, 2010

Cite as 79 NRC 451 (2014)

**LBP-14-7**

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

**ATOMIC SAFETY AND LICENSING BOARD**

**Before Administrative Judges:**

**Ronald M. Spritzer**, Chairman  
**Dr. Anthony J. Baratta**  
**Dr. Randall J. Charbeneau**

**In the Matter of**

**Docket No. 52-033-COL**  
**(ASLBP No. 09-880-05-COL-BD01)**

**DTE ELECTRIC COMPANY**  
**(Fermi Nuclear Power Plant,**  
**Unit 3)**

**May 23, 2014**

This proceeding involves challenges to the combined license application of the DTE Electric Company (“Applicant”) to operate a new reactor, designated Unit 3, on its existing Fermi nuclear facility site near Newport City in Monroe County, Michigan. The Licensing Board rules in favor of the NRC Staff on Contention 8, which challenges the adequacy of the assessment of impacts on the eastern fox snake contained within the Final Environmental Impact Statement (“FEIS”), and in favor of the Applicant on Contention 15, which challenges the adequacy of the quality assurance (“QA”) program developed and implemented by the Applicant.

**LICENSING DECISION: BURDEN OF PROOF**

While an applicant in a licensing decision bears the burden of proving by a preponderance of the evidence that it is entitled to the applied-for license, the NRC Staff bears the burden of establishing compliance with the National Environmental Policy Act (“NEPA”) when an environmental contention alleges noncompliance. Because the Staff typically relies on an applicant’s Environmental

satisfies Part 51 and NEPA. The Board accordingly rules for the Staff on Contention 8.

Although Intervenor have not prevailed on Contention 8, they arguably have won the war despite losing the battle. The admission of Contention 8 in this proceeding resulted in significant changes to the Fermi 3 project that, if implemented, are likely to significantly reduce impacts to the snake. DTE has acknowledged as much. In response to the question “[w]hat steps did DTE take in response to Contention 8,” DTE’s prefiled testimony states that it

re-evaluated the original proposed site layout and, based on that review, made changes to its application to reduce potential wetland impacts, which, in turn, reduced impacts to Eastern Fox Snake habitat. And, DTE developed a mitigation plan to reduce impacts to the Eastern Fox Snake during the site clearing, preconstruction, and construction phases of the Fermi 3 project.<sup>106</sup>

By contrast, DTE’s position as set forth in its ER was that the snake had not been observed on the Fermi 3 property, construction activities would primarily be located away from potential snake habitat and “the snake would be expected to move away from these activities,” the impact to the species would therefore be small, and “no mitigative measures are needed.”<sup>107</sup> There has clearly been a major shift in DTE’s position since the admission of Contention 8 that resulted in a detailed mitigation plan intended to protect the snake from the impacts of construction and that will likely be incorporated in the MDNR permit for the project. Thus, the resolution of Contention 8 represents a NEPA success story.<sup>108</sup>

### III. BOARD RULING ON CONTENTION 15

#### A. Background

On November 6, 2009, the Intervenor filed a Supplemental Petition for Admission of a Newly Discovered Contention (“Supplemental Petition”), which

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<sup>106</sup> DTE Initial Written Testimony (Exh. DTE 001) at A17.

<sup>107</sup> LBP-09-16, 70 NRC at 289 (quoting Applicant’s ER at 4-45).

<sup>108</sup> See *Surfrider Foundation v. Dalton*, 989 F. Supp. 1309, 1325 (S.D. Cal. 1998) (“In many respects, this project represents a NEPA success story, because the final proposal includes numerous environmental improvements that might not have been realized without the lengthy NEPA process.”).



included a QA<sup>109</sup> contention numbered as Contention 15.<sup>110</sup> Intervenor's proposed Contention 15 was based upon a Staff inspection in August 2009 that resulted in a Notice of Violation ("NOV") issued in October 2009 ("2009 NOV"). In the 2009 NOV, the NRC Staff accused DTE of having failed in several respects to comply with the QA requirements of 10 C.F.R. Part 50, Appendix B.<sup>111</sup>

In June 2010, the Board admitted a reformulated version of Contention 15, dividing it into two parts:

Detroit Edison (DTE) failed to comply with Appendix B to 10 C.F.R. Part 50 to establish and implement its own quality assurance (QA) program when it entered into a contract with Black and Veatch (B&V) for the conduct of safety-related combined license (COL) application activities and to retain overall control of safety-related activities performed by B&V. This violation began in March 2007 and continued through at least February 2008. Further, DTE failed to complete internal audits of QA programmatic areas implemented for the Fermi 3 COL Application, and DTE also has failed to document trending of corrective actions to identify recurring conditions adverse to quality since the beginning of the Fermi Unit 3 project in March 2007.

*Contention 15A:* These deficiencies adversely impact the quality of the safety related design information in the FSAR that is based on B&V's tests, investigations, or other safety-related activities. Because the NRC may base its licensing decision on safety-related design information in the FSAR only if it has reasonable assurance of the quality of that information, it may not lawfully issue the COL until the deficiencies have been adequately corrected by the Applicant, or until the Applicant demonstrates that the deficiencies do not affect the quality of safety-related design information in the FSAR.

*Contention 15B:* Although DTE claims that in February 2008 it adopted a QA program that conforms to Appendix B, DTE has failed to implement that program in the manner required to properly oversee the safety-related design activities of B&V. This demonstrates an ongoing lack of commitment on the part of DTE's management to compliance with NRC QA regulations. The NRC cannot support a finding of reasonable assurance that the plant, as built, can and will be operated

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<sup>109</sup> As used in Appendix B,

"quality assurance" comprises all those planned and systematic actions necessary to provide adequate confidence that a structure, system, or component will perform satisfactorily in service. Quality assurance includes quality control, which comprises those quality assurance actions related to the physical characteristics of a material, structure, component, or system which provide a means to control the quality of the material, structure, component, or system to predetermined requirements.

10 C.F.R. Part 50, App. B, Introduction.

<sup>110</sup> Supplemental Petition at 2-3.

<sup>111</sup> See LBP-10-9, 71 NRC 493, 500 (2010). The specific violations are identified in Finding of Fact 22, below.

without endangering the public health and safety until DTE provides satisfactory proof of a fully-implemented QA program that will govern the design, construction, and operation of Fermi Unit 3 in conformity with all relevant NRC regulations.<sup>112</sup>

In substance, Contention 15A alleges that DTE lacked an adequate Fermi 3 QA program for the conduct of safety-related COLA activities. An adequate QA program is basic to ensuring that a nuclear power plant is designed and built to the exacting standards needed to provide adequate assurance of safety. The QA program used to develop design and site characteristics must therefore be robust enough to ensure all data and design information is reliable and accurate. The Commission requires that an adequate QA

program must provide for control over activities affecting quality of “structures, systems, and components, to an extent consistent with their importance to safety.” The program must also include provisions requiring that the applicant regularly review the status and adequacy. [Appendix B] further mandate[s] that the program establish measures to assure that conditions “adverse to quality” are promptly identified and corrected.<sup>113</sup>

Contention 15A maintains that DTE’s QA program was insufficient to enable the Applicant to satisfy those requirements for safety-related work conducted during the pre-application period.

Contention 15B claims that, given DTE’s QA violations and alleged general lack of commitment to compliance with Appendix B requirements, the NRC may not make the safety findings necessary to support issuance of the COL until DTE provides satisfactory proof of a fully implemented QA program.

On April 17, 2012, DTE moved for summary disposition of Contention 15 and subparts 15A and 15B.<sup>114</sup> On May 7, 2012, the Staff filed an answer supporting DTE’s motion.<sup>115</sup> On May 17, the Intervenor filed a response opposing summary disposition.<sup>116</sup> DTE asserted that, throughout the preparation of the material to support the application, the work was performed under the contractor’s Appendix B QA program. However, Intervenor responded that there were conflicting interests between B&V acting as the QA contractor, design contractor, and

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<sup>112</sup> *Id.* at 510-11.

<sup>113</sup> *Cleveland Electric Illuminating Co.* (Perry Nuclear Power Plant, Units 1 and 2), ALAB-802, 21 NRC 490, 492-93 (1985) (internal citations omitted); *see also* 10 C.F.R. Part 50, App. B, § XVI, Corrective Action.

<sup>114</sup> Applicant’s Motion for Summary Disposition of Contention 15 (Apr. 17, 2012).

<sup>115</sup> NRC Staff Answer to Applicant’s Motion for Summary Disposition of Contention 15 (May 7, 2012).

<sup>116</sup> *See* Intervenor’s Response in Opposition to Applicant’s Motion for Summary Disposition of Contention 15 (May 17, 2012).

preapplication activity contractor.<sup>117</sup> Intervenor also questioned whether the arrangement satisfied the requirement that DTE “retain responsibility for the quality assurance program.”<sup>118</sup> As admitted by the Board, Contention 15 included a dispute over whether DTE exercised proper oversight of its contractor, something that Intervenor continued to dispute in their response to the summary disposition motion. The Board concluded that the dispute had not been fully resolved. Therefore, Intervenor identified a material issue relevant to Contention 15 that remained in dispute. The Board accordingly denied DTE’s Motion for Summary Disposition of Contention 15.

### B. Burden of Proof

The applicant has the burden of proof on Contention 15.<sup>119</sup> As we pointed out, however, in our ruling admitting Contention 15:

[P]erfection in plant construction and the facility construction quality assurance program is not a precondition for a license under either the Atomic Energy Act or the Commission’s regulations. What is required instead is reasonable assurance that the plant, as built, can and will be operated without endangering the public health and safety.<sup>120</sup>

During closing argument, counsel for both Intervenor and DTE agreed that reasonable assurance, not perfection, is the correct standard to be applied in this case.<sup>121</sup> Accordingly, DTE’s burden is to show that the quality control procedures it implemented for safety-related COLA activities provide reasonable assurance that the plant, as built, can and will be operated without endangering the public health and safety.

### C. Witnesses

The Staff presented three witnesses in its direct and rebuttal testimony: (1) Adrian Muñoz, (2) Aida Rivera-Varona, and (3) George A. Lipscomb. Mr. Muñoz is an electrical engineer with 11 years of NRC experience. He has been a Project Manager in the New Reactor Licensing Division of NRO since 2008,

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<sup>117</sup> See *id.* at 8.

<sup>118</sup> *Id.*

<sup>119</sup> 10 C.F.R. § 2.325.

<sup>120</sup> LBP-10-9, 71 NRC at 519 (quoting *Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), ALAB-756, 18 NRC 1340, 1345 (1983)) (citing 42 U.S.C. §§ 2133(d), 2232(a); 10 C.F.R. § 50.57(a)(3)(i)) (other citations omitted).

<sup>121</sup> Tr. 643-44, 699 (Lodge; T. Smith).

and has been the Lead Project Manager for the safety review of the Fermi 3 COLA since June 2010. Mrs. Rivera-Varona is a chemical engineer with 11 years of NRC experience. From February 2007 to January 2010, she was a Vendor Inspection Team Leader in Quality and Vendor Branch 2 in the NRO Division of Construction Inspection and Operational Programs. In that capacity, she led a Staff inspection at the Applicant's headquarters in August 2009 that resulted in three cited violations that initially formed the basis for Contention 15.<sup>122</sup> Mr. Lipscomb is an electrical engineer with over 25 years of experience in the U.S. Navy, in the nuclear industry, and at NRC. Since July 2008, he has worked as a QA Inspector and technical reviewer in the NRO Division of Construction Inspection and Operational Programs. He was the lead technical reviewer for QA for Chapter 17 of the SER (Exhibit NRC S1), and he was a member of the inspection team for the August 2009 inspection of DTE that resulted in the cited QA violations that underlie Contention 15 (Exhibit NRC S2). The professional qualifications of the Staff's witnesses were submitted together with their written testimony.

DTE presented four expert witnesses in its direct and rebuttal testimony: (1) Peter W. Smith, (2) Stanley Stasek, (3) Ronald Sacco, and (4) Steven Thomas. Mr. Smith has been employed by DTE as the Director, Nuclear Development — Licensing and Engineering, since 2007. He has overall responsibility for the Fermi 3 project, including the COLA and other state and federal permits and approvals. Mr. Stasek is employed by DTE as Director, Quality Management, for the Fermi 3 project. In this position, he is responsible for developing and maintaining the Fermi 3 QA program, evaluating compliance with the program, and managing QA organization resources. Mr. Sacco is employed by B&V as the Director of Nuclear Quality Assurance for B&V Energy in Overland Park, Kansas. He has been in that position since 2006. In that capacity, he has provided QA and quality management support for nuclear projects including the River Bend, Turkey Point, and Bell Bend COL projects in addition to Fermi 3. Mr. Thomas is employed by B&V as an Engineering Manager in Overland Park, Kansas. He has been in that position since 2007 and was responsible for all engineering and technical activities necessary to develop the Fermi 3 COLA. The professional qualifications of the Applicant's witnesses were submitted together with their written testimony.

The Intervenor presented one witness, Mr. Arnold Gundersen, in their direct and rebuttal testimony. Mr. Gundersen is employed as Chief Engineer for Fairewinds Associates, a Vermont-based nonprofit dedicated to nuclear energy issues. He has provided expert witness testimony in numerous state and federal proceedings. He is a former manager of an NRC-licensed company with expertise

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<sup>122</sup> See NRC Inspection Report 05200033/2009-201 and Notice of Violation [NOV] (Exh. NRC S2) (Oct. 5, 2009) [hereinafter Oct. 2009 Inspection Report/NOV].

in nuclear decommissioning and remediation. Mr. Gundersen's qualifications were submitted together with his written testimony.

#### **D. Applicable Legal Requirements**

##### ***1. Contention 15A***

According to DTE, “[t]here are no QA requirements that apply prior to submittal of a COL application — that is, before a company is an ‘applicant.’ Rather, implicitly, the prospective applicant must conduct activities that are important to safety (particularly safety-related site investigation activities) in a manner such that the quality can be demonstrated to support the eventual application.”<sup>123</sup> Intervenors disagree, arguing that DTE was required to have its own in-house Appendix B QA program during the preapplication period and to apply that program to all safety-related COLA activities, including those performed by B&V.<sup>124</sup> The Staff takes an intermediate position, contending that DTE was not required to have its own in-house QA Program during the preapplication period, but that it had to assure that all safety-related COLA activities were performed consistently with the QA requirements of Appendix B. It could do this by having the safety-related activities performed by a contractor with its own QA program that satisfies Appendix B requirements, provided that DTE retained responsibility for the QA program.<sup>125</sup> In general, the Board agrees with the Staff.

Appendix B sets forth the requirements for a QA program for a nuclear power plant. Also relevant here is 10 C.F.R. § 52.79, which establishes the requirements for the applicant's FSAR and is cited in the Introduction to Appendix B. Interpretation of these regulations, like the interpretation of a statute, begins with the language and structure of the provisions, and the entirety of each provision must be given effect.<sup>126</sup> Where the meaning of a regulation is clear and obvious, the regulatory language is conclusive, and the Board may not disregard the letter of the regulation; it must enforce the regulation as written.<sup>127</sup> Interpretation “may

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<sup>123</sup> Initial Written Testimony of [DTE] Witnesses Peter Smith, Stanley Stasek, Ronald Sacco, and Steven Thomas on Contention 15 (Exh. DTE 015) at A21 (Apr. 30, 2013) [hereinafter Initial Written Testimony of Smith et al.].

<sup>124</sup> See Intervenors' Rebuttal Statement of Position on Contention 15 at 6-8 (May 30, 2013).

<sup>125</sup> See Tr. at 672-92 (Carpentier); see also Tr. at 580 (Lipscomb).

<sup>126</sup> See *AmerGen Energy Co., LLC* (Oyster Creek Nuclear Generating Station), CLI-08-28, 68 NRC 658, 674-75 (2008); *Northeast Nuclear Energy Co.* (Millstone Nuclear Power Station, Unit 3), CLI-01-10, 53 NRC 353, 361 (2001); *Louisiana Energy Services, L.P.* (Claiborne Enrichment Center), CLI-97-15, 46 NRC 294, 299 (1997).

<sup>127</sup> *Cleveland Electric Illuminating Co.* (Perry Nuclear Power Plant, Unit 1), LBP-95-17, 42 NRC 137, 145 (1995), *rev'd on other grounds*, CLI-96-13, 44 NRC 315 (1996).

not conflict with the plain meaning of the wording used in [a] regulation,” which in the end “of course must prevail.”<sup>128</sup>

The Introduction to Appendix B states:

Every applicant for a combined license under part 52 of this chapter is required by the provisions of § 52.79 of this chapter to include in its final safety analysis report a description of the quality assurance *applied to the design*, and *to be applied* to the fabrication, construction, and testing of the structures, systems, and components of the facility and to the managerial and administrative controls to be used to assure safe operation.<sup>129</sup>

The use of the past tense when referring to “quality assurance applied to the design” shows that safety-related design activities must have been performed under an acceptable QA program even though those activities were performed prior to the date on which the COLA (which includes the FSAR) was filed with the NRC. That the use of the past tense was intentional is confirmed by the immediately following reference to the QA program “to be applied” to fabrication, construction, and testing — activities that will ordinarily occur after the COLA is filed.

The Introduction also clarifies that the quality assurance program that must have been applied to the design is an Appendix B program:

Nuclear power plants and fuel reprocessing plants include structures, systems, and components that prevent or mitigate the consequences of postulated accidents that could cause undue risk to the health and safety of the public. This appendix establishes quality assurance requirements for the *design*, manufacture, construction, and operation of those structures, systems, and components. The pertinent requirements of this appendix apply to *all activities affecting the safety-related functions of those structures, systems, and components*; these activities include *designing*, purchasing, fabricating, handling, shipping, storing, cleaning, erecting, installing, inspecting, testing, operating, maintaining, repairing, refueling, and modifying.<sup>130</sup>

Thus, Appendix B requirements apply to, *inter alia*, the design of the safety-related functions of the structures, systems, and components that prevent or mitigate the consequences of postulated accidents.<sup>131</sup> The regulation draws no distinction between safety-related design activities performed before the COLA

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<sup>128</sup> See *Long Island Lighting Co.* (Shoreham Nuclear Power Station, Unit 1), ALAB-900, 28 NRC 275, 288, 290, *review declined*, CLI-88-11, 28 NRC 603 (1988); see also *Graystar, Inc.* (Suite 103, 200 Valley Road, Mt. Arlington, NJ 07856), LBP-01-7, 53 NRC 168, 187 (2001).

<sup>129</sup> 10 C.F.R. Part 50, App. B, Introduction.

<sup>130</sup> *Id.* (emphasis added).

<sup>131</sup> See Tr. at 611 (Lipscomb).



is submitted to the NRC and those performed later. All such activities must be performed under a QA program that satisfies the requirements of Appendix B.

Our reading is reinforced by 10 C.F.R. § 52.79, which establishes the requirements for the applicant's FSAR. Section 52.79(a)(25) requires that the applicant for a COL include in its FSAR:

A description of the quality assurance program, *applied to the design*, and to be *applied* to the fabrication, construction, and testing, of the structures, systems, and components of the facility. Appendix B to 10 CFR part 50 sets forth the requirements for quality assurance programs for nuclear power plants. The description of the quality assurance program for a nuclear power plant must include a discussion of how the applicable requirements of appendix B to 10 CFR part 50 *have been* and *will be* satisfied, including a discussion of how the quality assurance program will be implemented.<sup>132</sup>

Here also, the use of the past tense when referring to the QA program “applied to the design” shows that safety-related design activities must have been performed under an acceptable QA program even though the activities were performed prior to the date on which the COLA (which includes the FSAR) was filed with the NRC. Equally important, the text of section 52.79(a)(25) confirms that the QA program that must have been applied to the design is one that meets the requirements of Appendix B. An applicant will only be able to explain “how the applicable requirements of appendix B to 10 CFR part 50 have been . . . satisfied” if it implemented an Appendix B QA program for safety-related design activities.

Not only does the relevant text of Appendix B fail to distinguish between activities performed before or after the COLA is filed, we fail to see any logical reason why it would do so. Regardless of when safety-related design work is performed, it must be done under a QA program that meets the NRC's requirements for the Commission to find that the design will provide adequate assurance of the protection of public health and safety.<sup>133</sup> A licensing board should not interpret regulatory text in a way that would essentially negate the stated purpose of the regulation or impute to the Commission an intent to create a “schizophrenic” rule.<sup>134</sup>

<sup>132</sup> 10 C.F.R. § 52.79(a)(25) (emphasis added).

<sup>133</sup> The Commission may issue a COL if the Commission finds, *inter alia*, that (i) the applicable standards of the Atomic Energy Act and the Commission's regulations have been met; and (iii) there is reasonable assurance that the facility will be constructed and will operate in conformity with the license, the provisions of the Act, and the Commission's regulations. See 10 C.F.R. § 52.97(a)(1)(i), (iii). The applicable regulations include the quality assurance requirements specified in Appendix B to 10 C.F.R. Part 50. See 10 C.F.R. § 52.79(a)(25) and 10 C.F.R. Part 50, Appendix B, Introduction.

<sup>134</sup> *Hydro Resources, Inc.* (P.O. Box 777, Crownpoint, New Mexico 87313), LBP-06-1, 63 NRC (Continued)



We are not persuaded by DTE's argument that Appendix B requirements apply to activities performed only after the COLA is submitted to the NRC. DTE assumes that because the requirements of Appendix B apply to an "applicant," they apply only after the COLA is filed with the NRC because only then does a company become an "applicant." The issue whether DTE was an "applicant" prior to submitting its COLA for Fermi 3 arose because of the dispute whether the Staff could issue an NOV to DTE for alleged QA violations during the preapplication period. DTE argued, and the Staff eventually agreed, that the use of the term "applicant" in Appendix B limits the Staff's authority to issue an NOV for violations that may have occurred before DTE submitted the COLA to the NRC. The Intervenor's disagree with both the Staff and DTE on that issue, stating that under 10 C.F.R. § 50.2 "[a]n applicant means a person or entity applying for a license."<sup>135</sup> Using this definition, the Intervenor's argue that DTE was an applicant from the point when it notified the NRC of its intent to apply for a COL for Fermi 3.<sup>136</sup>

The Board need not resolve this question because Contention 15 concerns licensing, not enforcement. For licensing purposes, all safety-related design activities, including site characterization, performed before the COLA is submitted must be performed under a QA program meeting applicable Appendix B requirements. Even if the Staff is correct that it may not issue an NOV for failure to satisfy Appendix B requirements during the preapplication period, it may deny the COL for failure to satisfy the standards and requirements of the Commission's regulations.<sup>137</sup>

The Board also disagrees with the Intervenor's argument that DTE was required to have an in-house Appendix B QA program (i.e., an Appendix B program established and implemented solely by DTE personnel) throughout the preapplication period and to use that program to provide oversight of all safety-related COLA activities performed by B&V. The Intervenor's argue that DTE's preliminary QA efforts, undertaken from 2007 to 2009 (the period before and after the September 2008 COLA submission), were inadequate. According to the Intervenor's, DTE failed to comply with Appendix B by (1) not establishing and maintaining its own QA program after March 2007, when it entered into a contract with B&V for the conduct of safety-related COLA activities; and (2) failing to retain overall control

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41, 68-69 (citing *Exxon Nuclear Co.* (Nuclear Fuel Recovery and Recycling Center), ALAB-447, 6 NRC 873, 878 (1977)), *aff'd*, CLI-06-14, 63 NRC 510 (2006); see also *New York State Department of Social Services v. Dublino*, 413 U.S. 405, 419-20 (1973); *Treadway v. Gateway Chevrolet Oldsmobile Inc.*, 362 F.3d 971, 976 (7th Cir. 2004).

<sup>135</sup> Tr. at 390 (Gundersen).

<sup>136</sup> See *id.*

<sup>137</sup> 10 C.F.R. § 52.97(a)(1)(i).

of safety-related activities performed by B&V.<sup>138</sup> Mr. Gundersen testified that he has never seen a nuclear reactor program that did not have a fully operational QA Program in place at the onset of its design process. He maintains that the owner's QA program and its supporting design review, document control, and rigorous process must begin several years prior to COLA submittal.<sup>139</sup> He acknowledges that DTE could delegate the QA function to a contractor, but DTE had to provide adequate oversight of the contractor through its in-house QA program. This required DTE to have throughout the preapplication period a Fermi 3 QA program staffed by its own QA professionals.<sup>140</sup>

Intervenors' position is in substance a legal argument that Appendix B requirements can only be satisfied during the preapplication period in the manner specified by Mr. Gundersen. It is true that Appendix B requires that the applicant be responsible for the establishment and execution of the QA program.<sup>141</sup> But it also states that the applicant may "delegate to others, such as contractors, agents, or consultants, the work of establishing and executing the quality assurance program, or any part thereof, but [the applicant] shall retain responsibility for the quality assurance program."<sup>142</sup> Appendix B does not define what is meant by "retain responsibility." This suggests that the Board should consider all relevant facts and circumstances to determine whether DTE exercised sufficient supervision, oversight, and contractual control of B&V and its QA program during the preapplication period.

We therefore do not accept Intervenors' argument that the only way in which DTE could "retain responsibility" during the preapplication period was through an in-house QA program that met Appendix B requirements. DTE could delegate to its contractor the work of establishing and executing the QA program for site characterization activities, provided that the contractor had a QA program that satisfied Appendix B requirements and DTE retained responsibility for the program. The question whether DTE did in fact retain responsibility is the factual issue in dispute with respect to Contention 15A.

## 2. Contention 15B

Contention 15B concerns the time period after the COLA was filed. For that period, there is no dispute that Appendix B requirements apply to the Applicant's QA program. Intervenors question whether DTE's QA program will in fact be

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<sup>138</sup> Prefiled Direct Testimony of Gundersen (Exh. INTS 068) at A22 [hereinafter Gundersen Testimony].

<sup>139</sup> *Id.*

<sup>140</sup> *See* Tr. at 415-16 (Gundersen).

<sup>141</sup> *See generally* 10 C.F.R. Part 50, App. B.

<sup>142</sup> *Id.* § I, Organization.

implemented during construction and operation of Fermi 3. In the *Callaway* licensing proceeding, the Appeal Board recognized that, even when an applicant shows that all ascertained construction errors have been cured,

there may remain a question whether there has been a breakdown in quality assurance procedures of sufficient dimensions to raise legitimate doubt as to the overall integrity of the facility and its safety-related structures and components. A demonstration of a pervasive failure to carry out the quality assurance program might well stand in the way of the requisite safety finding.<sup>143</sup>

Intervenors allege such a pervasive failure.

## **E. Findings of Fact**

### ***1. DTE Preapplication Activities for the Fermi 3 COLA***

1. The Fermi 3 COLA project was initiated in December 2006. In late April 2007, DTE formally established the Fermi 3 Nuclear Development Project group to oversee the COLA project. The COLA was ultimately submitted to the NRC on September 18, 2008.<sup>144</sup>

2. Site characterization was one of the major activities to develop the Fermi 3 COLA performed prior to September 2008.<sup>145</sup> DTE acknowledges that its subsurface investigations (i.e., site characterization work) performed during 2007 were safety related or supported safety-related information.<sup>146</sup> Thus, the site characterization work had to be performed under the QA program required by Appendix B for “all activities affecting the safety-related functions of those structures, systems, and components” that prevent or mitigate the consequences of postulated accidents.<sup>147</sup> ASME Standard NQA-1-1994<sup>148</sup> provides a method found acceptable by the NRC Staff for satisfying Appendix B QA requirements.<sup>149</sup>

3. With respect to the site characterization and information gathering for the FSAR, the principal safety-related site activities were site geotechnical and hydrogeological investigations and seismic analysis. These work activities had

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<sup>143</sup> *Union Electric Co.* (Callaway Plant, Unit 1), ALAB-740, 18 NRC 343, 346 (1983).

<sup>144</sup> Initial Written Testimony of Smith et al. (Exh. DTE 015) at A24.

<sup>145</sup> *Id.* at A25.

<sup>146</sup> Tr. at 478 (P. Smith).

<sup>147</sup> 10 C.F.R. Part 50, App. B, Introduction.

<sup>148</sup> NQA-1-1994, Quality Assurance Requirements for Nuclear Facility Applications (Exh. BRD-001) at 155 (Undated) [hereinafter NQA-1-1994].

<sup>149</sup> The NRC endorsed NQA-1-1994 in Regulatory Guide 1.28, “Quality Assurance Program Requirements (Design and Construction)” (Rev. 3). See Initial Written Testimony of Smith et al. (Exh. DTE 015) at A22.

at least the potential to influence the design of safety-related structures, systems, and components.<sup>150</sup>

4. The principal safety-related site characterization activities involved core borings and test wells to determine whether hydrogeological characteristics and site seismic hazards fall within the bounds of the ESBWR design certification.<sup>151</sup>

5. NQA-1-1994, Subpart 2.20, "Quality Assurance Requirements for Subsurface Investigations for Nuclear Power Plants," identifies QA measures to be used for site investigation activities.<sup>152</sup>

6. Subsurface investigations are defined in NQA-1-1994 as the determination, correlation, and interpretation of soil, rock, and groundwater subsurface features as disclosed or inferred by exploratory excavating, drilling, sampling, testing, and geophysical surveying.<sup>153</sup> Subpart 2.20 is intended to apply to any of these activities which will be used to formulate design bases for the plant. The extent to which the individual requirements of Subpart 2.20 apply will depend upon the nature and scope of work to be performed and the importance of the item or service involved.<sup>154</sup>

7. DTE agrees that the subsurface investigations were safety related or supported safety-related information.<sup>155</sup>

## 2. *QA During Site Characterization*

8. DTE did not have an in-house QA program (i.e., a program established and implemented solely by DTE personnel) in place for Fermi 3 at the outset of the COLA development project.<sup>156</sup>

9. DTE prepared a formal Request for Proposals ("RFP") from contractors to perform the activities necessary to prepare a COL application.<sup>157</sup>

10. The RFP required bidders to demonstrate as a prerequisite that they had an established Appendix B QA program.<sup>158</sup>

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<sup>150</sup> Initial Written Testimony of Smith et al. (Exh. DTE 015) at A25.

<sup>151</sup> *Id.* at A27.

<sup>152</sup> NQA-1-1994 (Exh. BRD-001) at 155.

<sup>153</sup> *Id.*

<sup>154</sup> *Id.*

<sup>155</sup> Tr. at 478 (P. Smith).

<sup>156</sup> See Written Direct Testimony of George A. Lipscomb Concerning the Staff's Review of the Fermi 2 Quality Assurance Program as It Relates to Contention 15 (Exh. NRC S23) at A35 (Apr. 30, 2013) [hereinafter Lipscomb Written Direct Testimony]; Initial Written Testimony of Smith et al. (Exh. DTE 015) at A35; Gundersen Testimony (Exh. INTS 068) at A27.

<sup>157</sup> Initial Written Testimony of Smith et al. (Exh. DTE 015) at A30.

<sup>158</sup> *Id.*

11. The proposal submitted by B&V referenced and appended B&V's QA Program, which satisfies Appendix B and NQA-1-1994.<sup>159</sup>

12. DTE contracted with B&V to perform safety-related activities that supported development of the Fermi 3 COLA, including site characterization, and B&V personnel and subcontractors performed those activities under the B&V QA program rather than under a DTE program.<sup>160</sup> B&V was required by DTE to have a QA program.<sup>161</sup> The site characterization work was obtained from B&V under its QA program.<sup>162</sup>

13. During the site characterization, DTE observed the B&V site work. For example, Mr. Smith (DTE's Director, Nuclear Development — Licensing and Engineering) observed the collection of core samples.<sup>163</sup> DTE also established an owner's engineer organization to perform the QA oversight of the B&V work.<sup>164</sup> The owner's engineer organization was staffed by people from the Ann Arbor office of B&V, an office independent from the B&V Kansas City office that performed the site investigation work.<sup>165</sup>

14. Appendix B directs that

[a] comprehensive system of planned and periodic audits shall be carried out to verify compliance with all aspects of the quality assurance program and to determine the effectiveness of the program. The audits shall be performed in accordance with the written procedures or check lists by appropriately trained personnel not having direct responsibilities in the areas being audited. Audit results shall be documented and reviewed by management having responsibility in the area audited. Followup action, including reaudit of deficient areas, shall be taken where indicated.<sup>166</sup>

The B&V QA program was audited by the Nuclear Procurement Issues Committee ("NUPIC") prior to placement of the purchase order by DTE for site

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<sup>159</sup> See generally Binder 2 Submittal — Technical Requirements, Pricing, and Disaster Recovery/Business Resumption Response; Lipscomb Written Direct Testimony (Exh. NRC S23) at A18, A25; Initial Written Testimony of Smith et al. (Exh. DTE 015) at A31; Tr. at 395 (Gundersen).

<sup>160</sup> See Lipscomb Written Direct Testimony (Exh. NRC S23) at A25; Initial Written Testimony of Smith et al. (Exh. DTE 015) at A37, A39-43; Gundersen Testimony (Exh. INTS 068) at A27.

<sup>161</sup> See Project Management Memorandum, [DTE] (Fermi Site) COL Application Preparation (Exh. DTE 056) at 22-23 (Mar. 30, 2007).

<sup>162</sup> Initial Written Testimony of Smith et al. (Exh. DTE 015) at A29.

<sup>163</sup> Tr. at 488 (P. Smith).

<sup>164</sup> Tr. at 474 (P. Smith & Stasek).

<sup>165</sup> *Id.*

<sup>166</sup> 10 C.F.R. Part 50, App. B, § XVIII.

characterization services. NUPIC provides such audit services for many utilities. The NUPIC audit was led by Entergy.<sup>167</sup>

15. DTE reviewed the results of the NUPIC audit. No deficiencies were identified by the NUPIC audit of B&V.<sup>168</sup>

16. DTE performed its own audit of B&V in 2009. During that audit DTE also reviewed the earlier NUPIC audit and did not identify any issues that were identified during that previous audit as well.<sup>169</sup>

17. Personnel from both the Owner's Engineer Office in Ann Arbor and the QA office within the B&V Kansas City Office periodically performed surveillances of activities on the Fermi 3 site.<sup>170</sup>

18. The owner's engineer assisted DTE in providing oversight of site activities.<sup>171</sup> DTE had personnel onsite such that DTE had firsthand knowledge of what work was being done.<sup>172</sup>

19. DTE acknowledges that when it became an applicant more activities needed to be managed in house, and DTE needed to have its own QA program in place to guide those activities.<sup>173</sup> Beginning in November 2007, DTE began developing a formal process for the receipt, review, and acceptance of safety-related COLA work product from B&V. DTE established its own QA program for the Fermi 3 project under the Nuclear Development Quality Assurance Program Description ("ND QAPD") on February 4, 2008.<sup>174</sup> DTE did not accept any safety-related B&V work product until after the Fermi 3 project had its own QA program in place to govern the receipt, review, and acceptance of such information.<sup>175</sup>

20. Under the ND QAPD, DTE established applicable elements of an Appendix B program and created procedures for implementing those elements associated with the activities planned in support of the review and acceptance of

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<sup>167</sup> Tr. at 468 (P. Smith & Stasek). NUPIC is a committee that was formed because of the additional resources that were necessary to monitor and audit all of the nuclear vendors that nuclear utilities had in place. NUPIC's function is to facilitate resource sharing between the utilities such that all of the utilities may take credit for the audits that are done by NUPIC using a standard format. NUPIC performs audits of programs using a combined team of representatives from different utilities. These teams use a standard checklist from vendor to vendor so that there is consistency between the audits. See Tr. at 468-69 (Stasek).

<sup>168</sup> Tr. at 469-70 (P. Smith & Stasek).

<sup>169</sup> Tr. at 470 (P. Smith & Stasek).

<sup>170</sup> Tr. at 480-81 (P. Smith).

<sup>171</sup> Tr. at 473 (P. Smith).

<sup>172</sup> *Id.*

<sup>173</sup> Tr. at 617 (Rivera-Verona & Lipscomb).

<sup>174</sup> Initial Written Testimony of Smith et al. (Exh. DTE 015) at A35.

<sup>175</sup> *Id.* at A30, A55.



the B&V COLA application work product.<sup>176</sup> Using these procedures, DTE was able to verify for each chapter and section of the COLA that there was a reference to a B&V calculation, a reference to the source, and that there were trails enabling someone to verify that that calculation is correct and based on the information presented.<sup>177</sup>

### 3. *NRC Staff Investigation and the NOV*

21. At the beginning of the Fermi 3 FSAR review, the Staff was familiar with other COL applications which used the QA programs from the applicants' existing reactors to control both preapplication activities and activities in the application review phase. In contrast to the approach used by such applicants, DTE informed the Staff that, for the Fermi 3 project, it intended to develop a new QA program for Fermi 3 that was separate from the program in place for Fermi 2. The Staff determined that further clarification of this approach was necessary.<sup>178</sup>

22. The Staff conducted an inspection in August 2009 that resulted in an NOV issued to DTE in October 2009.<sup>179</sup> In the 2009 NOV, the Staff accused DTE of having failed in several respects to comply with the QA requirements of 10 C.F.R. Part 50, Appendix B. The alleged violations included: (A) failing to establish and implement a Fermi 3 QA program between March 2007 (when DTE initially contracted with B&V for the conduct of COLA activities for Fermi 3) and February 2008 and failing to retain overall control of contracted COLA activities as required under Criterion II, "Quality Assurance Program" of Appendix B, resulting in inadequate control of procurement documents and ineffective control of contract services performed by B&V for COLA activities; (B) failing to perform internal audits of QA programmatic areas implemented for Fermi 3 COLA activities; and (C) failing to document trending of corrective action reports.<sup>180</sup>

23. DTE responded to the Staff's NOV letter on November 9, 2009, denying that any violation occurred because DTE was not a COL applicant before September 18, 2008, and thus could not be subject to an NOV for QA deficiencies before that date.<sup>181</sup> DTE acknowledged, however, that quality deficiencies prior

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<sup>176</sup> See Tr. at 587-88 (Lipscomb).

<sup>177</sup> Tr. at 483-84 (P. Smith).

<sup>178</sup> Lipscomb Written Direct Testimony (Exh. NRC S23) at A19.

<sup>179</sup> See Oct. 2009 Inspection Report/NOV (Exh. NRC S2).

<sup>180</sup> See generally *id.*

<sup>181</sup> [DTE] Reply to a [NOV] 05200033/2009-201-01, 02, and 03, Attach. 1, NRC3-09-0041, Response to Violation 05200033/2009-201-01 (Exh. NRC S3) at 4 (Nov. 9, 2009).



to that date “would affect the licensing review.”<sup>182</sup> DTE’s reply also described the corrective actions it had taken since the NOV was issued:

To address the concerns noted in the violation and to assure that all COLA activities continue to be conducted at a level of quality necessary to support future safety related activities the following measures are now in place:

- 1) As stated in the NRC’s “Vendor Inspection Report,” Detroit Edison put in place the Nuclear Development Quality Assurance Program Description, Revision 0 on February 4, 2008.
- 2) Subsequently, Detroit Edison put in place the Fermi 3 Quality Assurance Program Description (Fermi 3 QAPD), Revision 0 on September 25, 2008 which implements in full the requirements from Criterion II, “Quality Assurance Program,” Criterion IV, “Procurement Control,” and Criterion VII, “Control of Purchased Materials, Equipment, and Services,” of Appendix B to 10 CFR Part 50.<sup>183</sup>

24. On April 27, 2010, the Staff responded to DTE, agreeing that the Staff could not issue an NOV for actions or omissions before the date on which DTE submitted the Fermi 3 COLA to the NRC.<sup>184</sup> But the Staff also stated that “Detroit Edison must demonstrate compliance with Appendix B in order to receive a COL from the Nuclear Regulatory Commission.”<sup>185</sup> The Staff response contained a revised NOV that reformulated the original violations A, B, and C into two new violations.

25. Under the Staff’s revised NOV, “Detroit Edison’s activities related to Fermi 3 became subject to NRC regulations and NRC enforcement upon filing the Fermi 3 COL application on September 18, 2008.”<sup>186</sup> The NOV was therefore revised to eliminate references to activities occurring before the Fermi 3 Application was submitted to the NRC on September 18, 2009.<sup>187</sup> Violation A cited Detroit Edison “for failure to perform an evaluation of the B&V quality assurance program and adequately document the basis for the qualification of B&V to perform safety-related Fermi 3 COL activities after September 18, 2008.” The Staff required DTE to respond within 30 days to the revised Violation A.<sup>188</sup>

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<sup>182</sup> *Id.* at 5.

<sup>183</sup> *Id.* at 9.

<sup>184</sup> NRC Response to [DTE] Reply to a [NOV] 05200033/2009-201-01, 02, and 03 and Revised [NOV] to [DTE] (Exh. NRC S4) at 1 (Apr. 27, 2010).

<sup>185</sup> *Id.*

<sup>186</sup> *Id.* at 2.

<sup>187</sup> *See id.*

<sup>188</sup> *Id.*

26. Revised Violation B combined previous violations B and C. The Staff's April 27, 2010 letter stated that it had reviewed DTE's corrective actions relating to Violations B and C of the Initial NOV and found them responsive to the Initial Notice. The Staff stated that it had

no further questions or comments at this time and you are not required to respond further to these two violations, or to Violation B of the Revised Notice. We may review the implementation of your corrective actions during a future NRC staff inspection to determine that full compliance has been achieved and maintained.<sup>189</sup>

27. DTE sent a response to the revised NOV in May 2010.<sup>190</sup> DTE did not dispute revised Violation A, acknowledging that it "failed to sufficiently document a review of the Black & Veatch, Overland Park, Kansas (B&V) 10 CFR 50 Appendix B QA program, which would typically include the basis for qualifying the B&V QA program, thereby assuring that B&V was qualified to perform safety-related Fermi 3 COL activities."<sup>191</sup> But DTE maintained that the violation had been corrected:

As of July 2009, Detroit Edison has taken the necessary steps to assure that B&V is qualified to supply the safety-related services to Detroit Edison, as required by Criterion VII, "Control of Purchased Material, Equipment, and Services" of 10 CFR 50 Appendix B. Detroit Edison expanded the guidance within implementing procedures NP-7.1, "Supplier Audits, Surveillances, and Commercial Grade Surveys", and NP-7.2, "Supplier Evaluations." Audit and surveillance schedules initiated by Detroit Edison further specify supplier evaluation activities. With these changes in place, Detroit Edison has established a program to comply with the requirements of Criterion VII, "Control of Purchased Materials, Equipment, and Services," of Appendix B to 10 CFR Part 50.<sup>192</sup>

DTE also stated it had "confirmed that the safety-related activities performed by B&V prior to July 2009 were completed in accordance with 10 CFR 50 Appendix B requirements."<sup>193</sup> Finally, DTE stated that it had established processes to prevent any future violations.<sup>194</sup>

28. The Staff reviewed DTE's response, together with RAI responses that

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<sup>189</sup> *Id.*

<sup>190</sup> See [DTE] Reply to [NOV] 05200033/2009-201-04 (Exh. NRC S5) (May 25, 2010).

<sup>191</sup> See *id.*, Attach. 1, NRC3-10-0023, at 2.

<sup>192</sup> *Id.* at 3.

<sup>193</sup> *Id.*

<sup>194</sup> *Id.* at 4.

DTE also submitted in May 2010,<sup>195</sup> and determined that in its view all post-application issues related to DTE's contracting with B&V were resolved.<sup>196</sup> The Staff issued a letter closing the NOV on June 4, 2010.<sup>197</sup> The Staff has not identified any post-application QA issues other than those identified in the revised NOV.<sup>198</sup>

29. The Staff acknowledges that its resolution of the NOV does not resolve the questions in Contention 15A related to preapplication safety-related activities.<sup>199</sup>

## F. Conclusions of Law

### 1. Contention 15A

As explained in Section III.D, above, Appendix B permits DTE to delegate the work of establishing and executing the QA program, provided that it retained responsibility for the program. Accordingly, the factual dispute that the Board must resolve is whether DTE in fact retained responsibility for the QA program during the preapplication period.

The Board concludes that, although DTE's QA program was different from the previously typical situation in which the applicant utilizes a QA program from one of its existing reactors, DTE satisfied Appendix B requirements during the preapplication period. To fulfill the obligation to provide quality information in support of its application, DTE found a vendor which had in place a QA program that met the Appendix B requirements. DTE chose to use that program for the conduct of all of the safety-related site investigation work and other COLA development work. In keeping with Appendix B and NQA-1, DTE retained responsibility for the QA program by requiring by contract that B&V have a QA program that satisfied Appendix B requirements and that would be applied to the safety-related COLA activities; reviewing the prior audit of B&V's QA program by NUPIC; providing oversight of B&V activities onsite and through the use of an owner's engineer to oversee the B&V QA effort on Fermi 3; and not receiving any work product from B&V until DTE had its own Appendix B QA program in place to govern the receipt, review, and acceptance of safety-related COLA

<sup>195</sup> [DTE] Response to NRC Request for Additional Information Letter No. 26 — Related to SRP Section 17.5 (Exh. NRC S7) (May 10, 2010).

<sup>196</sup> Lipscomb Written Direct Testimony (Exh. NRC S23) at A23.

<sup>197</sup> [NRC] Inspection Report 05200033/2009-201 and Revised [NOV] to [DTE] (Exh. NRC S6) (June 4, 2010).

<sup>198</sup> Lipscomb Written Direct Testimony (Exh. NRC S23) at A24.

<sup>199</sup> NRC Staff Proposed Findings of Fact and Conclusions of Law for Contentions 8 and 15, ¶ 117 (Jan. 22, 2014).

work product. Thus, DTE retained responsibility for the work product during the preapplication period.

Nor do we find anything improper in DTE's use of a B&V office different from the one doing the design work to act as its owner's engineer and ensure that QA standards were being met. The separation between the owner's engineer organization in Ann Arbor performing the QA function and the B&V organization in Kansas City is similar to the relationship in a nuclear utility between the production and QA organization in that they both meet at some common point in the organization at a high level.<sup>200</sup> We therefore conclude that the relationship between the owner's engineer is not unlike the method used successfully in the nuclear utility industry for QA and that it provides sufficient separation of function to ensure independence of the QA function from the production function.

The Board therefore concludes that DTE, through direct supervision, oversight, and contractual control of B&V and its QA program during the preapplication period, retained and exercised sufficient responsibility for the Fermi 3 QA program during that time frame. DTE's QA efforts during the preapplication period satisfied Appendix B requirements so that there is reasonable assurance that the data used in the design of Fermi 3 are of high quality. The Board accordingly rules for the Applicant on Contention 15A.

## **2. Contention 15B**

With respect to Contention 15B, which applies to post-application QA requirements, it is undisputed that the QA plan in the Fermi 3 COLA meets the requirements of Appendix B and is consistent with the NRC's Standard Review Plan. All QA violations identified by the Staff have been resolved, and the record shows that those violations had no effect on any safety-related activities performed after initial submittal of the application. We conclude that there is reasonable assurance that the plant, as built, can and will be operated without endangering the public health and safety because the Applicant has provided satisfactory evidence of a fully implemented QA program governing the design, construction, and operation of Fermi 3 in conformity with all relevant NRC regulations. We find no evidence of a pervasive failure to comply with QA requirements. The Board therefore rules for DTE on Contention 15B.

## **IV. CONCLUSION**

Accordingly, the Board, after considering all of the evidence and arguments presented, finds in favor of the Staff on Contention 8 and DTE on Contention 15.

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<sup>200</sup> See Tr. at 474 (P. Smith & Stasek).

In accordance with 10 C.F.R. § 2.1210, this Partial Initial Decision will constitute a final decision of the Commission forty (40) days after its issuance unless: (1) a party files a petition for Commission review within twenty-five (25) days after service of this Initial Decision; or (2) the Commission directs otherwise. Within twenty-five (25) days after service of a petition for Commission review, parties to the proceeding may file an answer supporting or opposing Commission review. A party who seeks judicial review of this Decision must first seek Commission review, unless otherwise authorized by law.

It is so ORDERED.

THE ATOMIC SAFETY AND  
LICENSING BOARD

Ronald M. Spritzer, Chairman  
ADMINISTRATIVE JUDGE

Dr. Anthony J. Baratta  
ADMINISTRATIVE JUDGE

Dr. Randall J. Charbeneau  
ADMINISTRATIVE JUDGE

Rockville, Maryland  
May 23, 2014

Cite as 80 NRC 15 (2014)

LBP-14-9

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

## ATOMIC SAFETY AND LICENSING BOARD

## Before Administrative Judges:

Ronald M. Spritzer, Chairman  
Dr. Anthony J. Baratta  
Dr. Randall J. Charbeneau

In the Matter of

Docket No. 52-033-COL  
(ASLBP No. 09-880-05-COL-BD01)DETROIT EDISON COMPANY  
(Fermi Nuclear Power Plant,  
Unit 3)

July 7, 2014

This proceeding involves the combined license application of the DTE Electric Company ("Applicant") to operate a new reactor, designated Unit 3, on its existing Fermi nuclear facility site near Newport City in Monroe County, Michigan. The Licensing Board determines that the following two related issues merit *sua sponte* review, and requests Commission approval, under 10 C.F.R. § 2.340(b), to undertake such review: (1) whether the building of offsite transmission lines intended solely to serve the new Fermi Unit 3 qualifies as a connected action under the National Environmental Policy Act ("NEPA") and, therefore, requires the Staff to consider its environmental impacts as a direct effect of the construction of Fermi Unit 3; and (2) whether the Staff's consideration of environmental impacts related to the transmission corridor, performed as a cumulative impact review, satisfied NEPA's hard look requirement.

**REGULATIONS: LIMITED WORK AUTHORIZATION**

The NRC's 2007 limited work authorization ("LWA") rule revised 10 C.F.R. § 50.10 to narrow the scope of activities requiring permission from the NRC in the

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## MEMORANDUM

### (Determining That Issues Related to Intervenor's Proposed Contention 23 Merit *Sua Sponte* Review Pursuant to 10 C.F.R. § 2.340(b) and Requesting Commission Approval)

Before the Licensing Board is the question we raised in our Order of April 30, 2013: whether Intervenor's proposed Contention 23, although untimely filed,



is appropriate for *sua sponte* Board review pursuant to 10 C.F.R. § 2.340(b).<sup>1</sup> Contention 23 alleged that the Staff's Draft and Final Environmental Impact Statements for the Fermi Unit 3 project failed to adequately evaluate the environmental impacts of the new high-voltage transmission line corridor that will be constructed to serve the Project. For the reasons explained below, the Board determines that two issues arising from the contention merit *sua sponte* review.<sup>2</sup> The Board therefore respectfully requests that the Commission approve the Board's determination that *sua sponte* review is warranted pursuant to section 2.340(b).

## I. BACKGROUND

### A. The Fermi 3 Transmission Corridor

This combined license ("COL") contested proceeding involves the application of DTE Electric Company (formerly the Detroit Edison Company) ("Applicant" or "DTE") under 10 C.F.R. Part 52, Subpart C, to construct and operate a GE-Hitachi Economic Simplified Boiling Water Reactor ("ESBWR"), designated Unit 3, on its existing Fermi nuclear facility site in Monroe County, Michigan.<sup>3</sup>

Fermi Unit 3 will require the construction and operation of transmission lines to connect it to the grid. The Final Environmental Impact Statement ("FEIS") explains the current status of plans for the transmission lines and the transmission corridor<sup>4</sup> in which the lines will be located:

ITC Transmission has not yet formally announced a route for the offsite portion of the proposed new transmission line serving Fermi 3. Detroit Edison expects that the proposed new transmission line would be built within the existing Fermi 2 transmission corridor for approximately 18.6 mi extending outward from the Fermi site boundary. Detroit Edison expects that the remaining 10.8 mi, extending to the Milan Substation, would be built within an undeveloped right-of-way (ROW) possessed but not yet used by ITC Transmission.<sup>5</sup>

<sup>1</sup> Licensing Board Order (Denying Intervenor's 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), at 22-24 (Apr. 30, 2013) (unpublished) [hereinafter Denial Order].

<sup>2</sup> The two specific issues are identified *infra* Section II.

<sup>3</sup> Letter from Jack M. Davis, DTE, to NRC, Detroit Edison Company Submittal of a Combined License Application for Fermi 3 (NRC Project No. 757) (Sept. 18, 2008) (ADAMS Accession No. ML082730763).

<sup>4</sup> We will refer to the transmission lines and the corridor in which they will be constructed as "the transmission corridor."

<sup>5</sup> Division of New Reactor Licensing, Office of New Reactors, Final Environmental Impact Statement for the Combined Licensed (COL) for Enrico Fermi Unit 3, NUREG-2015, at 2-10 (Jan. 2013) [hereinafter FEIS] (citations omitted).

the Clean Water Act, for some 30 jurisdictional wetlands and other water bodies within the transmission corridor, and there is no detailed discussion of mitigation measures which would be implemented to compensate for the water resource and upland damage.<sup>58</sup>

The Board again rejected Contention 23 as untimely. But the Board also concluded that, because the FEIS had been issued and the Board had ruled that Contention 23 remains procedurally defective, this was an appropriate point for Board consideration of whether Contention 23 merits *sua sponte* review under 10 C.F.R. § 2.340(b).<sup>59</sup> The Board allowed the parties to file briefs on the issue. Intervenor supporters supported *sua sponte* review, while DTE and the Staff opposed it.<sup>60</sup>

## II. BOARD DETERMINATION, SUPPORTING ANALYSIS, AND REQUEST FOR COMMISSION APPROVAL

The Board has determined that the following two related issues arising from Contention 23 merit *sua sponte* review, and requests Commission approval to undertake such review:

- (1) Whether the building of offsite transmission lines intended solely to serve the new Fermi Unit 3 qualifies as a connected action under NEPA and, therefore, requires the Staff to consider its environmental impacts as a direct effect of the construction of Fermi Unit 3.
- (2) Whether the Staff's consideration of environmental impacts related to the transmission corridor, performed as a cumulative impact review, satisfied NEPA's hard look requirement.

Below, we explain the reasons that support our determination. First, we discuss the regulatory standard for *sua sponte* review. Second, we review the NEPA requirements most relevant to the environmental analysis of the transmission corridor. Next, we analyze the two specific issues and explain why they raise serious legal and factual questions that merit further review by the Board. Finally, we explain why the issues we have determined to be appropriate for *sua sponte* review can be distinguished from those likely to arise in the ordinary case. On

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<sup>58</sup> *Id.* at 22.

<sup>59</sup> Denial Order at 21-24.

<sup>60</sup> See Intervenor's Memorandum in Support of Sua Sponte ASLB Referral of Transmission Line Corridor NEPA Compliance Issue at 1 (May 30, 2013). See also Applicant Brief at 1; NRC Staff Response to Board Order Concerning Proposed Sua Sponte Review of Contention 23, at 2 (May 30, 2013) [hereinafter Staff Response].

the basis of this analysis, the Board respectfully requests that the Commission approve its determination.

#### A. The Standard for *Sua Sponte* Review

Under 10 C.F.R. § 2.340(b), a licensing board may request Commission approval to consider the merits of a serious environmental issue even when, as with Contention 23, it was excluded from the proceeding for procedural reasons.<sup>61</sup> This *sua sponte* regulation provides that the presiding officer shall

make findings of fact and conclusions of law on any matter not put into controversy by the parties, but only to the extent that the presiding officer determines that a serious safety, environmental, or common defense and security matter exists, and the Commission approves of an examination of and decision on the matter upon its referral by the presiding officer . . . .<sup>62</sup>

The regulation does not define what constitutes a serious environmental issue, leaving that determination to the presiding officer subject to the Commission's approval.

Section 2.340(b)'s predecessor, unlike the current version, did not require Commission approval before a presiding officer could exercise *sua sponte* authority. It did, however, instruct presiding officers that their *sua sponte* review authority should only be used "sparingly" and in "extraordinary circumstances."<sup>63</sup> These terms were removed from the regulation in 1979.<sup>64</sup> The Commission subsequently stated, in a 1998 policy statement, that licensing boards should only use *sua sponte* review in extraordinary circumstances,<sup>65</sup> but the terms "sparingly" and "extraordinary circumstances" have never been reinserted into the regulations.<sup>66</sup>

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<sup>61</sup> See *Cleveland Electric Illuminating Co.* (Perry Nuclear Power Plant, Units 1 and 2), LBP-82-79, 16 NRC 1116, 1119 (1982).

<sup>62</sup> 10 C.F.R. § 2.340(b)(1).

<sup>63</sup> 10 C.F.R. § 2.760a (1979) ("Matters not put into controversy by the parties will be examined and decided by the presiding officer only in extraordinary circumstances where he determines that a serious safety, environmental, or common defense and security matter exists. This authority is to be used sparingly.")

<sup>64</sup> See 44 Fed. Reg. 67,088 (Nov. 23, 1979) (stating that the "amended rules eliminate an apparent constraint on boards").

<sup>65</sup> *Statement of Policy on Conduct of Adjudicatory Proceedings*, CLI-98-12, 48 NRC 18, 22-23 (1998) (stating that *sua sponte* "authority is to be exercised only in extraordinary circumstances").

<sup>66</sup> In 1984, the NRC published a series of proposals developed by a Regulatory Reform Task Force that included reinsertion of the word "sparingly" and a requirement that any proposed use of *sua sponte* review be approved by a licensing board established to screen such proposals, though "[t]he  
(Continued)

In 2004, the Commission “codif[ied] *appropriate* portions of the [1998] Policy Statement,” noting that the statement was developed “as a foundation for possible rule changes.”<sup>67</sup> The 2004 rule codified the requirement that licensing boards request approval from the Commission prior to conducting *sua sponte* review of a matter not put into controversy.<sup>68</sup> Notably absent, however, was any requirement that the presiding officer’s determination or the Commission’s approval be limited to issues presenting “extraordinary circumstances.” Evidently the Commission concluded that that particular aspect of the 1998 policy statement was not “appropriate” for inclusion in the new rule.

The 2012 rule revision, which clarified that *sua sponte* authority extends to Board review of combined license applications, states only that review “is limited to . . . serious matters not put into controversy by the parties that concern safety, common defense and security, or the environment that the Commission has approved for review upon the presiding officer’s referral of the matter.”<sup>69</sup> Again, there is no requirement of “extraordinary circumstances.”

Given the historical development of the *sua sponte* provision and that Commission approval is now required prior to *sua sponte* consideration of an issue, the Commission is not constrained to approve only those issues that arise under “extraordinary circumstances.” Still, a request to engage in *sua sponte* review should not be undertaken lightly. And it has not been. Recent years have seen sparing use of *sua sponte* review.<sup>70</sup> In 2011, in what would have been the first such request in 20 years, all members of the Licensing Board in *Shaw AREVA MOX Services* determined that extraordinary circumstances existed such that *sua sponte* review would have been warranted had the serious safety issue raised been deemed untimely.<sup>71</sup> Here also, the issues we have determined to be appropriate

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individual proposals [were] not Commission proposals.” See 49 Fed. Reg. 14,698, 14,703 (Apr. 12, 1984) (“Section 2.760a is revised to revoke the 1979 relaxation of the *sua sponte* rule for review of uncontested matters by adjudicatory boards. Experience under the relaxed standard has indicated that issues have been raised *sua sponte* which do not warrant such consideration. . . . the *sua sponte* authority of presiding officers to raise new issues will be limited to extraordinary circumstances and is to be used sparingly.”). This document did not, as NRC Staff suggest, constitute a revocation of the 1979 rule change. Staff Response at 6 n.19. Two years later, the Commission published a proposed rule that “identified five proposals which merit continued consideration for possible inclusion in . . . the Commission’s Rules of Practice,” none of which addressed *sua sponte* review. 51 Fed. Reg. 24,365, 24,366 (July 3, 1986).

<sup>67</sup> 69 Fed. Reg. 2182, 2182, 2186 (Jan. 14, 2004) (emphasis added).

<sup>68</sup> *Id.* at 2210.

<sup>69</sup> 77 Fed. Reg. 46,562, 46,584 (Aug. 3, 2012).

<sup>70</sup> *Shaw AREVA MOX Services* (Mixed Oxide Fuel Fabrication Facility), LBP-11-9, 73 NRC 391, 422 (2011) (J. McDade, dissenting) (noting that “no Board has attempted to invoke *sua sponte* review in the past 20 years”).

<sup>71</sup> *Id.* at 412, 422.

for *sua sponte* review are “extraordinary” in that they differ from those likely to arise in the ordinary case.<sup>72</sup>

## B. NEPA Requirements

“The centerpiece of environmental regulation in the United States, NEPA requires federal agencies to pause before committing resources to a project and consider the likely environmental impacts of the preferred course of action as well as reasonable alternatives.”<sup>73</sup> When an agency proposes a major federal action significantly affecting the quality of the human environment, NEPA requires the preparation of an EIS concerning the proposed action.<sup>74</sup> The requirement to prepare an EIS is a procedural mechanism designed to assure that agencies give proper consideration to the environmental consequences of their actions.<sup>75</sup> However, NEPA does not require agencies to elevate environmental concerns over other appropriate considerations.<sup>76</sup>

The following NEPA requirements are particularly relevant here.

### 1. The Scope of an EIS

The “scope” of an EIS is defined as “the range of actions, alternatives, and impacts to be considered in an environmental impact statement.”<sup>77</sup> The NRC regulation governing the scope of the EIS states that the agency should use the provisions of a CEQ regulation, 40 C.F.R. § 1502.4, for that purpose.<sup>78</sup> Section 1502.4 in turn directs that

[a]gencies shall use the criteria for scope (§ 1508.25) to determine which proposal(s) shall be the subject of a particular statement. Proposals or parts of proposals which are related to each other closely enough to be, in effect, a single course of action shall be evaluated in a single impact statement.<sup>79</sup>

<sup>72</sup> See *infra* Section II.E.

<sup>73</sup> *New Mexico ex rel. Richardson v. Bureau of Land Management*, 565 F.3d 683, 703 (10th Cir. 2009) (citing 42 U.S.C. § 4331(b) (congressional declaration of national environmental policy); *Department of Transportation v. Public Citizen*, 541 U.S. 752, 756-57 (2004); *Marsh v. Oregon Natural Resources Council*, 490 U.S. 360, 371 (1989); and *Forest Guardians v. U.S. Forest Service*, 495 F.3d 1162, 1172 (10th Cir. 2007)).

<sup>74</sup> 42 U.S.C. § 4332.

<sup>75</sup> See *Vermont Yankee Nuclear Power Corp. v. Natural Resources Defense Council, Inc.*, 435 U.S. 519, 558 (1978).

<sup>76</sup> *Strycker's Bay Neighborhood Council, Inc. v. Karlen*, 444 U.S. 223, 227 (1980).

<sup>77</sup> 40 C.F.R. § 1508.25.

<sup>78</sup> 10 C.F.R. § 51.29(a)(1).

<sup>79</sup> 40 C.F.R. § 1502.4(a).

Under the referenced CEQ regulation, the proposed action that is the subject of the EIS must include all “connected actions.”<sup>80</sup> The definition of “connected actions” in section 1508.25 is also adopted by 10 C.F.R. § 51.14(b). Under section 1508.25, separate actions are “connected” if, among other things, they “[c]annot or will not proceed unless other actions are taken previously or simultaneously,” or they “[a]re interdependent parts of a larger action and depend on the larger action for their justification.”<sup>81</sup> Thus, all connected actions as defined in section 1508.25 must be included within the scope of the proposed action evaluated in the NRC’s FEIS.

In general, NEPA case law defines “connected actions” as those that lack “independent utility.”<sup>82</sup> The Sixth Circuit applies that test.<sup>83</sup> Projects lack independent utility when it would be irrational, or at least unwise, to build one without the other.<sup>84</sup> For example, the Ninth Circuit held that the construction of a road to facilitate logging and the sale of timber from the logging were “connected actions” that had to be addressed in a single EIS.<sup>85</sup> The court pointed out that “the timber sales cannot proceed without the road, and the road would not be built but for the contemplated timber sales.”<sup>86</sup>

The failure to include all connected actions within the scope of the proposed action is generally referred to as “segmentation.” “‘Segmentation’ or ‘piecemealing’ occurs when an action is divided into component parts, each involving action with less significant environmental effects.”<sup>87</sup> “Segmentation is to be avoided in order to ‘insure that interrelated projects[,] the overall effect of which is environmentally significant, not be fractionalized into smaller, less significant actions.’”<sup>88</sup>

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<sup>80</sup> *Id.* § 1508.25(a)(1).

<sup>81</sup> *Id.* § 1508.25(a)(1)(ii) and (iii). NRC’s NEPA regulations specifically adopt this definition. *See* 10 C.F.R. § 51.14(b).

<sup>82</sup> *See Society Hill Towers Owners’ Ass’n v. Rendell*, 210 F.3d 168, 181 (3d Cir. 2000) (collecting cases); *Northwest Resource Information Center, Inc. v. National Marine Fisheries Service*, 56 F.3d 1060, 1067-69 (9th Cir. 1995) (collecting cases).

<sup>83</sup> *Communities, Inc. v. Busey*, 956 F.2d 619, 627 (6th Cir. 1992).

<sup>84</sup> *Trout Unlimited v. Morton*, 509 F.2d 1276 (9th Cir. 1974).

<sup>85</sup> *Thomas v. Peterson*, 753 F.2d 754, 758 (9th Cir. 1985).

<sup>86</sup> *Id.*

<sup>87</sup> *Town of Huntington v. Marsh*, 859 F.2d 1134, 1142 (2d Cir. 1988) (citing *City of West Chicago v. NRC*, 701 F.2d 632, 650 (7th Cir. 1983)).

<sup>88</sup> *Id.* (quoting *Taxpayers Watchdog, Inc. v. Stanley*, 819 F.2d 294, 298 (D.C. Cir. 1987)).



## **2. *The FEIS Must Evaluate All Reasonably Foreseeable Environmental Impacts of the Proposed Action***

Once the NRC has properly defined the scope of the proposed action, including any connected actions, the agency's EIS must evaluate the environmental effects of the proposed action.<sup>89</sup> The NRC uses this information to "[d]etermine, after weighing the environmental, economic, technical, and other benefits against environmental and other costs . . . whether the combined license should be issued, denied, or appropriately conditioned to protect environmental values."<sup>90</sup> "The EIS must address all reasonably foreseeable environmental impacts . . . even if the probability of such an occurrence is low."<sup>91</sup> NEPA requirements, however, are subject to a rule of reason, and an EIS need not address "remote and highly speculative consequences."<sup>92</sup>

In 10 C.F.R. § 51.14(b), the NRC adopted the CEQ's definition of "effects" in 40 C.F.R. § 1508.8. Under the CEQ rule, effects include both direct effects, "which are caused by the action and occur at the same time and place," and indirect effects, "which are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable." The CEQ regulation further provides:

Effects and impacts as used in these regulations are synonymous. Effects includes ecological (such as the effects on natural resources and on the components, structures, and functioning of affected ecosystems), aesthetic, historic, cultural, economic, social, or health, whether direct, indirect, or cumulative.<sup>93</sup>

When information relevant to a reasonably foreseeable environmental effect is incomplete or unavailable, CEQ regulations require an agency to obtain the unavailable information and include it in the EIS so long as the costs are not exorbitant.<sup>94</sup> If the cost of obtaining the information is exorbitant, the agency must still include in the EIS a statement that the information is unavailable, the relevance of the unavailable information, a summary of existing credible scientific evidence, and the agency's evaluation of the impacts that might be caused.<sup>95</sup>

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<sup>89</sup> 10 C.F.R. §§ 51.71(d), 51.90; 40 C.F.R. § 1508.25(a)(1).

<sup>90</sup> 10 C.F.R. § 51.107(a)(3).

<sup>91</sup> *Blue Ridge Environmental Defense League v. NRC*, 716 F.3d 183, 188 (D.C. Cir. 2013) (citing 40 C.F.R. § 1502.22(b)).

<sup>92</sup> *Deukmejian v. NRC*, 751 F.2d 1287, 1300 (D.C. Cir. 1984) (quoting *Trout Unlimited*, 509 F.2d at 1283). See also *Blue Ridge Envtl. Def. League*, 716 F.3d at 189.

<sup>93</sup> 40 C.F.R. § 1508.8.

<sup>94</sup> See *id.* § 1502.22(a).

<sup>95</sup> See *id.* § 1502.22(b).



### 3. *The FEIS Must Evaluate Alternatives to the Proposed Action, Including Mitigation*

An EIS must include a detailed statement of reasonable alternatives to the proposed action.<sup>96</sup> When considering alternatives, agencies are to:

- (a) Rigorously explore and objectively evaluate all reasonable alternatives, and for alternatives which were eliminated from detailed study, briefly discuss the reasons for their having been eliminated.
- (b) Devote substantial treatment to each alternative considered in detail including the proposed action so that reviewers may evaluate their comparative merits. . . .<sup>97</sup>

The CEQ regulation itself and numerous courts have recognized that the alternatives analysis is the “heart of the environmental impact statement.”<sup>98</sup> “The existence of reasonable but unexamined alternatives renders an EIS inadequate.”<sup>99</sup>

The NRC’s NEPA regulation governing preparation of a DEIS directs that it “include a preliminary analysis that considers and weighs the environmental effects of the proposed action; the environmental impacts of alternatives to the proposed action; and *alternatives available for reducing or avoiding adverse environmental effects* . . . .”<sup>100</sup> The NRC’s regulation governing preparation of an FEIS imposes the same requirement by directing that the NRC Staff “prepare a final environmental impact statement in accordance with the requirements of . . . [10 C.F.R. § 51.71] for a draft environmental impact statement.”<sup>101</sup>

### 4. *Cumulative Impacts*

Activities excluded from the scope of the proposed action may still be relevant to the NRC’s NEPA analysis to the extent they affect the environmental baseline for the evaluation of cumulative impacts. Under CEQ regulations, “cumulative impact” is defined as the “impact on the environment that results from the incremental impact of the [proposed] action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions.”<sup>102</sup>

<sup>96</sup> 42 U.S.C. § 4332(2)(C)(iii). *See also Louisiana Energy Services, L.P.* (Claiborne Enrichment Center), CLI-98-3, 47 NRC 77, 104 (1998).

<sup>97</sup> 40 C.F.R. § 1502.14.

<sup>98</sup> *Id.* *See also Alaska v. Andrus*, 580 F.2d 465, 474 (D.C. Cir.), *vacated in part as moot sub nom. Western Oil & Gas Ass’n v. Alaska*, 439 U.S. 922 (1978).

<sup>99</sup> *Friends of Southeast’s Future v. Morrison*, 153 F.3d 1059, 1065 (9th Cir. 1998).

<sup>100</sup> 10 C.F.R. § 51.71(d) (emphasis added).

<sup>101</sup> *Id.* § 51.90.

<sup>102</sup> 40 C.F.R. § 1508.7.

In the FEIS, the Staff treated the construction of the transmission corridor as a separate nonfederal action rather than a connected action. The Staff therefore evaluated the transmission corridor solely as a reasonably foreseeable future action that forms part of the environmental baseline for evaluating the cumulative impact of the proposed action, i.e., the licensing of the construction and operation of Fermi Unit 3.

### **5. *Limitation on Actions***

An important consequence of the decision whether to include new construction within the scope of the proposed action is that, if it is included, it will be subject to the limitation on actions in 10 C.F.R. § 51.101(a). Under that provision, when the Staff prepares an EIS under 10 C.F.R. § 51.20, then until a record of decision is issued “[n]o action concerning the proposal may be taken by the Commission which would (i) have an adverse environmental impact, or (ii) limit the choice of reasonable alternatives.”<sup>103</sup> Also, “[a]ny action concerning the proposal taken by an applicant which would (i) have an adverse environmental impact, or (ii) limit the choice of reasonable alternatives may be grounds for denial of the license.”<sup>104</sup> For separate activities, on the other hand, there is no obligation on the Commission to avoid regulatory action before the record of decision is issued that would allow the activity to proceed, regardless of its environmental impact or its effect on the range of alternatives. And the applicant may proceed with (or allow its contractor to proceed with) an activity outside the scope of the proposal that would have an adverse environmental impact or limit the choice of reasonable alternatives even though the NEPA review is ongoing or has not even begun. This was precisely the point that the NRC Staff commenter made about the proposed 2007 LWA Rule.<sup>105</sup>

### **C. *There Is a Serious Question Whether the Building of an Offsite Transmission Corridor Intended Solely to Serve the New Fermi Unit 3 Qualifies as a Connected Action Under NEPA and, Therefore, Requires the Staff to Consider Its Environmental Impacts as a Direct Effect of the Construction of Fermi Unit 3***

Given that the transmission corridor’s sole apparent purpose is to serve the Fermi Unit 3 project and the new nuclear power plant would be useless without the new transmission lines, Intervenor (and the EPA) have raised a serious

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<sup>103</sup> 10 C.F.R. § 51.101(a)(1).

<sup>104</sup> *Id.* § 51.101(a)(2).

<sup>105</sup> 72 Fed. Reg. at 57,420.

question whether the construction of the new transmission corridor should have been analyzed as a connected action in the FEIS.

In order for construction of the transmission corridor to constitute a connected action under 40 C.F.R. § 1508.25, three requirements must be met. First, the transmission corridor must be a proposed action rather than one that is merely conceivable.<sup>106</sup> Second, the transmission corridor must lack independent utility, that is, its sole purpose must be serving Fermi Unit 3.<sup>107</sup> Third, for an action such as the transmission corridor that will not be constructed by or expressly permitted by the federal agency preparing the EIS, there must be sufficient federal control and responsibility that the action qualifies as a federal action.<sup>108</sup> We review each of these issues in turn.

### ***1. Proposed Action***

The FEIS states that “ITC Transmission has not yet formally announced a route for the offsite portion of the proposed new transmission line serving Fermi 3,” but it also states that “Detroit Edison expects that the proposed new transmission line would be built” along the corridor identified in the FEIS.<sup>109</sup> The FEIS repeatedly refers to the “proposed” transmission corridor.<sup>110</sup> For example, the FEIS includes a map identifying the “*Proposed* Transmission Corridor from Fermi 3 to the Milan Substation.”<sup>111</sup> The FEIS reports that “[t]hree new 345-kV transmission lines have been *proposed* to serve Fermi 3.”<sup>112</sup> The FEIS also refers to “the *proposed* route from the Fermi 3 site in Monroe County to the existing Milan Substation in Washtenaw County.”<sup>113</sup> Furthermore, in response to written questions propounded by the Board, DTE informed the Board that it is unaware of any other transmission corridor route currently under consideration.<sup>114</sup> An action with potential impacts subsequent to the initial federal action may not constitute a

<sup>106</sup> See *Kleppe v. Sierra Club*, 427 U.S. 390, 410 & n.20 (1976).

<sup>107</sup> See *Thomas*, 753 F.2d at 759-60 (citing *Trout Unlimited*, 509 F.2d at 1276 (stating that an EIS must address interdependent projects when “[t]he dependency is such that it would be irrational, or at least unwise, to undertake the first phase if subsequent phases were not also undertaken.”)).

<sup>108</sup> See *Southwest Williamson County Community Ass’n, Inc. v. Slater*, 243 F.3d 270, 278-80 (6th Cir. 2001).

<sup>109</sup> FEIS at 2-10.

<sup>110</sup> See, e.g., *id.* at 2-61, 2-126, and 3-18 to 3-19. The fact that the Staff declares the transmission lines to be a proposed action is significant, as under CEQ regulations “[a] proposal may exist in fact as well as by agency declaration that one exists.” 40 C.F.R. § 1508.23.

<sup>111</sup> FEIS at 2-11 (emphasis added).

<sup>112</sup> *Id.* at 4-8 (emphasis added).

<sup>113</sup> *Id.* at 2-208 (emphasis added).

<sup>114</sup> Applicant Brief at 8; Smith Affidavit at 5.

proposed action if it is insufficiently certain.<sup>115</sup> Here, by contrast, there is no doubt that offsite transmission lines would be built to serve Fermi 3 and no suggestion of any plan to build them anywhere but along the proposed route identified in the FEIS. Therefore, based on the information now before the Board, it appears that the transmission corridor identified in the FEIS is a proposed action.<sup>116</sup>

## 2. *Independent Utility*

The FEIS clearly shows that the purpose of the new transmission corridor is to serve Fermi Unit 3 (i.e., to transmit electrical energy from Fermi Unit 3 to the grid).<sup>117</sup> No party has identified any other function that the corridor is intended to serve. Just as the construction of a road to facilitate logging and the sale of timber that would result from that logging were connected actions,<sup>118</sup> so too the construction of a new nuclear power plant and the transmission corridor that will transmit the newly generated power to the grid are also connected actions.

DTE stated in response to a question from the Board that the new transmission lines might possibly serve some as yet unidentified source of electrical energy if Fermi 3 is not constructed.<sup>119</sup> Absent additional evidence, this theoretical possibility is too speculative to establish that the transmission corridor actually has independent utility. Our view is supported by the Appeal Board's ruling in *Greenwood* upholding the NRC's authority to impose environmental restrictions on new transmission lines intended to serve two new Detroit Edison nuclear power plants.<sup>120</sup> The Licensing Board had described the new transmission lines "as an integral part of nuclear generating plants, observing that '[a] power plant without transmission lines is like an airplane that can't fly.'"<sup>121</sup> The Appeal Board

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<sup>115</sup> See *Webster v. U.S. Department of Agriculture*, 2011 WL 8788223, at \*8 (N.D. W. Va. June 13, 2011) (finding that the building of a water treatment plant to serve a proposed dam was not sufficiently certain and any attempt to determine environment impacts would be "speculative and contingent").

<sup>116</sup> Whether a project qualifies as a "proposal" is somewhat intertwined with the "independent utility" question. CEQ's regulations state that a "[p]roposal exists at that stage in the development of an action when an agency subject to the Act has a goal and is actively preparing to make a decision on one or more alternative means of accomplishing that goal and the effects can be meaningfully evaluated. Preparation of an environmental impact statement on a proposal should be timed so that the final statement may be completed in time for the statement to be included in any recommendation or report on the proposal." 40 C.F.R. § 1508.23. In a situation such as this, where the granting of a license makes the building of offsite transmission lines inevitable, an evaluation of their direct environmental impacts will only be meaningful if engaged in before the license issuance.

<sup>117</sup> FEIS at 2-10 to 2-11, 3-17 to 3-19.

<sup>118</sup> *Thomas*, 753 F.2d at 758.

<sup>119</sup> Applicant Brief at 8; Smith Affidavit at 5-6.

<sup>120</sup> *Greenwood Energy Ctr.*, ALAB-247, 8 AEC at 936.

<sup>121</sup> *Id.* at 937.

agreed. As in this case, in *Greenwood*, DTE “could not represent that identical power lines along identical routes would be erected irrespective of the Greenwood nuclear facility.”<sup>122</sup> The Appeal Board therefore had

no hesitation in concurring in the Licensing Board’s assumption that the lines are a foreseeable consequence of licensing construction of the nuclear power units. Indeed, no other conclusion is reasonable. Without transmission lines the Greenwood facility would be little more than a very expensive double boiler serving no discernible purpose. It is scarcely likely that Detroit Edison would embark upon such an enterprise even if given the green light by the regulatory bodies which oversee its operations.<sup>123</sup>

Here also, the proposed transmission corridor is an integral part of the Fermi 3 project with “no discernible purpose” apart from connecting Fermi 3 to the grid.

### 3. *Federal Control and Responsibility*

The FEIS does not refer to any purpose of the new transmission corridor other than serving Fermi 3. But the Staff did not analyze the transmission corridor as a connected action. Instead, it defined the construction of the transmission corridor as a “preconstruction activity,” and excluded it from the scope of the proposed action because of the 2007 LWA Rule narrowing the definition of “construction” and disclaiming NRC regulatory authority over all preconstruction activities.<sup>124</sup> Thus, the Staff evaluated the impacts of the transmission corridor solely “in the context of cumulative impacts.”<sup>125</sup> In substance, the Staff concluded that the scope of the proposed federal action should include only the power plant and not the transmission corridor necessary to make the plant serve its intended purpose because, in the Staff’s view, the transmission corridor is outside the scope of the federal action.

The requirement to prepare an EIS applies to “major Federal actions,” not to private or state actions.<sup>126</sup> Thus, only those activities that have sufficient federal involvement to qualify as federal actions need be included in the scope of the proposed action evaluated in an EIS.<sup>127</sup> But this does not necessarily mean that the

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<sup>122</sup> *Id.* at 939.

<sup>123</sup> *Id.*

<sup>124</sup> FEIS at 1-6 to 1-7.

<sup>125</sup> *Id.* at 1-7.

<sup>126</sup> 42 U.S.C. § 4332(2)(C).

<sup>127</sup> See *Sw. Williamson Cnty.*, 243 F.3d at 278-80. But see *Colorado Wild, Inc. v. U.S. Forest Service*, 523 F. Supp. 2d 1213, 1224-25 (D. Colo. 2007) (rejecting the U.S. Forest Service’s claim that

(Continued)

action in question must be taken or expressly authorized by a federal agency. In *Southwest Williamson County Community Ass'n, Inc. v. Slater*, the court defined the test for determining when a nonfederal project should be analyzed under NEPA as a major federal action:

With the CEQ regulations and case law in mind, we conclude that there are two alternative bases for finding that a non-federal project constitutes a “major Federal action” such that NEPA requirements apply: (1) when the non-federal project restricts or limits the statutorily prescribed federal decision-makers’ choice of reasonable alternatives; or (2) when the federal decision-makers have authority to exercise sufficient control or responsibility over the non-federal project so as to influence the outcome of the project. If either test is satisfied, the non-federal project must be considered a major federal action. Both tests require a situation-specific and fact-intensive analysis.<sup>128</sup>

We understand that construction of the transmission corridor has not begun. Therefore, the first test is not satisfied. This is not an instance where, at least thus far, “the non-federal project restricts or limits the statutorily prescribed federal decision-makers’ choice of reasonable alternatives.”<sup>129</sup> On the other hand, in this case “the federal decision-makers have authority to exercise sufficient control or responsibility over the non-federal project so as to influence the outcome of the project.”<sup>130</sup> In *Southwest Williamson County*, the court held that the second test was not satisfied because the authority of the Federal Highway Administration (“FHWA”) was limited to certain interchanges between a federally financed highway project and a state highway. “No part of the statute confers jurisdiction on the FHWA . . . to oversee the construction of the highway corridor that runs between the interchanges unless the state attempts to comply with federal regulations in order to seek federal reimbursement for construction costs.”<sup>131</sup>

Here, by contrast, the NRC long interpreted its statutory authority under the Atomic Energy Act (“AEA”)<sup>132</sup> to include conditioning approval of nuclear power plant licenses on environmentally acceptable routing of transmission lines.<sup>133</sup> The United States Court of Appeals for the First Circuit upheld the NRC’s authority

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road construction and development planned by a private party seeking access rights-of-way over national forest land “cannot be ‘connected actions’ under NEPA’s regulations because the Forest Service lacks authority to control them”).

<sup>128</sup> *Sw. Williamson Cnty.*, 243 F.3d at 281 (footnote omitted).

<sup>129</sup> *Id.* at 281-83.

<sup>130</sup> *Id.* at 283-84.

<sup>131</sup> *Id.* at 283.

<sup>132</sup> Atomic Energy Act of 1954, 42 U.S.C. § 2011 *et seq.* (2012).

<sup>133</sup> *Public Service Company of New Hampshire v. NRC*, 582 F.2d 77, 82 (1st Cir. 1978). See discussion *supra* Section I.C.



to regulate offsite transmission lines under the AEA, affirming a licensing board decision conditioning approval of permits to the Seabrook Nuclear Power Station on the rerouting of two offsite transmission lines to avoid environmental impacts on marshlands, tree species, and migratory waterfowl.<sup>134</sup> Two years later, the Sixth Circuit also upheld the Commission's authority, unequivocally holding that "1) the regulation of off-site transmission lines is within the Commission's authority under Section 101 of the Atomic Energy Act; and 2) that nothing in the Atomic Energy Act precludes the Commission from implementing, through the issuance of conditional licenses, NEPA's environmental mandate."<sup>135</sup>

The holdings of the First and Sixth Circuits continue to be the law in those jurisdictions. Under those rulings, the NRC may consistently with the AEA and NEPA impose environmental restrictions on transmission lines built to serve nuclear power plants should it choose to do so. The NRC's regulations, including 10 C.F.R. §§ 50.36(b) and 51.107(a)(3), authorize the agency to impose environmental conditions in a license to prevent or mitigate adverse environmental impacts that might otherwise be caused by the construction or operation of a nuclear power plant.<sup>136</sup> "Environmental protection is part of NRC's core mission statement."<sup>137</sup> Thus, under Sixth Circuit precedent, "the federal decision-makers have authority to exercise sufficient control or responsibility over the non-federal project so as to influence the outcome of the project."<sup>138</sup>

To be sure, in the 2007 LWA Rule the NRC decided that the building of transmission lines to serve a nuclear power plant would no longer be classified as a construction activity and would no longer require authorization from the NRC.<sup>139</sup> Intervenor has not challenged the Rule and we would be precluded from hearing such a challenge had they done so, absent a showing of special circumstances.<sup>140</sup> But an agency's narrowed construction of its statutory authority, as distinct from an express prohibition by Congress, may not be used to limit the agency's obligations under NEPA.<sup>141</sup> "NEPA's legislative history reflects Congress's concern that agencies might attempt to avoid any compliance with

<sup>134</sup> *Pub. Serv. Co. of N.H.*, 582 F.2d at 80.

<sup>135</sup> *Detroit Edison*, 630 F.2d at 452.

<sup>136</sup> *Progress Energy Florida, Inc.* (Levy County Nuclear Power Plant, Units 1 and 2), LBP-13-4, 77 NRC 107, 217 (2013).

<sup>137</sup> *Id.*

<sup>138</sup> *Sw. Williamson Cnty.*, 243 F.3d at 281.

<sup>139</sup> 10 C.F.R. § 50.10(a)(2)(vii).

<sup>140</sup> 10 C.F.R. § 2.335.

<sup>141</sup> *Center for Biological Diversity v. National Highway Traffic Safety Administration*, 538 F.3d 1172, 1213 (9th Cir. 2008); *Sierra Club v. Mainella*, 459 F. Supp. 2d 76, 105 (D.D.C. 2006) (distinguishing agency NEPA responsibilities in situations where "an agency has 'no ability' because of lack of 'statutory authority' to address the impact" with situations where an agency "is only constrained by its own regulation from considering impacts").



NEPA by narrowly construing other statutory directives to create a conflict with NEPA. Section 102(2) of NEPA therefore requires government agencies to comply ‘to the fullest extent possible.’”<sup>142</sup> The Supreme Court has explained that this statutory directive was “neither accidental nor hyperbolic.”<sup>143</sup> Thus, courts have held that NEPA obligations supplement existing statutory authority and “must be complied with to the fullest extent, unless there is a clear conflict of statutory authority.”<sup>144</sup> In short, absent clear conflict an agency cannot interpret its way out of its NEPA responsibilities.

Also, although the NRC now takes the position that it lacks authority to impose environmental restrictions on transmission corridors, *Border Power Plant Working Group* supports the view that the transmission corridor impacts should have been analyzed as a direct effect of the NRC action even under that new interpretation.<sup>145</sup> In that case, an environmental group challenged two federal agencies’ issuance of permits and rights-of-way allowing two utilities to build electricity transmission lines to connect new power plants in Mexico with the power grid in southern California. The Mexican plants were outside the jurisdiction of the federal agencies. Nevertheless, the district court held that increased air pollution in California resulting from two “export turbines” at one of the Mexican plants was a direct effect of the new transmission lines, and that DOE therefore had to evaluate the air pollution impacts under NEPA.<sup>146</sup> The same analysis applies here. Although the NRC has renounced regulatory jurisdiction over the transmission lines, the construction of the lines and the resulting environmental impacts will be a direct effect of the COL, should it be issued, and must be analyzed as such under NEPA.

Both the Staff and Applicant emphasize that the offsite transmission lines will be owned and operated by ITC Transmission and not by DTE.<sup>147</sup> For this reason, Applicant notes, “Staff relied on publicly available information and reasonable expectations of the configurations that ITC Transmission would likely use for the offsite corridor based on standard industry practice.”<sup>148</sup> But the significance placed on this fact by Staff and Applicant appears misplaced. Multiple projects are

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<sup>142</sup> *Ctr. for Biological Diversity*, 538 F.3d at 1213 (quoting *Forelaws on Board v. Johnson*, 743 F.2d 677, 683 (9th Cir.1985)). See also *Flint Ridge Development Co. v. Scenic Rivers Ass’n of Oklahoma*, 426 U.S. 776, 787 (1976) (quoting House and Senate Conferees, who inserted the “fullest extent possible” language into NEPA, to say that “no agency shall utilize an excessively narrow construction of its existing statutory authorizations to avoid compliance”).

<sup>143</sup> *Flint Ridge Dev. Co.*, 426 U.S. at 787.

<sup>144</sup> *Calvert Cliffs*, 449 F.2d at 1115.

<sup>145</sup> See *Border Power Plant Working Group v. U.S. Department of Energy*, 260 F. Supp. 2d 997, 1012-18 (S.D. Cal. 2003).

<sup>146</sup> *Id.*

<sup>147</sup> Staff Response at 10; Applicant Brief at 5.

<sup>148</sup> Applicant Brief at 5.

often deemed connected actions despite being undertaken by separate entities.<sup>149</sup> In fact, projects undertaken by separate entities may still be considered connected actions even in the absence of formal agreement between the parties.<sup>150</sup> After all, “NEPA mandates a case-by-case balancing judgment on the part of federal agencies,” not the private parties seeking federal action.<sup>151</sup> If it is established that ITC Transmission’s proposed new transmission corridor lacks independent utility, the Staff should have included it within the scope of the proposed action, analyzed its impacts as direct effects of the NRC action, and evaluated alternatives available for reducing or avoiding any adverse environmental effects.<sup>152</sup>

#### 4. *The 2007 LWA Rule and Statement of Considerations*

According to DTE, “the Commission has specifically directed, by regulation, that the impacts of ‘preconstruction’ activities be addressed cumulatively with the impacts authorized by a combined license,” and that “[t]his is precisely the approach taken by the NRC Staff.”<sup>153</sup> That argument would have merit only if the provision cited by DTE, 10 C.F.R. § 51.45(c), repealed, materially altered, or directed the Staff to ignore the NRC and CEQ regulations previously described which require that the proposed action that is the subject of an agency EIS include

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<sup>149</sup> See, e.g., *Hammond v. Norton*, 370 F. Supp. 2d 226, 247-53 (D.D.C. 2005) (ruling that the Bureau of Land Management improperly segmented consideration of two pipeline projects being constructed by two separate companies despite evidence that they lacked independent utility and thus qualified as connected actions); *Natural Resources Defense Council, Inc. v. Hodel*, 865 F.2d 288 (D.C. Cir. 1988) (rejecting as inadequate an FEIS that failed to consider the cumulative impacts on migratory species caused by multiple outer-continental lease sales in the California and Alaska regions).

<sup>150</sup> See *Hammond*, 370 F. Supp. 2d at 245, 251 (making clear that a determination that actions are connected does not rest upon formal agreement between the entities undertaking the actions, and noting EPA’s argument that “CEQ does not require a formal agreement in order for two projects to be defined as connected actions”).

<sup>151</sup> *Calvert Cliffs*, 449 F.2d at 1123.

<sup>152</sup> We note, additionally, that nothing in the FEIS suggests that the NRC Staff gave much, if any, consideration to EPA’s suggestion that offsite transmission lines should have been considered as a connected action. See FEIS, App. E, at E-42 to E-43. While NEPA does not require “an agency preparing an EIS to respond to EPA concerns, [an agency’s] failure even to address them in the EIS at the very least brings into question the sufficiency of the agency’s analysis.” *Hammond*, 370 F. Supp. 2d at 251 (citing *Citizens Against Burlington v. Busey*, 938 F.2d 190, 201 (D.C. Cir. 1991) (stating that an agency “does not have to follow the EPA’s comments slavishly — it just has to take them seriously.”); *Natural Res. Def. Council v. Hodel*, 865 F.2d at 297-99 (stating that the court considered the failure to meaningfully address EPA concerns in its decision that FEIS did not comply with NEPA); and *Alaska v. Andrus*, 580 F.2d at 475 (stating that EPA’s determination that the EIS was unsatisfactory “did give rise to a heightened obligation on [the lead agency’s] part to explain clearly and in detail its reasons for proceeding”)).

<sup>153</sup> Applicant Brief at 12.

all “connected actions” as defined in 40 C.F.R. § 1508.25.<sup>154</sup> Section 51.45(c) contains no language to that effect. Concerning preconstruction activities, it merely provides that

[a]n environmental report prepared at the . . . combined license stage under § 51.50(c) must include a description of impacts of the preconstruction activities performed by the applicant at the proposed site (*i.e.*, those activities listed in paragraph (1)(ii) in the definition of “construction” contained in § 51.4), necessary to support the construction and operation of the facility which is the subject of the . . . combined license application. The environmental report must also contain an analysis of the cumulative impacts of the activities to be authorized by the . . . combined license in light of the preconstruction impacts described in the environmental report.<sup>155</sup>

This direction concerns the content of the ER, a document prepared by the applicant. The definition of the scope of the EIS, however, is the responsibility of the NRC Staff.<sup>156</sup> For the purpose of defining the scope of the proposed action that is to be the subject of an EIS, the Staff is instructed to use 40 C.F.R. § 1502.4, which directs that “[p]roposals or parts of proposals which are related to each other closely enough to be, in effect, a single course of action shall be evaluated in a single impact statement.”<sup>157</sup> Section 51.45(c) does not alter that obligation or the obligation to include within the scope of the proposed action all connected actions as defined in § 1508.25.

DTE also relies on the Statement of Considerations for the 2007 LWA Rule (the “SOC”).<sup>158</sup> Courts regularly rely upon the preamble in interpreting an agency rule.<sup>159</sup> Similarly, the Commission often refers to the Statement of Considerations as an aid in interpreting the agency’s regulations.<sup>160</sup> But the preamble, unlike the rule itself, does not have the force of law and may not be used to expand the reach of the regulations.<sup>161</sup> Thus, the SOC, while it may be used to interpret any ambiguous text of the 2007 LWA Rule, cannot add new requirements or prohibitions. As

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<sup>154</sup> See *supra* Section II.B.1.

<sup>155</sup> 10 C.F.R. § 51.45(c).

<sup>156</sup> *Id.* §§ 51.28, 51.29.

<sup>157</sup> 40 C.F.R. § 1502.4. Under 10 C.F.R. § 51.29(a)(1), the Staff is directed to use that provision to determine the scope of the proposed action that is the subject of an agency EIS.

<sup>158</sup> See Applicant Brief at 11-12.

<sup>159</sup> See *National Mining Ass’n v. EPA*, 59 F.3d 1351, 1355 n.7 (D.C. Cir. 1995).

<sup>160</sup> *Pa’ina Hawaii, LLC*, CLI-08-3, 67 NRC 151, 163 n.46 (2008) (*quoting Duke Energy Corp.* (Catawba Nuclear Station, Units 1 and 2), CLI-04-11, 59 NRC 203, 208 n.12 (2004)).

<sup>161</sup> See *A & E Coal Co. v. Adams*, 694 F.3d 798, 802 (6th Cir. 2012) (explaining that the preamble “merely explains why the regulations were amended” and did “not expand their reach”). See also *Curators of the University of Missouri (TRUMP-S Project)*, CLI-95-1, 41 NRC 71, 98 (1995) (stating that NRC guidance cannot prescribe requirements).

we have explained, section 51.45(c) contains no language modifying the Staff's obligation under NRC and CEQ regulations to include connected actions in the scope of the proposed action, and the SOC cannot interpret what the regulation itself does not contain.

The SOC also does not invalidate the reasoning underlying the decisions of the First and Sixth Circuits that upheld the NRC's authority to impose environmentally protective restrictions on transmission lines. The SOC discusses the Commission's reasons for changing its interpretation of its statutory authority, but it did not address those rulings of the courts of appeal. The Commission acknowledged that its previous broad assertion of regulatory jurisdiction over activities now classified as "preconstruction" was "a reasonable implementation of NEPA as understood in 1972 . . . ." <sup>162</sup> The SOC also stated that the NRC's broad definition of "construction" in the pre-2007 version of the 10 C.F.R. § 50.10(c) was originally added to Part 50 "due to the interpretation that the enactment of NEPA required the NRC to expand its permitting/licensing authority." <sup>163</sup> But the Commission stated that "subsequent judicial decisions have made it clear that NEPA is a procedural statute and does not expand the jurisdiction delegated to an agency by its organic statute." <sup>164</sup>

Although the NRC concluded it had overestimated NEPA's legal effect, the federal courts of appeal decisions upholding the NRC's authority to impose environmental restrictions on transmission lines were not premised on the theory that NEPA had expanded the jurisdiction delegated to the NRC by its organic statute (the AEA). In *Detroit Edison*, the Sixth Circuit upheld the Commission's authority to regulate transmission lines in order to prevent environmental damage, making clear that this authority was founded upon the AEA:

The Commission is empowered by [the AEA] to regulate off-site transmission lines; in the exercise of that power it must pursue the objectives of the Atomic Energy Act and NEPA simultaneously. Under the Atomic Energy Act, the Commission can issue conditional licenses for regulatory purposes. There can be no objection to its use of the same means to achieve environmental ends as well. <sup>165</sup>

In its brief in *Detroit Edison*, the NRC argued that NEPA requires consideration of all significant environmental impacts of a proposed action, including offsite transmission lines that are solely attributable to a proposed nuclear power plant. <sup>166</sup>

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<sup>162</sup> 72 Fed. Reg. at 57,420.

<sup>163</sup> *Id.* at 57,427.

<sup>164</sup> *Id.*

<sup>165</sup> *Detroit Edison*, 630 F.2d at 454.

<sup>166</sup> Brief for Respondents at 10, *Detroit Edison*, 630 F.2d 450 (No. 78-3196). The Brief was also filed on behalf of the United States, represented by the Department of Justice.

The NRC also argued that the Commission is required “to administer the Atomic Energy Act in accordance with the ‘national policy of environmental protection’” and, therefore, “must have the authority to use its license conditioning power when necessary to protect the environment.”<sup>167</sup> Additionally, the NRC asserted that the AEA and NEPA provide independent sources of authority to condition licenses based upon the environmental impacts related to offsite transmission lines. But the court of appeals, in ruling that the NRC had appropriately interpreted the AEA to include regulatory authority over attendant transmission lines, made clear that “[w]e need not, and do not, decide whether NEPA is an independent source of substantive jurisdiction.”<sup>168</sup> Thus, the court did not base its holding on the theory that NEPA had expanded the NRC’s jurisdiction beyond that already provided in the AEA.

Similarly, the First Circuit did not assume that NEPA had expanded the NRC’s jurisdiction. Rather, the court of appeals understood that NEPA required the NRC to construe its existing statutory authority consistently with NEPA’s goals:

NEPA’s mandate has been given strict enforcement in the courts, with frequent admonitions that it is insufficient to give mere lip service to the statute and then proceed in blissful disregard of its requirements. Section 102(2)(C) is an “action forcing” provision, which imposes a duty upon federal agencies to act so as to effectuate the purposes of the statute to the fullest possible degree. The directive to agencies to minimize all unnecessary adverse environmental impact obtains *except when specifically excluded by statute or when existing law makes compliance with NEPA impossible*. As stated by the court in *Calvert Cliffs*, “Unless (specific statutory) obligations are plainly mutually exclusive with the requirements of NEPA, the specific mandate of NEPA must remain in force.” Unless there are specific statutory provisions which necessarily collide with NEPA, the Commission was under a duty to consider and, *to the extent within its authority*, minimize environmental damage resulting from Seabrook and its transmission lines.<sup>169</sup>

The First Circuit found no “inevitable clash” between the NRC’s broad regulatory authority under the AEA and the action-forcing provisions of NEPA.

Both the Atomic Energy Act of 1954 and the Energy Reorganization Act of 1974 confer broad regulatory functions on the Commission and specifically authorize it to promulgate rules and regulations it deems necessary to fulfill its responsibilities under the Acts. In a regulatory scheme where substantial discretion is lodged with the administrative agency charged with its effectuation, it is to be expected that the

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<sup>167</sup> *Id.* at 19.

<sup>168</sup> *Detroit Edison*, 630 F.2d at 452.

<sup>169</sup> *Pub. Serv. Co. of N.H.*, 582 F.2d at 81 (emphasis added) (footnotes and citations omitted) (quoting *Calvert Cliffs*, 449 F.2d at 1125).



agency will fill in the interstices left vacant by Congress. The Atomic Energy Act of 1954 is hallmarked by the amount of discretion granted the Commission in working to achieve the statute's ends. The Act's regulatory scheme "is virtually unique in the degree to which broad responsibility is reposed in the administering agency, free of close prescription in its charter as to how it shall proceed in achieving the statutory objective." The agency's interpretation of what is properly within its jurisdictional scope is entitled to great deference, and will not be overturned if reasonably related to the language and purposes of the statute.<sup>170</sup>

Based on this understanding, the First Circuit upheld the agency's decision to include transmission lines that serve a nuclear power plant within the definition of "utilization facility" in 42 U.S.C. § 2014(cc).<sup>171</sup> It further held that the NRC could, consistent with its authority under the AEA, impose permit conditions on the routing of the transmission lines in order to further NEPA's mandate.<sup>172</sup> Thus, the First Circuit's ruling, like that of the Sixth Circuit, was not premised on the theory that NEPA had expanded the jurisdiction delegated to the NRC in the AEA.

The SOC states that "the elimination of the blanket inclusion of site preparation activities [including transmission lines] in the definition of construction . . . does not violate NEPA."<sup>173</sup> As we have already stated, we have no authority to consider that issue. But we find nothing in either the text of the LWA Rule or the SOC that prohibits inclusion of the construction and maintenance of a specific transmission line within the scope of the proposed NRC action when those activities qualify as a connected action under the applicable regulations and case law, as they likely do in this instance. This may be an appropriate opportunity for the Commission to clarify whether, in the event of a conflict between general statements in the SOC and the specific law that applies in the jurisdiction where the proposed facility will be located, the Staff and licensing boards should follow the controlling law in the jurisdiction when defining or reviewing the scope of the proposed action.

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<sup>170</sup> *Id.* at 82 (citations omitted) (quoting *Siegel v. AEC*, 400 F.2d 778, 783 (D.C. Cir. 1968)).

<sup>171</sup> *See id.* at 82-83.

<sup>172</sup> *Id.* at 86 ("In this instance, the Commission used one of its statutory powers in the furtherance of NEPA, whose mandate the Commission must follow. The Commission is under a dual obligation: to pursue the objectives of the Atomic Energy Act and those of the National Environmental Policy Act. 'The two statutes and the regulations promulgated under each must be viewed in *Para (sic) Materia*.' We find that the Commission correctly discharged its responsibilities here." (citation omitted) (quoting *Citizens for Safe Power, Inc. v. NRC*, 524 F.2d 1291, 1299 (D.C. Cir. 1975))).

<sup>173</sup> 72 Fed. Reg. at 57427.

### 5. *Impact of Excluding Transmission Corridor from the Scope of Proposed Action*

DTE and the Staff maintain that the question whether the transmission corridor should have been analyzed as a connected action rather than as part of the cumulative impact analysis is merely of academic interest because, they maintain, the Staff took the required hard look at the corridor's impacts.<sup>174</sup> For several reasons, we are not persuaded that the issue is merely a matter of semantics.

First, excluding the transmission corridor from the scope of the proposed action also removes it from the limitation on actions in 10 C.F.R. § 51.101(a).<sup>175</sup> When an activity is excluded from the scope of the proposed action, the effect is to allow construction to begin — or even be completed — before the agency has completed its NEPA review. But NEPA's purpose "is to influence the decision making process 'by focusing the [federal] agency's attention on the environmental consequences of a proposed project,' so as to 'ensure . . . that important effects will not be overlooked or underestimated only to be discovered after resources have been committed or the die otherwise cast.'"<sup>176</sup> "[W]hen a decision to which NEPA obligations attach is made without the informed environmental consideration that NEPA requires, the harm that NEPA intends to prevent has been suffered."<sup>177</sup> Thus, the NEPA analysis of the proposed action must be completed before, not after, construction begins. In this case, the Staff has completed the FEIS for Fermi 3 and, as far as the Board is aware, construction of the transmission corridor has not started. But the record of decision has not been issued and, accordingly, the section 51.101(a) limitation on actions remains in effect. Therefore, excluding the transmission corridor from the scope of the proposed action may allow construction of the corridor to begin before the NRC has balanced the benefits of the Fermi 3 project against all of its environmental costs, despite NEPA's goal of a fully informed agency decision before the proposed action is authorized.

We are also not persuaded that excluding the transmission corridor from the proposed action had no effect on the depth of the environmental analysis. In *Colorado Wild*, where the defendants made the same argument as DTE and the Staff, the district court found "fair grounds for litigation regarding Defendants' assertion that the treatment of the highway interchanges and Village development as cumulative impacts in the FEIS was sufficient under NEPA even if these actions should have been treated as 'connected actions' under the statute's implementing

<sup>174</sup> Applicant Brief at 13; Staff Response at 11.

<sup>175</sup> See *supra* Section II.B.4.

<sup>176</sup> *Colo. Wild, Inc.*, 523 F. Supp. 2d at 1219 (quoting *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 349 (1989)).

<sup>177</sup> *Id.* (emphasis omitted) (quoting *Sierra Club v. Marsh*, 872 F.2d 497, 500 (1st Cir. 1989) (Breyer, J.)).



regulations.”<sup>178</sup> The administrative record reflected “a heated debate” on that issue, and the court concluded that “this debate would not have occurred unless the label attached to these actions made a difference to the content, scope and/or depth of analysis.”<sup>179</sup> We similarly find that the Staff’s refusal to evaluate the transmission corridor as a connected action may have “made a difference to the content, scope and/or depth of analysis.” As we explain in Section II.D, below, the FEIS provided very limited information concerning the transmission corridor’s impacts to wetlands, streams, threatened and endangered species, and historical and cultural resources. By contrast, the FEIS provides a far more in-depth analysis of the impact of the construction and operation of Fermi Unit 3 on those resources.<sup>180</sup> It is likely that the Staff’s decision to exclude the transmission corridor from the scope of the proposed action influenced the far more limited analysis it received.

## 6. Conclusion

There is a serious question whether the transmission corridor is a connected action under NEPA and whether the Staff should have evaluated its environmental impacts as a direct effect of the proposed action.

### **D. There Is a Serious Question Whether the Staff’s Consideration of Environmental Impacts Related to the Transmission Corridor, Performed as a Cumulative Impact Review, Satisfies NEPA’s Hard Look Requirement**

Although the Staff did not consider the transmission corridor to be part of the proposed action, it included some information about the corridor’s environmental impacts in its evaluation of cumulative impacts. The Staff and DTE claim that this analysis was sufficient to satisfy NEPA requirements. We find, however, a serious question whether those requirements were satisfied.

“The principal goals of an FEIS are twofold: to force agencies to take a ‘hard look’ at the environmental consequences of a proposed project, and, by making relevant analyses openly available, to permit the public a role in the agency’s decision-making process.”<sup>181</sup> The FEIS must comply with sections 102(2)(A),

<sup>178</sup> *Colo. Wild, Inc.*, 523 F. Supp. 2d at 1225.

<sup>179</sup> *Id.* at 1225-26.

<sup>180</sup> *See, e.g.*, FEIS at 2-33 to 2-44 and 2-66 to 2-78 (describing impacts on wetlands and aquatic resources); *id.* at 2-48 to 2-59 and 2-82 to 2-125 (describing impacts on terrestrial and aquatic species and habitats); *id.* at 2-195 to 2-207 (describing impacts on historic and cultural resources).

<sup>181</sup> *Claiborne*, CLI-98-3, 47 NRC at 87 (citing *Robertson*, 490 U.S. at 349-50; *Hughes River Watershed Conservancy v. Glickman*, 81 F.3d 437, 443 (4th Cir. 1996)).

(C), and (E) of NEPA and the agency's Part 51 regulations.<sup>182</sup> NEPA § 102(2)(C) requires that an EIS provide a detailed statement concerning among other things, "the environmental impact of the proposed action," "any adverse environmental effects which cannot be avoided should the proposal be implemented," and "any irreversible and irretrievable commitments of resources which would be involved in the proposed action should it be implemented."<sup>183</sup> The Part 51 regulations impose equivalent requirements.<sup>184</sup> There is a serious question whether the Staff satisfied those requirements regarding transmission corridor impacts on wetlands, streams, threatened and endangered species, and historical and cultural resources. The Staff acknowledged that, in those areas, it lacked the necessary surveys to determine the extent of impacts to federally and state-listed species, wetlands, and other resources. But, rather than obtaining the necessary information or explaining why it could not be obtained, the Staff assumed that the necessary surveys would be conducted by other agencies in their regulatory reviews, that adequate mitigation to prevent environmental damage would be imposed by those other agencies, and that accordingly the environmental impacts would be minimal. In so doing, the Staff effectively deferred the analysis required by NEPA until a later date and delegated the NRC's NEPA responsibilities to other agencies. An impact statement cannot fulfill its role of providing "a springboard for public comment"<sup>185</sup> if it defers indefinitely and delegates to other agencies the duty to inform the public of the environmental impacts of the proposed action and potential measures to mitigate those impacts.

For example, concerning impacts of the transmission lines on "Important Terrestrial Species," the FEIS acknowledges that the United States Fish and Wildlife Service ("FWS") "identified several terrestrial species that are listed under the [Endangered Species Act] or candidates for listing that could occur in the area of the proposed transmission line corridor, some of which are not known to occur at the Fermi site."<sup>186</sup> The FEIS includes a table listing numerous federally and state-listed species that "[m]ay occur with the Transmission Line Corridor."<sup>187</sup> But the FEIS fails to identify the species that do in fact occur within the corridor and the potential impacts to those species. Instead, it states that "[f]ield surveys of the corridor route have not yet been conducted to confirm

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<sup>182</sup> See 10 C.F.R. § 51.107(a)(1).

<sup>183</sup> 42 U.S.C. §§ 4332(C)(i), (ii), (v).

<sup>184</sup> 10 C.F.R. §§ 51.45(b)(1), (2), (5) (listing ER requirements); *id.* § 51.71 (requiring that the DEIS address the matters specified in § 51.45); *id.* § 51.90 (requiring that the Staff prepare the FEIS in accordance with the requirements of section 51.71 for a DEIS).

<sup>185</sup> *Robertson*, 490 U.S. at 349 (citation omitted).

<sup>186</sup> FEIS at 2-61.

<sup>187</sup> *Id.* at 2-62.

the presence of any species,”<sup>188</sup> and that no additional monitoring is planned along the proposed transmission line corridor.<sup>189</sup> The FEIS reports that “[p]rior to installation of the offsite transmission line, FWS and [the Michigan Department of Natural Resources] would need to review detailed information on the transmission line corridor. The agencies may, at that time, require surveys of the proposed transmission line corridor for the presence of important species and habitat.”<sup>190</sup> In other words, the surveys necessary to determine whether the transmission corridor will harm “important species and habitat” were not conducted during preparation of the FEIS, but may be conducted by other agencies at unknown future dates, which may not be until after the NRC has issued the COL. The Staff failed to explain why it did not require such surveys to assist in preparation of the FEIS.

Similarly, with regard to endangered or threatened freshwater species that may occur in streams crossed by the transmission corridor, the FEIS fails to provide the information necessary to determine either the species that will be affected or the extent of the impacts. For example, concerning the northern riffleshell, a federally listed endangered freshwater mussel species, the FEIS explains that “[t]he survival of this species depends on the protection and preservation of suitable habitat host fish species,” but that “it is currently unknown if appropriate habitats are present in stream areas that are crossed by the proposed transmission line corridor.”<sup>191</sup> Concerning the purple lilliput, a freshwater mussel species listed as endangered by the State of Michigan, the FEIS reports that “it is currently unknown if appropriate habitats are present in stream areas that are crossed by the proposed transmission line corridor.”<sup>192</sup> As with terrestrial species, the FEIS includes a table (Table 2-16) identifying “Federally and State-listed aquatic species that have a potential to occur along the new transmission line route . . . .”<sup>193</sup> But the Staff reported that “it is not known whether suitable habitat or populations of species identified in Table 2-16 occur in portions of the drainage that would be crossed by the proposed transmission route.”<sup>194</sup> Again, rather than identifying the species that the transmission corridor will impact and the nature of the impacts, the FEIS defers the analysis until some unknown future date, informing the reader that “[t]he [Michigan Department of Environmental Quality (“MDEQ”)] and/or USACE may require surveys of the proposed transmission line corridor to evaluate the presence of important species and habitat.”<sup>195</sup> As with

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<sup>188</sup> *Id.* at 2-61.

<sup>189</sup> *Id.* at 2-65.

<sup>190</sup> *Id.* at 2-61.

<sup>191</sup> *Id.* at 2-104.

<sup>192</sup> *Id.* at 2-105.

<sup>193</sup> *Id.* at 2-101, 2-126.

<sup>194</sup> *Id.* at 2-126.

<sup>195</sup> *Id.*

terrestrial species, the Staff failed to explain why it did not require such surveys so that the necessary information could have been included in the FEIS.

The East Lansing Field Supervisor of the FWS, in his comments on the DEIS, was unable to concur in the Staff's conclusions regarding the impact of the transmission corridor on threatened and endangered species:

You have also made a determination of effects for the 29.4 miles of proposed transmission lines associated with the project. We are not able to concur with your effects determinations for the proposed transmission lines at this time. Your evaluation indicates that terrestrial and/or aquatic surveys for listed species will be conducted once the location of the transmission line corridors have been finalized. We will defer concurrence with your determinations until corridor locations are finalized and we have reviewed the results of future surveys. We also recommend that future surveys include those for the Indiana bat and for listed mussel species at stream crossings when the stream bottom is to be disturbed. Future consultation should be completed prior to submission of Michigan Department of Environmental Quality and/or the Army Corps of Engineers permit applications for stream crossings or wetland fill associated with the transmission line towers.<sup>196</sup>

The FEIS also states that the NRC, in conjunction with the USACE, chose to comply with the National Historic Preservation Act ("NHPA") through the NEPA process.<sup>197</sup> As the lead federal agency in this process, the NRC has responsibility for determining potential impacts on the cultural environment under NEPA and on historic and cultural resources that may qualify for the National Register of Historic Places ("NRHP") under NHPA § 106.<sup>198</sup> However, as with other impacts, the FEIS fails to fully evaluate the impact of offsite transmission lines on these historic and cultural resources. Despite acknowledgment that "[t]he proposed new approximately 11-mi transmission line route . . . has been assessed as having a moderate to high potential for identifying archaeological resources . . . , no Phase I cultural resource investigations were conducted" during DTE's preparation of the ER.<sup>199</sup> Though NRC subsequently conducted section 106 consultations with interested federal, state, and tribal entities, the NRC did not consult on the impact of offsite transmission lines because it does not consider "the building of transmission lines [to be] an NRC-authorized activity" and considers the "proposed transmission lines to be outside the NRC's [area of potential effects]."<sup>200</sup> Thus, the Staff states only that there is an "approximately 11-mi portion of the proposed offsite transmission line route [that] will require a

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<sup>196</sup> *Id.*, App. F, at F-23.

<sup>197</sup> *Id.* at 2-193.

<sup>198</sup> *Id.* at 5-91.

<sup>199</sup> *Id.* at 2-207.

<sup>200</sup> *Id.* at 2-212.

new transmission line route and may result in impacts on historic and/or cultural resources” that “could be minor” or “could be greater.”<sup>201</sup>

Despite the lack of essential information in these and other areas, the Staff concluded that the environmental impacts of the transmission corridor would be minimal. In large part, it relied on permits and certifications it assumed would be issued and enforced by other federal and state agencies. For example, concerning impacts on federally and state-listed aquatic species, the Staff stated that

[b]uilding of offsite transmission lines could affect Federally and State-listed organisms in the vicinity of stream crossings in the same ways as described in the previous section for commercially and recreationally important species. Additional regulatory review of proposed plans for construction of the needed transmission lines, which would be built, owned, and maintained by ITC Transmission, may be conducted by the MDEQ and/or USACE, and potential impacts on Federally and State-listed aquatic species *are expected to be addressed through mitigation measures and [Best Management Practices (“BMPs”)] required under issued permits.*<sup>202</sup>

The Staff’s conclusion that wetland impacts would be “minimal” similarly relied on permits and mitigation it assumed would be required by other agencies:

A conceptual transmission line corridor has been identified, but wetland delineation surveys have not yet been conducted to determine the precise locations and extent of wetlands. Permanent impacts on wetland areas would be mitigated according to a wetland mitigation plan ITC Transmission would develop in coordination with the MDEQ and/or USACE, as necessary. Any mitigation measures required for the impacts *are expected to be determined by ITC Transmission in coordination with applicable regulatory agencies, which may include the MDEQ and/or USACE, at the time permit applications are submitted.*<sup>203</sup>

The Staff also stated:

Offsite hydrological alterations are associated with the proposed new or expanded transmission line corridors where the lines cross wetlands and drainages. The impacts of hydrological alterations resulting from both onsite and offsite construction activities would be localized and reduced with the implementation of BMPs and mitigation measures *required by the necessary permits and certifications.* Any impacts on USACE jurisdictional water resources associated with the compensatory mitigation construction activities proposed by Detroit Edison would be evaluated by the USACE *during its permit evaluation process.*<sup>204</sup>

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<sup>201</sup> *Id.* at 4-101 to 4-102.

<sup>202</sup> *Id.* at 4-56 (emphasis added).

<sup>203</sup> *Id.* at 4-44 to 4-45 (emphasis added).

<sup>204</sup> *Id.* at 4-15 (emphasis added).



As to impacts on historic and cultural resources, the Staff declared that “any further investigations to identify the presence of cultural and historic resources and to evaluate the NRHP-eligibility of such resources would be the responsibility of ITC Transmission, who would conduct such investigations in accordance with applicable regulatory and industry standards to assess impacts.”<sup>205</sup>

Based on the foregoing review of the FEIS, the Board has identified the following probable deficiencies.

### ***1. Unavailable or Incomplete Information***

The FEIS repeatedly states that the NRC lacked the information necessary to fully evaluate the environmental impacts associated with offsite transmission lines. The FEIS failed to address CEQ’s NEPA regulation requiring an agency to do more than simply state that necessary information is unavailable<sup>206</sup> — a regulation that “clearly contemplates original research if necessary.”<sup>207</sup> A determination of minimal environmental impact would make little sense when an agency lacks essential information and has not sought to compile it through independent research. To rule otherwise “would turn NEPA on its head, making ignorance into a powerful factor in favor of immediate action where the agency lacks sufficient data.”<sup>208</sup> The FEIS makes no effort to explain why the NRC could not obtain the information, spurning analysis in favor of conclusory statements about the lack of environmental impact and assurances that any potential impacts will be remedied in the future. But, as the First Circuit has stated, “[a] conclusory statement unsupported by . . . explanatory information of any kind not only fails to crystallize issues, but affords no basis for a comparison of the problems involved with the proposed project and the difficulties involved in the alternatives.”<sup>209</sup>

<sup>205</sup> *Id.* at 4-102.

<sup>206</sup> 40 C.F.R. § 1502.22. The regulation requires an agency to acquire the information that is lacking if it is “essential to a reasoned choice” and “costs of obtaining it are not exorbitant.” If the costs are exorbitant, the regulation still requires the agency to state that the information is unavailable, explain the relevance of the unavailable information, summarize existing credible scientific evidence, and evaluate potential impacts.

<sup>207</sup> *Save Our Ecosystems v. Clark*, 747 F.2d 1240, 1249 (9th Cir. 1984) (“Federal agencies routinely either do their own studies or commission studies of the particular area in which a proposed project is to be located. Almost every EIS contains some original research. And, almost every time an EIS is ruled inadequate by a court it is because more data or research is needed.”). The court cited district court interpretations that have imposed the same NEPA requirement to conduct original research, if necessary. *See, e.g., Montgomery v. Ellis*, 364 F. Supp. 517, 528 (N.D. Ala. 1973) (stating that “NEPA requires each agency to undertake research needed adequately to expose environmental harms”).

<sup>208</sup> *Sierra Club v. Norton*, 207 F. Supp. 2d 1310, 1334-35 (S.D. Ala. 2002).

<sup>209</sup> *Silva v. Lynn*, 482 F.2d 1282, 1285 (1st Cir. 1973) (citations omitted).

## 2. *Reliance on Anticipated Certifications*

As previously described, the Staff assumed in the FEIS that because the transmission corridor will require permits from various federal and state agencies, the construction and operation of the transmission corridor will have only small or minimal impacts on wetlands, streams, and endangered or threatened species. There is a significant question whether such blanket reliance on predicted future action by other regulatory agencies is sufficient to satisfy NEPA's hard look requirement.

In *Calvert Cliffs Coordinating Committee, Inc. v. AEC*, the D.C. Circuit explained why merely referencing an actual or anticipated certification by another agency fails to satisfy NEPA requirements:

Certification by another agency that its own environmental standards are satisfied involves an entirely different kind of judgment [from that required by NEPA]. Such agencies, without overall responsibility for the particular federal action in question, attend only to one aspect of the problem: the magnitude of certain environmental costs. They simply determine whether those costs exceed an allowable amount. Their certification does not mean that they found no environmental damage whatever. In fact, there may be significant environmental damage (e.g., water pollution), but not quite enough to violate applicable (e.g., water quality) standards. Certifying agencies do not attempt to weigh that damage against the opposing benefits. Thus the balancing analysis remains to be done. It may be that the environmental costs, though passing prescribed standards, are nonetheless great enough to outweigh the particular economic and technical benefits involved in the planned action. The only agency in a position to make such a judgment is the agency with overall responsibility for the proposed federal action — the agency to which NEPA is specifically directed.<sup>210</sup>

The D.C. Circuit's analysis is fully applicable to the present case. For example, the Staff assumed that damage to wetlands and other jurisdictional waters of the United States would be minimal because permits from the Corps would be required. But the Corps' regulations do not require that it reduce all impacts to a minimal level. When reviewing an application for a 404 permit under the Clean Water Act, the Corps evaluates whether the issuance of the permit is in the public interest, weighing all relevant factors, including economic, environmental, and aesthetic concerns.<sup>211</sup> The Corps may not issue a permit if there exists a "practicable alternative . . . which would have less adverse impact on the aquatic system," the permit would cause "significant degradation of the water of the United States," or "appropriate and practicable" mitigation has not been

<sup>210</sup> *Calvert Cliffs*, 449 F.2d at 1123.

<sup>211</sup> 33 C.F.R. §§ 320.4(a)(1), 323.3(g).



undertaken.<sup>212</sup> However, the regulations governing Corps review do not require that mitigation measures insure minimal environmental impacts, as the FEIS seems to suggest.

Moreover, the NRC's Part 51 regulations prohibit such blanket reliance on Clean Water Act permits:

Compliance with the environmental quality standards and requirements of the Federal Water Pollution Control Act (imposed by EPA or designated permitting states) is not a substitute for, and does not negate the requirement for NRC to weigh all environmental effects of the proposed action, including the degradation, if any, of water quality, and to consider alternatives to the proposed action that are available for reducing adverse effects.<sup>213</sup>

The Staff's reliance on predicted future regulation is also similar to the argument that the D.C. Circuit rejected in *New York v. NRC*.<sup>214</sup> The NRC argued that its environmental assessment did not need to deal with the potential impacts of leaks from spent fuel pools because its monitoring and regulatory compliance program would prevent such leaks. The court stated:

That argument . . . amounts to a conclusion that leaks will not occur because the NRC is "on duty." With full credit to the Commission's considerable enforcement and inspection efforts, merely pointing to the compliance program is in no way sufficient to support a scientific finding that spent-fuel pools will not cause a significant environmental impact during the extended storage period.<sup>215</sup>

Similarly, in the FEIS, the Staff relied on compliance programs of other federal and state agencies to support its findings that the impact of the transmission corridor upon environmental resources will be small or minimal. Such blanket reliance is subject to serious question.

### ***3. Inadequate Analysis of Mitigation***

The FEIS's limited discussion of mitigation suffers from the same problem as its analysis of environmental consequences. Courts have held that an EIS must include "a serious and thorough evaluation of environmental mitigation options."<sup>216</sup> "Mitigation must be discussed in sufficient detail to ensure that environmental

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<sup>212</sup> 40 C.F.R. §§ 230.10(a), (c), (d).

<sup>213</sup> 10 C.F.R. § 51.71(d) & n.3.

<sup>214</sup> *New York v. NRC*, 681 F.3d at 481.

<sup>215</sup> *Id.*

<sup>216</sup> *Mississippi River Basin Alliance v. Westphal*, 230 F.3d 170, 178 (5th Cir. 2000).

consequences have been fairly evaluated.”<sup>217</sup> Rather than identifying and evaluating potential mitigation options, the FEIS merely assumes that mitigation for the transmission corridor’s impacts to wetlands, streams, and threatened and endangered species will be adequately addressed in permit reviews to be conducted by other agencies. As a result, the FEIS fails to provide a detailed evaluation of potential mitigation measures, as required, but only a series of predictions that the issue will be adequately addressed in other reviews.

#### **4. Conclusion**

There is a serious question whether the analysis of transmission corridor impacts in the FEIS satisfies NEPA’s hard look requirement.

#### **E. Sua Sponte Review Is Warranted**

We have explained that the two issues the Board has identified raise serious factual and legal questions regarding the Staff’s compliance with NEPA. Those issues can readily be distinguished from those likely to arise in the ordinary case. First, the Staff’s failure to include the transmission corridor as part of the proposed action significantly reduced its scope, both in terms of the total area affected and the environmental resources that would be impacted. The Staff effectively eliminated from the proposal nearly half of the total acreage that will be affected by the entire project.<sup>218</sup> The Staff’s narrow definition also meant that potential impacts to important environmental resources were excluded from the scope of the proposed federal action. For example, as EPA noted in its comments on the FEIS, the construction and maintenance of the new transmission lines and substations are estimated to impact “over 1000 acres of habitat, including over 93 acres of impacts to forested wetlands.”<sup>219</sup> The construction and maintenance of the new transmission lines will also potentially impact streams, threatened and endangered species, and historic and cultural resources. Given the size of the transmission corridor and the environmental resources it will affect, the corridor clearly represents a major component of the environmental impact of the Fermi Unit 3 project.

The Staff might have compensated for its narrow definition of the proposed action by including in the FEIS a thorough analysis of the potential environmental

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<sup>217</sup> *Id.* at 176-77 (quoting *Robertson*, 490 U.S. at 352).

<sup>218</sup> The FEIS estimates the total acreage of the transmission corridor as 1069.2 acres. FEIS at 2-47 (Table 2-7). The Fermi site as defined in the FEIS (which includes the entire property owned by DTE, not just the site of Fermi Unit 3) is 1260 acres. FEIS at 2-5.

<sup>219</sup> EPA Comments on FEIS at 1.

impacts of the transmission corridor, as the agency committed to do in the SOC.<sup>220</sup> But the Staff instead deferred major components of the required analysis to other agencies that it assumed would eventually undertake the necessary surveys and develop appropriate mitigation — even though such regulatory actions, even if they occur as predicted, may not take place until after the COL is issued. This gives rise to the problem that the rule against segmentation seeks to avoid, “when the environmental impacts of projects are evaluated in a piecemeal fashion and, as a result, the comprehensive environmental impacts of the entire Federal action are never considered or are only considered after the agency has committed itself to continuation of the project.”<sup>221</sup>

The Appeal Board observed that “in inquiring on its own initiative into the transmission line question, that Board was discharging an important function assigned to it. Licensing boards have independent responsibilities in the realm of the enforcement of the NEPA command; *i.e.*, their role is not confined to the arbitration of those environmental controversies as may happen to have been placed before them by the litigants in the particular case.”<sup>222</sup> Though this responsibility has changed — now requiring Commission approval before a board may exercise its responsibility — the authority still exists, as the Commission has made clear.<sup>223</sup> This authority cannot reasonably be limited to only a situation which “involves a significant environmental impact of a type not considered previously” and “could destabilize an environmental resource or . . . involve[s] severe adverse environmental impacts.”<sup>224</sup> A serious environmental issue also exists when an FEIS only cursorily deals with important environmental issues and concludes that impacts will be small based largely on unavailable and incomplete information and predicted future certifications from other agencies. A serious issue is also presented when the Staff’s NEPA analysis significantly understates the scope of the proposed federal action, particularly when it does so on a basis that conflicts with the law of the federal judicial circuit where the new facility will be located. Moreover, as justification for the agency’s rule change excluding transmission lines and other preconstruction activities from the scope of its proposed action, the NRC committed that “the effects of the non-Federal activities would be considered

<sup>220</sup> 72 Fed. Reg. at 57,417, 57,421.

<sup>221</sup> 72 Fed. Reg. at 57,427-28.

<sup>222</sup> *Tennessee Valley Authority* (Hartsville Nuclear Plant, Units 1A, 2A, 1B, and 2B), ALAB-380, 5 NRC 572, 575 (1977).

<sup>223</sup> *Cincinnati Gas and Electric Co.* (William H. Zimmer Nuclear Power Station, Unit 1), CLI-82-20, 16 NRC 109 (1982). The Appeal Board has likewise stressed the need for licensing boards to judiciously exercise the *sua sponte* authority when faced with a serious, and unraised, issue. *Louisiana Power and Light Co.* (Waterford Steam Electric Station, Unit 3), ALAB-732, 17 NRC 1076, 1111-12 (1983) (noting that *Zimmer* should not be read to present an “insurmountable barrier” to the exercising of *sua sponte* authority).

<sup>224</sup> Applicant Brief at 9.

during any subsequent ‘cumulative impacts’ analysis.”<sup>225</sup> It is at least questionable whether the Staff’s analysis of the impact of offsite transmission lines satisfies this commitment. The Staff’s alleged failure to live up to a commitment the NRC made to justify a significant change in policy is a serious issue that a board should be permitted to address.

Although the FEIS may be deficient in significant respects, a contested hearing may enable the Board to cure those deficiencies and thus bring the agency into compliance with NEPA and 10 C.F.R. Part 51. “Boards frequently hold hearings on contentions challenging the staff’s final environmental review documents . . . . In such cases, ‘[t]he adjudicatory record and Board decision (and . . . any Commission appellate decisions) become, in effect, part of the FEIS.’”<sup>226</sup> Thus, the Staff’s FEIS, along with the adjudicatory record, becomes the relevant record of decision for the environmental portion of the proceeding.<sup>227</sup> Federal courts of appeal have approved of this process in which an EIS is effectively amended through the adjudicatory process.<sup>228</sup> The Board’s review would encompass all pertinent information properly before it, including the FEIS and the witness testimony and exhibits that were received into evidence at the evidentiary hearing. The Board would base its decision on whether the FEIS complies with NEPA on those sources of information, and that decision, along with the rest of the record for this proceeding, would in effect become part of the FEIS.

The Staff and DTE maintain, however, that if any further inquiry needs to be made concerning the issue raised by Contention 23, it should be made by the Commission during the mandatory hearing (also referred to as an “uncontested hearing”) rather than in a contested hearing.<sup>229</sup> But the mandatory hearing ordinarily takes place at the end of the licensing proceeding.<sup>230</sup> If the FEIS is found deficient at that point, the need to cure the deficiencies through amendment of the FEIS could substantially delay the licensing process. The Board, by contrast, can

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<sup>225</sup> 72 Fed. Reg. at 57,417.

<sup>226</sup> *Nuclear Innovation North America LLC* (South Texas Project, Units 3 and 4), CLI-11-6, 74 NRC 203, 208-09 (2011) (citing *Claiborne*, CLI-98-3, 47 NRC at 89 and *Philadelphia Electric Co.* (Limerick Generating Station, Units 1 and 2), ALAB-819, 22 NRC 681, 705-07 (1985)).

<sup>227</sup> See, e.g., *Pacific Gas and Electric Co.* (Diablo Canyon Power Plant Independent Spent Fuel Storage Installation), CLI-08-26, 68 NRC 509, 526 (2008), *petition for review denied on other grounds*, *San Luis Obispo Mothers for Peace v. NRC*, 635 F.3d 1109 (9th Cir. 2011).

<sup>228</sup> *New England Coalition on Nuclear Pollution v. NRC*, 582 F.2d 87, 93-94 (1st Cir. 1978); *Citizens for Safe Power*, 524 F.2d at 1294 n.5. See also *Ecology Action v. AEC*, 492 F.2d 998, 1001-02 (2d Cir. 1974).

<sup>229</sup> See Staff Response at 3, 12-16; Applicant Brief at 2 n.5.

<sup>230</sup> The Staff’s target for completing the FSER is July 2015, so the mandatory hearing will not take place before mid-2015 at the earliest. Application Review Schedule, <http://www.nrc.gov/reactors/new-reactors/col/fermi/review-schedule.html>.

minimize the potential delay by taking up the issue as soon as the Commission authorizes *sua sponte* review.<sup>231</sup>

Furthermore, the uncontested hearing, unlike a contested hearing, would make it more difficult to cure deficiencies in the FEIS through the hearing process. Although several federal courts of appeal have accepted that a contested hearing may cure deficiencies in the FEIS,<sup>232</sup> no court of appeals has given the same effect to an uncontested hearing. The function of the uncontested hearing is only to review the adequacy of the Staff's work, not to make a *de novo* inquiry into NEPA issues.<sup>233</sup> Thus, an uncontested hearing would make it more difficult to cure deficiencies in the FEIS by, for example, developing relevant information on the environmental impacts of the transmission corridor that the Staff omitted.

In addition, the uncontested hearing excludes public participation in the review of the FEIS. Because "[t]he scope of the Intervenor's participation in adjudications is limited to their admitted contentions," they are "barred from participation in the uncontested portion of the hearing."<sup>234</sup> Thus, unlike contested proceedings, there is no public participation in an uncontested (i.e., mandatory) hearing. The only participants would be DTE and the Staff, with no opportunity for the Intervenor to offer evidence or to argue their position. Thus, in substance, the Staff and DTE would limit any further inquiry to a hearing in which they will participate but from which the Intervenor will be excluded.

But public participation is essential to the justification for allowing amendment of an FEIS through an agency hearing. In the *Limerick* licensing proceeding, the Appeal Board had to determine whether the presiding officer's findings and conclusions modified the FEIS in the absence of the agency regulation that had previously required that they be given that effect.<sup>235</sup> The NRC's NEPA regulations require a request for public comment on a DEIS and a supplement to a DEIS distributed in accordance with 10 C.F.R. § 51.74,<sup>236</sup> and on any supplement to the FEIS prepared pursuant to 10 C.F.R. § 51.92(a) or (b).<sup>237</sup> The intervenor in the *Limerick* proceeding therefore argued that "NEPA's purpose in providing the opportunity for public comment on an environmental statement [would be]

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<sup>231</sup> In *Zimmer*, the Commission ordered a Licensing Board not to exercise *sua sponte* authority because the Commission had already initiated an "ongoing investigation" to deal with the issues raised. *Zimmer*, CLI-82-20, 16 NRC at 110. Here, by contrast, the NRC Staff has completed the FEIS, it has provided no indication of any intent to revise the document, and the Commission has not instructed the Staff to reconsider the transmission line issue.

<sup>232</sup> See *supra* note 228 and accompanying text.

<sup>233</sup> *Exelon Generation Co., LLC* (Early Site Permit for Clinton ESP Site), CLI-05-17, 62 NRC 5, 35-36, 39 (2005).

<sup>234</sup> *Id.* at 49.

<sup>235</sup> *Id.*

<sup>236</sup> 10 C.F.R. § 51.73.

<sup>237</sup> *Id.* § 51.92(f)(1).



thwarted by board amendment of an [FEIS].”<sup>238</sup> The Appeal Board disagreed because the licensing board’s hearing “arguably allows for additional and a more rigorous public scrutiny of the [FEIS] than does the usual ‘circulation for comment.’”<sup>239</sup> Given that the opportunity for rigorous public scrutiny of the FEIS was essential to the Appeal Board’s decision that the FEIS could be amended through the hearing process, eliminating such public participation would weaken the rationale of that determination.

If the FEIS violates NEPA and Part 51, the Intervenor’s failure to file Contention 23 in response to DTE’s ER will not excuse the agency’s violation. The “primary responsibility for compliance with NEPA lies with the Commission.”<sup>240</sup> The issues here concern the scope of the FEIS and its failure to adequately assess the environmental impacts of a critical component of the Fermi 3 project, basic issues that the Staff must correctly evaluate whether or not they were raised by Intervenor’s.<sup>241</sup> Moreover, Intervenor previously notified the NRC of their concern by filing proposed Contention 23 in response to the DEIS. EPA raised the same concern, arguing that the environmental impacts of the transmission corridor should have been evaluated as direct effects of the proposed action. And the Board itself raised the same issue in its ruling holding that the DEIS version of Contention 23 was untimely.<sup>242</sup> The Staff therefore had both the legal obligation to correctly define the scope of the FEIS and ample notice that Intervenor, the EPA, and the Board questioned whether the Staff had adequately fulfilled that obligation. Thus, if Intervenor are correct that the Staff should have analyzed the transmission corridor as a connected action and that the FEIS is materially deficient, Intervenor’s failure to file Contention 23 in response to the Applicant’s ER will not excuse the agency’s potential violation of NEPA and Part 51.<sup>243</sup> It would therefore be in the public interest to address the issues now rather than postponing their resolution indefinitely.

### III. CONCLUSION

For these reasons, the Board determines that *sua sponte* review of the two issues

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<sup>238</sup> *Limerick*, ALAB-819, 22 NRC at 707.

<sup>239</sup> *Id.*

<sup>240</sup> *New York v. NRC*, 681 F.3d at 482 (citing *Pub. Citizen*, 541 U.S. at 764). *Accord Pa’ina Hawaii, LLC*, CLI-10-18, 72 NRC 56, 82 (2010).

<sup>241</sup> *See* 10 C.F.R. § 51.29(a)(1).

<sup>242</sup> *See supra* Section I.E.

<sup>243</sup> *See Vermont Department of Public Service v. United States*, 684 F.3d 149, 156 (D.C. Cir. 2012) (stating that, in an action under the Hobbs Act for review of an NRC final order, exhaustion of remedies is not a jurisdictional requirement).

previously described is warranted and respectfully requests that the Commission authorize such review.

THE ATOMIC SAFETY AND  
LICENSING BOARD

Ronald M. Spritzer, Chairman  
ADMINISTRATIVE JUDGE

Dr. Anthony J. Baratta  
ADMINISTRATIVE JUDGE

Dr. Randall J. Charbeneau  
ADMINISTRATIVE JUDGE

Rockville, Maryland  
July 7, 2014





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 5

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REPLY TO THE ATTENTION OF

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Cindy K. Bladey  
 Chief, Rules, Announcements, and Directives Branch  
 Office of Administration  
 Mail Stop: TWB-05-B01M  
 U.S. Nuclear Regulatory Commission  
 Washington, D.C. 20555-0001

1/16/2013

78 FR 3470

①

Re: **Comments on the Final Environmental Impact Statement for the Combined License for Enrico Fermi Unit 3, Monroe County, Michigan – CEQ No. 20130006**

Dear Ms. Bladey:

The U.S. Environmental Protection Agency has reviewed the Final Environmental Impact Statement (EIS) for the construction, operation, and decommissioning of the Enrico Fermi Unit 3 Nuclear Power Plant (Fermi 3) in Monroe, Michigan provided by the U.S. Nuclear Regulatory Commission (NRC) and the U.S. Army Corps of Engineers (USACE). Our comments are provided pursuant to the National Environmental Policy Act (NEPA), the Council on Environmental Quality's NEPA Implementing Regulations (40 CFR 1500-1508), and Section 309 of the Clean Air Act.

On September 18, 2008 Detroit Edison Company (DTE) submitted to the NRC an application for a Combined Operating License (COL) for the Enrico Fermi Unit 3 (Fermi 3) to be located adjacent to the existing Units 1 (Fermi 1) and 2 (Fermi 2) on the Detroit Edison Enrico Fermi Atomic Power Plant site (Fermi site). The site proposed by DTE for Fermi 3 is located in Monroe County, Michigan, approximately 30 miles southwest of Detroit, Michigan, and is seven miles southwest of the United States-Canadian international border. The proposed Fermi 3 Unit and its associated infrastructure would be located adjacent to the existing operating Fermi 2. Fermi 1, also within the confines of the Fermi site, is in the process of being decommissioned.

Proposed actions include:

- 1) NRC issuance of a COL for the construction, operation, and decommissioning of a power reactor at the Fermi site in Monroe County, Michigan, and

- 2) USACE permit decisions pursuant to Section 404 of the Clean Water Act, as amended, and Section 10 of the Rivers and Harbors Appropriation Act of 1899 to perform certain pre-construction activities, as appropriate to the USACE scope of analysis, on the site.

EPA provided comments on the Draft EIS on January 10, 2012. Our concerns focused on potential impacts to aquatic resources, air, and traffic as a result of increased onsite personnel, as well as radiological impacts to onsite construction workers. A brief review and any recommended further action is described in the following paragraphs.

Appendix E of the Final EIS identified EPA as commenter number 0078. Each individual comment has been numerically coded and hyphenated to the commenter number, e.g., comment number 0078-14. EPA is using this coding system in our comments for easier reference back to the EIS.

The following comments have been sufficiently addressed; therefore, EPA has no further comments.

- Process – NEPA: 0078-6 and 0078-38
- Hydrology- Groundwater: 0078-3
- Hydrology – Surface Water: 0078-10 and 0078-30
- Ecology – Terrestrial: 0078-18 and 0078-27
- Socioeconomics: 0078-5, 0078-15, 0078-16, and 0078-35
- Meteorology and Air Quality: 0078-19, 0078-21, and 0078-22
- Health – Nonradiological: 0078-25 and 0078-26
- Health – Radiological: 0078-28
- Uranium Fuel Cycle: 0078-7 and 0078-8
- Editorial: 0047-40

EPA continues to recommend that NRC and DTE consider the mitigation measures identified in the following comments be adopted as part of a comprehensive mitigation strategy.

- Site Layout and Design: 0078-32
- Hydrology – Groundwater: 0078-11
- Ecology – Terrestrial: 0078-9 and 0078-17
- Health – Nonradiological: 0078-20
- Benefit-Cost Balance: 0078-33

We also would like to take this opportunity to reiterate our concerns and recommendations regarding the following comments; the enclosed comments discuss these issues in more detail.

- Process – NEPA: 0078-31 and 0078-36
- Socioeconomics: parts of 0078-12, parts of 0078-14, and 0078-34
- Environmental Justice: 0078-13
- Health – Radiological: 0078-23 and 0078-24
- Transportation: 0078-29

- Geology: 0078-4
- Editorial: 0078-37 and 0078-39

Finally, the NRC's Waste Confidence Decision and rule were vacated by the U.S. Court of Appeals for the D.C. Circuit on June 8, 2012. The Waste Confidence Decision and rule were a generic determination that spent fuel could be stored onsite for 60 years past the expiration date of a facility's license and that no discussion of long-term waste storage is required in a facility's new COL EIS or license renewal EIS. Per interpretation of the Waste Confidence Decision and rule at the time of publication of the Fermi 3 Draft EIS, no discussion of environmental impacts of extended waste storage was included. As the Final EIS indicates, an EIS to support the update of the Waste Confidence Decision and rule is being prepared. No licenses dependent upon this decision and rule will be issued until the EIS analyzing long-term storage has been completed. If the results of that EIS identify information that requires a supplement to the Fermi 3 EIS, NRC will perform the appropriate NEPA review before making a final licensing decision on the Fermi 3 license. EPA will review the waste confidence EIS and any supplemental NEPA documentation as required.

Thank you in advance for your consideration of our recommendations to further reduce environmental impacts associated with the Fermi 3 project. Please send us a copy of the NRC license and USACE Record of Decision when they become available. If you have any questions, please feel free to contact me or Elizabeth Poole of my staff at 312-353-2087 or [poole.elizabeth@epa.gov](mailto:poole.elizabeth@epa.gov).

Sincerely,



Kenneth A. Westlake  
Chief, NEPA Implementation Section  
Office of Enforcement and Compliance Assurance

cc: Bruce Olson, Nuclear Regulatory Commission  
Colette Luff, US Army Corps of Engineers  
Burr Fisher, US Fish and Wildlife Service  
Katharine David, Michigan Department of Environmental Quality  
David Williams, Federal Highway Administration  
Kristin Shuster, Michigan Department of Transportation  
Bob Stammer, Jr., Monroe County Road Commission  
Randall Westmoreland, Detroit Edison

Enclosure (1): EPA's Detailed Comments

**Detailed Comments on the Final Environmental Impact Statement for the Combined License for Enrico Fermi Unit 3, Monroe, Michigan, NUREG-2105 – CEQ No. 20130006**

**February, 2013**

**Unresolved Concerns**

***Process – NEPA (0078-31 and 0078-36)***

- Comment 0078-31 pertains to impacts as a result of the construction and maintenance of the transmission lines and substations. While EPA appreciates the addition of Appendix M as a reference, we reiterate our previous comment that impacts resulting from the construction and maintenance of the new transmission lines and substations should be considered as direct impacts and mitigated for as part of the proposed project. Total impacts are estimated to be over 1000 acres of habitat, including over 93 acres of impacts to forested wetlands.
- Comment 0078-36 pertains to the public outreach strategy pursued by DTE. EPA reiterates our recommendation for DTE to outline a detailed public outreach strategy to inform residents and employees of the risks and impacts associated with the proposed Fermi 3 project. Because the proposed project includes unavoidable impacts, particularly to the adjacent communities, the outreach strategy should address all potential impacts, regardless of their magnitude (SMALL, MODERATE, or LARGE<sup>1</sup>) or whether they are a risk or a benefit as a result of the project. For example, EPA recommends public outreach materials include mitigation measures that might reduce impacts, such as diesel emissions reduction techniques during construction. EPA believes that a comprehensive public outreach program is necessary for successful mitigation of impacts. There are specific resource impacts where EPA believes this outreach would be particularly beneficial, including, but not limited to:
  - Construction schedule, including anticipated shift changes (when traffic will be heaviest), refueling schedules (when additional personnel will be onsite), and any traffic-related incidents that might impede movement in, out, and around the surrounding community. See further discussion of traffic-related impacts below.
  - Noise monitoring and compliance with the Frenchtown Charter Township ordinance regarding noise annoyance. Noise monitoring should also address impacts to Fermi 2 employees and third-party contractors during construction of Fermi 3.
  - Air quality monitoring data, including dust suppression and diesel emissions reduction efforts.

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<sup>1</sup> NRC categorizes impacts to resources as SMALL, MODERATE, or LARGE.

- Radiological data, including monitoring efforts and results on non-occupational workers, such as construction workers at Fermi 3. See further discussion of radiological monitoring below.
- Dewatering at the construction site and the resultant lowering of groundwater levels in adjacent residential wells. EPA recognizes that this is anticipated to be a lowering of one- to two-feet at only a few wells, depending on the type of dewatering technique employed. Because of changes in precipitation, water use patterns by residents, and projected use by DTE, it is difficult to determine whether a one- to two-foot lowering of wells levels would be a SMALL impact, as NRC has determined. However, we encourage the applicant to provide a map and schedule of dewatering to potentially impacted residents, so they may adequately prepare.
- Emergency information, including information for non-radiological emergency responders to surrounding communities.
- Contact information for complaints and questions.

***Socioeconomics (0078-12, 0078-14, & 0078-35) & Environmental Justice (0078-13)***

- EPA remains concerned about the methodology used to determine the number of additional onsite personnel during construction and resultant impacts, particularly impacts to traffic. The use of the average number of employees across a multi-year project does not appropriately capture the true intensity of impacts, both negative and positive in nature. Because of this, EPA continues to believe that the severity of some categories of impacts is more intense and additional mitigation measures may be appropriate.

In particular, EPA is concerned about the impacts to traffic, as they not only negatively impact adjacent residents and local air quality, but also spread much further from the Fermi site, including onto Interstate 75. We appreciate the “improvement alternatives” listed in tables 4-12 and 4-13, and recommend that DTE work with the federal, state, and local transportation agencies to discuss appropriate traffic related capital and operational improvements, including funding mechanisms and environmental planning.

***Health – Radiological (0078-23 and 0078-24)***

- EPA continues to have concerns about the classification of Fermi 3 construction workers as “members of the public.” We recognize that DTE has developed a radiological monitoring program for Fermi 2 workers and other onsite occupational workers. However, because there will be no radiological monitoring program for onsite construction workers, it will be difficult to determine if they are receiving more than the



estimated dose limit of 96 millirem (mrem) per year. Therefore, EPA continues to strongly encourage a radiological monitoring program be set up for the onsite construction workers. In order to simultaneously limit cost and validate estimated levels, EPA recommends that at least a portion of construction workers wear radiation badges and the resultant data be made available to all construction workers.

#### ***Transportation (0078-29)***

- EPA reiterates our previous comment that impacts as a result of increased use of rail in and around the Fermi site should be addressed. For rail use internal to the site, impacts to worker health, noise, and emissions are the primary concerns. For external use, impacts to traffic, accident mitigation, noise and emissions are the primary concerns.

#### ***Geology (0078-4)***

- EPA commented on the Draft EIS that a discussion of whether karst was present on the Fermi site should be included in the Final EIS. NRC indicated that karst is discussed in section 2.5.4.1 of the Safety Evaluation Report. EPA reviewed this section, as well as the Section 2.6 of the Environmental Report and Section 2.5 of the Final Safety Analysis Report. This information was not in the Final EIS, nor in the associated documents. Therefore, EPA reiterates our previous comment that karst should be discussed and, if it exists, identify how the proposed project may be influenced by it.

#### ***Editorial (0078-37 and 0078-39)***

- Comments 0078-37 and 0078-39 pertain to the generic way in which other documents were referenced throughout the Draft EIS. Locating citations in the Final EIS remains very difficult, particularly when citations continue to reference entire documents. EPA reiterates our request that NRC use references to specific document page numbers when referring to additional documents.

#### **Mitigation Commitments**

EPA recognizes that NRC is unable to include non-nuclear safety or security-related issues into the license agreement. However, EPA reiterates the following comments, pertaining to several mitigation measures that would further reduce environmental impacts. Implementation of the following mitigation measures by DTE could serve as a model for future plant design and planning efforts.

- ***Site Layout and Design (0078-32) and Benefit-Cost Balance (0078-33)***

Comments 0078-32 and 0078-33 pertain to incorporating sustainable practices, green infrastructure, and beneficial reuse into the proposed project. In Appendix E, "NRC encourages the applicant to evaluate the EPA's recommendations and incorporate green

design in landscaping and facilities to the extent practicable.” EPA reiterates our previous comments and commends NRC for recognizing these efforts as environmentally beneficial. Already planned efforts should be identified in the decision documents. We recommend that DTE consider additional practices, such as:

- Beneficial reuse of material, including concrete, aggregate, or other spoils.
- Permeable or porous pavement in new or reconstructed parking lots, sidewalks, and other potentially impervious surfaces, where suitable.
- Energy efficiency measures, such as state-of-the-art insulated building envelope or Energy Star rated appliances.
- Passive design elements, such as use of ambient lighting.
- Water efficiency measures, such as low-flow plumbing in restrooms, employee break-rooms, and similar facilities.

- ***Hydrology – Groundwater (0078-11)***

Comment 0078-11 pertains to the method in which DTE will dewater at the construction site, resulting in a lowered water table in the surrounding area. Because some adjacent residents use groundwater wells, this would result in a lowering of their well levels between one and two feet, depending on the method of dewatering used. EPA reiterates our comments that the method with the least amount of impacts be pursued, which in this case is the reinforced diaphragm concrete system.

- ***Ecology – Terrestrial (0078-9 and part of 0078-17)***

Comment 0078-9 pertains to wetland mitigation measures. EPA reiterates our recommendations for mitigation measures for doing work near and in wetlands and appreciates incorporation of wetland mitigation measure for onsite impacts into the Final EIS. Measures to avoid or minimize impacts to wetlands should be extended to connected actions, such as pre-construction actions and the construction or maintenance of transmission lines and substations. The following measures should be considered by DTE:

- Perform construction in wetlands during times when the ground is frozen.
- Minimize width of temporary access roads.
- Use easily-removed materials for construction of temporary access roads and staging areas (e.g., swamp/timber mats) in lieu of materials that sink (e.g., stone, rip-rap, wood chips).



- Use swamp/timber mats or other alternative matting to distribute the weight of construction equipment. This will minimize soil rutting and compaction.
- Use construction vehicles and equipment with wider tires or rubberized tracks, or use low-ground-pressure equipment to further minimize impacts during construction access and staging.
- Use long-reach excavators, where appropriate, to avoid driving or staging in wetlands.
- Place mats under construction equipment to contain spills.

Comment 0078-17 pertains to the restoration of the tall grass prairie. EPA reiterates our previous comments regarding: 1) restoration of this area once construction is completed, and 2) compensation for any losses on adjacent or nearby agricultural land proposed for temporary lay-down. We recommend that an active or adaptive management plan for this area be developed to ensure its success after planting. This work should be coordinated with managers of adjacent open space parcels.

- ***Health – Nonradiological (0078-20)***

The National Institute for Occupational Safety and Health (NIOSH) has determined that diesel exhaust is a potential occupational carcinogen, based on a combination of chemical, genotoxicity, and carcinogenicity data. In addition, acute exposure to diesel exhaust has been linked to health problems, such as eye and nose irritation, headaches, nausea, asthma, and other respiratory issues. EPA reiterates our comments regarding diesel emissions and strongly encourages following measures be incorporated into the construction plans and contract agreements for the proposed project. Implementation of these measures will not only reduce environmental impacts, but will also reduce human exposure for both onsite employees and adjacent residents. Many of these measures will reduce project costs, particularly since most contractors have already incorporated these measures into their practices.

- Using ultra low-sulfur diesel fuel (15 parts per million sulfur maximum).
- Retrofitting engines with an exhaust filtration device to capture diesel particulate matter before it enters the construction site.
- Positioning the exhaust pipe so that diesel fumes are directed away from the operator and nearby workers, thereby reducing the fume concentration to which personnel are exposed.
- Using catalytic converters to reduce carbon monoxide, aldehydes, and hydrocarbons in diesel fumes. These devices must be used with low sulfur fuels.

- Ventilating whenever diesel equipment operates indoors. Roof vents, open doors and windows, roof fans, or other mechanical systems help move fresh air through work areas. As buildings under construction are gradually enclosed, remember that fumes from diesel equipment operating indoors can build up to dangerous levels without adequate ventilation.
- Attaching a hose to the tailpipe of diesel vehicles running indoors and exhaust the fumes outside, where they cannot reenter the workplace. Inspect hoses regularly for defects and damage.
- Using enclosed, climate-controlled cabs pressurized and equipped with high efficiency particulate air (HEPA) filters to reduce the operators' exposure to diesel fumes. Pressurization ensures that air moves from inside to outside. HEPA filters ensure that any incoming air is filtered first.
- Regularly maintaining diesel engines, which is essential to keep exhaust emissions low. Follow the manufacturer's recommended maintenance schedule and procedures. Smoke color can signal the need for maintenance. For example, blue/black smoke indicated that an engine requires servicing or tuning.
- Reducing exposure through work practices and training, such as turning off engines when vehicles are stopped for more than a few minutes, training diesel-equipment operators to perform routine inspections, and maintaining filtration devices.
- Purchasing new vehicles that are equipped with the most advance emission control systems available.
- With older vehicles, using electric start aids such as block heaters to warm the engine reduces diesel emissions.
- Using respirators, which are only an interim measure to control exposure to diesel emissions. In most cases, an N95 respirator is adequate. Workers must be trained and fit-tested before they can wear respirators. Depending on work being conducted, and if oil is present, concentrations of particulates present will determine the efficiency and type of mask and respirator. Personnel familiar with the selection, care, and use of respirators must perform the fit test. Respirators must bear a NIOSH approval number. Never use paper masks or surgical masks without NIOSH approval numbers.

October 5, 2009

Mr. Jack Davis  
Chief Nuclear Officer  
Detroit Edison Company  
One Energy Plaza  
Detroit, MI 48226-1279

SUBJECT: NRC INSPECTION REPORT 05200033/2009-201 AND NOTICE OF VIOLATION  
TO DETROIT EDISON COMPANY

Dear Mr. Davis:

On August 18-21, 2009, the U.S. Nuclear Regulatory Commission (NRC) conducted an inspection at the Detroit Edison Company (DECo) in Detroit, MI. The enclosed report presents the results of this inspection.

This was a limited scope inspection that focused on assessing your compliance with the provisions of selected portions of Appendix B, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants," (Appendix B) to Part 50, "Domestic Licensing of Production and Utilization Facilities," of Title 10 of the *Code of Federal Regulations* (10 CFR)." Specifically, the NRC inspection team reviewed certain portions of your quality assurance (QA) program implementation to ensure that they were effectively implemented with respect to the Fermi Unit 3 combined license (COL) application. While the NRC did review the implementation of portions of your QA program, this NRC inspection report does not constitute NRC the approval of your QA program.

Based on the results of this inspection, the NRC has determined that three Severity Level IV violations of NRC requirements occurred. The NRC evaluated these violations in accordance with the agency's Enforcement Policy, available on the NRC's Web site at [http://adamswebsearch2.nrc.gov/idmws/doccontent.dll?library=PU\\_ADAMS^PBNTAD01&ID=092450167](http://adamswebsearch2.nrc.gov/idmws/doccontent.dll?library=PU_ADAMS^PBNTAD01&ID=092450167).

The enclosed Notice of Violation (NOV) cites the violations, and the subject inspection report describes in detail the circumstances surrounding them. The NOV cites these violations based on a review of your QA program and implementation found that certain QA policies and procedures were not in compliance with the applicable requirements of Appendix B to 10 CFR Part 50. Specifically, the NRC identified that you failed to establish and implement a Fermi 3 QA program between March 2007, when the initial contract was placed with B&V for the conduct of COL activities, until February 2008, and retain overall control of contracted COL activities as required by Criterion II, "Quality Assurance Program," of Appendix B to 10 CFR Part 50. The NRC concluded that the failure to establish a Fermi 3 QA program resulted in inadequate control of procurement documents and ineffective control of contract services performed by Black and Veatch (B&V) for COL application activities. Additionally, you failed to perform internal audits of QA programmatic areas implemented for Fermi 3 COL application activities and to document trending of your corrective action reports (CARs). These violations

J. Davis

- 2 -

are cited in the enclosed NOV and the circumstances surrounding them are described in detail in the enclosed inspection report.

You are required to provide a written explanation within 30 days of this letter in accordance with the instructions specified in the enclosed NOV. The NRC will use your response, in part, to determine whether further enforcement action is necessary to ensure compliance with regulatory requirements.

In accordance with 10 CFR 2.390, "Public Exemptions, Requests for Withholding," the agency will make a copy of this letter, its enclosures, and your response available electronically for public inspection in the NRC Public Document Room or from the NRC's Agencywide Documents Access and Management System (ADAMS), accessible at <http://www.nrc.gov/reading-rm/adams.html>. To the extent possible, your response should not include any personal privacy, proprietary, or safeguards information so that it can be made available to the public without redaction. If personal privacy or proprietary information is necessary to provide an acceptable response, then please provide a bracketed copy of your response that identifies the information that should be protected and a redacted copy of your response that deletes such information. If you request that such material be withheld from public disclosure, you must specifically identify the portions of your response that you seek to have withheld and provide in detail the bases for your claim (e.g., explain why the disclosure of information will create an unwarranted invasion of personal privacy or provide the information required by 10 CFR 2.390(b) to support a request for withholding confidential commercial or financial information). If safeguards information is necessary to provide an acceptable response, please provide the level of protection described in 10 CFR 73.21, "Requirements for the Protection of Safeguards Information."

Sincerely,

/RA/

Richard Rasmussen, Chief  
Quality and Vendor Branch B  
Division of Construction Inspection  
& Operational Programs  
Office of New Reactors

Docket No. 052-00033

Enclosure: 1. Notice of Violation  
2. Inspection Report 05200033/2009-201

J. Davis

- 2 -

are cited in the enclosed NOV and the circumstances surrounding them are described in detail in the enclosed inspection report.

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Sincerely,

Richard Rasmussen, Chief  
Quality and Vendor Branch B  
Division of Construction Inspection  
& Operational Programs  
Office of New Reactors

Docket No. 052-00033

Enclosure: 1. Notice of Violation  
2. Inspection Report 05200033/2009-201

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<b>OFFICE</b>	NRO/DCIP/CQVB	NRO/DCIP/CQVB	NRO/DCIP/CQVB	NRO/DCIP/CQVB
<b>NAME</b>	ASakadales	GLipscomb	SCleavenger	ARiveraVarona
<b>DATE</b>	10/02/2009	10/01/2009	10/01/2009	10/02/2009
<b>OFFICE</b>	NRO/DCIP/CQVB	NRO/DCIP/CCIB	NRO/DCIP/CQVB/BC	
<b>NAME</b>	RMclntyre	RPascarelli	RRasmussen	
<b>DATE</b>	10/02/2009	10/01/2009	10/05/2009	

OFFICIAL RECORD COPY

**NOTICE OF VIOLATION**

Detroit Edison Company  
One Energy Plaza  
Detroit, MI 48226-1279

Docket Number 05200033  
Inspection Report Number 2009-201

During a U.S. Nuclear Regulatory Commission (NRC) inspection conducted at the Detroit Edison Company (DECo) in Detroit, MI on August 18 – 21, 2009, three violations of NRC requirements were identified. In accordance with the NRC Enforcement Policy, the violations are described below.

- A. Criterion II, "Quality Assurance Program," of Appendix B to 10 CFR Part 50 states, in part, that "The applicant shall establish at the earliest practicable time, consistent with the schedule for accomplishing the activities, a quality assurance program which complies with the requirements of this appendix. This program shall be documented by written policies, procedures, or instructions and shall be carried out throughout plant life in accordance with those policies, procedures, or instructions."

Criterion IV, "Procurement Document Control," of Appendix B to 10 CFR Part 50 states, in part, that "Measures shall be established to assure that applicable regulatory requirements, design bases, and other requirements which are necessary to assure adequate quality are suitably included or referenced in the documents for procurement of material, equipment, and services, whether purchased by the applicant or by its contractors or subcontractors. To the extent necessary, procurement documents shall require contractors or subcontractors to provide a quality assurance program consistent with the pertinent provisions of this appendix."

Criterion VII, "Control of Purchased Material, Equipment, and Services," of Appendix B to 10 CFR Part 50 states, in part, that "Measures shall be established to assure that purchased material, equipment, and services, whether purchased directly or through contractors and subcontractors, conform to the procurement documents. These measures shall include provisions, as appropriate, for source evaluation and selection, objective evidence of quality furnished by the contractor or subcontractor, inspection at the contractor or subcontractor source, and examination of products upon delivery. The effectiveness of the control of quality by contractors and subcontractors shall be assessed by the applicant or designee at intervals consistent with the importance, complexity, and quantity of the product or services."

Contrary to the above, DECo failed to establish and implement a Fermi Unit 3 quality assurance (QA) program between March 2007, when the initial contract was placed with Black and Veatch (B&V) for the conduct of safety-related combined license (COL) activities, until February 2008, and retain overall control of safety-related activities performed by B&V.

DECo's failure to establish and implement a Fermi 3 QA program resulted in:

1. Failure to classify safety-related B&V COL application and OE contracts as safety-related.

ENCLOSURE 1



2. Failure to impose adequate QA requirements and a sufficient statement of work in the OE Contract for QA oversight activities performed by B&V.
3. Failure to adequately document the qualification of B&V to perform safety-related COL application activities.
4. Failure to adequately document an annual supplier evaluation of B&V.

These issues have been identified as Violation 05200033/2009-201-01.

This is a Severity Level IV violation (Supplement II of the Enforcement Manual).

- B. Criterion XVIII, "Audits," of Appendix B to 10 CFR Part 50 states, in part, that "A comprehensive system of planned and periodic audits shall be carried out to verify compliance with all aspects of the quality assurance program and to determine the effectiveness of the program."

Fermi 3 Policy: COL Quality Assurance Program Description (QAPD) During Construction and Operation, Section 18, "Audits," Revision 1, states that "Internal audits of organization and facility activities, conducted prior to placing the facility in operation, should be performed in such a manner as to assure that an audit of all applicable QA program elements is completed at least once each year or at least once during the life of the activity, whichever is shorter." This requirement is restated in Detroit Edison Company (DECo) Procedure Number NP 18.1, "Audits (Internal)," Revision 1, dated August 7, 2009.

Contrary to these requirements, as of August 21, 2009, DECo QA personnel had not completed any internal audits of QA programmatic areas implemented for Fermi 3 COL application activities performed to date.

This issue has been identified as Violation 05200033/2009-201-02.

This is a Severity Level IV violation (Supplement II of the Enforcement Manual).

- C. Criterion XVI, "Corrective Action," of Appendix B to 10 CFR Part 50 states, in part, that "Measures shall be established to assure that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and nonconformances are promptly identified and corrected."

Fermi 3 Policy: COL Quality Assurance Program Description (QAPD) During Construction and Operation, Section 16, "Corrective Action," Revision 1, sets forth the requirement that "Reports of conditions adverse to quality are analyzed to identify trends."

DECo Procedure Number NP 16.1, "Corrective Action Program," Revision 1, dated August 4, 2009, stated that the Director of Quality Management "is responsible for trending corrective actions to determine if there are adverse trends that require management attention."



Contrary to these requirements, as of August 21, 2009, DECo had not documented trending of corrective actions to identify recurring conditions adverse to quality since the beginning of Fermi 3 project in March 2007.

This issue has been identified as Violation 05200033/2009-201-03.

This is a Severity Level IV violation (Supplement II of the Enforcement Manual).

Pursuant to the provisions of 10 CFR 2.201, DECo is hereby required to submit a written statement or explanation to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001 with a copy to Richard Rasmussen, Chief, Quality and Vendor Branch B, Division of Construction Inspection and Operational Programs, Office of New Reactors, within 30 days of the date of the letter transmitting this Notice of Violation (Notice). This reply should be clearly marked as a "Reply to a Notice of Violation 05200033/2009-201-01" and should include: (1) the reason for the violation, or, if contested, the basis for disputing the violation or severity level; (2) the corrective steps that have been taken and the results achieved; (3) the corrective steps that will be taken to avoid further violations; and (4) the date when full compliance will be achieved. Your response may reference or include previous docketed correspondence, if the correspondence adequately addresses the required response. Where good cause is shown, consideration will be given to extending the response time.

If you contest this enforcement action, you should also provide a copy of your response, with the basis for your denial, to the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001.

Because your response will be made available electronically for public inspection in the NRC Public Document Room or from the NRC's document system (ADAMS), accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html>, to the extent possible, it should not include any personal privacy, proprietary, or safeguards information so that it can be made available to the public without redaction. If personal privacy or proprietary information is necessary to provide an acceptable response, then please provide a bracketed copy of your response that identifies the information that should be protected and a redacted copy of your response that deletes such information. If you request withholding of such material, you must specifically identify the portions of your response that you seek to have withheld and provide in detail the bases for your claim of withholding (e.g., explain why the disclosure of information will create an unwarranted invasion of personal privacy or provide the information required by 10 CFR 2.390(b) to support a request for withholding confidential commercial or financial information). If safeguards information is necessary to provide an acceptable response, please provide the level of protection described in 10 CFR 73.21.

Dated this 5th day of October 2009.



engineering consultant and expert witness. My Curriculum Vitae is Exhibit 1.

5. I have qualified as an expert witness before the Nuclear Regulatory Commission (NRC) Atomic Safety and Licensing Board (ASLB) and Advisory Committee on Reactor Safeguards (ACRS), in Federal Court, the State of Vermont Public Service Board, the State of Vermont Environmental Court, and the Florida Public Service Commission.
6. I am an author of the first edition of the Department of Energy (DOE) Decommissioning Handbook.
7. As an appointee of Vermont State Legislature for the past two years, I am charged with serving in an oversight role of Entergy Nuclear Vermont Yankee and an advisory role on nuclear reliability issues to the Vermont State Legislature.
8. I have more than 38-years of professional nuclear experience *including and not limited to*: Nuclear Power Operations, Nuclear Safety Assessments, Nuclear Power Management, Nuclear Quality Assurance, Archival Storage and Document Control, NRC Regulations and Enforcement, Licensing, Engineering Management, Contract Administration, Reliability Engineering, In-service Inspection, Thermohydraulics, Criticality Analysis, Radioactive Waste Processes, Decommissioning, Waste Disposal, Cooling Tower Operation, Cooling Tower Plumes, Consumptive Water Use, Source Term Reconstruction, Dose Assessment, Technical Patents, Structural Engineering Assessments, Nuclear Fuel Rack Design and Manufacturing, Nuclear Equipment Design and Manufacturing, Public Relations, Prudency Defense, Employee Awareness Programs, and Whistleblower Protection.

### **Introduction**

9. The undersigned Declarant, Arnold Gundersen, hereby proffers the following statements in support of proposed Contention No. 15 submitted by the Intervenor parties in this Fermi 3 Nuclear Power Plant licensing proceeding. My declaration is intended to specifically address quality assurance issues relative to the Combined

opinion in a single stand-alone document, but is part of a series of emails leading all the way to John A. Nakoski, Chief /RA/ Quality and Vendor Branch 2 Division of Construction Inspection & Operational Programs Office of New Reactors, and to Attorney Marcia Carpentier, author of the NRC recommended denial of Intervenor's Petition. The factual evidence reviewed clearly delineates non-compliance by Detroit Edison for Fermi Unit 3 and factual support for partial suspension of DTE's COLA proceedings due to an incomplete application.

29. Back to my detailed review of the factual evidence substantiating a breach by both Detroit Edison and the NRC. It was only six days after NRC QA specialist Aida Rivera-Varona wrote her detailed email that on June 10, 2009 NRC reactor operation engineer Mark Tonacci further clarified the problems at Detroit Edison Fermi Unit 3 by specifically noting that the COL applicant had no quality assurance program in place for design and engineering. See highlights in email:

"From: Tonacci, Mark  
Sent: Wednesday, June 10, 2009 8:18 AM  
To: Rivera-Varona, Aida; Hale, Jerry; Lipscomb, George  
Cc: FermiCOL Resource  
Subject: RE: Fermi 3 QA

Aida,

Tried to call you on this yesterday. **They do not have a Fermi QA program for design – that is why they did not send it to you. They decide if the work is safety related and if it is send it to Black and Veatch and use the B&V program.** The actual mechanics I believe have changed several times over the past 2 yrs via different contracts they had in place that invoke proposals with cost information embedded in them.

It does seem like going there will work better just because I believe that sooner or later, what you need to see will be in their contract that have sensitive pricing information. By the way, B&V was used by River Bend to do the geotech work and Entergy (not DTE) did some audits of B&V.

My cell has died today. When I get back this afternoon, time permitting, I will call you and we can discuss. I think this still needs careful looking into.

Mark" *[Emphasis Added]*

30. According to NRC reactor operation engineer Tonacci, "They [DTE] decide if the work is safety related and if it is send it to Black and Veatch and use the B&V program." Such procedures fly directly in direct opposition to requirements of Criterion 1 of the GDC and Criterion 1 of 10 CFR Part 50 Appendix B, with which DTE Fermi Unit 3 must comply. 10 CFR Part 50 Appendix B also applies in its entirety to Quality Assurance for Nuclear Plants such as Fermi. In addition to compliance with the quality related federal regulation inherent in Criterion 1 of the GDC, DTE Fermi Unit 3 must also comply with 10CFR50 Appendix B: Criterion 1 as noted here:

"The applicant shall be responsible for the establishment and execution of the quality assurance program."

31. As a result, NRC engineer Mark Tonacci has clearly articulated the dilemma posed by the fact that Detroit Edison *determines what items may be safety related and then refers that safety related work to Black and Veatch*. Yet, NRC's Tonacci acknowledges that there is no Detroit Edison Fermi Unit 3 QA Program in place by which such a determination could be made. This evidence is obviously the statement of the fatal flaw in DTE's COLA application.

32. Not only is the Detroit Edison COLA application incomplete, it is clear that the Quality Assurance Program of the entire Detroit Edison COLA for Fermi Unit 3 should be thoroughly reevaluated by the NRC and made to meet the requirements of 10 CFR Part 50 Appendix B and 52.79(a)(25). The evidence trail traced through this series of emails, clearly show that Fermi lacked a Design Quality Assurance Program as highlighted below in this Rivera-Varona follow-up email:

"From: Rivera-Varona, Aida  
Sent: Monday, June 08, 2009 3:30 PM  
To: Hale, Jerry; Lipscomb, George  
Cc: Tonacci, Mark  
Subject: RE: Fermi 3 QA  
Jerry,

I can see why they might think that some of the documents might get into the public, but they need to be clear that based on the regulation they need to provide in the docket QA programs for design, fabrication

NON-PROPRIETARY

Docket No. 52-033  
 PETITION CONTENTION 15  
**NON-PROPRIETARY**

**UNITED STATES OF AMERICA  
 NUCLEAR REGULATORY COMMISSION  
 ATOMIC SAFETY AND LICENSING BOARD**

*In the matter of*

The Detroit Edison Company )

Fermi Nuclear Power Plant Unit 3 )

Combined License Application )

April 30, 2013

Docket No. 52-033

TESTIMONY OF ARNOLD GUNDERSEN SUPPORTING OF INTERVENORS  
CONTENTION 15: DTE COLA LACKS STATUTORILY REQUIRED  
COHESIVE QA PROGRAM

1 **WITNESS BACKGROUND**

2 **Q1. Please state your name.**

3 A. Arnold Gundersen

4 **Q2. Please state your residential address.**

5 A. 125 Northshore Drive, Burlington, VT 05408

6 **Q3. What is the purpose of your testimony?**

7 A. The Petitioners Beyond Nuclear, Citizens for Alternatives to Chemical  
 8 Contamination, Citizens Environment Alliance of Southwestern Ontario, Don't  
 9 Waste Michigan, and the Michigan Chapter of the Sierra Club have retained  
 10 Fairewinds Associates, Inc to determine the root cause of Quality Assurance (QA)  
 11 problems that the NRC has recently identified on the Fermi 3 COL application,  
 12 and to provide amplification to the previously accepted Quality Assurance  
 13 Contention #15.

NON-PROPRIETARY

Page 2 of 37

1 **Q4. Please summarize your educational and professional experience.**

2 A. I earned my Bachelor Degree in Nuclear Engineering from Rensselaer  
3 Polytechnic Institute (RPI) cum laude. I earned my Master Degree in Nuclear  
4 Engineering from RPI via an Atomic Energy Commission Fellowship. Cooling  
5 tower operation and cooling tower plume theory were my area of study for my  
6 Master Degree.

7 I began my career as a reactor operator and instructor in 1971 and progressed to  
8 the position of Senior Vice President for a nuclear licensee prior to becoming a  
9 nuclear engineering consultant and expert witness. An updated Curriculum Vitae  
10 appears among the trial exhibits as INTS 066.

11 I have testified as a nuclear engineering expert witness before the Nuclear  
12 Regulatory Commission (NRC) Atomic Safety and Licensing Board (ASLB) and  
13 Advisory Committee on Reactor Safeguards (ACRS), in Federal Court, the State  
14 of Vermont Public Service Board, the State of Vermont Environmental Court, and  
15 the Florida Public Service Commission.

16 I am an author of the first edition of the Department of Energy (DOE)  
17 Decommissioning Handbook.

18 As an appointee of Vermont State Legislature for two years, I was charged with  
19 serving in an oversight role of Entergy Nuclear Vermont Yankee and an advisory  
20 role on nuclear reliability issues to the Vermont State Legislature.



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Page 3 of 37

I have more than 40-years of professional nuclear experience *including and not limited to*: Nuclear Power Operations, Nuclear Safety Assessments, Nuclear Power Management, Nuclear Quality Assurance, Archival Storage and Document Control, NRC Regulations and Enforcement, Licensing, Engineering Management, Contract Administration, Reliability Engineering, In-service Inspection, Thermohydraulics, Criticality Analysis, Radioactive Waste Processes, Decommissioning, Waste Disposal, Cooling Tower Operation, Cooling Tower Plumes, Consumptive Water Use, Source Term Reconstruction, Dose Assessment, Technical Patents, Structural Engineering Assessments, Nuclear Fuel Rack Design and Manufacturing, Nuclear Equipment Design and Manufacturing, Public Relations, Prudency Defense, Employee Awareness Programs, and Whistleblower Protection.

### **INTRODUCTION**

**Q5. Before we get into the specifics of your report, would you please explain how your report is organized and why?**

A. Yes. The analysis of quality assurance problems on the Fermi 3 Licensing Project prepared by Fairewinds Associates, Inc is divided into two parts. The first part uses publicly available information while the second part relies on material Detroit Edison has alleged to be “proprietary”. The conclusions Fairewinds has reached are based on non-proprietary information. The proprietary portion of this report, which is appended at the end, merely provides additional source materials that amplify the conclusions Fairewinds drew from publically available data. No propriety material or terms are mentioned in this declaration expect for the final

NON-PROPRIETARY

Page 8 of 37

1 A. Detroit Edison's response to the NRC's NOV represented that the bifurcated  
2 COLA Quality Assurance function on the *Fermi 3 Licensing Project* was a well-  
3 oiled team of two companies working in unison. The non-proprietary portion of  
4 this current declaration clearly shows that the teamwork claimed by DTE is an  
5 illusion. The data Fairewinds reviewed shows that confusion and lack of  
6 organizational control reigned within Detroit Edison for years prior to the COLA  
7 submittal and to this day. These early QA problems are the root cause of the  
8 current site characterization issues that continue to plague the *Fermi 3 Licensing*  
9 *Project*.

10 **Q14. Has this review process given you any new concerns?**

11 A. Yes. Incredibly, on April 27, 2010, the NRC Staff accepted DTE's argument that  
12 prior to September 18, 2008, DTE was not yet an applicant, and withdrew its  
13 Violation A of the NOV.

14 **Q15. What is your expert opinion regarding this NRC decision?**

15 A. The NRC reversal of its position by its staff is flawed. The Code of Federal  
16 Regulations (10 C.F.R. Part 50, Appendix B) is the statutory authority regulating  
17 the nuclear industry. 10 C.F.R. Part 50, Appendix B **requires** that applicants  
18 follow these procedures when filing a COLA:

19 Every applicant for a combined license under part 52 of this  
20 chapter is required by the provisions of § 52.79 of this chapter to  
21 include in its final safety analysis report a description of the quality  
22 assurance **applied to** the design, and **to be applied to** the  
23 fabrication, construction, and testing of the structures, systems, and  
24 components of the facility and to the managerial and

NON-PROPRIETARY

Page 9 of 37

1 administrative controls to be used to assure safe operation.

2 [Emphasis Added to point out the tense of verbs]

3 Note that this excerpt directly from the Code of Federal Regulations uses the past

4 tense “**applied**” for the expectancy that *the applicant will have a QA program in*

5 *place before the COLA is submitted.*

6 **Q16. Looking past the NRC’s waiver for DTE of a portion of the issued QA NOV,**  
7 **do you have any other major concerns?**

8 A. Yes, I do. Even assuming that the NRC has currently chosen not to sanction DTE

9 for its failure to demonstrate an operable Quality Assurance program prior to its

10 Fermi 3 September 2008 COLA submission, a Quality Assurance program that

11 springs into effect on the date of an application submission is only as good as its

12 origins and the consistency of its planning and other core efforts that predate the

13 COLA submission. Indeed, 10 C.F.R. § 52.79(a)(25) requires a COLA to:

14 ...include a discussion of **how** the applicable requirements of  
15 appendix B to 10 CFR part 50 **have been and will be satisfied,**  
16 ***including a discussion of how the quality assurance program will***  
17 ***be implemented.*** . . .” [Emphasis Added]

18 After all, Appendix B expects that

19 ‘quality assurance’ comprises all those planned and systematic  
20 actions necessary to provide adequate confidence that a structure,  
21 system, or component will perform satisfactorily in service.

22 **Q17. What is your expert opinion regarding DTE’s preliminary QA efforts?**

23 A. DTE preliminary QA efforts, undertaken from 2007-2009 (the period before and

24 after the September 2008 COLA submission), are inadequate. DTE’s preliminary

25 QA efforts do not follow the statutory authority of the Code of Federal

26 Regulations, therefore it is implausible that the Atomic Safety and Licensing

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1 Board would be able to assure the public that it has reached the requisite  
 2 conclusion of “adequate confidence” that Fermi 3 will satisfactorily perform its  
 3 service function.

4 **Q18. When did problems begin with the DTE Geotechnical program, and what**  
 5 **were those problems?**

6 A. Problems with the Geotechnical program began at the onset of the Fermi 3  
 7 Licensing Project. According to of the undisputed facts regarding the NOV for  
 8 the "Geotechnical Site Boring Program – on site and laboratory investigation and  
 9 testing" a "Nuclear quality assurance program applies." <sup>1</sup>

10 Furthermore, the undisputed facts regarding the NOV states:

11 In late-April 2007, construction of the monitoring wells for  
 12 hydrology investigation and core boring activities for geotechnical  
 13 data collection commenced at the Fermi site. The applicable  
 14 programs for the operating Fermi Unit 2 (“Fermi 2”) — for access,  
 15 work control, and contractor oversight — were followed for site  
 16 work. Experienced Detroit Edison personnel provided direct  
 17 oversight for all site work to ensure compliance with the existing  
 18 Fermi 2 programs and to provide the necessary interface between  
 19 the COL project and the operating Fermi 2 plant. To maintain  
 20 oversight, and consistent with Detroit Edison’s overall  
 21 responsibility, the OE staff performed and documented  
 22 surveillances of onsite activities.<sup>2</sup>

23  
 24 **Q19. From your vantage point as an expert in nuclear QA, what problems and**  
 25 **inconsistencies did you uncover during your document review?**

26 A. Paragraph 14 of DTE’s *Statement Of Material Facts On Which No Genuine*  
 27 *Dispute Exists* is an approved vendor listing for geotechnical work [INTS 027],

<sup>1</sup> DTE Letter, STATEMENT OF MATERIAL FACTS ON WHICH NO GENUINE DISPUTE EXISTS-  
 April 17, 2012, Paragraph 12 [INTS 034].

<sup>2</sup> Ibid, Paragraph 17

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1 and there is no reference to *Fermi 2* serving as an approved company retained to  
2 perform the services identified in Paragraph 17.

- 3 • First, it appears that the Fermi 2 QA program was used as a surrogate  
4 program for oversight of the *Fermi 3 Licensing Project*.
- 5 • Legally, Fermi 2 is a separate corporate entity with no linkage to Fermi 3.
- 6 • There is no indication that use of the Fermi 2 QA Program was analyzed  
7 or approved by:
  - 8 ○ any DTE personnel connected with or managing the Fermi 3  
9 project,
  - 10 ○ any personnel connected with or managing the Fermi 3 project via  
11 Black & Veatch,
  - 12 ○ the Owners Engineer (OE) - also a Black & Veatch subsidiary  
13 located in a separate city and department.

14 In my opinion, this extensive breakdown in nuclear Quality Assurance that  
15 endangered the geotechnical work in 2007 continues to plague the Fermi 3  
16 Licensing Project today.

17 **Q20. Did you find any other flaws as you conducted your review?**

18 A. Yes, after the geotechnical work had already begun in April 2007, Black &  
19 Veatch attempted to backfill the certifications of their non-nuclear contractors.  
20 According to the undisputed facts from the NOV:

21 In June 2007, B&V Nuclear QA conducted a pre-work surveillance  
22 to evaluate GEOVision work activities associated with seismic  
23 testing and data collection. The surveillance found that the  
24 commercial grade quality and procedural processes for seismic

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testing and data collection at GEOVision were acceptable. B&V Nuclear QA also conducted a pre-work surveillance to evaluate ARM Geophysics work activities associated with geotechnical testing of soil and bedrock. The surveillance found that the commercial grade quality and procedural processes for geotechnical testing of soil and bedrock at ARM Geophysics were acceptable.<sup>3</sup>

**Q21. What is the status of Fermi 2 in this process and what is your opinion of the DTE QA process?**

A. Fermi 2 is not an approved vendor. It also appears that Black and Veatch never conducted the audit that *may* have enabled Fermi 2 to serve in this geotechnical role. Therefore, Fairewinds concludes that the combination of a separate unapproved corporate entity (Fermi 2) and two non-nuclear vendors with non-nuclear QA programs were used to attempt to satisfy the nuclear QA commitments required to provide essential seismic and structural information for licensing process applied to the COLA application of the *Fermi 3 Licensing Project*.

## **CONTENTION HISTORY**

**Q22. Before we discuss your current concerns, would you please specifically state your previous concerns regarding Detroit Edison's proposed Economic Simplified Boiling Water Reactor (ESBWR) at its Fermi Nuclear Power Plant (NPP) Unit 3.**

A. Yes. My previous declaration specifically addressed Quality Assurance (QA) issues relative to the Combined Operating License Application (COLA) for Detroit Edison's proposed Economic Simplified Boiling Water Reactor (ESBWR)

---

<sup>3</sup> Ibid, Paragraph 22, INTS 034.

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1 [from INTS 035]

2 The new plant oversight manager has sufficient independence from other

3 department priorities to bring forward issues affecting safety and quality and

4 makes judgments regarding quality in all areas necessary regarding Fermi 3

5 nuclear activities. The new plant oversight manager may make

6 recommendations to management regarding improving the quality of work

7 processes. If the new plant oversight manager disagrees with any actions taken

8 by other Fermi 3 organizations and is unable to obtain resolution, the new

9 plant oversight manager shall bring the matter to the attention of the executive

10 in charge of the MEP organization who will determine the final disposition.”

11 *(Page 25, December Gundersen Expert Report [INTS 011])*

12 3.1. In its COLA application, DTE claimed that the New Plant Oversight

13 Manager had the responsibilities it now claims in its RAI response belong

14 to the newly created role of Nuclear Development QA Manager. A

15 comparison of the COLA and the RAI reply is included in Table 1 below.

16 **Table 1 Comparison DTE COLA and RAI Reply**

COLA	RAI Reply
The COLA stated that the position entitled <u>New Plant Oversight Manager</u> is: <i>“responsible for assuring compliance with regulatory requirements”</i>	The RAI reply states that the <u>Nuclear Development QA Manager</u> is: <i>“responsible to evaluate compliance with regulatory requirements”</i>
The COLA stated that the position entitled <u>New Plant Oversight Manager</u> is responsible for: <i>“monitoring organization processes to ensure conformance to</i>	The RAI reply states that the <u>Nuclear Development QA Manager</u> is responsible to: <i>“monitor organization processes to ensure conformance to licensing</i>



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<i>commitments and licensing document requirements”</i>	<i>document requirements.”</i>
The COLA stated that the position entitled <u>New Plant Oversight Manager</u> is responsible “ <i>for ensuring that vendors providing quality services, parts and materials to Fermi 3 are meeting the requirements of 10 CFR 50, Appendix B</i> ”.	The RAI reply states that the <u>Nuclear Development QA Manager</u> is responsible “ <i>to ensure that vendors providing quality services to Detroit Edison in support of the COLA are meeting the requirements of 10 CFR 50 Appendix B</i> ”.

1

2

3.2. It appears that there is confusion within Detroit Edison over the

3

conflicting roles of these two positions. DTE’s RAI Reply said that the

4

Nuclear Development QA Manager held that position in March of 2008

5

yet the COLA makes no reference to that role. The RAI and the COLA

6

do not portray the same organizational philosophy for the role of Quality

7

Assurance on the Fermi 3 Project. This confusion of the importance of

8

QA in the early phases of the Fermi 3 Project may be a contributing

9

factor to the confusion within DTE and the NRC that I discussed in my

10

earlier expert report and may be contributing to the QA problems that

11

Fermi 3 has already encountered.

12

13

4. On Page 3 to Attachment 2 to the RAI reply [INTS 035] Detroit Edison stated:

14

“Nuclear Development QA Manager, March 2008 - April 2009.

15

An engineer with twenty plus years of nuclear experience

16

including four years experience as lead auditor was responsible to

17

maintain the Nuclear Development QAPD and to independently

18

plan and perform activities to verify the development and effective

19

implementation of the QAPD for those activities that support the

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COLA. The Nuclear Development QA Manager was also responsible to evaluate compliance with regulatory requirements and procedures through audits and technical reviews, to monitor organizational processes to ensure conformance to licensing document requirements, and to ensure that vendors providing quality services to Detroit Edison in support of the COLA are meeting the requirements of 10 CFR 50 Appendix B. [Full time]

In June 2009, the QA function was transitioned from reporting to the Director, Nuclear Development to the Sr. Vice President, Major Enterprise Projects.”

*Page 3, Attachment 2 RAI Reply (RAI question No. 17.5-17, eRAI No. 4410)*

**Q24. Was this your only concern or did you have additional concerns that you previously presented to the ASLB?**

A. There are five additional major concerns with the Detroit Edison (DTE) May 10, 2010 Reply Response to Request for Additional Information (RAI) Letter No. 26 [INTS 035] that I previously presented to the ASLB.

1. My first major additional concern with the DTE May 10, 2010 Reply Response is that there is a three-month long gap from April 2009 through June 2009 during which Detroit Edison admits that it had no personnel in charge of Quality Assurance. The lack of any Detroit Edison personnel assigned to the Fermi Unit 3 design and engineering process, makes any and all quality assurance work performed during this three-month period suspect as well as not in compliance with federal law.

2. My second additional concern is that according to DTE May 10, 2010 Reply Response, the Nuclear Development QA Manager reported to the Director of Nuclear Development between March of 2008 and April of 2009. In the DTE

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1 Development, and from April 2009 to June 2009 QA reported to no one in any  
2 chain of command.

3 It appears that NEI criteria are violated when the QA function reports to the  
4 Director of Nuclear Projects as suggested in the RAI reply. This reporting  
5 relationship does not provide the Quality Assurance function with adequate  
6 functional separation to assure the clear separation and independence between  
7 QA and other line functions within the Fermi 3 organization. As I stated in  
8 Paragraph 57 of my original expert testimony [INTS 007]:

9 “Specifically, NEI and the industry have highlighted the role of  
10 the QA Project Manager as a key contributor to the successful  
11 implementation of a valid and operational QA Program. In its  
12 QA Program Description, NEI further elaborates on the  
13 necessity of an operational QA Program directed by a Quality  
14 Assurance Program Manager prior to COLA submission. In  
15 Paragraph 1.5.2.1.1 of its *Quality Assurance Program*  
16 *Description* NEI describes the role of the QA manager thus:  
17 “**1.5.2.1.1 [Nuclear Development] Quality Assurance Project**  
18 **Manager**  
19 *The [Nuclear Development] Quality Assurance Project*  
20 *Manager (QAPM) reports administratively to the [CA] QA*  
21 *Manager and functionally to the Senior Nuclear Development*  
22 *Officer, and is responsible for the development and verification*  
23 *of implementation of the QAPD described in this document.*  
24 *The QAPM is responsible for assuring compliance with*  
25 *regulatory requirements and procedures through audits and*  
26 *technical reviews; ensuring that vendors providing quality*  
27 *services, parts and materials to [CA] are meeting the*  
28 *requirements of 10 CFR 50, Appendix B through NUPIC or*  
29 *[CA] vendor audits. The QAPM has sufficient independence*  
30 *from other [Nuclear Development] priorities to bring forward*  
31 *issues affecting safety and quality and makes judgments*  
32 *regarding quality in all areas necessary regarding [CA]'s*  
33 *[Nuclear Development] activities. The QAPM may make*  
34 *recommendations to the [Nuclear Development] management*  
35 *regarding improving the quality of work processes. If the*  
36 *QAPM disagrees with any actions taken by the [ND]*  
37 *organization and is unable to obtain resolution, the QAPM*

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- 1 • In 2/2008, one year after the choice of B&V as the COLA QA developer,  
2 DTE established the Fermi 3 licensing staff and began implementation of its  
3 own QA program.
- 4 • In 9/2008, two years after the project was initiated, Rev 0 of the Fermi COLA  
5 was submitted to the NRC. Six months later in 3/2009 Rev 1 of the COLA  
6 was submitted to the NRC.

7 **Q28. At the time DTE chose Black & Veatch (B&V), had the type of nuclear reactor**  
8 **and its location been determined?**

9 A. No, in March of 2007 when the Fermi 3 Licensing Project was begun, DTE had  
10 not yet even determined what type of nuclear reactor it would attempt to license.

11 In DTE-00837<sup>8</sup>, an email between B&V personnel said,

12 “Peter indicated in a discussion today they are leaning toward having us  
13 do the ABWR investigation first and the ESBWR second, reversing the  
14 schedule. The proposal was based on the ESBWR with ABWR as an  
15 optional add. We need to clarify this information with Peter to ensure we  
16 are progressing on engineering in the correct sequence and that our costing  
17 strategy is correct. I am to meet with Peter, Steve P, site work control  
18 manager and others to discuss how we will control work on site. I need the  
19 general location of drilling activities to show the proximity to existing  
20 SSC. Also, I asked John Caldwell to forward samples of work plans and  
21 drilling logs from River Bend. It is better for us to put forth a solution to  
22 the question of how to control the work, rather than have a fail open  
23 resolution provided to us by the Ops dept and work control.”

24  
25 **Q29. In your opinion, why was DTE developing this process?**

26 A. The above referenced email memo also discussed that the goal of this process is to  
27 avoid QA oversight, adding:

---

<sup>8</sup> DTE-00837, Email, Gustafson (BV) to Thomas, 3/22/07, INTS 038.

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1                   **“Peter thinks he can sidestep the QA audit as we have NUPIC audits,**  
 2                   **ASME audits and other utility audits** he can use in helping his QA dept  
 3                   comfort level. We will need to use our QA plan. Is Ron Z engaged in  
 4                   preparing it?” [Emphasis Added]

5  
 6                   **Q30. Would you please continue to elaborate on the chronology you have observed**  
 7                   **leading to the choice and location of the Fermi 3 nuclear reactor?**

8                   A. Even at the initial kickoff meeting between DTE and B&V, the type of reactor  
 9                   that DTE was planning to license was unknown.

10                   “Discussion if geotechnical drilling sequence will be changed. DTE  
 11                   requested B&V to investigate the cost and schedule impacts of drilling for  
 12                   ABWR first. Subsequent to the meeting DTE requested that holes  
 13                   common to the ESBWR and ABWR be drilled first, followed by ABWR  
 14                   specific holes and then the ESBWR specific holes. B&V has action to  
 15                   assess this alternative.”<sup>9</sup>

16  
 17                   Not only was the type of reactor unknown, but also the location of the Fermi 3  
 18                   reactor was unknown on the Fermi site according to notes from the DTE Kickoff  
 19                   Meeting

20                   “DTE requested that B&V evaluate how long DTE can potentially delay  
 21                   the final decision for location of the new unit. DTE is in process of  
 22                   decommissioning Fermi I and there is some desire to move the new unit  
 23                   closer to the current location of Fermi I.”<sup>10</sup>

24  
 25                   According to a DTE Email from Miller in October 2007 it is evident that DTE  
 26                   still was unsure what location would be chosen for the proposed reactor design.

27                   “Work includes: Development of site optimization plan: This involves  
 28                   working with DTEs Owner Engineer and DTE representatives to identify  
 29                   the best location for buildings, fencing, roads, etc.”<sup>11</sup>  
 30

<sup>9</sup> DTE-00677: Detroit Edison Combined Operating License Application Kickoff Meeting 3/28/07, Notes written 4/4/07, INTS 039.

<sup>10</sup> DTE-00677: Detroit Edison Combined Operating License Application Kickoff Meeting 3/28/07, Notes written 4/4/07, INTS 039.

<sup>11</sup> DTE-00637, Email From Miller 10/10/07, INTS 040.

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Development QAPDs, evaluating compliance to the programs and managing the QA resources.

The Nuclear QA Oversight Quality Assurance function reports administratively to the Director & Project Manager Nuclear Development. This ensures that the personnel performing QA oversight functions are not subject to line influence. This also ensures that quality assurance personnel are provided direct access to senior management that is independent of the line functions for reporting QA concerns.

Day to day work direction is provided from the Manager Nuclear Development Program Office.

The QAM is responsible for assuring compliance with regulatory requirements and procedures through audits and technical reviews; for monitoring organization processes to ensure conformance to licensing document requirements; for ensuring that vendors providing quality services to DECo are meeting the requirements of 10 CFR 50, Appendix B through vendor audits. The QAM has sufficient independence from other DECo Nuclear Development priorities to bring forward issues affecting safety and quality and makes judgments regarding quality in all areas necessary regarding DECo COLA activities. The QAM may make recommendations to the DECo Nuclear Development management regarding improving the quality of work processes. If the QAM disagrees with any actions taken by the Nuclear Development organization and is unable to obtain resolution, the QAM shall bring the matter to the attention of the Senior Vice President DTE Energy who will determine the final disposition.”<sup>18</sup>

**Q37. Did any other DTE material support the QAPD?**

A. Yes, a detailed organizational plan and chart were released simultaneously in February 2008 entitled: Nuclear Development Project Organization NDP-NP- 1.1 Revision 0.

“Nuclear Development Quality Assurance Manager  
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<sup>18</sup> DTE – 00913.0001, Detroit Edison Nuclear Development Quality Assurance Program Description (QAPD) February 2008, INTS 049.

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1 Titles in text do not match titles on Org. Chart... No one assigned in QA function

2  
3 PAGE 1

4 6.1 General

5 The Nuclear Development Project organization charts are shown on  
6 Figure 1.1-1

7  
8 PAGE 2/3

9 Nuclear Development (ND) Quality Assurance Manager shall be  
10 responsible for verifying implementation of the applicable quality  
11 assurance program for the Nuclear Development Project, qualifying  
12 suppliers for nuclear safety-related procurements, maintaining an  
13 Approved Suppliers List (ASL), processing nonconforming items, and  
14 other responsibilities as identified in the Nuclear Development Project  
15 procedures. The Nuclear QA Oversight Quality Assurance function  
16 reports administratively to the Director & Project Manager Nuclear  
17 Development. This ensures that the personnel performing QA oversight  
18 functions are not subject to line influence. This also ensures that quality  
19 assurance personnel are provided direct access to senior management that  
20 is independent of the line functions for reporting QA concerns. Day to  
21 day work direction is provided from the Manager Nuclear Development  
22 Program Office.

23  
24 PAGE 3 B&V Organization

25 6.3.1 Nuclear Development Project Responsibilities and Authority  
26 Director Nuclear Development Licensing shall coordinate nuclear  
27 development licensing activities with and report to the Director & Project  
28 Manager Nuclear Development. The Director Nuclear Development  
29 Licensing shall be assigned responsibility and authority for the following  
30 activities: • Technical Direction and Oversight of COLA and vendor  
31 activities including activities performed by the Owners Engineer. • The  
32 Detroit Edison Company's (DECo's) review and acceptance of the COLA  
33 vendor products • • • Providing technical support for the financial team  
34 Coordination of the Detroit Edison Company (DECo) and Fermi COLA  
35 support activities Interface with NRC and Industry entities related to  
36 COLA development, technical, and licensing activities

37  
38 Manager Nuclear Development Program Office shall coordinate program  
39 office activities with and report to the Director & Project Manager Nuclear  
40 Development. The Manager Nuclear Development Program Office shall  
41 be assigned responsibility and authority for the following activities:  
42 • Quality Assurance”<sup>19</sup>

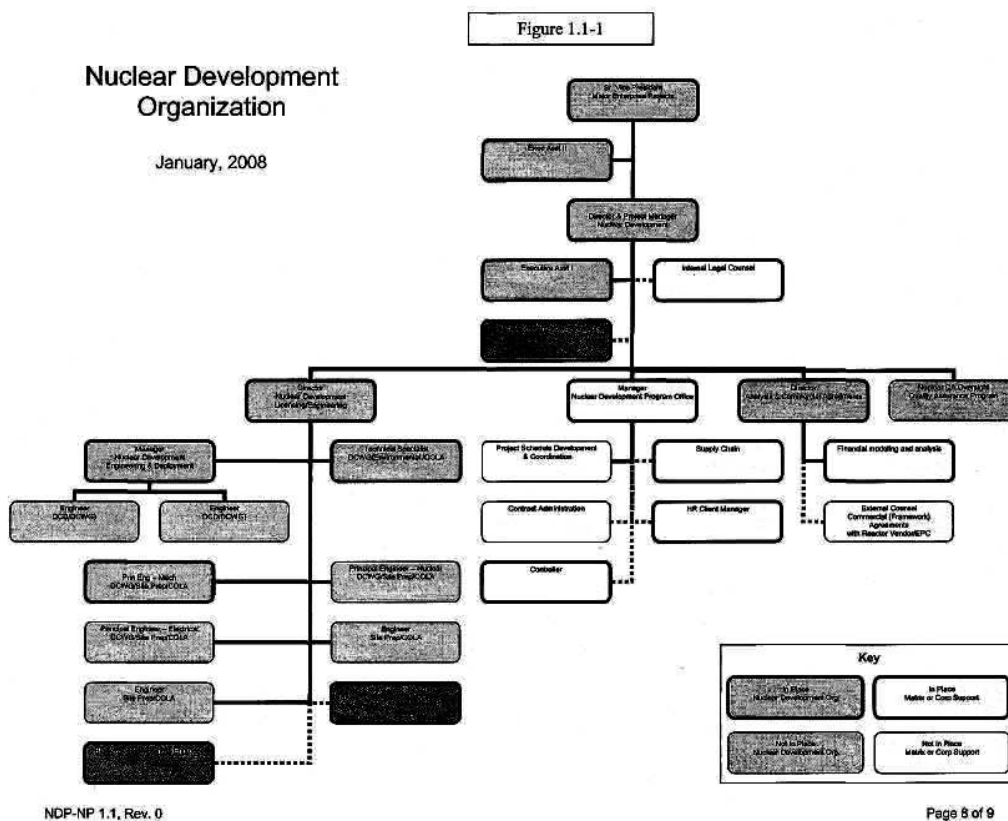
<sup>19</sup> DTE-00627.0001, Nuclear Development Project Organization, NDP-NP- 1.1 Revision 0, 2/4/08, INTS 045.



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1



2

3

4 **Q38. Does the organization chart above agree with the QAPD?**

5 A. No, they do not agree. The organizational chart below shows a position for a

6 Nuclear QA Oversight Quality Assurance Program. This title is not addressed in

7 the QAPD, and according to the key in the chart, the entire organization has yet to

8 be hired. Furthermore, the QAPD states that on a daily basis the Nuclear QA

9 Oversight Quality Assurance Program reports to the Manager of the Nuclear

10 Development Program, whose first responsibility is Project Schedule

11 Development &amp; Coordination. According to the organizational chart, no

12 independent reporting relationship exists between QA and higher levels of DTE

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1 management.

2

3 **Q39. Is the omission of Quality Assurance in the organizational chart a simple**  
4 **printing error?**

5 A. No, in an email between Smith and Allen at DTE in January 2008, it is clear that  
6 DTE planned a *self-executing* QA program and had no intention of hiring QA  
7 professionals.

8 "I think at the time that Bing put the QA plan together we had not  
9 envisioned hiring a DECO QA professional. Conventionally, the QA plan  
10 needs to be owned by DECO, and the QA professional (ie QA manager  
11 role) needs to have a reporting relationship at a level that is independent of  
12 the line functions (e.g. COLA preparation) to which the program applies.  
13 This is so personnel performing QA oversight functions are not subject to  
14 line influence."<sup>20</sup>  
15

16 **Q40. After the issuance of the QAPD did DTE have a clear understanding of its**  
17 **organizational responsibilities?**

18 A. No. According to an Email from Werner (DTE) to Thomas (BV), DTE's QA  
19 manager had no understanding of what types of QA reviews were in his  
20 jurisdiction. Incredibly, DTE asks B&V what type of reviews DTE needs to  
21 perform in order to meet COLA requirements. This is yet another example of  
22 DTE's expectancy of a *self-executing* QA program being driven by B&V.  
23 Furthermore, the DTE QA manager's role should be determined by the QAPD  
24 and not via interviews with B&V personnel.

25 "I am still trying to get a good handle on what type's of QA reviews I need  
26 to be doing. I would like to come down to KC very soon to look at your  
27 QA program, talk to a few folks, and get a better understanding of my  
28 role, along with an improved understanding of the overall project. I also

---

<sup>20</sup> DTE-00659, EMAIL:1/14/08 SMITH TO ALLEN (BOTH DTE), INTS 046.

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1 would like to get a copy of your schedule for any upcoming QA Audits,  
2 Surveillance or any other type of reviews your QA group is involved with  
3 that directly or indirectly impacts our DTE COLA preparation. I would  
4 also very much like to be on an Audit Team, with your QA group  
5 sometime in the near future if we can arrange it. Please advise and thanks.  
6 Jim Werner-Fermi 3 QAM”<sup>21</sup>  
7

8 **Q41. Do others share your opinion that the QA Program at DTE was poorly**  
9 **managed?**

10 A. Yes, DTE itself agrees with my opinion. In the midst of the organizational  
11 turmoil already discussed in this testimony, DTE filed Rev. 0 of the Fermi 3  
12 COLA, and in March 2009 DTE filed Fermi 3 COLA Rev. 1. In response to the  
13 NRC’s Notice of Violation, DTE responded with a PowerPoint in September  
14 2010 in which DTE recognized that its lack of a QA program had created  
15 organizational chaos. The last slide of the PowerPoint said,

16 “If we could wind the clock back: – Establish a formal Quality Assurance  
17 program much earlier – Implement a procurement procedure before the  
18 first contract is issued – Do not document procedural requirements until  
19 they are already complete.”<sup>22</sup>  
20

21 **Q42. What did the management of DTE believe its Quality Assurance duties and**  
22 **responsibilities entailed?**

23 A. During the summer of 2009, the NRC issued a series of Emails noting  
24 considerable problems with the QA Program at DTE Fermi 3. As these NRC  
25 questions were being generated, DTE developed a PowerPoint in August 2009  
26 entitled Quality Assurance Overview. At the same time the NRC identified that

<sup>21</sup> DTE- 00817 (April 08), Email, Werner (DTE) to Thomas (BV), INTS 047.

<sup>22</sup> DTE-00915, PowerPoint 1/19/10, NRC Notice of Violation Detroit Edison-Fermi 3 Quality Assurance Program, INTS 037.

**River Bend Station, Unit 3  
COL Application  
Part 2, FSAR**

**17.1 QUALITY ASSURANCE DURING DESIGN**

This section of the referenced DCD is incorporated by reference with the following departures and/or supplements.

---

Insert the following information at the end of **DCD Section 17.1**.

RBS COL  
17.2-2-A


Entergy is responsible for the establishment and execution of the quality assurance program during the design, construction and operations phases of RBS Unit 3. Entergy may delegate and has delegated to others, such as GEH and Black & Veatch (B&V) Energy, the work of establishing and executing the quality assurance program, or any parts thereof, but retains responsibility for the quality assurance program.

Effective during the combined operating license application (COLA) development, the B&V QA Program (**Reference 17.1-201**) and the "GE Nuclear Energy Quality Assurance Program Description" (**Reference 17.1-202**) define the QA program requirements for design activities.

The Quality Assurance Program Description (QAPD) discussed in **Section 17.5** will be phased in based on the stage of the project and will be fully implemented in accordance with **Table 13.4-201**. During the implementation period, the Entergy Corporate QA Manual (**Reference 17.1-203**) will be applicable unless the QAPD requirements have been implemented. The phased implementation/conversion commenced with the submittal of this COL application.

**17.1.25 REFERENCES**

- 17.1-201 Black & Veatch, "Nuclear Organization Quality Assurance Manual," Revision 3, March 21, 2008.
- 17.1-202 "GE Nuclear Energy Quality Assurance Program Description," NEDO-11209-04A (NRC accepted), March 1989.
- 17.1-203 Entergy Operations, Inc., "Entergy Quality Assurance Program Manual," Revision 18, April 2008.

United States Nuclear Regulatory Commission Official Hearing Exhibit			
In the Matter of:		DETROIT EDISON COMPANY (Fermi Nuclear Power Plant, Unit 3)	
	ASLBP #:	09-880-05-COL-BD01	
	Docket #:	05200033	
	Exhibit #:	INTS071-00-BD01	
	Admitted:	10/31/2013	
	Rejected:		
	Other:		
		Identified:	10/31/2013
		Withdrawn:	
		Stricken:	

**Detroit Edison**

10 CFR 52

May 31, 2007  
NRC3-07-0001

U.S. Nuclear Regulatory Commission  
Attention: Document Control Desk  
Washington, DC 20555-0001

- References:
- 1) NRC Regulatory Issue Summary 2007-08: Updated Licensing Submittal Information to Support the Design-Centered Licensing Review Approach, dated April 16, 2007
  - 2) Letter from DTE Energy (Douglas R. Gipson) to USNRC (James E. Dyer), Notification of Combined Operating License (COL) Application Schedule, dated February 15, 2007

Subject: Voluntary Response to RIS 2007-08: Plans for the Submittal of a Combined License Application for the DTE Energy Fermi Site

DTE Energy is providing information in this letter in response to Regulatory Issue Summary, RIS 2007-08 (Reference 1), regarding DTE support of the NRC's design-centered review approach (DCRA) for Combined License Applications (COLA). The enclosed information applies to DTE Energy's intent to develop a COLA for the Fermi site in Newport, Michigan. The letter provides an overview of DTE Energy's plans, followed by the specific information requested by the RIS.

**Overview**

By letter dated February 15, 2007 (Reference 2), DTE Energy informed the NRC of its intent to prepare an application for a Combined License (COL) for a new nuclear power plant being considered for construction and operation at the Fermi 2 nuclear plant site in Newport, Michigan. DTE Energy has commenced activities to prepare the COLA on a schedule which would support submittal in the fourth calendar quarter of 2008.

DTE Energy has contracted Black & Veatch to support preparation of the COLA. Black & Veatch is performing a similar work scope for the Entergy River Bend COLA. DTE

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Energy has also engaged Black & Veatch in an Owner's Engineer capacity to support the project.

Site geo-hydrology investigation monitoring well construction began in late April 2007. Monitoring well construction is expected to be complete by mid-June 2007. Core boring activities for the geotechnical data collection plan are expected to follow immediately, beginning sometime between June 12, 2007 and June 30, 2007.

DTE Energy has not yet selected a reactor technology. Geotechnical data collection will begin in parallel with reactor technology selection. The data collection plan is being designed to maintain technology neutrality and support characterization of the site for the five reactor technologies under consideration. It is initially focused on core borings that are common to more than one reactor technology, and continues with technology specific boring scopes of work. DTE Energy expects to finalize its reactor technology selection before December 31, 2007.

Philosophically, DTE Energy fully intends to maximize the benefit from the DCRA. This will be accomplished through not only referencing a standard Design Certification, but also by following a Reference-COL application (R-COL) through the licensing process without exceptions (*i.e.*, to be a Subsequent-COL application (S-COL), as defined in the DCRA). DTE Energy intends only to deviate from the R-COL where unique site characteristics would necessitate an exception.

The following subsections provide responses to the information requested in the Voluntary Response section of the RIS.

***Requested Licensing Submittal Information***

- Design-Centered Working Groups (DCWGs) – Following the selection of the reactor technology, DTE Energy intends to affiliate with the corresponding DCWG.
- Which applicant will be the R-COL applicant? – This will depend on the reactor technology decision. DTE expects to be a S-COL applicant referencing a R-COL application.
- When (month and year) will the COL application be made? What is the design, site location, and number of units at the site? – Preparation of the Fermi COLA is scheduled to be completed by September 30, 2008. While DTE Energy has authorized a substantial investment to prepare the COLA, a final decision to submit the application has not been made. The current schedule would support a submittal in October 2008. COLA preparation and site characterization currently are proceeding assuming a single unit. However, the option of licensing more than one unit has not been ruled out, should generation needs, technology attributes, economics, and other factors support such a decision.



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- What portions of the COL application (chapters, sections, subsections) will be relying on the DC? Once the reactor technology is selected, DTE Energy intends to reference the selected reactor technology DC without exception.
- What portions of the R-COL application (chapters, sections, subsections) will be referenced (i.e., replicated verbatim) and what portions of the application are likely to be site-specific? Once the reactor technology is selected, DTE Energy intends to reference the R-COL application without deviation except where unique site characteristics would necessitate a deviation.
- When (month and year) will applicants complete the detailed design information to be verified under those inspections, tests, analyses, and acceptance criteria that are directed certification information (design acceptance)? Will this information be completed in a Design Certification amendment application, in the R-COL application, in S-COL application, in post-COL Final Safety Analysis Report updates, or a combination thereof? Having not yet selected a reactor technology, DTE Energy is not in a position to address this question at this time. DTE Energy intends to conform to the process and schedule established as part of the DCRA for the selected technology.

#### ***Site and Environmental Information***

- For ESP Applicants DTE does not plan to apply for an ESP.
- Does the applicant plan to submit an environmental report or limited work authorization request prior to other portions of the COL application? No.
- What scope and schedule does the applicant project for site characterization activities such as core borings and testing core samples? Site geo-hydrology investigation monitoring well construction began in late April 2007. Monitoring well construction is expected to be complete by mid-June 2007. Core boring activities for the geotechnical data collection plan are expected to follow immediately, beginning sometime between June 12, 2007 and June 30, 2007.

DTE Energy has not yet selected a reactor technology. Geotechnical data collection will begin in parallel with reactor technology selection. The data collection plan is being designed to maintain technology neutrality and support characterization of the site for the five reactor technologies under consideration. It is initially focused on core borings that are common to more than one reactor technology, and continues with technology specific boring scopes of work. DTE Energy expects to finalize its reactor technology selection before December 31, 2007.

- What interactions have taken place with local and State authorities and other Federal agencies to support licensing new reactors? – DTE Energy has communicated its intention to prepare a Combined License Application for a new plant at the Fermi site to a broad cross section of state and local officials. DTE



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Energy has begun interactions with the Michigan Public Service Commission regarding the need of new electric generation.

***Plant Construction Requirements Information***

- Who are the vendors and consultants that are assisting in the preparation of the application? The NRC requests that the potential applicants submit a list of entities that are providing input to and are preparing the COL application under a QA Program. Black & Veatch, headquartered in Overland Park, KS have been selected to assist DTE Energy in the preparation of the Fermi COLA. The Black & Veatch Quality Assurance Program, which meets the requirements of 10 CFR 50, Appendix B and ASME NQA-1, is being applied to appropriate aspects of the work scope. Black & Veatch has overall responsibility for preparation of the Fermi COLA and B&V and its principal subcontractors will be governed by Black & Veatch QA requirements.
- What information do the applicants have regarding the timing of construction, the ordering of long lead time components, and other commitments to construction? Furthermore, what vendors will be designing, fabricating, and testing safety-related components for eventual plant construction? The specific responses to these questions will be technology dependent. If the plant is constructed, critical milestones from the Energy Act of 2005 are expected be met as follows:
  - First Safety-Related Concrete Poured – January 1, 2014
  - Commercial Operation - January 2017

DTE Energy appreciates the opportunity to assist the NRC in planning for this important activity. If you have any questions regarding this response or require further information, please contact Mr. Peter W. Smith, Director, Nuclear Projects, at (734) 586-4271.

Sincerely,



Douglas R. Gipson  
Executive Vice President, Power Generation

cc: L. J. Burkhart  
J. L. Caldwell  
R. M. Morris



NUREG-2105, Vol. 1

**Draft Environmental Impact  
Statement for Combined License (COL)  
for Enrico Fermi Unit 3**

**Draft Report for Comment**

**U.S. Nuclear Regulatory Commission  
Office of New Reactors  
Washington, DC 20555-0001**

**Regulatory Office  
Permit Evaluation, Eastern Branch  
U.S. Army Engineer District, Detroit  
U.S. Army Corps of Engineers  
Detroit, MI 48226**



**US Army Corps  
of Engineers®**

## Site Layout and Plant Description

Wastewater treatment operations for Fermi 3 would be similar to those for the existing Fermi 2 and those that are commonly used in wastewater treatment plants throughout the United States. Components of the Fermi 3 sanitary wastewater treatment system include waste basin, wet well, septic tank, settling tank, wet well pumps, sewage discharge pumps, and associated valves, piping, and controls. Chemical treatments applied to the waste would be those within the Frenchtown Township Sewage Treatment Facility, in keeping with municipal sewage treatment standards.

**Power Transmission System**

Transmission lines and corridors are considered to interface with the environment during operation, because there are potential continuing impacts from electric fields, noise, and corridor maintenance.

A system impact study conducted for Fermi 3 identified the need for a new onsite 345-kV switchyard and three new 345-kV transmission lines to connect Fermi 3 to the regional electrical grid (Detroit Edison 2011b). The new switchyard would be separate from the existing Fermi 2 switchyard and the onsite 120-kV transmission system.

A new 170-ft-wide transmission corridor (Figure 3-2) is planned on the Fermi site to service Fermi 3 (Detroit Edison 2011b). This transmission corridor would include two sets of towers that would carry both rerouted 345-kV lines that serve Fermi 2 and the new 345-kV lines that serve Fermi 3. The new transmission lines would transmit power from the Fermi 3 generator to the Fermi 3 switchyard at the intersection of Toll Road and Fermi Drive (Figure 3-2). Onsite 120-kV support for Fermi 2 would be routed underground along the Fermi Drive corridor.

The offsite route for the new lines will traverse approximately 30 mi within a 300-ft transmission line corridor along mostly existing corridors to the Milan Substation (Figure 3-8). The first 18.6 mi of transmission lines (going west and north from Fermi) would be installed alongside the 345-kV lines that are already in place (Figure 3-8). By reconfiguring conductors, new lines in this portion of the route could use existing towers, but placement of additional transmission infrastructure may be necessary. The remaining 10.8 mi of transmission lines to the Milan Substation would be located in an undeveloped portion of the transmission line corridor that was previously authorized for transmission use (Figure 3-8). Some transmission tower footings were installed as part of the original Fermi 3 plan, but the corridor has been minimally maintained. The 350-ft-by-500-ft Milan Substation may be expanded to an area about 1000 ft by 1000 ft to accommodate the Fermi 3 expansion (Detroit Edison 2011b).

Most of the 18.6-mi portion of the route crosses agricultural land, but the undeveloped 10.8-mi portion crosses a variety of land cover types including forest, agricultural lands, rural residential areas, and a golf course.

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION  
ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:

Ronald M. Spritzer, Chairman  
Anthony J Baratta  
Randall J. Charbeneau

In the Matter of

DETROIT EDISON COMPANY

(Fermi Nuclear Power Plant, Unit 3)

Docket No. 52-033-COL

ASLBP No. 09-880-05-COL-BD01

January 30, 2013

**MEMORANDUM AND ORDER**  
**(Denying Motion for Reconsideration of the Board's Order  
Denying Second Motion for Summary Disposition of Contention 8)**

Detroit Edison Company ("DTE" or "Applicant") has filed a Motion for Reconsideration of the Board's Order denying its Second Motion for Summary Disposition of Contention 8.<sup>1</sup> The NRC Staff filed a Response supporting the Motion.<sup>2</sup> Intervenors filed an Answer in Opposition to the Motion.<sup>3</sup> For the reasons explained below, the Board denies the Motion.

A. Summary of the Board's ruling denying summary disposition of Contention 8.

Contention 8 alleges that the NRC has violated NEPA by failing to adequately evaluate the impact of construction of Fermi Unit 3 on the eastern fox snake, a species listed as

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<sup>1</sup> Applicant's Motion for Reconsideration (Nov. 19, 2012) [hereinafter "Reconsideration Motion" or "Motion"].

<sup>2</sup> NRC Staff Answer to Applicant's Motion for Reconsideration (Nov. 29, 2012).

<sup>3</sup> Intervenors' Answer in Opposition to Applicant's Motion for Reconsideration of Denial of Summary Disposition of Contention 8 (Eastern Fox Snake) (Nov. 29, 2012) [hereinafter "Int. Recon. Opp."].

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As previously explained, the issue on which the Board denied summary disposition of Contention 8 is the Staff's failure to explain and support its assumption in the DEIS that the MDNR will require mitigation and monitoring sufficient to ensure that the impact of construction on the snake will be small. This led the Board to conclude, based on the CEQ Guidance and federal case law, that the Staff must identify "the statutory or regulatory requirements it is relying on and its reasons for concluding that the application of those requirements will actually result in the mitigation and monitoring it assumes will occur."<sup>16</sup> DTE's request that the Board reconsider that ruling would still present a live question if the FEIS's analysis of construction impacts on the snake relied on the same assumption and reached the same conclusion as the DEIS.<sup>17</sup> But the Staff no longer limits its analysis to predicting that the impact on the snake will be small because of mitigation and monitoring it assumes MDNR will require. Instead, the Staff now describes a range of potential impacts, stating that the impact of construction on the snake will be "SMALL to MODERATE" depending on whether mitigation is implemented.<sup>18</sup> The FEIS explains:

[T]he review team concludes that the impacts from construction and preconstruction activities for Fermi 3 on terrestrial resources on the Fermi site and transmission line corridor would be SMALL to MODERATE . . . . The potential for MODERATE impacts is limited to possible adverse effects on the eastern fox snake. The staff's evaluation of the potential impacts on the eastern fox snake recognizes the potential for mitigation measures proposed by Detroit Edison. . . and approved by the MDNR to significantly reduce impacts on that species, thereby leading to SMALL impacts, but acknowledges the possibility of MODERATE impacts if proposed mitigation is not implemented as described in their plan.<sup>19</sup>

Thus, the Staff at least implicitly acknowledges that mitigation may not occur and that impacts to the snake will increase (to moderate) if it does not.

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<sup>16</sup> LBP-12-23 at 27.

<sup>17</sup> See Progress Energy Florida, Inc., LBP-11-1, 73 NRC at 25-26.

<sup>18</sup> FEIS at 4-47.

<sup>19</sup> Id.

**CERTIFICATE OF SERVICE**

I hereby certify that a copy of the foregoing “Joint Appendix, Volume II” was deposited by me this 13th day of February, 2017 with the Clerk of the Court for the United States Court of Appeals for the D.C. Circuit by using the appellate CM/ECF system. Counsel for all parties are registered with the CM/ECF system and received service through that method.

/s/ Terry J. Lodge  
Terry J. Lodge  
Counsel for Petitioners