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)	)	

DTE ELECTRIC COMPANY'S PROPOSED FINDINGS OF FACT AND CONCLUSIONS OF LAW

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January 21, 2014

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I. INTRODUCTION

1.1. This Initial Decision pertains to the combined license ("COL") application, dated September 18, 2008, filed by the DTE Electric Company ("DTE") for the Fermi Nuclear Power Plant, Unit 3 ("Fermi 3"), to be located in Monroe County, Michigan. The Fermi 3 COL Application references the application for certification of the Economic Simplified Boiling Water Reactor ("ESBWR") design.[1]

1.2. This Initial Decision resolves the two admitted contentions in this proceeding: Contention 8, which relates to the adequacy of the NRC Staff's environmental review of potential impacts on the Eastern Fox Snake; and Contention 15, which involves the quality assurance ("QA") measures that have been and will be applied to the design, construction, and operation of Fermi 3. Contention 15 has two parts: Contention 15A and Contention 15B.

[1] The Nuclear Regulatory Commission ("NRC") Staff issued the Final Design Approval and Final Safety Evaluation Report ("FSER") for the ESBWR on March 9, 2011. The ESBWR design is now the subject of an ongoing design certification ("DC") rulemaking in accordance with 10 C.F.R. Part 52. "ESBWR Design Certification; Proposed Rule," 76 Fed. Reg. 16549 (Mar. 24, 2011).

1.3. After considering all of the evidence and arguments presented for Contention 8, we conclude that, in the Final Environmental Impact Statement ("FEIS") for Fermi 3, the NRC Staff reasonably considered the potential impacts of Fermi 3 construction on the Eastern Fox Snake, including the effectiveness of planned mitigation measures.[2] The NRC Staff's environmental assessment of impacts to the Eastern Fox Snake in the FEIS, as supplemented by the evidence and testimony introduced at the evidentiary hearing and by our findings of fact and conclusions of law herein, is adequate. The environmental record satisfies the requirements of the National Environmental Policy Act ("NEPA") and 10 C.F.R. Part 51. Contention 8 is resolved in favor of the NRC Staff and DTE.

1.4. After considering all of the evidence and arguments presented for Contention 15A, we conclude that the site investigations, tests, and other safety-related activities to support the development of a COL Application were performed by Black and Veatch ("B&V"), at DTE's direction and under DTE's control, in accordance with B&V's established Appendix B/NQA-1 QA program.[3] DTE retained responsibility for the QA program during the pre-application period and exercised that responsibility by requiring that B&V apply its QA Program to site investigation work, developing written procedures and instructions for that work, and performing oversight activities. Based on the comprehensive set of QA measures applied to safety-related information developed during the site investigation, there is reasonable assurance that the safety-related information developed prior to, and included in, the COL Application is of high-quality. No issues of material significance have been identified in this proceeding. We resolve Contention 15A in favor of DTE.

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2 The FEIS is Exh. NRC E1A.

3 Appendix B is found in 10 C.F.R. Part 50. NQA-1, which is Exhibit BRD-01, is discussed in more detail, *infra*, Section VI.A.

1.5. After considering all of the evidence and arguments presented for Contention 15B, we conclude that DTE has developed and implemented, and will continue to implement, an effective QA program that meets all relevant requirements, including Appendix B. DTE has performed numerous audits, surveillances, assessments, and other actions in accordance with its QA program. While there was one enforcement action involving QA program implementation, those issues were resolved based on corrective actions. The Intervenors did not identify any issue of material safety significance relating to ongoing QA implementation or show a programmatic breakdown in QA. We conclude that there is reasonable assurance that the Fermi 3 QA program has been, can be, and will be implemented in accordance with NRC regulations and the applicable Quality Assurance Program Description ("QAPD"). We resolve Contention 15B in favor of DTE.

II. PROCEDURAL HISTORY

2.1. In LBP-09-16, dated July 31, 2009, the Atomic Safety and Licensing Board ("Board" or "Licensing Board") admitted four contentions for hearing (Contentions 3, 5, 6, and 8). Later, in LBP-10-09, dated June 15, 2010, the Board admitted another contention for hearing (Contention 15). Three of the admitted contentions (Contentions 3, 5, and 6) have since been resolved through motions for summary disposition.[4] Hearings on the remaining environmental contention (Contention 8) and the remaining safety contention (Contention 15) were held on October 30-31, 2013, in Monroe, Michigan.

[4] Order (Granting Motion for Summary Disposition for Contention 3), dated July 9, 2010 (unpublished); Order (Granting Motion for Summary Disposition of Contention 5), dated March 1, 2011 (unpublished); *see also* LBP-12-23 (granting Motion for Summary Disposition of Contention 6), dated November 9, 2012.

III. LEGAL STANDARDS FOR CONTENTION 8

A. Environmental Reviews under the National Environmental Policy Act

3.1. Contention 8 arises under NEPA and the NRC's implementing regulations in 10 C.F.R. Part 51. NEPA requires that an agency prepare an environmental impact statement ("EIS") before approving any major Federal action that will significantly affect the quality of the human environment.[5]

3.2. Under NEPA, the NRC is required to take a "hard look" at the environmental impacts of a proposed action.[6] This "hard look" is tempered by a "rule of reason" that requires agencies to address only impacts that are reasonably foreseeable — not those that are remote and speculative.[7] The NEPA "hard look" and "rule of reason" standards extend to consideration of alternatives to the proposed action.[8]

3.3. NEPA gives agencies a range of tools for ensuring that the impacts of an action (and its alternatives) are taken into account. NEPA does not demand that every impact or alternative be precisely evaluated, nor does it require perfection of detail.[9] NEPA also does not require the consideration of alternatives that are not significantly distinguishable from alternatives actually considered. Instead, an agency's evaluation of alternatives is sufficient if it considers an appropriate range of alternatives, even if it does not consider every available

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5 42 U.S.C. § 4332(2)(C).

6 *Louisiana Energy Servs., L.P.* (Claiborne Enrichment Center), CLI-98-3, 47 NRC 77, 87-88 (1998).

7 *See, e.g., Long Island Lighting Co.* (Shoreham Nuclear Power Station, Unit 1), ALAB-156, 6 AEC 831, 836 (1973).

8 *North Slope Borough v. Andrus*, 642 F.2d 589, 601 (D.C.Cir. 1980).

9 *Envtl. Def. Fund v. TVA*, 492 F.2d 466, 468 n.1 (6th Cir. 1974).

alternative.[10] Agencies are permitted to use "bounding analyses" to ensure that the range of impacts and alternatives are taken into account in an EIS.[11]

3.4. The discussion of mitigation measures is an important part of an agency's hard look at the environmental consequences of a proposed Federal action.[12] NEPA does not, however, require a fully developed plan that will mitigate all environmental harm before an agency can act. Instead, NEPA requires only that mitigation be discussed in sufficient detail to ensure that environmental consequences have been fully evaluated.[13] In *Methow Valley*, the Supreme Court specifically differentiated an agency's procedural obligation to discuss mitigation in sufficient detail (to ensure that environmental consequences have been fairly evaluated) from any substantive requirement to actually develop and adopt a detailed mitigation plan.[14] The Court explained: "[b]ecause NEPA imposes no substantive requirement that mitigation measures actually be taken, it should not be read to require agencies to obtain assurances that third parties

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10 *PFS*, LBP-03-30, 58 NRC at 479 (quoting *Headwaters, Inc. v. BLM*, 914 F.2d 1174, 1181 (9th Cir. 1990), *reh'g and reh'g en banc denied*, 940 F.2d 435 (1991)); Forty Most Asked Questions Concerning CEQ's National Environmental Policy Act Regulations, 46 Fed. Reg. at 18,027 (acknowledging that certain projects could involve an infinite number of alternatives, but indicating that an agency need only discuss a "reasonable number of examples, covering the full spectrum of alternatives").

11 *NRDC v. NRC*, 685 F.2d 459, 486 (D.C. Cir. 1982), *rev'd on other grounds*, *Balt. Gas & Elec. Co. v. NRDC*, 462 U.S. 87 (1983). A "bounding analysis" refers to an evaluation that is based on conservative assumptions regarding environmental impacts. A bounding analysis provides an assessment of impacts that includes (or bounds) anticipated impacts of alternatives with lesser environmental impacts.

12 *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 352 (1989).

13 *Laguna Greenbelt, Inc. v. U.S. Dep't of Transp.*, 42 F.3d 517, 528 (9th Cir. 1994) (citations omitted).

14 *Methow Valley*, 490 U.S. at 352.

will implement particular measures."[15] Thus, under *Methow Valley* and related cases, EISs do not need to present mitigation plans that are legally enforceable, fully developed or funded in order to satisfy NEPA.

3.5. Finally, NEPA also gives agencies broad discretion to keep their inquiries within appropriate and manageable boundaries.[16] As the Commission explained, NEPA "does not call for certainty or precision, but an estimate of anticipated (not unduly speculative) impacts."[17] When faced with uncertainty, NEPA only requires "reasonable forecasting."[18] And, while there "will always be more data that could be gathered," agencies "must have some discretion to draw the line and move forward with decisionmaking."[19] For this reason, licensing boards do not sit to "flyspeck" the FEIS or to add details or nuances.[20] If the FEIS on its face "comes to grips with all important considerations" nothing more need be done.[21]

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15 *Id*. at 353, n.16.

16 *Louisiana Energy Servs., L.P.* (Claiborne Enrichment Center), CLI-98-3, 47 NRC 77, 103 (1998) (internal citation omitted).

17 *Louisiana Energy Servs., L.P.* (Nat'l Enrichment Center), CLI-05-20, 62 NRC 523, 536 (2005).

18 *Scientists' Inst. for Pub. Info., Inc. v. AEC*, 481 F.2d 1079, 1092 (D.C. Cir. 1973). "[I]nherent in any forecast . . . is a substantial margin of uncertainty," and therefore the forecast should be accepted if it is "reasonable." *Niagara Mohawk Power Corp.* (Nine Mile Point Nuclear Station, Unit 2), ALAB-264, 1 NRC 347, 365-67 (1975).

19 *Town of Winthrop v. FAA*, 535 F.3d 1, 11 (1st Cir. 2008). NEPA allows agencies "to select their own methodology as long as that methodology is reasonable." *Id*. at 13; *see also The Lands Council v. McNair*, 537 F.3d 981, 1003 (9th Cir. 2008) (finding that an EIS need not be based on the "best scientific methodology available").

20 *Hydro Resources, Inc.* (P.O. Box 15910, Rio Rancho, NM 87174), CLI-01-04, 53 NRC 31, 71 (2001).

21 *Systems Energy Resources, Inc.* (Early Site Permit for Grand Gulf Site), CLI-05-4, 61 NRC 10, 13 (2005).

B. Burden of Proof

3.6. An applicant generally has the burden of proof in a licensing proceeding.[22] However, in cases involving NEPA contentions, the burden belongs to the NRC Staff because it has the ultimate responsibility for complying with NEPA.[23] Nevertheless, because "the Staff, as a practical matter, relies heavily upon the Applicant's Environmental Report in preparing the EIS, should the Applicant become a proponent of a particular challenged position set forth in the EIS, the Applicant, as such a proponent, also has the burden on that matter."[24]

3.7. The showing necessary to meet the burden of proof is the "preponderance of the evidence" standard.[25] NRC administrative proceedings have generally relied upon the preponderance standard in reaching the ultimate conclusions after a hearing to resolve the issue.[26] The Licensing Board therefore must consider the evidence and testimony and determine

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22 10 C.F.R. § 2.325.

23 *See, e.g.*, *Duke Power Co.* (Catawba Nuclear Station, Units 1 & 2), CLI-83-19, 17 NRC 1041, 1049 (1983).

24 *Louisiana Energy Servs., L.P.* (Claiborne Enrichment Center), LBP-96-25, 44 NRC 331, 338-39 (1996) (citing *Pub. Serv. Co. of N.H.* (Seabrook Station, Units 1 & 2), ALAB-471, 7 NRC 477, 489 n.8 (1978)), *rev'd on other grounds*, CLI-97-15, 46 NRC 294 (1997).

25 The definition of "preponderance of the evidence" in Black's Law Dictionary, 6th ed. (p. 1182), is "[e]vidence which is of greater weight or more convincing than the evidence offered in opposition to it; that is, evidence which as a whole shows that the fact sought to be proved is more probable than not."

26 *Advanced Medical Systems, Inc.* (One Factory Row, Geneva, Ohio 44041), CLI-94-6, 39 NRC 285 (1994), *aff'd*, *Advanced Medical Systems, Inc. v. NRC*, 61 F.3d 903 (6th Cir. 1995); *see also Commonwealth Edison Co.* (Zion Station, Units 1 & 2), ALAB-616, 12 NRC 419, 421 (1980) (stating that applicants are not held to an absolute standard or required to prove a matter conclusively but rather, consistent with the Administrative Procedure Act, are held to a preponderance standard).

whether the NRC Staff and DTE have shown by the preponderance of the evidence that the NRC complied with NEPA.

C. Record of Decision

3.8. Adjudicatory findings on NEPA issues, including those in this decision, become part of the environmental "record of decision" and effectively supplement the FEIS.[27] Accordingly, to the extent that the FEIS does not address an issue or does not adequately address a topic, the information presented in the hearing can be relied upon to satisfy the NRC's NEPA obligation.[28]

3.9. In NRC licensing proceedings, "the ultimate NEPA judgments regarding a facility can be made on the basis of the entire record before a presiding officer, such that the EIS can be deemed to be amended pro tanto."[29] Therefore, the Board may consider the full record before it, including the testimony and exhibits at the hearing, to conclude that "the aggregate is sufficient to satisfy the agency's obligation under NEPA" to take a "hard look" at the environmental consequences of issuing a COL.[30]

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27 *Louisiana Energy Servs., L.P.* (Nat'l Enrichment Facility), CLI-06-15, 63 NRC 687, 707 n. 91 (2006).

28 *Louisiana Energy Servs., L.P.* (Nat'l Enrichment Facility), LBP-06-08, 63 NRC 241, 285-286 (2006); *see also Hydro Resources, Inc.* (P.O. Box 15910, Rio Rancho, NM 87174), CLI-01-04, 53 NRC 31, 53 (2001) ("[I]n an adjudicatory hearing, to the extent that any environmental findings by the Presiding Officer (or the Commission) differ from those in the FEIS, the FEIS is deemed modified by the decision.").

29 *Louisiana Energy Servs., L.P.* (Nat'l Enrichment Facility), LBP-05-13, 61 NRC 385, 404 (2005).

30 *LES*, LBP-06-08, 63 NRC at 286.

IV. FINDINGS OF FACT FOR CONTENTION 8

A. Procedural History of Contention 8

1. Original Contention 8

4.1. Contention 8, as originally proposed, alleged that "inadequate mitigation has been considered" relative to threatened and endangered species.[31] The focus of the proposed contention was the Eastern Fox Snake, which is listed as a threatened species in Michigan. Relying solely on a letter from Lori Sargent (Exh. DTE000013), a wildlife biologist for the Michigan Department of Natural Resources ("MDNR"), the Intervenors highlighted discrepancies between recorded sightings of snakes at the Fermi property and statements in DTE's Environmental Report ("ER") that the Eastern Fox Snake had not been observed on the property. The Intervenors argued that, if Fermi 3 goes forward, "mitigative measures must be taken."[32]

4.2. The Board admitted Contention 8 as an environmental contention under NEPA, alleging that the ER failed to adequately assess the impacts of Fermi 3 construction on the Eastern Fox Snake.[33] The threshold question involved the presence of the Eastern Fox Snake at the Fermi site. Assuming that a viable population was present at the site, the Board also admitted the portion of the contention alleging a need to mitigate impacts of Fermi 3

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31 *See* "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 Leave to Intervene in Combined Operating License Proceedings and Request for Adjudication Hearing," at 89 (Mar. 9, 2009) ("Pet.").

32 *Id*.

33 LBP-09-16 at 62.

construction on the Eastern Fox Snake. The Board found Contention 8 inadmissible to the extent that it could be construed as challenging the ER discussion of impacts to other species.[34]

2. First Summary Disposition Motion

4.3. DTE filed a summary disposition motion for Contention 8 on November 16, 2010.[35] In the motion, DTE explained that it had, in response to NRC Staff Requests for Additional Information ("RAIs"), resolved the discrepancy in the ER regarding the presence of the species at the Fermi site.[36] To reduce the potential impacts to the Eastern Fox Snake, DTE also developed the *Fermi 3 Construction Habitat and Species Conservation Plan: Eastern Fox Snake (Elaphe gloydi)* ("Mitigation Plan") (Exh. DTE000006).[37] And, DTE revised the site layout to significantly reduce potential wetland impacts, which, in turn, reduced impacts to presumed Eastern Fox Snake habitat.[38]

4.4. In LBP-11-14, the Board denied the motion for summary disposition. The Board agreed with DTE that the revised ER cured the discrepancy between the original ER and

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34 *Id*.

35 "Applicant's Motion for Summary Disposition of Contention 8" ("1st SD Motion").

36 Letter to NRC Document Control Desk from Peter W. Smith, Director, Nuclear Development – Licensing and Engineering, Detroit Edison Company, NRC3-10-0005, "Detroit Edison Company Response to NRC Requests for Additional Information Letter No. 2 Related to the Environmental Review," Attachment 7, at 3 (Exh. DTE000005). DTE explained that "eastern fox snakes have been observed in numerous locations including those that are developed and currently in use for Fermi 2 operations" and stated that, due to the observed wide distribution at the Fermi site, all undeveloped areas are considered to provide habitat for the species. *Id*. As a result, DTE concluded that construction of Fermi Unit 3 will impact a portion of the fox snake habitat at the site and that mitigation measures would be necessary.

37 *See also* FEIS at 4-37 (describing planned mitigation measures).

38 *See* NRC3-09-0017, Attachment 2, at Figure 2.1-4 (responding to RAI GE3.1-1) (Exh. DTE000007).

MDNR records.[39] The Board also acknowledged that DTE revised the site layout and developed the Mitigation Plan for the Eastern Fox Snake.[40] According to the Board, DTE "addressed two of the issues that led the Board to admit Contention 8: it has acknowledged the presence of the species at the site and developed alternatives that appear intended to reduce impacts to the species."[41]

4.5. But, the Board found that Contention 8 also concerned the adequacy of the assessment of Fermi 3 construction impacts on the Eastern Fox Snake and the sufficiency of the consideration of alternatives to reduce impacts to the species. The Board further noted that "[t]he revised ER, like the original ER, makes no mention of MDNR's comments on the original ER, much less demonstrates that those concerns have been entirely resolved by DTE's draft mitigation plan, revised site layout, or other new information."[42] The Board therefore concluded that there remained "an unresolved conflict between the opinion of MDNR and that of DTE concerning the impact of Fermi Unit 3 construction activities on the eastern fox snake and the need for mitigation of those impacts."[43]

3. Second Summary Disposition Motion

4.6. Following publication of the Draft Environmental Impact Statement ("DEIS"), DTE filed a second summary disposition motion on June 11, 2012.[44] In the second motion, DTE explained that it submitted its Mitigation Plan to MDNR and that MDNR had

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39 LBP-11-14 at 19.

40 *Id*.

41 *Id*.

42 *Id*. at 20.

43 *Id*.

concluded that the plan was acceptable and would provide adequate protection for the Eastern Fox Snake at the Fermi site.[45] Thus, there was no longer an "unresolved conflict" between MDNR and DTE.

4.7. In LBP-12-23, the Board found that Intervenors raised a genuine dispute as to whether the DEIS adequately addressed Council on Environmental Quality ("CEQ") guidance regarding the appropriate use of mitigation to support a conclusion in an EIS.[46] The Board concluded that the "DEIS fails to identify any statutory or regulatory requirements that will mandate implementation of the [Mitigation Plan] and the additional monitoring the DEIS states will be necessary."[47] The DEIS, the Board said, "[i]nstead appears to simply assume that MDNR will take whatever actions are necessary to ensure that impacts to the snake are small and that necessary additional monitoring will occur."[48] The Board acknowledged that the CEQ allows the implementing agency to rely on State agencies to impose mitigation, but found there was a substantial question as to the adequacy of the DEIS because it failed to identify any requirement by which the Mitigation Plan would be enforceable.[49]

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44 "Applicant's Motion for Summary Disposition of Contention 8" ("2nd SD Motion").

45 The acceptability and sufficiency of the Mitigation Plan was supported by DTE's expert herpetologist (Mr. Mifsud), who concluded that the Mitigation Plan was comprehensive and would effectively minimize impacts to Eastern Fox Snakes during site preparation and construction. As discussed below, Mr. Mifsud has significant experience designing projects to monitor and manage reptiles in Michigan, including Eastern Fox Snakes.

46 LBP-12-23 at 26.

47 *Id*.

48 *Id*.

49 *Id.* at 27-28.

B. Witnesses for Contention 8

1. NRC Staff Witnesses

4.8. The NRC Staff presented two witnesses on Contention 8: David A. Weeks and J. Peyton Doub. We find that Mr. Weeks and Mr. Doub are qualified by education, knowledge, and experience to testify as experts on Contention 8.

4.9. Mr. Weeks received a B.S. in Resources Management from the State University of New York College of Environmental Science and Forestry and an M.S. in Forestry from the University of Massachusetts.[50] Mr. Weeks is presently an Environmental Scientist at Ecology and Environment, Inc. ("E&E"). In his current role, Mr. Weeks is responsible for contributing to ecological sciences sections of EISs, environmental assessments ("EAs"), biological assessments ("BAs"), and other environmental documents. Mr. Weeks has managed or contributed to EISs, EAs, and other environmental documents in twelve states, including Michigan. Previously, he worked for the USDA Natural Resources Conservation Service for 23 years.

4.10. Mr. Doub earned a B.S. in Plant Science from the Cornell University School of Agriculture and Life Sciences in 1982 and an M.S. in Plant Physiology from the University of California at Davis in 1984.[51] Mr. Doub was certified as a Professional Wetland Scientist ("PWS") in 1995 and as a Certified Environmental Professional ("CEP") in 1996. Since 2008, Mr. Doub has worked as an environmental scientist specializing in terrestrial ecology and wetlands for the NRC. Mr. Doub contributed terrestrial ecology and wetlands expertise to NRC guidance documents, including Revision 2 to Regulatory Guide 4.11,

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50 Exh. NRC E3.

51 Exh. NRC E4.

Terrestrial Environmental Studies for Nuclear Power Stations. Prior to joining the NRC, Mr. Doub was employed as an environmental scientist with a series of companies where his work primarily involved wetland delineations, mitigation design, ecological field studies, and ecological risk assessments.

2. DTE Witnesses

4.11. DTE presented three witnesses on Contention 8: Peter Smith, Randall Westmoreland, and David Mifsud. We find that Mr. Smith, Mr. Westmoreland, and Mr. Mifsud are qualified by education, knowledge, and experience to testify as experts on Contention 8.

4.12. Mr. Smith is the Director, Nuclear Development – Licensing and Engineering, for Fermi 3 and has served in that position since 2007.[52] Mr. Smith holds a B.E. in chemical engineering from the Royal Military College of Canada, and a M.S.E. from the University of Toledo. Mr. Smith is a Licensed Professional Engineer in the Province of Ontario. Mr. Smith has over 30 years of experience in the commercial nuclear power industry, primarily in licensing and engineering roles. He has overall responsibility for the Fermi 3 project, including the COL Application and other State and Federal permits and approvals.

4.13. Mr. Westmoreland is the Licensing – Technical Expert for the Fermi 3 project and has been in that position since March 2008.[53] Mr. Westmoreland has a B.S. in geology from Michigan State University. He has been employed as an environmental engineer for DTE since 1998. He presently is the project lead for all environmental aspects of the Fermi 3 project, with responsibilities that include managing the environmental portion of the Fermi 3 COL application as well as other State and Federal permits and approvals associated with Fermi

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52 Exh. DTE000002.

53 Exh. DTE000003.

3. Mr. Westmoreland managed development of the plans to mitigate potential impacts to the Eastern Fox Snake and directly participated in DTE's interactions with the MDNR regarding the Eastern Fox Snake.

4.14. Mr. Mifsud is the owner of Herpetological Resource and Management, LLC ("HRM") in Michigan.[54] Mr. Mifsud received a B.S. in biology from Aquinas College and a M.S. in Environmental Science from the University of Michigan. He is a certified professional wildlife biologist, wetland scientist, and ecologist. Mr. Mifsud has more than fifteen years of experience in wildlife biology, wetland ecology, and habitat conservation and management, with an emphasis on herpetofauna (*i.e.*, reptiles) in Michigan. He has overseen and designed numerous projects and studies focused on the inventory, monitoring, conservation and management, rescue and translocation, and headstarting of amphibians and reptiles in Michigan for a variety of partners, including non-profit, private, and governmental agencies. His work has focused on protected Michigan species, including the Eastern Fox Snake.

3. Intervenors' Witness

4.15. The Intervenors presented no witness for Contention 8. Their arguments on Contention 8 were limited to legal claims related to compliance with NEPA.

C. Assessment of Potential Impacts to Eastern Fox Snakes

1. Overview

4.16. According to uncontested evidence, Eastern Fox Snakes are large, boldly patterned constrictors that feed primarily on small mammals, particularly meadow voles and deer mice, though they also will eat bird eggs and nestlings, earthworms, insects, and frogs.[55] Eastern Fox Snakes historically occurred along the shores of Lakes Huron and Erie. The Eastern Fox

54 Exh. DTE000004.

Snake inhabits emergent wetlands along Great Lakes shorelines and associated large rivers and impoundments, though they also occupy drier habitats such as vegetated dunes and beaches, fields, and open woodlands.[56] The Eastern Fox Snake presently is a "threatened" species in Michigan with four known populations remaining in Southeastern Michigan.[57] The Eastern Fox Snake is not protected under the Federal Endangered Species Act.[58]

4.17. Although much of the Eastern Fox Snake's natural habitat across the region has been converted for agriculture, residential, and industrial development, the Eastern Fox Snake is presumed to be somewhat common locally (*i.e.*, at the Fermi site), based on employee encounters in multiple locations on the Fermi site.[59] This is due primarily to availability of considerable habitat at the Fermi site and the restrictions on public access.[60] For purposes of the environmental evaluation in the FEIS, all undeveloped areas at the Fermi site are presumed to be Eastern Fox Snake habitat.[61]

4.18. The construction work that is expected to affect Eastern Fox Snake habitat involves site preparation activities, such as earthwork, in undisturbed areas of the site.[62] Site

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55 DTE Testimony on Contention 8 at ¶¶20, 22-23, 25.

56 *Id*. at ¶23.

57 Tr. at 382. The species also can be found outside of Michigan, including Ohio and Ontario. In Ohio, the Eastern Fox Snake is a species of special concern, which is a lesser designation than threatened or endangered. *Id*. at 347.

58 *Id*. at 346-347.

59 DTE Testimony on Contention 8 at ¶23-24.

60 Tr. at 382-383 (Mifsud); *Id*. at 376 (P. Smith).

61 DTE Testimony on Contention 8 at ¶23; FEIS at 2-53.

62 DTE Testimony on Contention 8 at ¶26.

preparation activities are expected to occur primarily in the first two years of construction.[63] Individual snakes could be accidentally injured or killed if they were not relocated or did not withdraw from active construction areas. Once the site preparation work is complete, the primary threat to the Eastern Fox Snake from Fermi 3 construction would be from site vehicles, comparable to an industrial site.[64]

2. Mitigation Plan

4.19. To reduce the potential impacts to the Eastern Fox Snake, DTE developed the Mitigation Plan (Exh. DTE000006). DTE's expert witnesses, Mr. Westmoreland and Mr. Mifsud, described the measures outlined in the Mitigation Plan to enhance employee awareness of the snakes and reduce impacts to the snakes and their habitat from Fermi 3 construction activities.[65] Specific measures identified in the Mitigation Plan include:

- Preconstruction Survey (Undeveloped Areas). One week and again one day prior to clearing undeveloped areas,[66] the areas will be walked through by a team led by a biologist familiar with Eastern Fox Snakes and their habitat. During this walkthrough, any snakes observed will be captured and relocated to an undeveloped location on site that will be unaffected by Fermi 3 construction. Construction workers will continue to look for snakes as clearing progresses. If a construction worker observes a fox snake during work activities, construction will stop until the snake clears the area or until designated personnel can clear the snake from the area.

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63 DTE Testimony on Contention 8 at ¶26; Tr. at 311 (Weeks);

64 DTE Testimony on Contention 8 at ¶26.

65 *Id*. at ¶¶17, 27-29, 33-34, 38; *see also* FEIS at 4-27 and 4-37 (describing planned mitigation measures).

66 Land clearing activities will be scheduled to be performed outside of the Eastern Fox snake hibernation periods so that they are active and therefore easier to locate and safely remove from the area. As Mr. Westmoreland and Mr. Mifsud testified during the hearing, the timing of land clearing activities does not conflict with wetland permit provisions that suggest wetland work be done in the wintertime to reduce wetland impacts because Eastern Fox Snakes do not hibernate in wetland areas. Tr. at 380-381.

- Preconstruction Survey (Developed Areas). Prior to beginning daily work on a developed or already disturbed area, designated employees will walk down the area and look for Eastern Fox Snakes. Any snakes found in these areas will be removed by a designated DTE employee who will then relocate the snakes to undeveloped areas of the site that will be unaffected by Fermi 3 construction.

- Employee Education Program. Training documents for construction workers will describe the Eastern Fox Snake and its habitat. Every construction worker will be required to review the training materials and acknowledge receipt and understanding of the materials prior to beginning work at the site.

- Pre-job Briefings. In order to reinforce training prior to initiating work, the daily pre-job briefing checklist for activities with the potential to impact Eastern Fox Snakes will remind workers of their obligations regarding protection of the species.

- Construction Mitigation. Employees will halt construction upon discovery of an Eastern Fox Snake. Any snakes observed in developed areas during construction will be captured and released to areas that will not be impacted during Fermi 3 construction.

- Monitoring and Reporting. DTE will monitor Eastern Fox Snakes during and after site preparation activities. DTE will maintain a log documenting when and where monitoring is performed. DTE will also prepare an annual report summarizing mitigation efforts during site preparation and for a minimum of five years after that.

4.20. Mr. Westmoreland and Mr. Mifsud also described steps that DTE will take to minimize impacts from construction-related vehicles.[67] For example, they explained that trained personnel will walk down roadways used for construction on a daily basis when the Eastern Fox Snakes are most likely to be present on or along roadways (*i.e.*, during their active season).[68] Eastern Fox Snakes located in these areas will be removed by a designated and trained DTE employee (in accordance with a "take" permit from MDNR) who will relocate the

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67 DTE Testimony on Contention 8 at ¶34.

68 *Id.*; Tr. at 348-349.

snakes to undeveloped areas of the site that are not impacted by Fermi 3 construction.[69] Collection and translocation of Eastern Fox Snakes from construction areas and the use of barrier fencing, which prevents individual snakes from gaining access to certain areas, will also provide protection for Eastern Fox Snakes that attempt to migrate toward active roadways.[70] And, DTE will install signs requiring drivers to yield to snakes along construction related roadways and will limit vehicle speeds to 15 mph in the construction area.[71]

4.21. As Mr. Mifsud describes in his testimony, the monitoring program in the Mitigation Plan includes measures to mark captured Eastern Fox Snakes with a Passive Integrated Transponder ("PIT") tag for future identification and detection.[72] Some snakes will also be fitted with radio transmitters. Monitoring will be conducted to assess the snakes' movement, habitat use, and population health at on-site locations and release sites.[73] Monitoring also will be conducted in all areas restored, enhanced, or created as part the Fermi 3 construction. Monitoring will be conducted during site preparation and for a minimum of five years after completion of the site preparation phase of Fermi 3 construction.[74] DTE will produce an annual monitoring report, which will be sent to MDNR, during this period.[75]

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69 Tr. at 353-355.

70 DTE Testimony on Contention 8 at ¶34.

71 FEIS at 4-37; DTE Testimony on Contention 8 at ¶34.

72 DTE Testimony on Contention 8 at ¶35; Tr. at 310, 337; FEIS at 4-37.

73 Tr. at 311-312.

74 FEIS at 4-37; DTE Testimony on Contention 8 at ¶36.

75 DTE Testimony on Contention 8 at ¶37.

4.22. Mr. Smith and Mr. Westmoreland also explained DTE's decision to change the site layout to lessen wetland impacts.[76] Because wetlands at the Fermi site are presumed to be habitat for the Eastern Fox Snake, reducing wetland impacts reduces potential Eastern Fox Snake impacts. DTE revised the original proposed site layout to reduce wetland impacts by approximately 127 acres. Approximately half of the remaining impacted wetland acreage (19.5 acres) involves only temporary impacts. Temporarily impacted wetlands will be restored after construction and would again serve as potential Eastern Fox Snake habitat.[77]

4.23. The changes to the site layout also reduced impacts to undeveloped areas of the Fermi site and many of those impacts will be only temporary. The temporarily impacted areas will be restored to a condition of equivalent or better ecological value once construction is complete.[78] Large portions of the site will be unaffected by construction. Approximately 800 acres of the Fermi site would remain undisturbed throughout the site preparation and construction period.[79]

4.24. DTE's experts also discussed the creation of new Eastern Fox Snake habitat as part of wetland mitigation efforts.[80] Under the Michigan Department of Environmental Quality ("MDEQ") wetland permit, dated October 22, 2012, DTE will restore

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76 DTE Testimony on Contention 8 at ¶¶38-41.

77 *See* Mitigation Plan at Appendix C (explaining that restoration will address foraging grounds, basking sites, shelter, snags, hibernacula, and nesting sites).

78 Wetland enhancement efforts include removal of certain invasive plant species in targeted areas to improve habitat viability for snakes and other wildlife. Enhancement may also include the creation of wildlife culverts and permanent barrier fences in selected areas of high Eastern Fox snake activity. DTE Testimony on Contention 8 at ¶39.

79 Tr. at 376; *see also* FEIS at 4-37 ("The majority of the suitable eastern fox snake habitat on the Fermi site would not be disturbed directly, however.").

80 DTE Testimony on Contention 8 at ¶40.

wetlands and enhance existing wetlands in the coastal zone of Western Lake Erie.[81] Habitat restoration will include multiple community types used by Eastern Fox Snakes. According to Mr. Mifsud, this new habitat will benefit the species by making available additional habitat along the Lake Erie shoreline.

4.25. The Intervenors' counsel raised a number of issues relating to the Mitigation Plan and the wetland mitigation required by MDEQ. These issues are discussed below.

4.26. The Intervenors' counsel claimed that DTE "is not known to have requested a Natural Features Inventory review" of the Fermi 3 project.[82] But, DTE did, in fact, request a Michigan Natural Features Inventory ("MNFI") review.[83] As the FEIS indicates (at 2-49), in 2007 DTE contacted MDNR and consulted the MNFI database regarding the presence of known or potential occurrences of State-listed threatened and endangered animals and plants in the project area. From the MNFI database, MDNR identified several species of interest, including the Eastern Fox Snake, that were known to occur on or near the Fermi site and that could be impacted by the project.[84] We therefore reject the Intervenors' allegations regarding the MNFI review and find that the DTE and the NRC Staff consulted with MDNR regarding the presence of State-protected species at the Fermi site.

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81 *See* MDEQ Wetland Permit No. 10-58-011-P, dated October 22, 2012 (Exh. DTE000010).

82 Intervenors' Presentation on Contention 8 at 8.

83 DTE Rebuttal Testimony on Contention 8 at ¶14.

84 Letter from L. Sargent, MDNR, to Dr. R. Brooks, B&V, dated November 28, 2007 (Exh. DTE000100).

4.27. The Intervenors' counsel argued that there is "no discussion of the environmental qualities" of the 19.5 acres of temporarily impacted wetlands at the Fermi site that will be restored following construction.[85] However, Appendix C of the Mitigation Plan (Exh. DTE000006) describes on-site habitat restoration and enhancement, including the 19.5 acres referenced by the Intervenors. Appendix C explains that onsite restoration will emphasize creation of Eastern Fox Snake habitat, including foraging grounds, basking sites, shelter, snags, hibernacula, and nesting sites. The Mitigation Plan also explains that invasive species will be removed to enhance and improve habitat viability for snakes and other wildlife. DTE will replant disturbed areas with regionally indigenous species and will also restore the contours and hydrological systems of temporarily impacted wetlands following construction.[86] We find that the Mitigation Plan adequately describes the planned restoration efforts.

4.28. The Intervenors' counsel argued that there is "no analysis or discussion of whether the removal of some Eastern Fox Snakes formerly inhabiting the Fermi 3 construction footprint and moving them onto undeveloped nearby land, might cause an overcrowding effect."[87] However, the Intervenors provided no factual or expert testimony to suggest that overcrowding would, in fact, occur. In contrast, DTE's expert witness, Mr. Mifsud, testified that the Eastern Fox Snake can support relatively high densities where habitat is suitable, including

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85 Intervenors' Presentation on Contention 8 at 9.

86 FEIS at 4-23 and 4-38. The FEIS explains (at 4-5) that "[v]egetation 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 (BMPs)." And, the FEIS (at 4-6) notes that "[t]emporarily disturbed areas would be restored to their existing topographic and hydrological conditions and be planted with natural vegetation once no longer needed."

87 Intervenors' Presentation on Contention 8 at 9.

locations on the Fermi site.[88] Mr. Mifsud also explained that Eastern Fox Snakes are somewhat communal and can often be found in the same burrows and hibernacula.[89] Regardless, Mr. Mifsud explained that habitat at the release point will be evaluated to determine its suitability, including the potential for overcrowding, prior to relocating any snakes.[90]

4.29. The NRC Staff experts, for their part, noted that the FEIS acknowledges the potential for overcrowding (phrased as "competition with resident individuals") as wildlife moves from areas disturbed by building Fermi 3 to undisturbed "receiving habitats" on the Fermi site.[91] According to the NRC Staff witnesses, this statement includes relocated Eastern Fox Snakes.[92] Based on the above, we find that overcrowding has been considered by the NRC Staff and DTE.[93]

4.30. The Intervenors' counsel also complained about a lack of a detailed investigation of soil contamination at the offsite wetland restoration area.[94] As an initial matter, DTE explained that there is ample available habitat at the Fermi site for releasing Eastern Fox Snakes collected prior to and during preconstruction and construction activities, independent of

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88 DTE Rebuttal Testimony on Contention 8 at ¶16.

89 *Id*. at ¶16.

90 *Id*. at ¶20.

91 FEIS at 4-27.

92 NRC Staff Rebuttal Testimony on Contention 8 at ¶5.

93 In contrast to the expert testimony provided by Mr. Mifsud and the NRC Staff witnesses, the Intervenors provided no information, much less any expert testimony, to suggest that overcrowding is a concern.

94 Intervenors' Presentation on Contention 8 at 9-10.

the status of the offsite wetland mitigation effort.[95] The offsite wetland mitigation area is not a necessary component of the Mitigation Plan, but rather is an example of an "extra" step that may enhance the overall snake population by making available additional habitat.[96] Therefore, the efficacy of the Mitigation Plan does not hinge on having the offsite mitigation wetland area available when Eastern Fox Snakes are relocated at the Fermi site.[97]

4.31. Nevertheless, as DTE's expert witness explained in his rebuttal testimony (at ¶20), whether and when Eastern Fox Snakes can be relocated to the offsite mitigation area depends on the state of the habitat at the time of relocation. Prior to relocating any snakes, the habitat at the release point will be evaluated to confirm its suitability.[98]

4.32. In addition, the *Fermi 3 Aquatic Resource Mitigation Strategy and Final Design* (Exh. DTE00009R), which is included in the FEIS as Appendix K, contains a detailed description of the offsite wetland mitigation area. The *Fermi 3 Aquatic Resource Mitigation Strategy and Final Design* contains a detailed description of soil types, vegetative and wildlife communities, hydrology, and existing wetlands at the offsite wetland mitigation area. There is no evidence of soil contamination at the wetland mitigation area.[99] And, the MDEQ Permit (Exh. DTE000010) at Paragraph 35 requires the wetland to be free of "oil, grease, debris, and all other contaminants" and covered by at least six inches of high-quality topsoil.[100]

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95 DTE Rebuttal Testimony on Contention 8 at ¶20; Tr. at 376-377.

96 *Id*. at 377.

97 *Id*.

98 DTE Rebuttal Testimony on Contention 8 at ¶16; Tr. at 377.

99 DTE Rebuttal Testimony on Contention 8 at ¶17; Tr. at 334.

100 Tr. at 334.

4.33. We find that the Intervenors have presented no expert testimony or other evidence to suggest a need for an in-depth investigation of soil contamination, nor have they provided testimony or evidence to suggest that contamination, even if present, would adversely impact Eastern Fox Snakes. We therefore reject the Intervenors' arguments regarding the potential for contamination that could impact snakes at the offsite wetland mitigation area.

4.34. The Intervenors' counsel argued that there is no timetable for the offsite wetland mitigation to take place.[101] But, the record does not support this assertion. A summary of activities for each construction year and an approximate timeline is provided in *Fermi 3 Aquatic Resource Mitigation Strategy and Final Design*.[102] The MDEQ Wetland permit issued to DTE (Exh. DTE000010) also contains conditions related to the timing of authorized activities. Paragraph 34 states that "[t]he mitigation grading, planting, and introduction of hydrology shall be constructed prior to or concurrent with initiating any other permitted activities." The Intervenors' arguments regarding the timing of the offsite wetland mitigation are therefore without merit and, in any event, are immaterial to the FEIS conclusions on Eastern Fox Snake impacts, which, as discussed above, do not rely on the availability of the offsite wetland mitigation area.

4.35. We find that the Mitigation Plan, which identifies specific actions to be taken by DTE, reflects a significant effort by DTE to the protection and enhancement of the Eastern Fox Snake population in Michigan. We also find that the Intervenors' concerns with the Mitigation Plan have no basis in the record.

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101 Intervenors' Presentation on Contention 8 at 10.

102 Exh. DTE00009R at 18-20; FEIS at K-26 to K-27.

3. The FEIS Evaluation

4.36. The FEIS was published in January 2013. In the FEIS, the NRC Staff discusses potential impacts to Eastern Fox Snakes from Fermi 3 construction.[103] The NRC Staff concludes that the impacts from construction and pre-construction activities for Fermi 3 on terrestrial resources on the Fermi site and transmission line corridor would be SMALL to MODERATE.[104] This conclusion was based on the NRC Staff's independent review of mitigation measures, including DTE's Mitigation Plan and the compensatory wetland mitigation required by MDEQ.

4.37. The FEIS explains that the potential for MODERATE impacts to terrestrial resources was limited to possible adverse effects on the Eastern Fox Snake if the mitigation is not implemented as described in DTE's Mitigation Plan.[105] The NRC Staff's evaluation of the potential impacts on the Eastern Fox Snake also specifically recognized the potential for the planned mitigation measures, which were reviewed and approved by the MDNR, to significantly reduce impacts on that species, thereby leading to SMALL impacts.[106]

4.38. Based on his professional experience, including work with Eastern Fox Snakes and other reptiles in Michigan, Mr. Mifsud concurs with the NRC Staff's assessment of the likely impacts to the Eastern Fox Snake from Fermi 3 construction.[107] Specifically, he agrees that impacts to the Eastern Fox Snake are expected to be SMALL based on implementation of

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103 *See, e.g.*, FEIS at 4-26, 4-31, 4-32, 4-36 to 4-38, 4-44 to 4-47, 4-126, 4-129. The FEIS is Exh. NRC E1A.

104 FEIS at 4-47.

105 *Id*.

106 *Id*.

107 DTE Testimony on Contention 8 at ¶19.

the Mitigation Plan. He also agrees that impacts could be MODERATE if there were no mitigation.[108]

4.39. We agree with the FEIS conclusion that implementation of the comprehensive measures in the Mitigation Plan will reduce potential impacts to Eastern Fox Snakes during site preparation, preconstruction, and construction. We find that the Mitigation Plan is comprehensive and, if implemented, will effectively minimize impacts to the Eastern Fox Snake.

4.40. We also find that the Intervenors' claims of deficiencies or omissions in the FEIS are unsupported by any expert testimony and, in many cases, simply wrong. In challenging the Staff's environmental review, intervenors must identify, with some specificity, alleged deficiencies in the NRC Staff's NEPA analysis.[109] The Intervenors failed to do so here. As the testimony of the NRC Staff and DTE witnesses and accompanying exhibits demonstrate, the FEIS has addressed the potential impacts to the Eastern Fox Snake and described in detail the planned mitigation measures. The NRC Staff has considered appropriate factors and drawn reasonable conclusions from the available data.

4.41. We find no flaws with the NRC Staff's conclusion that the impacts would be MODERATE if the Mitigation Plan were not implemented and SMALL if the Mitigation Plan is implemented successfully. However, as discussed further below, the record contains ample support for our conclusion that the Mitigation Plan will be implemented as part of Fermi 3 construction.

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108 *Id*.

109 *Hydro Resources, Inc.* (Albuquerque, NM), CLI-99-22, 50 NRC 3, 13 (1999).

4. MDNR Reviews and Enforceability of Mitigation Plan

4.42. Because the contention initially arose from a letter sent by MDNR to the NRC, we sought to understand MDNR's views on the adequacy of the Mitigation Plan. In denying summary disposition of Contention 8 previously, we found that there remained "an unresolved conflict between the opinion of MDNR and that of DTE concerning the impact of Fermi Unit 3 construction activities on the eastern fox snake and the need for mitigation of those impacts."[110] Later, in LBP-12-23, we described the remaining issue as whether the Staff "reasonably relied on assumptions about the future actions of MDNR" in reaching its conclusions regarding impacts to Eastern Fox Snakes.[111] The witnesses therefore addressed the MDNR threatened and endangered species program, MDNR's reviews of the Fermi 3 project, and MDNR's authority to impose mitigation requirements or take enforcement action.

4.43. In their testimony, the NRC Staff and DTE experts described the MDNR program addressing threatened species in Michigan.[112] They explained that Michigan laws protect all species listed as threatened in Michigan, including the Eastern Fox Snake.[113] Specifically, it is unlawful to "take" a State-threatened species without a permit from the MDNR.[114] Mr. Westmoreland and Mr. Mifsud testified that, because site preparation and construction of Fermi 3 have the potential to impact Eastern Fox Snakes, DTE must apply to

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110 LBP-11-14 at 20.

111 LBP-12-23 at 22.

112 DTE Testimony on Contention 8 at ¶¶43-45.

113 *Id*. at ¶44.

114 "Take" means, "in reference to fish and wildlife, to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in any such conduct." Exh. DTE000012.

MDNR for a "take" permit prior to engaging in those activities.[115] Mr. Westmoreland explained that MDNR will require mitigation to minimize impacts to the Eastern Fox Snake, as mandated by Michigan law, in the take permit.[116] Based on his substantial experience working with threatened species in Michigan, Mr. Mifsud agreed that mitigation of potential impacts to Eastern Fox Snakes will be required by MDNR.[117]

4.44. The DTE witnesses also testified regarding their interactions with MDNR. Mr. Westmoreland explained that Lori Sargent, who is an Endangered Species Specialist for MDNR, conducted the review of DTE's original proposal.[118] Ms. Sargent was concerned about the impact of the project on the Eastern Fox Snake and the absence of a plan for mitigation at that time. As Mr. Smith and Mr. Westmoreland explained, DTE prepared the Mitigation Plan and revised the site layout, as discussed above, specifically in response to Ms. Sargent's concerns.[119]

4.45. Mr. Westmoreland and Mr. Mifsud testified that DTE submitted the Mitigation Plan to MDNR for their review and comment.[120] They explained that MDNR's review encompassed the entirety of the Mitigation Plan, including direct and indirect impacts of construction, the training program, and monitoring activities. They noted that MDNR reviewed

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115 DTE Testimony on Contention 8 at ¶45; Tr. at 359-360.

116 *Id*. at 360-362; *see also* MDEQ Wetland Permit No. 10-58-011-P (Exh. DTE000010) at 4 (noting that DTE should obtain an MDNR permit prior to commencing construction activities).

117 Tr. at 360-361.

118 DTE Testimony on Contention 8 at ¶46; Tr. at 358, 361.

119 DTE Testimony on Contention 8 at ¶47; Tr. at 361.

120 DTE Testimony on Contention 8 at ¶48; Tr. at 360-361.

the habitat restoration and enhancement program described in the Mitigation Plan and also assessed the adequacy of the Mitigation Plan for protecting Eastern Fox Snakes from vehicles.[121]

4.46. Ultimately, MDNR (including Ms. Sargent) concluded that the information provided by DTE adequately addressed their concerns for the Eastern Fox Snake.[122] MDNR further concluded that the proposed project would have "minimal" impacts on Eastern Fox Snakes if it proceeded according to the Mitigation Plan developed by DTE.[123]

4.47. During the hearing, the Board asked the witnesses about the significance of the MDNR checklist in Exh. DTE000014. Mr. Mifsud and Mr. Weeks explained that a take permit is required for transplanting snakes as well as for any other activities with the potential to harm fox snakes, such as site preparation.[124] Mr. Westmoreland elaborated on the extensive interactions between DTE and MDNR. Mr. Westmoreland explained that MDNR specifically requested that DTE develop the Mitigation Plan and also made clear that a take permit would be necessary for Fermi 3 construction.[125] This duty is reinforced in the MDEQ wetland permit dated October 22, 2012, which notes the presence of Eastern Fox Snakes at the site and reiterates the need for DTE to obtain an MDNR permit prior to commencing construction activities.[126]

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121 DTE Testimony on Contention 8 at ¶¶48-49.

122 Letter from L. Sargent, Endangered Species Specialist, MDNR, to R Westmoreland, DTE, dated April 6, 2012 (Attachment 2) ("MDNR Letter") (Exh. DTE000014); Tr. at 361-362.

123 MDNR Letter (Exh. DTE000014) at 2.

124 Tr. at 317-318, 360.

125 *Id*. at 361-362.

126 MDEQ Wetland Permit No. 10-58-011-P (Exh. DTE000010) at 4.

4.48. Mr. Westmoreland and Mr. Mifsud confirmed that MDNR and other law enforcement officers have authority to enforce the prohibition on "take."[127] Mr. Mifsud explained that enforcement of "take" prohibitions most often involves conservation officers, who spend substantial amounts of time "in the field."[128] But, he noted that MDNR may become directly involved in enforcement when a project is suspected of having impacts on protected species, but no "take" permit has been applied for or obtained. In such cases, the project may be halted while MDNR conducts an inquiry or the project proponent takes steps to obtain the necessary approvals.[129] For large-scale projects, such as Fermi 3, that require numerous permits and approvals from the State or Federal government, he testified that the need for MDNR to pursue enforcement action is rare because, as with Fermi 3, the potential impacts are addressed in conjunction with permits or approvals.[130] Mr. Smith and Mr. Westmoreland testified that DTE is committed to implementing the Mitigation Plan as part of Fermi 3 construction activities.[131]

4.49. The NRC Staff experts agreed that MDNR has authority to enforce restrictions on take of Eastern Fox Snakes.[132] The NRC Staff experts testified that MDNR has an undisputed statutory duty under Michigan law to prohibit "take" of an Eastern Fox Snake

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127 DTE Testimony on Contention 8 at ¶52; Tr. at 362-363.

128 DTE Testimony on Contention 8 at ¶53; Tr. at 364-366.

129 *Id*. at 362.

130 DTE Testimony on Contention 8 at ¶53; Tr. at 369.

131 DTE Testimony on Contention 8 at ¶55.

132 Tr. at 331, 345.

without a permit.[133] MDNR also has authority to require compliance with "take" prohibitions in the unlikely event that DTE fails to comply with Michigan law. The NRC Staff explained in the FEIS that impacts on the Eastern Fox Snake and its habitat would be mitigated according to the Mitigation Plan, and that those provisions would be incorporated into a take permit to be issued prior to any building activity at the site.[134]

4.50. After citing statements on the MDNR website describing the MDNR review process, the Intervenors' counsel claimed that "there will be no enforcement of the mitigation efforts outlined in the FEIS."[135] But, the NRC Staff and DTE witnesses explained that this position is based on a misunderstanding of MDNR's role and responsibility for species protection in Michigan.[136] The statement on the MDNR website reiterates that Michigan laws on threatened and endangered species remain in place. In the text cited by Intervenors' counsel, MDNR states only that it will now charge persons requesting environmental reviews for projects that have a potential impact on an endangered or threatened species (*i.e.*, "there will now be a cost to the requestor for these services"). This change does not affect MDNR's ability to enforce restrictions on "take" of threatened or endangered species.[137] To the contrary, MDNR confirms that it is still responsible for issuing permits and taking enforcement action relative to "take" of threatened or endangered species.

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133 NRC Staff Testimony on Contention 8 at ¶23. In addition, the wetland permit issued to DTE specifically notes the presence of Eastern Fox snakes and the need to obtain a permit prior to commencing construction.

134 FEIS at 4-38, 4-46.

135 Intervenors' Presentation on Contention 8 at 10.

136 DTE Rebuttal Testimony on Contention 8 at ¶13; Tr. at 330-331 (NRC Staff witnesses).

137 Tr. at 330.

4.51. Based on the above, we conclude that it is reasonable for the NRC Staff to presume implementation of the Mitigation Plan in the FEIS. Michigan law requires a "take" permit and mitigation of impacts to the Eastern Fox Snake for the Fermi 3 project. We will not presume that DTE will violate Michigan law.[138] Likewise, we will not presume that MDNR will fail to enforce those laws that it is charged with carrying out. Agencies are entitled to a "presumption of regularity."[139] It is realistic and reasonable to expect that monitoring and mitigation measures will be adequately implemented in a timely fashion.

V. CONCLUSIONS OF LAW FOR CONTENTION 8

5.1. The Board has considered all of the evidence and testimony presented by the parties. Based upon a review of the entire record in this proceeding and the proposed findings of fact and conclusions of law submitted by the parties, and based upon the findings of fact set forth above, which are supported by reliable, probative, and substantial evidence in the record, the Board has decided all matters in controversy for Contention 8 and reaches the following conclusions.

5.2. We conclude that the record, including the FEIS, expert testimony, and evidence, supports a finding, by a preponderance of the evidence, that the NRC Staff has taken

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138 *See U.S. Army Installation Command* (Schofield Barracks, Oahu, Hawaii, and Pohakuloa Training Area, Island of Hawaii, Hawaii), CLI-10-20, 72 NRC 185, 194 & n.48 (2010) (refusing to assume that licensee would act contrary to applicable law); *cf. Private Fuel Storage, LLC* (Independent Spent Fuel Storage Installation), CLI-01-9, 53 NRC 232, 235 (2001) ("[I]n the absence of evidence to the contrary, the NRC does not presume that a licensee will violate agency regulations wherever the opportunity arises.").

139 *United States v. Postal Serv.*, 534 U.S. 1, 10 (2001) (explaining that a "presumption of regularity attaches to the actions of Government agencies"). Absent clear evidence to the contrary, courts presume that public officers will properly discharge their official duties. *See, e.g.*, *United States v. Chem. Found., Inc.*, 272 U.S. 1, 14-15 (1926); *Public Serv. Co. of New Hampshire*, LBP-89-04, 29 NRC 62, 73 (1989). The Intervenors have not made, or even attempted to make, a showing of actual or likely bad faith by MDNR.

the requisite "hard look" at potential impacts to the Eastern Fox Snake from site preparation and construction activities associated with Fermi 3. The NRC Staff evaluated the impacts of Fermi 3 site preparation and construction on the Eastern Fox Snake. The NRC Staff considered the effectiveness of DTE's Mitigation Plan to reduce impacts on Eastern Fox Snakes, as well as other actions to reduce wetland impacts generally (*e.g.*, the revised site layout and offsite wetland restoration).

5.3. We further conclude that the FEIS evaluation of impacts on the Eastern Fox Snake and its consideration of mitigation measures satisfies NEPA. Although the Mitigation Plan is not currently required by MDNR, we reasonably expect that the Mitigation Plan will become an enforceable condition of any "take" permit issued by MDNR, as discussed above. No further action can be compelled under NEPA. In *Robertson v. Methow Valley Citizens Council*, the Supreme Court unequivocally held that "NEPA imposes *no substantive requirement* that mitigation measures actually be taken."[140] The courts repeatedly have applied *Methow Valley* in ruling that NEPA requires only a "reasonably complete discussion" — but not implementation — of "possible mitigation measures."[141] Moreover, as a licensing board in another recent COL

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140 490 U.S. 332, 353 n.16 (1989) (emphasis added).

141 *Id*. at 352; *see, e.g.*, *Nat'l Parks & Conservation Ass'n* v. *U.S. Dep't of Trans.*, 222 F.3d 677, 681 n.4 (9th Cir. 2000) ("Contrary to National Parks' assertion, a mitigation plan need not be legally enforceable, funded or even in final form to comply with NEPA's procedural requirements."); *Laguna Greenbelt, Inc. v. US. Dep't of Transp.*, 42 F.3d 517, 528 (9th Cir. 1994) ("NEPA does not require a fully developed plan that will mitigate all environmental harm before an agency can act; NEPA requires only that mitigation be discussed in sufficient detail to ensure that environmental consequences have been fully evaluated." (citations omitted)); *Cnty. of Rockland* v. *FAA*, 335 Fed.Appx. 52 (D.C. Cir. 2009) ("NEPA does not impose a 'substantive requirement that a complete mitigation plan be actually formulated and adopted' before agency can act") (quoting *Methow Valley*, 490 U.S. at 352); *Communities, Inc. v. Busey*, 956 F.2d 619, 626 (6th Cir. 1992) (relying on *Methow Valley* in holding that identification and discussion of various potential measures to mitigate the environmental impact is adequate under NEPA).

proceeding explained, absent information to the contrary, the NRC may properly assume in an FEIS that an applicant will comply with conditions and requirements imposed by statutes, regulations, licenses, or permits issued by competent federal, state, or local governmental entities.[142]

5.4. Here, the NRC Staff's analysis in the FEIS recognizes MDNR's role as the expert State agency, including its obligation to impose mitigation requirements relating to the Eastern Fox Snake under Michigan law. The Mitigation Plan that was reviewed and accepted by MDNR includes concrete and specific measures and actions to be taken by DTE, and it provides a reasonable basis for presuming that mitigation will be performed if the project goes forward. Consequently, the NRC Staff may, consistent with NEPA, reasonably rely on that mitigation as the basis for its finding that impacts to the Eastern Fox Snake would be SMALL.[143]

5.5. Nevertheless, the NRC Staff went further in the FEIS. The NRC Staff also assessed the impacts to the Eastern Fox Snake in the event that mitigation did not occur, concluding that the impacts in that case would be MODERATE. By also considering potential

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142 *Progress Energy Florida, Inc.* (Levy County Nuclear Power Plant, Units 1 and 2), LBP-13-04, __ NRC __ (slip op. March 26, 2013, at 140); *see also Pacific Gas & Elec. Co.* (Diablo Canyon Power Plant, Units 1 and 2), CLI-03-02, 57 NRC 19, 29 (2003) ("[W]e assume that our licensees will comply with this agency's safety regulations."); *U.S. Dept. of Energy* (High Level Waste Repository), LBP-09-06, 69 NRC 367, 466 (2009) ("[T]he NRC generally presumes that licensees will comply with its regulations.").

143 In cases where an agency is relying on mitigation to reduce the severity of impacts to a level such that the agency can reach a Finding of No Significant Impact ("FONSI") (and therefore not prepare an EIS), CEQ guidance suggests that the agency should ensure that mitigation commitments are implemented. LBP-12-23 at 23-24, citing U.S. 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 (Jan. 21, 2011). Mitigation is <u>not</u>, however, required where, as here, the agency has prepared an EIS. *North Slope Borough v. Minerals Management Service*, 343 Fed. Appx. 272 (9th Cir. 2009) (holding that "a mitigation plan does not have to be legally enforceable to comply with NEPA.").

"bounding" impacts without mitigation, the NRC Staff has presented a separate and independent basis for complying with NEPA.

5.6. The NRC Staff and DTE have demonstrated, by a preponderance of the evidence, that the issues in this hearing should be resolved in their favor on the merits. The NRC Staff has considered the views of MDNR, which is the expert State agency that has responsibility for threatened species under Michigan law. The NRC Staff's ultimate conclusions took into account the Mitigation Plan developed by DTE, the revised site layout, and reasonable and realistic assumptions regarding MDNR activities (*e.g.*, need for a "take permit" and enforcement authority). By considering the potential impacts to the Eastern Fox Snake from Fermi 3 site preparation and construction activities, and by evaluating planned measures to reduce impacts to the Eastern Fox Snake, the NRC Staff has met its obligation under NEPA as a matter of law. The FEIS satisfies Part 51 and NEPA.

VI. LEGAL STANDARDS FOR CONTENTION 15

A. Regulatory Standards for Quality Assurance Programs

6.1. Every "application" for a COL must include in the Final Safety Analysis Report ("FSAR") a description of the managerial and administrative controls to be applied to the design, fabrication, construction, and testing of the structures, systems, and components of the facility.[144] According to 10 C.F.R. 52.79(a)(25), this includes 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.[145] In particular, the "Quality

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144 10 C.F.R. § 50.34(b)(6)(ii).

145 QA programs ensure systematic monitoring and evaluation of the design, construction, procurement of equipment, and operation of nuclear facilities to provide adequate confidence that structures, systems, and components required for safety will perform satisfactorily in service.

Assurance Criteria for Nuclear Plants and Fuel Reprocessing Plants," set forth in 10 C.F.R. Part 50, Appendix B, must be satisfied for activities affecting safety-related plant equipment.

6.2. The NRC's Standard Review Plan ("SRP")[146] for QA programs is based on several standards and guidance documents, including American Society of Mechanical Engineers ("ASME") Standards NQA-1-1994; Regulatory Guide 1.8, "Qualification and Training of Personnel for Nuclear Power Plants," Revision 3; Regulatory Guide 1.28, "Quality Assurance Program Requirements (Design and Construction)," Revision 3; and NRC Review Standard (RS)-002, "Processing Applications for Early Site Permits." The NRC acceptance criteria for QA programs include a commitment by the applicant to comply with the regulations and applicable guidance outlined above.

6.3. The Nuclear Energy Institute ("NEI") also has developed a generic template, NEI-06-14A, "Quality Assurance Program Description," for use by COL applicants to implement the applicable requirements and industry standards for QA programs. The NEI template is based on the standards of NQA-1-1994. The template includes the methods and administrative control requirements that meet Appendix B and 10 C.F.R. Part 52. The NRC endorsed the current version of the generic template in July 2010,[147] and NEI issued the endorsed version as NEI-06-14A, Revision 7, in August 2010.[148]

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146 *See* NUREG-0800, "Quality Assurance Program Description – Design Certification, Early Site Permit and New License Applicants" (March 2007).

147 Final Safety Evaluation Report for Technical Report NEI-06-14, "Quality Assurance Program Description, Revision 9" (July 13, 2010) (ADAMS Accession No. ML101800497) (Exh. DTE000088).

148 NEI-06-14A, Rev. 7, dated August 2010 (ADAMS Accession No. ML102370305) (Exh. DTE000091).

B. Legal Standards for Quality Assurance Contentions

6.4. The standard in any reactor licensing proceeding is whether there exists "reasonable assurance" that the plant "will be constructed and will be operated" in conformity with Commission regulations and without endangering the public health and safety.[149] This same standard is applicable to the adequacy of the quality assurance measures applied to plant design, construction, and operations.[150]

6.5. In *Georgia Power*, the Commission affirmed dismissal of a quality assurance contention where "the quality assurance program met applicable regulatory requirements and functioned in accordance with the intent of the Commission's regulations."[151] The *Georgia Power* licensing board "evaluated the discrepant situations identified by the intervenors and observed that none . . . [were] shown to carry any material safety significance with respect to plant operation nor does the totality of them indicate a pervasive breakdown of the Applicants' [quality assurance program]."[152]

6.6. In *Cleveland Electric*, the Commission upheld dismissal of a QA contention that was based on the NRC Staff's discovery of deficiencies in the applicant's

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149 *See* 10 C.F.R. § 52.97; *Union Electric Co.* (Callaway Plant, Unit 1), ALAB–740, 18 NRC 343, 345 (1983) (citing 42 U.S.C. §§ 2133(d), 2232(a); *Power Reactor Development Co. v. International Union*, 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)).

150 *Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 & 2), ALAB-756, 18 NRC 1340, 1344 (1983).

151 *Georgia Power Co.* (Vogtle Electric Generating Plant, Units 1 and 2), ALAB-872, 26 NRC 127, 139-140 (1987).

152 *Id*. at 140 (internal citations omitted).

oversight of its contractor.[153] The Commission found it persuasive that the NRC Staff decided that a significant breakdown in the contractor's quality assurance program had not occurred, the applicant's quality assurance program was providing active oversight of the contractor's program prior to commencement of the NRC investigation, and the applicant took corrective steps to upgrade the quality assurance program.[154] The Commission reiterated that there will "undoubtedly" be a "substantial number" of deficiencies that require correction, but acknowledged that the steps taken to address those deficiencies were subject to a reasonableness test that considered their nature and significance, the stage of the project, and the potential for the deficiency to be discovered in a timely manner.[155]

6.7. Consistent with the above cases, perfection in implementation of a QA program is not a precondition for license issuance.[156] Intervenors in NRC licensing proceedings cannot rely solely on the existence of corrective action items to prevail on the merits of a QA contention.[157] Instead, intervenors must identify a material quality assurance deficiency or demonstrate the existence of a pervasive QA breakdown.[158]

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153 *Cleveland Electric Illuminating Co*. (Perry Nuclear Power Plant), ALAB-802, 21 NRC 490, 504 (1985).

154 *Id*.

155 *Id*. at 503.

156 *See also Union Electric*, 18 NRC at 345; *Duke Power Co.* (Catawba Nuclear Station, Units 1 and 2), LBP-84-24, 19 NRC 1418, 1433 (1984).

157 It is not sufficient for an intervenor to assert that quality assurance lapses have occurred, "[r]ather, the focus perforce is on the implications of the asserted deficiencies in terms of safe plant operation." *Pub. Serv. Co. of N.H.* (Seabrook Station, Units 1 and 2), ALAB-947, 33 NRC 299, 325 (1991).

158 *Georgia Power*, 26 NRC at 140; *Cleveland Electric*, 21 NRC at 503.

6.8. Resolution of a quality assurance contention and the reasonable assurance finding is therefore warranted where (1) a quality assurance program has been established that meets applicable regulatory requirements and the applicable standards and guidance; (2) the Intervenors have not identified any QA problems that carry material safety significance with respect to plant design, equipment procurement, construction, or operation; and (3) the totality of any QA issues does not indicate a pervasive breakdown of the QA program.

C. Burden of Proof

6.9. An applicant generally has the burden of proof in a licensing proceeding.[159] The NRC in its administrative proceedings has generally relied upon the "preponderance of the evidence" standard.[160] Thus, the Board must consider the evidence and testimony and determine whether DTE has shown by the preponderance of the evidence that the QA program meets applicable regulatory requirements, that there are no QA issues that carry material safety significance, and that there is no pervasive breakdown of the QA program.

VII. FINDINGS OF FACT FOR CONTENTION 15

A. Procedural History of Contention 15

7.1. Contention 15 was originally submitted on November 6, 2009, along with a declaration from Arnold Gundersen.[161] The proposed contention was extrapolated largely from an NRC Staff inspection in August 2009 which found, in certain limited respects, that DTE had failed to comply with the QA requirements of Appendix B.

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159 10 C.F.R. § 2.325.

160 *See supra*, note 26.

161 "Supplemental Petition of [Intervenors] for Admission of a Newly-Discovered Contention, and for Partial Suspension of COLA Adjudication," dated Nov. 6, 2009 ("Supplemental Petition").

7.2. On May 10, 2010, DTE provided additional information on Standard Review Plan ("SRP") Section 17.5 (QA) in response to NRC Staff RAIs:[162] DTE described how all Fermi 3 safety-related activities completed or in process prior to September 18, 2008, were conducted in a manner consistent with the requirements of Appendix B. DTE also provided a table of information identifying: (1) a list of safety-related activities and safety-related COL application sections; (2) dates of the activity or section creation; (3) contracting entity conducting the activity/section creation and governing QA program; (4) QA organization responsible for oversight of the activity/section creation; (5) dates and type of any specific contractor QA oversight activities (*i.e.*, surveillance, document review, etc.); (6) contractor approval date; (7) dates of DTE review and approval; and (8) dates and type of any specific DTE QA oversight activities (*e.g.*, surveillance document review).

7.3. Subsequent to the RAI Response, the Intervenors filed a motion to amend their supplemental petition.[163] The Intervenors again complained, in hyperbolic language, that the RAI Response "reinforces the perception that the Applicant is knowingly flaunting NRC regulations and explicit QA guidance from the nuclear industry." Intervenors asserted, based on the opinion of Mr. Gundersen, that there were four "major" QA concerns with the RAI Response. The alleged concerns related to organizational roles created for the Fermi 3 QA program during the organizational transitions discussed in the responses to the NRC Staff RAIs.[164]

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162 NRC3-10-0019, "Detroit Edison Company Response to NRC Request for Additional Information Letter No. 26, Related to SRP Section 17.5," dated May 10, 2010 (ADAMS Accession No. ML101320254) ("RAI Response") (Exh. DTE000054).

163 "Intervenors' Motion to Amend Supplemental Petition for Admission of Proffered Quality Assurance Contention No. 15," dated June 11, 2010 ("Supplemental Petition").

164 *Id*. at 4-5.

7.4. The Board issued its ruling on the admissibility of Contention 15 on June 15, 2010.[165] The Board identified two specific issues for consideration.[166] The first issue concerns the reliability of safety-related information in the FSAR. The contention asserts that DTE's purported 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 COL licensing decision.[167] The second issue relates to the Intervenors' assertion that there is a history of QA violations associated with the Fermi 3 project, and therefore a lack of commitment to compliance with Appendix B requirements.[168] The Intervenors demanded that DTE "provide[] satisfactory proof positive of a fully-implemented quality assurance program which integrates all previous and contemplated QA revisions."[169]

7.5. Contention 15, as admitted for hearing, states as follows:

> 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.

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165 LBP-10-09, "Ruling on Proposed New Contentions 15 and 16," dated June 15, 2010 ("LBP-10-09").

166 *Id*. at 15-16.

167 *Id*. at 15.

168 *Id*.

169 Supplemental Petition at 17.

> 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.
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> 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.

7.6. On June 23, 2010, the Board issued an Order addressing the Supplemental Petition.[170] The Board denied the motion as moot. The Board stated that its ruling was without prejudice to the Intervenors filing a motion to amend Contention 15 as admitted by the Board "to include the new allegations described in the [Supplemental Petition]."[171] The Intervenors have not filed any such motion. The specific issues raised in the Supplemental Petition therefore remain outside the scope of Contention 15 now before the Board.

7.7. On April 17, 2012, DTE moved for summary disposition. In LBP-12-23, the Board denied the motion. According to the Board, summary disposition was not appropriate because issues of material fact remained in dispute. Specifically, the Board found that the

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170 Licensing Board Order (Denying Motion to Amend Supplemental Petition for Admission of Proffered Quality Assurance Contention No. 15), June 23, 2010 (unpublished).

171 *Id.* at 1.

adequacy of the QA program both before and after submission of the COL Application was a disputed issue of material fact that must be resolved through the evidentiary hearing process.

B. Witnesses for Contention 15

1. NRC Staff Witnesses

7.8. The NRC Staff presented three witnesses on Contention 15: Adrian Muñiz, Aida Rivera-Varona, and George Lipscomb. We find that Mr. Muñiz, Ms. Rivera-Varona, and Mr. Lipscomb are qualified by education, knowledge, and experience to testify as experts on Contention 15.

7.9. Mr. Muñiz is an electrical engineer with ten years of NRC experience. He has been a Project Manager in the New Reactor Licensing Division of the Office of New Reactors since 2008, and has been the Lead Project Manager for the safety review of the Fermi 3 COL Application since June 2010. In that capacity, he is responsible for overseeing preparation of the Staff Safety Evaluation Report ("SER") for the Fermi 3 application. Mr. Muñiz has a B.S. in electrical engineering from the University of Puerto Rico.

7.10. Ms. Rivera-Varona is a chemical engineer with eleven 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 Division of Construction Inspection and Operational Programs, Office of New Reactors. In that capacity, she led an NRC Staff inspection relating to quality assurance for the Fermi 3 project in August 2009. Ms. Rivera-Varona is presently the Branch Chief in the Division of Program Management, Policy Development, and Analysis in the Office of New Reactors. Ms. Rivera-Varona has a B.S. in chemical engineering from the University of Puerto Rico.

7.11. Mr. Lipscomb is an electrical engineer with over twenty-five 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 Division of Construction Inspection and Operational Programs in the Office of New Reactors. He was the lead technical reviewer for QA for Chapter 17 of the SER (Exh. NRC S1), and he was a member of the August 2009 QA inspection team. Prior to joining NRC, Mr. Lipscomb worked for the General Electric Company on the ESBWR project and for the U.S. Navy in several positions with substantial responsibilities related to QA. Mr. Lipscomb has a B.S. in electrical engineering from the U.S. Naval Academy and a M.S. in electrical engineering from the University of Michigan.

2. DTE Witnesses

7.12. DTE presented four witnesses on Contention 15: Peter Smith, Stan Stasek, Steven Thomas, and Ron Sacco. We find that Mr. Smith, Mr. Stasek, Mr. Thomas, and Mr. Sacco are qualified by education, knowledge, and experience to testify as experts on Contention 15.

7.13. Mr. Smith is the Director, Nuclear Development – Licensing and Engineering, for Fermi 3 and has served in that position since 2007. Mr. Smith holds a B.E. in chemical engineering from the Royal Military College of Canada, and a M.S.E. from the University of Toledo. Mr. Smith is a Licensed Professional Engineer in the Province of Ontario. Mr. Smith has over 30 years of experience in the commercial nuclear power industry in primarily licensing and engineering roles. He has overall responsibility for the Fermi 3 project, including the COL application and other State and Federal permits and approvals.

7.14. Mr. Stasek has been employed by DTE as Director, Quality Management, for the Fermi 3 project since 2009. He is responsible for developing and maintaining the Fermi 3 QAPD, evaluating compliance with the Fermi 3 QA program, and managing the QA organization resources. Mr. Stasek has been a member of the Nuclear Energy Institute's new plant QA Task Force committee and has directly supported development of NEI 06-14A.

Previously, Mr. Stasek held roles at Fermi 2 that included responsibility for QA programs. He also worked at the NRC for 15 years, including service as a Resident Inspector and as a Senior Resident Inspector. Mr. Stasek earned a B.S. in electrical engineering from Wayne State University and a certificate in nuclear power plant operations from Chattanooga State Technical College.

7.15. Steven Thomas is the Engineering Manager for B&V. Mr. Thomas has a B.S. in nuclear engineering from the University of California at Santa Barbara. In that position, he has been responsible for the technical aspects of the Fermi 3 COL project, including site investigation activities, site specific systems conceptual designs, document development, and quality assurance plan development, among other things. Prior to joining B&V, Mr. Thomas advanced to a Principal Engineer/Design Engineering Supervisor at a two unit nuclear station where he was responsible for mechanical issues on assigned projects.

7.16. Ron Sacco is the Director of Nuclear Quality Assurance for B&V. Mr. Sacco has over 30 years of experience in Quality Assurance. He holds two certifications from the American Society for Quality: a Certified Quality Auditor ("CQA") and a Certified Manager of Quality/Organizational Excellence ("CMQ/OE"). Mr. is also certified as a Nuclear Lead Auditor in accordance with NQA-1. Mr. Sacco has a B.A. in political science, an M.A. in political science from Boston College, and a J.D. from the New England School of Law. In his current position he is responsible for developing and maintaining the B&V Nuclear Quality Assurance program, evaluating compliance with the program, and managing the Nuclear QA organization resources. Mr. Sacco also serves on the American Society of Mechanical Engineers' NQA-1 Committee.

3. Intervenors' Witness

7.17. The Intervenors presented one witness on Contention 15: Arnold Gundersen. Mr. Gundersen's qualifications to testify as an expert witness in this proceeding were discussed during the October hearing.

7.18. Mr. Gundersen is the Chief Engineer for Fairewinds Associates, a paralegal services and expert witness firm. Mr. Gundersen has a B.S. and M.E. in nuclear engineering from Rensselaer Polytechnic Institute. In response to questions from the Board, Mr. Gundersen explained that he has never worked in the quality assurance department of an NRC-licensed power reactor.[172] Mr. Gundersen also acknowledged that he last worked in a capacity that interfaced with a nuclear quality assurance program in 1990 — more than 20 years ago.[173] Mr. Gundersen stated that he has never worked in a QA capacity under programs committed to NQA-1-1994.[174] Mr. Gundersen has never been certified as a quality assurance auditor, nor has Mr. Gundersen taken any training courses on quality assurance in at least the past 10 years.[175] Mr. Gundersen also noted that he has not previously been found to be an expert on quality assurance issues.[176] Mr. Gundersen's limited experience with QA is therefore not recent and lacks the depth of knowledge expected of an expert witness.

7.19. With respect to his qualifications to testify as a fact witness on quality assurance issues specific to Fermi 3, Mr. Gundersen alleges that the Fermi 3 application is

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172 Tr. at 398.

173 *Id*. at 399.

174 *Id*. at 412.

175 *Id*. at 400.

176 *Id*. at 400.

experiencing foundation issues because it sits on "karst" geology.[177] But, he provided no basis for this statement, and in fact these statements are demonstrably false. As discussed further below, the site sits on hard rock dolomite and there is no evidence of any karst formations at the Fermi site.[178] Mr. Gundersen's mistaken claims regarding site conditions undermine his credibility as a witness on geotechnical issues.

7.20. Mr. Gundersen also stated that he could not identify any incorrect information developed during the site investigation because the site information was "not part of the ADAMS database and it wasn't part of what [the Intervenors] were given by DTE."[179] Mr. Gundersen claimed that "[t]here are no boring logs and calculations and things like that to review."[180] This is also incorrect. The complete boring logs are included in FSAR Section 2.5DD.[181] Mr. Gundersen's failure to review key factual materials undermines his competence and credibility as a witness. He is not qualified to opine on the quality of geotechnical information provided in the COL Application because he never reviewed that information. Mr. Gundersen's testimony on geotechnical issues is therefore entitled to no weight

7.21. Mr. Gundersen also states that he did not read the NRC Staff's Safety Evaluation Report input for Chapter 17.[182] This document provides the NRC Staff's conclusions regarding the adequacy of the quality assurance measures applied to pre-application activities by

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177 *Id*. at 407, 444.

178 *Id*. at 559-560.

179 *Id*. at 459.

180 *Id*. at 459.

181 *Id*. at 545.

182 *Id*. at 437-438. The SER is Exh. DTE000092.

DTE and B&V. This document reflects the NRC Staff's bases and conclusions regarding the legal and factual issues underlying Contention 15. Mr. Gundersen cannot offer an "expert" opinion on the adequacy of the application materials relevant to the contention without having read the document. He cannot explain how his view differs from the NRC Staff's or distinguish their conclusions from his own. In short, he does not have the requisite knowledge of the facts surrounding quality assurance for the Fermi 3 COL Application to offer an expert opinion.

7.22. For the above reasons, we find that Mr. Gundersen is not qualified by reason of expertise, experience, or knowledge to offer an expert opinion on quality assurance issues. Mr. Gundersen's experience with QA is not recent and, in any event, lacks the depth necessary to qualify as an expert. Mr. Gundersen also lacks knowledge of the key factual circumstances germane to Contention 15 that would arguably permit him to be qualified as a witness on issues specific to the Fermi 3 COL Application. As a result, Mr. Gundersen's testimony will not accorded the weight of an expert witness.

7.23. Nevertheless, to ensure a full and complete record for this proceeding regarding the issues raised by the Intervenors in Contention 15, the concerns raised by Mr. Gundersen are addressed in this Initial Decision.

C. Quality Assurance Requirements Prior to COL Application

1. Quality Assurance Standards for Pre-application Work

7.24. As discussed above, Appendix B sets forth the requirements for a quality assurance program for a nuclear power plant. Further standards for the program are detailed in industry and NRC guidance documents, including ASME Standard NQA-1-1994.[183] NQA-1-

[183] Exh. BRD-01.

1994 is an NRC-approved standard for satisfying Appendix B.[184] A QA program that is based on NQA-1-1994 meets Appendix B.[185]

7.25. NQA-1-1994, Subpart 2.20, "Quality Assurance Requirements for Subsurface Investigations for Nuclear Power Plants," provides a discussion of the quality assurance measures to be used for site investigation activities. Subpart 2.20 applies to the work of any organization participating in subsurface geotechnical investigations such as drilling, coring, sampling, trenching, logging, geophysical methods, or testing or in interpreting results of subsurface investigations.[186]

7.26. Appendix B does not specify that a *prospective* applicant must have its own formal QA program in place during the pre-application period. At the hearing, Mr. Lipscomb of the NRC Staff explained that a prospective applicant did not need to have its own Appendix B QA program in place during site investigation activities, but emphasized that it would need to assure that the quality measures applied to safety-related pre-application activities met Appendix B.[187] At bottom, an applicant must be able to demonstrate that information gathered during the pre-application period is of appropriate quality to support license issuance,

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184 DTE Testimony on Contention 15 at ¶22. The NRC endorsed NQA-1-1994 in Regulatory Guide 1.28, "Quality Assurance Program Requirements (Design and Construction)," Revision 3.

185 Tr. at 608-609.

186 Exh. BRD-01 at 155. Subpart 2.20 is intended to apply to any of these activities that will be used to formulate design bases for the plant. Quality assurance measures that must be applied to site investigation activities include a program plan, organization and qualification of personnel, identification, control and storage of project documents and records, and use of procedures conforming to applicable specifications. As discussed below, these measures were applied to the site investigation activities for Fermi 3.

187 Tr. at 580. This could be done, for example, by applying an NQA-1 program to the activities.

such as by showing that the information was collected under an NQA-1 QA program.[188] This is the view expressed by Mr. Smith of DTE.[189]

7.27. According to Appendix B, Criterion I, the applicant may delegate to others, such as contractors, the work of establishing and executing the quality assurance program, or any part thereof, *so long as the applicant retains responsibility for the program*.[190] Appendix B does not direct an applicant (or a prospective applicant) to have in place a formal QA program prior to delegating to others the work of establishing and executing the quality assurance program applied to site investigation activities.[191] Likewise, nothing in NQA-1-1994, including Subpart 2.20, specifically requires the applicant to have a QA program as a prerequisite to delegation. NQA-1-1994 simply specifies that Subpart 2.20 be applied to site investigation work.

7.28. The Intervenors claim that DTE was required to have in place its own Appendix B QA program in the pre-application period, but provide no basis for that assertion

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188 As noted above, a QA Program based on NQA-1-1994 satisfies Appendix B.

189 *See* Tr. at 550 (explaining that DTE assured the quality of the information in part by engaging a professional organization, B&V, with a well-established NQA-1 program already in place).

190 10 C.F.R. Part 50, Appendix B, Criterion I. The authority and duties of persons and organizations performing activities affecting the safety-related functions of structures, systems, and components should be clearly established and delineated in writing. *Id*. NQA-1 also permits delegation. Exh. BRD-01 at 18. As discussed below, neither Appendix B nor NQA-1-1994 specify the meaning of "retain responsibility" in the context of delegation.

191 That such a program is not a prerequisite is implicit in the language of Criterion I that permits delegation of work of *establishing* the QA program. A reading that would require an applicant QA program at this stage would nullify the plain language of the regulation allowing delegation.

other than a too-strained reading of the term "applicant."[192] According to the Intervenors, DTE became an "applicant," and therefore needed its own Appendix B QA program, once DTE decided that it would eventually submit a COL Application to the NRC.[193] But, it is axiomatic that one cannot be an applicant until one has submitted an application.[194] Under the circumstances presented here, the NRC's jurisdiction does not attach simply because an entity contemplates invoking the NRC's review authority at some later point in time.[195] That said, in the licensing process, the NRC can still "look back" to activities conducted in the pre-application period when reviewing a license application. Conducting pre-application site investigation activities without appropriate quality controls could be a basis for denying a license application (or at least requiring more evidence of quality) whether or not an entity is considered to be an "applicant" in the pre-application period. The Intervenors' effort to categorize DTE as an applicant in the pre-application period is therefore unnecessary for licensing purposes.[196]

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192 According to 10 C.F.R. § 50.2, "applicant" means a person or an entity applying for a license, permit, or other form of Commission permission or approval under Part 50 or Part 52. As DTE pointed out during the hearing, the regulatory definition of "applicant" did not exist until just prior to submittal of the Fermi 3 COL Application. Tr. at 422, 629.

193 *Id*. at 390-392, 408-409, 417-420.

194 An entity that anticipates filing an application in the future would be a *prospective* applicant. This is consistent with the definition of applicant in Section 50.2, which is an entity "applying" for a license.

195 Obviously, the NRC would have a role if an entity performed activities that required a license without having applied for and received such a license. But, those circumstances are different from those here where an entity intends to (and in fact did) submit an application prior to performing any licensed activities.

196 We do not need to decide in this licensing proceeding any issues related to enforcement actions citing Appendix B with respect to pre-application work. Our review of the record is focused on the quality of the work actually performed and the standards for issuing a COL.

7.29. We conclude that where safety-related information in a COL Application is based on data developed during the site investigation and collected under a QA program that meets NQA-1-1994 (including Subpart 2.20), there is reasonable assurance that the site investigation information is of sufficient quality to support the application and COL, absent a showing of a breakdown in the QA program or other errors of material safety significance.[197] We further conclude that a prospective applicant need not have its own Appendix B QA program prior to delegating to others the work of establishing and executing the QA program applied to site investigation activities, but must retain responsibility for the program.

2. Scope of Safety-Related Information in Fermi 3 COL Application

7.30. The Fermi 3 COL Application references the 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 QA Program, and is beyond the scope of the COL Application.[198] 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 that necessitate site-specific safety-related design engineering.

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[197] This formulation reflects the Appeal Board decision in *Midland*, which noted not only that there must be a QA program that applies to safety-related activities, but also that there must be effective implementation of that program. *Consumers Power Company* (Midland Plant, Units 1 and 2), ALAB-106, 6 AEC 182, 183-184 (1973). Below, we discuss both the QA program for the site investigation and its implementation.

[198] The Intervenors' witness, Mr. Gundersen, agrees that the QA program applied to the ESBWR design is outside the scope of Contention 15. Tr. at 398.

7.31. The Fermi 3 COL Application must demonstrate that the Fermi 3 site characteristics are bounded by the ESBWR design.[199] The principal safety-related activities associated with demonstrating that site conditions are bounded by the ESBWR design are:

- Site geotechnical and hydrogeological investigations,
- Seismic analysis, and
- Meteorological analysis.[200]

These site-specific safety-related activities were used as input to Chapter 2 and portions of Chapters 3 and 6 of the FSAR, as discussed below.

7.32. Chapter 2 of the FSAR addresses site characteristics, including meteorology and air quality, hydrology (flooding hazards), geology, seismology and geotechnical engineering. Only discrete portions of this information are safety-related. The principal site activities involved in developing this safety-related information include: (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.

7.33. In the Fermi 3 COL Application submitted in September 2008, there was no site-specific safety-related information in Chapter 3. Information was incorporated directly from the ESBWR DCD. Subsequently, in 2010, a site-specific soil structure interaction analysis was initiated to demonstrate conformance with a post-Fermi 3 COL Application revision to the ESBWR DCD. This was not part of the information developed prior to the submittal of the Fermi 3 COL Application.

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[199] DTE did not propose any departures from the ESBWR design certification for Fermi 3 that involve new, site-specific safety-related work.

7.34. 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 in Chapter 2.

D. Pre-Application Activities

1. Project Initiation and QA Implementation

7.35. The Fermi 3 COL project was initiated in December 2006. To assist in developing a COL Application, DTE sought the services of a COL Application contractor. DTE began by preparing a formal Request for Proposal ("RFP") from contractors to perform the activities necessary to prepare a COL application.[201] Proposals were solicited only from contractors that were established in the nuclear services business, and that were currently executing comparable projects for other potential applicants.[202] The RFP required bidders to demonstrate as a prerequisite that they had an established Appendix B QA program.[203] Bidders were also required to explain how their Appendix B QA program would be applied to the Fermi 3 COL Application development project.[204]

7.36. In February 2007, DTE received several proposals in response to the RFP. The proposal submitted by B&V referenced and appended B&V's QA Program, which satisfies Appendix B and NQA-1-1994.[205] B&V stated that its QA Program is implemented through a set

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200 DTE Testimony on Contention 15 at ¶25.

201 *Id*. at ¶30.

202 *Id*.

203 *Id*.

204 *Id*.

205 Exh. DTE000110 at 18 (Section 1.1.3); Tr. at 546-547 (Sacco); DTE Testimony on Contention 8 at ¶30.

of Nuclear Procedures ("NPs") that fulfill the requirements of NQA-1-1994.[206] B&V also stated that its QA Program had recently been audited and found acceptable by other U.S. nuclear utilities, including Entergy, American Electric Power Company, and Nebraska Public Power District.[207] To confirm the status of the B&V QA program, DTE reviewed a Nuclear Procurement Issues Committee ("NUPIC") audit of B&V prior to selecting them as the COL Application contractor.[208]

7.37. DTE eventually selected B&V as the COL Application contractor. The contract executed between DTE and B&V included terms with respect to QA. Specifically, the contract obligated B&V to implement the QA Program as described in Section 1.1.3 of the proposal.[209] The contract also specified the following:

- The scope of work to be performed by B&V;
- The technical requirements for the COL Application;
- Acceptance requirements and control measures for DTE's evaluation of the COL Application and intermediary work product developed by B&V;

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206 *Id*.; *see also* Tr. at 494-495, 546.

207 Exh. DTE000110 at 18

208 Tr. at 469. NUPIC is an industry group that performs audits of suppliers on behalf of nuclear licensees. *Id*. at 468.

209 *See* Exh. DTE000109 at 4 (incorporating Section 1.1.3 of the proposal (Exh. DTE000110)). The scope of FSAR chapters specified as being subject to Appendix B QA requirements in the contract was broader than that eventually applied during COL Application development. DTE Testimony on Contention 15 at ¶33. At that time, DTE had not made a reactor technology selection. *Id*. Once the ESBWR was selected, the potential scope of site-specific safety-related design work was substantially reduced. Ultimately, only Chapters 2, 3, and 6 incorporated safety-related work. *Id*.

- Organizational responsibilities (including reporting and communication methods);
- Access to B&V's facilities and records for inspection or audit by DTE;
- Documentation requirements; and
- Requirements for reporting and disposition of non-conformances in accordance with 10 C.F.R. § 50.55(e) and Part 21.[210]

7.38. After contract award, B&V reported to the Fermi 3 Nuclear Development organization, which had retained responsibility for the eventual COL Application.

7.39. The DTE witnesses explained that major work interfaces for activities affecting COL Application development, including clear and effective lines of communication, were established through implementation of a B&V Project Management Memorandum ("PMM").[211] The PMM is a controlled project document that served as the B&V mechanism for addressing project activities, including project organization, responsibilities, QA, interfaces, and communication mechanisms with DTE.

7.40. The PMM identified the quality attributes required for the B&V work activities consistent with the contract. Under the PMM, B&V, as the prime contractor, was obligated to implement its QA program and "flow-down" the applicable QA requirements to its subcontractors to ensure overall compliance.[212] The PMM also summarized how QA processes

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210 DTE Testimony on Contention 15 at ¶32.

211 *Id*. at ¶40; Exh. DTE000056.

212 Exh. DTE000056 at 23.

were applied to the various activities and entities involved in the project, including site investigation subcontractors.

7.41. We find that DTE's contractor selection process appropriately considered the need for application of an Appendix B QA program to safety-related activities during COL Application development. B&V provided evidence that it had a QA Program that satisfied NQA-1-1994 and Appendix B.[213] DTE required B&V to apply its Appendix B/NQA-1 QA program to safety-related information in the Fermi 3 COL Application through contract terms.[214] The PMM incorporates these contract requirements into project implementation documents.

2. Site Investigation Activities

a. Overview of Site Investigation Activities

7.42. As previously noted, the pre-application safety-related activities specific to Fermi 3, and within the scope of the COL (as opposed to the ESBWR Design Certification), involved certain site investigation activities. The geological, hydrogeological, and seismic information in the COL Application was developed from borings and test wells at the Fermi site

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213 The Intervenors' witness, Mr. Gundersen, agrees that B&V had an QA program that satisfies Appendix B and NQA-1-1994. Tr. at 395, 425. Mr. Gundersen does not allege that B&V's QA program is deficient. *Id*. at 425.

214 DTE's approach was consistent with the approach to QA outlined by the NRC in a Part 52 rulemaking. There, the NRC Staff explained that services (*e.g.*, geologic or seismic analyses) that are safety-related and that could be relied upon in the siting, design, and construction of a nuclear power plant are to be treated as "basic components" as defined in Part 21. "Licenses, Certifications, and Approvals for Nuclear Power Plants; Final Rule," 72 Fed. Reg. 49352, 49424 (August 28, 2007). According to the NRC, these site-specific safety-related services must be either purchased as basic components, requiring the service provider to have an Appendix B QA program and a Part 21 program, or the applicant could dedicate the service in accordance with Part 21, which requires the applicant's dedication process 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 and Part 21 programs. DTE Testimony on Contention 15 at ¶29; Exh. DTE000054, Attachment 4, at 3.

completed by B&V and its subcontractors between April and September 2007.[215] According to the witnesses, all work was controlled as described in the PMM.[216]

7.43. Specific project documents were issued for the site investigations under the PMM to control the work plan, data collection, and investigation. The documents were reviewed in accordance with a B&V document review and approval procedure and a B&V design verification procedure. DTE also reviewed and approved the plans.[217] Field work and laboratory analyses were conducted under the PMM, including training of professionals in accordance with procedures.

7.44. The PMM and its revisions specifically identified the applicability of Appendix B requirements to B&V subcontractors. The PMM listed the quality attributes required of the geotechnical subcontractors' practices and quality assurance programs. The PMM also required B&V to oversee subcontractors' practices prior to and during execution of work.

7.45. PMM, Attachment C-2, "Geotechnical Subcontractor Quality Oversight" identified two key elements of B&V oversight. First, all field and laboratory activities were to be performed under the B&V Appendix B/NQA-1 QA program. Second, oversight activities

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215 Meteorological data was obtained from the Fermi 2 meteorological tower, which operates under the longstanding Fermi 2 QA program. DTE's witnesses explained that the data was obtained by B&V through the formal Request for Information ("RFI") process. Tr. at 482. During the hearing, the Intervenors' witness, Mr. Gundersen, explained that he was not concerned with the meteorological data because it had been collected under a longstanding program at Fermi 2. *Id*. at 423. Accordingly, we find that the quality of the meteorological data is not in dispute and will not be discussed further.

216 DTE Testimony on Contention 15 at ¶40; Tr. at 495-496.

217 Tr. at 472.

were to be performed by B&V Nuclear Quality Assurance, geotechnical, engineering, or field oversight personnel.

7.46. With respect to the first element, B&V Nuclear Quality Assurance performed a series of pre-work surveillances or audits, as well as periodic in-process surveillance and/or audit activities, to verify that the geotechnical activities performed by the subcontractors were of sufficient quality to support the COL application.[218]

7.47. With respect to the second element, the initial vendor oversight activities were performed at the contractor's primary laboratory/staging office for the Fermi COL Project scope of work by both B&V Nuclear Quality Assurance and geotechnical representatives prior to commencement of related work activities.[219] Project execution oversight activities were performed at the jobsite and in the laboratory by B&V Nuclear Quality Assurance, geotechnical, engineering, or field oversight personnel. Field activities were performed under continuous observation of B&V geotechnical personnel, with surveillance activities periodically documented to ensure compliance.[220]

b. Quality Assurance Measures Applied to Site Investigation

i. B&V QA Program

7.48. The B&V QA program applied to safety-related field work (*e.g.*, geotechnical and hydrogeological work) was implemented through specific procedures that

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218 Exh. DTE000054, Attachment 1, at 7. These surveillances and audits are discussed further below.

219 Exh. DTE000054, Attachment 1, at 7-8.

220 Exh. DTE000054, Attachment 1, at 7-8. These oversight activities are discussed in more detail below.

satisfy NQA-1-1994.[221] These procedures detailed methods for storing and collecting information.[222] B&V had data collection plans and work plans with detailed instructions for onsite activities.[223] These project-specific documents were reviewed in accordance with a B&V document review and approval procedure and a B&V design verification procedure.

7.49. B&V professionals on the project and subcontractors working under the B&V QA program were all trained in accordance with B&V nuclear procedures. Vendor test reports were also provided to B&V for review and acceptance in accordance with a B&V review and approval procedure.[224]

7.50. Consistent with the PMM, B&V assigned a geotechnical/geology expert to each of the drill rigs to record data and provide oversight during the on-site investigation.[225] Data collected was recorded in a boring log in accordance with a project instruction. Laboratory testing, vendor test reports, and seismic analyses were performed under the B&V program and established nuclear procedures. Vendor test reports (down hole and laboratory) were provided to B&V for review and acceptance in accordance with a B&V review and approval procedure. Laboratory testing was performed by a qualified laboratory. Data collected during the investigation was used as an input for various analyses. The analyses were prepared in

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221 DTE Testimony on Contention 15 at ¶41; Tr. at 494-495. Mr. Sacco described the B&V QA Program as an industry-leading, top-of-the-line program with quality of the highest order. *Id*. at 547.

222 *Id*. at 495.

223 *Id*. at 544.

224 DTE Testimony on Contention 15 at ¶42.

225 Tr. at 544.

accordance with a B&V procedure for calculations and verified in accordance with B&V verification procedures.

7.51. B&V also conducted QA reviews during COL Application development.[226] In April 2007, as part of B&V's annual internal audit, a lead-auditor-qualified individual from outside the B&V office developing the Fermi 3 application audited the B&V QA program to evaluate compliance with Appendix B requirements. The audit report concluded that the B&V Nuclear Organization was in compliance with the B&V QA program and other project-specific requirements and that the program was being effectively implemented.

7.52. B&V's QA organization also provided oversight of the Fermi 3 field work through surveillances of sample collection and chain of custody for subsequent sample handling.[227] An individual from the B&V QA department performed site surveillances to ensure that B&V employees were following appropriate procedures and processes as they were collecting site data.[228] During the site investigation phase, B&V also conducted surveillances of its subcontractors, including PSI, Boart Longyear/Prosonic, GEOVision, ARM Geophysics, and Geomatrix.[229]

7.53. Mr. Thomas explained that the controls applied to site investigation activities satisfied Subpart 2.20 of NQA-1.[230] Mr. Sacco, who is a member of the NQA-1

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226 DTE Testimony on Contention 15 at ¶46-47.

227 Tr. at 495.

228 *Id*. at 495.

229 DTE Testimony on Contention 15 at ¶48.

230 Tr. at 545-546.

committee that writes, revises, and interprets NQA-1, agreed with Mr. Thomas.[231] Mr. Gundersen, the Intervenors' witness, agreed that B&V had a QA program that satisfies Appendix B and NQA-1-1994.[232] Mr. Gundersen did not allege that B&V's QA program applied to site investigation activities was deficient.[233]

7.54. We find that appropriate QA measures were applied to site investigation activities. B&V was obligated by contract to apply, and did in fact apply, its Appendix B/NQA-1-1994 QA Program to Fermi 3 site investigation activities. B&V's QA program included procedures, training, and work controls for site investigations, tests, and other safety-related activities that supported development of the COL Application. The PMM, implementing procedures, and project instructions provide assurance that safety-related site investigation activities were conducted in a quality manner consistent with Subpart 2.20 of NQA-1-1994.[234] The safety-related information in the COL Application based on data developed during the site investigation was therefore collected under a program that satisfies Appendix B and NQA-1-1994 (including Subpart 2.20).

ii. Oversight by DTE

7.55. As discussed above, under Appendix B an applicant such as DTE must retain responsibility for the quality assurance program. At the hearing, Mr. Lipscomb of the NRC Staff noted that there is no regulatory requirement that defines the amount of oversight

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231 *Id*. at 546-547.

232 *Id*. at 395, 425.

233 *Id*. at 425.

234 The NRC Staff concluded in its review of the Fermi 3 QAPD that DTE provides assurance of compliance with the quality standards in NQA-1–1994, Subpart 2.20, for the subsurface investigation. Chapter 17 SER (Exh. DTE000092) at 17-19.

required to retain responsibility.[235] We agree that there is no regulation that specifies the meaning of "retain responsibility" in the context of delegation for QA purposes.

7.56. Mr. Gundersen asserted that, in order to retain responsibility, DTE must have QA professionals on staff.[236] In essence, Mr. Gundersen asserted that DTE must have an Appendix B QA Program in order to effectively retain responsibility.[237] We reject this view, having already found that an Appendix B QA program is not a prerequisite to delegation or a requirement for pre-application site investigation activities. But we specifically considered DTE's actions to assess whether DTE retained responsibility during the pre-application period.

7.57. DTE explained that it retained responsibility for the QA program by virtue of its being solely accountable to the NRC for the information in the application.[238] DTE, not B&V, submitted the COL Application and attested to its quality, completeness, and accuracy under oath or affirmation. As the applicant, DTE bore the risk of information in the application being of insufficient quality to support license issuance. If B&V failed to apply its QA Program to site investigation work, DTE could reject that work or replace B&V. The NRC Staff agreed, noting that DTE has responsibility for the quality assurance program applied to site investigation activities because ultimately "the buck stops with them."[239]

7.58. We agree with the NRC Staff and DTE that DTE retained responsibility for the QA program applied to pre-application activities. But, in the absence of a regulation

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235 Tr. at 586.

236 *Id*. at 416.

237 *Id*. at 415-416, 461.

238 *Id*. at 548.

239 *Id*. at 670, 680.

defining "retain responsibility", we find it appropriate to also consider whether DTE exercised that responsibility during the site investigation. We conclude, for the reasons below, that DTE did in fact retain and exercise responsibility for the quality assurance program applied to site investigation activities.

7.59. First, DTE imposed contractual requirements on B&V.[240] The contract (Exh. DTE000109 at 4) specifically incorporates Section 1.1.3 (Pre-COL Activities) of the B&V proposal (Exh. DTE000110 at 18). Section 1.1.3 of the B&V proposal states that B&V will perform activities in accordance with its QA Program. The quality and technical requirements embedded in the contract are evidence that DTE retained responsibility and exercised oversight of site investigation activities.[241]

7.60. Second, DTE reviewed and approved the geotechnical investigation plan.[242] DTE facilitated site work and DTE project personnel were in the field while the work was being performed.[243] During the site investigation work, the Fermi 3 Nuclear Development organization maintained a presence to oversee those activities and ensure that workers were subject to the applicable programs for the operating Fermi 2 (*e.g.*, access, work control, and contractor oversight).[244] Mr. Smith and another DTE employee observed B&V personnel and subcontractors performing drilling activities.[245] Mr. Smith described this as "intrusive"

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240 *Id*. at 472.

241 *Id*. at 582-583.

242 *Id*. at 472.

243 *Id*. at 473.

244 DTE Testimony on Contention 15 at ¶48.

245 Tr. at 488, 548.

oversight.[246] DTE could, and in fact did, stop work being performed by B&V during site investigation activities.[247] DTE also reviewed internal audits and surveillances generated by B&V during site investigation activities.[248] DTE ensured that corrective actions were taken, as appropriate.[249]

7.61. Third, DTE retained an Owner's Engineer ("OE"), who also provided oversight by conducting surveillances of site investigation activities.[250] The OE reported to DTE and performed work at DTE's direction. The OE was, in essence, seconded labor to the Fermi 3 project organization and therefore an extension of DTE. The Intervenors raised a concern regarding a potential conflict of interest in using B&V-Michigan as the OE and B&V-Kansas City as the COL Application contractor.[251] We find that there was sufficient separation and independence between the two, to the extent that any separation was even necessary. The OE reported directly to DTE (Tr. at 477), not to the organization within B&V responsible for the Fermi 3 COL Application. As the NRC Staff noted (Tr. at 631), B&V-Kansas City and the OE were functionally independent and used different personnel. Moreover, the organizational separation within B&V was at least as great as that typically found within licensee organizations

246 *Id*. at 548.

247 *Id*. at 493, 548.

248 *Id*. at 500-501, 508, 548.

249 *Id*. at 548.

250 *Id*. at 473. The OE is an organization — a collection of personnel — rather than a single individual. *Id*. at 480. The OE was engaged to augment DTE personnel during the site investigation phase.

251 *Id*. at 456-457.

between QA and line functions.[252] We therefore find that documented oversight of site investigation activities by DTE (performed by OE personnel on DTE's behalf) is evidence that DTE retained responsibility for quality assurance (and exercised that responsibility) in practice.[253] This oversight is discussed below.

7.62. In June 2007, DTE's OE observed B&V obtaining core samples and reported to DTE's Nuclear Development project the status of procedural compliance, including the availability of ASTM standards, compliance with the Hydrogeology Data Collection Plan and the Geotechnical Data Collection Plan, chain of custody processes, control of measurement and test equipment, and handling of corrective actions as a result of B&V Nuclear QA surveillances.[254]

7.63. In July 2007 and in August 2007, the OE observed B&V borings on the Fermi site and reported to the Nuclear Development project that on-site work was being performed under the B&V QA program. The OE reported that work was being performed in accordance with the Hydrogeology Data Collection Plan and the Geotechnical Data Collection Plan, that chain of custody processes were being followed, and that corrective actions as a result of B&V Nuclear QA surveillances also had been implemented and continued to be effective.[255]

7.64. In August 2007, the OE observed B&V boring, split spoon sampling, and vacuum excavation on the Fermi site. The OE reported to the Nuclear Development project that on-site work was being performed under the B&V QA program and that controlled

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252 *Id*. at 474.

253 Records of several surveillances were admitted as exhibits in the hearing. *See, e.g.*, Exhs. DTE000041 - DTE000046.

254 DTE Testimony on Contention 15 at ¶50.

255 *Id*.

documentation was available for reference. The OE reported that work was being performed in accordance with the Hydrogeology Data Collection Plan, Hydrogeology Work Plan, and Geotechnical Data Collection Plan, and that copies of these documents were available, that chain of custody processes were being followed, and that corrective actions associated with the B&V corrective action program continued to be effective.[256]

7.65. The OE documented its observations of onsite work in the four reports: Surveillance 07SR001, dated July 3, 2007 (Exh. DTE000041); Surveillance 07SR002, dated August 1, 2007 (Exh. DTE000042); Surveillance 07SR003, dated August 23, 2007 (Exh. DTE000043); and Surveillance 07SR004, dated September 6, 2007 (Exh. DTE000044). The OE Staff also performed and documented surveillances of offsite activities, including Surveillance 07SR005, dated October 19, 2007 (PSI Laboratory) (Exh. DTE000045); and Surveillance 07SR006, dated September 26, 2007 (B&V-Kansas City) (Exh. DTE000046).

7.66. DTE established procedures to review information received from B&V that would be used in the COL Application.[257] First, DTE established its own QA program for the Fermi 3 project under the Nuclear Development Quality Assurance Program Description ("ND QAPD") (Exh. DTE000070) on February 4, 2008 — seven months prior to submitting the COL Application to the NRC.[258] 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 prepared by B&V. The acceptance review was conducted in accordance with Standard Work Instructions ("SWIs") and itself was subject to the ND QA program. DTE

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256 *Id*.

257 *Id*. at ¶30; Tr. at 483-485, 550.

258 DTE Testimony on Contention 15 at ¶¶35, 53.

staff were trained on the approved SWIs for review and acceptance of the B&V-developed COL Application work product.

7.67. 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. As part of its review, DTE verified that there was a reference to a B&V calculation, including the source of the data or calculation, and evidence that there were data trails for all safety-related information.[259] Comments were documented and provided to B&V for formal resolution. All comments were resolved in accordance with procedures. None of the information from B&V was accepted until after the ND QAPD was in place.[260]

7.68. During the acceptance phase, the Nuclear Development QA Manager was responsible for independently planning and performing activities to verify the development and effective implementation of the ND QAPD with respect to those activities that supported the COL Application.[261] 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.[262]

7.69. For example, in May 2008, the Nuclear Development QA Manager led a surveillance of B&V application development activities using Nuclear Development Procedure

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259 Tr. at 483-484.

260 DTE Testimony on Contention 15 at ¶54-55.

261 *Id*. at ¶36, 56.

262 *Id*. at ¶56.

("NDP")-NP-18.1.[263] The purpose of the surveillance was to ensure the adequacy of the B&V activities involved in preparing site-specific information for the FSAR. Specific process areas reviewed included procedure use and adherence, QA oversight effectiveness, corrective actions, and training. The assessment concluded that the B&V Nuclear Organization had a good understanding of procedural requirements and a commitment to providing a quality product to DTE as part of the Fermi 3 COL development project.

7.70. In June 2008, the Nuclear Development QA Manager conducted a surveillance of the storage and handling of the core drilling and subsurface samples in DTE's possession. The surveillance included a review of a complete core boring document package obtained from B&V and interviews with relevant personnel.[264] Overall storage, handling, and custody controls for core drilling and subsurface samples, including records and personnel practices, were found to be adequate with no issues noted.[265]

7.71. Based on the above, we find that DTE not only retained responsibility for the QA program applied to site investigation activities, but also comprehensively exercised that responsibility during the site investigation and subsequent development of COL Application materials. DTE had in place procedural and process controls that governed the scope of work performed by B&V, as well as the QA measures to be applied to that scope of work. DTE provided direct oversight of site investigation work and conducted audits and surveillances of

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263 Surveillance Report 08SR001, dated May 16, 2008 (Exh. DTE000036).

264 Surveillance Report 08SR002, dated June 13, 2008 (Exh. DTE000037).

265 DTE Testimony on Contention 15 at ¶57; Surveillance Report 08SR002, dated June 13, 2008 (Exh. DTE000037).

B&V-led activities. DTE reviewed the application work product and verified that there were references for B&V calculations and evidence of data trails for all safety-related information.[266]

iii. NRC Staff Reviews

7.72. In May 2007, during the conduct of site investigation activities, DTE notified the NRC that B&V's Appendix B/NQA-1 QA program was being applied to appropriate aspects of the work scope and that B&V's principal subcontractors would be governed by the B&V QA program.[267] Additionally, DTE notified the NRC of the schedule for on-site geotechnical investigation activities and stated that "[t]he Black & Veatch Quality Assurance Program, which meets the requirements of 10 CFR 50, Appendix B and ASME NQA-1, is being applied to the geotechnical investigation work scope."[268]

7.73. Subsequently, on July 9-11, 2007, NRC inspectors conducted an audit at the Fermi site in accordance with Inspection Manual Chapter ("IMC") 2502, *Construction Inspection Program: Pre-Combined License (Pre-COL) Phase*, dated June 22, 2005.[269] The purpose of the audit was to observe pre-application subsurface investigation activities used to

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266 Tr. at 483-484.

267 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 (ADAMS Accession No ML071580347) (Exh. DTE000047).

268 NRC3-07-0002, "Notification of Combined License Application Geotechnical Investigation Schedule for the DTE Energy Fermi Site," dated May 31, 2007 (ADAMS Accession No. ML071580350) (Exh. DTE000048).

269 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.

develop geotechnical and seismic data for the COL Application. The audit report concluded that "the work was being done in an appropriately controlled manner."[270]

7.74. Following COL Application submittal in September 2008, the NRC Staff completed its review of Chapter 17 of the FSAR and the Fermi 3 QAPD, with no outstanding RAIs or unresolved issues with respect to the QA measures applied to pre-application activities.[271] For activities occurring before the date of the COL application, the NRC Staff determined that the applicant had contractually delegated to B&V the work of establishing and executing a QA program satisfying the requirements Appendix B.[272] The NRC Staff determined that internal oversight of safety-related activities was inherent in the B&V program because B&V had an established Appendix B/NQA-1 QA Program.[273] The NRC Staff concluded that DTE was not required to implement its own Appendix B QA Program during this period.[274]

7.75. Overall, the NRC Staff concluded that DTE provided adequate assurance that the standards of Appendix B have been met for safety-related activities supporting the COL Application by appropriately contracting with B&V to apply its Appendix B/NQA-1 QA

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270 Audit of Combined License Pre-Application Subsurface Investigation Activities at Fermi (Project No. 757), Enclosure 1 at 3 (ADAMS Accession No. ML072190660) (Exh. DTE000084).

271 *See* Chapter 17 SER (ADAMS Accession No. ML112630120) (Exh. DTE000092).

272 Exh. DTE000092 at 17-35.

273 *Id*.

274 *Id*.; Tr. at 580. As discussed above, the NRC Staff expected that pre-application activities would be subject to Appendix B/NQA-1 for licensing purposes. Although DTE did not need to have its own QA Program during the pre-application period, the NRC Staff recognized that DTE did establish procedures that met applicable portions of Appendix B by creating the ND QAPD and by creating procedures for implementing those elements of the ND QAPD associated with the activities planned in support of the review and acceptance of the B&V COL application work product

Program to site investigation activities and by providing satisfactory oversight of contracted activities occurring before the date of the COL application.[275]

7.76. We agree with the NRC Staff's conclusions. As discussed above, we found that B&V's Appendix B/NQA-1 QA Program was applied to safety-related activities and also that DTE retained responsibility for the QA program applied to those activities.

c. Intervenors' Specific Concerns

7.77. While we concluded above that DTE's approach to QA for site investigation activities is acceptable, we still need to consider whether there have been issues with implementation that might preclude an overall finding of reasonable assurance that Fermi 3 will be constructed and operated in conformity with Commission regulations and without endangering the public health and safety.

7.78. At this stage of the proceeding, it is incumbent upon the Intervenors to identify some specific information in the COL Application that is alleged to be deficient. As the Appeal Board noted in *Diablo Canyon*, "the theoretical possibility" that some quality assurance flaws may be uncovered is "insufficient."[276] An intervenor must show errors that endanger safe plant operation or a pervasive failure of the quality assurance measures that raise legitimate doubts as to the plant's safety. As discussed below, the Intervenors have failed to carry their burden in this regard. The Intervenors identified no issues of material safety significance — much less a breakdown in the quality assurance program applied to site investigation activities.

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275 Exh. DTE000092 at 17-35.

276 *Diablo Canyon*, 18 NRC at 1350.

And, the Intervenors failed to show that DTE management lacks a commitment to quality assurance for Fermi 3.[277]

i. No Errors Identified in the COL Application

7.79. The Intervenors' witness, Mr. Gundersen, did not identify any specific instance of a material safety-significant error in the safety-related portion of the Fermi 3 COL Application.[278] Instead, Mr. Gundersen blamed DTE for his inability to identify any incorrect information developed during the site investigation, claiming that borehole logs and other geologic information were "not part of the ADAMS database and it wasn't part of what [the Intervenors] were given by DTE."[279] Mr. Gundersen also alleged that "[t]here are no boring logs and calculations and things like that to review."[280] Mr. Gundersen's claims are simply not true. The complete boring logs (>600 pages) are included in FSAR Section 2.5DD.[281]

7.80. As evidence that there were no anomalies in the Fermi 3 site investigation data, Mr. Thomas testified that the Fermi 3 borings were benchmarked against earlier Fermi 2 borings.[282] The Fermi 2 and Fermi 3 borings were consistent.[283] Mr. Thomas also emphasized

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277 *See USEC, Inc.* (American Centrifuge Project), CLI-06-10, , 63 NRC 451, 465 (2006) (upholding the Board rejection of a management competence contention because intervenor's claims did not "present any ongoing pattern of violations or disregard for regulations that might be expected to occur in the future"). At most, Intervenors proffered exhibits (with admissibility still in dispute) presenting historical information and lessons-learned from DTE's licensing experience. These are by no means evidence of a "feckless corporate culture," as alleged by Intervenors.

278 Tr. at 460.

279 *Id*. at 459.

280 *Id*. at 459.

281 *Id*. at 545. The FSAR is available on the NRC's website.

282 *Id*. at 558-559.

283 *Id*. at 558-559.

that DTE drilled more boreholes than the minimum necessary, resulting in a more robust dataset.[284] By benchmarking the Fermi 3 borings against earlier Fermi 2 borings and by performing more than the minimum number of borings, DTE provided additional assurance of the quality of the geotechnical data in the COL Application. This stands in stark contrast to the Intervenors' unsupported allegations and non-specific concerns.

7.81. In the end, we find that the Intervenors have failed to identify any specific safety-significant error in site investigation work or in the COL Application itself.

ii. "Fabric" of Regulatory Scheme

7.82. Rather than pinpoint a specific problem with site investigation data, the Intervenors' counsel and witness spent considerable time focusing on whether DTE should have been considered an "applicant" during the pre-application period. In their view, the fact that DTE was not an applicant is significant because, they claimed, this means that other programs in Part 52 applicable to "applicants" would not apply in the pre-application period.

7.83. According to the Intervenors' witness, Part 52 includes three types of programs that apply only to applicants. The Intervenors claimed that the absence of these programs in the pre-application period would affect "the very integrity of the data collection as well as the FSAR."[285] Mr. Gundersen cited 10 C.F.R. § 52.4, which is the deliberate misconduct rule, 10 C.F.R. § 52.5, which relates to employee protection, and 10 C.F.R. § 52.6, which requires that information submitted to the NRC be complete and accurate in all material respects.[286] The Intervenors also claimed that Part 21 does not apply unless there is an

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284 *Id*. at 559.

285 *Id*. at 428.

286 We will assume that Mr. Gundersen was using imprecise shorthand when he claimed that these provisions apply only to "applicants." By their terms, 10 C.F.R. §§ 52.4 and 52.5

applicant.[287] The Intervenors alleged that the absence of these programs during the pre-application period undermined the regulatory "fabric" for the COL Application such that the data collected during this period could not be relied upon by DTE.

7.84. As an initial matter, we note that this regulatory "fabric" concern was not part of Contention 15, as admitted. In the proposed contention, the Intervenors did not mention deliberate misconduct, complete and accurate information, whistleblowers, or Part 21. The Intervenors' concept of the contention's scope matches neither the contention's language and bases as initially worded, nor the Board's formulation of the contention, as ultimately admitted for hearing. It therefore would be appropriate for us to exclude these arguments in their entirety. Nevertheless, to ensure a complete record, we address the concern below.

7.85. Although DTE and the NRC Staff reasonably did not discuss these programs in their prefiled written testimony given the contention's exclusive focus on quality assurance, the witnesses were able to respond to the Intervenors' concerns during the hearing. With respect to employee protection programs, Mr. Sacco stated that B&V "absolutely" has in place whistleblower protections in the form of a B&V Employee Concerns Program ("ECP") and noted that such a program is a specific item on the NUPIC audit checklist.[288] Mr. Smith stated

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also apply to, among others, a licensee, an employee of a licensee, and any contractor of a licensee or applicant. The same corporate entity, DTE, is the licensee for Fermi 1 and Fermi 2, as well as the applicant for Fermi 3. Tr. at 570-571. Since DTE was already a licensee, these provisions arguably applied to DTE independent of whether DTE is an applicant for Fermi 3. In addition, B&V was, at the time, a contractor for other NRC licensees. We do not resolve this issue here since, as discussed below, DTE and B&V in fact had in place employee protection programs during the site investigation and there is no evidence of any deliberate misconduct during the pre-application period or inaccurate information in the COL Application.

287 Tr. at 428.

288 Tr. at 497; Exh. DTE000108.

DTE has a longstanding whistleblower protection program.[289] Mr. Stasek and Mr. Smith explained that the DTE ECP is a common program among Fermi 1 decommissioning, Fermi 2 operations, and the Fermi 3 COL project.[290] Mr. Smith explained that the training for B&V personnel and other contractors performing site investigation activities included orientation on the DTE ECP.[291] And, Mr. Smith emphasized that those workers would have access to that program, as well as other avenues for raising concerns.[292] Site investigation workers would therefore have at least two programs available to them: the DTE Employee Concerns Program and the B&V Employee Concerns Program.[293]

7.86. The provision on completeness and accuracy, 10 C.F.R. § 52.6, cited by Mr. Gundersen also applies to all of the information actually included in the COL Application.[294] According to the NRC Staff, the obligation to provide complete and accurate information would be enforceable upon application submittal.[295] The same is true for deliberate misconduct under 10 C.F.R. § 52.4. Any such acts in the pre-application period presumably would still cause the applicant to be in violation once the application was filed and would be enforceable to that extent.

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289 *Id*. at 536.

290 *Id*. at 536-537.

291 *Id*. at 538.

292 *Id*. at 538.

293 *Id*. at 539. Of course, an individual may always raise an issue directly with the NRC through the Allegations process (*e.g.*, by emailing Allegation@nrc.gov or calling the NRC's Toll-Free Safety Hotline).

294 *Id*. at 550-552.

295 *Id*. at 619-620.

7.87. With respect to Part 21, Mr. Sacco stated that Part 21 requirements applied to B&V's work on the Fermi 3 project prior to submission of the application.[296] Mr. Sacco stated that Part 21 applies to the site investigation work because it is considered to be safety-related.[297] As noted above, DTE specifically incorporated the Part 21 requirements into the contract with B&V.[298]

7.88. Based on the above, we conclude that the Intervenors' assertions regarding the so-called regulatory "fabric" are without merit. As a factual matter, several of the programs that the Intervenors claimed to not exist in fact were present and available to workers during the pre-application period. The Intervenors did not identify any potential issue with, much less an actual violation of, one of the above provisions that might undermine the application.[299] The Intervenors provided nothing concrete to call into question the quality or accuracy of the information provided in the COL Application or the character and integrity of DTE management. Their concerns are purely theoretical and therefore insufficient at this stage of the proceeding.[300]

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296 *Id*. at 553.

297 *Id*. at 554.

298 DTE Testimony on Contention 15 at ¶32.

299 In any event, the issue of enforcement jurisdiction for activities during the pre-application period is a separate question not before the Board in this licensing matter. It is also not necessary for us to decide whether DTE should be considered an "applicant" during the pre-application period. The overall reasonable assurance finding for licensing does not hinge on the definition of applicant, but rather on the quality measures actually applied to safety-related information included in the application. We previously found that DTE ensured that B&V's Appendix B/NQA-1 QA Program was applied to site investigation activities and that DTE retained responsibility for the QA program.

300 *See Diablo Canyon*, 18 NRC at 1350 (noting that the "theoretical possibility" that some quality assurance flaws may be uncovered is "insufficient"; an intervenor must show errors that endanger safe plant operation or a pervasive failure of the quality assurance measures that raise legitimate doubts as to the plant's safety); *Seabrook*, ALAB-947, 33 NRC at 325 (noting that an intervenor cannot rely solely on the fact that quality assurance

iii. NRC Staff emails

7.89. As discussed above, the Intervenors were unable to identify any specific information in the COL Application that they alleged to be deficient. Instead, Mr. Gundersen attempted to rely on the NRC Staff's predecisional emails, repeatedly claiming that the NRC emails provide evidence of problems in the application.[301] For example, Mr. Gundersen claimed that an NRC email "shows that [DTE] had no control over the design process leading up to that point because they didn't have their own QA program in force."[302] He also alleged that the emails demonstrate that NRC felt "the entire process was jeopardized because DTE did not exercise a quality assurance role."[303]

7.90. But, the emails were prepared before the NRC had collected information from DTE on the company's approach to QA and before the NRC Staff's QA inspection of the project.[304] With respect to the NRC Staff emails, Mr. Lipscomb explained that they were drafted before the NRC Staff fully understood DTE's approach to QA during the pre-application period.[305] Ms. Rivera-Verona, who authored several of the emails cited by Mr. Gundersen, explained that she did not know at the time how DTE met the requirements of Appendix B and

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lapses have occurred, but rather must show some implications of the asserted deficiencies in terms of safe plant operation).

301 Tr. at 426.

302 *Id*. at 443.

303 *Id*. at 461.

304 *Id*. at 600-602.

305 *Id*. at 599.

therefore needed more information from DTE.[306] Ultimately, the NRC Staff specifically addressed the questions raised in the NRC Staff emails in the SER for Chapter 17 (Exh. NRC S1).[307]

7.91. We find that the NRC emails merely speculated about possible issues that were ultimately addressed to the NRC Staff's satisfaction. The emails provide no evidence of an actual problem with any safety-related information in the COL Application. Moreover, we assign no weight to Mr. Gundersen's claims that rest on the NRC Staff emails because he never read the SER for Chapter 17.[308]

iv. Soil-Structure Interaction Analysis

7.92. Mr. Gundersen claimed that "problems" with geotechnical data collected during the site investigation phase is the source of supposed "foundation" issues that DTE is experiencing today. Mr. Gundersen alleges that "[t]here currently is a significant problem as the project is being designed with the weight of the structure on the karst geography that's below the surface which is one of the reasons why the docket is delayed as much as it is."[309] According to Mr. Gundersen, the geotechnical work performed for the site investigation is the source of "these structural problems that are still part of this docket."[310]

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306 *Id*. at 620-622. Ms. Rivera-Verona stated that the NRC was able to verify that the requirements of Appendix B were met for all the safety-related activities that were used to develop the application. *Id*. at 622.

307 Mr. Gundersen did not review this document. *Id*. at 437-438.

308 Having failed to review this key document, Mr. Gundersen cannot explain how his view differs from the NRC Staff's or distinguish their conclusions from his own.

309 Tr. at 444.

310 *Id*. at 435.

7.93. There are at least two problems with Mr. Gundersen's claims. First, as noted previously, the Fermi site sits on hard rock dolomite and there is no evidence of any karst formations at the Fermi site.[311] Mr. Gundersen's allegations of karst geology are wholly unsubstantiated and contrary to the extensive record.[312]

7.94. Second, the Soil-Structure Interaction ("SSI") analyses that are still subject to NRC review have no relationship to the geotechnical work performed during the site investigation. In Revision 7 of the ESBWR DCD, dated March 29, 2010, GEH added a new design parameter relating to engineered backfill, which triggered the need for additional analysis by COL applicants referencing the ESBWR design, including DTE.[313] The need for the SSI analysis had nothing to do with data gathered during the site investigation phase.[314] Nor does the need for the SSI analysis stem from any QA problems or concerns at the Fermi 3 project.[315]

7.95. We find that Mr. Gundersen's assertions lack factual support and are not supported by credible testimony.

3. Summary of Findings for Site Investigation and Pre-Application Activities

7.96. Contention 15A concerns the reliability of safety-related information in the COL Application and supporting FSAR. The Intervenors' specific concern relates to information collected at the beginning of the COL project — that is, prior to approval and use of

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311 *Id*. at 559-560.

312 *See, e.g.*, FSAR Section 2.5DD.

313 DTE Rebuttal Testimony on Contention 15 at ¶18. Revision 7 was submitted in March 2010 — nearly three years after the site investigation work.

314 Tr. at 541-543.

315 DTE Rebuttal Testimony on Contention 15 at ¶18. Delays in completing the SSI analyses are attributed to complexities in the analytical methodologies used and are unrelated to geotechnical data collected during the site investigation phase.

the ND QAPD in February 2008. A brief summary of our findings related to Contention 15A is provided below.

7.97. As the record and testimony demonstrate, during the period of time that B&V was performing site investigations, tests, and other safety-related activities to support the development of a COL Application, the work was performed by B&V, at DTE's direction, under B&V's established Appendix B/NQA-1 QA program — as allowed by NRC regulations. During the site investigation phase, DTE retained responsibility for the QA program. DTE was ultimately responsible for the information in the COL Application. DTE also exercised that responsibility by requiring that B&V apply its QA Program to site investigation work, developing written procedures and instructions for that work, and performing oversight activities.

7.98. There is no evidence to suggest any concern with the overall quality of information gathered during the site investigation phase. There was no breakdown in the QA Program applied to site investigation or COL Application development activities or evidence that would call into question the competence or integrity of DTE management or its commitment to quality assurance for Fermi 3. None of the Intervenors' alleged concerns were supported by the record in this proceeding.

7.99. We agree with the NRC Staff that DTE provided adequate assurance that the requirements of Appendix B have been met for safety-related activities supporting the Fermi 3 COL application. Based on the comprehensive set of QA measures applied to safety-related information developed during the site investigation, there is reasonable assurance that the safety-related information developed prior to COL Application submittal is of high-quality.

E. Post-Application QA Program Implementation

7.100. The second issue in Contention 15 relates to the Intervenors' assertion that there is a history of QA violations associated with the Fermi 3 project, and therefore a lack of commitment to compliance with Appendix B.[316] The Intervenors demanded that DTE "provide[] satisfactory proof positive of a fully-implemented quality assurance program which integrates all previous and contemplated QA revisions."[317] As discussed below, we find that DTE has in place and is effectively implementing its QA Program, which satisfies Appendix B. The Intervenors have identified no non-compliances, much less a pervasive breakdown in the DTE QA Program, that would preclude a reasonable assurance finding.

1. Quality Assurance Measures Applied during COL Application Review

a. DTE QA Program Development

7.101. DTE's QA Program for Fermi 3 is addressed in Chapter 17 of the Fermi 3 COL Application FSAR (Exh. DTE000049). In accordance with NRC regulations, the Fermi 3 FSAR provides a detailed description of planned and systematic actions to assure safety and reliability during design, construction, and operation. The FSAR also contains a detailed discussion of the Fermi 3 QAPD. The Fermi 3 QAPD itself was submitted to the NRC as Appendix 17AA to the FSAR.[318]

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316 LBP-10-09, "Ruling on Proposed New Contentions 15 and 16," dated June 15, 2010, at 15.

317 Supplemental Petition at 17.

318 In the pre-application period, DTE used the Nuclear Development ("ND") QAPD. The ND QAPD was superseded by the Fermi 3 QAPD when the COL Application was submitted. There have since been several revisions to the Fermi 3 QAPD. *See, e.g.*, Exhs. DTE000072 (Revision 1), DTE000073 (Revision 4), and DTE000074 (Revision 5).

i. NEI Template

7.102. The Fermi 3 QAPD is based on a generic template, NEI-06-14A, "Quality Assurance Program Description," that may be used by COL applicants to implement the applicable requirements and industry standards for QA programs. The NEI template, like the Fermi 3 QAPD, is based on the standards of NQA-1-1994.[319] The NRC Staff has formally endorsed the NEI template.[320]

7.103. COL applicants using the NEI template must address conformance with the NRC's regulatory guidance by including a commitment to the applicable regulatory guides or by providing an alternative (or exception) to be reviewed by the NRC Staff. As the DTE witnesses testified, the Fermi 3 QAPD includes DTE's commitment to NQA-1-1994 and the required elements from the NEI template.[321] The policy statement in the Fermi 3 QAPD contains a corporate commitment to implement the QAPD so that Fermi 3 is and will be designed, procured, constructed, and operated in a manner that ensures the safety of the public and workers.[322] The policy recognizes that the Fermi 3 QAPD provides for control of Fermi 3 activities that affect the quality of safety-related structures, systems, and components and includes all planned and systematic activities necessary to provide adequate confidence that

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319 The Fermi 3 QAPD is therefore based on the standards in NQA-1-1994.

320 The NRC-endorsed QAPD template was initially released in May 2008 as NEI-06-14A, Revision 5 (ADAMS Accession No. ML081350560) (Exh. DTE000089). The NRC-approved version of NEI-06-14A, Revision 7, was issued by NEI in August 2010 (ADAMS Accession No. ML102370305) (Exh. DTE000091).

321 DTE Testimony on Contention 15 at ¶¶71, 74-75.

322 *Id*. at ¶75.

safety-related structures, systems, and components will perform satisfactorily in service. Compliance with the QAPD and implementing documents is mandatory.[323]

ii. Quality Measures

7.104. The QAPD is the top-level policy document that establishes the manner in which quality is to be achieved. Implementing documents assign more detailed responsibilities and requirements and define the organizational interfaces. The DTE QA program is implemented through a set of procedures written to meet with NQA-1 standards. QA implementing procedures were developed and have been continuously in effect since implementation of the ND QAPD in February 2008.

7.105. The procedures are organized to address topical areas associated with the 18 criteria in Appendix B applicable to the current phase of COL Application work. For example, procedure NP-1.1, Revision 7, "Nuclear Development Fermi 3 Organization" (Exh. DTE000075), addresses the Fermi 3 organization; NP-2.1, Revision 8, "Learning Management" (Exh. DTE000076), addresses training; NP-5.1, Revision 5, "Nuclear Procedure Preparation" (Exh. DTE000077), addresses development, review, approval, and implementation of procedures; and, NP-6.7, Revision 1, "QAPD Change Process" (Exh. DTE000078), addresses the change process for the QAPD. Other nuclear procedures address, for example, document control, the CAP, supplier evaluations, and audits and surveillances.

7.106. Under the Fermi 3 QA program, there are regular audits and surveillances, including internal audits and surveillances and audits of DTE programs by external auditors. For example, DTE Quality Management performs annual audits to ensure that the Fermi 3 project

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323 *Id*.

team is performing its activities in compliance with the Fermi 3 QAPD.[324] External organizations also audit the DTE Quality Management organization. Requirements assessed during an audit may include those associated with organization, training, design control, procurement document control, procedures, document control, control of purchases, Part 21 reporting for nonconforming items, corrective actions, records, and previous audit and surveillance findings.

7.107. DTE has established processes to assure that purchased material, equipment, and services, whether purchased directly or through contractors and subcontractors, conform to DTE's QA expectations.[325] DTE procedures assure that Fermi 3 suppliers and vendors are qualified to supply the services procured by DTE. These processes provide DTE with objective evidence of the quality of services furnished by safety-related Fermi 3 COL Application suppliers and vendors.

7.108. Nuclear Development management also performs a semi-annual management assessment of QAPD implementation and effectiveness. This includes a review of the status of the Corrective Action Program ("CAP"), a review of internal and external assessments (*e.g.*, NRC inspections/audits, QA audits/surveillances, RAI responses, and other related activities), and other benchmarking activities. Nuclear Development management uses the assessment to identify areas, if any, that warrant heightened focus or attention or deployment of additional resources.[326]

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324 *Id*. at ¶80.

325 Exh. DTE000057, Attachment 1, at 4.

326 *Id*. at ¶83.

7.109. Any findings from the audits, surveillances, or other assessments are entered into the Fermi 3 CAP for resolution. The Fermi 3 CAP is implemented through procedures that address identification, control, documentation, classification, investigation, and resolution of potentially undesirable conditions and opportunities for improvement.[327] The procedures assure that corrective actions are documented and initiated in accordance with regulatory requirements and applicable quality standards.

b. DTE QA Program Implementation

7.110. DTE provided substantial evidence of its functioning QA Program. As part of its QA program, DTE regularly performs audits and surveillances — including internal audits and surveillances, audits of DTE programs by external auditors, and audits of DTE vendors and suppliers. The requirements that are assessed during an audit are identified in an audit plan and audit checklists.

7.111. DTE Quality Management performs audits and surveillances to ensure that the Fermi 3 project team is performing its activities in compliance with the Fermi 3 QAPD. Audits and surveillances are performed regularly and at a frequency determined by the audit and surveillance program and commensurate with the level and nature of work activities.[328]

7.112. The annual audits that have been conducted by DTE include:

- Nuclear Development Quality Assurance, Audit Report 09NI01, "Annual Audit of Implementation of the Fermi 3 Quality Assurance Program Description Requirements," conducted October 26-30, 2009 (Exh. DTE000058);

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327 As explained in the Fermi 3 QAPD, Section 16, *Corrective Action* (Exh. DTE000074 at 55), the CAP will be applied throughout the construction and operation of Fermi 3.

328 A table listing the audits and surveillances conducted by DTE is provided in the DTE Testimony on Contention 15 at ¶80.

- Nuclear Development Quality Assurance, Audit Report 10NI01, "Annual Audit of Implementation of the Fermi 3 Quality Assurance Program Description Requirements," conducted July 26 - August 5,2010 (Exh. DTE000059);

- Nuclear Development Quality Assurance, Audit Report 11NI02, "Annual Audit of Implementation of the Fermi 3 Quality Assurance Program Description Requirements," conducted July 13-27,2011 (Exh. DTE000060); and

- Nuclear Development Quality Assurance, Audit Report 12NI02, "Annual Audit of Implementation of the Fermi 3 Quality Assurance Program Description Requirements," conducted July 9-18, 2012 (Exh. DTE000061).[329]

7.113. External organizations also audit the DTE Quality Management organization, such as the audits documented in the following reports:

- Nuclear Development Quality Assurance, Audit Report 09NI02, "Annual Audit of the Fermi 3 Nuclear Quality Management Organization" (Exh. DTE000079). The audit took place from November 30 to December 3, 2009.

- Nuclear Development Quality Assurance, Audit Report 11NI01, "Annual Audit of the Fermi 3 Nuclear Quality Management Organization" (Exh. DTE000080). The audit took place from February 22-28, 2011.

- Nuclear Development Quality Assurance, Audit Report 12NI01, "Annual Audit of the Fermi 3 Nuclear Quality Management Organization" (Exh. DTE000081). The audit took place from February 27-29, 2012.

- Nuclear Development Quality Assurance, Audit Report 13NI01, "Annual Audit of the Fermi 3 Nuclear Quality Management Organization" (Exh. DTE000082). The audit took place from January 23-25, 2013.

[329] The annual audit for 2013 was conducted after the deadlines for filing written testimony and exhibits in the proceeding. Mr. Stasek stated during the hearing that these audits have been performed annually — a statement that encompassed the annual audit for 2013. Tr. at 534.

7.114. In addition, consistent with Section 6.1.4 of NP 1.1, Nuclear Development management performs a semi-annual management assessment of QAPD implementation and effectiveness. These reviews were conducted in January 2010, July 2010, June 2011, December 2011, June 2012, and December 2012.[330]

7.115. In accordance with procedures, DTE also audits its vendors and suppliers to place and maintain them on an Approved Suppliers List ("ASL"). NDP-NP-4.1, "Procurement of Services," identifies approved suppliers and vendors for activities requiring application of a nuclear quality assurance program.[331] Additional guidance can be found in implementing procedures NP-7.1, "Supplier Audits, Surveillances, and Commercial Grade Surveys", and NP-7.2, "Supplier Evaluations."[332] Audit and surveillance schedules initiated by DTE specify further supplier evaluation activities.[333]

7.116. If audits, surveillances, or assessments identify issues or make recommendations for improvement, those issues and recommendations are entered into the CAP for resolution and tracking. 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 corrective action requests ("CARs").[334] The person assigned the CAR will investigate the condition, determine causes, evaluate and implement measures to

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330 DTE Testimony on Contention 15 at ¶83.

331 Exh. DTE000054, Attachment 4, at 5; Exh. DTE000057, Attachment 1, at 3.

332 Exh. DTE000057, Attachment 1, at 3.

333 Audits of suppliers and vendors are identified in DTE Testimony on Contention 15 at ¶80. For example, DTE performed a supplier audit of B&V in July 2009, Advent Engineering in June 2010, and GE-Hitachi in February 2011.

334 A CAR is an electronic record form used by individuals to document potential conditions and initiate the corrective action program.

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.

7.117. To assure that all COL Application activities continue to be conducted at the level of quality necessary to support future safety related activities, DTE issued NP-16.1, Revision 2 (Exh. DTE000052), to prescribe for the Nuclear Development Review Committee an additional responsibility for "review of potential Corrective Action Report (CAR) trends."[335] Under the procedure, potential CAR Trends are discussed at the regular Nuclear Development Review Committee meeting. The Director, Quality Management, also implemented procedural guidance for performing and reporting trend results as appropriate for the current phase of the COL Application development in accordance with the Fermi 3 QAPD Corrective Action Program.[336] DTE has performed additional corrective action trending at approximately six-month intervals.[337] No trends adverse to quality have been identified.[338]

c. NRC Staff Reviews

i. Inspection Findings

7.118. On October 5, 2009, the NRC Staff issued an Inspection Report and Notice of Violation ("NOV") in which it described the results of an August 18-21, 2009 QA

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335 DTE Testimony on Contention 15 at ¶68.

336 *Id*.

337 *Id*. For example, DTE performed corrective action trend analyses in June 2010 (Exh. DTE000063), November 2010 (Exh. DTE000064), April 2011 (Exh. DTE000065), October 2011 (Exh. DTE000066), April 2012 (Exh. DTE000067), and October 2012 (Exh. DTE000068). Each trend analysis focused on the corrective actions for the preceding one-year period.

338 DTE Testimony on Contention 15 at ¶68.

inspection.[339] In the original NOV, the NRC Staff cited three violations of NRC requirements. Each of these findings was characterized by the NRC Staff as a Severity Level IV violation under the NRC's Enforcement Policy — the lowest significance level for cited violations. DTE replied to the NOV, on November 9, 2009,[340] denying that a violation occurred. On April 27, 2010, the NRC Staff responded to DTE's reply to the NOV.[341] The NRC Staff withdrew a portion of the original violation, but articulated a new violation for failing to adequately document B&V's qualifications and consolidated two prior violations into one other final violation. The two final violations were both characterized as Severity Level IV.

7.119. DTE took corrective actions to address the violations. For the first violation regarding documentation of B&V's qualifications, even prior to issuance of the violation DTE had established a comprehensive vendor qualification review and acceptance program. This program included QA staff augmentation, vendor audits, procedure improvements, and establishment of an Approved Supplier's List. DTE also conducted an audit of B&V in July 2009 (Exh. DTE000038) and concluded that the B&V Program was being effectively implemented for Fermi 3 COL Application activities. B&V was subsequently listed in the Fermi 3 ASL. These actions were completed by July 2009.

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339 NRC Inspection Report 05200033/2009-201 and Notice of Violation to Detroit Edison Company, dated October 5, 2009 (ADAMS Accession No. ML092740064) ("NRC Inspection Report") (Exh. DTE000085).

340 NRC3-09-0041, "Detroit Edison Reply to Notice of Violation 05200033/2009-201-01, 02, and 03," dated November 9, 2009 (ADAMS Accession No. ML093160318) ("Reply to NOV") (Exh. DTE000035).

341 EA-09-286, "NRC Response to Detroit Edison Reply to Notice of Violation 05200033/2009-201-01, 02, and 03 and Revised Notice of Violation to Detroit Edison Company," dated April 27, 2010 (ADAMS Accession No. ML100330687) ("Revised NOV") (Exh. DTE000086).

7.120. The second final violation included two issues: a failure (as of that date) to perform internal audits of the QA program and a failure (as of that date) to document trending of conditions adverse to quality entered into the CAP. The reasons for these violations, and the corrective actions, were discussed in DTE's November 9, 2009 Reply to NOV (Exh. DTE000035).

7.121. For the audit issue, DTE conducted an internal audit during the week of October 26, 2009.[342] Consistent with the Fermi 3 QAPD, appropriately trained DTE personnel conducted the audit of applicable QA program elements for COL Application activities. Since the NRC's inspection finding and corrective action audit in October 2009, annual QA audits have been performed, as required.[343]

7.122. For the corrective action trending issue, DTE performed corrective action trending, as required by DTE Procedure NP-16.1, on October 31, 2009.[344] The trend review considered all corrective actions from January 22, 2008, through October 31, 2009. No trends adverse to quality were identified. DTE subsequently performed additional corrective action trending at approximately six-month intervals.[345] Each trend analysis focused on the corrective actions for the preceding one-year period.

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342 Nuclear Development Quality Assurance, Audit Report 09NI01, "Annual Audit of Implementation of the Fermi 3 Quality Assurance Program Description Requirements." The audit took place from October 26-30, 2009 (Exh. DTE000058).

343 Exhs. DTE000058-DTE000062, DTE000079-DTE000082.

344 DTE-09-0042, "Trend Analysis of Corrective Action Reports," dated November 2, 2009 (Exh. DTE000062). This action was acknowledged in the NRC inspection report accompanying the original NOV.

345 For example, DTE performed corrective action trend analyses in June 2010 (Exh. DTE000063), November 2010 (Exh. DTE000064), April 2011 (Exh. DTE000065), October 2011 (Exh. DTE000066), April 2012 (Exh. DTE000067), and October 2012 (Exh. DTE000068).

7.123. The NRC Staff accepted the corrective actions for the violations as sufficient. With respect to documentation of B&V's qualifications, the NRC Staff acknowledged DTE's Reply to Revised NOV in a letter dated June 4, 2010.[346] The NRC Staff found the reply letter to be responsive. With respect to audits and trend reports, the NRC Staff had already provided a detailed evaluation of DTE's position in the April 27, 2010 Revised NOV. The NRC Staff found the corrective actions for both violations to be responsive.[347]

ii. Safety Evaluation Report for Chapter 17

7.124. The NRC Staff has completed its review of Chapter 17 of the FSAR and the Fermi 3 QAPD, and there are no outstanding RAIs or unresolved issues with respect to the program.[348] The NRC Staff specifically addressed the items raised in the Revised NOV, concluding that (a) DTE's answers were responsive, (b) the implemented corrective actions were appropriate, and (c) the activities cited in the Revised NOV were addressed and are consistent with the requirements of Appendix B.[349]

7.125. The NRC Staff found the Fermi 3 QAPD acceptable based on reviews of twenty-two different subject areas. For example, the NRC Staff concluded that the Fermi 3 QAPD describes and defines the responsibility and authority for planning, establishing, and implementing an effective overall QA program.[350] The QAPD describes the organization's

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346 NRC Letter, EA-09-286, "Nuclear Regulatory Commission Inspection Report 05200033/2009-201 and Revised Notice of Violation to Detroit Edison Company," June 4, 2010 (Exh. DTE000087).

347 Revised NOV, Enclosure 1, at 7 and 11.

348 *See* Chapter 17 SER (ADAMS Accession No. ML112630120) (Exh. DTE000092).

349 *Id*. at 17-34.

350 *Id*. at 17-16.

structure, functional responsibilities and 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.

7.126. Overall, the NRC Staff concluded that the Fermi 3 QA program meets relevant standards and therefore can be employed during the design, construction, and operation of Fermi 3.[351]

d. Intervenors' Specific Concerns

7.127. Although Contention 15B, as admitted, related to DTE's implementation of its QA program following submittal of the COL Application, Mr. Gundersen acknowledged that he has no concerns with the adequacy of the Fermi 3 QAPD or its implementation.[352] Nevertheless, the Intervenors did raise a few issues that potentially implicate implementation of the Fermi 3 QA Program. These are discussed below.

i. Corrective Action Trending and Audits

7.128. Mr. Gundersen agreed that DTE now performs annual audits.[353] Mr. Gundersen also agreed that DTE now performs corrective action trending.[354] Mr. Stasek concurred, explaining that DTE currently performs audits and corrective action trending as required by DTE procedures.[355] The audits and corrective action trending were described above.

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351 Exh. DTE000092.

352 Tr. at 438.

353 *Id*. at 440-441.

354 *Id*. at 442.

355 *Id*. at 534-535.

7.129. We therefore find that DTE has performed audits and corrective action trending consistent with its QAPD and implementing procedures and that no issues are outstanding.[356]

ii. Program Staffing – ND QA Manager

7.130. Mr. Gundersen expressed a concern that DTE referred to a position, the Nuclear Development QA Manager, that is not discussed in the COL Application.[357] According to Mr. Gundersen, DTE stated in an RAI response that the Nuclear Development QA Manager held that position as of March 2008 (prior to the date of the COL Application), but Mr. Gundersen complains that the "COLA makes no reference to that role."[358]

7.131. The DTE witnesses explained that the Nuclear Development QA Manager was a position that existed only while the ND QAPD was in effect.[359] The ND QAPD was in effect prior to submission of the COL Application and was not submitted as part of the COL Application. The duties of the Nuclear Development QA Manager were taken over by the New

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356 This proceeding is not a forum for litigating whether DTE has made mistakes in the past, but rather focuses on whether there is reasonable assurance that DTE will follow NRC regulations in the future. *Georgia Institute of Technology* (Georgia Tech Research Reactor, Atlanta, Georgia), CLI-95-12, 42 NRC 111, 120-121 (1995). Here, the Intervenors provided no evidence to suggest that DTE's corrective actions were ineffective or that the same errors were repeated.

357 "Second Declaration of Arnold Gundersen Supporting Supplemental Petition of Intervenors Contention 15: DTE Cola Lacks Statutorily Required Cohesive QA Program" (May 17, 2012) ("Gundersen Dec. 3") at ¶15; Tr. at 446-448.

358 Gundersen Dec. 3 at ¶15.

359 DTE Testimony on Contention 15 at ¶83; Tr. at 448.

Plant Oversight Manager (Revision 0 of the Fermi 3 QAPD), which later became the Director, Quality Management (in Revision 1 of the Fermi 3 QAPD in October 2009).[360]

7.132. In any event, the Nuclear Development QA Manager position under the ND QAPD is discussed in the current revision of the COL Application, as part of a historical description of the QA program applied to the Fermi 3 project prior to COL Application submittal.[361]

7.133. Mr. Gundersen also claims that there were conflicting roles between the New Plant Oversight Manager and the Nuclear Development QA Manager. However, as DTE witnesses explained, the roles were serial in nature, under different QAPDs. The titles changed, while the description of the position remained essentially the same.[362]

7.134. We find that Mr. Gundersen's concerns reflect a misunderstanding of the evolution of the QA programs for the Fermi 3 project. Mr. Gundersen failed to recognize that the ND QAPD was superseded by the Fermi 3 QAPD upon filing of the Fermi 3 COL Application in September 2008. We find that Mr. Gundersen's concerns are not supported by the record in this proceeding.

iii. Program Staffing – QA Manager

7.135. Mr. Gundersen expressed concern regarding an alleged "3-month long gap" from April 2009 to June 2009 with no personnel in charge of QA.[363]

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360 DTE Testimony on Contention 15 at ¶83. Although they have different titles, all three positions have the same responsibilities.

361 *See* FSAR, Revision 3, Section 17.5 (at page 17-13) (Exh. DTE000049).

362 DTE Testimony on Contention 15 at ¶86.

363 Gundersen Testimony on Contention 15 at ¶24.

7.136. DTE witnesses stated that Mr. Gundersen is misunderstanding the history of QA personnel for Fermi 3. The DTE witnesses explained that the list of QA personnel in the RAI response cited by Mr. Gundersen identified the Nuclear Development QA Manager (J. Werner) employment dates between March 2008 and April 2009.[364] The current Director, Quality Management (Mr. Stasek) arrived at the project in early March 2009 to fill the role of New Plant Oversight Manager and briefly overlapped with the incumbent. Mr. Stasek has served uninterrupted in his role through the present under the current title of Director, Quality Management.[365] In addition, during the hearing, it was pointed out that the RAI only sought information for the pre-application period.[366]

7.137. We find that there was continuous QA oversight during the relevant period. Mr. Gundersen failed to consider the context of the RAI response or the evolution of titles in various iterations of the QAPDs for the Fermi 3 project. The concern is not supported by the record in this proceeding.

iv. Reporting Relationships

7.138. Mr. Gundersen claims that for 13 months, between March 2008 and April 2009, the QA Department reported directly to the Director of Nuclear Development.[367] According to Mr. Gundersen, having the QA Department report to the Director of Nuclear Development "does not provide the Quality Assurance function with adequate functional

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364 DTE Testimony on Contention 15 at ¶88.

365 Exh. DTE000094.

366 Tr. at 452-454. Because the NRC Staff only sought information regarding the pre-application period, DTE did not list Mr. Stasek, who joined the Fermi 3 project after the COL Application had been filed, in the RAI response.

367 Gundersen Testimony on Contention 15, at ¶24. During that period, the QA Manager for the Nuclear Development project was filled by one individual, Mr. Werner.

separation to assure the clear separation and independence between QA and other line functions within the Fermi 3 organization."[368]

7.139. The DTE witnesses testified that from March 2008 until October 2008, the reporting relationship for the ND QA Manager was defined by the ND QAPD.[369] Independence was discussed in the description of the Nuclear Development QA Manager function and in Section 1.4, "Quality Assurance Organizational Independence." In this pre-application phase the Nuclear Development QA Manager reported directly to the Director/Project Manager Nuclear Development.[370] 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 attention of the Senior Vice President DTE Energy who will determine the final disposition."[371]

7.140. DTE witnesses testified that the reporting relationship during this time was consistent with the approach in the NEI template. For the Fermi 3 project the Nuclear Development QA Manager reported to the "Senior Nuclear Development Officer" — the Director and Project Manager, Nuclear Development (D. Harwood).[372]

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368 *Id*.

369 Starting in October 2008, the position was defined by the Fermi 3 QAPD (first as New Plant Oversight Manager and, in later revisions, as Director, Quality Management).

370 The line organization is led by the Director, Nuclear Development Licensing and Engineering (P. Smith).

371 ND QAPD (Exh. DTE000070) at 3.

372 DTE Testimony on Contention 15 at ¶89.

7.141. Starting in October 2008 (with the submittal of the COL Application), DTE transitioned from the ND QAPD to the Fermi 3 QAPD. From October 2008 to June 2009, the Fermi 3 QAPD, Revision 0, was in effect. Under Revision 0, the New Plant Oversight Manager reported to the Director, Nuclear Development.[373] The Director, Nuclear Development, was the most senior manager for the Fermi 3 project at that time. The reporting relationship during this time was therefore consistent with the approach in the NEI template.[374]

7.142. In June 2009, the reporting relationship for the QA function transitioned from the Director, Nuclear Development, to the Sr. Vice President, Major Enterprise Projects. This change in reporting relationship actually increased the independence of the QA functions from the line organization.[375]

7.143. We find that the Intervenors' concern is based on a faulty understanding of the record. Mr. Gundersen failed to consider the evolution of reporting relationships in various iterations of the QAPD applied to the Fermi 3 project. The reporting relationships were consistent with the NRC template and ensured appropriate separation and independence during the relevant periods.

v. Assessment of the Intervenors' Concerns

7.144. We have considered the specific allegations of quality assurance issues cited by the Intervenors. The Intervenors' complaints regarding titles, responsibilities, and adherence to the NEI template were based on misreading or misunderstanding the information presented. They are without merit. For other issues raised by the Intervenors, such as the failure

373 *Id*.

374 *Id*.

375 *Id*. A helpful figure illuminating these transitions can be found in Exh. DTE000095.

to conduct timely audits or perform corrective action trending, it was clear, based on corrective action documentation, that DTE had already taken action to identify and rectify the concern. We find that there is no evidence of a safety-significant issue or a pervasive breakdown in quality assurance at any stage of the COL Application development effort.

2. Summary of Findings for QA Program Implementation

7.145. As described in the COL Application, DTE has implemented a QAPD for the Fermi 3 project. The Fermi 3 QAPD is based on an industry template and NQA-1. The Fermi 3 QAPD therefore satisfies Appendix B. The NRC Staff has completed its review of the QAPD and determined that it is consistent with NRC regulations. Although the Intervenors raise a number of issues relating to the QAPD and its fidelity to the NEI template, none have merit.

7.146. Work on the Fermi 3 project has been and is being performed under procedures and other work control processes. DTE has performed numerous audits, surveillances, assessments, and other actions to ensure effective implementation of the DTE QA program. The evidence presented suggests that the CAP is working as intended and that DTE is determined to correct its errors and improve itself. There is no evidence that implementation of the Fermi 3 QA program has been deficient. Ongoing implementation of the Fermi 3 QA Program is also subject to ongoing NRC oversight.

7.147. Overall, we find that there is reasonable assurance that the Fermi 3 QA program has been, can be, and will be implemented in accordance with NRC regulations and the applicable QAPD. There has been no breakdown in the Fermi 3 QA Program. We therefore find that Contention 15B is without merit and should be resolved in favor of DTE.

F. Summary of Findings for Contention 15

1. Contention 15A

7.148. Safety-related information in a COL Application based on data developed during the site investigation and collected under a QA program that is consistent with NQA-1-1994 is of sufficient quality to support a COL, absent a breakdown in the QA program or other errors of material safety significance.

7.149. Appendix B does not specify that the prospective applicant must have its own formal QA program in place during the pre-application period. Nor does Appendix B or NQA-1-1994, Subpart 2.20, direct the applicant to have in place a formal QA program prior to delegating to the others the work of establishing and executing the quality assurance program applied to site investigation activities. Rather, a prospective COL applicant may delegate to others the work of establishing and executing the quality assurance program for site investigation activities so long as the prospective applicant retains responsibility for the QA program.

7.150. DTE's contractor selection process appropriately considered the need for a QA program to be applied to safety-related activities during COL Application development. B&V provided evidence that it had a QA Program that satisfied NQA-1-1994 and Appendix B. DTE required B&V to apply its Appendix B/NQA-1 QA program to safety-related information in the Fermi 3 COL Application through contract terms. The PMM incorporated these contract requirements into project implementation documents.

7.151. Appropriate QA measures were applied to site investigation activities. B&V's Appendix B/NQA-1 QA program included procedures, training, and work controls that applied to site investigations, tests, and other safety-related activities that supported development of the COL Application. The PMM and implementing procedures and project instructions

provide assurance that site investigation activities important to safety were conducted in a quality manner and consistent with Subpart 2.20 of NQA-1-1994.[376]

7.152. DTE retained responsibility for the QA Program applied to site investigation activities. DTE exercised that responsibility during the site investigation and the subsequent development of COL Application materials. DTE had in place procedural and process controls that governed the scope of work performed by B&V, as well as the QA measures to be applied to that scope of work. DTE also conducted audits and surveillances of B&V activities.

7.153. The Intervenors failed to identify any specific safety-significant error in site investigation work or in the COL Application itself. Mr. Gundersen's specific concerns were without merit.

2. Contention 15B

7.154. DTE's QA Program for Fermi 3 is described in Chapter 17 of the Fermi 3 COL Application FSAR and includes a corporate commitment to quality assurance. The Fermi 3 QAPD provides for control of Fermi 3 activities that affect the quality of safety-related structures, systems, and components and includes all planned and systematic activities necessary to provide adequate confidence that such structures, systems, and components will perform satisfactorily in service.

7.155. DTE has a functioning Appendix B QA Program. Work on the Fermi 3 project has been and is being performed under procedures and other work control processes. DTE developed program procedures. DTE has performed numerous audits, surveillances,

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[376] The NRC Staff concluded in its review of the Fermi 3 QAPD that DTE provides assurance of compliance with the quality standards described in NQA-1–1994, Subpart 2.20, for the subsurface investigation requirements. Chapter 17 SER (ADAMS Accession No. ML112630120) (Exh. DTE000092) at 17-19.

assessments, and other actions to ensure effective implementation of the DTE QA program. DTE regularly performs self-assessments and corrective action trending, consistent with its QAPD and implementing procedures. The Fermi 3 CAP is working as intended. There is no evidence that implementation of the Fermi 3 QA program has been deficient. The Intervenors' allegations of quality assurance implementation issues are without merit. There was no evidence presented of a pervasive breakdown in quality assurance at any stage of the COL development effort. Nor did the Intervenors demonstrate flaws in the character or integrity of DTE management or show that it lacks commitment to quality assurance for Fermi 3.[377] We therefore find that DTE has implemented and will implement its QA Program effectively.

VIII. CONCLUSIONS OF LAW FOR CONTENTION 15

8.1. The Board has considered all of the evidence presented by the parties. Based upon a review of the entire record in this proceeding and the proposed findings of fact and conclusions of law submitted by the parties, and based upon the findings of fact set forth above, which are supported by reliable, probative, and substantial evidence in the record, the Board has decided all matters in controversy for Contention 15 and reaches the following conclusions.

8.2. We conclude, and the parties agree, that the legal standard to be applied by the Board is whether there is reasonable assurance that the plant can be built and operated without endangering public safety.[378] We therefore must address that standard for Contention 15A and Contention 15B.

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377 An applicant's corrective actions alone are evidence of good character, even without evidence that those corrective actions were effective. *Houston Lighting & Power Co.* (South Texas Project, Units 1 & 2), LBP-84-13, 19 NRC 659, 688 (1984), *aff'd* ALAB-799, 21 NRC 360 (1985) ("An applicant's sincere attempts to correct deficiencies may be viewed as favorable from a character standpoint irrespective of success.").

378 *See* Tr. at 644 (referencing the *Diablo Canyon* decision, 18 NRC at 1345); *Id*. at 699.

8.3. Contention 15A concerns the reliability of the safety-related information in the Fermi 3 COL Application and supporting FSAR. As the record and testimony demonstrate by a preponderance of the evidence, during the period of time that B&V was performing site investigations, tests, and other safety-related activities to support the development of the COL Application, the work was performed by B&V under B&V's established Appendix B/NQA-1 QA program at DTE's direction and subject to DTE oversight. During this period, DTE retained responsibility for the QA program. DTE also exercised that responsibility by requiring that B&V apply its Appendix B/NQA-1 QA Program to site investigation work, developing written procedures and instructions for that work, and performing oversight activities. Based on the comprehensive set of QA measures applied to safety-related information developed during the site investigation, there is reasonable assurance that the safety-related information developed prior to COL Application submittal is of high-quality. No issues of material significance with respect to the quality of information gathered during the site investigation phase have been identified by the NRC Staff review or in this proceeding. Contention 15A is therefore resolved in DTE's favor.

8.4. Contention 15B alleges that there is an ongoing lack of commitment to implementation of a QA program for Fermi 3. However, the testimony and exhibits demonstrate, by a preponderance of the evidence, that DTE has developed and implemented, and will continue to implement, an effective QA program — that is, one that meets all relevant requirements, including Appendix B. The Intervenors did not identify any issue of material safety significance relating to ongoing QA implementation. While there was one enforcement action, those issues were resolved based on corrective actions. There has not been any subsequent "pattern" of QA violations or a pervasive breakdown in the Fermi 3 QA program.

There is reasonable assurance that the Fermi 3 QA program has been, can be, and will be implemented in accordance with NRC regulations and the applicable QAPD. Contention 15B is therefore resolved in favor of DTE.

IX. CONCLUSIONS

9.1. In accordance with 10 C.F.R. §§ 2.1210(a) and (d), this Initial Decision is effective immediately and constitutes final action of the NRC within forty days of the date of issuance unless a petition for review is filed in accordance with 10 C.F.R. § 2.1212 or the Commission directs otherwise. Any petition for review must be filed within fifteen days after service of this Initial Decision and shall conform with the requirements of 10 C.F.R. § 2.341(b)(2) and must be based on the grounds specified in 10 C.F.R. § 2.341(b)(4).

Respectfully submitted,

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Dated at Washington, District of Columbia
this 21st day of January 2014

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)	)	

CERTIFICATE OF SERVICE

I hereby certify that copies of "DTE ELECTRIC COMPANY'S PROPOSED FINDINGS OF FACT AND CONCLUSIONS OF LAW" in the captioned proceeding have been served via the Electronic Information Exchange ("EIE") this 21st day of January 2014, which to the best of my knowledge resulted in transmittal of the foregoing to those on the EIE Service List for the captioned proceeding.

Respectfully submitted,

/s/ signed electronically by
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