NON-PROPRIETARY

Docket No. 52-033
PETITION CONTENTION 15
NON-PROPRIETARY

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

In the matter of		
The Detroit Edison Company	)	May 29, 2013
Fermi Nuclear Power Plant Unit 3	)	Docket No. 52-033
Combined License Application	)	

REBUTTAL TESTIMONY OF ARNOLD GUNDERSEN
SUPPORTING OF INTERVENORS' CONTENTION 15:
DTE COLA LACKS STATUTORILY REQUIRED COHESIVE QA PROGRAM

WITNESS BACKGROUND

Q1. Please state your name and residence.

A. Arnold Gundersen, and I am a resident of Burlington, VT.

Q2. What is the purpose of your testimony?

A. The Petitioners Beyond Nuclear, Citizens for Alternatives to Chemical Contamination, Citizens Environment Alliance of Southwestern Ontario, Don't Waste Michigan, and the Michigan Chapter of the Sierra Club have retained Fairewinds Associates, Inc to determine the root cause of Quality Assurance (QA) problems that the NRC has recently identified on the Fermi 3 COL application, and to provide amplification to the previously accepted Quality Assurance Contention #15. This testimony is my rebuttal testimony to the April 30, 2013 briefs submitted by Detroit Edison (DTE) and the Nuclear Regulatory Commission staff (NRC).

Q3. For the record, please summarize your educational and professional experience.

A. I earned my Bachelor Degree in Nuclear Engineering from Rensselaer Polytechnic Institute (RPI) cum laude. I earned my Master Degree in Nuclear Engineering from RPI via an Atomic Energy Commission Fellowship. Cooling tower operation and cooling tower plume theory were my area of study for my Master Degree. I am a member of Tau Beta Pi, national engineering society.

I began my career as a reactor operator and instructor in 1971 and progressed to the position of Senior Vice President for a nuclear licensee prior to becoming a nuclear engineering consultant and expert witness. An updated Curriculum Vitae is attached as Exhibit 1.

I have testified as a nuclear engineering expert witness before the Nuclear Regulatory Commission (NRC) Atomic Safety and Licensing Board (ASLB) and Advisory Committee on Reactor Safeguards (ACRS), in Federal Court, the State of Vermont Public Service Board, the State of Vermont Environmental Court, and the Florida Public Service Commission.

I am an author of the first edition of the Department of Energy (DOE) Decommissioning Handbook.

As an appointee of the Vermont State Legislature for two years, I was charged with serving in an oversight role of Entergy Nuclear Vermont Yankee and an advisory role on nuclear reliability issues to the Vermont State Legislature.

I have more than 40-years of professional nuclear experience *including and not limited to*: Nuclear Power Operations, Nuclear Safety Assessments, Nuclear Power Management, Nuclear Quality Assurance, Archival Storage and Document Control, NRC Regulations and Enforcement, Licensing, Engineering Management, Contract Administration, Reliability Engineering, In-service Inspection, Thermohydraulics,

Criticality Analysis, Radioactive Waste Processes, Decommissioning, Waste Disposal, Cooling Tower Operation, Cooling Tower Plumes, Consumptive Water Use, Source Term Reconstruction, Dose Assessment, Technical Patents, Structural Engineering Assessments, Nuclear Fuel Rack Design and Manufacturing, Nuclear Equipment Design and Manufacturing, Public Relations, Prudency Defense, Employee Awareness Programs, and Whistleblower Protection.

INTRODUCTION

Q4. Before we get into the specifics of your rebuttal, would you describe the status of your previous report and this report.

A. Yes. The prior report delineating the Quality Assurance (QA) problems on the Fermi 3 Licensing Project prepared by Fairewinds Associates, Inc was divided into two parts. The first part used publicly available information while the second part relies on material Detroit Edison had alleged to be "proprietary". The conclusions Fairewinds has reached are based on the non-proprietary information. The proprietary portion of the report, which was appended at the end only for the ASLB, merely provided additional source materials that amplified the conclusions Fairewinds drew from publically available data. No propriety material or terms are mentioned in this rebuttal testimony.

SCOPE OF REVIEW

Q5. What is the extent of your review of the DTE and NRC initial briefs and DTE and staff testimony regarding the Intervenors' Contention 15 describing DTE's missing QA program?

A. I have read and reviewed all the DTE and NRC Staff prefiled testimony and both initial briefs and have come to three fundamental conclusions:

- First, my prior evaluations and conclusions submitted in previous testimonies remain accurate.
- Second, the DTE and the NRC rebuttals are flawed.
- Third, there is *no reasonable assurance of the quality of the safety-related design information DTE has provided in its COLA.*

Q6. What is the essence of the DTE argument presented in its initial brief?

A. The essence of the DTE argument is presented in its initial brief in Q21/A21.

> QUALITY ASSURANCE REQUIREMENTS AND STANDARDS
> Q21. What NRC QA requirements apply to pre-application activities?
> A21. (PS, SS) There are no QA requirements that apply prior to submittal of a COL application — that is, before a company is an "applicant." Rather, implicitly, the prospective applicant must conduct activities that are important to safety (particularly safety-related site investigation activities) in a manner such that the quality can be demonstrated to support the eventual application.[1]

It appears that DTE is arguing that it had no QA responsibilities as an "applicant" until it became the "Applicant" upon the date the COLA was filed. The period during which DTE claims it was not an applicant encompasses a timespan from February 15, 2007 to September 18, 2008.

Q7. Is the DTE position correct?

A. No. The DTE argument is fallacious and logically inconsistent. In the first sentence DTE relies on the "plain language reading" of 10 CFR §50 Appendix B to claim that it was not an applicant until it formally applied for its COLA. Essentially DTE is using the plain language reading to shield itself from any requirements of 10 CFR

[1] DTE Initial Brief, Page 10

Appendix B. However, one sentence later, DTE claims to understand what the law implies stating, "*implicitly*, the prospective applicant must conduct activities". [Emphasis Added] Therefore, DTE is claiming to know what 10 CFR §50 Appendix B implied in its second sentence while claiming a plain language interpretation in its first sentence.

Rather, a much simpler argument to make is that the law "*implicitly*" made DTE the applicant when they notified the NRC of their intent to apply. Accordingly, DTE became the applicant on February 15, 2007, at the time DTE notified the NRC of its intent to apply for a COLA for Fermi Unit 3.

Q8. Did DTE believe it had QA responsibility under 10 CFR §50 Appendix B from the February 15, 2007 date it notified the NRC of its plan to apply for a COLA until September 18, 2008, when it formally filed its COLA with the NRC?

A. Yes. Fairewinds has reviewed thousands of pages of DTE material provided in both proprietary and non-proprietary filings and has found that DTE believed it had a responsibility to implement Appendix B during the time period prior to its COLA submission. Nothing in the record I have reviewed supports DTE's new argument that it was not an applicant until it became the Applicant. DTE's "plain language" argument first surfaced when the NRC issued a Notice Of Violation (NOV) to DTE on October 5, 2009 for numerous Quality Assurance violations. The NRC said that Detroit Edison "failed to establish and implement a Fermi 3 QA program… The NRC concluded that the failure to establish a Fermi 3 QA program resulted in inadequate control of procurement documents and ineffective control of contract services… performed by Black & Veatch for COL application activities."[2]

[2] *NRC Inspection Report 05200033/2009-201 And Notice Of Violation To Detroit Edison Company*, October 5, 2009, INTS 001.

Q9. Did DTE's Quality Assurance programs, policies, and procedures change when it became the "Applicant" on September 18, 2008?

A. No, DTE's QA programs, policies, and procedures that were in effect on September 17, 2008 remained identical to the programs, policies, and procedures that became effective on September 18, 2008. In all the material I have reviewed, DTE made no announcement to its employees or contractors that its status had changed on September 18, 2008, and that 10 CFR §50 Appendix B now suddenly applied when previously it did not.

In verification of Fairewinds' findings, according to DTE's own FSAR, it envisioned an orderly transition from pre-COLA activities to design and construction.

> 1.1.8 Transition from Pre-COL to Design and Construction
> Upon commencement of Design and Construction activities, those positions which are identified for the Design and Construction (D&C) phase, QAPD Section 1.2, will be staffed and have the appropriate authority required to perform design and construction activities. Those positions required to support Pre-COL activities will retain their applicable responsibilities until it is deemed that they are no longer necessary. Oversight, configuration, design, and construction responsibilities are transitioned as discussed below for each transitional position. During the transition, responsibilities will be clearly defined in instructions and procedures to ensure appropriate authority is maintained for each SSC.[3]

Q10. DTE argues that the provisions of 10 CFR §50 Appendix B did not apply to it because it had not become the "Applicant" using the plain language version of the law. If this argument is correct, are there other portions of 10 CFR that should apply but are precluded by this plain language interpretation?

A. Yes, there are at least four places in 10 CFR that would also be precluded using DTE's plain language interpretation. These are: [**Emphasis Added**]

1. 10 CFR §52.4 regarding Deliberate Misconduct states:

[3] *Fermi 3 Combined License Application Part 2: Final Safety Analysis Report, EF3 Sup 17.5-3 Appendix 17AA Fermi 3 Quality Assurance Program Description*, Page 10 of 80, February 2013, INTS 064.

(9) Any contractor (including a supplier or consultant), subcontractor, or employee of a contractor or subcontractor of **any applicant** for a license, a standard design certification, or a standard design approval.
(b) Definitions. For purposes of this section:
Deliberate misconduct means an intentional act or omission that a person or entity knows:
(i) Would cause a licensee or **an applicant** for a license, standard design certification, or standard design approval to be in violation of any rule, regulation, or order; or any term, condition, or limitation, of any license, standard design certification, or standard design approval; or
(ii) Constitutes a violation of a requirement, procedure, instruction, contract, purchase order, or policy of a licensee, holder of a standard design approval, **applicant** for a license, standard design certification, or standard design approval, or contractor, or subcontractor.
(c) Prohibition against deliberate misconduct. Any person or entity subject to this section, who knowingly provides to any licensee, **any applicant** for a license, standard design certification or standard design approval, or a contractor, or subcontractor of a person or entity subject to this section, any components, equipment, materials, or other goods or services that relate to a licensee's or **applicant's** activities under this part, may not:
(1) Engage in deliberate misconduct that causes or would have caused, if not detected, a licensee, holder of a standard design approval, or **applicant** to be in violation of any rule, regulation, or order; or any term, condition, or limitation of any license issued by the Commission, any standard design approval, or standard design certification; or
(2) Deliberately submit to the NRC; a licensee, **an applicant** for a license, standard design certification or standard design approval; or a licensee's, standard design approval holder's, **or applicant's contractor** or subcontractor, information that the person submitting the information knows to be incomplete or inaccurate in some respect material to the NRC.

2. 10 CFR §52.5 regarding employee protection states:
(a) Discrimination by a Commission licensee, holder of a standard design approval, **an applicant** for a license, standard design certification, or standard design approval, a contractor or subcontractor of a Commission licensee, holder of a standard design approval, applicant for a license, standard design certification, or standard design approval, against an employee for engaging in certain protected activities is prohibited. Discrimination includes discharge and other actions that relate to compensation, terms, conditions, or privileges of employment. The protected activities are established in Section 211 of the

Energy Reorganization Act of 1974, as amended, and in general are related to the administration or enforcement of a requirement imposed under the Atomic Energy Act or the Energy Reorganization Act.

3. 10 CFR §52.6 regarding completeness and accuracy of information states:

(a) Information provided to the Commission by a licensee (including an early site permit holder, a combined license holder, and a manufacturing license holder), a holder of a standard design approval under this part, and an **applicant** for a license or an **applicant** for a standard design certification or a standard design approval under this part, and information required by statute or by the Commission's regulations, orders, license conditions, or terms and conditions of a standard design approval to be maintained by the licensee, the holder of a standard design approval under this part, **the applicant** for a standard design certification under this part following Commission adoption of a final design certification rule, and an applicant for a license, a standard design certification, or a standard design approval under this part shall be complete and accurate in all material respects.

(b) Each applicant or licensee, each holder of a standard design approval under this part, and each applicant for a standard design certification under this part following Commission adoption of a final design certification regulation, shall notify the Commission of information identified by **the applicant** or the licensee as having for the regulated activity a significant implication for public health and safety or common defense and security. **An applicant**, licensee, or holder violates this paragraph only if the **applicant**, licensee, or holder fails to notify the Commission of information that the **applicant**, licensee, or holder has been identified as having a significant implication for public health and safety or common defense and security. Notification shall be provided to the Administrator of the appropriate Regional Office within 2 working days of identifying the information. This requirement is not applicable to information which is already required to be provided to the Commission by other reporting or updating requirements.[4]

4. § 21.2 Scope.

(a) The regulations in this part apply… to:

(1) *Each individual, partnership, corporation, or* **other entity applying** *for or holding a license or permit under the regulations in this chapter to possess*, use, or transfer within the United States source material, byproduct material, special nuclear material, and/or spent

[4] [72 FR 49521, Aug. 28, 2007], Page Last Reviewed/Updated Thursday, May 23, 2013

fuel and high-level radioactive waste, or to construct, manufacture, possess, own, operate, or transfer within the United States, any production or utilization facility or independent spent fuel storage installation (ISFSI) or monitored retrievable storage installation (MRS); and each director and responsible officer of such a licensee;

(2) Each individual, corporation, partnership, or other entity doing business within the United States, and each director and responsible officer of such an organization, that constructs a production or utilization facility licensed for manufacture, construction, or operation under parts 50 or 52 of this chapter, an ISFSI for the storage of spent fuel licensed under part 72 of this chapter, an MRS for the storage of spent fuel or high-level radioactive waste under part 72 of this chapter, or a geologic repository for the disposal of high-level radioactive waste under part 60 or 63 of this chapter; or supplies basic components for a facility or activity licensed, other than for export, under parts 30, 40, 50, 52, 60, 61, 63, 70, 71, or part 72 of this chapter;

(3) Each individual, corporation, partnership, or other entity doing business within the United States, and each director and responsible officer of such an organization, applying for a design certification rule under part 52 of this chapter; or supplying basic components with respect to that design certification, and each individual, corporation, partnership, or other entity doing business within the United States, and each director and responsible officer of such an organization, whose application for design certification has been granted under part 52 of this chapter, or who has supplied or is supplying basic components with respect to that design certification;

(4) Each individual, corporation, partnership, or other entity doing business within the United States, and each director and responsible officer of such an organization, **applying for** or holding a standard design approval under part 52 of this chapter; or supplying basic components with respect to a standard design approval under part 52 of this chapter;

(b) For persons licensed to construct a facility under either a construction permit issued under § 50.23 of this chapter or a combined license under part 52 of this chapter (for the period of construction until the date that the Commission makes the finding under § 52.103(g) of this chapter), or to manufacture a facility under part 52 of this chapter, evaluation of potential defects and failures to comply and reporting of defects and failures to comply under § 50.55(e) of this chapter satisfies each person’s evaluation, notification, and reporting obligation to report defects and failures to comply under this part and the responsibility of individual directors and responsible officers of these licensees to report defects under Section 206 of the Energy

> Reorganization Act of 1974.
> (c) For persons licensed to operate a nuclear power plant under part 50 or part 52 of this chapter, evaluation of potential defects and appropriate reporting of defects under §§ 50.72, 50.73, or § 73.71 of this chapter, satisfies each person's evaluation, notification, and reporting obligation to report defects under this part, and the responsibility of individual directors and responsible officers of these licensees to report defects under Section 206 of the Energy Reorganization Act of 1974.
> (d) Nothing in these regulations should be deemed to preclude either an individual, a manufacturer, or a supplier of a commercial grade item (as defined in § 21.3) not subject to the regulations in this part from reporting to the Commission, a known or suspected defect or failure to comply and, as authorized by law, the identity of anyone so reporting will be withheld from disclosure. NRC regional offices and headquarters will accept collect telephone calls from individuals who wish to speak to NRC representatives concerning nuclear safety-related problems. The location and telephone numbers of the four regions (answered during regular working hours), are listed in appendix D to part 20 of this chapter. The telephone number of the NRC Operations Center (answered 24 hours a day--including holidays) is (301) 816-5100.
> (e) The regulations in this part apply in accordance with 10 CFR 76.60 to each individual, partnership, corporation, or other entity required to obtain a certificate of compliance or an approved compliance plan under part 76 of this chapter.[5] [**Emphasis Added**]

Q11. Given DTE's plain language interpretation of 10 CFR is it possible for the NRC to have reasonable assurance of the quality of the information within the COLA?

A. If DTE's plain language interpretation of Appendix B is accepted by the NRC and this Atomic Safety and Licensing Board (ASLB), it indicates that 10 CFR §50 Appendix B, 10 CFR §52.4, 10 CFR §52.5, 10 CFR §52.6, and 10 CFR §21 also would not apply to any information generated on the DTE Fermi 3 COLA project

[5] [56 FR 36089, July 31, 1991, as amended at 59 FR 14086, Mar. 25, 1994; 59 FR 48959, Sept. 23, 1994; 60 FR 48373, Sept. 19, 1995; 66 FR 55790, Nov. 2, 2001; 72 FR 49486, Aug. 28, 2007]. Page Last Reviewed/Updated Thursday, May 23, 2013.

between February 15, 2007 and September 18, 2008. The integrity of all the critical safety related information provided in the Applicant's COLA is no longer assured, and there can be *no reasonable assurance that the quality of any information* submitted in this COLA process meets 10 CFR standards for nuclear **applicants or Applicants** [DTE's reference], contractors, consultants, and/or licensees. In my professional opinion as a nuclear engineer, there is no legal difference between *applicant* as identified by the 10 CFR and *Applicant* with a capital 'A' as claimed by DTE. Moreover, if the NRC allows such a distinction to stand, the entire legal framework assuring nuclear safety is placed in jeopardy.

Q12. Is it true, as DTE claims, that it had delegated to Black and Veatch all of its Quality Assurance responsibilities between February 15, 2007 and September 18, 2008?

A. Yes, this is DTE's claim to the NRC. However, after reviewing thousands of pages of evidence Fairewinds Associates is unable to substantiate this claim. In fact the evidence reviewed clearly shows that DTE believed it had a fully functional QA program in place when it filed its COLA on September 18, 2008.

Q13. Did the NRC believe that DTE's QA program met 10 CFR §50 Appendix B regulatory requirements?

A. No. In my previous testimony in this case, Fairewinds has identified a series of NRC emails clearly indicating that DTE did not meet 10 CFR §50 Appendix B regulatory requirements. Furthermore, the NRC issued a Notice Of Violation (NOV) notifying DTE that it did not meet 10 CFR §50 Appendix B regulatory requirements. DTE's response based upon its plain language interpretation of the law appears to have caused the NRC to change its position.

Q14. What is the current position of the NRC Staff?

A. According to the initial brief prepared by the NRC Staff, the NRC now agrees with Detroit Edison as evidenced in the quote below:

> The Staff reviewed the information in the May 2010 RAI Responses and determined that, for activities occurring before submission of the COLA on September 18, 2008, the Applicant had contractually delegated to B&V the work of developing and implementing a QA program for COLA development that satisfied the requirements of 10 C.F.R. Part 50, Appendix B, and that B&V had established such a program. Lipscomb Testimony at A25; Exhibit NRC S1 at 17-35. See also Appendix B, Section IV, "Procurement Document Control." The Staff also determined that while the Applicant was not required to establish a full QA program meeting all requirements of Appendix B prior to submitting the COLA to the NRC, the Applicant did establish the ND QAPD that included those elements of an Appendix B QA program necessary to support the review and acceptance of B&V work product.[6]

Q15. Do you agree with the NRC's position?

A. No I do not. According the NRC Standard Review Plan (SRP) for Quality Assurance[7]

> [**Emphasis Added**]The **applicant** or holder may delegate part or all of the activities of planning, establishing, and implementing the overall QA program to others but is to retain the responsibility for the program. (NQA-1)
>
> … Major delegation of work to participants outside of the **applicant** or holder's organization is identified and described as follows: (NQA-1)
>
> a. The organizational elements responsible for delegated work are identified and documented.
> b. Management controls and lines of communication between the applicant's designated person or his designee (and the delegated organization) are identified and documented.
> c. Responsibility for the QA program and the extent of management oversight is established.
> d. The performance of delegated work is formally evaluated by the **applicant** or holder. [**Emphasis Added**]

Now, both the NRC and DTE belatedly claimed that DTE was not actually the

[6] NRC Staff Initial Brief, Pages 18/19
[7] NRC SRP 17.5-8

"Applicant" until September 18, 2008. Therefore in accordance with the NRC's own QA Standard Review Plan, DTE did not have the authority to delegate any work to B&V because it does not consider itself an Applicant. Additionally, the NRC does not have any authority to review any work that DTE delegated due to the fact that according to its own Standard Review Plan, such delegation could only occur if DTE was in fact the Applicant throughout the whole COLA submittal and pre-submittal process beginning in February 2007.

Furthermore, while B&V QA had been used at other new reactor projects, there is no evidence that the NRC approved the B&V program for the DTE Fermi 3 project. If the NRC had specifically *approved* the B&V program for use at the Fermi 3 site, then DTE would have been an "Applicant", a fact that now DTE and the NRC belatedly claimed DTE was not.

CONCLUSION

Q16. What is your conclusion from your review of DTE and NRC assertions?

A. My conclusion is based upon my review of all the DTE and NRC Staff prefiled testimony and both initial briefs. First, if the NRC staff is correct in its agreement with the DTE assertion that QA did not apply prior to the September 2008 filing of the DTE Fermi 3 COLA because DTE was not the "Applicant", then it is also true that any DTE contractor or employee could engage in deliberate misconduct and could intimidate a whistleblower without repercussion to the contractor or protection for the whistleblower. Moreover, since 10 CFR §52.4, 52.5, and 52.6 as well as Part 21 also do not apply to the Fermi 3 COLA, then the NRC may not assume that any documents, studies, materials, designs, or verbal discussions are truthful and accurate. Regulators and the public have no assurances that any possible design flaws and/or site study flaws were accurately reported and corrected due to the fact DTE was not the "Applicant". To assure the integrity of the COLA process, the NRC has created 10 CFR §52.4, 52.5, and 52.6 and Part 21 and Appendix B. These stringent legal

requirements do in fact apply precisely because this "Applicant" is an *applicant to design, fabricate, construct, and operate a nuclear power plant.*

Second, the Code of Federal Regulations is designed to protect public health and safety and the NRC is required to follow and enforce this statute. Such blatant misinterpretation of the Code of Federal Regulations by the NRC has already begun to set a dangerous precedent amongst other COLA applicants. Fairewinds has recently been informed that an employee working on the Bellefonte COLA was terminated after raising a safety concern. The NRC was notified about this alleged Whistleblower retaliation, and while the NRC simply expressed regret about the employee's dismissal, it noted that no employee protections could be afforded because the formal COLA had not yet been submitted.

Finally, in my professional opinion as a nuclear engineer, there is no legal difference between *applicant* as identified by the 10 CFR and *Applicant* with a capital 'A' as claimed by DTE. Moreover, if the NRC allows such a distinction to stand, the entire legal framework assuring nuclear safety is in jeopardy.

End

I declare under penalty of perjury that the foregoing is true and correct.
Executed this 29th day, May 2013 at Burlington, Vermont.

_____/s/_____
Arnold Gundersen, MSNE, RSO
Chief Engineer, Fairewinds Associates, Inc