

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:

William J. Froehlich, Chairman
Nicholas G. Trikouros
Dr. William E. Kastenberg

In the Matter of:

FirstEnergy NUCLEAR OPERATING
COMPANY

(Davis-Besse Nuclear Power Station, Unit 1)

Docket No. 50-346-LR

ASLBP No. 11-907-01-LR-BD01

December 28, 2012

MEMORANDUM AND ORDER

(Ruling on Motion for Summary Disposition of Contention 4)

This proceeding concerns the application of FirstEnergy Nuclear Operating Company (FENOC) to renew the 10 C.F.R. Part 50 operating license for Davis-Besse Nuclear Power Station, Unit 1 (Davis-Besse), for an additional 20-year term.¹ The current operating license for Davis-Besse expires at midnight on April 22, 2017.² Currently pending before this Licensing Board is a FENOC motion for summary disposition of Contention 4,³ wherein Beyond Nuclear, Citizens Environment Alliance of Southwestern Ontario, Don't Waste Michigan, and the Green Party of Ohio (collectively, Intervenors) challenge FENOC's

¹ License Renewal Application; Davis-Besse Nuclear Power Station, 1.0-1 (Aug. 2010) (ADAMS Accession Nos. ML102450567, ML102450563) [hereinafter Application or LRA]. The Application also seeks renewal of the associated source material, special nuclear material, and byproduct material licenses under 10 C.F.R. Parts 30, 40, and 70. See id.

² Id.

³ See FirstEnergy's Motion for Summary Disposition of Contention 4 (SAMA Analysis Source Terms) (July 26, 2012) [hereinafter Motion for Summary Disposition].

analysis of severe accident mitigation alternatives (SAMAs).⁴ For the reasons discussed herein, the motion for summary disposition is GRANTED.

I. PROCEDURAL HISTORY

On December 27, 2010, Intervenors filed a petition to intervene and a request for a hearing in this proceeding, proffering four contentions.⁵ On April 26, 2011 this Board admitted the Intervenors as parties to the proceeding and admitted two of their proffered contentions: Contention 1, concerning alternative energy sources, and Contention 4, a SAMA contention.⁶ Contention 4, as admitted by this Board, reads as follows:

The Environmental Report (ER) is inadequate because it underestimates the true cost of a severe accident at Davis-Besse in violation of 10 C.F.R. § 51.53(c)(3)(ii)(L) and further analysis by the Applicant, [FENOC], is called for because of:

- (1) Minimization of the potential amount of radioactive material released in a severe accident by using a source term based on radionuclide release fractions which are smaller for key radionuclides than the release fractions specified in NRC guidance;
- (2) Use of an inappropriate air dispersion model, the straight-line Gaussian plume, that does not allow consideration for the fact that winds for a given time period may vary spatially, ignores the presences of Great Lakes “sea breeze” circulations which dramatically alter air flow patterns, fails to account for hot spots of radioactivity caused by plumes blowing offshore over Lake Erie, and is based on meteorological inputs collected from just one site – at Davis-Besse itself; and

⁴ We note that there is another series of motions pending before this Board relating to the admission of a new proposed contention (Contention 5) concerning cracking in the Davis-Besse shield building. We address this series of motions by separate Order issued this day. See LBP-12-27, 76 NRC __ (slip op.) (Dec. 28, 2012).

⁵ See Beyond Nuclear, Citizens Environment Alliance of Southwestern Ontario, Don't Waste Michigan, and the Green Party of Ohio Request for Public Hearing and Petition for Leave to Intervene (Dec. 27, 2010) [hereinafter Petition to Intervene].

⁶ See LBP-11-13, 73 NRC 534, 588–89 (2011).

- (3) Use of inputs that minimized and inaccurately reflected the economic consequences of a severe accident, specifically particle size and cleanup costs for urban areas.⁷

Ruling on an appeal by FENOC, the Commission reversed the Board's decision in part by holding that Contention 1, in its entirety, and parts (2) and (3) of Contention 4, as quoted above, were inadmissible.⁸ As such, Contention 4 as narrowed by the Commission challenges only FENOC's use of source terms generated by the Modular Accident Analysis Program (MAAP) computer code in its SAMA analysis. This Board has reiterated that the scope of Contention 4 is now "very narrow."⁹

On July 26, 2012, FENOC filed the instant motion for summary disposition of Contention 4.¹⁰ FENOC states its motion is based on a revised SAMA analysis for Davis-Besse, which it submitted to the Nuclear Regulatory Commission (NRC) on July 16, 2012.¹¹ FENOC argues that it is entitled to summary disposition of Contention 4 because its revised SAMA analysis demonstrates that "there is no genuine issue of material fact arising from any of Intervenors' claims."¹²

⁷ Id.

⁸ See CLI-12-08, 75 NRC __, __-__ (slip op. at 21-34) (Mar. 27, 2012).

⁹ See Licensing Board Order (Granting Motion to Strike) at 6 (Oct. 11, 2012) (unpublished).

¹⁰ See Motion for Summary Disposition.

¹¹ Letter from John C. Dominy, Director, Site Maintenance, FirstEnergy, to Document Control Desk, U.S. NRC, Correction of Errors in the Davis-Besse Nuclear Power Station, Unit No. 1, License Renewal Application (TAC No. ME4613) Environmental Report Severe Accident Mitigation Alternatives Analysis, and License Renewal Application Amendment No. 29 (July 16, 2012) (ADAMS Accession No. ML12200A024) [hereinafter Revised SAMA Analysis].

¹² Motion for Summary Disposition at 3.

On September 14, 2012, the NRC Staff filed an answer supporting the motion and Intervenor filed an answer opposing it.¹³ On September 24, 2012, FENOC filed a motion to strike the Intervenor's answer in its entirety,¹⁴ to which the Intervenor replied on October 4, 2012.¹⁵ Holding that Intervenor's answer was not responsive to FENOC's motion and consisted solely of arguments well beyond the scope of Contention 4, this Board granted the motion to strike in an October 11 Order.¹⁶ The Intervenor filed a motion for reconsideration of this ruling on October 22,¹⁷ which the NRC Staff and FENOC opposed on October 31, 2012 and November 1, 2012 respectively.¹⁸ This motion for reconsideration remains pending before this Board. For failure to meet the high standard established by 10 C.F.R. § 2.323(e), the Board now DENIES Intervenor's October 22, 2012 motion for reconsideration.

¹³ NRC Staff's Answer to FirstEnergy's Motion for Summary Disposition of Contention 4 (SAMA Analysis Source Terms) (Sept. 14, 2012) [hereinafter NRC Staff Answer]; Intervenor's Reply in Opposition to 'FirstEnergy's Motion for Summary Disposition of Contention 4 (SAMA Analysis – Source Terms)' (Sept. 14, 2012).

¹⁴ FENOC's Motion to Strike Intervenor's Reply in Opposition to 'FirstEnergy's Motion for Summary Disposition of Contention 4 (SAMA Analysis – Source Terms) (Sept. 24, 2012).

¹⁵ See Intervenor's Response in Opposition to FENOC's Motion to Strike Intervenor's Reply in Opposition to 'FirstEnergy's Motion for Summary Disposition of Contention 4 (SAMA Analysis – Source Terms) (Oct. 4, 2012).

¹⁶ See Licensing Board Order (Granting Motion to Strike) (Oct. 11, 2012) (unpublished).

¹⁷ Intervenor's Motion for Reconsideration of ASLB Order Granting FENOC's Motion to Strike Intervenor's Reply in Opposition to 'FirstEnergy's Motion for Summary Disposition of Contention 4 (SAMA Analysis – Source Terms)' (Oct. 22, 2012).

¹⁸ NRC Staff's Answer to Intervenor's Motion for Reconsideration of ASLB Order Granting FENOC's Motion to Strike Intervenor's Reply in Opposition to FirstEnergy's Motion for Summary Disposition of Contention 4 (SAMA Analysis – Source Terms) (Oct. 31, 2012); FENOC's Answer Opposing Intervenor's Motion for Reconsideration of Order Striking Intervenor's Answer to FENOC's Motion for Summary Disposition of Contention 4 (Nov. 1, 2012).

This Board conducted an oral argument on the motion for summary disposition of Contention 4 on November 5, 2012 in Toledo, Ohio.¹⁹

II. LEGAL STANDARDS²⁰

A. Standards for Granting Motions for Summary Disposition

The standards governing motions for summary disposition are found in 10 C.F.R. § 2.710. Sub-section (d)(2) of that Section states, “The presiding officer shall render the decision sought if the filings in the proceeding, depositions, answers to interrogatories, and admissions on file, together with the statements of the parties and the affidavits, if any, show that there is no genuine issue as to any material fact and that the moving party is entitled to a decision as a matter of law.”²¹ This standard establishes a two-part test: first, the Board must determine if any material facts remain genuinely in dispute; and second, if no such disputes remain, the Board must determine if the movant’s legal position is correct.²²

Because we have stricken Intervenor’s answer opposing FENOC’s motion for summary disposition, two other standards are relevant here. First, 10 C.F.R. § 2.710(a) provides that “[a]ll material facts set forth . . . by the moving party will be considered to be

¹⁹ See Notice and Order (Scheduling Oral Argument) (Sept. 20, 2012) (unpublished); Tr. at 275–509.

²⁰ NRC’s “Rules of Practice for Domestic Licensing Proceedings and Issuance of Orders” are set forth in 10 C.F.R. Part 2. Some of these regulations were amended on August 3, 2012. Amendments to Adjudicatory Process Rules and Related Requirements, 77 Fed. Reg. 46,562 (Aug. 3, 2012). These amendments “govern all obligations and disputes that arise after the effective date of the final rule,” September 4, 2012. Id. at 46,562. Because FENOC filed its Motion for Summary Disposition before September 4, 2012, this dispute arose before the effective date of the amendments. Therefore, all citations in this Order are to the regulations as they existed prior to the above amendments.

²¹ 10 C.F.R. § 2.710(d)(2). See also, 10 C.F.R. § 2.1205(c).

²² See Progress Energy Florida, Inc. (Levy County Nuclear Power Plant, Units 1 and 2), LBP-11-31, 74 NRC __, __ (slip op. at 5) (Nov. 4, 2011).

admitted unless controverted by . . . the opposing party.”²³ Second, 10 C.F.R. § 2.710(b) states, “If no answer is filed, the decision sought, if appropriate, must be rendered.”²⁴ This language does not suggest that an unopposed motion for summary disposition must automatically be granted. Rather, the proponent of the motion bears the burden of establishing that no facts remain in dispute, even if the motion is unopposed.²⁵

B. Legal Standards Regarding SAMA Analysis Related Contentions

Since this Board admitted Contention 4, the Commission has issued a series of rulings that bear directly on the issue of adjudicatory challenges to SAMA analyses. For example, in the Pilgrim case, CLI-12-01, the Commission stated:

With respect to a SAMA analysis in particular, unless a contention, submitted with adequate factual, documentary, or expert support, raises a potentially significant deficiency in the SAMA analysis—that is, a deficiency that could credibly render the SAMA analysis altogether unreasonable under NEPA standards—a SAMA-related dispute will not be material to the licensing decision, and is not appropriate for litigation in an NRC proceeding.²⁶

In addition, the Commission held in Seabrook, CLI-12-05:

Given the quantitative nature of the SAMA analysis, where the analysis rests largely on selected inputs, it may always be possible to conceive of alternative and more conservative inputs, whose use in the analysis could result in greater estimated accident consequences. But the proper question is not whether there are plausible alternative choices for use in the analysis, but whether the analysis that was done is reasonable under NEPA. . . . SAMA adjudications would prove endless if hearings were triggered merely by suggested alternative inputs and methodologies that conceivably could alter the cost-benefit conclusions. A contention proposing alternative inputs or methodologies must present some factual or expert basis for why the proposed changes in the analysis are warranted (e.g., why the inputs or

²³ 10 C.F.R. § 2.710(a).

²⁴ 10 C.F.R. § 2.710(b) (emphasis added).

²⁵ See Cleveland Elec. Illuminating Co. (Perry Nuclear Power Plant, Units 1 and 2), ALAB-443, 6 NRC 741, 753–54 (1977).

²⁶ Entergy Nuclear Generation Co. and Entergy Nuclear Operations, Inc. (Pilgrim Nuclear Power Station), CLI-12-01, 75 NRC __, __ (slip op. at 25) (Jan. 9, 2012) (emphasis in original).

methodology used is unreasonable, and the proposed changes or methodology would be more appropriate). Otherwise, there is no genuine material dispute with the SAMA analysis that was done, only a proposal for an alternate NEPA analysis that may be no more accurate or meaningful.²⁷

Finally, in ruling on FENOC's appeal of our Order admitting the narrowed Contention 4, the Commission stated:

[B]ecause the SAMA analysis is largely quantitative, resting on inputs used in computer modeling, it will always be possible to propose that the analysis use one or more other inputs. But simply because a computer model also could have been run with alternate inputs does not suggest that the inputs used were unreasonable. We therefore have stressed that the "proper question is not whether there are plausible alternative choices for use in the analysis, but whether the analysis that was done is reasonable under NEPA." To challenge an application, a petitioner must point with support to an asserted deficiency that renders the SAMA analysis unreasonable under NEPA. . . . Unless a petitioner sets forth a supported contention pointing to an apparent error or deficiency that may have significantly skewed the environmental conclusions, there is no genuine material dispute for hearing.²⁸

With these recent statements of the Commission's SAMA-related jurisprudence in mind, we consider FENOC's motion for summary disposition of Contention 4.

III. ANALYSIS AND RULING

A. Timeliness

NRC regulations require that a motion be filed "no later than ten (10) days after the occurrence or circumstance from which the motion arises."²⁹ This Board has previously held in this proceeding that this ten-day deadline applies to dispositive motions as it would to any other motion.³⁰ While FENOC has again expressed its dissatisfaction with the

²⁷ Nextera Energy Seabrook, LLC (Seabrook Station, Unit 1), CLI-12-05, 75 NRC __, __ (slip op. at 28–29) (Mar. 8, 2012).

²⁸ CLI-12-08, 75 NRC at __ (slip op. at 17–18) (emphasis in original).

²⁹ 10 C.F.R. § 2.323(a).

³⁰ See Licensing Board Memorandum and Order (Denying Motion to Dismiss Contention 1) (Jan. 10, 2012) at 5 (unpublished); Licensing Board Order (Denying Motion for Leave to File a Motion for Reconsideration) (Jan. 30, 2012) at 3–4 (unpublished).

Board's interpretation of this requirement,³¹ we remain convinced that it is the correct reading of the regulation.³² As such, FENOC must demonstrate that its motion was filed within ten days of the "occurrence or circumstance" from which it arose, or a "triggering event."

FENOC points to a July 16, 2012 filing³³ wherein it revised its SAMA analysis as the "triggering event" giving rise to the instant motion.³⁴ In addition, FENOC retained two experts to review Intervenors' claims in Contention 4, and views their review and resulting affidavit "as a supporting basis for the motion as well."³⁵

FENOC states that it performed "some new MAAP code runs" during the process of revising its SAMA analysis, and that, as a result, "[FENOC] re-characterized the source terms and release fractions by using radionuclide masses . . . to specify the fission product inventory. So there were some changes in the actual source terms and release fractions that were used in the SAMA analysis."³⁶ Because Contention 4 challenges the release fractions and source terms used in FENOC's SAMA analysis, FENOC contends that there is "a direct nexus between [the Revised SAMA analysis] and the original contention."³⁷ In addition, FENOC states that the experts it engaged to review Contention 4 "did a very thorough review of those claims, and ultimately determined that they lacked technical or

³¹ See Tr. at 308, 336.

³² Indeed, the NRC has recently amended § 2.323(a) "to state that 'all motions,' instead of [the previous] 'a motion,' must be made within ten days after the occurrence or circumstance from which the motion arises." 77 Fed. Reg. 46,562, 46,567 (emphasis added).

³³ See Revised SAMA Analysis.

³⁴ See id.; Motion for Summary Disposition at 5–6.

³⁵ Tr. at 312.

³⁶ Id. at 310.

³⁷ Id.

factual merit. They also concluded that the use of MAAP is reasonable and appropriate for developing environmental source terms for purposes of a SAMA analysis.”³⁸

While it appears that the revised SAMA analysis was not tailored to address the faults in the SAMA analysis alleged in Contention 4 (indeed, the revised SAMA analysis appears to have been performed to correct five errors unrelated to Contention 4),³⁹ it is sufficiently related to Contention 4 to serve as a triggering event. As such, because FENOC filed its motion within ten days of this “occurrence or circumstance,” the motion is timely.

B. Analysis of the Motion for Summary Disposition

As the name implies, a Severe Accident Mitigation Alternatives (SAMA) analysis is focused on the identification of candidate modifications (e.g., hardware, software, or operational changes) that have the potential to mitigate severe accident risk and to determine whether or not implementation of each potential candidate is cost-beneficial.

With certain exceptions not applicable here, a SAMA analysis for relicensing must be performed by the licensee and included in the license renewal application (LRA).⁴⁰ Practically speaking, a SAMA analysis requires a base-line Probabilistic Risk Assessment (PRA) for each plant and a set of plant or operational changes (i.e., mitigation alternatives) that could reduce the frequency or consequences (or both) of a severe accident sequence or set of sequences. The cost of implementing the mitigation alternative is then compared to the “monetized” value of the benefit received in terms of risk averted (i.e., offsite radiation exposure cost averted, offsite economic cost averted, onsite radiation exposure cost

³⁸ Id. at 311.

³⁹ See Revised SAMA Analysis at 1.

⁴⁰ 10 C.F.R. § 51.53(c)(3)(ii)(L).

averted, and onsite economic cost averted). From both a regulatory perspective and a technical perspective, a SAMA analysis is a plant and site-specific assessment.⁴¹

As defined in the NRC's "Policy Statement on Severe Accidents Regarding Future Designs and Existing Plants," a severe accident is one in which there is substantial damage to the reactor core whether or not there are serious offsite consequences.⁴² In order to evaluate the arguments advanced by the parties in this proceeding, it is important to outline the analytical method or framework for quantifying such severe accidents. PRA is comprised of three sequential activities called Levels:⁴³

Level 1 PRA: A quantification of initiating events and accident sequences leading to core damage in terms of annual probability or frequency of core damage, the summation of which results in an overall "core damage frequency" or CDF.

Level 2 PRA: A quantification of core and containment physical response, called accident progression, that results in fission product release from the core into containment and fission product release from the core and containment into the environment, as well as conditional probabilities of containment failure for each core damage sequence or state.

Level 3 PRA: A quantification of consequences in terms of annualized (frequency or annual probability) values of individual and public health effects, environmental effects, and economic effects of radioactive releases from containment to the environment.

It is this integral quantification, in terms of frequency (annual probability) and consequence (generally accompanied with a measure of the uncertainty), that is called the

⁴¹ CLI-12-08, 75 NRC at ___ (slip op. at 17).

⁴² See Policy Statement on Severe Reactor Accidents Regarding Future Designs and Existing Plants, 50 Fed. Reg. 32,138, 32,138 (Aug. 8, 1985).

⁴³ See Motion for Summary Disposition, Attach. 2, Joint Declaration of Kevin O'Kula and Grant Teagarden in Support of FirstEnergy's Motion for Summary Disposition of Contention 4 (SAMA Analysis Source Terms) (July 26, 2012) at 12, 27 [hereinafter Joint Declaration].

“risk.” And although the NRC has found, through its Individual Plant Examination (IPE)⁴⁴ and Individual Plant Examination for External Events (IPEEE)⁴⁵ processes and other risk studies, that the risks are small for all United States licensed nuclear power plants,⁴⁶ the NRC Staff is required under NEPA to consider mitigation alternatives during its license renewal review.⁴⁷

At issue in this proceeding is the contention that the Modular Accident Analysis Program (MAAP) code⁴⁸ utilized by FENOC in carrying out the base-line PRA for its SAMA analysis calculates an unrealistically low amount of radioactive material released in a severe accident. As support, Intervenors claim that the MAAP code uses a source term based on radioactive release fractions that is smaller for key radionuclides than the release fractions specified in NRC guidance (actually, specified in a number of NRC risk assessments and risk studies using the MELCOR⁴⁹ code and its predecessors discussed later in this decision). If this claim were substantiated, it would mean that the potential benefit or risk averted for some candidates is underestimated in the cost beneficial

⁴⁴ Individual Plant Examination or IPE contains the PRA for each licensed nuclear plant in the United States. See NRC Generic Letter 88-20, “Individual Plant Examination for Severe Accident Vulnerabilities – 10 CFR 50.54(f)” (Nov. 1988).

⁴⁵ Individual Plant Examination for External Events or IPEEE contains the PRA for extreme external phenomena such as earthquakes, tsunamis and hurricanes. See NRC Generic Letter 88-20, Supp. 4, “Individual Plant Examination of External Events (IPEEE) for Severe Accident Vulnerabilities – 10 CFR 50.54(f)” (June 1991).

⁴⁶ See, e.g., 10 C.F.R. Part 51, Subpart A, Appendix B, Table B-1.

⁴⁷ 10 C.F.R. § 51.53(c)(3)(ii)(L) and 10 C.F.R. Part 51, Subpart A, Appendix B, Table B-1 define the NEPA requirement.

⁴⁸ MAAP stands for Modular Accident Analysis Program, and it has been developed by the Industry and owned and licensed by the Electric Power Research Institute. Licensees typically use the MAAP code in support of their SAMA analyses. See Joint Declaration at 20; Motion for Summary Disposition, Att. 25, Nuclear Engineering Handbook 539 (Kenneth D. Kok, ed. 2009).

⁴⁹ MELCOR is a severe accident analysis computer code developed and used by the NRC and its contractors to perform severe accident analyses.

determination. Hence, the issue in this proceeding is the reasonableness or adequacy of the release fractions and/or source term(s) used in the Davis-Besse SAMA analysis.

In determining whether or not to grant FENOC's Motion, this Board has considered the following:⁵⁰

1. Source terms have played an integral role in the regulatory process in meeting requirements such as the 10 C.F.R. Part 100 site criteria, the 10 C.F.R. Part 50, Appendix A General Design Criteria, and a number of other regulatory requirements.
2. The quantification of source terms has evolved over the past 50 years. The first source term used in siting existing nuclear power plants in the United States appeared in Technical Information Document-14844 (TID-14844), published in 1962.⁵¹ It was a generic (not based on any one reactor, but intended for all reactors), postulated (based on engineering judgment) source term and based on a few experiments. NUREG-1465, published in 1989, updated the TID-14844 source term utilizing the results of several mechanistic or physical models in conjunction with the results of several plant-specific PRAs to arrive at an updated generic source term. Finally, the most current mechanistic understanding of source terms calculated in such codes as MELCOR and MAAP is based on thermo-physical phenomena and time-

⁵⁰ Many of the arguments advanced by the parties in this case are of a highly technical nature. Indeed, FENOC's Motion contains 48 Attachments, mainly comprised of highly technical papers, positions and reports. The Staff's answer also contains several highly technical appendices and an independent technical analysis. Rather than citing verbatim "Chapter and Verse" from these attachments and appendices, we have attempted to distill the most salient points for consideration in the analysis of this motion.

⁵¹ See U.S. Atomic Energy Commission, Division of Licensing and Regulation, Calculation of Distance Factors for Power and Test Reactor Sites, TID-14844 (Mar. 1962) (ADAMS Accession No. ML083380438) [hereinafter TID-14844].

dependent behavior of fission product release from failed fuel as a function of specific plant design, accident sequence progression, and containment failure mode.

3. Beginning with WASH-1400,⁵² through NUREG-1150⁵³ and the recent State-of-the-Art Reactor Consequence Analyses (SOARCA) studies,⁵⁴ the NRC Staff and its contractors have developed and utilized the MELCOR code for quantifying source terms and hence, risk. In parallel efforts, the nuclear industry and its contractors have developed a series of severe accident progression codes leading up to the current version of the MAAP code, for quantifying source terms and hence, risk.
4. A number of studies reported in the open literature have compared versions of MAAP and MELCOR using several aspects of accident progression and fission product release in a number of risk studies. These studies conclude, in general, that the comparisons yield results that are in “reasonably good agreement,” and differences in results can be explained by the use of different computational models in describing some aspects of the thermo-physical behavior of core melt progression.⁵⁵

⁵² See Reactor Safety Study: An Assessment of Accident Risks in U.S. Commercial Nuclear Power Plants, WASH-1400 (NUREG-75/014) (Oct. 1975) (ADAMS Accession No. ML083570090).

⁵³ See Office of Nuclear Regulatory Research, Severe Accident Risks: An Assessment for Five U.S. Nuclear Power Plants, Final Summary Report, NUREG-1150 (Dec. 1990) (ADAMS Accession No. ML100780066) [hereinafter NUREG-1150].

⁵⁴ See Office of Nuclear Regulatory Research, State-of-the-Art Reactor Consequence Analyses (SOARCA) Report, Draft Report for Comment, NUREG-1935, at 82-83 (Jan. 2012) (ADAMS Accession No. ML120250406).

⁵⁵ See Affidavit of Kyle Ross Concerning the Motion for Summary Disposition of Contention 4 (Sept. 14, 2012) [hereinafter Ross Affidavit]; see also NRC Staff Answer, Attach. B, “A Direct

5. Regarding SAMA analysis under NEPA, the Commission has stated that “there is no NEPA requirement to use the best scientific methodology, and NEPA should be construed in light of reason if it is not to demand virtually infinite study and resources NEPA requires the NRC to provide a ‘reasonable’ mitigation alternatives analysis, containing ‘reasonable’ estimates . . . and significant uncertainties”⁵⁶

In its Motion for Summary Disposition, FENOC enumerates three “bases” that Intervenor claim support their contention:

1. The MAAP code “has not been validated by the NRC.” (Basis 1)
2. The radionuclide release fractions generated by MAAP “are consistently smaller for key radionuclides than the release fractions specified in NUREG-1465” and result in “anomalously low” accident consequences. (Basis 2)
3. It previously has been observed that MAAP generates lower release fractions than those derived and used by NRC in other severe accident studies. (Basis 3)⁵⁷

We note that Intervenor did not explicitly list these as purported “bases” in their original Petition to Intervene.⁵⁸ As such, we initially view with a skeptical eye FENOC’s construction of its opponents’ arguments. However, upon independent review of the Petition to Intervene, as well as the statement of the Commission further narrowing Contention 4, we believe that FENOC’s characterization of Intervenor’s bases of support for Contention 4 is both fair and efficient, and so we will use this basic framework as we proceed.

Comparison of MELCOR 1.8.3 and MAAP4 Results for Several PWR and BWR Accident Sequences.”

⁵⁶ See NRC Staff Answer at 5–7.

⁵⁷ Motion for Summary Disposition at 3.

⁵⁸ See generally Petition to Intervene.

1. Basis 1

In support of Contention 4 Intervenor's assert that use of the MAAP code in FENOC's SAMA analysis is not reasonable because the MAAP code "has not been validated by the NRC."⁵⁹ In its Motion for Summary Disposition, FENOC states, "Intervenor's do not explain what they mean by an 'independent validation' or why such a validation by the NRC is a prerequisite to an applicant's use of the MAAP code."⁶⁰ In addition, FENOC argues that the NRC has accepted the use of the MAAP code in license renewal proceedings, essentially satisfying Intervenor's demand for "validation."⁶¹ As noted above, this Board struck Intervenor's answer to this Motion in its entirety, and therefore these arguments have gone un-rebutted.

Even so, we gave Intervenor's the opportunity to elaborate on what they meant by "validation" during the oral argument. Kevin Kamps, a representative of Intervenor's, stated that Intervenor's "are concerned that validation would include actual independence applied to these codes, and the [use of the] most conservative code possible."⁶² Essentially, Intervenor's seem to argue that the MAAP code must undergo a review by some independent body in addition to the review the NRC must perform. In addition, they claim that an Applicant must use "the most conservative code possible." Intervenor's have not pointed to any NRC regulation in support of these arguments.

FENOC has discussed at length, both in its Motion for Summary Disposition and at oral argument, MAAP's benchmarking and use within the nuclear industry. For example,

⁵⁹ Id. at 112.

⁶⁰ Motion for Summary Disposition at 18.

⁶¹ Id. at 20.

⁶² Tr. at 391.

FENOC states, “[MAAP] has been applied to numerous containment designs and sequences across the world for more than two decades. MAAP is the most commonly used code in the U.S. for such purposes.”⁶³ FENOC also notes that “numerous NRC license renewal applicants, including very recent recipients of renewed operating licenses, have used the MAAP code to support NRC-approved SAMA analyses.”⁶⁴ Counsel for the NRC Staff reiterated this latter point at the oral argument.⁶⁵

In addition, during oral argument, counsel for both FENOC and the NRC Staff addressed the benchmarking that the MAAP code has undergone.⁶⁶ While the NRC Staff conceded that benchmarking, or the comparison of a code’s results with those of other codes, is not necessarily the same as validation,⁶⁷ both it and FENOC stated that “validation” is not a normal part of the NRC’s regulatory process in reviewing license applications.⁶⁸ In essence, FENOC and the NRC Staff are arguing that benchmarking establishes the reliability of the MAAP code in lieu of the sort of independent “validation” that Intervenors seek.

Finally, the NRC Staff noted in response to Intervenors’ claim that FENOC must use the “most conservative code possible” that Intervenors are essentially requesting that

⁶³ Motion for Summary Disposition at 20.

⁶⁴ Id.

⁶⁵ Tr. at 404 (“[MAAP] has been used previously, and the results have been found to be acceptable in those cases.”).

⁶⁶ See id. at 401-03.

⁶⁷ Id. at 402, 403.

⁶⁸ Id. at 401.

FENOC perform a “worst-case analysis,” which the Staff asserts the National Environmental Policy Act (NEPA) does not require.⁶⁹

We find that summary disposition of Contention 4 is appropriate insofar as Contention 4 challenges the MAAP code’s lack of “validation.” There exists no genuine dispute of material fact regarding the validation of the MAAP code. Indeed, all the parties agree that the MAAP code has not been independently validated. As such, the first “step” of summary disposition is satisfied. That is, FENOC has demonstrated that “there is no genuine issue as to any material fact.”⁷⁰

Even where no factual dispute exists, summary disposition may only be granted if the moving party is entitled to judgment as a matter of law.⁷¹ The Intervenors have not cited a law, a regulation, or a Board or Commission decision that would require the “validation” they seek. While NEPA requires that the NRC take a “hard look” at SAMA analyses,⁷² we have found no legal basis for the suggestion that this “hard look” includes some sort of independent validation of the computer codes used to generate source terms within SAMA analyses. We also find no legal basis for Intervenors’ suggestion that FENOC must use the “most conservative code possible” in its SAMA analysis. Indeed, the Commission’s NEPA jurisprudence explicitly provides that an analysis of mitigation alternatives within an ER or an EIS need not present a worst-case analysis.⁷³

⁶⁹ Id. at 392.

⁷⁰ 10 C.F.R. § 2.710(d)(2).

⁷¹ Id.

⁷² See, e.g., Entergy Nuclear Operations, Inc. (Indian Point Nuclear Generating Units 2 and 3), CLI-11-14, 74 NRC __, __ (slip op. at 6) (Dec. 22, 2011) (stating that “[NEPA] requires a ‘hard look’ at mitigation measures”).

⁷³ See, e.g., Entergy Nuclear Generation Co. and Entergy Nuclear Operations, Inc. (Pilgrim Nuclear Power Station), CLI-12-10, 75 NRC __, __ (slip op. at 10) (Mar. 30, 2012) (“A NEPA

For these reasons, we conclude that FENOC is entitled to judgment as a matter of law in this regard. Thus, FENOC's Motion for Summary Disposition of Contention 4 is granted insofar as Contention 4 challenges the lack of "validation" of the MAAP code.

2. Basis 2

In support of Contention 4 Intervenor's assert that the source terms produced by the MAAP code and used in FENOC's SAMA analysis are "consistently smaller for key radionuclides than the release fractions specified in NUREG-1465."⁷⁴ From this Intervenor's infer that the MAAP code releases are non-conservatively low, resulting in unreasonable SAMA analysis results. FENOC responds that the differences in source terms produced by MAAP and NUREG-1465 are not only explainable, but also expected, as MAAP and NUREG-1465 serve different purposes.⁷⁵ FENOC further asserts that the latter is inappropriate for a SAMA analysis.⁷⁶

As a preliminary matter, it appears that there exists no genuine dispute of material fact concerning this basis of Contention 4. Indeed, FENOC appears to agree that MAAP produces source terms "consistently smaller for key radionuclides" than does NUREG-1465.⁷⁷ FENOC contends, however, that this difference is technically and legally irrelevant for a number of reasons.⁷⁸ This remaining dispute — that is, whether the difference between the source terms produced by MAAP and NUREG-1465 is relevant to the SAMA

mitigation alternatives analysis need not reflect the most conservative—or worst case—analysis.”).

⁷⁴ Petition to Intervene at 112.

⁷⁵ Motion for Summary Disposition at 21.

⁷⁶ Id. at 26.

⁷⁷ Id. at 21.

⁷⁸ Id. at 21-29.

determination the staff must make — is essentially legal, rather than factual, in nature. The parties also agree as to the nature of the facts. However, Intervenors contend that these facts show that use of MAAP is unreasonable under NEPA, while FENOC contends that they demonstrate that MAAP is reasonable under NEPA. Summary disposition is an appropriate vehicle to resolve such a purely legal dispute.⁷⁹ Because no genuine issue as to any material fact remains in dispute, we move on to the second requirement for summary disposition — whether FENOC is entitled to judgment on this claim as a matter of law.⁸⁰

The purpose of NUREG-1465, published by the NRC in 1995,⁸¹ was to revise the TID-14844 “source term” originally published in 1962,⁸² and which had been utilized by applicants of existing reactors in meeting the NRC’s reactor site criteria, 10 C.F.R. Part 100, and other plant performance requirements. TID-14844 specified a release of fission products from the core of a reactor to the reactor containment in the event of a postulated accident involving a “substantial melt-down of the core.”⁸³ On the other hand, NUREG-1465 attempted to utilize the results of 30 years of post-TID-14844 research and analysis, to provide more realistic estimates of the “source term” released into containment, in terms of timing, nuclide types, quantities, and chemical form, given a severe core-melt accident. Hence the purpose of NUREG-1465, as stated in its Preface, is “to provide a postulated

⁷⁹ See, e.g., General Public Utilities Nuclear Corp. (Oyster Creek Nuclear Generating Station), LBP-97-01, 45 NRC 7, 12-13 (1997).

⁸⁰ 10 C.F.R. § 2.710(d)(2).

⁸¹ Office of Nuclear Regulatory Research, Accident Source Terms for Light-Water Nuclear Power Plants, Final Report, NUREG-1465 (Feb. 1995) (ADAMS Accession No. ML041040063) [hereinafter NUREG-1465].

⁸² See TID-14844.

⁸³ See NUREG-1465 at vii, 1; TID-14844 at 6. The releases specified in TID-14844 are non-mechanistic, that is they are postulated to be 100 percent of the core inventory of noble gases, 50 percent of the iodines (half of which are assumed to deposit on the interior surfaces very rapidly) and 1 percent of the solid fission products. See TID-14844 at 14.

fission product source term released into containment that is based on [then] current understanding of LWR accidents and fission product behavior.”⁸⁴

The Preface of NUREG-1465 goes on to state:

The information contained in this document is applicable to LWR designs and is intended to form the basis for the development of regulatory guidance, primarily for future LWRs An applicant may propose changes in source term parameters (timing, release magnitude, and chemical form) from those contained in this report, based upon and justified by design specific features.⁸⁵

Indeed, when counsel for the NRC Staff was asked during oral argument whether or not there was a requirement that applicants use NUREG-1465, he replied, “there’s no requirement for them to use it. We can’t make them adopt NUREG-1465.”⁸⁶

In addressing the question of whether or not the radionuclide release fractions generated by MAAP “are consistently smaller” for key radionuclides than the release fractions specified in NUREG-1465 and “result in anomalously low accident consequences,” we first distinguish between fission product radionuclides that are released from damaged or molten fuel into containment and the fraction of fission product radionuclides that are released into the environment. Here we rely on the Joint Declaration of FENOC’s two experts⁸⁷ and the Affidavit of the NRC Staff’s expert,⁸⁸ as well as their independent analyses and the technical papers and reports provided as Attachments to the Motion and Staff Answer.⁸⁹

⁸⁴ NUREG-1465 at vii.

⁸⁵ Id.

⁸⁶ Tr. at 385.

⁸⁷ See Joint Declaration.

⁸⁸ See Ross Affidavit.

⁸⁹ See generally Motion for Summary Disposition, Atts. 1-48; NRC Staff Answer, Apps. A-E.

All three experts agree, and Intervenors do not contest, that the source terms identified in NUREG-1465 are releases to the containment while the source terms identified in FENOC's SAMA analysis using the MAAP code are releases to the environment.⁹⁰ And all three experts agree that MAAP would be expected to produce release fractions that are different from, and generally smaller, than the release fractions reported in NUREG-1465.⁹¹ This difference occurs because MAAP accounts for both physical processes and fission product removal mechanisms, and engineered safety features in containment that are designed to mitigate releases to the environment.⁹² Although NUREG-1465 describes a number of fission product removal mechanisms in containment, it is left to the reader to use appropriate methodologies to account for such mechanisms, in site-specific analyses.⁹³ MAAP, in contrast, is an integrated analysis, that tracks fission product releases from the damaged core through the reactor primary and containment systems accounting for both engineered safeguard features and fission product retention mechanisms, out to the environment.⁹⁴

Secondly, the NUREG-1465 "in-containment source terms" are meant to be generic, that is, they are determined as a composite of several dominant accident sequences for the reactors assessed in NUREG-1150 plus additional reactors.⁹⁵ For pressurized water reactors (PWRs), such as Davis-Besse, a generic PWR source term into containment was

⁹⁰ See Joint Declaration at 7; Ross Affidavit at 5.

⁹¹ See Joint Declaration at 23; Ross Affidavit at 7.

⁹² See, e.g., Joint Declaration at 34; Ross Affidavit at 4.

⁹³ NUREG-1465 at 18.

⁹⁴ Joint Declaration at 24.

⁹⁵ See NUREG-1465 at Tables 3.1, 3.2, 3.3, 3.4.

developed in NUREG-1465 for various stages of a core melt accident based on the Surry, Sequoyah, and Zion nuclear plant assessments in NUREG-1150, and the independent PRA assessments for the Calvert Cliffs and Oconee-3 nuclear power plants.⁹⁶ As noted by FENOC's experts, "Use of the NUREG-1465 source term as a surrogate for the release into the environment, instead of the Davis-Besse, plant specific Level 2 PRA, which develops accident-specific release categories for input to the consequence analysis for the SAMA analysis, leads to an overly conservative estimate and lacks technical merit."⁹⁷

Lastly, regarding the question of whether the Davis-Besse source terms lead to anomalously low accident consequences, we refer to Figures 1⁹⁸ and 3⁹⁹ in the Joint Declaration, which show that SAMA-related consequences are dependent on the type of release and on site-specific factors. The type of release is plant-design and accident-sequence specific, while site-specific factors include meteorology, population density, and evacuation parameters. Intervenors have not presented any evidence that utilizing plant and site-specific factors in conjunction with NUREG-1465 source terms would render the consequences reported in FENOC's SAMA analysis "anomalously low."

We find all these uncontroverted showings compelling: a) that there is no requirement that applicants use NUREG-1465 source terms, b) that the differences between the NUREG-1465 source terms and the MAAP source terms are due in part to containment engineered safety features and passive and active fission product removal mechanisms and hence are not an appropriate comparison, and c) that the NUREG-1465

⁹⁶ Id. at Table 3.13.

⁹⁷ Joint Declaration at 29.

⁹⁸ Id. at 12.

⁹⁹ Id. at 27.

source terms are generic in nature as compared to the MAAP source terms that are Davis-Besse plant and site-specific, the latter in accordance with NRC requirements that SAMA analyses be site-specific.¹⁰⁰ Nor have we been made aware of anything provided by Intervenor showing that the consequences are “anomalously low.” Furthermore, we agree with the NRC Staff’s statement that “Intervenor’s concern about the differences between source terms calculated from MAAP4 or calculated in NUREG-1465 are simply not relevant to whether [FENOC’s] SAMA analysis was conducted in a reasonable manner.”¹⁰¹

For these reasons, we conclude that FENOC is entitled to judgment as a matter of law. Thus, FENOC’s Motion for Summary Disposition of Contention 4 is granted insofar as Contention 4 challenges the consistently smaller radionuclide release fractions generated by MAAP as compared to the release fractions specified in NUREG-1465.

3. Basis 3

Intervenor also allege that the MAAP code “generates lower release fractions than those derived and used by NRC in studies such as NUREG-1150.”¹⁰² They cite a Brookhaven National Laboratory (BNL) report comparing SAMA analyses performed at two different plants and purportedly demonstrating that the release fractions found in NUREG-1150 (which were obtained using the Source Term Code Package and MELCOR) were higher by a factor of four as compared to those obtained using MAAP.¹⁰³

Once again, we must first determine whether there exists a genuine dispute of material fact. As above, the parties seem to agree on the nature of the material facts —

¹⁰⁰ See, e.g., Joint Declaration at 10.

¹⁰¹ NRC Staff Answer at 11.

¹⁰² Petition to Intervene at 113.

¹⁰³ Id.

that is, none of the parties disputes that the MAAP code produces lower release fractions than those found in NUREG-1150, or that the BNL report cited by Intervenors demonstrates such a difference. The parties simply dispute the relevance of these facts to the staff's SAMA determination. While the Intervenors contend that these differences demonstrate that use of the MAAP code is unreasonable, FENOC argues that "neither of the documents cited by Intervenors [i.e., NUREG-1150 and the BNL report] is pertinent to the use of MAAP-generated source terms in the Davis-Besse plant-specific SAMA analysis."¹⁰⁴ This dispute regarding the relevance of the documents cited by Intervenors seems to be a legal, rather than factual, dispute. As such, FENOC has demonstrated that no genuine issue of material fact remains concerning Basis 3 of Contention 4. We therefore must determine whether FENOC is entitled to judgment as a matter of law.

NUREG-1150, "Severe Accident Risks: An Assessment for Five U.S. Nuclear Power Plants," was published by the NRC in December 1990.¹⁰⁵ As the name implies, the report contains the results of severe accident risk assessments for five nuclear power plants: three PWRs (Unit 1 of the Surry Power Station, Unit 1 of the Zion Nuclear Power Plant, and Unit 1 of the Sequoya Nuclear Power Plant) and two boiling water reactors (BWRs) (Unit 2 of the Peach Bottom Atomic Power Station and Unit 1 of the Grand Gulf Nuclear Station). Among other things, the Introduction explains:

NUREG-1150 is a snapshot in time of severe accident risks in five specific commercial nuclear power plants. This snapshot is obtained using, in general, PRA techniques and severe accident phenomenological information of the mid-1980's, but with significant advances in certain areas. The plant analyses reflect design and operational information as of roughly March 1988.¹⁰⁶

¹⁰⁴ Motion for Summary Disposition at 29 (emphasis in original).

¹⁰⁵ See NUREG-1150.

¹⁰⁶ Id. at 1–3.

The Introduction further states:

NUREG-1150 is not an estimate of the risks of all commercial power plants in the United States or abroad. One of the clear perspectives of this study of severe accident risks and other such studies is that characteristics of design and operation specific to individual plants can have a substantial impact on the estimated risk.¹⁰⁷

Indeed, although all designed by Westinghouse, the three PWRs have very different primary (nuclear reactor) systems and very different containments leading to very different source terms.¹⁰⁸ Surry is a three-loop reactor in a reinforced concrete, sub-atmospheric dry containment, Zion is a four-loop reactor in a pre-stressed concrete, large dry containment, and Sequoya is a four-loop reactor in a wet ice condenser containment. In stark contrast to these PWRs, Davis-Besse is a Babcock and Wilcox designed reactor, with design and operational features (e.g., a once-through steam generator, an integrated control system, and a free-standing steel containment vessel completely surrounded by a reinforced concrete shield building with an annular space in-between) that differs substantially from the three PWRs assessed in NUREG-1150.

In assessing whether or not MAAP generates lower release fractions than those derived and used by NRC in other severe accident studies, namely the NUREG-1150 radionuclide releases, and the BNL report comparing the results of the MAAP/Catawba releases with the Sequoyah/NUREG-1150 releases, we turn to the unrefuted testimony of FENOC's and NRC Staff's experts, along with the reports and documents they have included. All three of the experts agree that "comparisons between results from modern codes such as MELCOR or MAAP to early codes such as those used in NUREG-1150 are

¹⁰⁷ Id.

¹⁰⁸ See id. at 3-2, 5-2, 7-2. The two BWRs operate on sufficiently different physical principles that they simply have nothing to do with this case.

of limited value.”¹⁰⁹ The Joint Declaration goes on to state, “While the final 1990 NUREG-1150 report still is relevant to the nuclear safety community’s understanding of severe accident progression, additional severe accident research performed in the U.S. and abroad in the 25 years since the 1987 draft of NUREG-1150 was issued has significantly improved that understanding.”¹¹⁰ All three experts conclude that modern codes such as MELCOR and MAAP are more realistic (mechanistic) than their predecessor codes, which were conservative and parametric, and were used in support of the NUREG-1150 risk analyses, thus explaining the major differences between NUREG-1150 and Davis-Besse source terms.¹¹¹

The BNL report referred to by the Intervenors “provides an estimate of the benefit accrued from enhancing the currently installed combustible gas control systems in PWR nuclear power plants with ice condenser containments and BWR plants with Mark III containments.”¹¹² In particular, Intervenors point to the Sequoyah PRA analysis obtained from NUREG-1150 using the Source Term Code Package and MELCOR, and the Catawba (also an ice condenser plant) PRA analysis performed using the MAAP code. Intervenors claim that these studies confirm the point that the “release fractions for the important radionuclides are about a factor of 4 higher than the ones used in the Duke PRA.”¹¹³ The BNL report attributes these differences in the release fractions to the use of different codes

¹⁰⁹ Ross Affidavit at 7; see also Joint Declaration at 33.

¹¹⁰ Joint Declaration at 33.

¹¹¹ See Ross Affidavit at 7-8; Joint Declaration at 34.

¹¹² Brookhaven National Laboratory, Energy Sciences and Technology Department, Benefit Cost Analysis of Enhancing Combustible Gas Control Availability at Ice Condenser and Mark III Containment Plants, Final Letter Report (Dec. 2002) at 2 (ADAMS Accession No. ML031700011) [hereinafter BNL Report].

¹¹³ Id. at 17; Petition to Intervene at 113.

in the two analyses.¹¹⁴ Moreover, the difference reported by BNL is for a “typical release class” and was obtained from a 2002 e-mail from Duke Power for their “latest PRAs” and a “typical release class” obtained from NUREG-1150.¹¹⁵

All three experts give technical reasons, which Intervenors do not dispute, for the major differences in the Sequoyah and Catawba results that are congruent with the discussion above, and in particular, the Staff expert presents an “apples to apples” comparison of the Davis-Besse source term and the NUREG-1150 PWR source terms.¹¹⁶ FENOC’s experts reference results from the recently published Draft SOARCA reports that concluded, “[I]n addition to delayed radiological releases, the magnitude of the radioactive releases, especially with respect to the key radionuclides (iodine and cesium) is much smaller than estimated in prior studies, such as the 1982 Sandia Siting Study.”¹¹⁷ FENOC’s experts also point to the 2002 Generic Environmental Impact Statement for License Renewal regarding the Catawba plant, wherein the NRC Staff compared similar sequences between NUREG-1150 and Revision 2b of the Catawba PRA and concluded there was reasonable agreement for the closest corresponding release categories.¹¹⁸ The Staff expert goes one step further and compares the source terms identified in NUREG-1150 for the

¹¹⁴ BNL Report at 17.

¹¹⁵ Id.

¹¹⁶ See Ross Affidavit at 8-10; Tr. at 301.

¹¹⁷ Joint Declaration at 38-39; Office of Nuclear Regulatory Research, State-of-the-Art Reactor Consequence Analyses (SOARCA) Report, Draft Report for Comment, NUREG-1935, at 82-83 (Jan. 2012) (ADAMS Accession No. ML120250406). While FENOC’s experts refer to this Draft Report, we note that a Final Report has since been published and is available at ADAMS Accession No. ML12332A057.

¹¹⁸ See Joint Declaration at 35; see also Division of Regulatory Improvement Programs, Office of Nuclear Reactor Regulation, Generic Environmental Impact Statement for License Renewal of Nuclear Plants, Supp. 9, Regarding Catawba Nuclear Station, Units 1 and 2, Final Report, NUREG-1437, at 5-9 to 5-10 (Dec. 2002).

Zion Plant and the source terms used in FENOC's SAMA analysis. He concludes that on a "consistent basis, including looking at the entire statistical description of the source term and the type of accident, it is apparent that the source terms generated by FENOC using MAAP4 are comparable with NUREG-1150 and actually produced higher amounts of the key radionuclides of concern in some accident calculations."¹¹⁹

We again find all of these uncontroverted showings compelling: a) the differences in NUREG-1150 source terms and the Davis-Besse source terms are due in part to major differences in reactor design and containment design, b) advancements in the understanding and modeling of accident progression during the last 25-plus years have made sound technical comparisons difficult at best, c) whether the Catawba source terms compare favorably to the Sequoyah source terms is immaterial to the present proceeding regarding the Davis-Besse plant and SAMA analysis, which is of a very different design,¹²⁰ and d) the NRC has found that use of the MAAP code source term is "reasonable" in a number of assessments.¹²¹ Intervenors have provided no factual or expert support to controvert these arguments. We therefore agree with the NRC Staff's assertion that "[s]ince the source terms produced by MAAP4 were consistent with the source terms identified in NUREG-1150, Intervenors' concern that MAAP produces non-conservative source terms is simply not supported. Thus FirstEnergy is entitled to judgment as a matter of law."¹²² And as such, Intervenors have not put forward a credible argument that use of the MAAP code

¹¹⁹ NRC Staff Answer at 11–12; Ross Affidavit at 8–11.

¹²⁰ Again, Catawba and Sequoyah are Westinghouse PWR four-loop plants with U-tube steam generators and with ice-condenser containments that are very different than Davis-Besse, a Babcock and Wilcox two-loop plant with once-through steam generators in a large dry containment.

¹²¹ The NRC has approved a number of LRAs from applicants that used the MAAP code for their SAMA analyses. See Joint Declaration at 41.

¹²² NRC Staff Answer at 12.

“render[s] the SAMA analysis altogether unreasonable under NEPA,” as required by the Commission.¹²³

For all these reasons, we conclude that FENOC is entitled to judgment as a matter of law. Thus, FENOC’s Motion for Summary Disposition of Contention 4 is granted insofar as Contention 4 challenges the lower release fractions generated by MAAP as compared to the release fractions specified in other severe accident studies (namely NUREG-1150).

IV. CONCLUSION AND ORDER

We conclude that FENOC’s use of the MAAP code to generate fission product source terms for use in the Davis-Besse SAMA analysis is reasonable under NEPA and therefore deny the claim that it fails to meet the NRC SAMA requirements specified in 10 C.F.R. § 51.53(c)(3)(ii)(L). For the foregoing reasons, we hold that there exists no genuine dispute of material fact concerning Contention 4, and that FENOC is entitled to

¹²³ CLI-12-01, 75 NRC at __ (slip op. at 25).

judgment as a matter of law. As such, FENOC's motion for summary disposition of Contention 4 is GRANTED.¹²⁴

It is so ORDERED.

THE ATOMIC SAFETY
AND LICENSING BOARD

/RA/

William J. Froehlich, Chairman
ADMINISTRATIVE JUDGE

/RA/

Nicholas G. Trikouros
ADMINISTRATIVE JUDGE

/RA/

Dr. William E. Kastenberg
ADMINISTRATIVE JUDGE

Rockville, Maryland
December 28, 2012

¹²⁴ Although this ruling disposes of the only admitted contention in this proceeding, it does not conclude this case. As is noted in our ruling today finding Intervenors' Contention 5 to be inadmissible, there remains to be determined the admissibility of a contention filed by Intervenors on July 9, 2012, concerning the need under NEPA to include a discussion of the environmental impacts of spent fuel pool (SFP) leakage, SFP fires, and the lack of a spent fuel repository, as required by the recent decision of the United States Court of Appeals for the District of Columbia Circuit in New York v. NRC, 681 F.3d 471 (D.C. Cir. 2012). See LBP-12-27, 76 NRC at ___ n.175 (slip op. at 35 n.175). As was also noted in today's other decision, that matter remains in abeyance pending further Commission direction. See id.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter of)
)
FIRST ENERGY NUCLEAR OPERATING)
COMPANY) Docket No. 50-346-LR
)
(Davis-Besse Nuclear Power Station, Unit 1))
)

CERTIFICATE OF SERVICE

I hereby certify that copies of the foregoing **LBP-12-26, MEMORANDUM AND ORDER (Ruling on Motion for Summary Disposition of Contention 4)** have been served upon the following persons by Electronic Information Exchange.

Office of Commission Appellate
Adjudication
Mail Stop O-7H4M
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001
E-mail: ocaamail@nrc.gov

Office of the Secretary of the Commission
U.S. Nuclear Regulatory Commission
Mail Stop O-16C1
Washington, DC 20555-0001
Hearing Docket
E-mail: hearingdocket@nrc.gov

Atomic Safety and Licensing Board Panel
U.S. Nuclear Regulatory Commission.
Mail Stop T-3F23
Washington, DC 20555-0001

Office of the General Counsel
U.S. Nuclear Regulatory Commission
Mail Stop O-15D21
Washington, DC 20555-0001
Edward L. Williamson, Esq.
E-mail: edward.williamson@nrc.gov

William J. Froehlich, Chair
Administrative Judge
E-mail: william.froehlich@nrc.gov

Lloyd B. Subin, Esq.
E-mail: lloyd.subin@nrc.gov

Nicholas G. Trikouros
Administrative Judge
E-mail: nicholas.trikouros@nrc.gov

Brian Harris, Esq.
E-mail: brian.harris@nrc.gov
Catherine Kanatas, Esq.
E-mail: catherine.kanatas@nrc.gov

William E. Kastenber
Administrative Judge
E-mail: wek1@nrc.gov

OGC Mail Center : OGCMailCenter@nrc.gov

Matthew Flyntz, Law Clerk
E-mail: matthew.flyntz@nrc.gov
Onika Williams, Law Clerk
Email: onika.williams@nrc.gov

FirstEnergy Service Company.
Mailstop: A-GO-15
76 South Main Street
Akron, OH 44308
David W. Jenkins, Esq.
E-mail : djenkins@firstenergycorp.com

Davis-Besse Nuclear Power Station, Docket No. 50-346-LR
**LBP-12-26, MEMORANDUM AND ORDER (Ruling on Motion for Summary Disposition of
Contention 4)**

Morgan, Lewis & Bockius
1111 Pennsylvania Avenue, NW
Washington, D.C. 20004
Stephen Burdick, Esq.
E-mail: sburdick@morganlewis.com
Kathryn M. Sutton, Esq.
E-mail: ksutton@morganlewis.com
Martin O'Neill, Esq.
E-mail: martin.oneill@morganlewis.com
Timothy Matthews, Esq.
E-mail: tmatthews@morganlewis.com
Jane Accomando, Esq.
E-mail: jaccomando@morganlewis.com
Antoinette Walker, Legal Secretary
E-mail: awalker@morganlewis.com
Mary Freeze, Legal Secretary
E-mail: mfreeze@morganlewis.com

Citizens Environmental Alliance (CEA)
of Southwestern Ontario
1950 Ottawa Street
Windsor, Ontario Canada N8Y 197

Green Party of Ohio
2626 Robinwood Avenue
Toledo, Ohio 43610

Don't Waste Michigan
811 Harrison Street
Monroe, Michigan 48161
Michael Keegan
E-mail: mkeegani@comcast.net

Terry J. Lodge, Counsel for CEA, Don't
Waste Michigan, and Green Party of Ohio
316 N. Michigan Street, Suite 520
Toledo, OH 43604-5627
E-mail: tjlodge50@yahoo.com

Beyond Nuclear
6930 Carroll Avenue Suite 400
Takoma Park, Md. 20912
Kevin Kamps
E-mail : kevin@beyondnuclear.org
Paul Gunter
E-mail : paul@beyondnuclear.org

[Original signed by Brian Newell]
Office of the Secretary of the Commission

Dated at Rockville, Maryland
this 28th day of December, 2012