NRC000039
Submitted: March 30, 2012

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of	)	
	)	
ENTERGY NUCLEAR OPERATIONS, INC.	)	Docket Nos. 50-247/286-LR
	)	
(Indian Point Nuclear Generating Units 2 and 3)	)	

NRC STAFF'S INITIAL STATEMENT OF POSITION ON CONSOLIDATED CONTENTION NYS-12C

INTRODUCTION

Pursuant to 10 C.F.R. §§ 2.1207(a)(1) and 2.337(g)(2), Scheduling Order (July 1, 2010) (unpublished) at 14, and Order (Granting NRC Staff's Unopposed Time Extension Motion and Directing Filing of Status Updates) (February 16, 2012) (unpublished) at 1, the Staff of the Nuclear Regulatory Commission ("Staff") submits its written statement of position and written testimony with supporting affidavits on New York State's ("NYS") Contention 12C ("NYS-12C"). Appended to this filing is the Staff's testimony and certifications of Dr. Nathan E. Bixler, Dr. S. Tina Ghosh, Joseph A. Jones, and Donald G. Harrison (Exhibit ("Ex.") NRC000041) and Staff's Ex. NRC000042 through NRC000061.[1] For the reasons set forth below and in the testimony filed herewith, the Staff submits that a careful evaluation of NYS-12C demonstrates that NYS challenge to the Entergy Nuclear Generation Co. and Entergy Nuclear Operations, Inc. (collectively, "Entergy") application for renewal of the Indian Point Unit Nos. 2 and 3 operating license cannot be sustained.

[1] The Staff's testimony and exhibits filed with respect to consolidated contention NYS-16B and NYS-12C are identical due to the substantial overlap of issues between the MELCOR Accident Consequence Code System 2 ("MACCS2") and Severe Accident Mitigation Alternatives ("SAMA") analysis.

BACKGROUND

This proceeding concerns the application of Entergy to renew the operating license for Indian Point Nuclear Generating Units 2 and 3 (collectively "Indian Point"). On November 30, 2007, NYS filed a petition to intervene in this matter, submitting 32 contentions for consideration by the Atomic Safety and Licensing Board ("Board").[2] The Board granted NYS' Petition, admitting 11 contentions including Contention 12. NYS Contention 12 stated that:

> Entergy's [SAMA] for Indian Point 2 and Indian Point 3 does not accurately reflect decontamination and clean up costs associated with a severe accident in the New York Metropolitan Area and therefore, Entergy's SAMA Analysis underestimates the cost of a severe accident ….[3]

In December 2008, the Staff issued the Draft Supplemental Environmental Impact Statement ("DSEIS") for review and comment.[4] On February 27, 2009, NYS submitted an amended contention 12A, which simply sought to apply NYS' original contention 12 to the Staff's DSEIS.[5] On June 16, 2009, the Board admitted and consolidated contention 12A with NYS' original contention 12.[6] In December 2009, Entergy submitted a revised SAMA analysis, which corrected an error in its meteorological data.[7] Based on the revision, NYS again filed an amended contention 12B that sought to apply NYS original contention 12 and amended

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[2] "Notice of Intent to Participate and Request for Hearing" ("NYS' Petition") (Nov. 30, 2007).

[3] *Id.* at 140.

[4] "Generic Environmental Impact Statement for License Renewal of Nuclear Plants Regarding Indian Point Generating Unit Nos. 2 and 3", NUREG-1437, Supplement 38 (Dec. 2008) (Ex. NRC000003).

[5] *See* "State of New York Contentions Concerning NRC Staff's Draft Supplemental Environmental Impact Statement" ("NYS' Supplemental Petition") at 2 (Feb. 27, 2009).

[6] Order (Ruling on New York State's New and Amended Contentions), (June 16, 2009) (unpublished).

[7] Entergy, NL-09-165, License Renewal Application – SAMA Reanalysis Using Alternative Meteorological Tower Data (Dec. 14, 2009) (Ex. ENT000015).

contention 12A to the revised SAMA analysis.[8] The Board admitted and consolidated the amended contention 12B with two previous contentions.[9] After the Staff issued its Final Supplemental Environmental Impact Statement ("FSEIS") on December 3, 2010,[10] NYS submitted an amended contention 12C that applied it previous contentions to the Staff's FSEIS.[11] The Board again admitted the contention and consolidated it with the three previous filings.[12] NYS filed its Initial Statement of Position, pre-filed testimony from its expert Dr. Francois Lemay, and exhibits on December 16, 2011.

DISCUSSION

I. Legal and Regulatory Requirements

The National Environmental Policy Act ("NEPA"), 42 U.S.C. § 4321 et seq., requires federal agencies, including the NRC, to take a hard look at the environmental impacts of their actions. NEPA, however, does not mandate a specific outcome or a course of action including a decision to mitigate any potential impacts.[13] The NRC fulfills its requirements under NEPA, for

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[8] State of New York's Motion for Leave to File New and Amended Contentions Concerning the December 2009 Reanalysis of Severe Accident Mitigation Alternatives (Mar. 18, 2009).

[9] *Entergy Nuclear Operations, Inc.* (Indian Point Nuclear Generating Units 2 and 3), LBP-10-13, 71 NRC 673, 683-84 (2010).

[10] "Generic Environmental Impact Statement for License Renewal of Nuclear Plants Regarding Indian Point Generating Unit Nos. 2 and 3", NUREG-1437, Supplement 38 (Dec. 2010) (Ex. NRC000004).

[11] State of New York's Motion for Leave to File New and Amended Contention 12-C Concerning NRC Staff's December 2010 Final Supplemental Environmental Impact Statement and the Underestimation of Decontamination and Clean-up Costs Associated with a Severe Reactor Accident in the New York Metropolitan Area (Feb. 3, 2011).

[12] *Entergy Nuclear Generation Co.* (Indian Point Nuclear Generating Units 2 and 3), LBP-11-__, __ NRC ___ (July 6, 2011) (slip op at 7) (ADAMS Accession No. ML111870344).

[13] *See, e.g., Baltimore Gas and Elec. Co. v. Nat. Res. Def. Council*, 426 U.S. 87, 97 (1983) (quoting *Kleppe v. Sierra Club*, 427 U.S. 390, 410 n. 21 (1976))(stating that NEPA requires "only that the agency take a 'hard look' at the environmental consequences before taking a major action); *Sierra Club v. Army Corp of Engineers*, 446 F.3d 808, 815 (2006)(same); *Louisiana Energy Services, L.P.* (Clairborne Enrichment Center), CLI-98-3, 47 NRC 77, 87-88 (1998)(same); *Hydro Resources, Inc*. (P.O. Box 777, Crownpoint, New Mexico 87313), LBP-06-19, 64 NRC 53, 63-64 (2006)(same); *see also Winter v. Nat. Res. Def. Council*, 129 S.Ct. 365, 376 (2008)(stating that "NEPA imposes only procedural requirements" and does not mandate any particular result).

renewal of operating licenses, through the Generic Environmental Impact Statement ("GEIS") and the Final Supplemental Environmental Impact Statement ("FSEIS"), Ex. NRC000XXX.[14] The Commission 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."[15] The Commission has cautioned that "[o]ur boards do not sit to 'flyspeck' environmental documents or to add details or nuances. If the [EIS] on its face 'comes to grips with all important considerations' nothing more need be done."[16] In *Pilgrim*, the Commission stated:

> Ultimately, we hold adjudicatory proceedings on issues that are material to licensing decisions. 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.[17]

The Commission warned that "in a highly predictive analysis such as a SAMA analysis, there are bound to be significant uncertainties, and therefore an uncertainty analysis is performed."[18] The Commission, anticipating the wide ranging disputes over individual aspects of the SAMA analysis, has said:

> It always will be possible to conceive of yet another input or methodology that could have been used in the SAMA computer modeling, and many different inputs and approaches may all be reasonable choices. … The SAMA analysis is not a safety review

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[14] 10 C.F.R. § 51.2.

[15] *Entergy Nuclear Generation Company and Entergy Nuclear Operations, Inc.* (Pilgrim Nuclear Station), CLI-10-11, 71 NRC 287, 315 (2010).

[16] *Exelon Generation Co, LLC* (Early Site Permit for Clinton ESP Site), CLI-05-29, 62 NRC 801, 811 (2005)(citing *Systems Energy Resources, Inc.* (Early Site Permit for Grand Gulf ESP Site), CLI-05-4, 61 NRC 10, 13 (2005)(footnote omitted)).

[17] *Entergy Nuclear Generation Co.* (Pilgrim Nuclear Power Station), CLI-12-01, 75 NRC ___ (Feb. 9, 2012) (slip op at 25) (emphasis added).

[18] *Id.*

> performed under the Atomic Energy Act. The mitigation measures examined are supplemental to those we already require under our safety regulations for reasonable assurance of safe operation.[19]

In other words, it is simply not enough to take issue with a particular aspect of the SAMA analysis, an intervenor challenging the SAMA analysis must show that it was unreasonable on the whole.[20] The Commission recently "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.'"[21] A petitioner may not simply assert a deficiency. Rather to challenge an applicant's SAMA analysis "a petitioner must point with support to an asserted deficiency that renders the SAMA analysis unreasonable under NEPA."[22] Specifically, "[a] contention proposing alternative inputs or methodologies must present some factual or expert basis for why the proposed changes in the analysis are warranted…."[23] Even more, intervenors must show "why the inputs or methodology used is unreasonable, and the proposed changes or methodology would be more appropriate."[24]

Finally, the Commission has concluded that "[u]ltimately, NEPA requires the NRC to provide a 'reasonable' mitigation alternatives analysis, containing 'reasonable' estimates …."[25] The Commission explained that Staff's FSEIS need only explain

> any known shortcomings in available methodology, … incomplete or unavailable information and significant uncertainties, and reasoned evaluation of whether and to what extent these or other

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[19] *Id.* at 24.

[20] *Id.* at 24-25.

[21] *FirstEnergy Nuclear Operating Co.* (Davis-Besse Nuclear Power Station, Unit1), CLI-12-08, 75 NRC ___, (Mar. 27, 2012)((slip op. at 17-18) reversing the admission of contention challenging the costs to clean-up a severe accident) (internal citations omitted).

[22] *Id.*

[23] *Id.*

[24] *Id.*

[25] *Entergy Nuclear Generation Company and Entergy Nuclear Operations, Inc.* (Pilgrim Nuclear Power Station), CLI-10-22, 72 NRC 202, 208-09 (2010).

> considerations credibly could or would alter the Pilgrim SAMA analysis conclusions ….[26]

Thus, the Staff's FSEIS and the SAMA analysis satisfy the requirements of NEPA and the Board should resolve this contention in favor of the Staff.

II. Staff's Witnesses

The attached testimony presents the opinion of a panel of four highly qualified witnesses as follows: (1) Dr. Nathan E. Bixler, chemical engineer, (2) Dr. S. Tina Ghosh, a nuclear engineer, (3) Joseph Jones, a mechanical engineer, and (4) Donald G. Harrison, a nuclear engineer.

Dr. Bixler, a chemical engineer, with a Doctorate in chemical engineering, is the Principal Investigator for Sandia National Laboratories ("Sandia") on the code development for accident consequences including RADTRAD, MACCS2, WinMACCS, SECPOP2000, and MELMACCS, for the NRC. *See* NRC Staff Testimony of Nathan E. Bixler, S. Tina Ghosh, Joseph A. Jones, and Donald G. Harrison on NYS-16C, Ex. NRC000041, ("Staff Testimony") at A1a-A2a (March 30, 2012). Dr. Bixler has over twenty years of experience with the codes developed to model accident consequences. *Id.* at A1a-A2a. Dr. Bixler's testimony will address the use of the MACCS2 code and the impact of changes to input parameters into the MACCS2 code. *Id.* at A4a.

Dr. Tina Ghosh, a nuclear engineer, with a Doctorate in nuclear engineering, is the Senior Program Manager responsible for leading the NRC's research on state of the art reactor consequence analysis. *Id.* at A1b-A2b. Previously, she was a Reactor Engineer for the Division of Risk Analysis and primarily responsible for the review of SAMA analyses submitted as part of a plant's application for license renewal. *Id.* Prior to serving in the Division of Risk Assessment, she was primarily responsible for the risk assessment and performance evaluation for the high-level waste application submitted by the Department of Energy. *Id.* Dr. Ghosh's testimony

[26] *Id.*

along with the Staff's other witnesses will address why the MACCS2 code provides reasonable results when modeling reactor accidents as part of a probabilistic risk assessment ("PRA") analysis. *Id.* at A4b.

Joe Jones, a professional engineer, with a Masters in mechanical engineering, is a Distinguished Member of the Technical Staff employed by Sandia, which is operated by Lockheed-Martin for the US Department of Energy. He has over 28 years experience in engineering and analysis, 23 years of which was at Sandia. *Id.* at A1c-A2c. He has been primarily involved in radiological emergency preparedness, consequence management, and radioactive materials cleanup activities both nationally and internationally. *Id.* He also performs emergency plan reviews and evacuation time estimate reviews for the NRC Staff in support of new reactor license applications. *Id.* He has managed project teams in the decontamination and decommissioning of radioactively contaminated facilities at Sandia and the development of advanced decontamination techniques for radioactive materials. *Id.* He is a named inventor on US Patent 7,514,493 B1, "Strippable Containment and Decontamination Coating Composition and Method of Use," April 7, 2009. *Id.* Mr. Jones testimony will address the decontamination costs for severe accident including decontamination times, decontamination factors, decontamination costs, and the population estimates for area surrounding Indian Point. *Id.* at A4c.

Donald Harrison, a nuclear engineer, with a Bachelor degree in nuclear engineering, is the Branch Chief for Probabilistic Risk Assessment Licensing Branch ("APLA") of the Division of Risk Assessment ("DRA") within the Office of Nuclear Reactor Regulation ("NRR"). APLA had the responsibility for the license renewal severe accident mitigation alternatives ("SAMA") reviews and associated development of this aspect of the environmental impact statement ("EIS") at the time of the Indian Point license renewal application was submitted, as well as most risk-informed rulemaking and license application reviews that involved the use of probabilistic

risk assessments ("PRA"). *Id.* at A1d-A2d. Mr. Harrison's testimony will address the decontamination times used by Entergy's SAMA analysis. *Id.* at A4d.

III. The SAMA Analysis for Indian Point Was Conducted in a Reasonable and Reliable Manner

NYS concentrates its arguments on three inputs Entergy used in one module of the MACCS2 code to the exclusion of analyzing how those inputs might be interrelated with other parts of the analysis and the MACCS2 code.[27] NYS and its expert, Dr. Lemay, conducted sensitivity analysis to identify which inputs, if changed in isolation to the rest of the code, would produce the largest changes in the SAMA analysis conclusions.[28] However, NYS failed to control how the changes in assumptions for clean-up costs including particle size would affect the rest of the calculations. In other words, NYS' analysis combines all the worst case scenarios for deposition, clean-up costs, and decontamination times even though many of these aspects are inversely related. This kind of worst case analysis is not required under NEPA and does not represent and reasonable and realistic evaluation of the severe accidents to be model. As such, the Board should resolve this contention in favor of the Staff.

A. Changes to One Portion of the SAMA Analysis Materially Impact Other Portions of the SAMA Analysis

The Staff's experts explain that Indian Point's SAMA analysis is conducted in three separate steps.[29] In order to perform a SAMA analysis, Entergy first conducted a level 1 and level 2 probabilistic risk assessment ("PRA") in order to determine the probability of the each of the accident scenarios and the appropriate source for each accident.[30] The level 3 PRA

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[27] *See* State of New York Initial Statement of Position Consolidated Contention NYS-12-C ("NYS' Statement of Position for NYS-12C") (Ex. NYS000240).

[28] *Id.* at 20.

[29] NRC Staff Testimony of Nathan E. Bixler, S. Tina Ghosh, Joseph A. Jones, and Donald G. Harrison concerning NYS' Contentions NYS-12C and NYS 16B ("Staff's Testimony") at A8 – A22 (Ex. NRC000041).

[30] *Id.* at A17 – A19.

analysis is performed with the MACCS2 code, which consists of three related modules. The MACCS2 modules are ATMOS, EARLY, and CHRONC.[31] The ATMOS module takes the site specific source terms calculated by the level 1 and level 2 PRAs and the site specific meteorology to calculate where and how much contamination may be potentially deposited in the modeled area.[32] NYS argues that the clean-up costs per person would be higher than Entergy's values because the MACCS2 code inputs were based on large particle sizes instead of the smaller particles associated with a reactor accident.[33] Dr. Bixler explains that the particle size does not solely impact the cost of clean-up but affects the amount and location of contamination.[34] Dr. Bixler analyzed the size of particles being modeled in the MACCS2 code and found that they were appropriate for a reactor accident and fell within the particle size NYS identified as small.[35] The Staff's expert explain that if smaller particles were modeled in the MACCS2 code, as suggested by NYS, less contamination would be deposited in the modeled area and less decontamination would be required.[36] In other words, you cannot simply change the assumption for only one aspect of the model without applying that change consistently throughout the other aspects of the model.[37] To proceed as NYS suggests would result in a worst case analysis instead of the reasonable, realistic analysis required under NEPA.[38]

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[31] *Id.* at A19.

[32] *Id.*

[33] NYS' Statement of Position for NYS-12C at 26.

[34] Staff's Testimony at A21, A48 – A50.

[35] Particle size is not a direct input to the MACCS2 code but can be derived from the deposition velocity which is an input to the MACCs2 code. *Id.* at A48 – A49.

[36] *Id.* at A48 – A50.

[37] *Id.* at A17 – A19, A48 – A50.

[38] *See Id*.

B. Decontamination Factors Greater Than 10 Do Not Require Demolition

Once the ATMOS module completes its calculations, the EARLY module models the evacuation phase of the accident until seven days after the accident.[39] After seven days, the CHRONC module models the necessary decontamination and other off-site decontamination costs. NYS' expert takes exception with three aspects of the CHRONC module. First Dr. Lemay challenges the decontamination factors ("DF") chosen by Entergy.[40] Entergy chose DFs of 3 and 15.[41] According to Dr. Lemay, DFs greater than 10 cannot be achieved without full demolition.[42] Mr. Jones, one of the Staff's experts, explained that there are a wide variety of techniques capable of achieving DF greater 10 without demolition.[43] For example, sandblasting (DF=58 and 100), strippable coatings (DFs up to 100), and pressure washing (DF=50) have achieved DFs greater than 10 without demolition.[44] Dr. Lemay's assumption that demolition is necessary for moderate levels of decontamination fundamentally skews his calculations to worst case scenarios and ultraconservative calculations.[45] Dr. Lemay's excessive level of conservatism does not provide a reasonable evaluation of the mitigation measures under NEPA.

C. The Costs Utilized By Entergy and Reflected in the FSEIS Are Reasonable and Site Specific

NYS next turns to the cost to achieve each DF. Dr. Lemay asserts that the values used by Entergy were not site-specific and too low when compared to clean-up costs identified in the

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[39] *Id.* at A19, A32 – A33.

[40] NYS' Statement of Position for NYS-12C at 22-23.

[41] Staff's Testimony at A37. *See also id.* at A34 – A36.

[42] *See* NYS' Statement of Position for NYS-12C at 22-23.

[43] Staff's Testimony at A37.

[44] *Id.*

[45] *Id.*

Site Restoration Study, the Reichmuth study, the CONDO model, and the RISO study.[46] The Staff's experts explain that these studies and models are inappropriate to be extended and applied to the MACCS2 code model.[47] The Site Restoration Study, as explained by Dr. Bixler and Mr. Jones, is particularly unsuitable for application to the MACCS2 code analysis because it was based on nuclear weapons accident with a primary contaminant of concern being plutonium.[48] For a reactor accident, the primary contaminant of concern is cesium.[49] The requirements to clean-up cesium and plutonium are very different for comparable levels of contamination.[50] Unlike cesium, plutonium has an extremely long half and represents a significant hazard to the public based on ingestion.[51] For example, decontamination of plutonium requires the removal of 150 times the material of a similarly sized cesium accident.[52] As such, applying decontamination costs based on a nuclear weapon accident is simply inapplicable to a reactor accident. In addition to the inappropriateness of applying a plutonium clean-up to a cesium clean-up, the Site Restoration Study did not utilize rigorous, statistically reliable analysis to develop the economic model.[53] Thus, it is not appropriate to apply or extend the Site Restoration Study to develop an economic cost model for reactor accidents.[54]

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[46] NYS' Statement of Position for NYS-12C at 25.

[47] Staff's Testimony at A39, A63, A69. *See also id.* at A40, A64 – A68, A70 – A78.

[48] *Id.* at A69. *See also id.* at A39.

[49] *Id.* at A39, A69

[50] *See id.* A39.

[51] *Id.*

[52] *Id.*

[53] *Id.* at A69.

[54] *Id.*

The Reichmuth study based its analysis on the Site Restoration Study.[55] As such, it suffers from all the same flaws of applying plutonium clean-up criteria to a reactor accident and the lack of analytical rigor in development of the economic model.[56]

The next approach advanced by Dr. Lemay is that the CONDO clean-up models should be applied to MACCS2. The CONDO model uses a completely different method for calculating the clean-up costs than the MACCS2 code. The MACCS2 code uses a mass balance for determining the clean-up requirements, while the CONDO code uses a fragmentation method.[57] The NRC Staff's experts analyzed Dr. Lemay's application of the CONDO code to MACCS2 and found that Dr. Lemay had not accounted for the different methods of decontamination modeling.[58] Because of these different methods of modeling, Dr. Lemay's application of CONDO to MACCS2 resulted in overcounting the contamination and the necessary decontamination.[59] As such, Dr. Lemay's estimation of costs for decontamination are extremely conservative and are not realistic estimates of the cost to clean-up a reactor accident.[60]

Finally, Dr. Lemay applies RISO study to the MACCS2 code.[61] But like Dr. Lemay's application of the Reichmuth study which was based the Site Restoration Study, the RISO study was based on CONDO and suffers from same failure to control for different modeling techniques.[62]

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[55] *Id.* at A69.

[56] *Id.* at A39, A69.

[57] *Id.* at A69 – A70.

[58] *Id.* at A70.

[59] *Id.*

[60] *See id*.

[61] NYS' Statement of Position for NYS-12C at 25.

[62] Staff's Testimony at A69 – A70.

D. The Decontamination Times In SAMA Analysis Are Reasonable

The final input variable NYS identifies as being inappropriate for Indian Point is the decontamination time. Dr. Lemay argues that time to complete a DF of 3 (60 days) and 15 (120 days) used by Entergy are too short based on the experience at Chernobyl and Fukshima.[63] He argues that the a more appropriate time to complete the clean-up is 2 to 15 years for a DF of 3 and 4 to 30 years for a DF of 15.[64] Neither Chernobyl nor Fukushima represents good comparison for conducting a reactor accident clean-up.[65] Using Chernobyl and Fukushima to estimate the decontamination times, applies a worst case clean-up scenario under some of the worst conditions to model decontamination times for all accident scenarios, even one requiring very little clean-up.[66] The decontamination times utilized by the MACCS2 code must be representative of all the accidents not just the worst case accident scenarios.[67] The Staff's experts explain that the decontamination times used by Entergy are reasonable in light of how the code calculates decontamination and in light previous studies examining decontamination.[68] Dr. Lemay's concerns about decontamination time are skewed to the worst accidents under the worst conditions. The SAMA analysis for Indian Point examines all severe accidents including accidents with only minor releases to the environment.[69] As such, the input needs to represent an average of the decontamination time for all these accidents and not just for the worst case

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[63] NYS' Statement of Position for NYS-12C at 32.

[64] *Id.*

[65] *See* Staff's Testimony at A82.

[66] *Id.*

[67] *Id.* at A83, A81.

[68] *Id.* at A81.

[69] *Id.* at A81, A83.

scenarios.[70] The NRC Staff identified that its previous research on average decontamination time identified 90 days as a reasonable estimate.[71]

E. The Staff Fully Responded to NYS' Timely Comments on the DSEIS

NYS asserts that the Staff "failed to adequately respond to [NYS'] comments" on the DSEIS. NYS' Statement of Position contains a litany of complaints without specifically identifying how the Staff's response failed to address their comments. In fact, the Statement of Position fails to even cite to NYS' comments.[72] NYS acknowledges that Staff "provided a general response to [NYS'] comments."[73] In order to evaluate NYS' bare assertions regarding the Staff's responses, NYS' comments must be evaluated. The full set of NYS' timely submitted comments can be found in Appendix A to the Staff's FSEIS.[74] With respect to decontamination costs, NYS' comments are unlike its assertions in its testimony and Statement of Position. NYS' comments suggested that "the NRC should use the analytical framework contained in the 1996 [Sandia] report [("Site Restoration Study') (NYS0000XXX)] concerning site restoration costs."[75] NYS asserted that the Site Restoration Study recognized that smaller particles were more difficult to clean-up and predicted clean-up costs based on area.[76] The comments also identified two additional studies in support of the Site Restoration Study.[77] The Staff, in Appendix G to the FSEIS, evaluated the conclusion from the Site Restoration Study to the application of the MACCS2 code to the Indian Point site and determined that the cost to decontaminate that Entergy used was reasonable. Based on the population density, the

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[70] *Id.*

[71] *Id.* at A81.

[72] *See* NYS' Statement of Position for NYS-12C at 37-41.

[73] *Id.* at 38.

[74] *See* FSEIS, Appendix A.

[75] *See* FSEIS, Appendix A at A-1029.

[76] *Id.* at A-1320.

[77] *Id.* at A-1032.

decontamination costs from the Site Restoration Study were comparable to the values used in the MACCS2 code.[78] Sandia also concluded in the FSEIS that Site Restoration Study (clean-up of a nuclear weapons accident) was not an appropriate comparison to a reactor accident clean-up.[79]

CONCLUSION

For the reasons above and as supported by the NRC's testimony and exhibits, the Board should resolve the contention in favor of the Staff.

/Signed (electronically) by/
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[78] FSEIS, Appendix G at G-24.

[79] *Id.* at G-23.