

**UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
ATOMIC SAFETY AND LICENSING BOARD**

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In re:

Docket Nos. 50-247-LR; 50-286-LR

License Renewal Application Submitted by

ASLBP No. 07-858-03-LR-BD01

Entergy Nuclear Indian Point 2, LLC,  
Entergy Nuclear Indian Point 3, LLC, and  
Entergy Nuclear Operations, Inc.

DPR-26, DPR-64

January 22, 2014

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**STATE OF NEW YORK  
REPLY IN SUPPORT OF MOTION TO REOPEN THE RECORD AND FOR  
RECONSIDERATION OF CONTENTION NYS-12C**

Office of the Attorney General  
for the State of New York  
The Capitol  
State Street  
Albany, New York 12224

## INTRODUCTION

The State of New York submits this reply and the accompanying declaration of Dr. François Lemay in support of its motion to reopen the record and for reconsideration of NYS-12C, and in response to the December 23, 2013 submissions by Entergy and NRC staff regarding the State's motion.<sup>1</sup> On January 14, 2014, the Board granted the State's motion for leave to file a reply, and provided the State until close of business on January 22, 2014 to file its reply.<sup>2</sup>

## POINT I

### **EXPERT ANALYSIS OF THE GHOSH AFFIDAVIT SUPPORTS THE USE OF AT LEAST A 356-DAY TIMDEC FOR THE INDIAN POINT SAMA ANALYSIS**

The Ghosh affidavit, submitted by NRC Staff with its responsive papers on December 23, 2013, for the first time attempts to set forth an explanation why Staff used a 365-day TIMDEC value in its MELCOR Accident Consequence Code Systems 2 (MACCS2) calculations for its recent Consequence Study.<sup>3</sup> NRC Staff and Dr. Ghosh also attempt to distinguish the Consequence Study from the Indian Point Severe Accident Mitigation Alternatives (SAMA) Analysis.<sup>4</sup> But after working with its experts to review the Ghosh affidavit, the State has

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<sup>1</sup> NRC Staff's Response to State of New York Motion to Reopen the Record and for Reconsideration of Contention NYS-12C (Dec. 23, 2013) (ML13357A775 package); Entergy's Answer Opposing State of New York Motion to Reopen the Record and for Reconsideration of Contention NYS-12C (Dec. 23, 2013) (ML13357A254).

<sup>2</sup> *Entergy Nuclear Operations, Inc.* (Indian Point Nuclear Generating Units 2 and 3), Order (Granting New York's Motion) (Jan. 14, 2014) (ML13365A162).

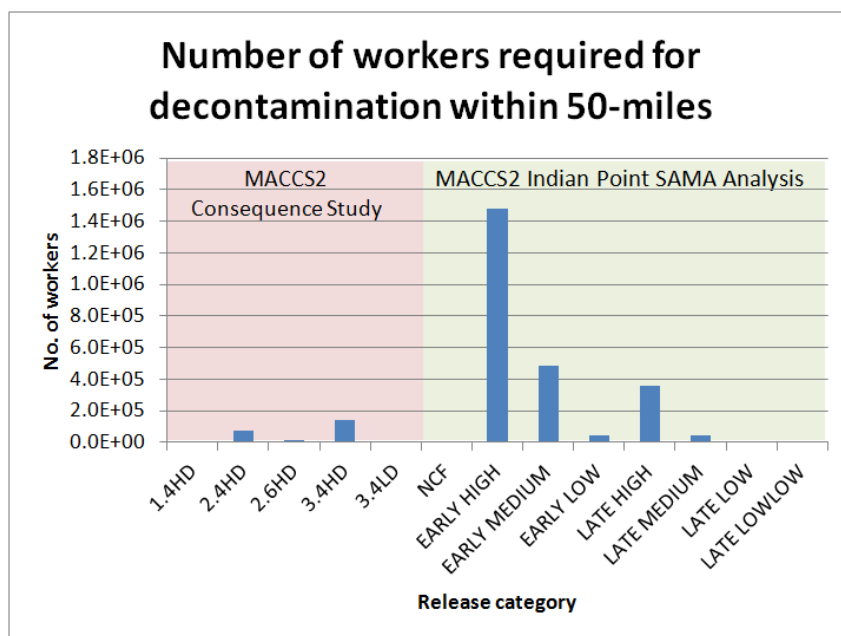
<sup>3</sup> Consequence Study of a Beyond Design Basis Earthquake Affecting the Spent Fuel Pool for a U.S. Mark 1 Boil Water Reactor, Attachment 7 to State's Motion to Reopen the Record and for Reconsideration of NYS-12C, ML13256A342 (final) October 2013, and ML13133A132 (draft) June 2013.

<sup>4</sup> See NRC Staff Resp. at 13 ("As stated in the attached Declaration of Dr. Tina Ghosh, one of the Staff's testifying experts, the differences between the SAMA analysis performed at Indian Point and the analysis conducted for the [Consequence] Study are stark.").

discovered that the Ghosh affidavit is misleading, and that expert analysis of Dr. Ghosh's assertions further supports the use of at least a 365-day TIMDEC for the Indian Point SAMA analysis, warranting reopening of the record and reconsideration of NYS-12C.

Dr. Ghosh focuses on how contaminated land area informed the selection of TIMDEC in the Consequence Study, claiming that that "[b]ecause of the *large magnitude of contaminated land areas*, the team chose a TIMDEC of 365 days, which is longer than what has been chosen historically in most reactor accident PRAs." Ghosh Aff. ¶ 3 (emphasis added). As Dr. Lemay explains, however, Dr. Ghosh fails to acknowledge that the affected population and population density should also inform the selection of TIMDEC, especially for areas of high population density such as the area surrounding Indian Point. Declaration of François Lemay in Support of the State's Motion to Reopen the Record and for Reconsideration of NYS-12C (Jan. 22, 2014) (Lemay Decl.) ¶¶ 6-7. The Ghosh affidavit overlooks the impact that population and population density can have on TIMDEC. *Id.* ¶ 7. Thus, by overlooking affected population and population density, the Ghosh Affidavit is incomplete and thereby creates a misimpression. *Id.*

As Dr. Lemay explains, to compare the TIMDEC used in the MACCS2 Consequence Study to the MACCS2 Indian Point SAMA analysis, all factors relevant to TIMDEC should be taken into account—including source term, land area, and affected population—not just contaminated land area or source term as Dr. Ghosh contends. *Id.* ¶ 8. A straightforward way to compare all these factors is to compare the number of workers required to decontaminate within a given TIMDEC. *Id.* The MACCS2 code internally calculates the number of workers. *Id.* Dr. Lemay provides the number of workers on the chart below for the MACCS2 Consequence Study (which uses 365-day TIMDEC values) and the MACCS2 Indian Point SAMA analysis (which uses 60-day and 120-day TIMDEC values):



As shown in the chart, the number of workers required to decontaminate is much higher for the Indian Point SAMA analysis. *Id.* This means that, if 365 days is appropriate for the Consequence Study, at least 356 days should be used to for the Indian Point SAMA analysis so that decontamination is carried out over a longer timeframe, using a lower, more reasonable number of workers. Using Entergy’s TIMDEC values, about 1.5 million workers are required to decontaminate following an EARLY HIGH accident at Indian Point. *Id.* A longer TIMDEC would decrease the number of workers required.

Dr. Ghosh also claims “[t]he Spent Fuel Pool Study focused on a single challenging accident scenario: a severe accident from an example spent-fuel pool initiated by an extreme seismic event, with an estimated frequency of occurrence of  $10^{-7}$  per reactor year.” Ghosh Aff. ¶ 3. This frequency, however, is on par with the frequencies of several of the accident scenarios, *i.e.* releases, examined by Entergy in its Indian Point SAMA analysis as shown in the “Frequency” column in Entergy’s Tables 5 and 6. ENT000464 (ML12339A570) at Tables 5, 6.

Accepting Dr. Ghosh’s proposition that a “challenging accident scenario” should result in

longer decontamination times, Dr. Lemay created a chart showing the effect of using the 365-day TIMDEC for only the most severe accidents, *i.e.*, the four most “challenging accident scenarios” Entergy chose to model for Indian Point: EARLY HIGH, EARLY MEDIUM, LATE HIGH, and LATE MEDIUM. Lemay Decl. ¶ 12. As Entergy’s Tables 5 and 6 show, these four accidents account for the vast majority of total accident costs. *Id.* ¶ 10. The results of Dr. Lemay’s analysis show that, altering TIMDEC to 365-days for the four accidents listed above and using Entergy’s values for all other parameters, the off-site economic cost risk (OECR) almost doubles.<sup>5</sup> *Id.* ¶ 12. Thus, the use of a 365-day TIMDEC for only the most severe accidents—consistent with the Ghosh affidavit—still has a very significant effect on OECR.

Lastly, the State also notes that the Ghosh affidavit is less absolute in describing Staff’s TIMDEC practices than Staff’s previous testimony on the subject. In discussing the MACCS2 analysis for the Consequence Study, the Ghosh affidavit states: “the calculated source terms and contaminated land areas were significantly larger than those calculated in *typical* reactor accident probabilistic risk assessments (PRAs).” Ghosh Aff. ¶ 3 (emphasis added). Throughout this hearing, witnesses for NRC Staff have consistently testified that NRC has always used Sample Problem A/NUREG-1150 TIMDEC values of 60 and 120 days. Now, the implication of Dr. Ghosh’s sworn statement is that not every probabilistic risk assessment or MACCS2 analysis has used a TIMDEC of 60 and 120 days. This conflict in testimony further justifies reopening the record and reconsidering NYS-12C.

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<sup>5</sup> OECR is the value used in the cost-benefit weighing in the SAMA analysis, and represents the frequency-averaged offsite costs associated with a severe accident at Indian Point in dollars per year without implementing any SAMA candidates. *See, e.g.*, NYS000241 at 25; ENT000464 at 11; Tr. 1913:9-13 (Teagarden).

## POINT II

### **THE STATE DID NOT VIOLATE DISCLOSURE OBLIGATIONS BECAUSE NRC'S USE OF A 365-DAY TIMDEC IN A MACCS2 CONSEQUENCE CALCULATION WAS NOT PREVIOUSLY AVAILABLE TO THE STATE**

Entergy argues that the information regarding the 365-day TIMDEC was available since mid-2013 and that the State of New York should have previously disclosed the information.

Entergy suggests that the State ran afoul of the Commission's disclosure obligations. Entergy Opp'n at 8, 11. Entergy goes so far as to state "As such, New York either failed to comply with its disclosure obligations, *subject to the risk of sanctions* under 10 C.F.R. § 2.336(e), or did not consider any of the referenced information relevant to Contention NYS-12C." *Id.* at 11 (emphasis added). Entergy's argument is incorrect.

Entergy conflates the information contained in the MACCS2 input and output files with a vague, single line of text in the Consequence Study. The State is not contending that the entire 369-page draft Consequence Study is relevant; rather, what is relevant is NRC Staff's use of a 365-day TIMDEC input in its Consequence Study MACCS2 runs, after contending that it has always used the Sample Problem A/NUREG-1150 values of 60 and 120 days. The Consequence Study does not mention "TIMDEC," and Entergy admits this (Entergy Opp'n at 8, n.37). In fact, up until the State received the MACCS2 input/output files, and its experts reviewed them and noticed that a 365-day TIMDEC (expressed as "3.15x10E7") was used, the State did not believe the Consequence Study was relevant to NYS-12C. The State included the MACCS2 input and output files in the attachments to its motion to reopen and in its December 2013 disclosures, satisfying any disclosure obligations. The State's motion to reopen would have been unnecessary if NRC Staff disclosed the MACCS2 input/output files after they were completed in November 2012—one year before the Board's partial initial decision closing the record on Track

1 contentions.

### **POINT III**

#### **NRC STAFF MISPERCEIVES THE STATE'S AUGUST 2013 COMMENT LETTER**

In an effort to avoid further Board review of the TIMDEC issue, Staff points to a comment letter submitted by the State concerning the draft Consequence Study, but the letter does not support Staff's position. NRC Resp. at 7 & Attachment B (NYS August 1, 2013 Comment Letter). The draft Consequence Study contains many statements explaining that it was prepared consistent with Sample Problem A and NUREG-1150 values. Given those statements, the State's August 2013 letter (at 3) reflected the State's understanding that the draft Consequence Study used Sample Problem A values, which were developed for the Surry site located in rural Virginia during the NUREG-1150 process, for any MACCS2 analysis. The draft Consequence Study did not mention TIMDEC, and did not make clear that Staff and its Sandia consultants selected a different value than had been used in earlier MACCS2 analyses. The State's letter (at 1-2) also makes clear that in July 2013, the State had asked for an extension of time to prepare and submit comments on the draft study in order to identify, contract and consult with experts. Staff denied that request. When the State submitted its comment letter, the State was not aware that Staff and its Sandia consultants (and witnesses in this proceeding) selected and used the 365-day value for the TIMDEC input for the MACCS2 analysis.

## POINT IV

### **NRC STAFF’S ARGUMENT REGARDING THE PROPER RELEVANCY STANDARD IS IMMATERIAL**

The NRC Staff Response (at 16-18) misinterprets the State’s disclosure argument and contradicts the Commission’s 2012 amendments to 10 C.F.R. § 2.336(b). In its motion (at 4), the State set out what it believed to be a fundamental and generally accepted point regarding disclosure obligations that holds true regardless of what version of §2.336(b) applies—the NRC’s own regulation essentially obligated Staff to disclose information within its possession that supported the Staff’s position as well as information that contradicted or opposed Staff’s position. New York believed that the NRC’s own regulations and basic fairness did not permit Staff to make factual representations to the Atomic Safety and Licensing Board while at the same time exempting Staff from disclosing information within Staff’s possession that contradicted such representations by Staff.

In its response, not only did Staff misconstrue New York’s concise summary of Staff’s § 2.336(b) obligations, but Staff then went on to contradict the Commissioners’ statement of the relative scope of the 2004 and 2012 versions of § 2.336(b). The Commission’s Statement of Considerations in the August 2012 Federal Register confirm that the Commissioners understood that the Staff’s disclosure obligations under the 2004 regulation were substantially broader and more burdensome than were Staff’s obligations under the revised 2012 obligations. 77 Fed. Reg. 46562, 46563, *Final Rule, Amendments to Adjudicatory Process Rules and Related Requirements* (Aug. 3, 2012).<sup>6</sup> “After reviewing the public comments and considering the proposal to make changes to the scope of the staff’s disclosure obligations, the *NRC has decided*

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<sup>6</sup> Staff’s response (at 16, n.59) referred to this Federal Register notice and related rulemaking.



*to adopt a revised § 2.336 that will limit the scope of the staff's mandatory disclosures to documents relevant to the admitted contentions.” Id. (emphasis added).*

The NRC believes that limiting the staff's mandatory disclosures to only documents relevant to the admitted contentions will reduce the burden on both the NRC staff and the other parties to the proceeding. The NRC staff will have to produce fewer documents and the other parties will have to review fewer documents. Further, the documents provided to the parties by the NRC staff will be relevant to the admitted contentions, which will allow parties to focus on the disputed issues in the proceeding without having to review documents with no relevance to the admitted contentions.

*Id.* If, in August 2012, the NRC Commissioners revised the 2004 disclosure obligations to “limit” the Staff's disclosure obligations to documents that were relevant to admitted contentions, logic holds that earlier 2004 regulations must have at least as broad and also included an obligation on NRC Staff to disclose documents that were relevant to admitted contentions.

The NRC states that it is an “independent agency,” and it does not consult with the State about Staff's research projects. The State is not privy to various determinations and actions taken by staff. The State of New York necessarily and appropriately relies on NRC's regulations that require staff to disclose information within NRC possession that is relevant to admitted contentions and Staff's testimony and litigation position.

## **CONCLUSION**

The State of New York respectfully requests that the Atomic Safety and Licensing Board grant the State's motion to reopen the record and reconsider the Board's ruling on Contention NYS-12C. NRC's use of a 356-day TIMDEC value in the Consequence Study contradicts the testimony it provided in this proceeding and demonstrates that NRC Staff should have required that Entergy use a 365-day or greater TIMDEC value for the Indian Point SAMA analysis.

Respectfully submitted,

*Signed (electronically) by*

John J. Sipos  
Assistant Attorneys General  
Office of the Attorney General  
of the State of New York  
The Capitol  
Albany, New York 12224  
(518) 402-2251

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*Signed (electronically) by*

Kathryn M. DeLuca  
Assistant Attorney General  
Office of the Attorney General  
of the State of New York  
120 Broadway  
New York, New York 10271  
(212) 416-8482