

**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, DPR-26, DPR-64  
Entergy Nuclear Indian Point 3, LLC, and  
Entergy Nuclear Operations, Inc. September 18, 2012  
-----x

**STATE OF NEW YORK MOTION FOR LEAVE TO FILE AN  
ADDITIONAL EXHIBIT AND ADDITIONAL CROSS-EXAMINATION  
QUESTIONS CONCERNING CONSOLIDATED CONTENTION NYS-12C**

Office of the Attorney General  
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## INTRODUCTION

Recognizing that the deadline set for filing rebuttal exhibits and cross-examination questions has passed, in accordance with 10 C.F.R. § 2.323(a), the State of New York respectfully requests leave to file an additional exhibit and corresponding cross-examination questions for Contention NYS-12C, the State’s contention which explains how the Severe Accident Mitigation Alternative (“SAMA”) analysis for Indian Point significantly underestimated the economic costs of a severe accident by using data developed for a site in rural Virginia (*i.e.*, Sample Problem A). Entergy does not oppose the State’s motion for leave to submit the document as an exhibit, but does oppose the request to submit additional cross-exam questions. NRC Staff opposes the motion in its entirety.

The additional exhibit is an email chain and document authored by Nuclear Regulatory Commissions (“NRC”) Staff—but not previously disclosed by Staff—that expresses views contrary to the positions taken by Staff and Entergy regarding NYS-12C. *See* E-mail from C. Ader, NRO to M. Johnson, NRO: Subject: FW: Action YT-2011-0003: Request Parallel Concurrence on Document: Agency Long-Term Research Activities for Fiscal Year 2013 (ML12024A077) (“FY13 Long-Term Research Plan”), attached hereto as Attachment 1. The document reveals that “applicants often begin with input values that are found in ‘Sample Problem A’ . . . taken from a calculation for Surry done for NUREG-1150, which was published in 1990. ***The pedigree of some of those input values is not known.***” FY13 Long-Term Research Plan, ML12024A077 at 5 (emphasis added). The text, in context, is reproduced below.

**New Improved MELCOR Accident Consequence Code System (MACCS)**

There is a need to review, and update or upgrade as necessary, certain input values often used in the MACCS2 for off-site radiological and economic consequences of severe accidents, such as reported in Severe Accident Management Alternative (SAMA) or Severe Accident Management Design Alternative (SAMDA) analyses submitted as part of combined operating license applications and standard reactor design certification applications. For instance, applicants often begin with input values that are found in "Sample Problem A" that is distributed with the MACCS2 code (NUREG/CR-6613). The values in Sample Problem A were taken from a calculation for Surry done for NUREG-1150, which was published in 1990. The pedigree of some of those input values is not known.

One of the central arguments advanced by New York in support of NYS-12C is that it was inappropriate for Entergy and Staff to rely upon input values from Sample Problem A to determine severe accident consequences at Indian Point because, *inter alia*, those input values are not site-specific for Indian Point and there is not evidence that those input values were developed with reliable technical analyses. *See, e.g.*, State of New York Revised Statement of Position at 7-14 (NYS000419). In their Statements of Position and Pre-Filed Testimony, both Staff and Entergy reject this position. *See* n.1, n.2, *infra*. The heretofore undisclosed Staff document directly refutes Staff and Entergy's assertions.

On September 10, 2012, the State became aware of the FY13 Long-Term Research Plan, which directly contradicts the central argument raised by Staff and Entergy in NYS-12C to support the use of Sample Problem A. The FY13 Long-Term Research Plan appears to be an attachment to an email chain that includes Sherwin Turk, Staff counsel in this proceeding, and Tina Gosh, Staff witness in this proceeding. Additional email addressees include Michael Johnson, NRC senior manager who briefed the Commission on Fukushima Lessons Learned; Scott Flanders, an NRC Attorney; Gary Holahan, Deputy Director of NRC's Office of New Reactors; Eric Leeds, Director of NRC's Nuclear Reactor Regulation; and Charles Miller, Leader of the Near-Term Task Force for Review of Insights from the Fukushima Dai-Ichi Accident.

Although the document date is January 19, 2011, it was not added to NRC’s Agencywide Documents Access and Management System (“ADAMS”) until January 26, 2012—after the State’s initial pre-trial submissions, but before Staff and Entergy’s. Staff has failed to disclose the FY13 Long-Term Research Plan and, as will be described in more detail below, good cause exists for the Board to allow the State to file this additional exhibit and proposed cross-examination questions, which have been filed *in camera* as Attachment 2.

## ARGUMENT

### GOOD CAUSE EXISTS FOR ALLOWING THE STATE TO FILE THE ADDITIONAL EXHIBIT AND CROSS-EXAMINATION QUESTIONS

#### **A. There Is No Question the Additional Exhibit—in Which Staff Takes a Position in Direct Conflict with Staff and Entergy’s Central Argument on Sample Problem A—Is Relevant**

The FY13 Long-Term Research Plan is highly relevant. Standing in direct conflict with Staff and Entergy’s arguments in this proceeding, the FY13 Long-Term Research Plan explains that while “applicants often begin with input values that are found in ‘Sample Problem A’[,] . . . . [t]he *pedigree of some of those input values is not known.*” FY13 Long-Term Research Plan, ML12024A077 at 5 (emphasis added).

In its Statement of Position and Pre-filed Testimony, Staff contends that Entergy’s SAMA analysis is reasonable by arguing that “NUREG-1150 . . . was subjected to an extensive peer review and public comment.”<sup>1</sup> Entergy faults the State for “not acknowledg[ing] the source

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<sup>1</sup> See NRC Staff’s Initial Statement of Position on Consolidated Contention NYS-12C at 10, 13 (NRC000039); Testimony of NRC Staff Experts Nathan Bixler, S. Tina Gosh, Joseph A. Jones, and Donald Harrison Concerning NYS 12/16 at A39 (NRC000041). In the FSEIS, Staff asserted that “Sample Problem A values were primarily developed for the Surry plant analysis in NUREG-1150 and represent best estimate information for that site and time.” Appendix G of the FSEIS (NYS00133I) at G-23.

and *pedigree of the inputs* used by Entergy.”<sup>2</sup> Since FY13 Long-Term Research Plan directly contradicts these assertions, it is highly relevant and thus, good cause exists to allow the State to file it as an exhibit along with cross-examination questions addressing it.

**B. This Exhibit Is Necessary to Develop a Sound Hearing Record and to Determine the Reliability of the Evidence Presented by Staff and Entergy**

The Board should also grant the State’s request for leave to file this exhibit to ensure that the ultimate decision on relicensing is based on a complete record. It is of the utmost importance that the Board have a full record of all material and relevant evidence when rendering its relicensing decision. *See Pacific Gas & Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 & 2), ALAB-580, 11 N.R.C. 227, 230 (Appeal Board 1980) (“No conceivable good is served by making empty findings in the absence of essential evidence.”). In addition to being relevant, the FY13 Long-Term Research Plan is both material and materially different from any evidence offered in this proceeding. In fact, on its face, the FY13 Long-Term Research Plan renders evidence offered in this proceeding unreliable and contradictory by impeaching pre-filed witness testimony. It meets all the criteria of admissibility under 10 C.F.R. § 2.337(a) with flying colors. Consequently, good cause exists to allow its filing for the Board’s consideration at the hearing.

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<sup>2</sup> Testimony of Entergy Experts Lori Potts, Kevin O’Kula, and Grant Teagarden on NYS-12C (ENT000450) at A76 (emphasis added); *see id.* at A26, A35, A72, A78, A160; *see also* Entergy’s Statement of Position Regarding Consolidated Contention NYS-12C (Severe Accident Mitigation Alternatives Analysis) at 5 (ENT000449).

**C. The State Only Recently Became Aware of This Additional Exhibit and Allowing Its Filing Will Not Cause Delay or Prejudice Any Party**

1. Background on the State's Discovery of the FY13 Long-Term Research Plan

Despite the fact that the FY13 Long-Term Research Plan is directly relevant to Contention NYS-12C, Staff never disclosed it in this proceeding. *See* Declaration of Kathryn M. Liberatore in Support of State of New York Motion For Leave to File an Additional Exhibit and Additional Cross-Examination Questions Concerning Consolidated Contention NYS-12C (Sept. 18, 2012) (“Liberatore Decl.”) ¶ 9 (Attachment 3). This Board has put Staff on notice of Staff’s disclosure obligations. *See Entergy Nuclear Operations, Inc.* (Indian Point Nuclear Generating Units 2 and 3), Licensing Board Order (Granting in Part and Denying in Part State of New York and Riverkeeper’s Motion to Compel) at 10 (Mar. 16, 2012) (unpublished) (“[I]f the NRC Staff has in its possession documents that provide support for or opposition to its expert testimony, then those documents must be disclosed. Intervenors will then have ample opportunity to prepare rebuttal testimony, to propose questions for the Board to ask these witnesses, or to move for the ability to cross-examine these witnesses.”).

As explained in the Declaration of Kathryn M. Liberatore, the State did not discover the FY13 Long-Term Research Plan until the evening of September 10, 2012. Liberatore Decl. ¶ 5. Ms. Liberatore was conducting research in preparation for a September 11, 2012 meeting the NRC Commissioners were holding to discuss economic consequences of reactor accidents. *Id.* ¶ 2. Ms. Liberatore was reviewing SECY-12-0110, Consideration of Economic Consequences within the U.S. Nuclear Regulatory Commission’s Regulatory Framework (Aug. 14, 2012) (ML12173A479),<sup>3</sup> and its Enclosure 9, titled MELCOR Accident Consequence Code System,

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<sup>3</sup> Entergy disclosed this document (Doc Id No. 1553) on Septemeber 5, 2012.

Version 2 (MACCS2) (ML12173A509). *Id.* SECY-12-0110 - Enclosure 9, contains a discussion of MACCS2 inputs that relates to the State's arguments in NYS-12C:

It is not obvious to current MACCS2 experts at both the NRC and Sandia National Laboratories (SNL) that rehabilitation and clean up, land contamination area, or economic models and results are excessively conservative. ***Economic results and some land contamination area results are controlled by user inputs and could be biased to be either conservative or nonconservative, depending on the input values selected by the user.***

SECY-12-0110 - Enclosure 9 at 2 (emphasis added); *compare with* State of New York Initial Statement of Position NYS-12C (Dec. 21, 2011) (NYS000240) at 14-15 (explaining that MACCS2 input values are “user-defined and . . . [t]he MACCS2 User’s Guide makes clear that the user is responsible for selecting appropriate input values.”).

SECY-12-0110 - Enclosure 9 also stated that a “new and alternative economic model for MACCS2 is under development. . . . based on the existing Regional Economic Accounting Tool (REAcct), which SNL developed for the U.S. Department of Homeland Security (DHS).” Liberatore Decl. ¶ 4 (quoting SECY-12-0110 - Enclosure 9 at 7). This was the first time Ms. Liberatore has seen the term “REAcct.” *Id.*

After discovering this information, Ms. Liberatore conducted some searches on the ADAMS in further preparation for the September 11 meeting. Liberatore Decl. ¶ 5. One search using the terms “MACCS2 and REAcct” yielded two results: (1) SECY-12-0110 - Enclosure 9, and (2) ML12024A077 titled “E-mail from C. Ader, NRO to M. Johnson, NRO: Subject: ‘FW: Action YT-2011-0003: Request Parallel Concurrence on Document: Agency Long-Term Research Activities for Fiscal Year 2013.’” Upon reviewing ML12024A077, which contained an NRC email and attachment (*i.e.*, the FY13 Long-Term Research Plan), Ms. Liberatore realized the relevance and importance of the document. The State included the document in a supplemental disclosure to the parties on September 14, 2012.



2. Although the FY13 Long-Term Research Plan Is Available on ADAMS, It Was Not Reasonably Available to the State and, Thus, the State Could Not Have Previously Introduced It

The Commission has upheld an ASLB’s consideration of a late-filed document for good cause. *See Crow Butte Res., Inc.* (North Trend Expansion Area), 40-8943-MLA, 69 N.R.C. 535, 549 (June 25, 2009). In *Crow Butte Resources*, which concerned an application to expand operations at uranium recovery facility, a petitioner successfully introduced a document the day of the prehearing conference despite the fact that “unbeknownst to [p]etitioners, the document had been publicly available on NRC’s public document management system, ADAMS” for almost two months prior to the hearing. *Id.* The ASLB had found that, even though the document was on ADAMS, it “was not ‘previously available’ to [p]etitioners in any reasonable sense prior to the date they received it from [an]other organization, that the information and analysis found in it is materially different than information previously available, and that it was submitted in a timely fashion based on when it did become available to [p]etitioners.” *See Crow Butte Res., Inc.* (North Trend Expansion Area), 40-8943-MLA, 67 N.R.C. 241, 259 (ASLB May 21, 2008). The Commission affirmed the ASLB’s decision to consider the document, noting that “the document was not indexed by license number, making it unlikely to be found by persons interested in the proposed . . . expansion.” 69 N.R.C. at 549.

So too here. Throughout this proceeding the State has conducted searches on ADAMS using terms relevant to the various admitted contentions and other issues of interest. Liberator Decl. ¶ 7. The State has not, however, previously located the FY13 Long-Term Research Plan through its ADAMS searches. *Id.* Although the document date is January 19, 2011, it was not added to ADAMS until January 26, 2012—after the State’s initial pre-trial submissions, but before Staff and Entergy’s. *Id.* at 8. The State only happened upon the FY13 Long-Term Research Plan in performing an ADAMS search including the term “REAcct”—a term that the

State first encountered in preparing for the September 11 Commissioners’ meeting unrelated to this relicensing proceeding. *Id.* ¶¶ 2-5. Thus, the FY13 Long-Term Research Plan was not previously available to the State in any meaningful way. All in all, good cause exists to allow the State to file it as an exhibit along with corresponding cross-examination questions despite the fact that it was available on ADAMS.

3. The Introduction of the FY13 Long-Term Research Plan as an Exhibit Will Not Cause Delay or Prejudice

First and foremost, the FY13 Long-Term Research Plan is an NRC document. It is NRC that chose to wait over a year to add the document to ADAMS, despite the fact that NRC policy requires documents be available on ADAMS within six days.<sup>4</sup> *See* Liberatore Decl. ¶ 8 (The document date is January 19, 2011, but it was not added to ADAMS until over a year later on January 26, 2012). It is NRC who decided not to disclose the document in this proceeding. And it is NRC who chose to take positions in this proceeding that contradict statements it made in this document. Just like the Commission found in *Crow Butte* that “neither [the applicant] nor the Staff can claim that they were unfairly surprised by the introduction of Exhibit B, as both were in possession of the document for approximately 2 months prior to the time [p]etitioners learned of its existence,” *id.* at 549-50, the Staff cannot be prejudiced by a document that has been in its possession—including the possession of its attorney and expert witness—for over a year and a half.

Additionally, the introduction of the FY13 Long-Term Research Plan as an exhibit and additional cross-examination questions will not delay the hearing. The FY13 Long-Term

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<sup>4</sup> *See, e.g.*, NRC, “Open Government Plan Revision 1.1” (June 7, 2010) (ML101550309) at 6 (“[T]he agency policy stated in NRC Management Directive 3.4, ‘Release of Information to the Public,’ dated February 6, 2009, requires most documents to be released to the public within 6 business days after issuance.”).

Research Plan squarely addresses Staff and Entergy's position on the central issue of NYS-12C: the unreasonableness of Entergy's reliance on Sample Problem A. This issue was a likely hearing and cross-examination topic before the State found the FY13 Long-Term Research Plan and, thus, its introduction will not expand the scope of the hearing, delay the hearing, or have any adverse effect on the proceeding. *Cf. Entergy Nuclear Vermont Yankee and Entergy Nuclear Operations, Inc.*, (Vermont Yankee Nuclear Power Station), Entergy's Answer in Support of Staff's Motion for Leave to Introduce Two Additional Exhibits (Aug. 24, 2006) (ML062430029) at 2 (supporting Staff's August 23, 2006 motion<sup>5</sup> to introduce two 25-year-old documents it had recently located on ADAMS as additional exhibits at an ASLB hearing scheduled for September 13-15, 2006 because "[t]here would be no significant impacts on any party as a result of the admission of these clearly relevant documents[,] . . . they do not represent a change in position by the Staff, nor raise issues that have not been previously addressed[,] . . . [and] [t]heir admission would not delay or expand the hearing or require the Board to address matters that it would not have otherwise been considered."). In sum, no prejudice or delay weighs against allowing the State to file the FY13 Long-Term Research Plan as an exhibit along with the proposed corresponding cross-examination questions.

4. The State Submitted the FY13 Long-Term Research Plan in a Timely Fashion

Lastly, the timeliness of the State's submission supports allowing it to file the FY13 Long-Term Research Plan and cross-examination questions. The State is submitting the FY13 Long-Term Research Plan to the Board a little over a week after discovering it. Given the time required to review the document and prepare cross-examination questions, draft this motion, and

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<sup>5</sup> *Entergy Nuclear Vermont Yankee and Entergy Nuclear Operations, Inc.*, (Vermont Yankee Nuclear Power Station), NRC Staff's Motion for Leave to Introduce Two Additional Hearing Exhibits (Aug. 23, 2006) (ML062360102).

consult with other parties on this motion, the State's submission is timely and shows good faith on the part of the State.

**CONCLUSION**

For the above reasons, the State respectfully requests that the Board grant the State of New York leave to file the FY13 Long-Term Research Plan as an additional exhibit and the proposed corresponding cross-examination questions.

Respectfully submitted,

*Signed (electronically) by*

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Kathryn M. Liberatore  
Assistant Attorney General  
Office of the Attorney General  
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New York, New York 10271  
(212) 416-8459

*Signed (electronically) by*

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John J. Sipos  
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Dated: September 18, 2012

**Certificate Pursuant to 10 C.F.R. § 2.323**

In accordance with the Board's Scheduling Order of July 1, 2010 (at 8-9) and 10 C.F.R. § 2.323(b), the undersigned counsel hereby certifies that counsel for the State of New York has made a sincere effort to contact other parties in the proceeding and resolve the issues raised in the motion. The State of New York's efforts to resolve the issues with NRC Staff have been unsuccessful, and NRC Staff opposes this motion. The State of New York's efforts to resolve the issues with Entergy have been partially successful as Entergy does not object to the addition of the subject document as a new exhibit. Entergy does, however, oppose the State's request to update previously-submitted proposed Board examination questions.

***Signed (electronically) by*** \_\_\_\_\_

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September 18, 2012

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

-----x  
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, DPR-26, DPR-64  
Entergy Nuclear Indian Point 3, LLC, and  
Entergy Nuclear Operations, Inc. September 18, 2012  
-----x

**CERTIFICATE OF SERVICE**

I hereby certify that on September 18, 2012, copies of the State of New York Motion For Leave to File an Additional Exhibit and Cross-Examination Questions Concerning Consolidated Contention NYS-12C were served electronically via the Electronic Information Exchange on the following recipients:

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*Signed (electronically) by*

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Kathryn M. Liberatore  
Assistant Attorney General  
State of New York  
(212) 416-8482

Dated at New York, New York  
this 18th day of September 2012



# **ATTACHMENT 1**

Clark, Theresa

From: Ader, Charles - NRO  
 Sent: Wednesday, January 19, 2011 8:42 AM  
 To: Johnson, Michael  
 Cc: Dube, Donald; Chokshi, Nilesh; Flanders, Scott; Holahan, Gary; Clark, Theresa; Lombard, Mark; Bergman, Thomas  
 Subject: FW: ACTION: YT-2011-0003: Request Parallel concurrence on document: "Agency Long-Term Research Activities for Fiscal Year 2013"  
 Attachments: ADAMS Document.APK  
 Importance: High

Mike,

I recommend concurring on the subject paper with the following comments:

- 1) Memorandum page 4 under "Assessing Climate Variability Contribution to Risk at Nuclear Facilities" - Need to clarify or delete comment on SOARCA under the climate variability project. While it is true that SOARCA found external events risk to perhaps dominate total risk, this was mainly from seismic. This is unrelated to climate variability.
- 2) Same section – to clarify that the sentence is intended to refer to events such as flooding and not all external events (e.g., seismic) modify the sentence that reads:

"The treatment of external events in PRA and risk-informed decisions is currently much less mature than the treatment of internal events although the risk from external events may dominate total facility risk."

to read as:

"The treatment of these external events in PRA and risk-informed decisions is currently much less mature than the treatment of internal events although the risk from external events may dominate total facility risk."

- 3) Enclosure 2 page 5 under "Safety and Regulatory Issues of the Thorium Cycle" – The last sentence refers to fuel manufacturing issues with U-232. Shouldn't this refer to fuel manufacturing issues with Th-232 as the fertile fuel is made with Th-232, not U-232. U-232 is a byproduct of the nuclear reactions, but is in-situ (unless this sentence is intended to discuss processing the spent fuel, which contains U-233 and U-232, the latter giving way to decay products that are hard gamma emitters, complicating the shielding requirements).

From: Correa, Yessie  
 Sent: Monday, January 10, 2011 11:31 AM  
 To: Penny, Melissa  
 Cc: Clark, Theresa; Lombard, Mark; Coatés, Anissa; Berry, Lee  
 Subject: ACTION: YT-2011-0003: Request Parallel concurrence on document: "Agency Long-Term Research Activities for Fiscal Year 2013"  
 Importance: High

ACTION:

T/38

YT-2011-0003: Request Parallel concurrence on document: "Agency Long-Term Research Activities for Fiscal Year 2013"

Assigned To: C. Ader, DSRA

Due Date: 01/20/2011 by noon

Inst.: Requesting review and comment/concurrence.

See M. Johnson's e-mail below: Per his concurrence

Thanks,

NRO Correspondence Team

**From:** Johnson, Michael

**Sent:** Monday, January 10, 2011 11:20 AM

**To:** Correa, Yessie; Berry, Lee

**Cc:** Holahan, Gary; Williams, Donna

**Subject:** FW: Action: Request Parallel concurrence on document: "Agency Long-Term Research Activities for Fiscal Year 2013"

Please ticket. DSRA lead. My concurrence.

**From:** Bano, Mahmooda

**Sent:** Monday, January 10, 2011 11:16 AM

**To:** Lui, Christiana; Case, Michael; RidsOgcMailCenter Resource; RidsNrrOd Resource; RidsNmssOd Resource; RidsFsmeOd Resource; RidsNroOd Resource; RidsOcfoMailCenter Resource; RidsNsirOd Resource; Turk, Sherwin; Leeds, Eric; Miller, Charles; Johnson, Michael; Mitchell, Reggie; Wiggins, Jim

**Cc:** Ghosh, Tina; Santiago, Patricia; Bano, Mahmooda; Wach, Lisa; Greenwood, Carol

**Subject:** Action: Request Parallel concurrence on document: "Agency Long-Term Research Activities for Fiscal Year 2013"

All,

Please review and comment / concurrence requested by January 20<sup>th</sup>, 2011 by noon:

"Agency Long-Term Research Activities for Fiscal Year 2013"

Thank you

ADAMS Package: ML110100020

Policy Issues: ML110100018

Enclosure 1: ML110100029

Enclosure 2: ML110100032

## Clark, Theresa

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**From:** Ader, Charles  
**Sent:** Thursday, January 20, 2011 10:00 AM  
**To:** Bano, Mahmooda  
**Cc:** Ghosh, Tina; Santiago, Patricia; Clark, Theresa; RidsNroMailCenter Resource; Johnson, Michael; Chokshi, Niles; Bergman, Thomas; Flanders, Scott; Gibson, Kathy; Dube, Donald  
**Subject:** RE: NRO concurrence on FY13 long-term res SECY (YT-2011-0003)

Mahmooda,

Mike Johnson concurs on the SECY "Agency Long-Term Research Activities for Fiscal Year 2013" (ML110100020, YT-2011-0003), subject to the following comments:

- 1) Memorandum page 3 under "Evaluating Service Life of Nuclear Power Plant Concrete Structures" – Consider discussing the relationship with the FY11 long-term research topic (Enclosure 2, page 4) on nondestructive evaluation and surveillance of civil structures.
- 2) Memorandum page 4 under "Assessing Climate Variability Contribution to Risk at Nuclear Facilities" - Need to clarify or delete comment on SOARCA under the climate variability project. While it is true that SOARCA found external events risk to perhaps dominate total risk, this was mainly from seismic. This is unrelated to climate variability.
- 3) Same section – to clarify that the sentence is intended to refer to events such as flooding and not all external events (e.g., seismic) modify the sentence that reads:

"The treatment of external events in PRA and risk-informed decisions is currently much less mature than the treatment of internal events although the risk from external events may dominate total facility risk."

to read as:

"The treatment of ***these*** external events in PRA and risk-informed decisions is currently much less mature than the treatment of internal events although the risk from external events may dominate total facility risk."

- 4) Enclosure 2 page 5 under "Safety and Regulatory Issues of the Thorium Cycle" – The last sentence refers to fuel manufacturing issues with U-232. Shouldn't this refer to fuel manufacturing issues with Th-232 as the fertile fuel is made with Th-232, not U-232? U-232 is a byproduct of the nuclear reactions, but is in-situ (unless this sentence is intended to discuss processing the spent fuel, which contains U-233 and U-232, the latter giving way to decay products that are hard gamma emitters, complicating the shielding requirements).

This completes action on NRO YT-2011-0003

# FINAL INPUT

## NRO Suggestions for FY13 Long-Term Research Plan

**Background and Guidance (more info at the [RES SharePoint site](#)):**

- The LT Research Projects Review Committee will prioritize all submissions that are within the scope of the RES mission and will report to the RES Office Director who will determine whether each will be funded, based on priority and availability of funds. This process will be completed by December 2010, starting with the submittal of NRO's consolidated suggestions by October 30.
- Fill out each row with as much information as possible to support the committee's review. Use the last five rows to indicate how the following prioritization factors apply to the topic:
  - Leverages resources while maintaining NRC's independence and supporting the needed schedule for issue resolution (weight 10%)
  - Advances the state-of-the-art in a subject area with significant uncertainties and significant risk or safety implications (weight 30%)
  - Provides an independent tool or information that is needed for future regulatory decisionmaking (weight 10%)
  - Improves more than one program area or the integration between multiple program areas (weight 20%)
  - Addresses gaps created by technology advancements that may be employed by licensees or applicants (weight 30%)

<b>Title</b>	Licensing Support for Liquid Metal Fast Reactor	
<b>Brief Summary of Need</b>		
<b>Contact Name</b>	William Reckley	
<b>Cost Estimate</b>	\$750,000	
<b>FTE Estimate</b>	1.0	
<b>Description of Work</b>	To fully assess NRC capabilities and gaps in our ability to evaluate and license liquid metal fast reactors. Although some low-level work has been undertaken in recent years (e.g., knowledge management, metal fuel qualification assessment), a more detailed study is needed to assess previous activities (Clinch River, PRISM, SAFR) and begin research activities to address significant gaps in technical and regulatory areas. This activity would support initial efforts that would then form the basis for a longer term program to support the licensing of fast reactors.	
<b>Prioritization Factors</b>	<b>Leveraging Resources</b>	National laboratories currently involved in research and licensing support for new nuclear plants, integrated pressurized water reactors, high-temperature gas-cooled reactors and other activities. These recent and ongoing efforts provide a logical basis for the addition of activities for fast reactor technologies.
	<b>Advancing State of the Art</b>	Some of these activities would logically advance the state of the art as revision of existing tools and development of new tools are needed for a different technology.
	<b>Independent Decisionmaking Tool</b>	The initial efforts would ultimately lead to the adoption or development of independent decision-making tools for applications related to fast reactors
	<b>Multi-Program Improvement</b>	The fast reactor technologies are likely to be part of multi-program activities related to both reactor licensing and changes to the nuclear fuel cycle. These activities will need to be coordinated with NMSS activities related to waste, recycling, and fuel cycle facilities.
	<b>Addressing Gaps</b>	The nature of this activity is to identify and begin resolution of gaps in technical and regulatory areas related to the licensing and oversight of fast reactors.

<b>Title</b>		<b>New Improved MELCOR Accident Consequence Code System (MACCS)</b>
<b>Brief Summary of Need</b>		There is a need to review, and update or upgrade as necessary, certain input values often used in the MACCS2 for off-site radiological and economic consequences of severe accidents, such as reported in Severe Accident Management Alternative (SAMA) or Severe Accident Management Design Alternative (SAMDA) analyses submitted as part of combined operating license applications and standard reactor design certification applications. For instance, applicants often begin with input values that are found in "Sample Problem A" that is distributed with the MACCS2 code (NUREG/CR-6613). The values in Sample Problem A were taken from a calculation for Surry done for NUREG-1150, which was published in 1990. The pedigree of some of those input values is not known.
<b>Contact Name</b>		Jay Lee (NRO/DSER)
<b>Cost Estimate</b>		\$150K
<b>FTE Estimate</b>		0.5 FTE
<b>Description of Work</b>		<ol style="list-style-type: none"> <li>1) Review, and update or upgrade as necessary, certain input values often used in the MACCS2 for off-site radiological and economic consequences of severe accidents.</li> <li>2) Non site-specific parameters believed, by a group of experts from the US and the Commission of European Communities (CEC), to be important to or significant for determining off-site consequences were subjected to an expert elicitation during the late 1990s. Sandia National Laboratories (SNL) prepared ranges of values and degrees of belief and associated correlation coefficients for all of the non site-specific parameters. This information should be incorporated into the improved new code (Ref. 3).</li> <li>3) In anticipation of the Commission approval in near future for use of the improved input parameters used in the development of State-of-the Art Reactor Consequence Analyses (SOARCA), incorporate these new parameters into the improved new code</li> <li>4) Complete and incorporate new improved economic model being developed by SNL as an alternative to the current model in MACCS2 (See SRMs dated September 10, 2008 and June 23, 2009). The new model will be based on an existing code, "Regional Economic Accounting (REAcct)" which uses an input/output model to calculate loss of gross domestic product (GDP) due to economic disruptions caused by natural and/or manmade disasters. The main issue remaining to be resolved is extending the model to longer-term impacts on the economy that could potentially result from a reactor accident (See COCO-2 model), if appropriate.</li> </ol> <p>Reference: N.E. Bixler, et al., "Evaluation of Distribution Representing Important Non-Site-Specific Parameters in Off-Site Consequence Analyses," Draft NUREG/CR-XXXX, SAND2010XXXX.</p>
<b>Prioritization Factors</b>	<b>Leveraging Resources</b>	
	<b>Advancing State of the Art</b>	
	<b>Independent Decision Tool</b>	
	<b>Multi-Program Improvement</b>	
	<b>Addressing Gaps</b>	

DRAFT INPUT

## NRO Suggestions for FY13 Long-Term Research Plan

**Background and Guidance (more info at the [RES SharePoint site](#)):**

- The LT Research Projects Review Committee will prioritize all submissions that are within the scope of the RES mission and will report to the RES Office Director who will determine whether each will be funded, based on priority and availability of funds. This process will be completed by December 2010, starting with the submittal of NRO's consolidated suggestions by October 30.
- Fill out each row with as much information as possible to support the committee's review. Use the last five rows to indicate how the following prioritization factors apply to the topic:
  - Leverages resources while maintaining NRC's independence and supporting the needed schedule for issue resolution (weight 10%)
  - Advances the state-of-the-art in a subject area with significant uncertainties and significant risk or safety implications (weight 30%)
  - Provides an independent tool or information that is needed for future regulatory decisionmaking (weight 10%)
  - Improves more than one program area or the integration between multiple program areas (weight 20%)
  - Addresses gaps created by technology advancements that may be employed by licensees or applicants (weight 30%)

<b>Title</b>	Hyperion Power Module	
<b>Brief Summary of Need</b>		
<b>Contact Name</b>	Neil Ray (NRO/DE)	
<b>Cost Estimate</b>	\$100000	
<b>FTE Estimate</b>	0.5	
<b>Description of Work</b>	Follow developments in neutronics and materials behavior. Materials proposed for power module and its interaction with the coolant lead-bismuth eutectic (LBE). Also, proposed fuel is Uranium Nitride may require further collection of data while studying fuel cracking.	
<b>Prioritization Factors</b>	<b>Leveraging Resources</b>	A compact, low-power reactor concept is being studied at Los Alamos National Laboratory. Hyperion corporation is formed and there is private investment through venture capital and strategic partnerships formed.
	<b>Advancing State of the Art</b>	
	<b>Independent Decisionmaking Tool</b>	
	<b>Multi-Program Improvement</b>	
	<b>Addressing Gaps</b>	

<b>Title</b>		<b>Accident Source Terms for Sodium-cooled Fast Reactors (SFRs)</b>
<b>Brief Summary of Need</b>		The Department of Energy continues to press for closing the nuclear fuel cycle. The strategy they have devised for this includes sodium-cooled fast reactors for removing actinides from spent fuel from water reactors. It is anticipated in the coming years that DOE will begin seriously detailed design studies of a sodium-cooled actinide burner with the intention of submitting the design for certification by NRC (Reference 1). In addition, there are several SFRs being pursued by different reactor vendors (e.g., Toshiba 4S, GEH PRISM) and NRC is expecting design certification application submittals in 2013.(Reference 2)
<b>Contact Name</b>		Jay Lee (NRO/DSER)
<b>Cost Estimate</b>		\$280K
<b>FTE Estimate</b>		1.0 FTE
<b>Description of Work</b>		<p>A part of this certification effort will require that NRO have an understanding of the possible releases of radionuclides from the sodium in the event of accident either within or beyond the design basis. NRO will need independent capabilities to assess the consequences of accidental releases of radionuclides to the containment or confinement and leakage of radionuclides into the environment. This capability will be very much different than that now available for light water reactors. There is an opportunity to leverage resources on the investigation of the source term for SFRs. OECD and IRSN in France have augmented their efforts in this particular area. Specific activities that should be undertaken:</p> <ul style="list-style-type: none"> <li>• Assemble data base on known information concerning the release of radionuclides from liquid sodium</li> <li>• Assemble data base of sodium aerosol behavior</li> <li>• Develop a thermochemical model of radionuclide release from sodium to systematize the above data base, allow extrapolation of the data base, and identify areas of crucial missing data</li> <li>• Quantitatively evaluate the importance of these phenomena and the need for additional experimental research</li> <li>• Identify additional phenomena that are high importance and have a high need for additional experimental research</li> </ul> <p><u>Reference 1:</u> D. A. Powers, et al., "Advanced Sodium Fast Reactor Accident Source Terms: Research Needs," Sand Report, SAND2010-5506, September 2010.  <u>Reference 2:</u> (Sensitive NRC Internal Information) "Advanced Reactor Program Plan," Revision 1, August 2010, Advanced Reactor Program/NRO/NRC</p>
<b>Prioritization Factors</b>	<b>Leveraging Resources</b>	
	<b>Advancing State of the Art</b>	
	<b>Independent Decisionmaking Tool</b>	
	<b>Multi-Program Improvement</b>	
	<b>Addressing Gaps</b>	



<b>Title</b>		<b>New Improved MELCOR Accident Consequence Code System (MACCS)</b>
<b>Brief Summary of Need</b>		There is a need to review, and update or upgrade as necessary, certain input values often used in the MACCS2 for off-site radiological and economic consequences of severe accidents, such as reported in Severe Accident Management Alternative (SAMA) or Severe Accident Management Design Alternative (SAMDA) analyses submitted as part of combined operating license applications and standard reactor design certification applications. For instance, applicants often begin with input values that are found in "Sample Problem A" that is distributed with the MACCS2 code (NUREG/CR-6613). The values in Sample Problem A were taken from a calculation for Surry done for NUREG-1150, which was published in 1990. The pedigree of some of those input values is not known.
<b>Contact Name</b>		Jay Lee (NRO/DSER)
<b>Cost Estimate</b>		\$150K
<b>FTE Estimate</b>		0.5 FTE
<b>Description of Work</b>		<ol style="list-style-type: none"> <li>1) Review, and update or upgrade as necessary, certain input values often used in the MACCS2 for off-site radiological and economic consequences of severe accidents.</li> <li>2) Non site-specific parameters believed, by a group of experts from the US and the Commission of European Communities (CEC), to be important to or significant for determining off-site consequences were subjected to an expert elicitation during the late 1990s. Sandia National Laboratories (SNL) prepared ranges of values and degrees of belief and associated correlation coefficients for all of the non site-specific parameters. This information should be incorporated into the improved new code (Ref. 3).</li> <li>3) In anticipation of the Commission approval in near future for use of the improved input parameters used in the development of State-of-the Art Reactor Consequence Analyses (SOARCA), incorporate these new parameters into the improved new code.</li> <li>4) Complete and incorporate new improved economic model being developed by SNL as an alternative to the current model in MACCS2 (See SRMs dated September 10, 2008 and June 23, 2009). The new model will be based on an existing code, "Regional Economic Accounting (REAcct)" which uses an input/output model to calculate loss of gross domestic product (GDP) due to economic disruptions caused by natural and/or manmade disasters. The main issue remaining to be resolved is extending the model to longer-term impacts on the economy that could potentially result from a reactor accident (See COCO-2 model), if appropriate.</li> </ol> <p>Reference: N.E. Bixler, et al, "Evaluation of Distribution Representing Important Non-Site-Specific Parameters in Off Site Consequence Analyses," Draft NUREG/CR-XXXX, SAND2010XXXX.</p>
<b>Prioritization Factors</b>	<b>Leveraging Resources</b>	
	<b>Advancing State of the Art</b>	
	<b>Independent Decision Tool</b>	
	<b>Multi-Program Improvement</b>	
	<b>Addressing Gaps</b>	

<b>Title</b>		<b>General Site Suitability Criteria for Small Modular Reactors (SMRs)</b>
<b>Brief Summary of Need</b>		The current guide, Regulatory Guide 4.7, "General Site Suitability Criteria for Nuclear Power Stations," discusses the major site characteristics related to public health and safety and environmental issues that the NRC staff considers in determining the suitability of sites for large LWRs. The advanced reactors include small modular integral PWRs, high temperature gas-cooled reactors, sodium-cooled fast reactors, and all other designs or technologies except for large LWRs (greater than 700 MWe). The SMR designs are remarkably different in size (power levels) and reactor configuration. Therefore, there is a need to develop new regulatory guidance for the NRC staff to consider in determining the suitability of sites for the SMRs.
<b>Contact Name</b>		Jay Lee (NRO/DSER)
<b>Cost Estimate</b>		\$280K
<b>FTE Estimate</b>		1.0 FTE
<b>Description of Work</b>		Develop new regulatory positions on the population density; exclusion boundary and low population zone; population center distance; use of the site environs including proximity to man-made hazards; and physical characteristics of the site, including seismology, meteorology, geology, and hydrology in determining the acceptability of a site for a SMR.
<b>Prioritization Factors</b>	<b>Leveraging Resources</b>	
	<b>Advancing State of the Art</b>	
	<b>Independent Decisionmaking Tool</b>	
	<b>Multi-Program Improvement</b>	
	<b>Addressing Gaps</b>	

<b>Title</b>	<b>Operational Considerations of Liquid Metal Reactor Designs</b>	
<b>Brief Summary of Need</b>	The LMR designs present a number operational considerations not currently evaluated by the current SRPs, such as operation with enrichment percentages much greater than 5%, which impacts fuel storage requirements, radiation monitoring requirements and AOO and accident analysis source terms. Some LMR reactors have experienced coolant contamination that has resulted in fuel damage (e.g. Fermi 1, Santa Susana Sodium Reactor Experiment), coolant purification (cold traps) and other methods of monitoring and ensuring coolant purity are not well documented for use by NRC personnel. Methods for performing In Service Inspections and related RCS components inspections is not available to the staff.	
<b>Contact Name</b>	Ron LaVera (NRO/DCIP/CHPB)	
<b>Cost Estimate</b>		
<b>FTE Estimate</b>		
<b>Description of Work</b>	Collect the required industry, DOE, DOD and international operating experience information, to support development of the appropriate evaluation criteria and methods. Then develop the regulatory guidance.	
<b>Prioritization Factors</b>	<b>Leveraging Resources</b>	The current NRC guidance does not appear to address these types of areas.
	<b>Advancing State of the Art</b>	Based on participation in some LMR ARP concept presentation meetings, experience in these areas are poorly understood and not well communicated.
	<b>Independent Decision making Tool</b>	The current SRP and RG guidance does not encompass these types of operations in LMR.
	<b>Multi-Program Improvement</b>	This guidance will be applicable to all of the LMR designs.
	<b>Addressing Gaps</b>	As noted above, this type of information and guidance does not appear to be currently available in the commercial environment.

<b>Title:</b>		<b>Evaluation of ARP Specific Pressure Boundary Failure Modes and Precursors</b>
<b>Brief Summary of Need</b>		A number of the Advance Reactor Projects use design configurations that extend beyond the boundaries of current regulatory guidance. For instance, one design envisions moving the entire reactor vessel, including spent fuel, as part of the routine refueling activities. A dropped bundle analysis would possibly extend beyond a single bundle, and instead would involve the entire core. Other design proposals involve the use of steam or feed water pipes inside the RCS pressure boundary, such that a failure in one of those lines could result in an RCS primary to secondary leak that far exceeds the flow rate of a single SG tube, utilized in the current analysis. Other designs are proposing the use of inert gases at high pressure as an RCS cooling medium. How the current Leak Before Break methodology (such as RG 1.45) would be extended to these designs should be determined, as well as how to analyze for non-traditional core damage modes experienced at similar plants (e.g. carbon moderated core fires at Windscale and Chernobyl)
<b>Contact Name</b>		Ron LaVera (NRO/DCIP/CHPB)
<b>Cost Estimate</b>		
<b>FTE Estimate</b>		
<b>Description of Work</b>		Collect the required industry and operating experience information from national (DOE and DOD) and international sources, to support development of the appropriate analytical methods. Then develop the regulatory guidance.
<b>Prioritization Factors</b>	<b>Leveraging Resources</b>	This guidance will be applicable across a number of the ARP design concepts, including some of the non-LWR designs.
	<b>Advancing State of the Art</b>	Based on participation in several ARP concept presentation meetings, experience in these areas are poorly understood and not well communicated.
	<b>Independent Decision making Tool</b>	The current SRP and RG guidance does not encompass these types of failure modes.
	<b>Multi-Program Improvement</b>	As noted, information developed in support of the LWR ARP designs, may be applicable to other design centers, such as HTGR.
	<b>Addressing Gaps</b>	As noted above, this type of information and guidance does not appear to be currently available in the commercial environment.

<b>Title</b>		<b>Environmental Qualification of Internal Reactor Vessel Electrical Components</b>
<b>Brief Summary of Need</b>		A number of the Advance Reactor Projects are planning on the use of high electrical current components, such as Reactor Coolant Pump motors, and Control Rod Drive Mechanisms Magnets, that have traditionally be located outside of the Reactor Coolant System pressure boundary. Electrical failure of traditionally located components had few consequences, other than loss of RCS flow, or dropping a control rod. In the ARP designs, failure of internally located electrical components, due either to overheating, or electrical short circuits could result in ruptures of containment devices intended to separate electrical insulation and metals (copper, aluminum or lead) that could be inimical to the fuel or the RCS pressure boundary. In addition, electrical faults in high current penetrations to the RCS pressure boundary could change the accident frequency for Small Break LOCAs, at the point of the penetration. Allowable limits and the associated models, methods and assumptions needed to assess and monitor the expected and actual conditions for these components should be developed, and promulgated, preferably in a Regulatory Guide format.
<b>Contact Name</b>		Ron LaVera (NRO/DCIP/CHPB)
<b>Cost Estimate</b>		
<b>FTE Estimate</b>		
<b>Description of Work</b>		Collect the required industry and operating experience information, both within the nuclear industry and other high temperature and high pressure industries, to support development of the appropriate analytical methods. Then develop the regulatory guidance.
<b>Prioritization Factors</b>	<b>Leveraging Resources</b>	This guidance will be applicable across a number of the ARP LWR design concepts, and possibly some of the non-LWR designs.
	<b>Advancing State of the Art</b>	Based on participation in several ARP concept presentation meetings, experience in these areas are poorly understood and not well communicated.
	<b>Independent Decision making Tool</b>	EQ evaluations are currently required by SRP section 3.11. The guidance provided in that SRP section and the referenced Industry Standards are insufficient to support an adequate evaluation of equipment qualification.
	<b>Multi-Program Improvement</b>	As noted, information developed in support of the LWR ARP designs, may be applicable to other design centers, such as HTGR.
	<b>Addressing Gaps</b>	As noted above, based on the ARP presentations, this type of information and guidance does not appear to be currently available.

# **ATTACHMENT 2**

[Filed In Camera]

# **ATTACHMENT 3**



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

-----x  
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, DPR-26, DPR-64  
Entergy Nuclear Indian Point 3, LLC, and  
Entergy Nuclear Operations, Inc. September 18, 2012  
-----x

**DECLARATION OF KATHRYN M. LIBERATORE  
IN SUPPORT OF THE STATE OF NEW YORK'S MOTION FOR LEAVE TO FILE AN  
ADDITIONAL EXHIBIT AND ADDITIONAL CROSS-EXAMINATION QUESTIONS  
CONCERNING CONSOLIDATED CONTENTION NYS-12C**

Pursuant to 28 U.S.C. § 1746, Kathryn M. Liberatore hereby declares as follows:

1. I serve as an Assistant Attorney General for the State of New York, counsel for petitioner-intervenor State of New York in this proceeding. I submit this declaration and in support of the State of New York's Motion for Leave to File Additional Exhibit and Cross-Examination Questions Concerning NYS-12C.

2. On September 5, 2012, the Nuclear Regulatory Commission ("NRC") issued a media advisory announcing that it would hold a meeting on September 11, 2012 to discuss economic consequences of reactor accidents.

3. In preparation for the September 11 meeting, I reviewed SECY-12-0110, Consideration of Economic Consequences within the U.S. Nuclear Regulatory Commission's Regulatory Framework (Aug. 14, 2012) (ML12173A479), and its Enclosure 9, titled MELCOR Accident Consequence Code System, Version 2 (MACCS2) (ML12173A5091).

4. In reviewing SECY-12-0110 - Enclosure 9, I noticed a discussion of MACCS2

inputs that related the State's arguments in NYS-12C:

It is not obvious to current MACCS2 experts at both the NRC and Sandia National Laboratories (SNL) that rehabilitation and clean up, land contamination area, or economic models and results are excessively conservative. Economic results and some land contamination area results are controlled by user inputs and could be biased to be either conservative or nonconservative, depending on the input values selected by the user.

SECY-12-0110 - Enclosure 9 at 2. The document also discusses a "new and alternative economic model for MACCS2 [that] is under development. . . . based on the existing Regional Economic Accounting Tool (REAcct), which SNL developed for the U.S. Department of Homeland Security (DHS)." SECY-12-0110 - Enclosure 9 at 7. This was the first time I had heard of REAcct.

5. On the evening of September 10, 2012, in further preparation for the September 11 meeting, I conducted some searches on the NRC's Agencywide Documents Access and Management System ("ADAMS"). One of the searches I performed was search within the "Content Search" tab using the terms "MACCS2 and REAcct" in the "Document Content" field. This search returned two documents: (1) SECY-12-0110 - Enclosure 9, and (2) E-mail from C. Ader, NRO to M. Johnson, NRO: Subject: FW: Action YT-2011-0003: Request Parallel Concurrence on Document: Agency Long-Term Research Activities for Fiscal Year 2013 (ML12024A077).

6. Upon reviewing the NRC email chain and attachment ("FY13 Long-Term Research Plan") in ML12024A077, I realized that it contradicts positions Staff and Entergy have taken in this proceeding regarding the Sample Problem A inputs to the MACCS2 code.

7. From time to time throughout this proceeding I, along with others at the Office of the Attorney General, have conducted searches on ADAMS using terms relevant to the various

admitted contentions and other issues of interest. I submit that to my knowledge neither I nor my colleagues have previously located and reviewed the FY13 Long-Term Research Plan through ADAMS searches.

8. Upon reviewing the “document properties” in ADAMS for ML12024A077, the FY13 Long-Term Research Plan, I learned that the document date is January 19, 2011, the date to be released is January 6, 2012, and the date added is January 26, 2012. Thus, the document properties information indicate that the document was placed on the public ADAMS library in late January 2012. The keywords listed are “DPCautoadd,” “SUNSI Review Complete,” “exb3,” “stt,” and “utsPARS” and the case/reference listed is FOIA/PA-2011-0083.

9. After discovering the FY13 Long-Term Research Plan, I searched the parties’ disclosure logs and could not find that the document was disclosed by any party in this proceeding.

10. On September 14, 2012, the State disclosed the FY13 Long-Term Research Plan and initiated consultation with the parties on the State’s motion seeking leave to file the FY13 Long-Term Research Plan as an additional exhibit concerning NYS-12C.

11. I declare under penalty of perjury that the foregoing is true and correct.

Executed on September 18, 2012 in New York, New York

***Signed (electronically) by***

---

Kathryn M. Liberatore  
Assistant Attorney General  
State of New York  
(212) 416-8482