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U.S. Nuclear Regulatory Commission
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Peach Bottom Atomic Power Station, Units 2 and 3
Renewed Facility Operating License Nos. DPR-44 and DPR-56
NRC Docket Nos. 50-277 and 50-278

Subject: Response to Request for Additional Information
Revise Technical Specifications to Eliminate Main Steam Line Radiation Monitor Trip and Isolation Function

References:

1) Letter from James Barstow (Exelon Generation Company, LLC) to U.S. Nuclear Regulatory Commission – License Amendment Request - Revise Technical Specifications to Eliminate Main Steam Line Radiation Monitor Trip and Isolation Function, dated September 3, 2014 (ML14247A522)

2) U.S. Nuclear Regulatory Commission Memorandum from R. B. Ennis to M. K. Khanna – Peach Bottom Atomic Power Station, Units 2 and 3, Draft Request for Additional Information (TAC Nos. MF4757 and MF4758), dated December 12, 2014 (ML14349A707)

By letter dated September 3, 2014 (Reference 1), Exelon Generation Company, LLC, (Exelon) submitted a License Amendment Request (LAR) for Peach Bottom Atomic Power Station (PBAPS), Units 2 and 3, requesting changes to the Technical Specifications (TS). Specifically, the changes would revise TS and supporting TS Bases to eliminate the Main Steam Line Radiation Monitor (MSLRM) from initiating: 1) a Reactor Protection System (RPS) automatic reactor scram; and 2) a Primary Containment Isolation System (PCIS) isolation including automatic closure of the Main Steam Line Isolation Valves (MSIVs), Main Steam Line (MSL) drain valves, MSL sample line valves, Residual Heat Removal (RHR) system sample line valves, and Reactor Recirculation loop sample line valves.

In the U.S. Nuclear Regulatory Commission (NRC) memorandum dated December 12, 2014 (Reference 2), the NRC indicated that it had reviewed the information submitted in the Reference 1 letter pertaining to the proposed license amendment and requested additional clarifying information to support its continued review. The Reference 2 memorandum identifies the draft NRC questions, which were further discussed during a January 6, 2015, teleconference between Exelon and NRC representatives.

Accordingly, the Attachment to this letter provides Exelon's response to the request for additional information contained in the Reference 2 memorandum.

Exelon has reviewed the information supporting a finding of No Significant Hazards Consideration and the Environmental Consideration provided to the NRC in the Reference 1 letter. The additional information provided in this submittal does not affect the bases for concluding that the proposed license amendment does not involve a significant hazards consideration. In addition, the additional information provided in this submittal does not affect the bases for concluding that neither an environmental impact statement nor an environmental assessment needs to be prepared in connection with the proposed amendment.

There are no regulatory commitments contained in this submittal.

If you have any questions or require additional information, please contact Richard Gropp at (610) 765-5557.

I declare under penalty of perjury that the foregoing is true and correct. Executed on the 9th day of February 2015.

Respectfully,

James Barstow
Director, Licensing and Regulatory Affairs
Exelon Generation Company, LLC

Attachment: Response to Request for Additional Information - License Amendment Request to Revise Technical Specifications to Eliminate Main Steam Line Radiation Monitor Trip and Isolation Function

cc: NRC Region I, Regional Administrator
NRC Project Manager, NRR - Peach Bottom
NRC Senior Resident Inspector - Peach Bottom
S. T. Gray, State of Maryland
R. R. Janati, Bureau of Radiation Protection,
Commonwealth of Pennsylvania

# ATTACHMENT

PEACH BOTTOM ATOMIC POWER STATION
UNITS 2 AND 3

NRC Docket Nos. 50-277 and 50-278

Renewed Facility Operating License Nos.
DPR-44 and DPR-56

Response to Request for Additional Information
Revise Technical Specifications to Eliminate Main Steam Line Radiation Monitor
Trip and Isolation Function

# Attachment

Response to Request for Additional Information
License Amendment Request to Revise Technical Specifications to Eliminate Main Steam Line Radiation Monitor Trip and Isolation Function

## Background

By letter dated September 3, 2014 (Reference 1), Exelon Generation Company, LLC, (Exelon) submitted a License Amendment Request (LAR) for Peach Bottom Atomic Power Station (PBAPS), Units 2 and 3, requesting changes to the Technical Specifications (TS). Specifically, the changes would revise TS and supporting TS Bases to eliminate the Main Steam Line Radiation Monitor (MSLRM) from initiating: 1) a Reactor Protection System (RPS) automatic reactor scram; and 2) a Primary Containment Isolation System (PCIS) isolation including automatic closure of the Main Steam Line Isolation Valves (MSIVs), Main Steam Line (MSL) drain valves, MSL sample line valves, Residual Heat Removal (RHR) system sample line valves, and Reactor Recirculation loop sample line valves.

In the U.S. Nuclear Regulatory Commission (NRC) memorandum dated December 12, 2014 (Reference 2), the NRC indicated that it had reviewed the information submitted in the Reference 1 letter pertaining to the proposed license amendment and requested additional clarifying information to support its continued review. The Reference 2 memorandum identifies the draft NRC questions, which were further discussed during a January 6, 2015, teleconference between Exelon and NRC representatives. The draft questions from the Reference 2 memorandum are identified below followed by Exelon's response.

## PRA and Human Performance Branch (APHB)

### NRC Question 1 – (APHB-RAI-1)

*Please identify any operator manual actions that will be added, deleted, or changed to support the proposed license amendment. Include any changes to the time available or the sequence of actions.*

### Response

With respect to deleting the MSLRM high radiation trip function to close the Reactor Water (RW) sample line valves on a MSLRM system high radiation signal, Operator manual actions will be necessary. The post Control Rod Drop Accident (CRDA) contact dose rate of the RW sample (i.e., Residual Heal Removal system (RHR) and Reactor Recirculation loop sample lines) will immediately exceed the radiation zone allowable dose rate limit causing the area radiation monitor located near the sample sink to alarm, alerting any plant personnel (e.g., chemist) to evacuate the area. No credit is taken for the plant personnel (e.g., chemist) securing the sampling process. Instead, it is assumed that the purging of the RW sample line continues for 40 minutes (as further discussed in response to question ARCB-RAI-1) until the sample line Primary Containment Isolation Valves (PCIVs) are closed by a Main Control Room (MCR)

licensed Operator. In order to assess the radiological impact of a scenario where a CRDA occurred coincidentally with an open sample line, it was conservatively assumed that the largest sample line is "open" for 40 minutes prior to being isolated by remote-manual action taken by licensed MCR Operators. This flow path would be isolated by the use of safety-related Primary Containment Isolation Valves (PCIVs). Since the automatic function for isolating the sample line PCIVs is being removed, applicable plant procedures will be revised to support the Operator manual actions by providing guidance to direct MCR licensed Operators to close the sample line PCIVs. In addition, as discussed in Reference 1, for a release without the automatic MSIV trip, the evaluation assumes that the MSIVs do not close and that steam flow continues for approximately 24 hours before this flow path is manually isolated by MCR Operators. Further, in the event that adverse plant conditions continue to exist following a CRDA, plant procedures will direct MCR Operators to initiate a manual reactor shutdown.

**NRC Question 2 – (APHB-RAI-2)**

*Has an operating experience review (OER) been done, including plant-specific condition reports, Licensee Event Reports, INPO reports, and other relevant sources? Did the OER identify any plants that completed similar changes (i.e., automatic closure of the MSL drain valves, MSL sample lines, RHR system sample lines, and Reactor Recirculation loop sample lines) that go beyond the scope of General Electric (GE) topical report NED0-31400A, "Safety Evaluation for Eliminating the Boiling Water Reactor Main Steam Line Isolation Valve Closure Functions and Scram Function of the Main Steam Line Radiation Monitor"? If so, which plants?*

**Response**

Industry operating experience was reviewed in support of this LAR, which included reviewing several other plants' LARs that were submitted and approved by the NRC related to the elimination of the Main Steam Line Radiation Monitor (MSLRM) from initiating: 1) a Reactor Protection System (RPS) automatic reactor scram; and 2) a Primary Containment Isolation System (PCIS) isolation including automatic closure of the Main Steam Line Isolation Valves (MSIVs) in accordance with NRC-approved NEDO-31400A guidance. The plants included:

- Limerick Generating Station
- Quad Cities Nuclear Power Station
- Duane Arnold Energy Center
- Vermont Yankee
- Cooper Nuclear Station
- Hope Creek Generating Station

Of the submittal documentation reviewed, Limerick Generating Station requested similar changes regarding the elimination of the MSLRM high radiation trip and isolation function from initiating an automatic closure of the Main Steam Line (MSL) drain valves, MSL sample lines, RHR system sample lines, and Reactor Recirculation loop sample line valves. Specifically, by letter dated October 29, 1993, an LAR was submitted for Limerick Generating Station requesting the changes noted. Subsequently, by letter dated February 16, 1995, the NRC issued Amendment Nos. 89 and 52 for Limerick Generating Station, Units 1 and 2, approving these changes.

**NRC Question 3 – (APHB-RAI-3)**

*Do the planned changes described in the license amendment request (LAR) trigger changes to the plant Functional Requirement Analysis, Function Allocation, or Task Analysis? If so, please describe the changes.*

**Response**

Since PBAPS has not been evaluated using NUREG-0711, *"Human Factors Engineering Program Review Model,"* an integrated "Functional Requirement Analysis" and "Function Allocation" analysis does not exist. Rather, the modification / design control process controls various impact reviews and changes to plant programs and procedures. There are new functional requirements to isolate certain sample line PCIVs within 40 minutes if a reactor coolant sample is being taken. Further, actions will be taken to close the MSIVs within 24 hours in the event of a CRDA. Existing job / task analyses are not affected by the new function of closing the sample line PCIVs and MSIVs since the task of closing the valves from the MCR is already analyzed.

**NRC Question 4 – (APHB-RAI-4)**

*Do the changes described in the LAR cause there to be changes to risk-important human actions or to any actions necessary to place the reactor in a safe condition? Are there changes to the consequences of manual action errors? Are there any additional actions required as a consequence of this proposed modification?*

**Response**

As a result of the proposed LAR, there is a new functional requirement to isolate certain sample line PCIVs within 40 minutes when a reactor coolant sample is being taken at the time of the event (i.e., CRDA). There will also be a new requirement to isolate the MSIVs within 24 hours of a CRDA. With regard to the potential impact of these evolutions, the new functions involve the simple task of using Operator manual actions to close the applicable sample line PCIVs and MSIVs within the specified time periods. When prompted by procedures, this action is performed from the MCR by having a licensed reactor Operator close the PCIVs and MSIVs (i.e., remote-manual). Using manual Operator actions to close the applicable PCIVs and MSIVs would have minimal risk and minimal impact relative to the consequences of the postulated and analyzed CRDA.

**NRC Question 5 – (APHB-RAI-5)**

*Please describe any changes to operating procedures, abnormal procedures, and/or emergency operating procedures needed to support the proposed license amendment.*

**Response**

Changes to Alarm Response Cards (ARCs) and transient response procedures will be evaluated as part of the Engineering Change Request (ECR) process, which will implement the

physical modifications for the proposed license amendment. Changes to procedures will direct the actions necessary to support implementing the license amendment.

**NRC Question 6 – (APHB-RAI-6)**

*Please describe any changes to operator training, qualifications, and the simulator needed to support the proposed license amendment.*

**Response**

The Operations Training department will evaluate changes to training material as part of the ECR, which will perform the physical modifications. The implementation of the LAR and the changes to procedures will be communicated to Operations upon installation. Modifications to the Simulator will be evaluated as part of the ECR process.

**NRC Question 7 – (APHB-RAI-7)**

*Describe the process used to verify and validate the ability of your operators to accomplish the tasks required for the proposed amendment. In lieu of a description, you may provide the relevant administrative procedure(s) that were used for verification and validation. Did the validation include a representative sample of operators, and was it done with TS minimum staffing and nominal staffing?*

**Response**

Any new Time Critical Action (TCA) or Time Sensitive Action (TSA) will be verified and validated by procedures OP-AA-102-106, *"Operator Response Time Program"* and OP-PB-102-106, *"Operator Response Time Program at Peach Bottom."* The action of closing the PCIVs will be performed in the MCR by qualified Operators. Per OP-AA-102-106, validation of this action is not required to be performed with minimum staffing. Validation may be performed as part of planned training or other activities.

**NRC Question 8 – (APHB-RAI-8)**

*What are the credible operator errors that can occur during the manual trip/containment isolation actions? Please provide evidence that recovery from errors is possible within the time available for relevant accident scenarios.*

**Response**

Credible Operator errors are incorrect switch manipulation through improper procedure performance. Recovery from errors within the time available is possible through human performance verification tools.

**NRC Question 9 – (APHB-RAI-9)**

*Are the manual actions that replace the automatic actions being removed part of a time-critical action monitoring program? If not, by what controlled process will the credited actions be protected from inadvertent changes due to design changes and procedure changes?*

**Response**

Operator manual actions that replace automatic actions will be evaluated for inclusion in accordance with the ECR process and OP-AA-102-106, *"Operator Response Time Program"* and OP-PB-102-106, *"Operator Response Time Program at Peach Bottom."*

**Radiation Protection and Consequences Branch (ARCB)**

**NRC Question 10 – (ARCB-RAI-1)**

*On page 13 of Attachment 1 to the application dated September 3, 2014, it states:*

> *In order to assess the radiological impact of a scenario where a CRDA [control rod drop accident] occurred coincidentally with an open sample line, it was conservatively assumed that the largest sample line is "open" for one hour prior to being isolated by remote-manual action taken by licensed MCR [main control room] operators.*

*Calculation number PM-1168 (Attachment 5 to the application) assumes a sample purge rate of 500 milliliters per minute or 500 cubic centimeters per minute, but does not provide the maximum flow rate possible for each of the sample lines. Provide the maximum flow rate possible from the MSL sample line, RHR sample line and the Reactor Recirculation loop sample line. In addition, discuss any included safety margin included in the chosen sample purge rate of 500 milliliters per minute or 500 cubic centimeters per minute.*

**Response**

A nominal flushing flowrate of 500 mL/min was chosen for the sample flowrate based on instructions in the applicable chemistry sampling procedure. The sample stations are flushed at various flowrates; however, 500mL/min is the largest. This value, when combined with the assumed time for operators to isolate the sample line, provides the total volume of water which is released. This total value is considered to be conservative; however, to ensure the calculation is bounding of the Chemistry sampling procedure, a maximum limit of 700 mL/min will be established in the Chemistry procedure by this modification. The calculation has been revised to reflect the new assumed flow valve of 700 mL/min and that the assumed isolation time is 40 minutes. In order to maintain the same total volume release, the assumed isolation time will be reduced to 40 minutes, which still provides sufficient time for isolation. This results in a release of 28,000 cc; however, 30,000 cc will be utilized for conservatism. This does not affect the results of this calculation.

Additionally, conservatism is established in this portion of the calculation by assuming that the water coming from the sample line instantly reaches the temperature of the RCS due to failure of the non-safety related sample line chiller.

**NRC Question 11 – (ARCB-RAI-2)**

*Explain if it is possible to have all three-sample lines open at the same time. If it is possible to have all three-sample lines open at the same time, explain how this is accounted for in calculation PM-1168.*

**Response**

Procedural controls are in place to prevent the applicable sample lines from being open at the same time. Normal Chemistry operation involves having the Reactor Water Clean-Up (RWCU) influent sample line open at the RWCU sample station. The MSL sample line, RHR sample line

and Reactor Recirculation sample line would be closed. Chemistry procedure CH-407, *"Sampling of Reactor Water,"* establishes the controls and provides the guidance for obtaining samples from RWCU influent (at RWCU sample station), Reactor Recirculation and RHR heat exchanger outlet, which are both at the Reactor Building sample station (commonly referred to as the Feed Water sample station).

**NRC Question 12 – (ARCB-RAI-3)**

*Regulatory Guide (RG) 1.183, Section 4.4, "Acceptance Criteria," states that:*

> *The acceptance criteria for the various NUREG-0737 (Ref. 2) items generally reference General Design Criteria 19 (GDC 19) from Appendix A to 10 CFR Part 50 or specify criteria derived from GDC-19. These criteria are generally specified in terms of whole body dose, or its equivalent to any body organ. For facilities applying for, or having received, approval for the use of an AST [alternative source term], the applicable criteria should be updated for consistency with the TEDE [total effective dose equivalent] criterion in 10 CFR 50.67(b)(2)(iii).*

*In evaluating the submittal, the NRC staff could not determine if RG 1.183, Acceptance Criteria 4.4 had been assessed and met for PBAPS. Please provide additional information describing what is meant by remote-manual action to isolate a sample line and discuss whether or not the operator action of isolating the sample line would meet the requirements of NUREG-0737, "Clarification of TMI Action Plan Requirements," Task Action 11.8.2. This NUREG-0737 requirement ensures these actions can be completed without exceeding the acceptance criteria (typically contained in GDC-19) for mission doses.*

**Response**

The sample lines are isolated from the MCR rather than locally at the sample valve itself. Since Operators would not be required to leave the MCR, Task Action II.B.2 is not applicable. The CRDA analysis demonstrates that MCR doses are acceptable.

**NRC Question 13 – (ARCB-RAI-4)**

*Calculation number PM-1057 (Attachment 4 to the application), Section 7.1 provides the method for calculating the post-CRDA composite activity release fractions to the reactor coolant. The method utilizes the following release fractions:*

| *Group* | *Gap Release Fraction* | *Melt Release Fraction* |
|---|---|---|
| *Noble Gases* | *10%* | *100%* |
| *Iodine* | *10%* | *50%* |
| *Alkali metals* | *12%* | *25%* |

*These fractions are used to determine a combined release fraction for the noble gases, iodines, and alkali metals. The release fraction was determined to be 0.12 for iodine, 0.145 for noble gases, and 0.1265 for the alkali metals and these fractions are then used in Table 2 Column B to calculate the total gap activity released to the reactor coolant (Column D). The total gap*

*activity released to the reactor coolant calculated in Table 2 column D states that it was calculated by multiplying together columns A, B and C. However, Column C is the fraction of gap activity released to reactor coolant, which was already accounted for in the calculation in Section 7.1 (Column B). Please, explain why the fraction of gap activity released to reactor coolant (Column C) was used to calculate the total gap activity released to the reactor coolant (Column D) considering it was included in the combined release fraction (shown in Column B) from Section 7.1.*

**Response**

The column titles in Table 2 of PM-1057 are mislabeled. Column B is intended to describe the release fraction from the fuel rods to the reactor coolant. Column C is intended to describe the fraction of that activity which is released from the reactor coolant to the condenser, and Column D calculates the total activity released from the reactor coolant to the condenser. This release fraction is consistent with RG 1.183, *"Alternative Radiological Source Terms for Evaluating Design Basis Accidents at Nuclear Power Reactors,"* Appendix C, Section 3.3. Additionally, Column E then describes the fraction of activity which is available for release from the condenser to the environment in accordance with RG 1.183, Appendix C, Section 3.4. Column F calculates the total activity available for release from the condenser to the environment. This clarification is supported by the description in Sections 4.5, 4.6, and 5.3.1.7 through 5.3.1.9 of Calculation PM-1057.

This administrative error will be addressed in the next revision to the calculation. A tracking item has been entered into the station's database.

**NRC Question 14 – (ARCB-RAI-5)**

*On page 39 of 102 in Attachment 13.1 and page 52 of 102 in Attachment 13.2 of calculation PM-1057, pathway 1 (reactor coolant to condenser) seems to show that flow from the reactor coolant system (276 $ft^3/m$) stops at 0.1667 hours or 10 minutes. However, without the MSLRM and its automatic MSIV closure, the MSIVs do not close and steam flow should continue for 24 hours before isolation. Please explain this discrepancy, and if needed, provide the new analysis showing that the MSIVs remain open.*

**Response**

As described in Sections 2.3.1 and 7.3 of Calculation PM-1057, the release is modeled such that 99% of the coolant activity will be transferred to the Main Condenser within 1 second, which conservatively models the release to the Main Condenser. This transfer method has been used since Alternative Source Term (AST) was approved for use at PBAPS (Amendment Nos. 269 and 273, dated September 5, 2008). Although the release to the condenser is essentially instantaneous, the release from the condenser to the environment is modeled over 24 hours at a rate of 1% per day in accordance with RG 1.183, Appendix C, Section 3.4. This release model ensures that all of the activity from the damaged rods is released as required.

For a release without the automatic MSIV trip, the evaluation assumes that the MSIVs do not close and that steam flow continues for approximately 24 hours before this path is isolated.

**Reactor Systems Branch (SRXB)**

**NRC Question 15 – (SRXB-RAI-1)**

*The NRC staff understands that the MSLRM trip function is currently credited for initiating automatic reactor scram; and a PCIS isolation including automatic closure of the MSIVs, MSL drain valves, MSL sample line valves, RHR system sample line valves, and Reactor Recirculation loop sample line valves in the current analysis of record for the design-basis CRDA at PBAPS.*

a) *In addition to CRDA, clarify whether the above trip function is currently credited for any other accident or transient analyses. If credited, discuss the events, including any plan to eliminate the trip function and resulting impacts on the outcome for those events.*

**Response**

For PBAPS, the MSLRM trip function is only credited for the postulated CRDA and no other accident or transient analysis.

b) *The proposed TS changes will defeat portions of MSLRM high radiation trip function logic circuitry in the RPS and PCIS. Will there be any impact on the operation of the RPS or PCIS with respect to other intended safety functions. If so, discuss.*

**Response**

After implementation of the proposed TS changes the MSL radiation monitors will still monitor the MSLs to detect the gamma radiation level exterior to the MSLs, but the RPS will no longer initiate a scram on receipt of MSL radiation instrumentation signals. The PCIS system will no longer close the MSIVs, MSIV drain valves, or RHR, MSL, and Reactor Recirculation sample drain valves when a MSL high radiation signal is received. All other PCIS trip logic will remain unaffected by this change and will function as designed.

**NRC Question 16 – (SRXB-RAI-2)**

*Operating data presented in GE topical report NED0-31400A indicates that the MSLRMs have initiated eight reactor shutdowns from 1980 through October 1992, but none of the shutdowns were the result of fuel degradation. The shutdowns were the result of instrument failures, chemistry excursions, radiation monitor maintenance errors, and other causes.*

*Based on PBAPS plant-specific operating experience, has a plant shutdown ever resulted that was initiated specifically by the MSLRM trip function? If so, discuss the cause for those MSLRM trip function initiations, including whether any of the shutdowns were the result of actual fuel degradation, and whether the shutdown was unnecessary.*

**Response**

Although PBAPS has experienced half-scrams due to equipment failures (not actual high radiation events), one event involving a plant shutdown was identified on Unit 2. This event

occurred on June 10, 1974, and was reported to the NRC on June 17, 1974. This event was the result of contaminants in the reactor coolant system which led to a high radiation signal (not due to a fuel failure) and automatic plant shutdown.

**NRC Question 17 – (SRXB-RAI-3)**

*A CRDA is one of the postulated boiling water reactor accidents when significant fuel damage is predicted to occur. In order for the NRC staff to understand the impact of the proposed license amendment on the CRDA analytical results, provide the following additional information in relation to the current analysis of record, and how the proposed changes would impact, if any, the degree of fuel damage:*

a) *Other than to eliminate the MSLRM trip and the related isolation functions proposed for the CRDA in the licensee's application, will there be any other changes of parameters and assumptions that are made for a CRDA analysis at PBAPS? If so, discuss the changes and its impact on the CRDA analysis results.*

**Response**

The current analysis of record is the analysis performed as part of the licensing effort for the PBAPS extended power uprate (License Amendment Nos. 293 and 296, dated August 25, 2014). There are no significant changes to parameters and assumptions for the CRDA analysis other than those discussed in the MSLRM LAR, which involve eliminating the MSLRM trip and related isolation functions. This proposed analysis therefore, involves a different radiological release path than the current analysis. The proposed release paths include a pathway through the augmented Offgas system, the gland seal condenser, and through MSL drains and other sample lines.

b) *In the CRDA analysis, which trip function of the RPS is credited to scram the reactor, and does this change as a result of eliminating the MSLRM high radiation trip function? If so, discuss the impact of the change.*

**Response**

In previous revisions of the CRDA analysis, the MSLRM was credited with causing a reactor scram and closure of the Mechanical Vacuum Pump (MVP), Steam Jet Air Ejector (SJAE), and gland seal flow paths. With the elimination of the MSLRM high radiation trip, activity is released through those pathways as appropriate until they are isolated. As discussed in Reference 1, for a release without the automatic MSIV trip, the evaluation assumes that the MSIVs do not close and that steam flow continues for approximately 24 hours before this flow path is isolated. The MVP trip and isolation will remain unaffected and stay as an automatic function. With regard to core damage, the amount of damaged fuel as a result of the CRDA is determined by a bounding analysis for a particular fuel design by the fuel vendor, and is not impacted by this proposed change. As stated in PM-1057, Section 2.3.1, the activity is assumed to be released to the Main Condenser prior to the reactor scram. Therefore, there are no additional impacts to the analysis other than the release paths described above.

c) *Other than radiological consequences, discuss whether there is any impact of eliminating the MSLRM high radiation trip function on the degree of fuel damage during a CRDA or any other adverse impact on the core or the plant. Is the number of fuel rods predicted to fail and melt changed for a CRDA as a result of eliminating the MSLRM high radiation trip function? If so, discuss.*

**Response**

The amount of damaged fuel as a result of the CRDA is determined by a bounding analysis for a particular fuel design by the fuel vendor, and is not impacted by this proposed change. The number of fuel rods predicted to fail and melt is not changed. As stated in PM-1057, Section 2.3.1, the activity is assumed to be released to the Main Condenser prior to the reactor scram.

**References**

1. Letter from James Barstow (Exelon Generation Company, LLC) to U.S. Nuclear Regulatory Commission – License Amendment Request - Revise Technical Specifications to Eliminate Main Steam Line Radiation Monitor Trip and Isolation Function, dated September 3, 2014 (ML14247A522)

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