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JAFP-16-0147
September 8, 2016

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

Subject: Request for Extension to Comply with March 12, 2012 Commission Orders Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events and Reliable Spent Fuel Pool Instrumentation (Order Numbers EA-12-049 and EA-12-051)

James A. FitzPatrick Nuclear Power Plant
Docket No. 50-333
License No. DPR-059

Reference:

1. NRC Order, Issuance of Order to Modify Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events, EA-12-049, dated March 12, 2012
2. NRC Order, Issuance of Order to Modify Licenses with Regard to Reliable Spent Fuel Pool Instrumentation, EA-12-051, dated March 12, 2012
3. ENOI letter, James A. FitzPatrick Overall Integrated Plan in Response to March 12, 2012 Commission Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events (Order Number EA-12-049), JAFP-13-0025, dated February 28, 2013
4. ENOI letter, James A. FitzPatrick Overall Integrated Plan in Response to March 12, 2012 Commission Order Modifying Licenses with Regard to Reliable Spent Fuel Pool Instrumentation (Order Number EA-12-051), JAFP-13-0023, dated February 28, 2013
5. ENOI letter, James A. FitzPatrick, Notification of Permanent Cessation of Operations, JAFP-15-0133, dated November 18, 2015
6. ENOI letter, James A. FitzPatrick, Certification of Permanent Cessation of Operations, JAFP-16-0045, dated March 16, 2016
7. ENOI and Exelon letter, Application for Order Approving Transfer of Renewed Facility Operating License and Proposed Conforming License Amendment, CNRO 2016-00019, dated August 18, 2016

Dear Sir or Madam:

On March 12, 2012, the Nuclear Regulatory Commission ("NRC" or "Commission") issued two Orders (References 1 and 2) to James A. FitzPatrick Nuclear Power Plant (JAF). NRC Order EA-12-049 (Reference 1) directed JAF to develop, implement, and maintain additional guidance and strategies to maintain or restore core cooling, containment, and spent fuel pool cooling capabilities in the event of a beyond-design-basis external event. NRC Order EA-12-051 (Reference 2) directed JAF to install additional spent fuel pool level instrumentation.

NRC Order EA-12-049, Section IV.A.2 states that full implementation of the Order's requirements shall be completed no later than two (2) refueling cycles after submittal of the Overall Integrated Plan (OIP), or December 31, 2016 whichever comes first. On February 28, 2013, Entergy Nuclear Operations, Inc. (ENOI) submitted the OIP in JAFP-13-0025 (Reference 3). NRC reviewed this implementation plan by letter, Interim Staff Evaluation (ISE) (ML14007A681), dated February 21, 2014. Full compliance with Order EA-12-049 was planned for the Fall 2016 Refueling Outage (RO22).

NRC Order EA-12-051, Section IV.A.2 states that full implementation of the Order's requirements shall be completed no later than two (2) refueling cycles after submittal of the OIP or December 31, 2016, whichever comes first. On February 28, 2013, ENOI submitted the OIP in JAFP-13-0023 (Reference 4). NRC reviewed this implementation plan by letter, ISE (ML13338A645), dated December 12, 2013. Full compliance with Order EA-12-051 was planned for the Fall 2016 Refueling Outage (RO22).

On November 18, 2015 and March 16, 2016, ENOI notified the NRC that it had decided to permanently cease power operations at JAF on January 27, 2017 (References 5 and 6).

In Reference 7 Entergy and Exelon Generation Company, LLC (Exelon) requested the transfer of JAF license to Exelon. In this letter Entergy is providing a basis for requesting relaxation of NRC Orders EA-12-049 and EA-12-051 by demonstrating good cause for the relaxation as explained in the Attachment. The Attachment is based on the final approval of the license transfer by the NRC as well as other criteria as explained in Reference 7. JAF will shut down in January 2017 for a planned refueling outage and resume power operations upon startup from the January 2017 refueling outage. Following the start up from the outage Entergy would transfer ownership of JAF to Exelon Generation Company, LLC as discussed in Reference 7. To support this, JAF has resumed work to complete full implementation of the NRC Orders EA-12-049 and EA-12-051. However, given that the license transfer of JAF to Exelon is a recent request, additional time is needed to complete implementation of the remaining engineering and design activities, plant modifications, and procedural and training activities required to fully implement the requirements of Orders EA-12-049 and EA-12-051.

In accordance with Section IV of NRC Orders EA-12-049 and EA-12-051, JAF is hereby requesting that the Director, Office of Nuclear Reactor Regulation, grant an extension to comply with the requirements in Section IV of NRC Orders EA-12-049 and EA-12-051 at the James A. FitzPatrick Nuclear Power Plant until June 30, 2017.

The Attachment to this letter provides the basis and justification demonstrating good cause supporting the request for extension. By June 30, 2017, JAF will be in full compliance with NRC Order EA-12-049, FLEX and NRC Order EA-12-051, SFPI.

This letter contains no new regulatory commitments. If you have any questions regarding this submittal, please contact William C. Drews, Regulatory Assurance Manager, at 315-349-6562.

I declare under penalty of perjury that the foregoing is true and correct. Executed on the 8th day of September 2016.

Sincerely,

for Sullivan (Acting)

Brian R. Sullivan
Site Vice President

BRS/WCD/cb

Attachment: Request for Extension

cc: Director, Office of Nuclear Reactor Regulation
Director, Japan Lessons-Learned Division, NRR
NRC Regional Administrator - Region I
NRC Senior Resident Inspector
NRC Project Manager, NRR
Mr. Raj Auluck, NRR/JLD/TSD/JCBB, NRC
Mr. Peter J. Bamford, NRR/JLD/JOMB, NRC
NYSPSC
NYSERDA

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Attachment

Request for Extension

(6 Pages)

Request for Extension

I. Request for Extension

Pursuant to Nuclear Regulatory Commission (NRC) Order EA-12-049, "Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events," and Order EA-12-051, "Order Modifying Licenses with Regard to Reliable Spent Fuel Pool Instrumentation," (References 1 and 2), Entergy Nuclear Operations, Inc. (ENOI) hereby submits a request for extension to comply with the requirements in Section IV of NRC Order EA-12-049 and Order EA-12-051 until June 30, 2017.

II. Order Requirement from Which Extension is Requested

NRC Order EA-12-049, Section IV.A.2 requires licensees to complete full implementation of the Order's requirements to develop, implement, and maintain additional guidance and strategies to maintain or restore core cooling, containment, and spent fuel pool cooling capabilities in the event of a beyond-design-basis external event no later than two (2) refueling cycles after submittal of the Overall Integrated Plan (OIP), or December 31, 2016 whichever comes first. On February 28, 2013, ENOI submitted the OIP in JAFP-13-0025 (Reference 3). NRC reviewed this implementation plan by letter, Interim Staff Evaluation (ISE) (ML14007A681), dated February 21, 2014. Full compliance with Order EA-12-049 was planned for the Fall 2016 Refueling Outage (RO22).

NRC Order EA-12-051, Section IV.A.2 requires licensees to complete full implementation of the Order's requirements to install additional spent fuel pool level instrumentation no later than two (2) refueling cycles after submittal of the OIP, or December 31, 2016 whichever comes first. On February 28, 2013, ENOI submitted the OIP in JAFP-13-0023 (Reference 4). NRC reviewed this implementation plan by letter, ISE (ML13338A645), dated December 12, 2013. Full compliance with Order EA-12-051 was planned for the Fall 2016 Refueling Outage (RO22).

On November 18, 2015 and March 16, 2016, ENOI notified the NRC that it had decided to permanently cease power operations at JAF on January 27, 2017 (References 5 and 6).

In Reference 7 Entergy and Exelon Generation Company, LLC (Exelon) requested the transfer of JAF license to Exelon. Enclosure 1 is based on the final approval of the license transfer by the NRC as well as other criteria as explained in Reference 7. As a result, JAF is planning to shut down in January 2017 for a refueling outage and resume power operations upon startup from the January 2017 refueling outage. Accordingly, NRC Orders EA-12-049 and EA-12-051 require that JAF shall complete implementation of additional guidance and strategies to maintain or restore core cooling, containment, and spent fuel pool cooling capabilities in the event of a beyond-design-basis external event, and complete installation of additional spent fuel pool level instrumentation no later than December 31, 2016. As a result of the decision to continue plant operation beyond the January 2017 outage, JAF has resumed work to fully implement the Orders; however, additional time is needed to complete implementation of the remaining engineering and design activities, plant modifications, and procedural and training activities required to fully implement the requirements of Orders EA-12-049 and EA-12-051.

III. Justification for Extension Request

In accordance with the requirements of Section IV of NRC Orders EA-12-049 and EA-12-051, ENOI is required to complete implementation of additional guidance and strategies to maintain or restore core cooling, containment, and spent fuel pool cooling capabilities in the event of a beyond-design-basis external event, and complete installation of additional spent fuel pool level instrumentation no later than December 31, 2016. These requirements are intended to provide a

means of maintaining or restoring core cooling, containment and spent fuel pool cooling capabilities during beyond-design-basis external events, and a reliable means of determining spent fuel pool level.

JAF is in process of completing project plans to finalize and implement all plant modifications and supporting activities required to achieve compliance with NRC Orders EA-12-049 and EA-12-051. As a result of the unexpected change in plant status and based on the current status of these project activities, the project completion schedules identified that completing all modifications prior to December 31, 2016 is not achievable.

Specifically, the planned modifications, some of which were at or near 100% of the engineering planning process, will now require review, verification, and in some cases plan modification. This review and verification includes having to check against any new changes implemented at JAF as well as a review against knowledge gained from implementation of NRC Orders EA-12-049 and EA-12-051 at other sites.

Also impacting the time required for completion of the modifications is the change in plan scheduling. In some cases, work will now be performed out of sequence with the original plan. Work that was originally planned for performance before the outage will have to be moved to post outage. This change will require additional analysis to ensure no new adverse conditions are created.

While JAF utilizes a significant amount of already installed plant equipment to implement NRC Order EA-12-049, completion of the Order will still require procurement of equipment necessary for full implementation. JAF also has to complete the evaluation, design and construction of suitable storage buildings, or analysis of storage locations to meet the Order requirements.

The current implementation plans include the design and construction of two buildings to store equipment. These buildings are being designed considering the ground motion response spectrum (GMRS) developed for JAF and the results of the recently completed flooding evaluation and considering recent NRC work concerning snow loading considerations. The actual construction of the structures during winter conditions will severely handicap the available time period for construction. This issue alone will delay full EA-12-049 compliance.

In order to minimize the time required to implement NRC Order EA-12-049 JAF will not wait until completion of Phase I of NRC Order EA-13-109, HCV system. A Phase I HCV extension request was submitted in a separate letter requesting a due date of June 30, 2018. Rather than waiting on the completion of HCV Phase 1 by June 30, 2018, JAF will ensure the Generic Letter 89-16 accepted vent (Safety Evaluation ML 13015A634) meets the NEI 12-06 guidance for robust or is acceptable for meeting the NEI guidance by use of a documented exception.

The combined effect of these issues create a need for additional time to ensure appropriate attention to the plant modification process. The additional time requested will help ensure NRC Orders EA-12-049 and EA-12-051 implementation activities including plant modifications, procedure implementation, and training can be completed in a timely manner without adverse impact on safe plant operations. The requested relaxation of an additional period of approximately 6 months beyond December 31, 2016 to fully implement NRC Orders EA-12-049 and EA-12-051 has been determined to be adequate to complete all required project activities.

IV. Extension Bases to June 30, 2017

Immediate Event Response

The current Initial actions by Operators, based on EOP-2, include restoring reactor water level with the high pressure steam-driven Reactor Core Isolation Cooling (RCIC) and/or High

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Pressure Coolant Injection (HPCI) system with water supplied from the Condensate Storage Tanks (CST). Steam from the reactor pressure vessel (RPV) will be vented through the main steam Safety Relief Valves (SRVs) to the suppression pool in order to remove decay heat and to begin to depressurize the RPV. Both RCIC/HPCI and SRVs are controlled by DC power supplied by station batteries so they can be operated without AC power. JAF's coping time for a loss of AC power is 4 hours per the station blackout procedure AOP-49.

Due to the loss of AC power, the normal Fuel Pool Cooling, fuel pool cooling assist mode of Residual Heat Removal (RHR), and Decay Heat Removal (DHR) systems are not available; so, the SFP will begin to heat up. With all the fuel removed from the RPV to the SFP and without a SFP cooling system, the approximate heat up rate would be 100 degrees Fahrenheit in 18 hours per AOP-68.

Short Term Response

JAF already has the ability to establish a flow path using the installed diesel-driven fire pump 76P-1 or 76P-4 to provide a make-up flow from the intake bay into the Reactor Pressure Vessel (RPV). Because the fire pumps are low pressure pumps, the RPV will be depressurized using manual control of SRVs prior to establishing this method of core cooling. A pre-staged hose can be used to connect the fire protection system to the RHR system via the RHR Service Water (RHRSW) system. Valves can be aligned manually and the firewater system can supply cooling water to the reactor vessel, per OP-13A. SFP make-up water can be supplied in a similar manner, using firewater through the RHR system, per AOP-68. This strategy, which is already in place and in procedures, is being modified as needed to meet NRC Order EA-12-049 for RPV injection.

Also already in place and in procedures is a venting strategy for the containment. This strategy is being modified as needed to meet NRC Order EA-12-049 for Containment Venting under BDBEE conditions.

10 CFR 50.54(hh) (B.5.b Strategies):

B.5.b refers to a section of NRC Order EA-02-026; an order with similar precepts as EA-12-049.

This Order was retracted when it became part of the Code of Federal Regulation as 10 CFR 50.54(hh) and of the JAF Facility Operating License as Condition 2.R. The strategies and equipment established by B.5.b and maintained by regulation perform a similar function as the requirements of NRC Order EA-12-049. The B.5.b strategy established in plant procedure TSG-12, "B.5.b Extreme Damage Scenario Mitigating Strategies," and TSG-8, "Extending Site Black-Out Coping Time, Starting an EDG Injecting to Vessel with no DC Power Available," provides flexible response to extreme accident scenarios, such as:

- Depressurize the RPV using the HPCI and RCIC steam drain lines or steam test connection.
- Start and run RCIC in pressure control mode without control room or DC power.
- Bleed off RPV coolant through the Reactor Water Clean-up (RWCU) System to the condenser hotwell.
- Recharge station DC battery using mobile diesel generator and transformer.
- Inject fire water directly from the fire water header to the SFP with hoses placed over the side of the SFP.
- Employ the Fire truck - Procedures and training on the use of this equipment support a number of mitigating strategies:
  - Provide water to CST
  - Make-up to hotwell
  - Provide water to spent fuel pool

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- Depressurize and inject water to the Reactor Vessel
- Flood containment
- Provide water spray to precipitate airborne release

Of particular significance are B.5.b requirements related to a BDBEE. While not identical in details, B.5.b included requirements to be able to manually operate RCIC, provide DC power supplies to allow depressurization of the RPV, and inject 300 gpm into the RPV using a portable pump. Additionally actions were required to manually open containment vent lines to provide some control of containment pressure.

Long Term Response

JAF has access to additional equipment that is on site or can be provided through agreements with other parties that would enhance and improve the current strategies. For example:

1. Institute of Nuclear Power Operations (INPO) has established an Industry Response Center (IRC) for sharing of equipment between Nuclear Power Plants during a BDBEE. It is noteworthy that the Nine Mile Point Plant is located next to JAF and would provide available support for events at JAF via industry support prior to the sale and as part of the Exelon Fleet after the sale.
2. The Entergy Nuclear Operations, Inc. (ENOI) Fleet remains available to share equipment to support any event.
3. Agreement with National Safer Response Center (NSRC) to deliver equipment to the site at 24 hours
4. In 2012, ENOI followed the advice of the Nuclear Strategic Issues Advisory Committee (NSIAC) and purchased equipment that is currently stored at JAF. This includes a diesel driven pump, cables and hoses, portable generators, ventilation fans, fuel transfer pumps, portable lighting, radio equipment and satellite phones, and batteries. The rotating equipment is tested every 6 months which includes load testing for the generators.

Emergency Plan and Training

The expectation is for Emergency Response Organization (ERO) personnel to respond to their assigned emergency response facilities when made aware of an area-wide loss-of-grid that results in degraded communications capability. This expectation is included in the ERO annual requalification training program and it was communicated via an internal Entergy newsletter. In addition to existing emergency response radios and B.5.b-dedicated radios, ten (10) additional portable digital radios have been purchased, received, and deployed to be used for communications with onsite response teams or offsite field monitoring teams. In addition to the one (1) existing satellite phone currently on site at JAF, eleven (11) additional battery-operated satellite phones have been purchased, received, and deployed for emergency response personnel for onsite and offsite communications.

Also the Emergency Planning staffing assessment and communication plan enhancements will be completed prior to the June 30, 2017 compliance date.

A sequence of events such as those that occurred at the Fukushima Dai-ichi accident is unlikely to occur in the United States based on current regulatory requirements and existing plant capabilities, and the limited duration of the requested extension to comply with the NRC Orders EA-12-049 and EA-12-051 at JAF. Therefore, the requested extension to the compliance requirements of NRC Orders EA-12-049 and EA-12-051 for JAF does not pose a significant increase in plant risk and does not reduce nuclear safety or safe plant operations.

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V. Additional Justification Associated with the Extension to Order EA-12-051

The Spent Fuel Pool (SFP) relies on maintenance of an adequate inventory of water under accident conditions to provide containment, as well as the cooling and shielding safety functions. If the failure of the forced cooling system starts to affect SFP level then makeup water is needed. During the events in Fukushima, responders were without reliable instrumentation to determine water level in the SFP. This caused concerns that the pool may have boiled dry, resulting in fuel damage. Fukushima demonstrated the confusion and misapplication of resources that can result from beyond-design-basis external events (BDBEE) when adequate instrumentation is not available.

The JAF Spent Fuel Pool is a seismically robust structure. In the case of JAF the new peak GMRS value was determined to be < HCLPF capacity of 0.8 g Peak Spectral Acceleration (PSA) which corresponds to 0.3 g Peak Ground Acceleration (PGA). Based on this value no SFP seismic evaluation is required and the pool seismic design is bounded by the EPRI report Screening, Prioritization and Implementation Details (SPID).

JAF's current SFP level instrumentation is designed to monitor normal and abnormal conditions based on setpoints and provide an alarm instead of a continuous monitor. In addition to the use of setpoints a measurement scale is located on the wall of the SFP which has to be viewed visually or by an installed camera.

In addition to the normal methods of monitoring level in the SFP discussed above, an alternative level and temperature monitoring method was established by storing portable level and temperature instruments for alternate monitoring of the SFP. Procedure AOP-68, which is already in place, provides instructions for use.

VI. Conclusion

In Reference 7 Entergy requested the transfer of JAF license to Exelon. This letter is based on the final approval of the license transfer by the NRC as well as other criteria as explained in Reference 7. The possibility of a transfer of JAF to Exelon is an unforeseen recent development which will result in JAF conducting a refueling outage in January 2017 and continuing to operate. As described above, compliance with the NRC Order EA-12-049 and Order EA-12-051 schedule for full implementation of the Order requirements would result in hardship or unusual difficulty without a compensating increase in the level of safety. Additional time following startup from the JAF January 2017 refueling outage is required in order to complete the implementation activities identified above and complete all equipment installation and plant modifications required to achieve compliance with NRC Orders EA-12-049 and EA-12-051. Therefore, in accordance with the provisions of Section IV of the Order, ENOI requests an extension to comply with the requirements in Section IV.A.2 of NRC Order EA-12-049, FLEX and NRC Order EA-12-051, SFPI concerning implementation at JAF until June 30, 2017.

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VII. References

1. NRC Order Number EA-12-049, “Order to Modify Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events,” dated March 12, 2012
2. NRC Order Number EA-12-051, “Order to Modify Licenses with Regard to Reliable Spent Fuel Pool Instrumentation,” dated March 12, 2012
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