Entergy

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Eric W. Olson
Site Vice President

RBG-47445

February 26, 2014

U.S. Nuclear Regulatory Commission
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SUBJECT: Entergy's Second Six-Month Status Report 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)
River Bend Station – Unit 1
Docket No. 50-458
License No. NPF-47

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 (ADAMS Accession No. ML12054A736) (RBC-51013)
2. NRC Interim Staff Guidance JLD-ISG-2012-01, *Compliance with Order EA-12-049, Order Modifying Licenses With Regard To Requirements For Mitigation Strategies For Beyond-Design-Basis External Events*, Revision 0, dated August 29, 2012 (ML12229A174)
3. Nuclear Energy Institute (NEI) 12-06, *Diverse and Flexible Coping Strategies (FLEX) Implementation Guide*, Revision 0, August 2012
4. *Initial Status Report 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)*, RBG-47302, dated October 24, 2012
5. *Overall Integrated Plan in Response to March 12, 2012 Commission Order to Modify Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events (Order Number EA-12-049)*, RBG-47329, dated February 28, 2013
6. *Entergy's Six-Month Status Report 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)*, RBG-47389, dated August 28, 2013.

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NRR

Dear Sir or Madam:

On March 12, 2012, the NRC issued an order (Reference 1) to Entergy Operations, Inc. (Entergy). Reference 1 was immediately effective and directs River Bend Station (RBS) to develop, implement, and maintain 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. Specific requirements are outlined in Attachment 2 of Reference 1.

Reference 1 required submission of an initial status report 60 days following issuance of the final interim staff guidance (Reference 2) and an overall integrated plan pursuant to Section IV, Condition C. Reference 2 endorses industry guidance document NEI 12-06, Revision 0 (Reference 3) with clarifications and exceptions identified in Reference 2. Reference 4 provided the RBS initial status report regarding mitigation strategies. Reference 5 provided the RBS overall integrated plan.

Reference 1 requires submission of a status report at six-month intervals following submittal of the overall integrated plan. Reference 3 provides direction regarding the content of the status reports. Reference 6 provided the first six-month status report. The purpose of this letter is to provide the second six-month status report pursuant to Section IV, Condition C.2, of Reference 1, that delineates progress made in implementing the requirements of Reference 1. The enclosed report provides an update of milestone accomplishments since the last status report, including any changes to the compliance method, schedule, or need for relief and the basis, if any.

This letter contains no new regulatory commitments. Should you have any questions regarding this submittal, please contact Mr. Joseph Clark, Manager – Licensing, at 225-381-4177.

I declare under penalty of perjury that the foregoing is true and correct. Executed on February 26, 2014.

Sincerely,

EWO/JAC/dhw

Attachment: River Bend Station's Second Six-Month Status Report for the Implementation of Order EA-12-049, Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events

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Attachment to

RBG-47445
(6 pages)

River Bend Station's Second Six-Month Status Report for the Implementation of Order EA-12-049, Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events

River Bend Station's Second Six-Month Status Report for the Implementation of Order EA-12-049, Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events

February 2014

1. Introduction

Entergy Operations, Inc. (Entergy) developed an Overall Integrated Plan for River Bend Station (RBS) in Reference 1, which documented the diverse and flexible strategies (FLEX), in response to Reference 2. This attachment provides an update of milestone accomplishments since submittal of the Overall Integrated Plan, including any changes to the compliance method or schedule, or need for relief / relaxation and the basis, if any.

2. Milestone Accomplishments

The following milestone(s) have been completed since July 31, 2013, and are current as of January 31, 2014:

- First Six-Month Status Report — August 2013
- Second Six-Month Status Report — Complete with submission of this document in February 2014.

3. Milestone Schedule Status

The following provides an update to Attachment 2 of the Overall Integrated Plan. It provides the activity status of each item, and whether the expected completion date has changed. The dates are planning dates subject to change as design and implementation details are developed.

- The target completion date for the Develop Mods milestone has been revised from December 2013 to March 2014. This new milestone target date does not impact the Order implementation date.
- The target completion date for the Implement Non-Outage Mods milestone has been revised from December 2016 to March 2015. This new milestone target date does not impact the Order implementation date.

Milestone	Target Completion Date	Activity Status	Revised Target Completion Date
Submit 60 Day Status Report	Oct. 2012	Complete	
Submit Overall Integrated Implementation Plan	Feb. 2013	Complete	
Submit Six-Month Status Report	Aug. 2013	Complete	
Develop Mods	Dec. 2013	Started	March 2014
Develop Strategies (Playbook) with Regional Response Center	Oct. 2014	Not started	
Purchase/Procure Equipment	April 2014	Started	
Submit Six-Month Status Report	Feb. 2014	Complete	
Issue FLEX Procedures	May 2014	Started	
Create Maintenance Procedures	May 2014	Started	
Submit Six-Month Status Report	Aug. 2014	Not Started	

Milestone	Target Completion Date*	Activity Status	Revised Target Completion Date
Procedure Changes Training Material Complete	June 2014	Not started	
Develop Training Plan	June 2014	Not started	
Submit Six-Month Status Report	Feb. 2015	Not Started	
Implement Training	Dec. 2014	Not started	
Submit Six-Month Status Report	Aug. 2015	Not Started	
Submit Six-Month Status Report	Feb. 2016	Not Started	
Submit Six-Month Status Report	Aug. 2016	Not Started	
Implement Non-Outage Mods	Dec. 2016	Not Started	March 2015
Validation / Demonstration	Dec. 2016	Not Started	
Submit Completion Report	Dec. 2016	Not Started	

*Target Completion Date is the last submitted date from either the overall integrated plan or previous six-month status report.

4. Changes to Compliance Method

During the design phase of the RBS FLEX project, changes were identified to the compliance strategies as described in the Overall Integrated Plan (Reference 1). The changes are summarized below. The changes will be incorporated into a revised OIP, which will be included within a subsequent six-month status report.

- On pages 19, 20, and 50 of 60 of the RBS OIP, the FLEX2 pump is described as an electric motor-driven portable pump. The FLEX2 pump has been changed to a diesel-powered portable pump. This was necessary because portable electric motor-driven pumps are not a normal commercially available item.

- The capacities of the FLEX portable diesel generators (PDG) designated to power the FLEX1 pump and the SPC Pump 1A or 1B, which were preliminarily sized to be 200kW generators in the OIP (pages 19, 20 and 50), have been changed to 500kW. This was the result of generator sizing analysis, which determined the critical performance requirements for the portable generators.

- The FLEX Phase 3 strategy for core cooling and containment integrity as described on pages 25 and 34 of the OIP has been revised. The original primary Phase 3 strategy utilizes RHR in shutdown cooling mode powered from an RRC PDG connected to the Division 2 safety related 4160V bus. The alternate strategy utilized direct electrical power connections from an RRC PDG to components (e.g., RHR pump, etc.) for powering RHR in shutdown cooling mode. The new primary strategy for core cooling and maintaining containment integrity is continued operation of the Phase 2 approach using SPC equipment. The use of SPC as the primary method of core cooling is acceptable as evaluated in FLEX design calculations. The original primary strategy of operating RHR in shutdown cooling mode powered from a 4160V RRC PDG connected to the Division 2 safety related bus is now the alternate Phase 3 core cooling and containment integrity strategy.

- A discussion of the ability of the SSW cooling tower, without powered fans, to provide adequate heat removal well into Phase 3 is included on OIP page 21 of 60. A discussion of

repowering the Division 2 SSW basin fans via repowering ENS-SWG01B 4160V bus by a RRC PDG for the original Phase 3 strategy is provided on OIP page 25 of 60. FLEX design calculations have determined that repowering the Division 2 cooling towers is necessary at 72 hours following the ELAP. Due to the revision of the Phase 3 strategy, this will be accomplished by use of an RRC 800kW 480V PDG connected to 480V MCC ENS-MCC16B. The action to re-power the cooling tower fans will be included as a time constraint in OIP Attachment 1A and in the OIP discussion of time constraints which starts on page 5 of 60 of the OIP. One of the 480V PDGs listed in the BWR Portable Equipment Phase 3 table will be designated for use as the primary power source for the SSW cooling tower fans.

- Makeup to the SSW cooling tower basin is discussed on OIP page 25 of 60. This identifies the need for makeup to the basin, but does not establish the timing of makeup. FLEX design calculations have determined that makeup to the basin is required to be initiated by 72 hours following the ELAP. This action will be added as a time constraint in OIP Attachment 1A and in the OIP discussion of time constraints which starts on page 5 of 60.

- The need for evaluation of the seismic robustness of non-safety related class 4 piping located in RBS piping tunnels utilized in the FLEX strategy is identified on pages 20 and 21 of the OIP. The completed evaluation has confirmed that there are a number of pipe lines in the tunnels, including sections that are not considered seismically robust. The evaluation also identified that these piping sections can be isolated by closing five individual valves if the ELAP is initiated by a seismic event. RBS FLEX procedures will include directions to isolate the valves following a seismic event.

- As documented in the OIP, the RBS FLEX strategy was developed based on analysis using the GOTHIC computer code. Following discussions with NRC staff regarding the use of the GOTHIC computer code, Entergy elected to perform a new containment / RCS analysis utilizing the MAAP4 computer code. In developing the new MAAP4 analysis, Entergy will abide by the limitations contained in the NRC's endorsement letter (ADAMS Accession No.: ML13275A318) of the Nuclear Energy Institute (NEI) position paper dated June 2013, entitled "Use of Modular Accident Analysis Program (MAAP) in Support of Post-Fukushima Applications" (ADAMS Accession No. ML13190A201). It is anticipated that the results of the new MAAP4 analysis will not result in significant changes to the FLEX strategies described in the OIP.

- While the following is not a change in the compliance strategy described in the OIP, it is a clarification with regard to the RBS FLEX strategy and the guidance of NEI 12-06. NEI 12-06 Section 3.2.2, Consideration 13 states that regardless of installed coping capability, all plants will include the ability to use portable pumps to provide RPV/RCS/SG makeup as a means to provide a diverse capability beyond installed equipment. The RBS FLEX strategy does not include this capability, and thus, the crediting of installed SPC pumps for the RBS FLEX Phase 2 strategy is alternative method for satisfying the NEI 12-06 guidance. The use of the installed SPC pumps to provide RPV makeup is an acceptable alternative to a portable FLEX pump for the transitional phase of FLEX. The guidance states that the ELAP response is to be addressed with a combination of three categories of equipment: installed plant capability, portable on-site equipment, and off-site equipment resources. Only one phase of the response is limited to utilizing equipment from just one of the equipment categories. To ensure that there is enough time to deploy and implement portable equipment, Phase 1 can only use installed plant equipment. Even though Phase 2 and Phase 3 will utilize portable equipment (onsite for Phase 2 and offsite from RRC for Phase 3), there is no prohibition against the use of permanently installed equipment in those two phases, as long as it is robust with respect to design basis external events.

5. Need for Relief/Relaxation and Basis for the Relief/Relaxation

RBS expects to comply with the order implementation date, and no relief / relaxation is required at this time.

6. Open Items from Overall Integrated Plan and Interim Staff Evaluation

The following tables provide a summary and status of and open items documented in the Overall Integrated Plan and any open items or confirmatory items documented in the Interim Staff Evaluation (ISE). A fourth table includes a listing of Audit Questions and the status of each item.

Overall Integrated Plan Open Items	Status
1. Beyond-design-basis external event impact on requirements in existing licensing documents will be determined based on input from the industry groups and direction from the NRC.	Not Started
2. Structure, content and details of the Regional Response Center playbook will be determined.	Not Started

Interim Staff Evaluation Open Items	Status
The U.S. Nuclear Regulatory Commission (NRC) has not issued an Interim Staff Evaluation for RBS; therefore, there are no open items for the Interim Staff Evaluation identified at this time.	N/A

Interim Staff Evaluation Confirmatory Items	Status
The U.S. Nuclear Regulatory Commission (NRC) has not issued an Interim Staff Evaluation for RBS; therefore, there are no open confirmatory items for the Interim Staff Evaluation identified at this time.	N/A

Audit Questions	Status	Completion or Target Date
RBS-001	Closed	
RBS-002	Closed	
RBS-003	Closed	
RBS-004	In progress	February 2014
RBS-005	In progress	August 2014
RBS-006	Closed	
RBS-008	In progress	August 2014
RBS-009	In progress	February 2014
RBS-010	In progress	February 2014
RBS-011	In progress	February 2014
RBS-012	In progress	February 2014
RBS-013	In progress	February 2014
RBS-015	Closed	
RBS-016	In progress	February 2014

Audit Questions	Status	Completion or Target Date
RBS-018	In progress	August 2014
RBS-019	Closed	
RBS-020	In progress	February 2014
RBS-021	In progress	August 2014
RBS-022	In progress	August 2014
RBS-024	Closed	
RBS-027	Closed	
RBS-028	Closed	
RBS-030	In progress	August 2014
RBS-031	In progress	August 2014
RBS-032	Closed	
RBS-033	Closed	
RBS-034	Closed	
RBS-035	Closed	
RBS-037	Closed	
RBS-039	Closed	
RBS-045	Closed	
RBS-046	In progress	August 2014
RBS-047	In progress	February 2014
RBS-049	Closed	
RBS-051	Closed	
RBS-052	Closed	
RBS-053	Closed	
RBS-054	Closed	
RBS-055	In progress	February 2014
RBS-056	Closed	
RBS-057	In progress	August 2014
RBS-058	Closed	
RBS-059	Closed	
RBS-060	Closed	
RBS-061	Closed	
RBS-062	In progress	August 2014
RBS-063	Closed	
RBS-064	Closed	

7. Potential Interim Staff Evaluation Impacts

The NRC has not yet issued an interim staff evaluation for RBS; therefore, there are no potential impacts to the Interim Staff Evaluation identified at this time.

8. References

The following references support the updates to the Overall Integrated Plan described in this enclosure.

1. River Bend Station Overall Integrated Plan In Response To March 12, 2012 Commission Order To Modify Licenses With Regard To Requirements For Mitigation Strategies For Beyond-Design-Basis External Events (Order Number EA-12-049), dated February 28, 2013.

2. NRC Order Number EA-12-049, "Issuance of Order to Modify Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events," dated March 12, 2012.
3. *Entergy's Six-Month Status Report 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)*, RBG-47389, dated August 28, 2013.