



10 CFR 50.4
10 CFR 50.54
EA-12-049

LIC-17-0034
May 1, 2017

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

Fort Calhoun Station, Unit No. 1
Renewed Facility Operating License No. DPR-40
NRC Docket No. 50-285

Fort Calhoun Station
Independent Spent Fuel Storage Installation
NRC Docket No. 72-054

Subject: Request to Rescind NRC Order Number EA-12-049 for the Fort Calhoun Station

References: See Page 3

On March 12, 2012, the Nuclear Regulatory Commission (NRC) issued an Order (Reference 1) to all power reactor licensees and holders of construction permits in active or deferred status. By letter dated August 12, 2016 (Reference 2), the Omaha Public Power District (OPPPO) requested relaxation of the Fort Calhoun Station (FCS) implementation date for compliance with Order EA-12-049 to August 31, 2017. The NRC approved the relaxation for Order EA-12-049 for full order implementation at FCS until August 31, 2017 (Reference 3). OPPPO submitted a new Overall Integrated Plan (OIP) for Fuel Permanently Removed from the reactor pressure vessel (RPV) to the spent fuel pool (SFP) based on plans to remove all fuel from the RPV to the SFP by December 31, 2016 (Reference 4). OPPPO certified all fuel has been permanently removed from the FCS reactor vessel and placed into the FCS spent fuel pool as of November 13, 2016 (Reference 5).

The purpose of this letter is to request rescission of the order (Reference 1) due to docketing the 10 CFR 50.82(a)(1) certification for permanent cessation of operations and permanent removal of fuel from the reactor vessel and the ability to obtain offsite resources to sustain the spent fuel pool cooling function indefinitely.

There are no regulatory commitments or changes to regulatory commitments contained in this submittal.

If you should have any questions regarding this submittal, please contact Mr. Bradley H. Blome at (402) 533-7270.

I declare under penalty of perjury that the foregoing is true and correct. Executed on May 1, 2017.

Respectfully,



Timothy S. Uehling
Plant Manager Decommissioning

TSU/epm

Enclosure: Request to Rescind Order EA-12-049

- c: K. M. Kennedy, NRC Regional Administrator, Region IV
J. S. Kim, NRC Project Manager
P. J. Bamford, NRC Senior Project Manager
R. S. Browder, NRC Senior Health Physicist, Region IV

References:

1. 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 (NRC-12-0020) (ML12054A736)
2. OPPD letter (S. M. Marik) to USNRC (Document Control Desk), Request for Relaxation of March 12, 2012 Commission Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond Design Basis External Events and Reliable Spent Fuel Pool Instrumentation (Order Number EA-12-049 and EA-12-051), dated August 12, 2016 (LIC-16-0048) (ML16225A539)
3. NRC Letter (W. Dean) to OPPD (S. Marik), Relaxation of the Schedule Requirements for Order EA-12-049 "Issuance of Order to Modify Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events" (CAC NO. MF0969), dated November 21, 2016 (NRC-16-0101) (ML16277A509)
4. OPPD letter (S. Marik) to USNRC (Document Control Desk), Omaha Public Power District's Revised Overall Integrated Plan for Fuel Permanently Removed from the Reactor Vessel to the Spent Fuel Pool in Response to Requirements for Mitigation Strategies for Beyond Design Basis External Events, dated October 31, 2016 (LIC-10-0095) (ML16307A209)
5. OPPD letter (T. Burke) to USNRC (Document Control Desk), Certification of Permanent Removal of Fuel from the Reactor Vessel, dated November 13, 2016 (LIC-16-0074) (ML16319A254)

REQUEST TO RESCIND ORDER EA-12-049

**OMAHA PUBLIC POWER DISTRICT
FORT CALHOUN STATION UNIT NO. 1
DOCKET NO. 50-285**

1 Request to Rescind Order

On March 12, 2012, the Nuclear Regulatory Commission (NRC) issued an Order (Reference 1) to all power reactor licensees and holders of construction permits in active or deferred status. By letter dated August 12, 2016 (Reference 2), the Omaha Public Power District (OPPD) requested relaxation of the Fort Calhoun Station (FCS) implementation date for compliance with Order EA-12-049 to August 31, 2017. The NRC approved the relaxation for Order EA-12-049 for full order implementation at FCS until August 31, 2017 (Reference 3). OPPD submitted a new Overall Integrated Plan (OIP) for Fuel Permanently Removed from the reactor pressure vessel (RPV) to the spent fuel pool (SFP) based on plans to remove all fuel from the RPV to the SFP by December 31, 2016 (Reference 4). OPPD certified all fuel has been permanently removed from the FCS reactor vessel and placed into the FCS spent fuel pool as of November 13, 2016 (Reference 5).

In accordance with Section IV of the Order, OPPD requests that the NRC rescind the Order in its entirety due to docketing of the 10 CFR 50.82(a)(1) certifications for permanent cessation of operation and permanent removal of fuel from the reactor vessel and the ability to obtain offsite resources to sustain the spent fuel pool cooling function indefinitely. Good cause for this request is provided below.

2 Basis for Rescission Request

Section IV of the Order provides the NRC's Director of the Office of Nuclear Reactor Regulation the authority to relax or rescind any or all of the conditions of the Order upon demonstration by the licensee of good cause.

By letter dated November 13, 2016 (LIC-16-0074, ADAMS Accession No. ML 16319A254), OPPD notified the NRC that FCS had permanently removed all fuel from the reactor vessel.

Section III of the Order states that the Commission determined that all power reactor licensees and construction permit holders must develop, implement, and maintain guidance and strategies to restore or maintain core cooling, containment, and SFP cooling capabilities in the event of a beyond-design-basis external event. This statement forms the basis of the Order and reflects the need to effectively deploy limited resources to mitigate very low frequency events with the potential to challenge both the reactor and SFP.

FCS has permanently removed all fuel from the reactor vessel and this fuel has now been relocated to the Spent Fuel Pool as of November 13, 2016. Therefore, all nuclear fuel at FCS has been permanently removed from the reactor vessel and primary containment. The lack of fuel in the reactor vessel and the resulting absence of challenges to the primary containment render the development of guidance and strategies to maintain or restore core cooling and primary containment capabilities unnecessary.

Since the irradiated fuel in the FCS SFP was last used for power generation in October 2016, the fuel will have decayed at least 10 months by the required Order revised implementation date of August 31, 2017. Based on the calculated decay heat level on that date, the time to boil in the SFP will be 32.3 hours and the time to reduce SFP inventory to 10 feet above the top of the spent fuel rack would be an additional 153.5 hours or 185.8 hours total (7.7 days) if no makeup were available. The boiling calculations are demonstrated by analysis performed and retained by OPPD (Reference 6).

Reliance on SFP inventory for passive cooling provides an equivalent level of protection as that which would be provided by the initial phase of the guidance and strategies for maintaining or restoring SFP cooling and the need for transition phase guidance and strategies using on site portable equipment have been established and will remain in place. This portable equipment (pumps, valves, diesel generators, and piping) is described in operating procedures and is stored in a robust structure. Lastly, the low decay heat and long time to boil off the inventory also provides sufficient time for OPPD to obtain off site resources on an ad hoc basis to sustain the SFP cooling function indefinitely. Current contracts are in place with both the Fort Calhoun and Blair Fire Departments to provide makeup cooling water to the SFP in addition to fire suppression and medical response.

Since FCS has become a permanently shutdown and defueled facility, the safety of the fuel in the SFP becomes the primary safety function for site personnel. In the event of a challenge to the safety of fuel stored in the SFP, decision-makers would not have to prioritize actions and the focus of the staff would be the SFP condition. Thus, the basis for the Order will no longer apply to the configuration of FCS.

3 Spent Fuel Pool Cooling

During FCS decommissioning, the Spent Fuel Pool Cooling system will be maintained to provide SFP cooling until all spent fuel has been transferred to dry storage containers at the onsite Independent Spent Fuel Storage Installation (ISFSI). The Spent Fuel Pool Cooling system is currently a Seismic Class I system. In the unlikely event resulting in the loss of this system, existing FCS design features and capabilities are available for mitigation until the system can be restored, alternate means of cooling established or offsite resources obtained. Primary and secondary SFP level indication, as required by NRC Order EA-12-051, have been installed and will remain in service. Auxiliary Building logs require twice per shift check of the SFP level.

The normal SFP water level at the event initiation provides for a minimum of 25 feet of water inventory above the top of the spent fuel racks. Using the expected maximum heat load for the permanently defueled condition in which all fuel has been transferred to the pool 311 days after permanent shutdown of the reactor, the SFP water inventory will heat up from 120°F to 210°F during the first 32.3 hours. If boiling is initiated, the level in the pool would decrease to 10 feet above the spent fuel rack only after an additional 153.5 hours (7.7 days total) of boiling without makeup. Existing 10 CFR 50.54(hh)(2) equipment and procedures are available to provide makeup to the pool and can be deployed prior to the onset of pool boiling, this equipment is stored in the FLEX Storage Building which is a protected structure. Even without crediting the 10 CFR 50.54(hh)(2) equipment, there is sufficient time to obtain off site resources on an ad hoc basis to sustain SFP cooling indefinitely.

4 Conclusion

Since docketing the 10 CFR 50.82(a)(1) certifications for permanent cessation of operations and permanent removal of fuel from the reactor vessel has occurred at FCS, the 10 CFR 50 license no longer authorizes operation of the reactor or emplacement or retention of fuel into the reactor vessel. Spent nuclear fuel at FCS is stored either in the SFP or in dry storage at the onsite ISFSI. Since OPPD is permanently shut down and defueled, no additional fission products will be generated from plant operation. The decay heat load on the spent fuel will continue to decline until all the fuel is moved to dry storage. Loss of SFP level due to lack of cooling would occur slowly due to low decay heat load from the spent fuel in the SFP. It has been determined that if SFP is lost on August 31, 2017, that the time to boil would be 32.3 hours and the time to boil off to 10 feet above the top of the fuel rack would be an additional 153.5 hours (185.8 hours total (7.7 days)) if no makeup were available.

Since the station is permanently shutdown and the reactor is permanently defueled, the requirements of the Order are unnecessary. In the event of a challenge to the safety of the fuel stored in the SFP, decision makers would not have to prioritize actions for core cooling and primary containment since the fuel is permanently removed from the reactor vessel, the focus of the staff would be the SFP conditions. Thus, the basis for the Order will no longer apply to the configuration of FCS.

The evaluation that FCS has performed demonstrates good cause to support FCS's request that the Order be rescinded by August 31, 2017, in its entirety due to docketing the 10 CFR 50.82(a)(1) certification for permanent cessation of operations and permanent removal of fuel from the reactor vessel.

References:

1. 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 (NRC-12-0020) (ML12054A736)
2. OPPD letter (S. M. Marik) to USNRC (Document Control Desk), Request for Relaxation of March 12, 2012 Commission Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond Design Basis External Events and Reliable Spent Fuel Pool Instrumentation (Order Number EA-12-049 and EA-12-051), dated August 12, 2016 (LIC-16-0048) (ML16225A539)
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5. OPPD letter (T. Burke) to USNRC (Document Control Desk), Certification of Permanent Removal of Fuel from the Reactor Vessel, dated November 13, 2016 (LIC-16-0074) (ML16319A254)
6. Calculation FC08424 Rev 2, Spent Fuel Pool Time to Boil and Boiloff Rate Curves