FAQ 18-02 Rev. 1
Watts Bar Critical Hours

Plant: **Watts Bar Nuclear Plant, Unit 2 (WBN 2)**

Date of Event: 12/31/2017
Submittal Date: 2/21/2018; Rev. 4/10/18
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Performance Indicators:
IE01 WBNU2 Unplanned Scrams per 7000 Critical Hours (automatic and manual scrams during the previous four quarters)
IE03 WBNU2 Unplanned Power Changes per 7000 Critical Hours (over previous four quarters)

Site-Specific FAQ (Appendix D)? - Yes

FAQ to become effective when approved.

Question Section:

TVA requests either:

- The effective date of Watts Bar Unit 2 Unplanned Scrams per 7000 Critical Hours (IE01) and (IE03) Unplanned Power Changes per 7000 Critical Hours be extended until 3Q18 (through Jun 30, 2018) to allow sufficient data for an accurate assessment value, or
- Review the nature of the outage relative to new plant start-up in addition to the nature of the scrams to either:
    - The Watts Bar Unit 2 Unplanned Scrams per 7000 Critical Hours (IE01) and (IE03) Unplanned Power Changes per 7000 Critical Hours be revised to include the missing critical hours from the 2017 Watts Bar Unit 2 Main Condenser outage, or
    - The effective date of Watts Bar Unit 2 Unplanned Scrams per 7000 Critical Hours (IE01) and (IE03) Unplanned Power Changes per 7000 Critical Hours be extended until 2Q18 (through March 31, 2018).

This request is based upon a October 22, 2015 NRC letter to TVA stating "If, as the licensee approaches four quarters after either the IE or MS cornerstones become monitored, new information shows that a PI may still not provide accurate assessment value, the Frequently Asked Questions process will be utilized in accordance with NEI 99-02 to reach a conclusion on how to proceed."

NEI 99-02 Guidance needing interpretation:

NRC Letters to TVA dated November 21, 2016 (ML16326A210) and October 22, 2015 (ML15295A253).

NEI 99-02 Page 10 line 25
The number of unplanned scrams during the previous four quarters, both manual and automatic, while critical per 7,000 hours.

NEI 99-02 Page 14 line 9
The number of unplanned changes in reactor power of greater than 20% of full-power, per 7,000 hours of critical operation excluding manual and automatic scrams.

NEI 99-02 Page E-1 line 12
There are several reasons for submitting an FAQ:

NEI 99-02 Page E-1 line18
3. To request an exemption from the guidance for plant-specific circumstances, such as design features, procedures, or unique conditions.

Event or circumstances requiring guidance interpretation:

This FAQ concerns the Watts Bar Unit 2 new plant startup and subsequent March 23, 2017 Main Condenser failure that resulted in an estimated loss of 3100 critical hours for repair. The reactor was shut down from March 23, 2017 until July 30, 2017 while extensive repairs were completed to the Main Condenser. The cause of the failure was inadequate vendor design (1970's vintage) of the condenser wall support structure leading to support and wall failure. In addition, an extended 39 day refueling outage was completed in the fourth Quarter of 2017. This resulted in an additional estimated loss of 930 critical hours. Being the first refueling outage following WBN Unit 2 commercial operation, many additional tests were required to meet commitments as dictated by the operating license. This resulted in a longer than baseline outage.

The main condenser repairs coupled with the extended refueling outage has resulted in a low number of critical hours (approximately 4588) for the period defined in the Oct 22, 2015 letter. For related background, WBN Unit 2 experienced two scrams and one unplanned power change for the previous 4 quarters. Details are as follows:

- A 1Q17 scram was caused when workers inadvertently depressed a local trip pushbutton on a Hotwell Pump. The pump trip resulted in a secondary plant transient and subsequent reactor scram. The event was attributed to human performance in that workers failed to practice situational awareness around scram sensitive equipment. Corrective actions included coaching Operations personnel on the need to control work activities near operating equipment and installation of bump guard covers on local pushbuttons for a number of Unit 2 secondary pumps.
- A 4Q17 scram was caused by an intermittent circuit card connection in the 2AC Rod Control Power Cabinet. The equipment malfunction resulted in 4 dropped control rods and a subsequent manual reactor scram by control room operators. Corrective actions included a 100% inspection of circuit card connections in the Rod Control Power Cabinets and replacement of suspect cards. No common cause was assessed to exist between the two scrams.
- A 3Q17 unplanned power change was caused by a Main Turbine steam leak.

Per the October 22, 2015 letter from NRC to TVA, the NRC stated that the "transition of WBN Unit 2 to the full oversight of the ROP will be a phased approach on an individualized cornerstone basis." One of the objectives of the letter was to "determine the validity of performance indicators upon transition and provide an augmented inspection plan for PIs that will not be immediately valid."

Additionally, the letter states "the transfer to full ROP oversight will occur while recognizing that not all PI's will be immediately valid at the time of transition and thus would likely not provide an accurate indicator of plant performance. PI's will be declared valid once sufficient time has passed to accumulate enough representative data to provide a reasonable assessment result."

The plan for the IE01, IE03, and MSPI were not to be "considered as valid inputs into the Action Matrix until a minimum of four quarters of information had been provided." For IE01 and IE03, the NRC stated "in order to establish the necessary baseline of critical hours to prevent falsely inflating the data, these indicators will become valid after four full calendar quarters have passed following transition of the cornerstone." The NRC went on to say that if "new information shows that a PI may still not provide accurate assessment value, the FAQ process will be utilized in accordance with NEI 99-02 to reach a conclusion on how to proceed." It is TVA's position that the 4th quarter 2017 PI value for IE01 does not provide an accurate assessment value of plant performance. The indicator value has over one quarter (3100 hours) of missing critical hours for the initial four full calendar quarters as desired in NRC's 2015 letter (which produced a PI value marginally over 3, at the hundredths place). At the end of the 1st quarter 2018, the IE01 PI value immediately returned to a green value in the middle of the band and provides an accurate assessment value of the PI.

While TVA acknowledges the foundational aspect of the NEI 99-02 document, the 2015 letter supersedes it qualitatively for transitioning Watts Bar Unit 2 into the ROP. The Watts Bar Unit 2 ROP Transition Plan meeting history and context supporting the 2015 letter made clear the NRC cognizance of Watts Bar Unit 2 being a new plant with awareness of the challenges of a plant in its first year of operation. TVA's view is the appropriate review standard should reflect new plant challenges in the first year of life and whether these challenges influenced the numerator and/or denominator per the 2015 letter. TVA's position is that the denominator was dramatically influenced with over a full quarter of missing data, and falsely inflated the data and did not provide the necessary baseline of critical hours. The existing plant precedent and review standard the NRC is utilizing in the proposed response is not applicable in this situation because it is based on existing plants with extended plant shutdowns, not a plant in the first year of life..

If licensee and NRC resident/region do not agree on the facts and circumstances explain:

The NRC Watts Bar Site Resident Inspector was informed of this FAQ.

Potentially relevant FAQ's:

FAQ 13-01 Turkey Point Unplanned Scrams per 7000 Hours Critical
FAQ 17-04 Watts Bar Unit 2 MSPI Effectiveness Date

Similar to this FAQ request, FAQ 17-04, Watts Bar Unit 2 MSPI Effectiveness Date, was recently approved by the NRC to grant an extension for MS01 (Emergency AC Power System), MS07 (High Pressure Injection System), MS08 (Heat Removal System) and MS10 (Cooling Water Systems). The basis for this extension was the loss of critical hours within the first 12 months of operation due to the main condenser repair outage.

<u>Response Section:</u>

Proposed Resolution of FAQ:

Due to the uniqueness of new construction and starting-up a new unit, TVA requests either:

- a two quarter extension to the effective date for WBN Unit 2 IE01 and IE03 indicators (July 1, 2018) due to the loss of a significant number of critical hours. The IE01 indicator objective is to limit the frequency of those events that upset plant stability and challenge

critical safety functions during power operations. The IE03 indicator monitors the number of unplanned power changes that could challenge safety functions. NEI 99-02 states that the indicators are based on 7000 critical hours which provides allowance for a routine outage. As of December 31, 2017, the total number of reported critical hours for 2017 was 4588. Extending the effective date to July 1, 2018 will allow four quarters of operation after the extended main condenser repair shutdown to provide a representative assessment result, or

- add the condenser outage time to the denominator of WBN Unit 2 IE01 and IE03 indicators. If the condenser outage is viewed as new plant related, which TVA believes, then TVA views that four full quarters, as per the 2015 letter, would not have occurred until March 31, 2018 at a minimum with the missing quarter (2Q17), or TVA recommends that the condenser outage and related testing time be added back in, so as to not overly penalize new plants due to new plant problems in spirit with the basis behind the 2015 letter. TVA would request the NRC review the nature of the outage relative to new plant start-up, in addition to the nature of the scrams, to keep in concert with what TVA believes to be the supporting basis behind the 2015 letter.

If appropriate, provide proposed rewording of guidance for inclusion in next revision:
None

PRA update required to implement this FAQ? No

MSPI Basis Document update required to implement this FAQ? No