Enclosure 2
Meeting Summary Handouts
of the October 26, 2011
ROP Public Meeting

Provided by NEI

Reactor Oversight Process Task Force FAQ Log – Open FAQs

Outcome of September 21, 2011 Public Meeting

FAQ No.	PI	Topic	Status	Plant/Co.	Point of Contact
10-06	MS	Cascading Unavailability	Under staff review. Tentatively Approved 7/13/11. Received NRC response 10/17/11. Tentative Approval expected 10/26/11.	Generic	Roy Linthicum (Exelon)
11-09	IE04	Crystal River-3 Extended Shutdown	Introduced 7/13/2011. To be withdrawn and followed by a white paper to describe how to address PIs during long shutdowns. Received NRC draft of proposed white paper 9/19/11. Received copy with proposed NRC basis for withdrawal. Documentation of withdrawal expected to be completed 10/26/11.	CR3/ Progress	Dennis Herrin (Progress) Tom Morrissey (NRC)
11-10	PP01	Counting of Compensatory Hours for PIDS Upgrade	Draft FAQ submitted to NRC via e-mail on 9/8/11. Discussed in closed meeting with NSIR 10/17/11. Further discussion expected in another closed meeting with NSIR scheduled for 11/3/11.	Generic	Ron Gaston (Exelon) NRC Contact TBD
11-12	IE03	FitzPatrick Downpowers	To be introduced 10/26/11.	FitzPatrick	Bryan Ford (Entergy)

NEI Contact: James E. Slider, 202-739-8015, jes@nei.org

NRC Comments for October 26, 2011 Meeting

FAQ 10-06, Cascaded Unavailability

Plant:	**Generic**
Date of Event:	**N/A**
Submittal Date:	**Proposed as 5/4/11**
Licensee Contact:	**Roy Linthicum, 630-657-3846, roy.linthicum@exeloncorp.com**
NRC Contact:	**TBD**
Performance Indicator:	**Mitigating Systems**
Site Specific FAQ:	**No**

FAQ requested to become effective: 10/01/2011

Question Section:

Clarification in the guidance is needed for what constitutes cascaded unavailability. NEI 99-02 section 2.2, Mitigating System Performance Index, pages 31-36, provide the guidance on how to properly administer and report this performance indicator. On page 34, under the Monitored Systems section, line 37 states explicitly "No support systems are to be cascaded onto the monitored systems, e.g., HVAC room coolers, DC power, Instrument Air, etc."

Appendix F section 2.1.3 provides guidance on how to define the boundaries of frontline system monitored components and support system components for the Unreliability element of MSPI. While this guidance could reasonably be extended to the unavailability section, there are no explicit statements regarding the definition of boundaries between frontline systems and support systems in the Unavailability element of MSPI.

Additional guidance/clarification should be provide to define the frontline system and support system boundaries for the unavailability element of MSPI to ensure the "no cascading of unavailability" clause is met and unavailability is accurately reported?

Guidance needing clarification/interpretation:

Appendix F, section 1.2.1 regarding the establishment of boundaries between frontline and support system components for reporting unavailability should be revised to be consistent with the "No cascading of unavailability" clause from page 34.

Page F-6 "No Cascading of Unavailability" section should be clarified. Currently, all examples in this section refer to disabling a function of a monitored piece of equipment for protection when a support system is out of service. This could lead to an interpretation that these examples are the only conditions applicable to the "no cascading clause" on page 34.

Page F-29 "Failures and Discovered Conditions of Non-Monitored Structures, Systems, and Components" should be revised to be consistent with the guidance of page 34 for no cascading of support systems onto monitored systems, specifically lines 20 – 23 … "An example could be a manual suction isolation valve left closed which would have caused a pump to fail. This would

not be counted as a failure of the pump. Any mis-positioning of the valve that caused the train to be unavailable would be counted as unavailability from the time of discovery." This example does not indicate whether the mis-positioned valve was inside or outside the monitored system boundary, which introduces confusion. This example should include a statement that the mis-positioned valve is inside the monitored system boundary.

Event requiring guidance interpretation: N/A

NRC Resident Inspector Position: TBD

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

Potentially relevant existing FAQ numbers: NA

Response Section:

Proposed Resolution of FAQ:
The following guidance changes should be made to NEI 99-02.

Licensee proposed wording changes:

Page 31 (existing):
Unavailability is the ratio of the hours the train/system was unavailable to perform its monitored functions (as defined by PRA success criteria and mission times) due to planned and unplanned maintenance or test during the previous 12 quarters while critical to the number of critical hours during the previous 12 quarters.

Page 31 (revised):
Unavailability is the ratio of the hours the train/system was unavailable to perform its monitored functions (as defined by the train/system boundaries, PRA success criteria and mission times) due to planned and unplanned maintenance or test during the previous 12 quarters while critical to the number of critical hours during the previous 12 quarters.

Page 33 (existing):
Definition of Terms

Risk Significant Functions*:* those at power functions, described in the Appendix F section "Additional Guidance for Specific Systems," that were determined to be risk-significant in accordance with NUMARC 93-01, or NRC approved equivalents (e.g., the STP exemption request). The risk significant system functions described in Appendix F, "Additional Guidance for Specific Systems" should be modeled in the plant's PRA/PSA. System and equipment performance requirements for performing the risk significant functions are determined from the PRA success criteria for the system.

Page 33 (revised):
Definition of Terms

***Risk Significant Functions**:* those at power functions, described in the Appendix F section "Additional Guidance for Specific Systems," that were determined to be risk-significant in accordance with NUMARC 93-01, or NRC approved equivalents (e.g., the STP exemption request). The risk significant system functions described in Appendix F, "Additional Guidance for Specific Systems" should be modeled in the plant's PRA/PSA. System and equipment performance requirements for performing the risk significant functions are determined from the PRA success criteria, mission times, and boundaries for the system.

Page 34 (existing):
Monitored Systems

Systems have been generically selected for this indicator based on their importance in preventing reactor core damage. The systems include the principal systems needed for maintaining reactor coolant inventory following a loss of coolant accident, for decay heat removal following a reactor trip or loss of main feedwater, and for providing emergency AC power following a loss of plant off-site power. One support function (cooling water support system) is also monitored. The cooling water support system monitors the cooling functions provided by service water and component cooling water, or their direct cooling water equivalents, for the four front-line monitored systems. No support systems are to be cascaded onto the monitored systems, e.g., HVAC room coolers, DC power, instrument air, etc.

Page 34 (revised):
Monitored Systems

Systems have been generically selected for this indicator based on their importance in preventing reactor core damage. The systems include the principal systems needed for maintaining reactor coolant inventory following a loss of coolant accident, for decay heat removal following a reactor trip or loss of main feedwater, and for providing emergency AC power following a loss of plant off-site power. One support function (cooling water support system) is also monitored. The cooling water support system monitors the cooling functions provided by service water and component cooling water, or their direct cooling water equivalents, for the four front-line monitored systems. Other support systems (e.g., HVAC room coolers, DC power, instrument air, etc.) will not be cascaded onto the monitored systems' unavailability or reliability data. For the purposes of MSPI, a failure of a support system component that is outside the system and train boundary of a monitored system will not result in unavailability of a monitored train or failure of a monitored component.

Page F-1 (existing):
F.1.1.1 Monitored Functions and System Boundaries

The first step in the identification of system trains is to define the monitored functions and system boundaries. Include all components within the system boundary that are required to satisfy the monitored functions of the system.

Page F-1 (revised):

F.1.1.1 Monitored Functions and System Boundaries

The first step in the identification of system trains is to define the monitored functions and system boundaries. Include all components within the system boundary that are required to satisfy the monitored functions of the system.

The cooling water support system is a system that is calculated separately in MSPI; however, trains/segments of other support systems (e.g., HVAC room coolers, DC power, instrument air, etc.) that may be needed to satisfy a monitored function are not monitored in MSPI for unavailability if the components within those trains/segments are not included within the boundary of a monitored train/segment or the supported system.

Additional guidance for determining the impact on availability and unreliability from unmonitored component failures can be found in Section F.2.2.2.

Page F-2 (existing)

System Interface Boundaries

For water connections from systems that provide cooling water to a single component in a monitored system, the final connecting valve is included in the boundary of the frontline system rather than the cooling water system. For example, for service water that provides cooling to support an AFW pump, only the final valve in the service water system that supplies the cooling water to the AFW system is included in the AFW system scope. This same valve is not included in the cooling water support system scope. The equivalent valve in the return path, if present, will also be included in the frontline system boundary.

Page F-2 (Revised)

System Interface Boundaries

For water connections from systems that provide cooling water to a single component in a monitored system, the final connecting valve is included in the boundary of the frontline system rather than the cooling water system. For example, for service water that provides cooling to support an AFW pump, only the final valve in the service water system that supplies the cooling water to the AFW system is included in the AFW system scope. This same valve is not included in the cooling water support system scope. The equivalent valve in the return path, if present, will also be included in the frontline system boundary.

The impact of room cooling or other related HVAC supports is excluded from the system/train boundary. Unavailability of these systems/components is not counted as unavailability of a monitored system/train. The only exception to this are EDG ventilation systems that have a shared function of both providing room cooling/ventilation that also provide a flow path EDG combustion or exhaust. In these cases, unavailability of components that result in unavailability of EDG due to not having a combustion or exhaust flow path is included in EDG unavailability.

For control functions and electrical power, the system/train boundary ~~ends at~~includes all system dedicated relays, controllers, and contactors that support the monitored system functions, and all dedicated ~~the~~ voltage supply breakers (both motive and control power) and ~~its~~ their associated

control circuits (relay contacts for normally auto actuated components, control board switches for normally operator actuated components). If a relay, breaker, or contactor exists solely to support the operation of a monitored system, it should be considered part of the system's boundary. If a relay, breaker, or contactor supports multiple systems, it should not be considered as part of the monitored system's boundary. For turbine driven pumps, the system/train boundary ~~ends with~~includes the associated control system (relay contacts for normally auto actuated components, control board switches for normally operator actuated components), ~~including~~ the control valve, and its voltage supply breaker. Failure or unavailability of components outside of the system/train boundary ~~are~~ is **not** counted as unavailability of the impacted system/train.

Page F-2 (existing):
Water Sources and Inventory
Water tanks are not considered to be monitored components. As such, they do not contribute to URI. However, periods of insufficient water inventory contribute to UAI if they result in loss of the monitored train function for the required mission time. If additional water sources are required to satisfy train mission times, only the connecting active valve from the additional water source is considered as a monitored component for calculating UAI. If there are valves in the primary water source that must change state to permit use of the additional water source, these valves are considered monitored and should be included in UAI for the system.

Page F-2 (revised):
Water Sources and Inventory
Water tanks are not considered to be monitored components. As such, they do not contribute to URI. However, since tanks can be in the train boundary, periods of insufficient water inventory contribute to UAI if they result in loss of the monitored train function for the required mission time. If additional water sources are required to satisfy train mission times, only the connecting active valve from the additional water source is considered as a monitored component for calculating UAI. If there are valves in the primary water source that must change state to permit use of the additional water source, these valves are considered monitored and should be included in UAI for the system.

Page F-5 (existing):
Unplanned unavailable hours: These hours include elapsed time between the discovery and the restoration to service of an equipment failure or human error (such as a misalignment) that makes the train unavailable. Time of discovery of a failed monitored component is when the licensee determines that a failure has occurred or when an evaluation determines that the train would not have been able to perform its monitored function(s). In any case where a monitored component has been declared inoperable due to a degraded condition, if the component is considered available, there must be a documented basis for that determination, otherwise a failure will be assumed and unplanned unavailability would accrue. If the component is degraded but considered operable, timeliness of completing additional evaluations would be addressed through the inspection process. Unavailable hours to correct discovered conditions that render a monitored component incapable of performing its monitored function are counted as unplanned unavailable hours. An example of this is a condition discovered by an operator on rounds, such as an obvious oil leak, that was determined to have resulted in the equipment being non-functional even though no demand or failure actually occurred. Unavailability due to mis-

positioning of components that renders a train incapable of performing its monitored functions is included in unplanned unavailability for the time required to recover the monitored function.

Page F-5 (revised):
Unplanned unavailable hours: These hours include elapsed time between the discovery and the restoration to service of an equipment failure or human error (such as a misalignment) that makes the train unavailable. Time of discovery of a failed monitored component is when the licensee determines that a failure has occurred or when an evaluation determines that the train would not have been able to perform its monitored function(s). In any case where a monitored component has been declared inoperable due to a degraded condition, if the component is considered available, there must be a documented basis for that determination, otherwise a failure will be assumed and unplanned unavailability would accrue. If the component is degraded but considered operable, timeliness of completing additional evaluations would be addressed through the inspection process. Unavailable hours to correct discovered conditions that render a monitored train incapable of performing its monitored function are counted as unplanned unavailable hours. An example of this is a condition discovered by an operator on rounds, such as an obvious oil leak, that was determined to have resulted in the equipment being non-functional even though no demand or failure actually occurred. Unavailability due to mis-positioning of components that renders a train incapable of performing its monitored functions is included in unplanned unavailability for the time required to recover the monitored function.

Page F-6 (existing):
No Cascading of Unavailability: In some cases plants will disable the autostart of a supported monitored system when the support system is out of service. For example, a diesel generator may have the start function inhibited when the service water system that provides diesel generator cooling is removed from service. This is done for the purposes of equipment protection. This could be accomplished by putting a supported system in "maintenance" mode or by pulling the control fuses of the supported component. If no maintenance is being performed on a supported component and it is only disabled for equipment protection due to a support system being out of service, no unavailability should be reported for the train/segment.
If, however, maintenance is performed on the monitored component, then the unavailability must be counted.

For example, if an Emergency Service Water train/segment is under clearance, and the autostart of the associated High Pressure Safety Injection (HPSI) pump is disabled, there is no unavailability to be reported for the HPSI pump. If a maintenance task to collect a lube oil sample is performed and it can be performed with no additional tag out, no unavailability has to be reported for the HPSI pump. If however, the sample required an additional tag out that would make the HPSI pump unavailable, then the time that the additional tag out was in place must be reported as planned unavailable hours for the HPSI pump.

Page F-6 (revised):
No Cascading of Unavailability: The failure or unavailability of an SSC that is not within the boundary of the monitored MSPI system that it supports does not cause the supported monitored system to accrue unavailability. Although such a failure or condition may require a monitored train or segment of the supported system to be declared inoperable, the monitored train or

segment of the supported system would not accrue unavailability. If the monitored component of the supported system is rendered non-functional through tag out or physical plant conditions (other than as discussed below), then unavailable time should be accrued for the monitored train or segment of the supported system. Otherwise, unavailability is not accrued.

Plants will sometimes disable the autostart of a supported monitored system when its support system is out of service. For example, a diesel generator may have the start function inhibited when the service water system that provides diesel generator cooling is removed from service. This is done for the purposes of equipment protection. This could be accomplished by putting a supported system's monitored train/segment in "maintenance" mode or by pulling the control fuses of the supported monitored component. If no maintenance is being performed on a component that's within a supported system's monitored train/segment, and the supported system's train/segment is only unavailable because of a monitored support system being out of service, no unavailability should be reported for the supported system's train/segment. If, however, maintenance is performed on the supported system's monitored train/segment, then the unavailability must be counted.

For example, if an Emergency Service Water (ESW) train/segment (i.e., a monitored support system train/segment) is unavailable, and the autostart of the associated High Pressure Safety Injection (HPSI) pump (a monitored supported system) is disabled, there is no unavailability to be reported for the HPSI pump; however, the ESW train/segment does accrue unavailability. If a maintenance task to collect a lube oil sample is performed and it can be performed with no additional tag out, no unavailability has to be reported for the HPSI pump. If however, the sample required an additional tag out that would make the HPSI pump unavailable, then the time that the additional tag out was in place must be reported as planned unavailable hours for the HPSI pump.

Page F-29 (existing):
Failures and Discovered Conditions of Non-Monitored Structures, Systems, and Components (SSC)

Failures of SSCs that are not included in the performance index will not be counted as a failure or a demand. Failures of SSCs that would have caused an SSC within the scope of the performance index to fail will not be counted as a failure or demand. An example could be a manual suction isolation valve left closed which would have caused a pump to fail. This would not be counted as a failure of the pump. Any mis-positioning of the valve that caused the train to be unavailable would be counted as unavailability from the time of discovery. The significance of the mis-positioned valve prior to discovery would be addressed through the inspection process. (Note, however, in the above example, if the shut manual suction isolation valve resulted in an actual pump failure, the pump failure would be counted as a demand and failure of the pump.)

Failures and Discovered Conditions of Non-Monitored Structures, Systems, and Components (SSC)

Page F-29 (revised):
Unmonitored components within a monitored train/segment boundary do not contribute to unreliability. If an unmonitored component within a monitored train/segment fails, unreliability is not accrued if the unmonitored component does not cause an actual demand and/or failure of a monitored component within the monitored train/segment. If the unmonitored component causes a monitored component within the monitored train/segment to actually fail when demanded, then the monitored component demand and failure are counted for unreliability. The failure of an unmonitored component within a monitored train/segment can cause unavailability of that train/segment to be counted if the train/segment is rendered unavailable.

Unmonitored components outside a monitored train/segment boundary do not contribute to unreliability of monitored components or to unavailability of the monitored train/segment. If an unmonitored component outside a monitored train/segment fails, unreliability is not accrued regardless whether the unmonitored component causes an actual demand and/or failure of a monitored component. The failure of an unmonitored component outside a monitored train/segment cannot cause unavailability of that train/segment to be counted.

For example, a manual suction isolation valve (an unmonitored component within the train boundary) is left closed, which would have caused a pump to fail. The closed valve would not be counted as a failure of the pump, nor would unavailability be accrued. Any mis-positioning of the valve that caused the train to be unavailable would be counted as unavailability from the time of discovery. The significance of the mis-positioned valve prior to discovery would be addressed through the inspection process. (Note, however, in the above example, if the shut manual suction isolation valve resulted in an actual pump failure, the pump failure would be counted as a demand and failure of the pump and unplanned unavailability would be counted against the appropriate train/segment.)

Page F-50 (revised):
PWR Auxiliary Feedwater Systems

Scope
The function of the AFW system is to provide decay heat removal via the steam generators to cool down and depressurize the reactor coolant system following a reactor trip. The mitigation of ATWS events with the AFW system is not considered a function to be monitored by the MSPI. (Note, however, that the FV values will include ATWS events).

The function monitored for the indicator is the ability of the AFW system to autostart, take a suction from a water source (typically, the condensate storage tank and if required to meet the PRA success criteria and mission time, from an alternate source), and to inject into at least one steam generator.

The scope of the auxiliary feedwater (AFW) or emergency feedwater (EFW) systems includes the pumps, the condensate storage tank (CST), the components in the flow paths between the pumps and CST, and if required, the valve(s) that connect the alternative water source to the auxiliary feedwater system. The flow path for the steam supply to a turbine driven pump is included from the steam source (main steam lines) to the pump turbine. Pumps included in the

Technical Specifications (subject to a Limiting Condition for Operation) are included in the scope of this indicator. Some initiating events, such as a feedwater line break, may require isolation of AFW flow to the affected steam generator to prevent flow diversion from the unaffected steam generator. This function should be considered a monitored function if it is required.

NRC Response for October 26, 2011 Meeting
FAQ 11-09 (~~Proposed~~Withdrawn)
Crystal River-3 Extended Shutdown

Plant:	Crystal River Unit 3 (CR-3)
Date of Event:	N/A
Submittal Date:	June 30, 2011
Licensee Contact:	Dennis W. Herrin
	Tel/email: 352.563.4633/Dennis.Herrin@pgnmail.com
NRC Contact:	Tom Morrissey (CR-3 SRI)
	Tel/email: 352.795.6486 (x3265)/Thomas.Morrissey@pgnmail.com

Performance Indicators:
Unplanned Scrams with Complications (IE04)
Mitigating System Performance Index (MS06-MS10)

Site-Specific FAQ (Appendix D)? ■ Yes □ No

In September 2009, CR-3 was taken off line for a refueling outage and for steam generator replacement. During creation of a construction opening in the Containment Building for steam generator replacement, a delamination was created in Bay 3-4 during tendon de-tensioning activities. In mid-March 2011, final re-tensioning of tendons after concrete repair in Bay 3-4 was suspended while engineers investigated evidence of delamination in Bay 5-6 resulting from the tendon re-tensioning work. CR-3 has been shut down since September 2009 and will continue to be shut down into 2013 and perhaps beyond, depending on the repair methodology to be selected. NEI 99-02 does not contain guidance on how to treat certain performance indicators during periods of extended shutdown, or how to recover after returning the unit to service after an extended shutdown.

Because of the unique conditions of this extended shutdown, CR-3 is requesting approval of this FAQ in accordance with NEI 99-02, Revision 6, page E-1, Lines 18-19:

> "3. To request an exemption from the guidance for plant-specific circumstances, such as design features, procedures, or unique conditions."

FAQ requested to become effective when approved.

Request that this FAQ be reviewed on an expedited basis since the CR-3 Service Water System (RW/SW/DC) MSPI performance indicator is currently 62% in the Green Band and declining due to the reduction in critical hours and will cross the green-to-white threshold before reaching an extended shutdown period of three years, without an additional MSPI functional failure.

Question Section

NEI 99-02 Guidance needing interpretation (include page number and line citation):

Unplanned Scrams with Complications – Clarifying Notes - Page 19
Mitigating System Performance Index – Clarifying Notes – Pages 33 - 35

Received October 17, 2011

NRC Response for October 26, 2011 Meeting
FAQ 11-09 (~~Proposed~~Withdrawn)
Crystal River-3 Extended Shutdown

Event or circumstances requiring guidance interpretation:

Unplanned Scrams with Complications (USwC) is defined as the number of unplanned scrams, while the reactor is critical, both manual and automatic, during the previous 4 quarters that require additional operator actions. After being in a condition where a reactor has not been critical for the previous 4 quarters, no opportunities exist for a USwC and further performance indicator reporting has no meaning. Once a unit exits an extended shutdown and the reactor becomes critical, this performance indicator will immediately have meaning.

Mitigating System Performance Index (MSPI) is defined as the sum of changes in a simplified core damage frequency evaluation resulting from differences in unplanned unavailability and unreliability relative to industry standard baseline values. In order to initially implement these new performance indicators, three years of past operational data had to be base loaded into the INPO Consolidated Data Entry System in order to arrive at the first meaningful calculated value. It can be assumed that an extended shutdown lasting greater than three years renders these performance indicators meaningless. An additional concern is that these performance indicators are sensitive to the reduction in critical hours and may actually become meaningless sooner that an extended shutdown period of three years. A final consideration is that although many of the MSPI monitored components are not required to be operable in NO MODE operation and MSPI functional failure opportunities are minimized, any such failure would be unrealistically weighted and could result in crossing the green-to-white performance indicator threshold.

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

The NRC Senior Resident Inspector agrees with the characterizations above.

Potentially relevant existing FAQ numbers:

No potentially relevant existing FAQs have been located. A review was performed of NRC-approved FAQs and the current listing of Draft FAQs.

Response Section:

Proposed Resolution of FAQ:

The licensee will continue to submit MSPI failure data but MSPI values and Unplanned Scrams with Complications (USwC) data will not be displayed on the NRC website because it is not indicative of plant performance. The USwC indicator will go active when the reactor is critical. A decision on how to determine the best way to reintroduce the MSPI values will be determined prior to plant startup.

If appropriate, provide proposed rewording of guidance for inclusion in next revision.

No revised wording is being proposed.

At the September 21, 2011, ROP Working Group meeting, the following change to this site-specific FAQ was provided by the industry:

Received October 17, 2011

NRC Response for October 26, 2011 Meeting
FAQ 11-09 (~~Proposed~~Withdrawn)
Crystal River-3 Extended Shutdown

Proposed Resolution of FAQ:

Incorporate guidance for periods of extended shutdown and its impact on the following performance indicators: Unplanned Scrams with Complications and Mitigating System Performance Index.

If appropriate, provide proposed rewording of guidance for inclusion in next revision.

No revised rewording is being proposed. Specific wording deferred to the NEI Task Force. Consider the "Event or circumstances requiring guidance interpretation" described above for inclusion in the next revision.

NRC Response:

This site-specific FAQ was not accepted by the NRC for review. The NRC and industry reached consensus at the July 13, 2011 ROP working group meeting that the above-mentioned PIs are not valid. Because the reactor has not been critical for two years, there have been no opportunities for a scram that would count in the USwC indicator. Similarly, the MSPI values are skewed because of the very low number of critical hours in three years. For these reasons, NRC has determined that these PIs no longer provide valid indications of performance. Therefore, the NRC characterized these PIs on the NRC Web site as "Not Applicable" on August 19, 2011. The licensee will continue to submit the PI data to the NRC in accordance with NEI 99-02. The NRC documented this decision in its September 1, 2011, mid-cycle performance review letter to the licensee.

NRC staff and industry agreed on the need to develop generic guidance in NEI 99-02 for (1) determining PI validity during extended shutdowns and (2) establishing PI validity after start-ups. NRC staff provided a draft white paper at the September 21, 2011, ROP Working Group Meeting to initiate this effort. A subsequent generic FAQ should be provided to incorporate guidance into NEI 99-02 for determining and establishing the validity of PIs during an extended shutdown and after a start-up.

Received October 17, 2011

Plant: James A. FitzPatrick Nuclear Power Plant

Date of Event: June 7, 2011 & June 9, 2011

Submittal Date:

Licensee Contact: Gene Dorman 315-349-6810 / gdorman@entergy.com

NRC Contact: Ed Knutson 315-349-6667 / edward.knutson@nrc.gov

Performance Indicator: Unplanned Power Changes per 7,000 Critical Hours

Site-Specific FAQ (Appendix D): (YES) / ~~NO~~

FAQ requested to become effective when approved or _____.

Question

Downpowers were performed on June 7 & 9, 2011 as a result of marine fouling of the main condenser waterboxes during a maintenance activity.

NEI 99-02 Rev 6 Guidance

Page 14; lines 42 – 47

Page 15; lines 1 – 15

Anticipated power changes greater than 20% in response to expected environmental problems (such as accumulation of marine debris, biological contaminants, animal intrusion, environmental regulations, or frazil icing) may qualify for an exclusion from the indicator. The licensee is expected to take reasonable steps to prevent intrusion of animals, marine debris, or other biological growth from causing power reductions. Intrusion events that can be anticipated as a part of a maintenance activity or as part of a predictable cyclic behavior would normally be counted, unless the downpower was planned 72 hours in advance or the event meets the guidance below.

In order for an environmental event to be excluded, any of the following may be applied:

If the conditions have been experienced before and the exhibit a pattern of predictability or periodicity (e.g., seasons, temperatures, weather events, animal, etc.), the station must have a monitoring procedure in place or make a permanent modification to prevent recurrence for the event to be considered for exclusion from the indicator. If monitoring identifies the condition, the licensee must have implemented a proactive procedure (or procedures) to specifically address mitigation of the condition before it results in impact to operation. This procedure cannot be a general Abnormal Operating Procedure (AOP) or Emergency Operating Procedure (EOP) addressing the symptoms or consequences of the condition (e.g., low condenser vacuum); rather it must be a condition-specific that directs actions to be taken to address the specific environmental conditions (e.g., jellyfish, gracilaria, frazil ice, etc.)

Event or Circumstances

On June 6, 2011, a first time Preventive Maintenance (PM) activity was performed on the traveling water screens. In order to support the PM, gates were installed in the intake structure to isolate the screen being maintained. Within 24 hours of installing the gates the condenser water box differential temperature increased to a point where a downpower was initiated to perform a defishing operation in accordance with Circulating Water System Operating

Procedure, OP-4 Section G.6. The initial defishing operation was conducted on June 7, 2011. As the PM activity continued a second defishing operation was required on June 9, 2011, based on the condenser differential temperature.

The Resident Inspector agrees with the facts of the FAQ but believes that the downpowers should count against the indicator.

Background:

Past experience with installing gates in the intake structure has demonstrated that condenser fouling may occur. This has been attributed to changes in the flow characteristics in the forebay resulting in debris in the forebay being transported to the condensers resulting in condenser fouling. In order to minimize the probability of fouling, the forebays were cleaned by divers the week before the PM in question was scheduled.

Because past experience with installing flow gates in the intake structure had resulted in biological fouling of the condenser OP-4 was revised to include system monitoring parameters and specific guidance on addressing the fouling. As noted above this guidance is contained in Section G.6 of the procedure. Since fouling of the condenser is not certain and is not absolutely predictable when and if it does occur a contingency for down power was included in the weekly work schedule.

The travelling water screens were replaced in 2008 and 2009 to address a problem with cladaphora algae in Lake Ontario. Since replacement there has been no carryover observed through the windows on the north side (Lake Ontario side) of the screens. Therefore, debris was thought to have been effectively removed by the sprays.

The travelling water screens have a cement filled boot below the screens that runs down to the intake bay. Due to this design the annual PM now includes a boot inspection. It was to support this inspection that the gates were inserted.

Based on the need to downpower the unit JAF performed an apparent cause evaluation and determined that the fouling observed was from a previously unidentified source. Based on the design of the boot and the cement, it appears that a low flow area may be forming just past the boot. There is a possibility for small debris such as silt, sand, and broken zebra mussel shells to settle in this area south of the screens (pump suction side). In this area, the silt may settle out past the boots and build up to a level to meet up with the process flow. This condition would only take a short period of time to build-up and then would remain in the condition until cleaning could remove the debris. During normal operation, this debris build-up is not a significant threat to fouling because the debris is settled. However, this area becomes vulnerable when the gates are installed because of the change in flow patterns and increased velocity.

As noted above to minimize the impact of the marine debris buildup in the forebay, the annual cleaning and inspection of the intake canals was performed the week prior to the annual PM to inspect the travelling water screen boot. The cleaning included the areas of the forebay from the tempering gate to the trash racks and the area between the trash racks and the screens. However, due to the configuration of the traveling screens, pump bays, and isolation gates, the area south of the screens was not cleaned because it is not accessible during operation.

During the maintenance activities beginning on 6/6/2011, the south gate was inserted to provide protection for the divers. The installation of the gate caused an increase in flow, which apparently caused the settled debris in the vicinity of the gate to be picked up by localized

turbulence, resulting in fouling of the condenser. The apparent cause evaluation postulated that the turbulence could be reduced by inserting the gate north of the travelling water screens prior to installing the gate south of the travelling water screens.

Potentially Relevant FAQs

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Anticipated power changes greater than 20% in response to expected environmental problems (such as accumulation of marine debris, biological contaminants, or frazil icing) which are proceduralized but cannot be predicted greater than 72 hours in advance may not need to be counted unless they are reactive to the sudden discovery of off-normal conditions. However, unique environmental conditions which have not been previously experienced and could not have been anticipated and mitigated by procedure or plant modification, may not count, even if they are reactive. The licensee is expected to take reasonable steps to prevent intrusion of marine or other biological growth from causing power reductions. Intrusion events that can be anticipated as part of a maintenance activity or as part of a predictable cyclic behavior would normally be counted unless the down power was planned 72 hours in advance. The circumstances of each situation are different and should be identified to the NRC in a FAQ so that a determination can be made concerning whether the power change should be counted.

Response

As stated in NEI 99-02 on page 15 lines 4 – 15 "If the conditions have been experienced before and the exhibit a pattern of predictability or periodicity (e.g., seasons, temperatures, weather events, animal, etc.), the station must have a monitoring procedure in place or make a permanent modification to prevent recurrence for the event to be considered for exclusion from the indicator. If monitoring identifies the condition, the licensee must have implemented a proactive procedure (or procedures) to specifically address mitigation of the condition before it results in impact to operation. This procedure cannot be a general Abnormal Operating Procedure (AOP) or Emergency Operating Procedure (EOP) addressing the symptoms or consequences of the condition (e.g., low condenser vacuum); rather it must be a condition-specific that directs actions to be taken to address the specific environmental conditions (e.g., jellyfish, gracilaria, frazil ice, etc.)"

These downpower events should be excluded from the indicator. The licensee had experienced condenser fouling with the original traveling water screen design and although the travelling water screens had been replaced with a new design that previous operating experience was considered in planning the work on the new screens. The licensee took reasonable steps to prevent intrusion by cleaning the forebays and provided normal operating procedural guidance for monitoring condenser differential temperatures and defishing the condenser water boxes. Since this was the first time the boot inspections had been performed, there was no way to reasonably anticipate that the debris south of the travelling water screens would have been sufficient to cause the observed condenser fouling. In addition, the on-line schedule for that week had a contingency action to perform a downpower in order to support defishing activities, this was shown as a contingency because there is no way to accurately predict if the condenser will foul or the speed with which it will reach a point requiring a downpower.