TempNo.	PI	Question/Response	Status	Plant/ Co.
50.5	IE01	Question: On December31, 2004, during Oconee Unit 3 startup, there was an unanticipated change in reactor power from about 3% to 6%. The control room operator was initiating a power increase to 15% to enable putting the turbine online. When the desired power level value was input into the integrated control system (ICS), without awaiting a rate input or the operator placing ICS in Auto, the system unexpectedly started rapidly raising reactor power at the maximum rate. The control room team quickly took action to mitigate the power excursion by reducing the ICS power demand setpoint. The regulating rod group was inserted at normal rod speed by the ICS as it responded to the new demand. Due to normal control system overshoot, the control rods were inserted sufficiently to place the reactor in a shutdown condition. The reason for the unexpected action by the ICS was due to a software error that was introduced during an update to the system during the refueling outage. Upon completion of the transient mitigation response, the control room team decided to complete the reactor shutdown via manual control rod insertion of the remaining rod groups in the normal sequence. The event resulted in a subcritical reactor with power range NIs reading zero due to rod motion properly requested from the ICS in response to operator mitigation of the initial transient and minor power excursion. The definition of "scram" as applied to the initiating events PI IE01 Unplanned Scrams is a rapid insertion of negative reactivity that shuts down the reactor (e.g. via rods, boron, opening trip breakers, etc.) A conservative reading of the definition results in the event meeting the definition of "Unplanned Scram" for the purpose of NRC PIs. However, it is unclear whether normal rod motion at ONS is considered "rapid". Question: Is the reactor shutdown described above considered a "scram" for performance indicator reporting? Response: Duke Power does not believe this event constitutes a "scram" per NEI 99-02 because the rod insertion was at the normal speed as opposed to "rapid" insertion via gravity in response to opening the reactor trip breakers. In addition, the event did not challenge or require any critical safety system which is the basis for measuring "scram" events per NEI 99-02. Therefore, the event did not constitute a "scram" because normal rod speed should not be considered "rapid" and the event did not meet the intended scope of events measured by the PI.	1/27 Introduced 3/15 Oconee revision (clarification) of Question 3/17 Discussed 4/28 Discussed 5/19 Discussed. 7/21 Tentative Approval	Oconee

Attachment 6

FAQ Log (Part 2) 8/18/05

TempNo.	PI	Topic	Status	Plant/ Co.
54.1	MS1-4	Exemption of overhaul hours	5/19 Introduced 7/21 Discussed	Catawba
55.1	MS01	Planned unavailable hours	7/21 Introduced	TMI1
55.2	MS02	Fault exposure hours	7/21 Introduced	Millstone 3

FAQ 54.1

Plant: Catawba Nuclear Station Units 1 and 2
Date of Event: TBD
Submittal Date: _____
License Contact: Kay Nicholson Tel/email: 803-831-3237
kenichol@duke-energy.com
NRC Contact: _____ Tel/email:

Performance Indicator: Mitigating Systems Cornerstone - Safety System Unavailability

Site-Specific FAQ (Appendix D)? YES

QUESTION SECTION

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

NEI 99-02, revision 3, page 27, lines 28 through 33

Event of Circumstances requiring guidance interpretation:

Catawba Nuclear Station (CNS) plans to refurbish the "A" and "B" trains of the Nuclear Service Water System (NSWS) supply header piping. This refurbishment will occur with both Unit 1 and Unit 2 at 100% power operation. CNS has submitted a Technical Specification (TS) change for NRC approval to provide for a completion time sufficient to accommodate the overhaul hours associated with the refurbishment project.

The proposed TS changes will allow the "A" and "B" Nuclear Service Water System (NSWS) headers for each unit to be taken out of service for up to 14 days each for system upgrades. This will be a one time evolution for each header. System upgrades include activities associated with cleaning, inspection, and coating of NSWS piping welds, and necessary system repairs, replacement, or modifications. It has been estimated that the work required in taking the system out of service and draining the affected portions, will take approximately 1 day. The affected sections of piping will be cleaned which should take approximately 3 - 4 days. After cleaning, this evolution will include inspection and evaluation of the NSWS piping. The inspection results will be evaluated for repairs and/or coatings for the welds. After inspection, the welds in the affected piping will be coated and allowed to cure. This portion should take approximately 6 - 7 days. Upon completion, Operations will be required to fill the NSWS, and perform any necessary post maintenance testing which should take approximately 2 days. Therefore, the total time should run from 12 - 14 days.

CNS desires to apply the overhaul hour exemption to the NSWS supply pipe refurbishment project. The NSWS Improvement plan is divided into three distinct phases. The phase one of the plan specifically targets the stabilization of the welds in the NSWS supply headers. Phase one includes activities associated with cleaning, inspection, and coating of NSWS piping welds, and necessary system repairs, replacement, or modifications. Civil engineering evaluations of the longitudinal and circumferential welds in the supply headers have determined that the first priority area for the initial phase should be main buried 42 inch supply headers. These activities are being done to

preclude any further degradation of the affected welds. This will allow the second and third phases of the NSWS Improvement Plan to commence with a predictable and reliable schedule.

Although the NSWS is not a monitored system under NEI 99-02 guidance, its unavailability does affect various systems and components, many of which are considered major components by the definition contained in FAQ 219 (diesel engines, heat exchangers, and pumps). The specific performance indicators affected by unavailability of the NSWS are Emergency AC, High Pressure Safety Injection, Residual Heat Removal, and Auxiliary Feedwater. NEI 99-02 states that "overhaul exemption does not normally apply to support systems except under unique plant-specific situations on a case-by-case basis. The circumstances of each situation are different and should be identified to the NRC so that a determination can be made. Factors to be taken into consideration for an exemption for support systems include (a) the results of a quantitative risk assessment, (b) the expected improvement in plant performance as a result of the overhaul activity, and (c) the net change in risk as a result of the overhaul activity." The following information is provided in accordance with the NEI guidance.

QUANTITATIVE RISK ASSESSMENT

Duke Power has used a risk-informed approach to determine the risk significance of taking a loop of NSWS out of service for up to 11 days beyond its current TS limit of 72 hours. The acceptance guidelines given in the EPRI PSA Applications Guide were used as a gauge to determine the significance of the short-term risk increase from the outage extension.

The current PRA model was used to perform the risk evaluation for taking a train of NSWS out of service beyond its TS limit. The requested NSWS outage does not create any new core damage sequences not currently evaluated by the existing PRA model. The core damage frequency contribution from the proposed outage extension is judged to be acceptable for a one-time, or rare, evolution. The estimated increase in the core damage probability for Catawba for each NSWS loop outage ranges from 2.7E-06 for a 2-day extension up to 1.5E-05 for an 11-day extension. Based on the expected increase in overall system reliability of the NSWS, an overall increase in the safety of both Catawba units is expected.

EXPECTED IMPROVEMENT IN PLANT PERFORMANCE

The increase in the overall reliability of the NSWS along with the decreased unavailability in the future because of the pipe repair project will result in an overall increase in the safety of both Catawba units.

NET CHANGE IN RISK AS A RESULT OF THE OVERHAUL ACTIVITY

Increased NSWS train unavailability as a result of this overhaul does involve an increase in the probability or consequences of an accident previously evaluated during the time frame the NSWS header is out of service for pump refurbishment. Considering the small time frame of the NSWS trains outage with the expected increase in reliability, expected decrease in future NSWS unavailability as a result of the refurbishment project, and the contingency measures to be utilized during the refurbishment project, net change in risk as a result of the overhaul activity is reduced.

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

Not Applicable, NRC currently reviewing license amendment request to revise TS to allow for time necessary to perform overhaul of NSWS.

Potentially relevant FAQ numbers:

FAQ 178 & 219

RESPONSE SECTION

Proposed Resolution of FAQ:

For this plant specific situation, planned overhaul hours for the nuclear service water support system may be excluded from the computation of monitored system unavailability.

Such exemptions may be granted on a case-by-case basis. Factors considered for this approval include (1) the results of a quantitative risk assessment of the overhaul activity, (2) the expected improvement in plant performance as a result of the overhaul, and (3) the net change in risk as a result of the overhaul.

FAQ 55.1

Plant:	Three Mile Island Unit 1	
Date of Event:	N/A (Request for interpretation of system configuration)	
Submittal Date:	April 29, 2005	
Licensee Contact:	Dave Distel	Tel/email: 610-765-5517
NRC Contact:	Javier Brand	Tel/email: 717-948-8270

Performance Indicator: SSU PI MS.01 (Emergency AC Power Systems)

Site-Specific FAQ (Appendix D)? Yes

FAQ requested to become effective when approved.

Question Section

NEI 99-02 Guidance needing interpretation:

Section 2.2 of NEI 99-02, Revision 3, 'Clarifying Notes/Planned Unavailable Hours' –"Causes of planned unavailable hours include, but are not limited to, the following:"

Specifically, Page 25, Lines 3 through 9:

> "...testing, unless the test configuration is automatically overridden by a valid start signal, or the function can be promptly restored either by an operator in the control room or by a dedicated operator stationed locally for that purpose. Restoration actions must be contained in a written procedure, must be uncomplicated (*a single action or a few simple actions*), and must not require diagnosis or repair. Credit for a dedicated local operator can be taken only if (s)he is positioned at the proper location throughout the duration of the test for the purpose of restoration of the train should a valid demand occur."

Event or circumstances requiring guidance interpretation:

One of two 100% redundant emergency diesel generators is operating parallel to the offsite source for surveillance testing, or other special testing such as post-maintenance or post-modification testing purposes. The other is OPERABLE and in standby; it starts automatically upon the emergency signal and is annunciated in the control room. A combination of automatic actions, two manual actions in the control room, and a single local manual action are required to fully return the test EDG to emergency mode. The automatic actions occur instantaneously upon an accident signal and consist of an output breaker trip and conversion of the voltage regulator to isochronous (isolated operation) mode. A dedicated operator in the control room, involved with the test, accomplishes the following two manual actions:

1. Return the EDG voltage regulator to automatic mode by turning the selector switch in the control room. This will establish uniform voltage for extended emergency mode operation.

2. Return the EDG governor to its 60 Hz isochronous operating point by adjusting the speed from the control room.

The local EDG operator, involved with the test, who is in radio communication with the control room, accomplishes the following local manual action:

3. Remove the speed droop dialed into the governor at the dial face on the EDG skid by turning the droop knob to the 'zero' position.

These restoration steps are included in the surveillance test procedure and operator training on recognition and restoration is regularly conducted. Engineering analysis and testing will demonstrate that the test EDG and its emergency loads will function acceptably through the period of time when automatic safety-related block loading is occurring. The engine governor and voltage regulator are calibrated to ensure that the EDG response remains within the limits of the engineering analysis. The manual actions must be completed prior to the operators assuming control and manually applying or removing plant loads in order to avoid potentially unacceptable bus frequency and/or voltage changes. These actions are performed after the control room situation has stabilized and are not performed under stressful/chaotic conditions. Through the use of procedures and training, completion of these steps has a virtual certainty of success.

Does the EDG accrue unavailability time when operating parallel to the offsite source?

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

TMI has discussed this FAQ with the NRC resident inspector. The NRC resident inspector has not stated any disagreement with this position.

Potentially relevant existing FAQ numbers:

FAQs 201, 301, and 322

Response Section

Proposed Resolution of FAQ:

The test EDG does not accrue unavailability hours during operation in this case. This is based on the following:

1. Although conducted at two locations, the number of steps to return the test EDG to emergency mode meets the intent of the "few simple actions" threshold of NEI 99-02, Section 2.2.

2. The operator actions are proceduralized and the operators are routinely trained on these steps.

3. Control room and local personnel are available, positioned, and trained to accomplish the required actions.

4. Continuous communication is maintained between the control room and the local operators for the duration of the EDG testing.

5. There is ample time to accomplish the actions such that the operators are not in a stressful and chaotic situation at the time the required actions are to be performed.

6. No troubleshooting is necessary. The single operator reaction to a plant parameter (i.e., the engine frequency adjustment) is performed after the situation has stabilized.

7. The response of the EDG is confirmed via testing and the time period until the actions are completed is supported by sound engineering analysis.

8. The engine governor and voltage regulator are properly adjusted to remain within the limits of the engineering analysis.

9. The three manual actions are virtually certain to be successful.

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

N/A

FAQ 55.2

Plant: Millstone Unit 3
Date of Event: November 14, 2004
Submittal Date: July 21, 2005
Licensee Contact: D.W. Dodson Tel/Email: 860-447-1791x2346/David_W_Dodson@Dom.com
NRC Contact: S.M. Schneider Tel/Email: 860-444-5394 / SMS2@NRC.gov

Performance Indicator: Mitigating Systems Cornerstone Safety System Unavailability High Pressure Safety Injection

Site Specific FAQ (Appendix D): No

FAQ requested to become effective when approved

Question Section

NEI 99-02 Guidance needing interpretation (including page and line citation)
There are essentially two sections of NEI 99-02 that are being discussed for counting unavailability hours for a Westinghouse 4 Loop High Pressure Safety Injection (HPSI) System for a postulated situation of failure of an intermediate head safety injection pump. The Millstone 3 HPSI system consists of the high head safety injection system (i.e., charging system (CHG)) and intermediate head safety injection system (i.e., SIH). The Recirculation Spray System (RSS) pumps take suction from the containment sump upon depletion of the RWST, and discharge to the suction of the charging pumps and the SIH pumps. Millstone believes that during this postulated situation, the RSS system is in its required lineup and is not an alternate system, and, therefore, no unavailability hours would be counted since the HPSI and RSS safety functions would be met.

The first applicable section is Page 29 line 22; A train is available if it is capable of performing its safety function.

- Page 29 Line 29-31, "Fault exposure hours are not counted for a failure to meet design or technical specifications, if engineering analysis determines the train was capable of performing its safety function during an operational event."

The second applicable section is page 24 lines 11-13; Except as specifically stated in the indicator definition and reporting guidance, no attempt is made to monitor or give credit in the indicator results for the presence of other systems at a given plant that add diversity to the mitigation or prevention of accidents.

Event or circumstances requiring guidance interpretation:
Millstone Unit 3 is a Westinghouse 4 loop plant. Per the definitions in NEI 99-02 Rev. 3 (Page 55 lines 29-39), the HPSI train is considered a 4-train system based on the number of flow paths. Two trains are part of the charging system (high head safety injection) and two are part of the SIH system (intermediate head safety injection).

For Millstone unit 3 the SIH system is a component of the Emergency Core Cooling System (ECCS) and is therefore credited for post-LOCA event mitigation. The SIH system supports initial injection from the Refueling Water Storage Tank (RWST) to the Reactor Coolant System (RCS) cold legs during the injection phase of the event. Within approximately 1 hour, the SIH

suction is realigned to the RSS system for cold-leg recirculation, the first phase of post-accident recirculation. The RSS pumps take suction from the containment sump upon depletion of the RWST, and discharge to the suction of the charging pumps and the SIH pumps. RSS is the only system designed to take suction from the containment sump and provide suction boost during the post-accident recirculation phase, therefore it is required for all post-accident recirculation conditions that the SIH and charging systems support. The SIH system also provides hot leg recirculation during the post-LOCA recirculation phase for boron precipitation control in the event of a cold leg break. Realignment to support boron precipitation control is accomplished by realigning the SIH discharge path at approximately nine hours after event initiation. The suction path remains aligned to RSS for the duration that post-accident recirculation is required. The RSS system is monitored under the RHR function. This ECCS subsystem is cross-connected so any RSS pump can supply flow to all the charging and SIH flow paths.

In November 2004 Millstone concluded that a previously identified oil leak on the 'A' SIH pump could have impacted the long term availability of that pump during the period 10/14 to 11/04/04. Based on the observed leak rate, it was calculated that the pump bearing would lose lubrication after approximately 7 days of operation causing the pump to seize. Further review identified that the 'B' SIH pump was similarly impacted by an oil leak from 8/2002 to 4/2003 and would lose lubrication after approximately 15 days of operation causing the pump to seize. The SIH pump would have operated during the injection phase and for an extended period during the recirculation phase. A review of Millstone Unit 3 (MP3) licensing basis documents and relevant regulatory documents did not identify a post accident mission time for ECCS subsystems

A formal engineering evaluation was prepared to support the assessment of historical operability/availability. This evaluation determined that after 6 days the RSS pump alone could provide enough flow through the SIH piping and components (with no change of system alignment) to meet the hot leg recirculation flow requirements with a postulated seized SIH pump. Thus, it was determined that the mission time for the SIH pumps is 6 days. Based on this evaluation, it was determined that the ECCS system was Operable and that the HPSI safety function was available per NEI 99-02.

In summary: Millstone SIH pumps had oil leaks that may have caused the pumps to fail at 7 days or more. The SIH mission time is 6 days. At the time of postulated failure, during the post-accident recirculation phase, the HPSI safety function will have been satisfied and RSS would be in its required lineup providing its safety function. Therefore, no unavailability hours should be counted for the HPSI or RHR performance indicators. Is Millstone's interpretation of this situation correct?

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

It is the resident inspector's position that the Millstone evaluation improperly credits an alternate system (e.g., RSS) for meeting the HPSI function and that unavailability should be accrued. Millstone believes that during this postulated situation, the RSS system is in its required lineup and is not an alternate system, and, therefore, no unavailability hours would be counted since the HPSI and RSS safety functions would be met.

FAQ 55.2

Potential relevant existing FAQ numbers

FAQ 188 may be relevant in that it implies that when considering use of alternate systems it considers those systems that are not normally aligned within the design basis and would require additional operator action to align if there was a failure.

Response Section

Proposed Resolution of FAQ

The RSS system would be in its required lineup and performing its required safety function. Therefore, it is not considered to be an alternate system. The HPSI safety function would have been met therefore no unavailability hours need to be counted.

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

None