ITS NRC Questions

Id	**781**
NRC Question Number	**KAB-010**
Category	**Editorial**
ITS Section	**3.3**
ITS Number	**3.3.1**
DOC Number	**LA-5**
JFD Number	
JFD Bases Number	
Page Number (s)	**39**
NRC Reviewer Supervisor	**Rob Elliott**
Technical Branch POC	**Add Name**
Conf Call Requested	**N**
NRC Question	**On page 39 of Attachment 1, volume 8, the discussion of changes LA05 indicates that details are being moved to the bases. Please explain which part of the bases has the relocated details.**
Attach File 1	
Attach File 2	
Issue Date	**10/19/2009**
Added By	**Kristy Bucholtz**
Date Modified	
Modified By	
Date Added	**10/19/2009 10:52 AM**
Notification	**NRC/LICENSEE Supervision**

Enclosure (2 of 8), Q&A to Attachment 1, Volume 8 (Section 3.3) Page 1 of 87

Licensee Response/NRC Response/NRC Question Closure

Id	**371**
NRC Question Number	**KAB-010**
Select Application	**Licensee Response**
Response Date/Time	**10/21/2009 3:05 PM**
Closure Statement	
Response Statement	**Kewaunee Power Station (KPS) has provided a yellow highlighted markup of the ITS Bases markup pages (KAB-010 Information.pdf) to identify where the technical information that was relocated is contained. While the words in the ITS Bases markup are not identical to the words being relocated from the KPS CTS, the ITS Bases contains the same technical information that is being relocated.**
Question Closure Date	
Attachment 1	**KAB-010 Information.pdf** (894KB)
Attachment 2	
Notification	**NRC/LICENSEE Supervision** **Kristy Bucholtz** **Jerry Jones** **Bryan Kays**
Added By	**Gerald Riste**
Date Added	**10/21/2009 3:06 PM**
Modified By	
Date Modified	

Enclosure (2 of 8), Q&A to Attachment 1, Volume 8 (Section 3.3) Page 2 of 87

BASES

BACKGROUND (continued)

During normal operation the output from the SSPS is a voltage signal that energizes the undervoltage coils in the RTBs and bypass breakers, if in use. When the required logic matrix combination is completed, the SSPS output voltage signal is removed, the undervoltage coils are de-energized, the breaker trip lever is actuated by the de-energized undervoltage coil, and the RTBs and bypass breakers are tripped open. This allows the shutdown rods and control rods to fall into the core. In addition to the de-energization of the undervoltage coils, each breaker is also equipped with a shunt trip device that is energized to trip the breaker open upon receipt of a reactor trip signal from the SSPS. Either the undervoltage coil or the shunt trip mechanism is sufficient by itself, thus providing a diverse trip mechanism.

The decision logic matrix Functions are described in the functional diagrams included in Reference 2. In addition to the reactor trip or ESF, these diagrams also describe the various "permissive interlocks" that are associated with unit conditions. Each train has a built in testing device that can automatically test the decision logic matrix Functions and the actuation devices while the unit is at power. When any one train is taken out of service for testing, the other train is capable of providing unit monitoring and protection until the testing has been completed. The testing device is semiautomatic to minimize testing time.

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY

The RTS functions to maintain the SLs during all AOC See Insert 3 next page. the consequences of DBAs in all MODES in which the Rod Control System is capable of rod withdrawal or one or more rods are not fully inserted.

INSERT 3

Each of the analyzed accidents and transients can be detected by one or more RTS Functions. The accident analysis described in Reference 4 takes credit for most RTS trip Functions. RTS trip Functions not specifically credited in the accident analysis are qualitatively credited in the safety analysis and the NRC staff approved licensing basis for the unit. These RTS trip Functions may provide protection for conditions that do not require dynamic transient analysis to demonstrate Function performance. They may also serve as backups to RTS trip Functions that were credited in the accident analysis.

The LCO requires all instrumentation performing an RTS Function, listed in Table 3.3.1-1 in the accompanying LCO, to be OPERABLE. A channel is OPERABLE with a trip setpoint value outside its calibration tolerance band provided the trip setpoint "as-found" value does not exceed its

2

INSERT 3

Permissive and interlock setpoints allow the blocking of trips during plant startups, and restoration of trips when the permissive conditions are not satisfied, but they are not explicitly modeled in the Safety Analyses. These permissives and interlocks ensure that the starting conditions are consistent with the safety analysis, before preventive or mitigating actions occur. Because these permissives or interlocks are only one of multiple conservative starting assumptions for the accident analysis, they are generally considered as nominal values without regard to measurement accuracy.

LA05 relocated Information

All changes are unless otherwise noted (1)

BASES

BACKGROUND (continued)

The RTS instrumentation is segmented into four distinct but interconnected modules as illustrated in Figure [ ], FSAR, Chapter [7] (Ref. 2), and as identified below:

1. Field transmitters or process sensors: provide a measurable electronic signal based upon the physical characteristics of the parameter being measured;
2. Signal Process Control and Protection System, including Analog Protection System, Nuclear Instrumentation System (NIS), field contacts, and protection channel sets: provides signal conditioning, bistable setpoint comparison, process algorithm actuation, compatible electrical signal output to protection system devices, and control board/control room/miscellaneous indications;
3. Solid State Protection System (SSPS), including input, logic, and output bays: initiates proper unit shutdown and/or ESF actuation in accordance with the defined logic, which is based on the bistable outputs from the signal process control and protection system, and
4. Reactor trip switchgear, including reactor trip breakers (RTBs) and bypass breakers: provides the means to interrupt power to the control rod drive mechanisms (CRDMs) and allows the rod cluster control assemblies (RCCAs), or "rods," to fall into the core and shut down the reactor. The bypass breakers allow testing of the RTBs at power.

Field Transmitters or Sensors

To meet the design demands for redundancy and reliability, more than one, and often as many as four, field transmitters or sensors are used to measure unit parameters. To account for the calibration tolerances and instrument drift, which are assumed to occur between calibrations, statistical allowances are provided in the trip setpoint and Allowable Values. The OPERABILITY of each transmitter or sensor is determined by either "as-found" calibration data evaluated during the CHANNEL CALIBRATION or by qualitative assessment of field transmitter or sensor as related to the channel behavior observed during performance of the CHANNEL CHECK.

The specific as-found values to ensure that the channel is OPERABLE and that Safety Limits are not exceeded are specified in the SCP.

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

Because this trip Function is important only during startup, there is generally no need to disable channels for testing while the Function is required to be OPERABLE. Therefore, a third channel is unnecessary.

In MODE 1 below the P-10 setpoint, and in MODE 2 above the P-6 setpoint, when there is a potential for an uncontrolled RCCA bank rod withdrawal accident during reactor startup, the Intermediate Range Neutron Flux trip must be OPERABLE. Above the P-10 setpoint, the Power Range Neutron Flux - High Setpoint trip and the Power Range Neutron Flux - High Positive Rate trip provide core protection for a rod withdrawal accident. In MODE 2 below the P-6 setpoint, the Source Range Neutron Flux Trip provides the core protection for reactivity accidents. In MODE 3, 4, or 5, the Intermediate Range Neutron Flux trip does not have to be OPERABLE because the control rods must be fully inserted and only the shutdown rods may be withdrawn. The reactor cannot be started up in this condition. The core also has the required SDM to mitigate the consequences of a positive reactivity addition accident. In MODE 6, all rods are fully inserted and the core has a required increased SDM. Also, the NIS intermediate range detectors cannot detect neutron levels present in this MODE.

5. Source Range Neutron Flux

The LCO requirement for the Source Range Neutron Flux trip Function ensures that protection is provided against an uncontrolled RCCA bank rod withdrawal accident from a subcritical condition during startup. This trip Function provides redundant protection to the Power Range Neutron Flux - Low trip Function. In MODES 3, 4, and 5, administrative controls also prevent the uncontrolled withdrawal of rods. The NIS source range detectors are located external to the reactor vessel and measure neutrons leaking from the core. The NIS source range detectors do not provide any inputs to control systems. The source range trip is the only RTS automatic protection function required in MODES 3, 4, and 5 when rods are capable of withdrawal or one or more rods are not fully inserted. Therefore, the functional capability at the specified Trip Setpoint is assumed to be available.

The Source Range Neutron Flux Function provides protection for control rod withdrawal from subcritical, boron dilution and control rod ejection events.

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

In MODE 2 when below the P-6 setpoint and in MODES 3, 4, and 5 when there is a potential for an uncontrolled RCCA bank rod withdrawal accident, the Source Range Neutron Flux trip must be OPERABLE. Two OPERABLE channels are sufficient to ensure no single random failure will disable this trip Function. Above the P-6 setpoint, the Intermediate Range Neutron Flux trip and the Power Range Neutron Flux - Low trip will provide core protection for reactivity accidents. Above the P-6 setpoint, the NIS source range detectors are de-energized.

In MODES 3, 4, and 5 with all rods fully inserted and the Rod Control System not capable of rod withdrawal, and in MODE 6, the outputs of the Function to RTS logic are not required OPERABLE. The requirements for the NIS source range detectors to monitor core neutron levels and provide indication of reactivity changes that may occur as a result of events like a boron dilution are addressed in LCO 3.9.9 "Boron Dilution Protection System (BDPS)," for MODE 3, 4, or 5 and LCO 3.9.2, "Nuclear Instrumentation," for MODE 6. (5)

6. Overtemperature ΔT

The Overtemperature ΔT trip Function is provided to ensure that the design limit DNBR is met. This trip Function also limits the range over which the Overpower ΔT trip Function must provide protection. The inputs to the Overtemperature ΔT trip include all pressure, coolant temperature, axial power distribution, and reactor power as indicated by loop ΔT assuming full reactor coolant flow. Protection from violating the DNBR limit is assured for those transients that are slow with respect to delays from the core to the measurement system. The Function monitors both variation in power and flow since a decrease in flow has the same effect on ΔT as a power increase. The Overtemperature ΔT trip Function uses each loop's ΔT as a measure of reactor power and is compared with a setpoint that is automatically varied with the following parameters:

- reactor coolant average temperature - the Trip Setpoint is varied to correct for changes in coolant density and specific heat capacity with changes in coolant temperature; (3)

Licensee Response/NRC Response/NRC Question Closure

Id	**661**
NRC Question Number	**KAB-010**
Select Application	**NRC Question Closure**
Response Date/Time	
Closure Statement	**This question is closed and no further information is required at this time to draft the Safety Evaluation.**
Response Statement	
Question Closure Date	**11/9/2009**
Attachment 1	
Attachment 2	
Notification	**NRC/LICENSEE Supervision**
Added By	**Kristy Bucholtz**
Date Added	**11/9/2009 8:42 AM**
Modified By	
Date Modified	

Enclosure (2 of 8), Q&A to Attachment 1, Volume 8 (Section 3.3) Page 8 of 87

ITS NRC Questions

Id	**791**
NRC Question Number	**KAB-011**
Category	**Technical**
ITS Section	**3.3**
ITS Number	**3.3.1**
DOC Number	**L-8**
JFD Number	
JFD Bases Number	
Page Number(s)	**46**
NRC Reviewer Supervisor	**Rob Elliott**
Technical Branch POC	**Add Name**
Conf Call Requested	**N**
NRC Question	**On page 46 of Attachment 1, volume 8, the discussion of changes L08 indicates that the proposed change is acceptable because the Frequency is based on the known reliability of the interlocks, multichannel redundancy and operating experience for the relays. Please provide more information on the known reliability and operating experience of the P-13 interlock. Please provide in your response if the known reliability data is Kewaunee plant data or industry-wide data.**
Attach File 1	
Attach File 2	
Issue Date	**10/19/2009**
Added By	**Kristy Bucholtz**
Date Modified	
Modified By	
Date Added	**10/19/2009 10:55 AM**
Notification	**NRC/LICENSEE Supervision**

Enclosure (2 of 8), Q&A to Attachment 1, Volume 8 (Section 3.3) Page 9 of 87

Licensee Response/NRC Response/NRC Question Closure

Id	**391**
NRC Question Number	**KAB-011**
Select Application	**Licensee Response**
Response Date/Time	**10/27/2009 3:00 PM**
Closure Statement	
Response Statement	**The Surveillance Frequency for the COT of the P-13 interlock is not governed by a Surveillance Interval Extension Topical Report. The Frequency in the ISTS for the COT is 18 months. Kewaunee reviewed the previous WOG STS (NUREG-0452, Table 4.3-1, Functional Unit 20.E) and noted that the COT was originally added to the STS with a refueling frequency (NUREG 0452, Rev 2). The frequency was later changed to a monthly frequency modified by a note that stated: "With power greater than or equal to the interlock setpoint the required OPERATIONAL TEST shall consist of verifying that the interlock is in the required state by observing the permissive annunciator window". This surveillance continued to change until it reached the current frequency stated in ISTS of 18-months. The monthly frequency of NUREG-0452 is similar to the current KPS Frequency, without the allowance for annunciator window check only. Since the Frequency is not governed by any Topical Report, the ISTS extended the Frequency to 18 months, and ITS will check the interlock every 12 hours, Kewaunee adopted the proposed 18 month Frequency similar to any other non-topical report Frequency extension. To support the extension, Kewaunee performed a plant specific review to ensure that the Frequency could be extended from monthly to 18 months. KPS performed a review of the monthly Surveillance history since the instrument was replaced in February of 2007. No instances of the instrument as-found setting value being out-of-tolerance since replacement were found. Therefore, Kewaunee believes that it is acceptable to adopt the ISTS Frequency of 18 months for the P-13 Interlock COT.**
Question Closure Date	
Attachment 1	
Attachment 2	
Notification	**NRC/LICENSEE Supervision** **Kristy Bucholtz** **Victor Cusumano** **Robert Hanley** **Jerry Jones** **Bryan Kays**
Added By	**Robert Hanley**

Date Added	**10/27/2009 2:59 PM**
Modified By	
Date Modified	

Enclosure (2 of 8), Q&A to Attachment 1, Volume 8 (Section 3.3) Page 11 of 87

Licensee Response/NRC Response/NRC Question Closure

Id	**691**
NRC Question Number	**KAB-011**
Select Application	**NRC Question Closure**
Response Date/Time	
Closure Statement	**This question is closed and no further information is required at this time to draft the Safety Evaluation.**
Response Statement	
Question Closure Date	**11/9/2009**
Attachment 1	
Attachment 2	
Notification	**NRC/LICENSEE Supervision**
Added By	**Kristy Bucholtz**
Date Added	**11/9/2009 11:08 AM**
Modified By	
Date Modified	

Enclosure (2 of 8), Q&A to Attachment 1, Volume 8 (Section 3.3) Page 12 of 87

ITS NRC Questions

Id	**801**
NRC Question Number	**KAB-012**
Category	**Technical**
ITS Section	**3.3**
ITS Number	**3.3.1**
DOC Number	**L-15**
JFD Number	
JFD Bases Number	
Page Number(s)	**50**
NRC Reviewer Supervisor	**Rob Elliott**
Technical Branch POC	**Add Name**
Conf Call Requested	**N**
NRC Question	**On page 50 of Attachment 1, volume 8, the discussion of changes L15 indicates that the proposed change is acceptable because the Frequency is based on the known reliability of the interlocks, multichannel redundancy and operating experience for the relays. Please provide more information on the known reliability and operating experience of the P-8 and P-10 interlocks. Please provide in your response if the known reliability data is Kewaunee plant data or industry-wide data.**
Attach File 1	
Attach File 2	
Issue Date	**10/19/2009**
Added By	**Kristy Bucholtz**
Date Modified	
Modified By	
Date Added	**10/19/2009 10:56 AM**
Notification	**NRC/LICENSEE Supervision**

Enclosure (2 of 8), Q&A to Attachment 1, Volume 8 (Section 3.3) Page 13 of 87

Licensee Response/NRC Response/NRC Question Closure

Id	**401**
NRC Question Number	**KAB-012**
Select Application	**Licensee Response**
Response Date/Time	**10/27/2009 3:05 PM**
Closure Statement	
Response Statement	**The Surveillance Frequency for the COT of the P-8 and P-10 interlocks is not governed by a Surveillance Interval Extension Topical Report. The Frequency in the ISTS for the COT is 18 months. Kewaunee reviewed the previous WOG STS (NUREG-0452, Table 4.3-1, Functional Units 20.C and 20.D) and noted that the COT was monthly, which is more frequent than the current KPS Frequency of quarterly. Since the Frequency is not governed by any Topical Report and the ISTS extended the Frequency to 18 months, Kewaunee adopted the proposed 18 month Frequency similar to any other non-topical report Frequency extension. To support the extension, Kewaunee performed a plant specific review to ensure that the Frequency could be extended from monthly to 18 months. KPS performed a review of the Surveillance history for the past 3 years, or if an instrument was replaced back until the instrument was replaced, and found no instances of the instruments being out-of-tolerance. Therefore, Kewaunee believes that it is acceptable to adopt the ISTS Frequency of 18 months for the P-8 and P-10 Interlock COT.**
Question Closure Date	
Attachment 1	
Attachment 2	
Notification	**NRC/LICENSEE Supervision** **Kristy Bucholtz** **Victor Cusumano** **Robert Hanley** **Jerry Jones** **Bryan Kays** **Vic Myers** **Gerald Riste**
Added By	**Robert Hanley**
Date Added	**10/27/2009 3:02 PM**
Modified By	
Date Modified	

Licensee Response/NRC Response/NRC Question Closure

Id	**701**
NRC Question Number	**KAB-012**
Select Application	**NRC Question Closure**
Response Date/Time	
Closure Statement	**This question is closed and no further information is required at this time to draft the Safety Evaluation.**
Response Statement	
Question Closure Date	**11/12/2009**
Attachment 1	
Attachment 2	
Notification	**NRC/LICENSEE Supervision**
Added By	**Kristy Bucholtz**
Date Added	**11/12/2009 9:03 AM**
Modified By	
Date Modified	

Enclosure (2 of 8), Q&A to Attachment 1, Volume 8 (Section 3.3) Page 15 of 87

ITS NRC Questions

Id	**811**
NRC Question Number	**KAB-013**
Category	**Technical**
ITS Section	**3.3**
ITS Number	**3.3.1**
DOC Number	**LA-4**
JFD Number	
JFD Bases Number	
Page Number (s)	**39**
NRC Reviewer Supervisor	**Rob Elliott**
Technical Branch POC	**Add Name**
Conf Call Requested	**N**
NRC Question	**On page 39 of Attachment 1, volume 8, the discussion of changes LA04 indicates that details are being moved to the bases. Please explain which part of the bases has the relocated details**
Attach File 1	
Attach File 2	
Issue Date	**10/20/2009**
Added By	**Kristy Bucholtz**
Date Modified	
Modified By	
Date Added	**10/20/2009 11:30 AM**
Notification	**NRC/LICENSEE Supervision** **Ray Schiele**

Licensee Response/NRC Response/NRC Question Closure

Id	**381**
NRC Question Number	**KAB-013**
Select Application	**Licensee Response**
Response Date/Time	**10/21/2009 3:05 PM**
Closure Statement	
Response Statement	**Kewaunee Power Station (KPS) has provided a yellow highlighted markup of the ITS Bases markup pages (KAB-013 Information.pdf) to identify where the technical information that was relocated is contained. While the words in the ITS Bases markup are not identical to the words being relocated from the KPS CTS, the ITS Bases contains the same technical information that is being relocated. Note that the "log level" requirement is not included in the ITS Bases. After further review, KPS has determined that the need to "log level" during a Surveillance Requirement is currently required by 10 CFR 50 Appendix B, Section XVII (Quality Assurance Records) and is not required to be included in the Kewaunee Technical Specifications or Bases. Therefore, a new DOC (A13) is proposed which explains why it is acceptable for this information to be removed from the Technical Specifications. A draft markup regarding the DOC A13 change is attached. This change will be reflected in the supplement to this section of the ITS conversion amendment.**
Question Closure Date	
Attachment 1	**KAB-013 Information.pdf** (874KB)
Attachment 2	**KAB-013 Markup.pdf** (1MB)
Notification	**NRC/LICENSEE Supervision** **Kristy Bucholtz** **Jerry Jones** **Bryan Kays** **Gerald Riste**
Added By	**Gerald Riste**
Date Added	**10/21/2009 3:08 PM**
Modified By	
Date Modified	

All changes are 1 unless otherwise noted

BASES

BACKGROUND (continued)

During normal operation the output from the SSPS is a voltage signal that energizes the undervoltage coils in the RTBs and bypass breakers, if in use. When the required logic matrix combination is completed, the SSPS output voltage signal is removed, the undervoltage coils are de-energized, the breaker trip lever is actuated by the de-energized undervoltage coil, and the RTBs and bypass breakers are tripped open. This allows the shutdown rods and control rods to fall into the core. In addition to the de-energization of the undervoltage coils, each breaker is also equipped with a shunt trip device that is energized to trip the breaker open upon receipt of a reactor trip signal from the SSPS. Either the undervoltage coil or the shunt trip mechanism is sufficient by itself, thus providing a diverse trip mechanism.

The decision logic matrix Functions are described in the functional diagrams included in Reference 2. In addition to the reactor trip or ESF, these diagrams also describe the various "permissive interlocks" that are associated with unit conditions. Each train has a built in testing device that can automatically test the decision logic matrix Functions and the actuation devices while the unit is at power. When any one train is taken out of service for testing, the other train is capable of providing unit monitoring and protection until the testing has been completed. The testing device is semiautomatic to minimize testing time.

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY

The RTS functions to maintain the SLs during all AOC See Insert 3 next page. the consequences of DBAs in all MODES in which the Rod Control System is capable of rod withdrawal or one or more rods are not fully inserted.

INSERT 3

Each of the analyzed accidents and transients can be detected by one or more RTS Functions. The accident analysis described in Reference 4 takes credit for most RTS trip Functions. RTS trip Functions not specifically credited in the accident analysis are qualitatively credited in the safety analysis and the NRC staff approved licensing basis for the unit. These RTS trip Functions may provide protection for conditions that do not require dynamic transient analysis to demonstrate Function performance. They may also serve as backups to RTS trip Functions that were credited in the accident analysis.

The LCO requires all instrumentation performing an RTS Function, listed in Table 3.3.1-1 in the accompanying LCO, to be OPERABLE. A channel is OPERABLE with a trip setpoint value outside its calibration tolerance band provided the trip setpoint "as-found" value does not exceed its

Enclosure (2 of 8), Q&A to Attachment 1, Volume 8 (Section 3.3) Page 18 of 87

2

INSERT 3

Permissive and interlock setpoints allow the blocking of trips during plant startups, and restoration of trips when the permissive conditions are not satisfied, but they are not explicitly modeled in the Safety Analyses. These permissives and interlocks ensure that the starting conditions are consistent with the safety analysis, before preventive or mitigating actions occur. Because these permissives or interlocks are only one of multiple conservative starting assumptions for the accident analysis, they are generally considered as nominal values without regard to measurement accuracy.

LA04 relocated Information

All changes are unless otherwise noted (1)

P

BASES

BACKGROUND (continued)

P

The RTS instrumentation is segmented into four distinct but interconnected modules as illustrated in Figure [ ], FSAR, Chapter [7] (Ref. 2), and as identified below:

7.2-2 U 14 4

4

1. Field transmitters or process sensors: provide a measurable electronic signal based upon the physical characteristics of the parameter being measured;

Protection Instrumentation Rack (PPIR) 3

2. Signal Process Control and Protection System, including Analog Protection System, Nuclear Instrumentation System (NIS), field contacts, and protection channel sets: provides signal conditioning, bistable setpoint comparison, process algorithm actuation, compatible electrical signal output to protection system devices, and control board/control room/miscellaneous indications;

Reactor Channels and channels bistable 2 3

Reactor Protection Logic Rack

3. Solid State Protection System (SSPS), including input, logic, and output bays: initiates proper unit shutdown and/or ESF actuation in accordance with the defined logic, which is based on the bistable outputs from the signal process control and protection system, and

racks reactor protection logic rack; 3

4. Reactor trip switchgear, including reactor trip breakers (RTBs) and bypass breakers: provides the means to interrupt power to the control rod drive mechanisms (CRDMs) and allows the rod cluster control assemblies (RCCAs), or "rods," to fall into the core and shut down the reactor. The bypass breakers allow testing of the RTBs at power.

Field Transmitters or Sensors

To meet the design demands for redundancy and reliability, more than one, and often as many as four, field transmitters or sensors are used to measure unit parameters. To account for the calibration tolerances and instrument drift, which are assumed to occur between calibrations, statistical allowances are provided in the trip setpoint and Allowable Values. The OPERABILITY of each transmitter or sensor is determined by either "as-found" calibration data evaluated during the CHANNEL CALIBRATION or by qualitative assessment of field transmitter or sensor as related to the channel behavior observed during performance of the CHANNEL CHECK.

NTSP 2

2

The specific as-found values to ensure that the channel is OPERABLE and that Safety Limits are not exceeded are specified in the SCP.

All changes are unless otherwise noted (1)

P

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

heat flux required to cause a DNB at a particular location in the core to the local heat flux. The DNBR is indicative of the margin to DNB. No credit is taken for the operation of this Function for those rod drop accidents in which the local DNBRs will be greater than the limit.

The Power Range Neutron Flux – High Negative Rate is not credited in current safety analysis.

The LCO requires all four Power Range Neutron Flux - High Negative Rate channels to be OPERABLE.

In MODE 1 or 2, when there is potential for a multiple rod drop accident to occur, the Power Range Neutron Flux - High Negative Rate trip must be OPERABLE. In MODE 3, 4, 5, or 6, the Power Range Neutron Flux - High Negative Rate trip Function does not have to be OPERABLE because the core is not critical and DNB is not a concern. Also, since only the shutdown banks may be withdrawn in MODE 3, 4, or 5, the remaining complement of control bank worth ensures a sufficient degree of SDM in the event of an REA. In MODE 6, no rods are withdrawn and the required SDM is increased during refueling operations. In addition, the NIS power range detectors cannot detect neutron levels present in this MODE.

4. Intermediate Range Neutron Flux

The Intermediate Range Neutron Flux trip Function ensures that protection is provided against an uncontrolled RCCA bank rod withdrawal accident from a subcritical condition during startup. This trip Function provides redundant protection to the Power Range Neutron Flux - Low Setpoint trip Function. The NIS intermediate range detectors are located external to the reactor vessel and measure neutrons leaking from the core. The NIS intermediate range detectors do not provide any input to control systems. Note that this Function also provides a signal to prevent automatic and manual rod withdrawal prior to initiating a reactor trip. Limiting further rod withdrawal may terminate the transient and eliminate the need to trip the reactor.

The LCO requires two channels of Intermediate Range Neutron Flux to be OPERABLE. Two OPERABLE channels are sufficient to ensure no single random failure will disable this trip Function.

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

Because this trip Function is important only during startup, there is generally no need to disable channels for testing while the Function is required to be OPERABLE. Therefore, a third channel is unnecessary.

In MODE 1 below the P-10 setpoint, and in MODE 2 above the P-6 setpoint, when there is a potential for an uncontrolled RCCA bank rod withdrawal accident during reactor startup, the Intermediate Range Neutron Flux trip must be OPERABLE. Above the P-10 setpoint, the Power Range Neutron Flux - High Setpoint trip and the Power Range Neutron Flux - High Positive Rate trip provide core protection for a rod withdrawal accident. In MODE 2 below the P-6 setpoint, the Source Range Neutron Flux Trip provides the core protection for reactivity accidents. In MODE 3, 4, or 5, the Intermediate Range Neutron Flux trip does not have to be OPERABLE because the control rods must be fully inserted and only the shutdown rods may be withdrawn. The reactor cannot be started up in this condition. The core also has the required SDM to mitigate the consequences of a positive reactivity addition accident. In MODE 6, all rods are fully inserted and the core has a required increased SDM. Also, the NIS intermediate range detectors cannot detect neutron levels present in this MODE.

5. Source Range Neutron Flux

The LCO requirement for the Source Range Neutron Flux trip Function ensures that protection is provided against an uncontrolled RCCA bank rod withdrawal accident from a subcritical condition during startup. This trip Function provides redundant protection to the Power Range Neutron Flux - Low trip Function. In MODES 3, 4, and 5, administrative controls also prevent the uncontrolled withdrawal of rods. The NIS source range detectors are located external to the reactor vessel and measure neutrons leaking from the core. The NIS source range detectors do not provide any inputs to control systems. The source range trip is the only RTS automatic protection function required in MODES 3, 4, and 5 when rods are capable of withdrawal or one or more rods are not fully inserted. Therefore, the functional capability at the specified Trip Setpoint is assumed to be available.

The Source Range Neutron Flux Function provides protection for control rod withdrawal from subcritical, boron dilution and control rod ejection events.

SR 3.3.1.1, SR 3.3.1.3 | SR 3.3.1.2, SR 3.3.1.6, SR 3.3.1.10, SR 3.3.1.12 | SR 3.3.1.7, SR 3.3.1.8, SR 3.3.1.13

A01

Table 3.3.1-1 Function

TABLE TS 4.1-1

MINIMUM FREQUENCIES FOR CHECKS, CALIBRATIONS AND TEST OF INSTRUMENT CHANNELS

A06

CHANNEL DESCRIPTION	CHECK	CALIBRATE	TEST	REMARKS
1. Nuclear Power Range Add proposed SR 3.3.1.11 for Functions 2.a, 2.b, 3.a, and 3.b (M11)	Each shift(a) -1 M11 Effective Full Power Month(c) -3	Daily(a) -2 L05 — 184 days Effective Full Power Quarter(c) -6 L06 — Add proposed SR 3.3.1.8 Frequencies for Function 2.b L15 — 18 months for Functions 16.c and 16.d	Monthly(b) -7 Quarterly(d) -8, -13 L15	(a) Heat balance (b) Signal to ΔT; bistable action (permissive, rod stop, trips) — LA03 (c) Upper and lower chambers for axial off-set using incore detectors. The check and calibration for axial offset shall also be performed prior to > 75% power following any core alteration. — A07 (d) Permissives P8 and P10 and the 25% reactor trip are tested quarterly. — L06
2. Nuclear Intermediate Range Add proposed SR 3.3.1.11 (M11)	Each shift(a,c) -1	Not applicable L06 — Add proposed SR 3.3.1.8 Frequencies	Prior to each startup if not done previous week(b) -8 A13	(a) Once/shift when in service — A07 (b) Log level; bistable action (permissive, rod stop, trips) — LA04 (c) Channel check required in all plant modes — A08
3. Nuclear Source Range Add proposed SR 3.3.1.11 (M11)	Each shift(a,c) -1	Not applicable L06 — Add proposed SR 3.3.1.8 Frequencies and Surveillance Note	Prior to each startup if not done previous week(b) -8	(a) Once/shift when in service — A07 (b) Bistable action (alarm, trips) — LA05 (c) Channel check required in all plant modes — A08
4. Reactor Coolant Temperature	Each shift (c) -1	Each refueling cycle -12 184 days	Monthly(a) -7 Monthly(b) -7	(a) Overtemperature ΔT (b) Overpower ΔT (c) Channel check not required below HOT SHUTDOWN — A09
5. Reactor Coolant Flow Add proposed SR 3.3.1.1, SR 3.3.1.7, and SR 3.3.1.11 for MODE 3, 4, and 5 with the Rod Control System capable of rod withdrawal or one or more rods are not fully inserted (M10)	Each shift -1	Each refueling cycle -10 184 days L05	Monthly -7 184 days	

DISCUSSION OF CHANGES
ITS 3.3.1, REACTOR PROTECTION SYSTEM (RPS) INSTRUMENTATION

A11 CTS Table TS 3.5-2 Functional Unit 14 provides the requirements for the Underfrequency 4-kV Bus reactor trip function. When the minimum number of Underfrequency 4-kV Bus channels are not maintained OPERABLE (Column 3), Column 6 requires maintaining HOT SHUTDOWN. Furthermore, CTS Table TS 3.5-2 Functional Unit 14 contains a Note that states an underfrequency on the 4-kV buses trips the Reactor Coolant Pump breakers, which in turn trips the reactor when power is above P-7. Based on the above CTS Table TS 3.5-2 Functional Unit 14 and Note 4 requirements, the Reactor Coolant Pump Breaker Position reactor trip (i.e., one channel per RCP breaker) is required to be OPERABLE above the P-7 interlock to support CTS Table 3.5-2 Functional Unit 14. ITS Table 3.3.1-1 Function 11.a (Reactor Coolant Pump (RCP) Breaker Position – Single Loop) and Function 11.b (Reactor Coolant Pump (RCP) Breaker Position – Two Loops) each require one RCP Breaker Position channel per RCP to be OPERABLE. The Applicability for these channel requirements is MODE 1 above the P-8 interlock for Function 11.a and MODE 1 above the P-7 interlock for Function 11.b. This changes the CTS by explicitly stating the RCP Breaker Position requirements, including the number of required channels and the Applicability.

This change is acceptable because the requirements are the same. ITS 3.3.1 explicitly states the number of required channels as well as the Applicability requirements in ITS Table 3.3.1-1. Although the CTS does not specify the number of Reactor Coolant Pump Breaker Position reactor trip channels that are required to be OPERABLE, there is only one channel per RCP. This change is designated as administrative because it does not result in technical changes to the CTS.

A12 CTS Table TS 4.1-1 specifies the applicable testing requirements for the Protective System Logic Channels. Although the CTS does not provide a specific Applicability nor a specific number of Required Channels, all RPS Protective System Logic Channels are required to be OPERABLE when the associated Reactor Protection System (RPS) channels are required. Therefore, the Applicability of the Protective System Logic Channels is OPERATING and HOT STANDBY, which covers the Applicability of all of the RPS channels. ITS Table 3.3.1-1 Function 19 (Automatic Trip Logic) requires two trains of the Automatic Trip Logic to be OPERABLE in MODES 1 and 2. This changes the CTS by explicitly stating the requirements for the Protective System Logic Channels, including the number of required trains and the Applicability. The change that adds the Applicability of MODES 3, 4, and 5 when the Rod Control System is capable of rod withdrawal or when one or more rods are not fully inserted Applicability is covered by DOC M12.

This change is acceptable because the requirements are the same. ITS 3.3.1 explicitly states the number of required trains as well as the Applicability requirements in ITS Table 3.3.1-1. Although the CTS does not specify the number of Protective System Logic Channel trains that are required to be OPERABLE, both trains are required to support OPERABILITY of all the required RPS channels. This change is designated as administrative because it does not result in technical changes to the CTS.

INSERT 1

A13 Note (b) to CTS Table TS 4.1-1 Channel Description 2 (Nuclear Intermediate Range) states in the Remarks Sections to "log level" during the performance of the CHANNEL FUNCTIONAL TEST. ITS Table 3.3.1-1 Function 4 (Intermediate Range Neutron Flux) requires performance of a COT (SR 3.3.1.8), but does not contain a specific requirement to "log level." This changes the CTS by deleting the specific requirement to "log level" during the performance of the COT.

The purpose of Note (b) to CTS Table TS 4.1-1 Channel Description 2 is to ensure that the Nuclear Intermediate Range instrumentation is OPERABLE. This change is acceptable because this requirement duplicates the requirements of 10 CFR 50 Appendix B, Section XVII (Quality Assurance Records) to maintain records of activities affecting quality, including the results of tests (i.e., Technical Specification Surveillances). Compliance with 10 CFR 50 Appendix B is required in the KPS Operating License, which is adequate to ensure appropriate data is taken and maintained. The details of the regulations within the Technical Specifications are repetitious and unnecessary. Therefore, retaining the requirement to perform the associated Surveillance and eliminating the details from Technical Specification that are found in 10 CFR 50 Appendix B is considered a presentation preference. As such, this change is considered an administrative change.

be included in the Technical Specifications to provide adequate protection of public health and safety. The ITS still maintains the requirement perform a CHANNEL CHECK, TADOT/COT, and CHANNEL CALIBRATION of the Nuclear Power Range instrumentation. In addition, this change is acceptable because the removed information will be adequately controlled in the ITS Bases. Changes to the Bases are controlled by the Technical Specification Bases Control Program in Chapter 5. This program provides for the evaluation of changes to ensure the Bases are properly controlled. This change is designated as a less restrictive removal of detail change because information relating to system design is being removed from the Technical Specifications.

LA04 *(Type 1 – Removing Details of System Design and System Description, Including Design Limits)* Note (b) to CTS Table TS 4.1-1 Channel Description 2 (Nuclear Intermediate Range) in the Remarks Section states that the CHANNEL FUNCTIONAL TEST contains the bistable action (permissive, rod stop, and trips) ~~and to log the level~~. ITS 3.3.1 does not contain these requirements. This changes the CTS by moving these details to the Bases.

The removal of these details, which relate to system design, from the Technical Specifications is acceptable because this type of information is not necessary to be included in the Technical Specifications to provide adequate protection of public health and safety. The ITS still maintains the requirement to perform a TADOT/COT of the Nuclear Intermediate Range instrumentation. In addition, this change is acceptable because the removed information will be adequately controlled in the ITS Bases. Changes to the Bases are controlled by the Technical Specification Bases Control Program in Chapter 5. This program provides for the evaluation of changes to ensure the Bases are properly controlled. This change is designated as a less restrictive removal of detail change because information relating to system design is being removed from the Technical Specifications.

LA05 *(Type 1 – Removing Details of System Design and System Description, Including Design Limits)* Note (b) to CTS Table TS 4.1-1 Channel Description 3 (Nuclear Source Range) in the Remarks Section states that the CHANNEL FUNCTIONAL TEST contains the bistable action (alarms and trips). ITS 3.3.1 does not contain these requirements. This changes the CTS by moving these details to the Bases.

The removal of these details, which relate to system design, from the Technical Specifications is acceptable because this type of information is not necessary to be included in the Technical Specifications to provide adequate protection of public health and safety. The ITS still maintains the requirement to perform a TADOT/COT of the Nuclear Source Range instrumentation. In addition, this change is acceptable because the removed information will be adequately controlled in the ITS Bases. Changes to the Bases are controlled by the Technical Specification Bases Control Program in Chapter 5. This program provides for the evaluation of changes to ensure the Bases are properly controlled. This change is designated as a less restrictive removal of detail change because information relating to system design is being removed from the Technical Specifications.

Licensee Response/NRC Response/NRC Question Closure

Id	**671**
NRC Question Number	**KAB-013**
Select Application	**NRC Question Closure**
Response Date/Time	
Closure Statement	**This question is closed and no further information is required at this time to draft the Safety Evaluation. Discussion of changes A13 will be evaluated and any questions will be posted under A13.**
Response Statement	
Question Closure Date	**11/9/2009**
Attachment 1	
Attachment 2	
Notification	**NRC/LICENSEE Supervision**
Added By	**Kristy Bucholtz**
Date Added	**11/9/2009 8:53 AM**
Modified By	
Date Modified	

ITS NRC Questions

Id	**821**
NRC Question Number	**KAB-014**
Category	**Editorial**
ITS Section	**3.3**
ITS Number	**3.3.2**
DOC Number	**M-3**
JFD Number	
JFD Bases Number	
Page Number (s)	**174**
NRC Reviewer Supervisor	**Carl Schulten**
Technical Branch POC	**Add Name**
Conf Call Requested	**N**
NRC Question	**On page 174 of Attachment 1, volume 8, discussion of change M03 indicates that the Containment Pressure-High function initiates steam line isolation. However, TS Table 3.3.2-1 (function 4.c) indicates Containment Pressure – High High initiates steam line isolation. Please revise M03 to correct the apparent discrepancy.**
Attach File 1	
Attach File 2	
Issue Date	**10/23/2009**
Added By	**Kristy Bucholtz**
Date Modified	
Modified By	
Date Added	**10/23/2009 3:20 PM**
Notification	**NRC/LICENSEE Supervision**

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Licensee Response/NRC Response/NRC Question Closure

Id	**421**
NRC Question Number	**KAB-014**
Select Application	**Licensee Response**
Response Date/Time	**10/28/2009 9:50 AM**
Closure Statement	
Response Statement	**After further review, Kewaunee Power Station (KPS) has determined that the statement in Attachment 1, Volume 8, Page 174 of 517 Discussion of Change (DOC) M03 should state that ITS Table 3.3.2-1 Function 4.c is the Containment Pressure – High High Function. A draft markup regarding this change is attached. This change will be reflected in the supplement to this section of the ITS conversion amendment.**
Question Closure Date	
Attachment 1	**KAB-014 Markup.pdf** (810KB)
Attachment 2	
Notification	**NRC/LICENSEE Supervision** **Kristy Bucholtz** **Victor Cusumano** **Robert Hanley** **Jerry Jones** **Bryan Kays** **David Mielke** **Vic Myers** **Gerald Riste** **Ray Schiele**
Added By	**Robert Hanley**
Date Added	**10/28/2009 9:49 AM**
Modified By	
Date Modified	

Enclosure (2 of 8), Q&A to Attachment 1, Volume 8 (Section 3.3) Page 29 of 87

DISCUSSION OF CHANGES
ITS 3.3.2, ENGINEERED SAFETY FEATURE ACTUATION SYSTEM (ESFAS) INSTRUMENTATION

Level-Low Low channels per steam generator to be OPERABLE. ITS Table 3.3.2-1 Function 4.c requires three Steam Line Isolation – Containment Pressure-High channels to be OPERABLE. ITS Table 3.3.2-1 Function 4.d requires two channels per steam line of the Steam Line Isolation – High Steam Flow and two channels per loop of the Steam Line Isolation - Tavg Low-Low to be OPERABLE. ITS Table 3.3.2-1 Function 4.e requires two channels per steam line of the Steam Line Isolation – High High Steam Flow to be OPERABLE. ITS Table 3.3.2-1 Function 5.b requires three channels per steam generator of the Feedwater Isolation – Steam Generator Water Level-High High to be OPERABLE. ITS 3.3.2 ACTION D provides compensatory actions to take with one Safety Injection – Containment Pressure-High channel inoperable, one Safety Injection – Pressurizer Pressure-Low channel inoperable, one Safety Injection – Steam Line Pressure-Low channel inoperable, one Steam Generator Water Level – Low Low channel per steam generator inoperable, one Steam Line Isolation – Containment Pressure-High High channel inoperable, one Steam Line Isolation – High Steam Flow channel per steam line and one channel per loop of the Steam Line Isolation - Tavg Low-Low inoperable, one Steam Line Isolation – High High Steam Flow channel inoperable, or one Feedwater Isolation – Steam Generator Water Level-High High channel per steam generator inoperable and requires placing the channel in trip in 72 hours or to be in MODE 3 within 78 hours and be in MODE 4 within 84 hours. Additionally, a Note has been added to ACTION D which states that the inoperable channel may be bypassed for up to 12 hours for surveillance testing of other channels. This changes the CTS by requiring additional channels for Safety Injection – Containment Pressure - High, Safety Injection – Low Steam Line Pressure/Line, Safety Injection – Pressurizer Low Pressure, Auxiliary Feedwater – Steam Generator Water Level-Low Low, Steam Line Isolation – Containment Pressure-High, Steam Line Isolation – High Steam Flow and Tavg Low-Low, Steam Line Isolation – High High Steam Flow, and Feedwater Isolation – Steam Generator Water Level-High High to be OPERABLE and by adding a specific ACTION to take when one less than the required channels is inoperable. See DOC L08 for discussion on the ACTION Note.

The purpose of the new ITS channel requirements and proposed ACTION is to ensure that appropriate compensatory actions are taken if any of the installed Safety Injection – High Containment Pressure channels, Safety Injection – Low Steam Line Pressure/Line channels, Safety Injection – Pressurizer Low Pressure channels, Steam Line Isolation – Containment Pressure High High, Steam Line Isolation – High Steam Flow, Steam Line Isolation – Tavg Low Low, Steam Line Isolation – High High Steam Flow, Feedwater Isolation – SG Water Level High High, and Auxiliary Feedwater – Steam Generator Water Level-Low Low channels are inoperable. This change is acceptable because the new channel requirements in ITS Table 3.3.2-1 will ensure that all of the installed ESFAS channels are required OPERABLE. This change is also acceptable because the new Required Actions and Completion Times are used to establish remedial measures that must be taken in response to the degraded conditions in order to minimize risk associated with continued operation while providing time to repair inoperable features. This change is designated as more restrictive because more stringent LCO requirements and associated Required Actions and Completion Times are being applied in the ITS than were applied in the CTS.

Licensee Response/NRC Response/NRC Question Closure

Id	**971**
NRC Question Number	**KAB-014**
Select Application	**NRC Question Closure**
Response Date/Time	
Closure Statement	**This question is closed and no further information is required at this time to draft the Safety Evaluation.**
Response Statement	
Question Closure Date	**12/1/2009**
Attachment 1	
Attachment 2	
Notification	**NRC/LICENSEE Supervision**
Added By	**Kristy Bucholtz**
Date Added	**12/1/2009 8:55 AM**
Modified By	
Date Modified	

Enclosure (2 of 8), Q&A to Attachment 1, Volume 8 (Section 3.3) Page 31 of 87

ITS NRC Questions

Id	**831**
NRC Question Number	**KAB-015**
Category	**Editorial**
ITS Section	**3.3**
ITS Number	**3.3.2**
DOC Number	**M-14**
JFD Number	
JFD Bases Number	
Page Number (s)	**182**
NRC Reviewer Supervisor	**Carl Schulten**
Technical Branch POC	**Add Name**
Conf Call Requested	**N**
NRC Question	**On page 182 of Attachment 1, volume 8, discussion of change M14 identifies that ITS SR 3.3.2.5 contains a note that allows testing to exclude verification of relay setpoints. However, the ITS note only allows exclusion of setpoint verification during testing of manual initiation functions. Please revise DOC M14 as appropriate.**
Attach File 1	
Attach File 2	
Issue Date	**10/23/2009**
Added By	**Kristy Bucholtz**
Date Modified	
Modified By	
Date Added	**10/23/2009 3:22 PM**
Notification	**NRC/LICENSEE Supervision**

Licensee Response/NRC Response/NRC Question Closure

Id	**431**
NRC Question Number	**KAB-015**
Select Application	**Licensee Response**
Response Date/Time	**10/28/2009 9:55 AM**
Closure Statement	
Response Statement	**After further review, Kewaunee Power Station (KPS) has determined that in Attachment 1, Volume 8, Page 182 of 517 Discussion of Change (DOC) M14 should have stated that ITS SR 3.3.2.3 contains a Note that states verification of relay setpoint is not required, not SR 3.3.2.5. This was determined by the fact that the DOC is justifying the addition of Surveillances for ITS Table 3.3.2-1 Function 6.d, SR 3.3.2.3 and SR 3.3.2.6, and SR 3.3.2.3 contains a Note which states "Verification of relay setpoint is not required." A draft markup regarding this change is attached. This change will be reflected in the supplement to this section of the ITS conversion amendment.**
Question Closure Date	
Attachment 1	**KAB-015 Markup.pdf** (809KB)
Attachment 2	
Notification	**NRC/LICENSEE Supervision** **Kristy Bucholtz** **Victor Cusumano** **Robert Hanley** **Jerry Jones** **Bryan Kays** **David Mielke** **Vic Myers** **Gerald Riste** **Ray Schiele**
Added By	**Robert Hanley**
Date Added	**10/28/2009 9:51 AM**
Modified By	
Date Modified	

DISCUSSION OF CHANGES
ITS 3.3.2, ENGINEERED SAFETY FEATURE ACTUATION SYSTEM (ESFAS) INSTRUMENTATION

M14 CTS Table TS 4.1-1 does not provide Surveillance Requirements for testing the Auxiliary Feedwater – Undervoltage Reactor Coolant Pump Functions. ITS Table 3.3.2-1 Function 6.d (Auxiliary Feedwater – Undervoltage Reactor Coolant Pump) requires the performance of a TRIP ACTUATING DEVICE OPERATIONAL TEST (TADOT) (SR 3.3.2.3) every 92 days and the performance of a CHANNEL CALIBRATION (SR 3.3.2.6) every 18 months. ITS SR ~~3.3.2.5~~ 3.3.2.3 contains a Note that states verification of relay setpoints is not required. This changes the CTS by adding new Surveillance Requirements.

This change is acceptable because the added Surveillance Requirements provide a means for verification that the ESFAS cooling functions will perform as expected. This change is designated as more restrictive because new Surveillance Requirements are added to the ITS that are not required by the CTS.

M15 ITS Table 3.3.2-1 requires the performance of a CHANNEL CHECK every 12 hours (SR 3.3.2.1), a CHANNEL OPERATIONAL TEST (COT) every 184 days (SR 3.3.2.4), and a CHANNEL CALIBRATION every 18 months (SR 3.3.2.6) for Functions 4.d (Steam Line Isolation – High Steam Flow Coincident with Safety Injection and Coincident with T_{avg}-Low Low) and 4.e (Steam Line Isolation – High High Steam Flow Coincident with Safety Injection). CTS Table TS 4.1-1 does not contain these Surveillance Requirements. This changes the CTS by adding new Surveillance Requirements.

This change is acceptable because the added Surveillance Requirements provide a means for verification that the ESFAS instrumentation will perform as expected. The Frequencies for the proposed tests are consistent with Frequencies for similar instruments; therefore the proposed Frequencies are acceptable. This change is designated as more restrictive because new Surveillance Requirements are added to the ITS that are not required by the CTS.

M16 ITS LCO 3.3.2 requires the ESFAS Instrumentation to be OPERABLE. ITS Table 3.3.2-1, Function 8 (ESFAS Interlock – Reactor Trip (P-4)) requires one channel per train to be OPERABLE in MODES 1, 2, and 3. ITS ACTION F has been added to cover the Condition of when one channel or train is inoperable for Function 8. ITS Required Action F.1 allows 48 hours to restore the required channel or train to OPERABLE status. If this cannot be met, then ITS Required Action F.2.1 requires the unit be in MODE 3 within 54 hours and Required Action F.2.2 requires the unit be in MODE 4 within 60 hours. A Note has been added to the ACTIONS to allow separate Condition entry for each Function. Separate Condition entry is also allowed within a Function for the ESFAS Interlock – Reactor Trip (P-4) on a per train basis. In addition, a TADOT (SR 3.3.2.7) once every reactor trip breaker cycle is added. The TADOT (SR 3.3.2.7) contains a Note that states verification of setpoint is not required. The CTS does not require OPERABLE channels for this Function. This changes the CTS by adding new Functions and applicable ACTIONS and SRs.

Licensee Response/NRC Response/NRC Question Closure

Id	**991**
NRC Question Number	**KAB-015**
Select Application	**NRC Question Closure**
Response Date/Time	
Closure Statement	**This question is closed and no further information is required at this time to draft the Safety Evaluation.**
Response Statement	
Question Closure Date	**12/1/2009**
Attachment 1	
Attachment 2	
Notification	**NRC/LICENSEE Supervision**
Added By	**Kristy Bucholtz**
Date Added	**12/1/2009 2:56 PM**
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Date Modified	

Enclosure (2 of 8), Q&A to Attachment 1, Volume 8 (Section 3.3) Page 35 of 87

ITS NRC Questions

Id	**841**
NRC Question Number	**KAB-016**
Category	**Editorial**
ITS Section	**3.3**
ITS Number	**3.3.2**
DOC Number	**L-4**
JFD Number	
JFD Bases Number	
Page Number (s)	**190**
NRC Reviewer Supervisor	**Carl Schulten**
Technical Branch POC	**Add Name**
Conf Call Requested	**N**
NRC Question	**On page 190 of Attachment 1, volume 8, discussion of changes L04 specifies that functional unit 4.d on CTS Table 3.5-3 is the motor-driven auxiliary feedwater pumps 4kv buses, whereas, discussion of footnote 5 in DOC L04 refers to functional unit 4.d as CTS Table 3.5-2. Please revise DOC L04 as appropriate.**
Attach File 1	
Attach File 2	
Issue Date	**10/23/2009**
Added By	**Kristy Bucholtz**
Date Modified	
Modified By	
Date Added	**10/23/2009 3:24 PM**
Notification	**NRC/LICENSEE Supervision**

Licensee Response/NRC Response/NRC Question Closure

Id	**441**
NRC Question Number	**KAB-016**
Select Application	**Licensee Response**
Response Date/Time	**10/28/2009 9:55 AM**
Closure Statement	
Response Statement	**After further review, Kewaunee Power Station (KPS) has determined that in Attachment 1, Volume 8, Page 190 of 517 Discussion of Change (DOC) L04 should have stated that CTS Table TS 3.5-3 contains the references to footnote (5) and (6), not CTS Table TS 3.5-2. A draft markup regarding this change is attached. This change will be reflected in the supplement to this section of the ITS conversion amendment.**
Question Closure Date	
Attachment 1	**KAB-016 Markup.pdf** (832KB)
Attachment 2	
Notification	**NRC/LICENSEE Supervision** **Kristy Bucholtz** **Victor Cusumano** **Robert Hanley** **Jerry Jones** **Bryan Kays** **David Mielke** **Vic Myers** **Gerald Riste** **Ray Schiele**
Added By	**Robert Hanley**
Date Added	**10/28/2009 9:54 AM**
Modified By	
Date Modified	

DISCUSSION OF CHANGES
ITS 3.3.2, ENGINEERED SAFETY FEATURE ACTUATION SYSTEM (ESFAS) INSTRUMENTATION

1.b, 2.b, and 3.b (Automatic Actuation Logic and Actuation Relays for Safety Injection, Containment Spray, and Containment Isolation, respectively) require two trains of the Automatic Actuation Logic and Actuation Relays to be OPERABLE in MODES 1, 2, 3, 4 (as discussed in DOC A13). ITS 3.3.2 ACTION C provides the compensatory actions to take when one train of the Automatic Actuation Logic and Actuation Relays for Functions 1.b, 2.b, or 3.b is inoperable, and requires the restoration of the train to OPERABLE status within 24 hours or to be in MODE 3 within 30 hours and be in MODE 5 within 60 hours. Additionally, ACTION C contains a Note which allows the inoperable train to be bypassed for up to 4 hours for surveillance testing provided the other train is OPERABLE. ITS Table 3.3.2-1 Functions 4.b, 5.a, and 6.a (Automatic Actuation Logic and Actuation Relays for Steam Line Isolation, Feedwater Isolation, and Auxiliary Feedwater, respectively) require two trains of the Automatic Actuation Logic and Actuation Relays to be OPERABLE. The trains are required in MODE 1 and MODES 2 and 3 except when all MSIVs are closed and deactivated for Function 4.b, in MODE 1 and MODES 2 and 3 except when all MFIVs, MFRVs, and associated bypass valves are closed and de-activated or isolated by a closed manual valve for Function 5.a, and in MODES 1, 2, and 3 for Function 6.a (as discussed in DOC A13). ITS 3.3.2 ACTION G provides the compensatory actions to take when one train of the Automatic Actuation Logic and Actuation Relays for Functions 4.b, 5.a, or 6.a is inoperable, and requires the restoration of the train to OPERABLE status within 24 hours or to be in MODE 3 within 30 hours and be in MODE 4 within 36 hours. Additionally, ACTION G contains a Note which allows the one train to be bypassed for up to 4 hours for surveillance testing provided the other train is OPERABLE. This changes the CTS by adding specific ACTIONS to take when one train of the Protective System Logic is inoperable. See DOC A13 for Discussion of the Applicability and required trains.

The purpose of the proposed ACTION is to allow some time to restore the inoperable train prior to requiring a unit shutdown. These changes are acceptable and are the result of WCAP-10271, Revision 0 ("Evaluation of Surveillance Frequencies and Out of Service Times for the Reactor Protection Instrumentation System"), dated May 1996, and supplements, WCAP-14333, Revision 1 ("Probabilistic Risk Analysis of the RPS and ESFAS Test Times and Completion Times"), dated October 1998, or WCAP-15376, Revision 1 ("Risk-Informed Assessment of the RTS and ESFAS Surveillance Test Intervals and Reactor Trip Breaker Test and Completion Times"), dated March 2003 (or a combination of the WCAPs). Dominion Energy Kewaunee has performed evaluations of the applicable changes associated with the three WCAPs to justify the above changes. The evaluations supporting these changes are provided in Attachment 2 of this submittal. This change is designated as less restrictive because less stringent Required Actions are being applied in the ITS than were applied in the CTS.

L04 *(Category 1 – Relaxation of LCO Requirements)* CTS Table TS 3.5-3 Functional Unit 4.d, Motor-Driven Auxiliary Feedwater (AFW) Pumps 4KV Buses 1-5 and 1-6 undervoltage, requires 1 channel per bus to be OPERABLE. If one of the required channels is inoperable, the unit is required to maintain HOT SHUTDOWN or operate diesel generators. CTS Table TS ~~3.5-2~~ 3.5-3 Functional Unit

4.d also contains references to footnote (5), which states "Each channel consists of one instantaneous and one time-delay relay connected in series," and footnote (6) which states "When one component of a channel is taken out of service, that component shall be in the tripped condition." ITS 3.3.2 does not include this Function for the Motor-Driven AFW pumps. This changes the CTS by deleting the Motor-Driven Auxiliary Feedwater (AFW) Pumps 4KV Buses 1-5 and 1-6 undervoltage channel requirements and associated footnotes.

The purpose of the Motor-Driven Auxiliary Feedwater (AFW) Pumps 4KV Buses 1-5 and 1-6 undervoltage channels is to inhibit the start of the motor-driven AFW pumps (i.e., closure of the AFW pump motor breaker) until bus 1-5 or 1-6 is energized. When a loss of power to bus 1-5 or 1-6 occurs, the channels open the offsite power supply breakers and send a start signal to the associated DG. These requirements are covered by ITS 3.3.5. The channels also inhibit the start of the motor-driven AFW pumps until power is restored to the associated bus (i.e., from the DG), even if a start signal to the AFW pumps exists. However, the motor-driven AFW pumps are loaded onto the DGs as soon as power is available – they are in the first load block at time zero of the blackout sequence (i.e., the loss of offsite power sequence). If the inhibit fails to function and the motor-driven AFW pump breaker closes when no power is available, when the DG breaker closes and power is restored, the AFW pumps would immediately start on the DG just like they would if the inhibit was functioning properly. Also, ITS 3.8.1 includes a test to verify the load intervals are correct, and it includes both loss of offsite power intervals and safety injection intervals. ITS 3.8.1 also includes a LOOP/ECCS test, which includes verifying loads are sequenced onto the DGs properly. Thus, this test would also detect the motor-driven AFW pumps breakers closing too soon. Therefore, the DG is not negatively impacted by the failure of this inhibit. Furthermore, this signal does not send a start signal to the motor-driven AFW pumps. The only start signals for these pumps comes from a Steam Generator Water Level Low-Low signal (ITS Table 3.3.2-1 Function 6.b), a Safety Injection signal (ITS Table 3.3.2-1 Function 6.c), and a Trip of Both Main Feedwater Pumps signal (ITS Table 3.3.2-1 Function 6.e). Therefore, the deletion of the Motor-Driven Auxiliary Feedwater (AFW) Pumps 4KV Buses 1-5 and 1-6 undervoltage channel requirements is acceptable. This change is designated as less restrictive because less stringent LCO requirements are being applied in the ITS than were applied in the CTS.

L05 *(Category 2 – Relaxation of Applicability)* Column 6 of CTS Table TS 3.5-3 specifies the "OPERATOR ACTION IF CONDITIONS OF COLUMN 3 OR 4 CANNOT BE MET." Column 6 requires placing the unit in HOT SHUTDOWN (equivalent to ITS MODE 3) for Functional Units 1.c and 1.d of Table TS 3.5-3. The HOT SHUTDOWN requirement in Column 6 contains a footnote, footnote (1) for Functional Units 1.c and 1.d of Table TS 3.5-3, which states if minimum conditions are not met within 24 hours (i.e., restoration of at least the minimum number of OPERABLE channels required in Column 3), steps shall be taken to place the plant in a COLD SHUTDOWN (equivalent to ITS MODE 5) condition. Based on the footnote 1 requirements to place the unit in COLD SHUTDOWN, the Mode of Applicability would be OPERATING (equivalent to ITS MODE 1), HOT STANDBY (equivalent to ITS MODE 2), HOT SHUTDOWN (equivalent to ITS MODE 3), and INTERMEDIATE SHUTDOWN (equivalent to ITS MODE 4).

Licensee Response/NRC Response/NRC Question Closure

Id	**1091**
NRC Question Number	**KAB-016**
Select Application	**NRC Question Closure**
Response Date/Time	
Closure Statement	**This question is closed and no further information is required at this time to draft the Safety Evaluation.**
Response Statement	
Question Closure Date	**12/2/2009**
Attachment 1	
Attachment 2	
Notification	**NRC/LICENSEE Supervision**
Added By	**Kristy Bucholtz**
Date Added	**12/2/2009 10:18 AM**
Modified By	
Date Modified	

ITS NRC Questions

Id	**851**
NRC Question Number	**KAB-017**
Category	**Editorial**
ITS Section	**3.3**
ITS Number	**3.3.2**
DOC Number	**L-5**
JFD Number	
JFD Bases Number	
Page Number (s)	**192**
NRC Reviewer Supervisor	**Carl Schulten**
Technical Branch POC	**Add Name**
Conf Call Requested	**N**
NRC Question	**On page 192 of Attachment 1, volume 8, the discussion of changes L05 indicates the time to exit the Mode of Applicability is addressed in M19. However, the more restrictive changes being made to ITS 3.3.2 does not have a M19. Please provide an explanation of this discrepancy.**
Attach File 1	
Attach File 2	
Issue Date	**10/23/2009**
Added By	**Kristy Bucholtz**
Date Modified	
Modified By	
Date Added	**10/23/2009 3:26 PM**
Notification	**NRC/LICENSEE Supervision**

Licensee Response/NRC Response/NRC Question Closure

Id	**451**
NRC Question Number	**KAB-017**
Select Application	**Licensee Response**
Response Date/Time	**10/28/2009 10:00 AM**
Closure Statement	
Response Statement	**After further review, Kewaunee Power Station (KPS) has determined that in Attachment 1, Volume 8, Page 192 of 517 Discussion of Change (DOC) L05 should have stated that the time to exit the Mode of Applicability is addressed in DOC M17. A draft markup regarding this change is attached. This change will be reflected in the supplement to this section of the ITS conversion amendment.**
Question Closure Date	
Attachment 1	**KAB-017 Markup.pdf** (835KB)
Attachment 2	
Notification	**NRC/LICENSEE Supervision** **Kristy Bucholtz** **Victor Cusumano** **Robert Hanley** **Jerry Jones** **Bryan Kays** **David Mielke** **Vic Myers** **Ray Schiele**
Added By	**Robert Hanley**
Date Added	**10/28/2009 9:56 AM**
Modified By	
Date Modified	

Enclosure (2 of 8), Q&A to Attachment 1, Volume 8 (Section 3.3) Page 42 of 87

DISCUSSION OF CHANGES
ITS 3.3.2, ENGINEERED SAFETY FEATURE ACTUATION SYSTEM (ESFAS) INSTRUMENTATION

ITS LCO 3.3.2 requires the ESFAS instrumentation to be OPERABLE. ITS Table 3.3.2-1 Mode of Applicability for Functions 1.d and 1.e is MODES 1 and 2, and MODE 3 with pressurizer pressure ≥ 2000 psig. Commensurate with the change in the Mode of Applicability for these same Functions, there is also a change in the Mode of Applicability to remove the unit from the LCO. CTS requires the unit be placed in HOT SHUTDOWN (equivalent to ITS MODE 3) in the event that the minimum number of OPERABLE channels is less than that required and if minimum conditions are not met within 24 hours, steps shall be taken to place the unit in COLD SHUTDOWN (equivalent to ITS MODE 5). ITS LCO 3.3.2 requires the unit be placed in MODE 4 to exit the LCO since Functions 1.d and 1.e are required in MODES 1 and 2, and MODE 3 with pressurizer pressure ≥ 2000 psig. This changes the CTS Mode of Applicability from MODES 1, 2, 3, and 4 to MODES 1 and 2, and MODE 3 with pressurizer pressure ≥ 2000 psig and changes the Mode required to exit the LCO from MODE 5 to MODE 4. Discussion of Change ~~M19~~ addresses the change in the time to exit the Mode of Applicability. M17

This change is acceptable since in MODES 1 and 2, and MODE 3 with pressurizer pressure ≥ 2000 psig there is sufficient energy in the primary and secondary systems of the plant such that the cooling and isolation Functions of the ESFAS instrumentation are required to be OPERABLE in order to satisfy the assumptions in the accident analyses. In MODES 4, 5, and 6, there is insufficient energy in the Reactor Coolant System or steam generators to experience a steam line break or other accident releasing significant quantities of energy. This change is designated as less restrictive because the LCO is applicable in less Modes in the ITS than in the CTS.

L06 *(Category 2 – Relaxation of Applicability)* Column 6 of CTS Table TS 3.5-4 specifies the "OPERATOR ACTION IF CONDITIONS OF COLUMN 3 OR 4 CANNOT BE MET." Column 6 requires placing the unit in HOT SHUTDOWN (equivalent to ITS MODE 3) for Functional Units 2.a, 2.b, and 2.c of Table TS 3.5-4. The HOT SHUTDOWN requirement in Column 6 contains a footnote, footnote (1) for Functional Units 2.a, 2.b, and 2.c of Table TS 3.5-4, which states if minimum conditions are not met within 24 hours (i.e., restoration of at least the minimum number of OPERABLE channels required in Column 3), steps shall be taken to place the plant in a COLD SHUTDOWN (equivalent to ITS MODE 5) condition. Based on the footnote 1 requirements to place the unit in COLD SHUTDOWN, the Mode of Applicability would be OPERATING (equivalent to ITS MODE 1), HOT STANDBY (equivalent to ITS MODE 2), HOT SHUTDOWN (equivalent to ITS MODE 3), and INTERMEDIATE SHUTDOWN (equivalent to ITS MODE 4). ITS LCO 3.3.2 requires the ESFAS instrumentation to be OPERABLE. ITS Table 3.3.2-1 Mode of Applicability for Functions 4.c, 4.d, and 4.e is MODE 1 and MODES 2 and 3 except when all MSIVs are closed and deactivated. Commensurate with the change in the Mode of Applicability for these same Functions, there is also a change in the Mode of Applicability to remove the unit from the LCO. CTS requires the unit be placed in HOT SHUTDOWN (equivalent to ITS MODE 3) in the event that the minimum number of OPERABLE channels is less than that required and if minimum conditions are not met within 24 hours, steps shall be taken to place the unit in COLD SHUTDOWN (equivalent to ITS MODE 5). ITS LCO 3.3.2 requires the unit be

Licensee Response/NRC Response/NRC Question Closure

Id	**1101**
NRC Question Number	**KAB-017**
Select Application	**NRC Question Closure**
Response Date/Time	
Closure Statement	**This question is closed and no further information is required at this time to draft the Safety Evaluation.**
Response Statement	
Question Closure Date	**12/2/2009**
Attachment 1	
Attachment 2	
Notification	**NRC/LICENSEE Supervision**
Added By	**Kristy Bucholtz**
Date Added	**12/2/2009 11:06 AM**
Modified By	
Date Modified	

ITS NRC Questions

Id	**861**
NRC Question Number	**KAB-018**
Category	**Editorial**
ITS Section	**3.3**
ITS Number	**3.3.2**
DOC Number	**L-6**
JFD Number	
JFD Bases Number	
Page Number (s)	**193**
NRC Reviewer Supervisor	**Carl Schulten**
Technical Branch POC	**Add Name**
Conf Call Requested	**N**
NRC Question	**On page 193 of Attachment 1, volume 8, the discussion of changes L06 indicates the time to exit the Mode of Applicability is addressed in M20. However, the more restrictive changes being made to ITS 3.3.2 does not have a M20. Please provide an explanation of this discrepancy.**
Attach File 1	
Attach File 2	
Issue Date	**10/23/2009**
Added By	**Kristy Bucholtz**
Date Modified	
Modified By	
Date Added	**10/23/2009 3:27 PM**
Notification	**NRC/LICENSEE Supervision**

Licensee Response/NRC Response/NRC Question Closure

Id	**461**
NRC Question Number	**KAB-018**
Select Application	**Licensee Response**
Response Date/Time	**10/28/2009 10:00 AM**
Closure Statement	
Response Statement	**After further review, Kewaunee Power Station (KPS) has determined that in Attachment 1, Volume 8, Page 193 of 517 Discussion of Change (DOC) L06 should have stated that the time to exit the Mode of Applicability is addressed in DOC M06. A draft markup regarding this change is attached. This change will be reflected in the supplement to this section of the ITS conversion amendment.**
Question Closure Date	
Attachment 1	**KAB-018 Markup.pdf** (827KB)
Attachment 2	
Notification	**NRC/LICENSEE Supervision** **Kristy Bucholtz** **Victor Cusumano** **Robert Hanley** **Jerry Jones** **David Mielke** **Vic Myers** **Gerald Riste** **Ray Schiele**
Added By	**Robert Hanley**
Date Added	**10/28/2009 9:59 AM**
Modified By	
Date Modified	

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placed in MODE 4 to exit the LCO since Functions 4.c, 4.d, and 4.e are required in MODE 1 and MODES 2 and 3 except when all MSIVs are closed and deactivated. This changes the CTS Mode of Applicability from MODES 1, 2, 3, and 4 to MODE 1 and MODES 2 and 3 except when all MSIVs are closed and deactivated and changes the Mode required to exit the LCO from MODE 5 to MODE 4. Discussion of Change ~~M20~~ addresses the change in the time to exit the Mode of Applicability. M06

This change is acceptable since in MODE 1 and MODES 2 and 3 except when all MSIVs are closed and deactivated there is sufficient energy in the primary and secondary systems of the plant such that the cooling and isolation Functions of the ESFAS instrumentation are required to be OPERABLE in order to satisfy the assumptions in the accident analyses. In MODES 4, 5, and 6, there is insufficient energy in the Reactor Coolant System or steam generators to experience a steam line break or other accident releasing significant quantities of energy. This change is designated as less restrictive because the LCO is applicable in less Modes in the ITS than in the CTS.

L07 *(Category 4 – Relaxation of Required Action)* CTS Table TS 3.5-3 Column 6 requires the unit be placed in HOT SHUTDOWN for Functional Unit 3.a (Containment Spray – Manual) if the conditions of Column 3 of CTS Table TS 3.5-3 cannot be met (i.e., less than the minimum number of OPERABLE channels). CTS Table TS 3.5-3 Column 6 requires HOT SHUTDOWN be maintained for Functional Unit 4.b (Motor-Driven Auxiliary Feedwater Pumps – Loss of Main Feedwater) if the conditions of Column 3 of CTS Table TS 3.5-3 cannot be met (i.e., less than the minimum number of OPERABLE channels). CTS Table TS 3.5-4 Column 6 requires the unit be placed in HOT SHUTDOWN for Functional Unit 2.d (Steam Line Isolation – Manual) if the conditions of Column 3 of CTS Table TS 3.5-4 cannot be met (i.e., less than the minimum number of OPERABLE channels). ITS LCO 3.3.2 requires the ESFAS instrumentation in Table 3.3.2-1 to be OPERABLE. ITS Table 3.3.2-1 Function 2.a (Containment Spray – Manual Initiation) requires ACTION B be entered if one channel is inoperable. Proposed Required Action B.1 requires the inoperable channel or train be restored to OPERABLE status within 48 prior to requiring a unit shutdown. ITS Table 3.3.2-1 Function 6.e (Auxiliary Feedwater – Trip of both Main Feedwater Pumps) requires ACTION I be entered if one channel per pump is inoperable. Proposed Required Action I.1 requires the inoperable channel be restored to OPERABLE status within 48 hours prior to requiring a unit shutdown. ITS Table 3.3.2-1 Function 4.a (Steam Line Isolation – Manual Initiation) requires ACTION F be entered if one channel is inoperable. Proposed Required Action F.1 requires the inoperable channel or train be restored to OPERABLE status within 48 prior to requiring a unit shutdown. This changes the CTS by allowing 48 hours to restore the inoperable channel or train prior to requiring a unit shutdown.

The purpose of CTS Tables TS 3.5-3 and TS 3.5-4 Column 6 is to provide compensatory measures when the number of OPERABLE channels for each Function is less than the required minimum OPERABLE channels. This change is acceptable because the Required Actions are used to establish remedial measures that must be taken in response to the degraded conditions in order to

Licensee Response/NRC Response/NRC Question Closure

Id	**1111**
NRC Question Number	**KAB-018**
Select Application	**NRC Question Closure**
Response Date/Time	
Closure Statement	**This question is closed and no further information is required at this time to draft the Safety Evaluation.**
Response Statement	
Question Closure Date	**12/2/2009**
Attachment 1	
Attachment 2	
Notification	**NRC/LICENSEE Supervision**
Added By	**Kristy Bucholtz**
Date Added	**12/2/2009 11:23 AM**
Modified By	
Date Modified	

Enclosure (2 of 8), Q&A to Attachment 1, Volume 8 (Section 3.3) Page 48 of 87

ITS NRC Questions

Id	**871**
NRC Question Number	**KAB-019**
Category	**Technical**
ITS Section	**3.3**
ITS Number	**3.3.2**
DOC Number	**A-7**
JFD Number	
JFD Bases Number	
Page Number(s)	**167**
NRC Reviewer Supervisor	**Carl Schulten**
Technical Branch POC	**Add Name**
Conf Call Requested	**N**
NRC Question	**On page 167 of Attachment 1, volume 8, the discussion of changes A07 indicates that Note (a) in CTS Table TS 4.1-1 will be deleted and will not be incorporated into a licensee controlled document or into the new ITS. The information in the Note states which instrumentation is utilized for the measurement of the containment pressure for the Steam line Isolation Function of the ESFAS Instrumentation Specification. Administrative (non-technical) changes are intended to incorporate human factors principles into the form and structure of the ITS so that plant operations personnel can use them more easily. The NRC staff does not consider this change to be administrative. Please provide an explanation of this deletion.**
Attach File 1	
Attach File 2	
Issue Date	**10/23/2009**
Added By	**Kristy Bucholtz**
Date Modified	
Modified By	
Date Added	**10/23/2009 3:28 PM**
Notification	**NRC/LICENSEE Supervision**

Licensee Response/NRC Response/NRC Question Closure

Id	**481**
NRC Question Number	**KAB-019**
Select Application	**Licensee Response**
Response Date/Time	**10/30/2009 10:40 AM**
Closure Statement	
Response Statement	**See attached.**
Question Closure Date	
Attachment 1	**KAB-019 Response.doc** (71KB)
Attachment 2	
Notification	**NRC/LICENSEE Supervision** **Kristy Bucholtz** **Victor Cusumano** **Robert Hanley** **Jerry Jones** **Bryan Kays** **Vic Myers** **Gerald Riste**
Added By	**Robert Hanley**
Date Added	**10/30/2009 10:37 AM**
Modified By	
Date Modified	

Enclosure (2 of 8), Q&A to Attachment 1, Volume 8 (Section 3.3) Page 50 of 87

KAB-019 Response

Kewaunee Staff has reviewed the background associated with this Note in the remarks section of Table TS 4.1-1, channel 18.b, "Containment Pressure (Steam Line Isolation). The note in the remarks column reads: "(a) Narrow Range containment pressure (-3.0, +3.0 psig excluded)."

This note was added to the proposed Kewaunee TS by letter dated February 25, 1971, "Amendment No. 8 (Technical Specifications) to the Application for Construction Permit and Operating License for the Kewaunee Nuclear Power Plant AEC Docket 50-305." When this note was proposed to be included in the Kewaunee TS only two items were included in Table TS 4.1-1 item 18, item 18A, Containment Pressure, and an item 18B, Containment Pressure. Although titled the same these items had the same calibration frequency but different check and Test frequencies. This note was associated with item 18B and presumed to separate which of these surveillance test frequencies applied to which instruments. For these channels, Kewaunee has two ranges of instruments; a 0-30 psig range and a 0–60 psig range. Thus, this note is to state that the test frequencies for item 18B would apply to the 0-30 containment pressure instruments. Table 1 shows the Kewaunee containment pressure channels, their ranges, and the associated instruments that use these pressure channels.

Kewaunee Containment Pressure Channels
Instrument Channels and Ranges Used
Table 1

Containment Pressure Instrument	Channel Range	Safety Injection Actuation	Steam Line Isolation	Containment Spray Actuation
945	0-30	●		●
947	0-30	●		●
949	0-30	●		●
946	0-60		●	●
948	0-60		●	●
950	0-60		●	●

Table TS 4.1-1, item 18 was changed in a letter dated February 5, 1973, "Amendment No. 26 to the Application for Construction Permit and Operating License for the Kewaunee Nuclear Power Plant AEC Docket 50-305." This submittal consisted of the final technical specifications as prepared by the applicant. This submittal changed item 18 from:

18A.	Containment Pressure	*D	R	B/W (1)	1) Isolation valve signal
18B.	Containment Pressure	S	R	M	Narrow range containment pressure (-3.0, +3.0 psig excluded)

to:

18A.	Containment Pressure (SIS signal)	S	R**	M (1)	1) Isolation valve signal
18B.	Containment Pressure (Steamline Isol)	S	R**	M	Narrow range containment pressure (-3.0, +3.0 psig excluded)
18C.	Containment Pressure (Cont. Spray Act)	S	R**	M	
18D.	Annulus Pressure (Vacuum Breaker)	N.A.	R**	R	

In this change the note associated with containment pressure was in horizontal-alignment with item 18B (Steamline Isol) and each instrument channel (18A, 18B, 18C, and 18D) was provided with their own surveillance frequencies. This specification has essentially stayed the same to the present except that grid lines were added to ensure proper alignment with the item.

DEK searched the correspondence submitted between amendment 8 and amendment 26 and did not find a reason for the change in the TS. It appears as the original reason for including the note in Kewaunee TS was eliminated by expanding the item description of “containment pressure in amendment 8 to listing the individual instrument channels in amendment 26, although the note was not eliminated.

Additionally, DEK reviewed the surveillance procedures that implemented the test and calibration of these instruments and found no indication of the use of the (-3.0, +3.0 psig excluded) exclusion.

Therefore, this note is being deleted and is considered administrative since it is cleaning up a note that no longer applies."

Licensee Response/NRC Response/NRC Question Closure

Id	**1251**
NRC Question Number	**KAB-019**
Select Application	**NRC Question Closure**
Response Date/Time	
Closure Statement	**This question is closed and no further information is required at this time to draft the Safety Evaluation.**
Response Statement	
Question Closure Date	**12/14/2009**
Attachment 1	
Attachment 2	
Notification	**NRC/LICENSEE Supervision**
Added By	**Kristy Bucholtz**
Date Added	**12/14/2009 10:58 AM**
Modified By	
Date Modified	

ITS NRC Questions

Id	**881**
NRC Question Number	**KAB-020**
Category	**Technical**
ITS Section	**3.3**
ITS Number	**3.3.2**
DOC Number	**M-7**
JFD Number	
JFD Bases Number	
Page Number(s)	**177**
NRC Reviewer Supervisor	**Carl Schulten**
Technical Branch POC	**Add Name**
Conf Call Requested	**N**
NRC Question	**On page 177 of Attachment 1, volume 8, the discussion of changes M07 indicates that less time is allowed to reach Mode 3 in ITS than in CTS. However, ITS 3.3.2 action D allows Mode 3 to be met within 78 hours for one inoperable SG water level low low instrument and Kewaunee's CTS allows 13 hours to reach hot shutdown when two or more SG low low level instruments are inoperable. Please provide a discussion of change that compares the CTS and ITS actions when one SG water level low low instrument is inoperable. Please provide a discussion of changes that compares CTS and ITS actions when two or more SG water level low low instruments are inoperable.**
Attach File 1	
Attach File 2	
Issue Date	**10/23/2009**
Added By	**Kristy Bucholtz**
Date Modified	
Modified By	
Date Added	**10/23/2009 3:29 PM**
Notification	**NRC/LICENSEE Supervision**

Licensee Response/NRC Response/NRC Question Closure

Id	**491**
NRC Question Number	**KAB-020**
Select Application	**Licensee Response**
Response Date/Time	**10/30/2009 10:40 AM**
Closure Statement	
Response Statement	**As requested, the following information is provided for when one Auxiliary Feedwater – SG Water Level – Low Low instruments is inoperable. In order to fully understand how the CTS is being changed for the CTS, multiple DOCs must be referenced. In the CTS, there are three Steam Generator Lo – Lo Level channels per steam generator loop, but only two are required to be OPERABLE per CTS Table TS 3.5-3 Functional Unit 4.a and Functional Unit 5.a (Page 154). Therefore, when one of the three Steam Generator Lo – Lo Level channel in a loop is inoperable, there is no action required in the CTS. In ITS Table 3.3.2-1 Function 6.b (Page 212), three Auxiliary Feedwater – SG Water Level – Low Low channels per steam generator loop are required to be OPERABLE. Therefore, the ITS requires more Auxiliary Feedwater – SG Water Level – Low Low channels per steam generator to be OPERABLE than are required in the CTS. For the change from requiring two Steam Generator Lo – Lo Level channels per steam generator loop to be OPERABLE in the CTS to requiring three Auxiliary Feedwater – SG Water Level – Low Low channels per steam generator to be OPERABLE in the ITS, see DOC M03. Commensurate with the change in number of required OPERABLE instruments, when one of the three Auxiliary Feedwater – SG Water Level – Low Low channels per steam generator is inoperable, the inoperable channel must be placed in trip within 72 hours. This change is discussed and justified in DOC M03.** **Additionally, in the ITS, if the inoperable Auxiliary Feedwater – SG Water Level – Low Low channel is not tripped within 72 hours, the unit must be placed in MODE 3 within 6 hours (72 hours for inoperable channel and 6 hours to reach MODE 3 for a total to 78 hours) and be in MODE 4 within the subsequent 6 hours (the previous 78 hours discussed above and an additional 6 hours, for a total of 84 hours). This change is also discussed and justified in DOC M03.** **Also, as requested, the following information is provided for when two Auxiliary Feedwater – SG Water Level – Low Low channels per steam generator are inoperable. In ITS, if two or more Auxiliary Feedwater – SG Water Level – Low Low channels per steam generator are inoperable, then LCO 3.0.3 would be entered. In the CTS, if two or more Steam Generator Lo – Lo Level instruments loops are inoperable, then the Column 6 requirement, to maintain HOT SHUTDOWN, would be entered. As**

described in DOC M07, since there are no times associated with maintaining HOT SHUTDOWN, KPS uses the times in CTS 3.0.c. The time to reach HOT SHUTDOWN in CTS 3.0.c is a total of 13 hours. Under similar conditions (two channels inoperable, LCO 3.0.3 allows 7 hours to reach MODE 3 (1 hour to commence actions and 6 hours to reach MODE 3) and 13 hours to reach MODE 4 (the 7 hours described above and an additional 6 hours). Since MODE 3 must now be attained in 7 hours in lieu of the current 13 hours, and continuation of the shutdown to MODE 4 is required, this portion of the change is also more restrictive.

Question Closure Date	
Attachment 1	
Attachment 2	
Notification	**NRC/LICENSEE Supervision** **Kristy Bucholtz** **Victor Cusumano** **Robert Hanley** **Jerry Jones** **Bryan Kays** **David Mielke** **Vic Myers** **Gerald Riste** **Ray Schiele**
Added By	**Robert Hanley**
Date Added	**10/30/2009 10:40 AM**
Modified By	
Date Modified	

Licensee Response/NRC Response/NRC Question Closure

Id	**981**
NRC Question Number	**KAB-020**
Select Application	**NRC Question Closure**
Response Date/Time	
Closure Statement	**This question is closed and no further information is required at this time to draft the Safety Evaluation.**
Response Statement	
Question Closure Date	**12/1/2009**
Attachment 1	
Attachment 2	
Notification	**NRC/LICENSEE Supervision**
Added By	**Kristy Bucholtz**
Date Added	**12/1/2009 9:37 AM**
Modified By	
Date Modified	

ITS NRC Questions

Id	**891**
NRC Question Number	**KAB-021**
Category	**Technical**
ITS Section	**3.3**
ITS Number	**3.3.2**
DOC Number	
JFD Number	**11**
JFD Bases Number	
Page Number (s)	**214**
NRC Reviewer Supervisor	**Carl Schulten**
Technical Branch POC	**Add Name**
Conf Call Requested	**N**
NRC Question	**On page 214 of Attachment 1, volume 8, Table 3.3.2-1 shows the deletion of 2 trains from function 8. Please provide more information on the operation of the P-4 interlock, including the number of relays per train and the number of trains.**
Attach File 1	
Attach File 2	
Issue Date	**10/26/2009**
Added By	**Kristy Bucholtz**
Date Modified	
Modified By	
Date Added	**10/26/2009 7:30 AM**
Notification	**NRC/LICENSEE Supervision**

Enclosure (2 of 8), Q&A to Attachment 1, Volume 8 (Section 3.3) Page 58 of 87

Licensee Response/NRC Response/NRC Question Closure

Id	**511**
NRC Question Number	**KAB-021**
Select Application	**Licensee Response**
Response Date/Time	**10/30/2009 3:50 PM**
Closure Statement	
Response Statement	**As stated on Kewaunee USAR page 7.2-45, the P-4 permissive interlock provides four functions on reactor trip (reactor trip breakers open):** **1. Actuates a turbine trip;** **2. Closes the main feedwater regulating valves coincident with a RCS low Tavg signal;** **3. Prevents opening of main feedwater regulating valves which were closed by SI or Steam Generator Water Level - High High signal; and** **4. Allows manual block of automatic re-actuation of SI.** **These four functions are listed in the ITS Bases description of the P-4 Interlock (Page 270). In addition, when the turbine trip signal is received, the steam dump is transferred from the load rejection controller to the unit trip controller. Thus, this function, while not received directly from the P-4, was maintained in the ITS Bases to be consistent with the ISTS Bases.** **The P-4 interlock has two trains, a train A circuit and a train B circuit. Either train A circuit or train B circuit will trip the turbine, close the main feedwater regulating valves, and prevent opening of the main feedwater regulating valves if they were closed on an SI or SG Water Level - High High signal, while the manual block of the automatic re-actuation of SI is train dependent. Each train works off a logic matrix of its train's reactor trip breaker and bypass breaker. The logic is made up when both the train's reactor trip breaker and bypass breaker are open (2/2), unless one of these breakers are racked out then it is a 1/1 matrix of the racked in breaker. When this logic is made up, one of the functions, turbine trip, receives a direct signal to trip, the other functions work through a relay that actuates contacts in the function's circuitry.** **Kewaunee deleted the "two trains" information from the ISTS Table 3.3.2-1 Function 8 to be consistent with a similar requirement in ISTS Table 3.3.1-1, Function 18.b (ITS Table 3.3.1-1 Function 16.b), which is an RTS Interlock Function (Page 69). For ISTS Table 3.3-1-1 Function 18.b, 1 per train is required, and while not stated in the Table, there are two trains. This is described in the ISTS Bases. This same type of information for the P-4 ESFAS Interlock is also described in the Background section of the ISTS Bases, since the ISTS Bases states that there are two ESFAS trains of logic**

and various ISTS Table 3.3.2-1 Functions require two trains of Automatic Actuation Logic and Relays. However, KPS noted that the specific description of the P-4 Function in the ISTS Bases does not state the channel requirement or the number of trains. Therefore, for clarity, the ISTS Bases for the P-4 Function will be modified to include this information. A draft markup regarding this change is attached. This change will be reflected in the supplement to this section of the ITS conversion amendment.

Question Closure Date	
Attachment 1	**KAB-021 Markup.pdf** (802KB)
Attachment 2	
Notification	**NRC/LICENSEE Supervision** **Kristy Bucholtz** **Victor Cusumano** **Robert Hanley** **Jerry Jones** **Bryan Kays** **David Mielke** **Vic Myers** **Gerald Riste** **Ray Schiele**
Added By	**Robert Hanley**
Date Added	**10/30/2009 2:52 PM**
Modified By	
Date Modified	

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

The P-4 interlock is a logic Function with train and not channel identification. Therefore, the LCO requires one channel per train (for each of the two ESFAS Automatic Actuation Logic and Relays train) of the Engineered Safety Feature Actuation System Interlocks - Reactor Trip, P-4 to be OPERABLE.

The RTB position switches that provide input to the P-4 interlock only function to energize or de-energize or open or close contacts. Therefore, this Function has no adjustable trip setpoint with which to associate a Trip Setpoint and Allowable Value. [NTSP] 10 1

This Function must be OPERABLE in MODES 1, 2, and 3 when the reactor may be critical or approaching criticality. This Function does not have to be OPERABLE in MODE 4, 5, or 6 because the main turbine, the MFW System, and the Steam Dump System are not in operation.

b. Engineered Safety Feature Actuation System Interlocks - Pressurizer Pressure, P-11

The P-11 interlock permits a normal unit cooldown and depressurization without actuation of SI or main steam line isolation. With two-out-of-three pressurizer pressure channels (discussed previously) less than the P-11 setpoint, the operator can manually block the Pressurizer Pressure - Low and Steam Line Pressure - Low SI signals and the Steam Line Pressure - Low steam line isolation signal (previously discussed). When the Steam Line Pressure - Low steam line isolation signal is manually blocked, a main steam isolation signal on Steam Line Pressure - Negative Rate - High is enabled. This provides protection for an SLB by closure of the MSIVs. With two-out-of-three pressurizer pressure channels above the P-11 setpoint, the Pressurizer Pressure - Low and Steam Line Pressure - Low SI signals and the Steam Line Pressure - Low steam line isolation signal are automatically enabled. The operator can also enable these trips by use of the respective manual reset buttons. When the Steam Line Pressure - Low steam line isolation signal is enabled, the main steam isolation on Steam Line Pressure - Negative Rate - High is disabled. The Trip Setpoint reflects only steady state instrument uncertainties. 5 10 [NTSP]

This Function must be OPERABLE in MODES 1, 2, and 3 to allow an orderly cooldown and depressurization of the unit without the actuation of SI or main steam isolation. This Function does not have to be OPERABLE in MODE 4, 5, or 6 because system pressure must already be below the P-11 setpoint for the requirements of the heatup and cooldown curves to be met.

Licensee Response/NRC Response/NRC Question Closure

Id	**4051**
NRC Question Number	**KAB-021**
Select Application	**Licensee Response**
Response Date/Time	**8/12/2010 4:25 AM**
Closure Statement	
Response Statement	**During the development of plant procedures for the P-4 Interlock TRIP ACTUATING DEVICE OPERATING TEST (ITS SR 3.3.2.7), KPS noted that the Surveillance Frequency of "Once each reactor trip breaker cycle" was not specifically defined in the ISTS Bases. Furthermore, the SR Frequency does not specify how soon after a reactor trip breaker cycle the SR has to be performed. In order to provide clarity, KPS has determined that the intent of the SR is to perform it prior to re-closing the associated reactor trip and reactor trip bypass breakers. Therefore, the SR Frequency will be modified to state it is required "Prior to closing the reactor trip breaker or reactor trip bypass breaker following each reactor trip breaker cycle." Also, as discussed in the previous response to KAB-021, the P-4 interlock receives input from both the reactor trip and reactor trip bypass breakers and does not provide a P-4 interlock signal unless both of these breakers are open. Therefore, the term reactor trip breaker cycle will be defined in the ITS Bases as when a reactor trip breaker and its associated reactor trip bypass breaker are opened. A draft markup regarding this change is attached and supersedes the previous markup attached to the last KPS response. This change will be reflected in the supplement to this section of the ITS conversion amendment.**
Question Closure Date	
Attachment 1	**KAB-021, Rev. 1 Markup.pdf** (1MB)
Attachment 2	
Notification	**NRC/LICENSEE Supervision** **Kristy Bucholtz** **Jerry Jones** **Bryan Kays** **Ray Schiele**
Added By	**Robert Hanley**
Date Added	**8/12/2010 4:26 PM**
Modified By	
Date Modified	

Enclosure (2 of 8), Q&A to Attachment 1, Volume 8 (Section 3.3) Page 62 of 87

DISCUSSION OF CHANGES
ITS 3.3.2, ENGINEERED SAFETY FEATURE ACTUATION SYSTEM (ESFAS) INSTRUMENTATION

M14 CTS Table TS 4.1-1 does not provide Surveillance Requirements for testing the Auxiliary Feedwater – Undervoltage Reactor Coolant Pump Functions. ITS Table 3.3.2-1 Function 6.d (Auxiliary Feedwater – Undervoltage Reactor Coolant Pump) requires the performance of a TRIP ACTUATING DEVICE OPERATIONAL TEST (TADOT) (SR 3.3.2.3) every 92 days and the performance of a CHANNEL CALIBRATION (SR 3.3.2.6) every 18 months. ITS SR 3.3.2.5 contains a Note that states verification of relay setpoints is not required. This changes the CTS by adding new Surveillance Requirements.

This change is acceptable because the added Surveillance Requirements provide a means for verification that the ESFAS cooling functions will perform as expected. This change is designated as more restrictive because new Surveillance Requirements are added to the ITS that are not required by the CTS.

M15 ITS Table 3.3.2-1 requires the performance of a CHANNEL CHECK every 12 hours (SR 3.3.2.1), a CHANNEL OPERATIONAL TEST (COT) every 184 days (SR 3.3.2.4), and a CHANNEL CALIBRATION every 18 months (SR 3.3.2.6) for Functions 4.d (Steam Line Isolation – High Steam Flow Coincident with Safety Injection and Coincident with T_{avg}-Low Low) and 4.e (Steam Line Isolation – High High Steam Flow Coincident with Safety Injection). CTS Table TS 4.1-1 does not contain these Surveillance Requirements. This changes the CTS by adding new Surveillance Requirements.

This change is acceptable because the added Surveillance Requirements provide a means for verification that the ESFAS instrumentation will perform as expected. The Frequencies for the proposed tests are consistent with Frequencies for similar instruments; therefore the proposed Frequencies are acceptable. This change is designated as more restrictive because new Surveillance Requirements are added to the ITS that are not required by the CTS.

M16 ITS LCO 3.3.2 requires the ESFAS Instrumentation to be OPERABLE. ITS Table 3.3.2-1, Function 8 (ESFAS Interlock – Reactor Trip (P-4)) requires one channel per train to be OPERABLE in MODES 1, 2, and 3. ITS ACTION F has been added to cover the Condition of when one channel or train is inoperable for Function 8. ITS Required Action F.1 allows 48 hours to restore the required channel or train to OPERABLE status. If this cannot be met, then ITS Required Action F.2.1 requires the unit be in MODE 3 within 54 hours and Required Action F.2.2 requires the unit be in MODE 4 within 60 hours. A Note has been added to the ACTIONS to allow separate Condition entry for each Function. Separate Condition entry is also allowed within a Function for the ESFAS Interlock – Reactor Trip (P-4) on a per train basis. In addition, a TADOT (SR 3.3.2.7) ~~once every~~ reactor trip breaker cycle ~~is added~~. The TADOT (SR 3.3.2.7) contains a Note that states verification of setpoint is not required. The CTS does not require OPERABLE channels for this Function. This changes the CTS by adding new Functions and applicable ACTIONS and SRs.

As discussed in the ITS Bases, a reactor trip breaker cycle is defined as when a reactor trip breaker and its associated reactor trip bypass breaker are opened.

is required to be performed prior to closing the reactor trip breaker or reactor trip bypass breaker following each

DISCUSSION OF CHANGES
ITS 3.3.2, ENGINEERED SAFETY FEATURE ACTUATION SYSTEM (ESFAS) INSTRUMENTATION

prior to closing the reactor trip breaker or reactor trip bypass breaker following each

This change is acceptable because the ESFAS Interlock – Reactor Trip (P-4) blocks the re-actuation of safety injection after the manual reset of the Safety Injection actuation signal in an effort to avert or reduce the continued cooldown of the Reactor Coolant System following a reactor trip. As such, explicitly including this requirement in the Technical Specifications provides additional assurance that the OPERABILITY of the other ESFAS Instrumentation Functions will be maintained. The change provides explicit requirements for testing the ESFAS Interlock – Reactor Trip (P-4) (Function 8). The addition of a TADOT (SR 3.3.2.7) ~~every~~ reactor trip breaker cycle is acceptable since the proposed Surveillance Requirements are consistent with current practice. The addition of the ACTIONS is acceptable because the new Required Actions and Completion Times are used to establish remedial measures that must be taken in response to the degraded conditions in order to minimize risk associated with continued operation while providing time to repair inoperable features. This change is designated as more restrictive because it adds explicit OPERABILITY requirements, additional Required Actions and Completion Times, and new Surveillance Requirements to the ITS that were not required in the CTS.

M17 CTS 3.5.c states, in part, that when the number of channels of a subsystem fall below the limits given in Column 3 of Table TS 3.5-3 operation shall be limited according to the requirement shown in Column 6 as soon as practicable. If the conditions of Column 3 of CTS Table TS 3.5-3 cannot be met (i.e., less than the minimum number of OPERABLE channels), Column 6 requires that the unit be placed in HOT SHUTDOWN (equivalent to ITS MODE 3) for Functional Units 1.c, and 1.d of Table TS 3.5-3. The HOT SHUTDOWN requirement in Column 6 contains a footnote, footnote (1) for Functional Unit 1.c and 1.d of Table TS 3.5-3, which states if minimum conditions are not met within 24 hours (i.e., restoration of at least the minimum number of OPERABLE channels required in Column 3), steps shall be taken to place the plant in a COLD SHUTDOWN (equivalent to ITS MODE 5) condition. Since there are no time limits to attain HOT SHUTDOWN or COLD SHUTDOWN, KPS uses the time limit from CTS 3.0.c. CTS 3.0.c requires that within one hour action shall be initiated to place the unit in a MODE in which the Specification does not apply by placing it, as applicable, in at least HOT STANDBY within the next 6 hours, at least in HOT SHUTDOWN within the following 6 hours, and at least in COLD SHUTDOWN within the subsequent 36 hours. Under similar conditions (i.e., more than one installed channel inoperable) in the ITS for Functions 1.d and 1.e, ITS 3.3.2 provides no ACTIONS; therefore, entry into LCO 3.0.3 is required. LCO 3.0.3 requires that the unit be placed in a MODE or other specified condition in which the LCO is not applicable. Action shall be initiated within 1 hour to place the unit, as applicable, in MODE 3 within 7 hours, in MODE 4 within 13 hours, and in MODE 5 within 37 hours. The ITS Applicability for Functions 1.d and 1.e is MODES 1 and 2 and MODE 3 with pressurizer pressure $\geq$ 2000 psig. Therefore, placing the unit in MODE 4 will place the unit in a condition in which the LCO does not apply. This changes the CTS by requiring less time for the unit to reach MODE 4 in the ITS than is allowed to reach MODE 5 in the CTS.

The purpose of Column 6 of CTS Table TS 3.5-3 is to place the unit in a condition in which the LCO does not apply. This change is acceptable because the Completion Time is consistent with safe operation under the specified

CTS

All changes are 3 unless otherwise noted

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY	
DOC M09	SR 3.3.2.8 ← 5	----------NOTE---------- Verification of setpoint not required for manual initiation functions. ----------	5
		Perform TADOT.	[18] months 6
Table TS 4.1-1, Channel Descriptions 7, 11.a, 11.b, 18.a, 18.b, and 18.c	SR 3.3.2.9 ← 6	----------NOTE---------- This Surveillance shall include verification that the time constants are adjusted to the prescribed values. ----------	5 9
		Perform CHANNEL CALIBRATION in accordance with the Setpoint Control Program.	[18] months 6 12
	SR 3.3.2.10	----------NOTE---------- Not required to be performed for the turbine driven AFW pump until [24] hours after SG pressure is ≥ [1000] psig. ----------	15
		Verify ESFAS RESPONSE TIMES are within limit.	[18] months on a STAGGERED TEST BASIS
16 DOC M17	SR 3.3.2.11 ← 7	----------NOTE---------- Verification of setpoint not required. ----------	5
		Perform TADOT.	Prior to closing the reactor trip breaker or reactor trip bypass breaker following each ~~Once per~~ reactor trip breaker cycle 16

JUSTIFICATION FOR DEVIATIONS
ITS 3.3.2, ENGINEERED SAFETY FEATURE ACTUATION SYSTEM (ESFAS) INSTRUMENTATION

requirement to perform the surveillance test in accordance with the SCP. Hence, the addition of the phrase "in accordance with the Setpoint Control Program" to ITS SR 3.3.2.4, CHANNEL OPERATIONAL TEST (COT) and ITS SR 3.3.2.6, CHANNEL CALIBRATION in the surveillance requirement table.

13. The ISTS contains bracketed information and/or values that are generic to all Westinghouse vintage plants. ISTS Required Actions D, E, and I (ITS Required Actions D, E, and H, respectively) are modified by a Note that provides two options for bypassing a channel for up to 12 hours for the purpose of performing surveillance testing without entry into the applicable Required Actions. One option is for plants that have installed bypass testing capabilities. The other option is for plants that do not have installed bypass testing capabilities. KPS does not have installed bypass testing capabilities. Therefore, the Note for plants that do not have bypass testing capabilities is retained for Required Actions D, E, and H.

14. ISTS Table 3.3.2-1 Function 6.g (Trip of all Main Feedwater Pumps) specifies that ISTS SR 3.3.2.9, a CHANNEL CALIBRATION, is required for the Function. This CHANNEL CALIBRATION requirement is not being included in the KPS ITS for the same Function (ITS Table 3.3.2-1 Function 6.e). The ISTS shows that the Function has an ALLOWABLE VALUE and NOMINAL TRIP SETPOINT based on a pressure. The ISTS Bases describes that the trip is derived from low pressure on the control air/oil line of the turbine driven main feedwater pumps. Thus, it is appropriate to perform a CHANNEL CALIBRATION on the sensors. However, KPS uses motor driven main feedwater pumps, and the signal to start the AFW pumps comes from the breaker position contacts. Thus, there is no CHANNEL CALIBRATION to perform. This is also consistent with the KPS CTS, which does not require a CHANNEL CALIBRATION.

15. The RTS RESPONSE TIME requirement, ISTS SR 3.3.2.10, has not been adopted into the KPS ITS, consistent with Kewaunee current licensing basis and current Technical Specifications. The Kewaunee USAR describes the implementation of the principles as related to the proposed IEEE-279 "Standard, Nuclear Power Plant Protection Systems," August 1968. This industry standard provides guidance and requirements for conducting periodic testing of protection systems. IEEE-279-1968 does not address response time testing. Furthermore, generic studies have shown that instrumentation response time changes (increasing times), that could impact safety, do not normally vary such that they would not be detected during other required surveillances (e.g., CHANNEL CALIBRATIONS). Since the addition of these tests would be a major burden (plant design does not readily lend itself to such testing) with little gain in safety, ISTS SR 3.3.2.10 has not been added.

16. ISTS SR 3.3.2.11 requires that a TADOT be performed on ISTS Table 3.3.2-1 Function 8.a, P-4 Interlock, once per RTB cycle. However, the Surveillance Frequency does not specify how soon following the RTB cycle the SR is to be performed. Furthermore, it does not define specifically what an RTB cycle is. The Frequency for ISTS SR 3.3.2.11 (ITS SR 3.3.2.7) has been modified to require the SR to be performed "Prior to closing the reactor trip breaker or reactor trip bypass breaker following each RTB cycle," This ensures that when an RTB cycle occurs, the P-4 interlock is tested before the associated breakers are re-closed. Furthermore, the Bases has been revised to define a reactor trip breaker cycle as when a reactor trip breaker and its associated reactor trip bypass breaker are opened. This ensures that, following a reactor trip or shutdown, the TADOT is performed on the associated P-4 interlock before closing either of the associated breakers.

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

a. Engineered Safety Feature Actuation System Interlocks - Reactor Trip, P-4

The P-4 interlock is enabled when a reactor trip breaker (RTB) and its associated bypass breaker is open. Once the P-4 interlock is enabled, automatic SI initiation is blocked after a [ ] second time delay. This Function allows operators to take manual control of SI systems after the initial phase of injection is complete. Once SI is blocked, automatic actuation of SI cannot occur until the RTBs have been manually closed. The functions of the P-4 interlock are:

- Trip the main turbine;
- Isolate MFW with coincident low T_{avg};
- Prevent reactuation of SI after a manual reset of SI;
- ~~Transfer the steam dump from the load rejection controller to the unit trip controller; and~~
- Prevent opening of the MFW isolation valves if they were closed on SI or SG Water Level - High High.

Each of the above Functions is interlocked with P-4 to avert or reduce the continued cooldown of the RCS following a reactor trip. An excessive cooldown of the RCS following a reactor trip could cause an insertion of positive reactivity with a subsequent increase in generated power. To avoid such a situation, the noted Functions have been interlocked with P-4 as part of the design of the unit control and protection system.

None of the noted Functions serves a mitigation function in the unit licensing basis safety analyses. Only the turbine trip Function is explicitly assumed since it is an immediate consequence of the reactor trip Function. Neither turbine trip, nor any of the other four Functions associated with the reactor trip signal, is required to show that the unit licensing basis safety analysis acceptance criteria are not exceeded.

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

The P-4 interlock is a logic Function with train and not channel identification. Therefore, the LCO requires one channel per train (for each of the two ESFAS Automatic Actuation Logic and Relays train) of the Engineered Safety Feature Actuation System Interlocks - Reactor Trip, P-4 to be OPERABLE.

The RTB position switches that provide input to the P-4 interlock only function to energize or de-energize or open or close contacts. Therefore, this Function has no adjustable trip setpoint with which to associate a Trip Setpoint and Allowable Value. [NTSP] 10 1

This Function must be OPERABLE in MODES 1, 2, and 3 when the reactor may be critical or approaching criticality. This Function does not have to be OPERABLE in MODE 4, 5, or 6 because the main turbine, the MFW System, ~~and the Steam Dump System~~ are not in operation. 1

and the main turbine and MFW System might be in operation

and

b. Engineered Safety Feature Actuation System Interlocks - Pressurizer Pressure, P-11

The P-11 interlock permits a normal unit cooldown and depressurization without actuation of SI or main steam line isolation. With two-out-of-three pressurizer pressure channels (discussed previously) less than the P-11 setpoint, the operator can manually block the Pressurizer Pressure - Low and Steam Line Pressure - Low SI signals and the Steam Line Pressure - Low steam line isolation signal (previously discussed). When the Steam Line Pressure - Low steam line isolation signal is manually blocked, a main steam isolation signal on Steam Line Pressure - Negative Rate - High is enabled. This provides protection for an SLB by closure of the MSIVs. With two-out-of-three pressurizer pressure channels above the P-11 setpoint, the Pressurizer Pressure - Low and Steam Line Pressure - Low SI signals and the Steam Line Pressure - Low steam line isolation signal are automatically enabled. The operator can also enable these trips by use of the respective manual reset buttons. When the Steam Line Pressure - Low steam line isolation signal is enabled, the main steam isolation on Steam Line Pressure - Negative Rate - High is disabled. The Trip Setpoint reflects only steady state instrument uncertainties. 5 10 [NTSP]

This Function must be OPERABLE in MODES 1, 2, and 3 to allow an orderly cooldown and depressurization of the unit without the actuation of SI or main steam isolation. This Function does not have to be OPERABLE in MODE 4, 5, or 6 because system pressure must already be below the P-11 setpoint for the requirements of the heatup and cooldown curves to be met.

BASES

SURVEILLANCE REQUIREMENTS (continued)

WCAP-14036-P, Revision 1, "Elimination of Periodic Protection Channel Response Time Tests," (Ref. 14) provides the basis and methodology for using allocated signal processing and actuation logic response times in the overall verification of the protection system channel response time. The allocations for sensor, signal conditioning, and actuation logic response times must be verified prior to placing the component in operational service and re-verified following maintenance that may adversely affect response time. In general, electrical repair work does not impact response time provided the parts used for repair are of the same type and value. Specific components identified in the WCAP may be replaced without verification testing. One example where response time could be affected is replacing the sensing assembly of a transmitter.

13

ESF RESPONSE TIME tests are conducted on an [18] month STAGGERED TEST BASIS. Testing of the final actuation devices, which make up the bulk of the response time, is included in the testing of each channel. The final actuation device in one train is tested with each channel. Therefore, staggered testing results in response time verification of these devices every [18] months. The [18] month Frequency is consistent with the typical refueling cycle and is based on unit operating experience, which shows that random failures of instrumentation components causing serious response time degradation, but not channel failure, are infrequent occurrences.

This SR is modified by a Note that clarifies that the turbine driven AFW pump is tested within 24 hours after reaching [1000] psig in the SGs.

5

SR 3.3.2.11 7

prior to closing the reactor trip breaker or reactor trip bypass breaker following each reactor trip breaker cycle. A reactor trip breaker cycle is defined as when a reactor trip breaker and its associated reactor trip bypass breaker are opened.

5

SR 3.3.2.11 is the performance of a TADOT as described in SR 3.3.2.8, except that it is performed for the P-4 Reactor Trip Interlock, and the Frequency is ~~once per RTB cycle~~. A successful test of the required contact(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable TADOT of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications tests at least once per refueling interval with applicable extensions. This Frequency is based on operating experience demonstrating that undetected failure of the P-4 interlock sometimes occurs when the RTB is cycled.

5

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The SR is modified by a Note that excludes verification of setpoints during the TADOT. The Function tested has no associated setpoint.

Licensee Response/NRC Response/NRC Question Closure

Id	**1051**
NRC Question Number	**KAB-021**
Select Application	**NRC Question Closure**
Response Date/Time	
Closure Statement	**This question is closed and no further information is required at this time to draft the Safety Evaluation.**
Response Statement	
Question Closure Date	**12/2/2009**
Attachment 1	
Attachment 2	
Notification	**NRC/LICENSEE Supervision**
Added By	**Kristy Bucholtz**
Date Added	**12/2/2009 8:29 AM**
Modified By	
Date Modified	

Enclosure (2 of 8), Q&A to Attachment 1, Volume 8 (Section 3.3) Page 70 of 87

Licensee Response/NRC Response/NRC Question Closure

Id	**4061**
NRC Question Number	**KAB-021**
Select Application	**NRC Question Closure**
Response Date/Time	
Closure Statement	**This question is closed and no further information is required at this time to draft the Safety Evaluation.**
Response Statement	
Question Closure Date	**8/13/2010**
Attachment 1	
Attachment 2	
Notification	**NRC/LICENSEE Supervision**
Added By	**Kristy Bucholtz**
Date Added	**8/13/2010 6:13 AM**
Modified By	
Date Modified	

Enclosure (2 of 8), Q&A to Attachment 1, Volume 8 (Section 3.3) Page 71 of 87

ITS NRC Questions

Id	**901**
NRC Question Number	**KAB-022**
Category	**Technical**
ITS Section	**3.3**
ITS Number	**3.3.2**
DOC Number	**LA-2**
JFD Number	
JFD Bases Number	
Page Number (s)	**185**
NRC Reviewer Supervisor	**Carl Schulten**
Technical Branch POC	**Add Name**
Conf Call Requested	**N**
NRC Question	**On page 185 of Attachment 1, volume 8, the discussion of changes LA02 indicates that details are being moved to the Bases. Please explain which part of the Bases has the relocated details.**
Attach File 1	
Attach File 2	
Issue Date	**10/26/2009**
Added By	**Kristy Bucholtz**
Date Modified	
Modified By	
Date Added	**10/26/2009 7:31 AM**
Notification	**NRC/LICENSEE Supervision**

Licensee Response/NRC Response/NRC Question Closure

Id	**531**
NRC Question Number	**KAB-022**
Select Application	**Licensee Response**
Response Date/Time	**11/3/2009 1:05 PM**
Closure Statement	
Response Statement	**Kewaunee Power Station (KPS) has provided a yellow highlighted markup of the ITS Bases markup pages (KAB-022 Information.pdf) to identify where the technical information that was relocated by Attachment 1, Volume 8, Page 185 of 517 Discussion of Change (DOC) LA02, is contained. While the words in the ITS Bases markup are not identical to the words being relocated from the KPS CTS, the ITS Bases contains the same technical information that is being relocated. The requirement to open the accumulator valves is included in the statement on Attachment 1, Volume 8, Page 229 of 517. Additionally, Containment Ventilation Isolation requirement (Attachment 1, Volume 8, Page 232 of 517) includes the shield building ventilation requirement, auxiliary building special ventilation requirement, and the starting of all containment vents. See KAB-022 Information.pdf for references to how Containment Ventilation Isolation includes the shield building ventilation, auxiliary building special ventilation and the starting of all containment fans.** **Additionally, while the Safety Injection (SI) signal override of any bypasses on the accumulator valves is covered by the statement on Page 229 (highlighted in yellow in the KAB-022 Information file - Note that this highlighted statement covers all the ECCS requirements for the SI signal), after further review, KPS has determined that the requirement for the SI signal override of any bypasses on the accumulator valves does not need to be included in ITS 3.3.2. KPS has reached this conclusion based on the fact that ITS 3.5.1 requires the SI accumulators to be OPERABLE in MODES 1 and 2 and MODE 3 with RCS pressure > 1000 psig. ITS 3.5.1 includes two Surveillances covering the accumulator isolation valves (i.e., the same valves actuated by the SI signal), both of which must be met for the SI accumulators to be OPERABLE: SR 3.5.1.1, which requires verifying each accumulator isolation valve is fully open every 12 hours; and SR 3.5.1.5, which requires verifying motive power is removed from each accumulator isolation valve operator every 31 days. Furthermore, removing power from the valve operator essentially means that the SI signal to open the valve cannot affect the valve. Therefore, there is no reason to include the requirement that the SI signal override any bypass on the accumulator valves since the valves must be in the actuated position and power removed for the valves to be OPERABLE.**

Enclosure (2 of 8), Q&A to Attachment 1, Volume 8 (Section 3.3) Page 73 of 87

Furthermore, this same type of change was made at a recently approved ITS conversion, Davis-Besse.

A draft markup regarding the KPS change is attached. This change will be reflected in the supplement to this section of the ITS conversion amendment.

Question Closure Date	
Attachment 1	**KAB-022 Information.pdf** (1MB)
Attachment 2	**KAB-022 Markup.pdf** (1MB)
Notification	**NRC/LICENSEE Supervision** **Kristy Bucholtz** **Victor Cusumano** **Robert Hanley** **Jerry Jones** **Bryan Kays**
Added By	**Robert Hanley**
Date Added	**11/3/2009 1:05 PM**
Modified By	
Date Modified	

Enclosure (2 of 8), Q&A to Attachment 1, Volume 8 (Section 3.3) Page 74 of 87

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

INSERT 2

, listed in Table 3.3.2-1,

The LCO requires all instrumentation performing an ESFAS Function to be OPERABLE. A channel is OPERABLE with a trip setpoint value outside its calibration tolerance band provided the trip setpoint "as-found" value does not exceed its associated Allowable Value and provided the trip setpoint "as-left" value is adjusted to a value within the calibration tolerance band of the Nominal Trip Setpoint. A trip setpoint may be set more conservative than the Nominal Trip Setpoint as necessary in response to plant conditions. Failure of any instrument renders the affected channel(s) inoperable and reduces the reliability of the affected Functions.

10

INSERT 3

three or four

The LCO generally requires OPERABILITY of four or three channels in each instrumentation function and two channels in each logic and manual initiation function. The two-out-of-three and the two-out-of-four configurations allow one channel to be tripped during maintenance or testing without causing an ESFAS initiation. Two logic or manual initiation channels are required to ensure no single random failure disables the ESFAS.

8

The required channels of ESFAS instrumentation provide unit protection in the event of any of the analyzed accidents. ESFAS protection functions are as follows:

1. Safety Injection

   Safety Injection (SI) provides two primary functions:

   1. Primary side water addition to ensure maintenance or recovery of reactor vessel water level (coverage of the active fuel for heat removal, clad integrity, and for limiting peak clad temperature to < 2200°F), and

   2. Boration to ensure recovery and maintenance of SDM (k_{eff} < 1.0).

All changes are 1 unless otherwise noted

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

These functions are necessary to mitigate the effects of high energy line breaks (HELBs) both inside and outside of containment. The SI signal is also used to initiate other Functions such as:

- Phase A Isolation; 2
- Containment Purge Isolation; 2
- Reactor Trip; 2
- Turbine Trip,
- Feedwater Isolation; 2
- Start of motor driven auxiliary feedwater (AFW) pumps; and 2
- Control room ventilation isolation, and 2
- Enabling automatic switchover of Emergency Core Cooling Systems (ECCS) suction to containment sump.

These other functions ensure:

- Isolation of nonessential systems through containment penetrations; 2
- Trip of the turbine and reactor to limit power generation; 2
- Isolation of main feedwater (MFW) to limit secondary side mass losses; 2
- Start of AFW to ensure secondary side cooling capability; and 2
- Isolation of the control room to ensure habitability, and 2
- Enabling ECCS suction from the refueling water storage tank (RWST) switchover on low low RWST level to ensure continued cooling via use of the containment sump.

LOCA and SLB events

Containment

Ventilation

Containment Ventilation Isolation includes shield building isolation, auxiliary building special vent and starting of all containment fans.

Main

contribution to containment pressurization

All changes are unless otherwise noted (1)

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

This Function must be OPERABLE in MODES 1, 2, and 3 when a secondary side break or stuck open valve could result in rapid depressurization of the steam lines unless all MSIVs are closed and [de-activated]. This Function is not required to be OPERABLE in MODES 4, 5, and 6 because there is insufficient energy in the secondary side of the unit to have an accident. (6)

5. Turbine Trip and Feedwater Isolation (5)

The primary functions of the Turbine Trip and Feedwater Isolation signals are to prevent damage to the turbine due to water in the steam lines, and to stop the excessive flow of feedwater into the SGs. These Functions are necessary to mitigate the effects of a high water level in the SGs, which could result in carryover of water into the steam lines and excessive cooldown of the primary system. The SG high water level is due to excessive feedwater flows.

is

This

is

Feedwater Isolation

The Function is actuated when the level in any SG exceeds the high high setpoint, and performs the following functions:

- Trips the main turbine; (2)
- Trips the MFW pumps; (2)
- Closes the MFW Pump discharge valves;
- Initiates feedwater isolation, and
- control
- Shuts the MFW regulating valves and the bypass feedwater regulating valves.

This Function is actuated by SG Water Level - High High, or by an SI signal. The RTS also initiates a turbine trip signal whenever a reactor trip (P-4) is generated. In the event of SI, the unit is taken off line and the turbine generator must be tripped. The MFW System is also taken out of operation and the AFW System is automatically started. The SI signal was discussed previously.

a. Turbine Trip and Feedwater Isolation - Automatic Actuation Logic and Actuation Relays (5)

Automatic Actuation Logic and Actuation Relays consist of the same features and operate in the same manner as described for ESFAS Function 1.b.

BASES

BACKGROUND (continued)

During normal operation, all four fan units are operating. The fans are normally operated at high speed with ESW supplied to the cooling coils. The Containment Cooling System, operating in conjunction with the Containment Ventilation and Air Conditioning systems, is designed to limit the ambient containment air temperature during normal unit operation to less than the limit specified in LCO 3.6.5A, "Containment Air Temperature." This temperature limitation ensures that the containment temperature does not exceed the initial temperature conditions assumed for the DBAs.

In post accident operation following an actuation signal, the Containment Cooling System fans are designed to start automatically in slow speed if not already running. If running in high (normal) speed, the fans automatically shift to slow speed. The fans are operated at the lower speed during accident conditions to prevent motor overload from the higher mass atmosphere. The temperature of the ESW is an important factor in the heat removal capability of the fan units.

APPLICABLE SAFETY ANALYSES

The Containment Spray System and Containment Cooling System limit the temperature and pressure that could be experienced following a DBA. The limiting DBAs considered are the loss of coolant accident (LOCA) and the steam line break (SLB). The LOCA and SLB are analyzed using computer codes designed to predict the resultant containment pressure and temperature transients. No DBAs are assumed to occur simultaneously or consecutively. The postulated DBAs are analyzed with regard to containment ESF systems, assuming the loss of one ESF bus, which is the worst case single active failure and results in one train of the Containment Spray System and Containment Cooling System being rendered inoperable.

The analysis and evaluation show that under the worst case scenario, the highest peak containment pressure is [44.1] psig (experienced during a LOCA). The analysis shows that the peak containment temperature is [384.5]°F (experienced during an SLB). Both results meet the intent of the design basis. (See the Bases for LCO 3.6.4A, "Containment Pressure," and LCO 3.6.5A for a detailed discussion.) The analyses and evaluations assume a unit specific power level of [100]%, one containment spray train and one containment cooling train operating, and initial (pre-accident) containment conditions of [120]°F and [1.5] psig. The analyses also assume a response time delayed initiation to provide conservative peak calculated containment pressure and temperature responses.

BASES

APPLICABLE SAFETY ANALYSES (continued)

For certain aspects of transient accident analyses, maximizing the calculated containment pressure is not conservative. In particular, the effectiveness of the Emergency Core Cooling System during the core reflood phase of a LOCA analysis increases with increasing containment backpressure. For these calculations, the containment backpressure is calculated in a manner designed to conservatively minimize, rather than maximize, the calculated transient containment pressures in accordance with 10 CFR 50, Appendix K (Ref. 2).

and simultaneous operation of all four containment fan-coil units and both trains of the Containment Spray System

The effect of an inadvertent containment spray actuation has been analyzed. An inadvertent spray actuation results in a [2.0] psig containment pressure and is associated with the sudden cooling effect in the interior of the leak tight containment. Additional discussion is provided in the Bases for LCO 3.6.4A.

-0.783 psig

The modeled Containment Spray System actuation from the containment analysis is based on a response time associated with exceeding the containment High-3 pressure setpoint to achieving full flow through the containment spray nozzles. The Containment Spray System total response time of [60] seconds includes diesel generator (DG) startup (for loss of offsite power), block loading of equipment, containment spray pump startup, and spray line filling (Ref. 3).

High-High

135

Containment cooling train performance for post accident conditions is given in Reference 4. The result of the analysis is that each train can provide 100% of the required peak cooling capacity during the post accident condition. The train post accident cooling capacity under varying containment ambient conditions, required to perform the accident analyses, is also shown in Reference 5.

The modeled Containment Cooling System actuation from the containment analysis is based upon a response time associated with exceeding the containment High-3 pressure setpoint to achieving full Containment Cooling System air and safety grade cooling water flow. The Containment Cooling System total response time of [60] seconds, includes signal delay, DG startup (for loss of offsite power), and service water pump startup times (Ref. 6).

High-High

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3

The Containment Spray System and the Containment Cooling System satisfy Criterion 3 of 10 CFR 50.36(c)(2)(ii).

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.6.6A.7

This SR requires verification that each [required] containment cooling train actuates upon receipt of an actual or simulated safety injection signal. The [18] month Frequency is based on engineering judgment and has been shown to be acceptable through operating experience. See SR 3.6.6A.5 and SR 3.6.6A.6, above, for further discussion of the basis for the [18] month Frequency.

This test includes verifying the proper operation of the motor-operated service water outlet valves and the fan coil emergency discharge and associated backdraft dampers.

SR 3.6.6A.8

With the containment spray inlet valves closed and the spray header drained of any solution, low pressure air or smoke can be blown through test connections. This SR ensures that each spray nozzle is unobstructed and provides assurance that spray coverage of the containment during an accident is not degraded. Due to the passive design of the nozzle, a test at [the first refueling and at] 10 year intervals is considered adequate to detect obstruction of the nozzles.

required

(76 per train)

REFERENCES

1. 10 CFR 50, Appendix A, GDC 38, GDC 39, GDC 40, GDC 41, GDC 42, and GDC 43.

USAR, Sections 6.3.1.1, 6.3.1.2, 6.3.1.3, 6.4.1.3, and 6.3.1.4.

2. 10 CFR 50, Appendix K.

3. FSAR, Section [ ]. 6.4.1

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4. FSAR, Section [ ]. 6.3

5. FSAR, Section [ ].

6. FSAR, Section [ ].

U

5

7. FSAR, Section [ ]. 6.3.1

6. USAR. Table 6.3-3

7

8. ASME Code for Operation and Maintenance of Nuclear Power Plants.

All changes are unless otherwise noted (2)

SBACS (Dual and Ice Condenser) (1)

SBVS

B 3.6.13 (10)

B 3.6 CONTAINMENT SYSTEMS

B 3.6.13 Shield Building Air Cleanup System (SBACS) (Dual and Ice Condenser) (1)

Ventilation

SBVS

10

BASES

BACKGROUND

The SBACS is required by 10 CFR 50, Appendix A, GDC 41, "Containment Atmosphere Cleanup" (Ref. 1), to ensure that radioactive materials that leak from the primary containment into the shield building (secondary containment) following a Design Basis Accident (DBA) are filtered and adsorbed prior to exhausting to the environment. (5)

The containment has a secondary containment called the shield building, which is a concrete structure that surrounds the steel primary containment vessel. Between the containment vessel and the shield building inner wall is an annular space that collects any containment leakage that may occur following a loss of coolant accident (LOCA). This space also allows for periodic inspection of the outer surface of the steel containment vessel.

the majority of the

SBVS

The SBACS establishes a negative pressure in the annulus between the shield building and the steel containment vessel. Filters in the system then control the release of radioactive contaminants to the environment. Shield building OPERABILITY is required to ensure retention of primary containment leakage and proper operation of the SBACS. (1) (1)

SBVS

SBVS

demister,

The SBACS consists of two separate and redundant trains. Each train includes a heater, [cooling coils,] a prefilter, moisture separators, a high efficiency particulate air (HEPA) filter, an activated charcoal adsorber section for removal of radioiodines, and a fan. Ductwork, valves and/or dampers, and instrumentation also form part of the system. The moisture separators function to reduce the moisture content of the airstream. A second bank of HEPA filters follows the adsorber section to collect carbon fines and provide backup in case of failure of the main HEPA filter bank. Only the upstream HEPA filter and the charcoal adsorber section are credited in the analysis. The system initiates and maintains a negative air pressure in the shield building by means of filtered exhaust ventilation of the shield building following receipt of a safety injection (SI) signal. The system is described in Reference 2. (1) (5)

(1)

a second HEPA filter,

demister

s

s

and are assumed to be 99% efficient for removal of particulates and 95% efficient for the removal of elemental and organic iodine

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All changes are 1 unless otherwise noted

ASV System → ECCS PREACS

B 3.7 PLANT SYSTEMS

Auxiliary Building Special Ventilation (ASV)

B 3.7.12 Emergency Core Cooling System (ECCS) Pump Room Exhaust Air Cleanup System (PREACS)

BASES

ASV System

BACKGROUND

The ECCS PREACS filters air from the area of the active ECCS components during the recirculation phase of a loss of coolant accident (LOCA). The ECCS PREACS, in conjunction with other normally operating systems, also provides environmental control of temperature and humidity in the ECCS pump room area and the lower reaches of the Auxiliary Building. 2

Containment and the Auxiliary Building (the ASV boundary).

ASV System

The ECCS PREACS consists of two independent and redundant trains. Each train consists of a heater, a prefilter or demister, a high efficiency particulate air (HEPA) filter, an activated charcoal adsorber section for removal of gaseous activity (principally iodines), and a fan. Ductwork, valves or dampers, and instrumentation also form part of the system, as well as demisters functioning to reduce the relative humidity of the air stream. A second bank of HEPA filters follows the adsorber section to collect carbon fines and provide backup in case the main HEPA filter bank fails. The downstream HEPA filter is not credited in the accident analysis, but serves to collect charcoal fines, and to back up the upstream HEPA filter should it develop a leak. The system initiates filtered ventilation of the pump room following receipt of a safety injection (SI) signal. 2 2 2

ASV boundary

ASV System

The ECCS PREACS is a standby system, aligned to bypass the system HEPA filters and charcoal adsorbers. During emergency operations, the ECCS PREACS dampers are realigned, and fans are started to begin filtration. Upon receipt of the actuating Engineered Safety Feature Actuation System signal(s), normal air discharges from the ECCS pump room isolate, and the stream of ventilation air discharges through the system filter trains. The prefilters remove any large particles in the air and any entrained water droplets present, to prevent excessive loading of the HEPA filters and charcoal adsorbers. 2 2

ASV System

INSERT 1

ASV System

U

9.6.5

Appendix H

The ECCS PREACS is discussed in the FSAR, Sections [6.5.1], [9.4.5], and [15.6.5] (Refs. 1, 2, and 3, respectively) since it may be used for normal, as well as post accident, atmospheric cleanup functions. The primary purpose of the heaters is to maintain the relative humidity at an acceptable level, consistent with iodine removal efficiencies per Regulatory Guide 1.52 (Ref. 4). 2 3 is 2

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Table 3.3.2-1, Function 1.d

Table 3.3.2-1, Function 4.c

Table 3.3.2-1, Function 2.c

Table 3.3.2-1, Function 1.c

A01

TABLE TS 3.5-1

ENGINEERED SAFETY FEATURES INITIATION INSTRUMENT SETTING LIMITS

LA01

NO.	FUNCTIONAL UNIT	CHANNEL	SETTING LIMIT
1	High Containment Pressure (Hi)	Safety injection (1) LA02	≤ 4 psig
2	High Containment Pressure (Hi-Hi)	a. Containment spray	≤ 23 psig
		b. Steam line isolation of both lines	≤ 17 psig
3	Pressurizer Low Pressure	Safety injection (1) LA02	≥ 1815 psig
4	Low Steam Line Pressure	Safety injection (1) LA02	≥ 500 psig
		Lead time constant	≥ 12 seconds LA01
		Lag time constant	≤ 2 seconds
5	High Steam Flow in a Steam Line Coincident with Safety Injection and "Lo-Lo" T_{avg}	Steam line isolation of affected line (2) LA03	≤ d/p corresponding to 0.745×10^6 lb/hr at 1005 psig
			≥ 540°F
6	High-High Steam Flow in a Steam Line Coincident with Safety Injection	Steam line isolation of affected line (2)	≤ d/p corresponding to 4.4×10^6 lb/hr at 735 psig
7	Forebay Level	Trip circ. water pumps	

See ITS 3.7.8

Table 3.3.2-1, Function 4.e

Table 3.3.2-1, Function 4.d; footnote (c)

Table 3.3.2-1, Function 1.e

LA02

(1) Initiates containment isolation, feedwater line isolation, shield building ventilation, auxiliary building special vent, and starting of all containment fans. In addition, the signal overrides any bypass on the accumulator valves.

(2) Confirm main steam isolation valves closure within 5 seconds when tested. d/p = differential pressure

LA03 L10 STET w/changes

DISCUSSION OF CHANGES
ITS 3.3.2, ENGINEERED SAFETY FEATURE ACTUATION SYSTEM (ESFAS) INSTRUMENTATION

Allowable Value/Setpoint Information is being removed from the Technical Specifications.

LA02 *(Type 1 – Removing Details of System Design and System Description, Including Design Limits)* CTS Table TS 3.5-1 Functional Unit 1 (High Containment Pressure (Hi)), Functional Unit 3 (Pressurizer Low Pressure), and Functional Unit 4 (Low Steam Line Pressure) reference footnote (1) which states that Safety Injection "initiates containment isolation, feedwater line isolation, shield building ventilation, auxiliary building special vent, and starting of all containment fans. ~~In addition, the signal overrides any bypass on the accumulator valves.~~" CTS Table TS 3.5-3 Functional Unit 4.b (Motor-Driven Auxiliary Feedwater Pumps, Loss of Main Feedwater) references footnote (4), which states "Tripping of both main feedwater pump breakers starts both motor-driven auxiliary feedwater pumps." ITS 3.3.2 does not contain these footnotes. This changes the CTS by moving these details to the Bases.

The removal of these details, which relate to system design, from the Technical Specifications is acceptable because this type of information is not necessary to be included in the Technical Specifications to provide adequate protection of public health and safety. The ITS still maintains the requirement to perform a CHANNEL CHECK, TADOT/COT, and CHANNEL CALIBRATION of the ESFAS instrumentation. In addition, this change is acceptable because the removed information will be adequately controlled in the ITS Bases. Changes to the Bases are controlled by the Technical Specification Bases Control Program in Chapter 5. This program provides for the evaluation of changes to ensure the Bases are properly controlled. This change is designated as a less restrictive removal of detail change because information relating to system design is being removed from the Technical Specifications.

LA03 *(Type 3 – Removing Procedural Details for Meeting TS Requirement or Reporting Requirements)* CTS Table TS 3.5-1 Functional Unit 5 (High Steam Flow in a Steam Line Coincident with Safety Injection and "Lo-Lo" T_{avg}) and Functional Unit 6 (High-High Steam Flow in a Steam Line Coincident with Safety Injection) reference footnote (2) which requires confirmation of main steam line isolation valve closure within 5 seconds when tested. ITS 3.3.2 does not contain this footnote. This changes the CTS by moving this procedural detail to the TRM.

The removal of these details for performing Surveillance Requirements from the Technical Specifications is acceptable because this type of information is not necessary to be included in the Technical Specifications to provide adequate protection of public health and safety. The ITS still maintains the requirement for the number of required channels and the appropriate Condition to enter if a required channel is inoperable. Also, this change is acceptable because the removed requirements will be adequately controlled in the TRM. The TRM is incorporated by reference into the USAR and any changes to the TRM are made under 10 CFR 50.59, which ensures changes are properly evaluated. This change is designated as a less restrictive removal of requirement change because a requirement is being removed from the CTS.

DISCUSSION OF CHANGES
ITS 3.3.2, ENGINEERED SAFETY FEATURE ACTUATION SYSTEM (ESFAS) INSTRUMENTATION

L09 *(Category 9 – Allowed Outage Time, Surveillance Frequency, and Bypass Time Extensions Based on Generic Topical Reports)* CTS Table TS 4.1-1 Channel Description 26 requires a TEST of the Protective System Logic Channel every month. ITS Table 3.3.2-1 Functions 1.b, 2.b, 3.b, 4.b, 5.a, and 6.a (Automatic Actuation Logic and Actuation Relays for Safety Injection, Containment Spray, Containment Isolation, Steam Line Isolation, Feedwater Isolation, and Auxiliary Feedwater, respectively) require performance of an ACTUATION LOGIC TEST every 92 days on a STAGGERED TEST BASIS. This changes the CTS by requiring the performance of an ACTUATION LOGIC TEST every 92 days on a STAGGERED TEST BASIS instead of the monthly requirement of CTS.

The purpose of the TEST/ACTUATION LOGIC TEST is to ensure that the instrumentation is functioning properly. These changes are acceptable and are the result of WCAP-10271, Revision 0 ("Evaluation of Surveillance Frequencies and Out of Service Times for the Reactor Protection Instrumentation System"), dated May 1996, and supplements, WCAP-14333, Revision 1 ("Probabilistic Risk Analysis of the RPS and ESFAS Test Times and Completion Times"), dated October 1998, or WCAP-15376, Revision 1 ("Risk-Informed Assessment of the RTS and ESFAS Surveillance Test Intervals and Reactor Trip Breaker Test and Completion Times"), dated March 2003 (or a combination of the WCAPs). Dominion Energy Kewaunee has performed evaluations of the applicable changes associated with the three WCAPs to justify the above changes. The evaluations supporting these changes are provided in Attachment 2 of this submittal. This change is designated as less restrictive because less stringent Frequencies are being applied in the ITS than were applied in the CTS.

INSERT 1

L10 *(Category 1 – Relaxation of LCO Requirements)* CTS Table TS 3.5-1 Functional Units 1 (High Containment Pressure (Hi), 3 (Pressurizer Low Pressure), and 4 (Low Steam Line Pressure) contain a Note which states, in part, that the signal overrides any bypass on the accumulator valves. ITS 3.3.2 does not contain this requirement. This changes the CTS by deleting this requirement.

The purpose of this requirement is to ensure that each SI accumulator's isolation valve can be actuated to the correct position to ensure the SI accumulators perform their intended function. This change is acceptable because the deleted requirements are not necessary to ensure the SI accumulators perform their intended function. ITS SR 3.5.1.1 requires verification every 12 hours that each accumulator isolation valve is fully open and ITS SR 3.5.1.5 requires verification every 31 days that motive power is removed from each accumulator isolation valve operator. Removing power from the valve operator essentially defeats the automatic feature required by the CTS Table TS 3.5-1 requirements. Furthermore, since the ITS 3.5.1 Applicability is MODES 1 and 2 and MODE 3 with RCS pressure > 1000 psig, meeting ITS SR 3.5.1.1 and ITS SR 3.5.1.5 prior to entering the Applicability (as required by ITS SR 3.0.4) and during operation in the Applicability (as required by ITS SR 3.0.1) will always ensure that the SI accumulator isolation valves are open with motive power removed from the valve operators anytime the RCS pressure is > 1000 psig. This will preclude the need for the automatic feature. In addition, the ability of the isolation valves to automatically open is not credited in the safety analysis - the analysis assumes the valves are open at the time the accident occurs. This change is designated as less restrictive because less stringent LCO requirements are being applied in the ITS than were applied in the CTS.

Licensee Response/NRC Response/NRC Question Closure

Id	**1031**
NRC Question Number	**KAB-022**
Select Application	**NRC Question Closure**
Response Date/Time	
Closure Statement	**This question on LA02 is closed and no further information is required at this time to draft the Safety Evaluation. Any further questions will be addressed under L10.**
Response Statement	
Question Closure Date	**12/2/2009**
Attachment 1	
Attachment 2	
Notification	**NRC/LICENSEE Supervision**
Added By	**Kristy Bucholtz**
Date Added	**12/2/2009 8:00 AM**
Modified By	
Date Modified	