LICENSE REQUIREMENTS FOR LICENSED INDIVIDUALS

Approved: _____ **Date:** 3/15/16

Effective Date: 3/15/16

TABLE OF CONTENTS

1.0 PURPOSE

This Business Practice outlines the process to be followed to ensure that the medical requirements delineated in 10 CFR 55.25, ANSI/ANS 3.4-1983, NOP-OP-1020, and NT-OT-07001 for licensed individuals are met.

This Business Practice also outlines the NRC initial license and license renewal application process and the process for monitoring and documenting the Active License Status of licensed individuals and Shift Managers.

Finally, this Business Practice outlines the process for the relinquishment or suspension of an individual's NRC License.

2.0 APPLICABILITY/SCOPE

This Business Practice applies to all NRC Licensed individuals and all personnel involved in the maintenance of medical requirements and license applications, and the monitoring of NRC License status and the relinquishment of NRC Licenses.

Adherence to this Business Practice is mandatory; however, the steps in this Business Practice may not need to be completed sequentially to achieve the desired outcomes.

3.0 REFERENCES

- 10 CFR 55 - OPERATORS' LICENSES
- ANSI/ANS 3.4-1983, Medical Certification and Monitoring of Personnel Requiring Operator Licenses for Nuclear Power Plants
- NOP-LP-1020, Health Assessment
- NT-OT-07001, Training and Qualification of Operations Personnel
- DBBP-OPS-0022, Lost Time Documentation
- DBBP-DBNA-0001, Completion of NRC Form 396 And Notification of Changes In Medical Condition

- CR 1999-1568 (LER 99-004), Respiratory Requirements Were Not Appropriately Coupled to the Medical Qualifications of a Licensed Operator, Which Resulted in that Operator Being Allowed to Perform License Duties When He Should Have Been Temporarily Disqualified.
- CR 1999-2177, The Licensed Operator Physicals for the 1997 SRO Class Were Never Entered into TIMS.
- CR 04-02682, NRC Form 396 not completed correctly
- CR 07-18042, Shift Engineer Qualification Status
- CR 2013-03922, NRC License Renewal not Received from the NRC Prior to Expiration Date
- OE 21119, Written Communication to the NRC Was Not Performed In Accordance With NUREG 1021
- NRC White Paper: Clarification of Watchstanding Proficiency Requirements for Licensed Operators from the November 30, 2005 Meeting with Industry Focus Group on Operator Licensing Issues
- NUREG 1021, Revision 1, Supplement 9
- TNS 10-00010, Telephone Contact with NRC Region 3 on April 6, 2010

4.0 DEFINITIONS

4.1 ACTIVE LICENSE STATUS – The individual is authorized to perform all of the applicable duties of a Reactor Operator or Senior Reactor Operator by maintaining current qualification and watchstanding proficiency status.

4.2 PERMANENT MEDICAL CONDITION (OR DISQUALIFYING CONDITION) – A physical or mental condition that precludes a licensed individual from meeting the medical requirements of 10 CFR 55.25 and ANSI/ANS 3.4-1983 or requires the issuance of a Conditional License by the NRC prior to resuming the performance of licensed duties.

4.3 REACTOR OPERATOR (RO) – Any licensed individual designated by the facility license under 10 CFR 55 to manipulate the controls of the facility or to direct another to manipulate a control.

4.4 SENIOR REACTOR OPERATOR (SRO) – Any licensed individual designated by a facility license under 10 CFR 55 to manipulate the controls and to direct the licensed activities of operators.

4.5 TEMPORARY MEDICAL CONDITION – A physical or mental condition for which a licensed individual does not meet the medical requirements of ANSI/ANS 3.4-1983 at a point in time, but is expected to meet those requirements again in the future.

5.0 PROCESS

5.1 NRC Initial License Applications – NRC Forms 396 and 398

This section describes the training staff's responsibilities related to the process of compiling and submitting an NRC License Application package for new license candidates (initial license class members).

1. The Supervisor, Nuclear Operations Training, (or designee) notifies the Nuclear Training Administrative Associate that an NRC License Application is required for one or more NRC License candidates.

2. As part of each license candidate's physical, the Nuclear Training Administrative Associate initiates a "Background Information Nuclear Reactor Operator" (Form ED 7845) required by NOP-OP-1020 for each candidate and forwards the form(s) to the Supervisor, Nuclear Operations Training.

3. The Supervisor, Nuclear Operations Training, completes and signs the ED 7845 form(s) and then forwards the form(s) to Health Services.

4. The Nuclear Training Administrative Associate prepares a license application (NRC Form 398, Personal Qualification Statement - License) for each candidate based on input from the Supervisor, Nuclear Operations Training, and using the instructions on the form.

5. The Nuclear Training Administrative Associate ensures that each NRC Form 398 (NRC License Application) is reviewed, signed, and dated by each NRC License candidate.

6. The Superintendent, Nuclear Operations Training, (or designee) reviews and signs each NRC Form 398 and forwards the form(s) to Regulatory Compliance.

7. WHEN the "Regulatory Correspondence Review Form" (NOP-LP-4007-01) and the license application cover letter are received from Regulatory Compliance, THEN:

   a. The Superintendent, Nuclear Operations Training, (or designee) reviews, initials and dates Form NOP-LP-4007-01, and returns the form to Regulatory Compliance.

   b. The Manager, Nuclear Training, (or designee) reviews, initials and dates Form NOP-LP-4007-01, and returns the form to Regulatory Compliance.

8. Health Services personnel prepare an NRC Form 396, "Certification of Medical Examination by Facility Licensee" and letter for each NRC License candidate in accordance with DBBP-DBNA-0001 and forward the documents to Regulatory Compliance.

   NOTE: The submittal of NRC Form 396 for an individual that is re-taking the initial license examination should be treated as a reapplication (reference Condition Report 04-02682).

9. Regulatory Compliance personnel submit the completed license application package to the NRC in a timely manner.

   NOTE: When the NRC issues a license, the license is always issued in Active Status, regardless of when the license is issued. Therefore, the individual's license is active in the quarter that the license was received. The following quarter, the individual will need to comply with the proficiency requirements outlined in Section 5.9.

5.2 NRC License Renewal Applications – NRC Forms 396 and 398

This section describes the training staff's responsibilities related to the process of compiling and submitting an NRC License Renewal Application package for currently licensed individuals.

1. Prior to the beginning of each year, the Nuclear Training Administrative Associate reviews the listing of all NRC License renewal due dates (an NRC License is typically issued to an individual for a period of six years).

   NOTE: Each NRC License Renewal Application shall be submitted to the NRC no sooner than 60 days prior to the individual's license expiration date and no later than 30 days prior to the individual's license expiration date.

2. Approximately 60 days before an individual's NRC License expires, the Nuclear Training Administrative Associate:

   a. Notifies the appropriate Health Services personnel to complete an NRC Form 396, "Certification of Medical Examination by Facility Licensee"

   b. Prepares an NRC Form 398, "Personal Qualification Statement – License" for each individual renewing an NRC License based on a review of the licensed individual's previous NRC License Application and the instructions on the form.

3. The Nuclear Training Administrative Associate ensures that each NRC Form 398 is reviewed, signed, and dated by the NRC License applicant.

4. The Nuclear Training Administrative Associate forwards each signed and dated NRC Form 398 to the Superintendent, Nuclear Operations Training, (or designee) for review and approval.

5. The Superintendent, Nuclear Operations Training, (or designee) reviews and signs each NRC Form 398 and forwards the form(s) to Regulatory Compliance.

6. WHEN the "Regulatory Correspondence Review Form" (NOP-LP-4007-01) and the license renewal cover letter are received from Regulatory Compliance, THEN:

   a. The Superintendent, Nuclear Operations Training, (or designee) reviews, initials and dates Form NOP-LP-4007-01, and returns the form to Regulatory Compliance.

   b. The Manager, Nuclear Training, (or designee) reviews, initials and dates Form NOP-LP-4007-01, and returns the form to Regulatory Compliance.

      NOTE: Health Services personnel will also review, initial and date a Form NOP-LP-4007-01 and return the form to Regulatory Compliance.

7. Health Services personnel prepare an NRC Form 396, "Certification of Medical Examination by Facility Licensee" for each license renewal applicant and forward the form(s) to Regulatory Compliance.

   NOTE: In accordance with 10 CFR 55.55b, if a licensee files an application for renewal of an existing operator license on Form NRC-398 at least 30 days before the expiration of the current license, the current NRC License will not expire until disposition of the application for renewal has been determined by the Commission.

8. Regulatory Compliance personnel submit the completed license renewal application package to the NRC in a timely manner.

9. WHEN the Nuclear Administrative Associate receives confirmation that Regulatory Compliance has submitted the individual's license renewal application package to the NRC to arrive greater than 30 days before the expiration, THEN the date for the individual's new NRC License (in six years) should be entered in SuccessFactors.

5.3 Renewing NRC Licensed Operator Physicals

This section describes the organization's responsibilities related to the process of maintaining NRC Licensed Operator Physicals up to date for currently licensed individuals.

1. The Operations Training Coordinator notifies each licensed individual of the need for an NRC Licensed Operator Physical based on the expiration date found in SuccessFactors (NRC Licensed Operator Physicals expire after two years).

   NOTE: A physical for the performance of Fire Brigade duties meets the requirements for a Licensed Operator Physical; however, Form ED 7845, Background Information Nuclear Reactor Operator, shall still be initiated in accordance step 5.3.b in order for this physical to also be credited as a Licensed Operator Physical.

2. The Operations Training Coordinator initiates a "Background Information Nuclear Reactor Operator" (Form ED 7845) required by NOP-LP-1020, Health Assessment, and forwards the form to the affected licensed individual's supervisor.

3. The supervisor of each NRC Licensed individual completes Form ED 7845 and returns the form to the Health Services personnel.

5.4 Potential Temporary or Permanent Medical Condition Notification and Resolution

1. The Medical Review Officer determines if the change in a licensed individual's medical status constitutes a Temporary or Permanent Medical Condition and performs notifications in accordance with DBBP-DBNA-00001, Completion of NRC Form 396 and Notifications of Changes in Medical Condition and NOP-LP-1020, Health Assessment.

   - IF a Permanent Medical Condition is identified, THEN REFER TO Section 5.5 and implement those actions.

- IF a Temporary Medical Condition is identified, THEN REFER TO Section 5.7 and implement those actions.

5.5 Permanent Change in Medical Conditions – NRC Form 396

NOTE: Notifications and required changes to SuccessFactors regarding changes in the status of a licensed operator's medical condition are normally performed by Health Services personnel as outlined in Completion of NRC Form 396 and Notifications of Changes in Medical Condition and NOP-LP-1020, Health Assessment.

1. Health Services personnel prepare an NRC Form 396, "Certification of Medical Examination by Facility Licensee" and letter for the affected licensed individual in accordance with DBBP-DBNA-0001, Completion of NRC Form 396 and Notifications of Changes in Medical Condition, and NOP-LP-1020, Health Assessment, and forward the documents to Regulatory Compliance.

2. WHEN the "Regulatory Correspondence Review Form" (NOP-LP-4007-01) is received from Regulatory Compliance, THEN the Nuclear Training Administrative Associate verifies the accuracy of the cover letter and Form NOP-LP-4007-01 and reports any discrepancies with these documents to the Superintendent, Nuclear Operations Training (or designee).

3. The Superintendent, Nuclear Operations Training, (or designee) reviews, initials and dates Form NOP-LP-4007-01, and returns the form to Regulatory Compliance.

4. The Manager, Nuclear Training, (or designee) reviews, initials and dates Form NOP-OP-4007-01, and returns the form to Regulatory Compliance.

   NOTE: Health Services personnel will also review, initial and date a Form NOP-LP-4007-01 and return the form to Regulatory Compliance.

5. Regulatory Compliance personnel are responsible for submitting the completed change in medical status to the NRC in a timely manner.

6. WHEN the revised license is received from the NRC due to an individual's Permanent Medical Condition, THEN the Medical Review Officer will notify Operations management that the licensed individual may either be returned to licensed duties or may NOT be returned to licensed duties depending on the license change.

5.6 Permanent Medical Condition No Longer Applicable – NRC Form 396

1. Appropriate Health Services personnel will prepare NRC Form 396, "Certification of Medical Examination by Facility Licensee" and letter signed by the Medical Review Officer in accordance with DBBP-DBNA-0001.

2. WHEN the "Regulatory Correspondence Review Form" (NOP-LP-4007-01) is received from Regulatory Compliance, THEN the Nuclear Administrative Associate verifies the accuracy of the cover letter and Form NOP-LP-4007-01 and reports any discrepancies with the package to the Superintendent, Nuclear Operations Training (or designee).

3. The Superintendent, Nuclear Operations Training, (or designee) reviews, initials and dates Form NOP-LP-4007-01, and returns the form to Regulatory Compliance.

4. The Manager, Nuclear Training, (or designee) reviews, initials and dates Form NOP-OP-4007-01, and returns the form to Regulatory Compliance.

   NOTE: Health Services personnel will also review, initial and date a Form NOP-LP-4007-01 and return the form to Regulatory Compliance.

5. Regulatory Compliance personnel are responsible for submitting the completed change in medical status to the NRC in a timely manner.

6. WHEN the new operator license has been received with concurrence from the NRC that the Permanent Medical Condition has been removed from the license, THEN Compliance will notify Operations Management.

5.7 Temporary Medical Conditions

NOTE: Notifications and required changes to SuccessFactors regarding changes in the status of a licensed operator's medical condition are normally performed by Health Services personnel as outlined in DBBP-DBNA-0001 and NOP-LP-1020.

1. IF notified by Health Services of a licensed individual who has a Temporary Medical Condition change, THEN the Superintendent, Nuclear Operations Training, (or designee) shall:

   - Verify the Shift Manager/Unit Supervisor has been notified to make a Unit Log entry for removal of the affected licensed individual from licensed duties and/or apply other restrictions (if applicable).

- Verify the Superintendent, Operations, has been notified of the removal of the affected licensed individual from licensed duties and/or apply other restrictions (if applicable).

- Verify the affected licensed individual's qualification record is updated in SuccessFactors to place an administrative hold on the individual's licensed duties.

NOTE: Prior to returning any licensed individual to licensed duties, the Superintendent, Nuclear Operations Training, (or designee) shall verify all other requirements applicable to the performance of licensed duties are up to date. REFER TO Section 5.8.

5.8 Temporary Medical Condition No Longer Applies

NOTE: Notifications and required changes to SuccessFactors regarding changes in the status of a licensed operator's medical condition are normally performed by Health Services personnel as outlined in DBBP-DBNA-0001 and NOP-LP-1020.

1. IF notified by Health Services personnel that an individual's Temporary Medical Condition no longer exists, THEN the Superintendent, Nuclear Operations Training, (or designee) shall:

   - Verify the Shift Manager/Unit Supervisor has been notified of the removal of the medical restriction for the affected licensed individual.

   - Verify the Superintendent, Operations, and/or Manager, Operations, has been notified of the removal of the medical restriction for the affected licensed individual.

   - Ensure a review of the requirements to perform licensed duties and job qualifications listed in SuccessFactors is performed and documented.

   - WHEN all requirements for restoration to Active License Status have been verified, THEN Verify the affected licensed individual's qualification record is updated in SuccessFactors.

2. IF notified by Health Services personnel that an individual's Temporary Medical Condition is now considered to be a Permanent Medical Condition, THEN the Superintendent, Nuclear Operations Training, (or designee) will GO TO Section 5.5 and ensure those actions are performed.

5.9 NRC License Proficiency Watchstanding Requirements

This section outlines the requirements for maintaining the NRC-specified watchstanding proficiency to maintain Active License Status. In accordance with 10 CFR 55.4, "actively performing the functions of an RO or senior operator SRO" means that an individual has a position on a shift crew that requires an individual to be licensed as defined in the station's Technical Specifications. The watches that can be counted towards proficiency are also dependent on the Operating Mode of the plant during the time the watch is conducted.

NOTE: Refer to Attachment 1 for positions on a shift crew that can be considered a qualifying watch proficiency credit.

1. Reactor Operator and Senior Reactor Operator Proficiency

   a. To maintain Active License Status, each RO or SRO licensed individual shall stand a minimum of 56 hours of qualifying watches per calendar quarter.

   b. This 56-hour proficiency watch requirement may be completed with a combination of complete 8-hour and 12-hour shifts. Watches shall not be truncated (cut short) when the minimum quarterly requirement of 56 hours is satisfied.

   c. Watches shall be documented in the Unit Log Shift Manning database at the beginning of a shift by signing into one of the designated RO (ATCA or BOP) or SRO positions (Shift Manager or Command SRO). The individual standing watch in one of these positions shall fulfill all the responsibilities of that position.

   d. Even though the Shift Technical Advisor (STA) is a licensed individual at Davis-Besse, standing watch as the STA is not a qualifying watch for RO or SRO proficiency credit.

2. Shift Manager Proficiency

   a. To maintain Shift Manager qualifications, all qualified Shift Managers shall stand at least one complete watch (8-hour or 12-hour watch) per calendar quarter to maintain their Shift Manager proficiency.

   b. The individual standing this watch shall sign into the Unit Log as the Shift Manager and fulfill all the responsibilities associated with the Shift Manager position.

5.10 Monitoring and Reporting Active/Inactive License Status

1. Approximately one month prior to the end of the current quarter, the Operations Training Coordinator should audit the Unit Log Shift Staffing database to determine the individuals who have not completed the required watchstanding for maintaining Active SRO or RO License Status and for maintaining Shift Manager qualifications as follows:

   a. Obtain a list of the current qualified individuals that shall include Licensed ROs, Licensed SROs, qualified Shift Managers and qualified Shift Technical Advisors.

   b. Generate a report of the number of hours stood on watch for the first two months of the quarter for each person, based upon the Unit Log Shift Staffing Database.

      - Watches stood in the Command SRO position and the Shift Manager position shall be the only watches that are counted toward the proficiency of a Licensed SRO. STA watches do NOT qualify for SRO proficiency.

      - Watches stood in the At the Controls RO and Balance of Plant RO positions shall be the only watches that are counted toward the proficiency of a Licensed RO. STA watches do NOT qualify for RO proficiency.

   c. Determine which individuals have not completed their watchstanding or returned to active status during the current calendar quarter.

      NOTE: Refer to Attachment 1 for positions on a shift crew that can be considered a qualifying watch proficiency credit.

   d. Distribute a “cautionary” electronic message to those individuals who have not yet satisfied their quarterly watchstanding requirements.

2. Approximately one week before the end of the calendar quarter, the Operations Training Coordinator shall perform a final audit of the Unit Log Shift Staffing database as described in Step 5.10.1 above.

   a. IF an individual is designated to stand a qualifying watch on the Operations Schedule Change Notice prior to the end of the quarter, THEN these scheduled watches may be included in the final watchstanding audit, subject to verification.

3. Once it has been determined which licensed individuals will be Inactive and which individuals will fail to meet the Shift Manager qualification, then the Operations Training Coordinator shall:

   a. Notify Operations Section management of any changes from Active to Inactive License Status.

   b. Ensure SuccessFactors is updated to reflect changes from Active to Inactive License Status by placing an administrative hold on the affected individual's qualification(s).

   c. Generate a memorandum listing the following:

      - Inactive Reactor Operators
      - Inactive Senior Reactor Operators
      - Inactive Shift Managers
      - Inactive Shift Engineers
      - Active Shift Managers
      - Active Shift Technical Advisors
      - Active Reactor Operators
      - Active Senior Reactor Operators

   d. Distribute the memorandum to the individuals who are Inactive, to Operations Section management and to Operations Training Unit management.

4. After the calendar quarter has ended, the Operations Training Coordinator shall confirm that any scheduled watches that were included in the final watchstanding audit were actually stood as scheduled.

   a. IF any scheduled watch was not actually stood, THEN the Operations Training Coordinator shall immediately:

      1) Notify Operations Section management

      2) Notify Operations Training Unit management

      3) Ensure SuccessFactors is updated to reflect changes from Active to Inactive License Status by placing an administrative hold on the affected individual's qualification(s)

      4) Republish the quarterly memorandum to reflect the actual watchstanding proficiency status.

5.11 Returning to Active License Status

1. IF an Inactive licensed individual desires to return to Active License Status, THEN the individual shall perform the following and document these actions on Form DB-0657, Return to Active Status:

   a. Stand at least 40 hours of qualifying watches under the direction of an Active Status Licensed Operator holding the same license (RO or SRO) standing watch in one of the designated RO (ATCA or BOP) or SRO (Shift Manager or Command SRO) positions.

   b. All 40 of the hours of watches shall occur during the current calendar quarter and include at least one complete on-coming shift turnover and one complete off-going shift turnover.

   c. In conjunction with the watches, a complete plant tour of all open areas (those that can be accessed while maintaining the ALARA philosophy) of Containment, Auxiliary Building, Turbine Building, Intake Structure, and Water Treatment Building shall be conducted in the company of an Active Status Licensed watchstander (SRO for SRO reactivation, RO or SRO for RO reactivation).

   d. During the plant tour, the Active Status Licensed watchstander should ensure that the reactivating watchstander is made aware of ongoing activities and abnormal situations in the plant (e.g., recent plant modifications, special plant conditions, significant maintenance activities).

2. IF an Inactive Shift Manager desires to return to Active Shift Manager Status, THEN the individual shall perform the following and document these actions on Form DB-0657, Return to Active Status:

   a. Verify that he or she has an Active Status SRO License. IF the individual's NRC License is not in Active Status, THEN the steps listed above in section 5.11.1 must be completed first.

   b. Stand at least one complete watch (8-hour or 12 hour watch including both an on-coming and off-going shift turnover) under the direct supervision of the Active Shift Manager on watch. The Inactive Shift Manager shall be actively involved in performing all of the associated Shift Manager duties.

   c. This Shift Manager watch may be included in the 40-hours of watches needed to re-activate listed in section 5.11.1 if that section was required for return to Active License Status.

NOTE: A plant tour is NOT required for a Shift Manager to return to Active Status (this should be marked N/A on Form DB-0657).

3. The RO, SRO or Shift Manager requesting to be returned to Active Status forwards the completed Form DB-0657, Return to Active Status (original or facsimile), to the Licensed Operator Requalification Training Program Lead Instructor (or designee).
4. The Licensed Operator Requalification Training Program Lead Instructor (or designee) verifies the qualifications of the licensee are current and valid by ensuring satisfactory Licensed Operator Requalification Training Program participation. Additionally, the Emergency Response Organization shall be contacted to ensure the individual meets ERO training requirements including DEP opportunities required by the individual's position.
5. The Licensed Operator Requalification Training Program Lead Instructor (or designee) verifies with Health Services personnel that no medical restrictions exist that would prevent or prohibit the reactivating watchstander from returning to Active License Status.
6. After verifying that all requirements for returning to Active License Status are met, the Licensed Operator Requalification Training Program Lead Instructor (or designee):
   - Signs Form DB-0657, Return to Active Status.
   - Notifies Operations Section management.
   - Ensures the administrative hold on the individual's license and/or qualification(s) is removed.

5.12 Temporary License Suspension

1. Under extenuating circumstances, the provisions of 10 CFR 55.59(b) may be invoked to request in writing to the NRC that an individual's participation in the Licensed Operator Requalification Program be temporarily suspended.
2. The NRC may authorize the suspension under the following circumstances:
   a. The individual will be assigned to full-time, career-enhancing duties at another location, making it impractical to participate in the requalification training program.
   b. The duration of the assignment will not exceed 24 months.

c. Upon completion of the assignment, a plan is developed to ensure the individual is retrained, tested, medically fit for duty and reactivated prior to assuming license duties. Additionally, the Emergency Response Organization shall be contacted to ensure the individual meets ERO training requirements including DEP opportunities required by the individual's position.

5.13 License Relinquishment

1. IF a licensed individual desires to relinquish his or her NRC RO or SRO License, THEN the individual shall contact Regulatory Compliance either by telephone call or a formal memorandum from the Operations Training Unit or the Operations Section.

2. IF a licensed individual is exiting the company, THEN the individual's supervisor is responsible for immediately notifying the Superintendent, Nuclear Operations Training (or designee) so that the license withdrawal process can be initiated as described in step 1 above.

3. Upon receiving a request to relinquish an NRC License, Regulatory Compliance personnel will generate a letter to the NRC informing the NRC to have the individual's NRC License withdrawn.

6.0 SCOPE OF REVISION

Rev.10 Changed the title from "operators" to "individuals." Added wording needed to allow the station to extend the expiration of a license holder's license once the license application is submitted. This provision is allowed by the NRC and invoking it will prevent the license expiration due simply to the NRC not returning paperwork to the station in a timely manner. Clarified and updated sections 5.1 thru 5.8 to correct document references and to more accurately describe the interfaces between Operations Training, Health Services, and Regulatory Compliance. Also took this opportunity to completely rewrite and renumbering of the rest of the document making revision bars unnecessary.

Rev.11 Added additional detail for reactivation of a Shift Manager. Replaced references to FITS with reference to SuccessFactors. Added ERO notification when when returning from license suspension or returning to active status.

ATTACHMENT 1: LICENSED SHIFT CREW POSITIONS

Page 1 of 1

Title	Description Of Duties
Shift Manager[1,2,3,4]	Any individual, licensed under 10CFR55, responsible for overall plant operation and also responsible to direct the activities of licensed operators in all Modes of operations.
Command SRO[1,3, 5]	Any individual, licensed under 10CFR55, responsible for the command and control of the unit and also responsible to direct the activities of licensed operators in all Modes of operations.
Shift Technical Advisor[1]	An individual that provides advisory technical support to the operations shift crew in the areas of thermal hydraulics, reactor engineering, and plant analysis with regard to the safe operation of the unit.
Field Supervisor	Any individual responsible for directing non-licensed operator in-field activities.
ATCA Operator[1,2,3,4]	Any individual licensed under 10CFR55 to manipulate a control of apparatus and mechanisms which directly affects the reactivity or power level of the reactor in all Modes of operations.
BOP Operator[1,3]	Any individual licensed under 10CFR55 to manipulate a control of apparatus and mechanisms which directly affects the reactivity or power level of the reactor.

[1]Required by Tech Specs in Modes 1 through 4.

[2]Required by Tech Specs in Mode 5 and 6. Credited for watchstanding proficiency while defueled.

[3]Credited position for watch-standing proficiency in Modes 1 through 4 since required by Tech Specs.

[4]Credited position for watch-standing proficiency in Modes 5 and 6 since required by Tech Specs. Credited for watchstanding proficiency while defueled.

[5]Credited position for watch-standing proficiency in Modes 5 and 6 since the position is meaningfully and fully engaged in the functions and duties of the analogous minimum licensed position(s) required by Tech Specs. Credited for watchstanding proficiency while defueled.

3.3 INSTRUMENTATION

3.3.17 Post Accident Monitoring (PAM) Instrumentation

LCO 3.3.17 The PAM instrumentation for each Function in Table 3.3.17-1 shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

----------NOTE----------
Separate Condition entry is allowed for each Function.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more Functions with one required channel inoperable.	A.1 Restore required channel to OPERABLE status.	30 days
B. Required Action and associated Completion Time of Condition A not met.	B.1 ----------NOTE---------- Only applicable to Functions other than Functions 13, 14, and 15. ---------- Initiate action in accordance with Specification 5.6.5.	Immediately
	OR	
	B.2 ----------NOTE---------- Only applicable to Functions 13, 14, and 15. ---------- Enter the Condition referenced in Table 3.3.17-1 for the channel.	Immediately

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. One or more Functions with two required channels inoperable.	C.1 Restore one channel to OPERABLE status.	7 days
D. Required Action and associated Completion Time of Condition C not met.	D.1 Enter the Condition referenced in Table 3.3.17-1 for the channel.	Immediately
E. As required by Required Action B.2 or D.1 and referenced in Table 3.3.17-1.	E.1 Be in MODE 3. AND E.2 Be in MODE 4.	6 hours 12 hours
F. As required by Required Action D.1 and referenced in Table 3.3.17-1	F.1 Initiate action in accordance with Specification 5.6.5.	Immediately

SURVEILLANCE REQUIREMENTS

----------NOTE----------
These SRs apply to each PAM instrumentation Function in Table 3.3.17-1 except where identified in the SR.

SURVEILLANCE		FREQUENCY
SR 3.3.17.1	Perform CHANNEL CHECK for each required instrumentation channel that is normally energized.	31 days

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.17.2	----------NOTE---------- Neutron detectors are excluded from CHANNEL CALIBRATION. ---------- Perform CHANNEL CALIBRATION for Functions 1, 11, 12, 14, 15, 16, and 17.	18 months
SR 3.3.17.3	Perform CHANNEL CALIBRATION for Functions 2, 3, 4, 5, 6, 7, 8, 9, 10, and 13.	24 months

Table 3.3.17-1 (page 1 of 1)
Post Accident Monitoring Instrumentation

	FUNCTION	REQUIRED CHANNELS	CONDITIONS REFERENCED FROM REQUIRED ACTION B.2 or D.1
1.	Wide Range Neutron Flux	2	E
2.	Reactor Coolant Loop Outlet Temperature	2 per loop	E
3.	Reactor Coolant Loop Pressure	2 per loop	E
4.	Reactor Coolant Hot Leg Level (Wide Range)	2	E
5.	Containment Water Level (Wide Range)	2	E
6.	Containment Pressure (Wide Range)	2	E
7.	Penetration Flow Path Containment Isolation Valve Position	2 per penetration flow path[(a)(b)]	E
8.	Containment High Range Radiation	2	F
9.	Pressurizer Level	2	E
10.	Steam Generator Startup Range Level	2 per SG	E
11.	Incore Thermocouples	2 per core quadrant	E
12.	Auxiliary Feedwater Flow Rate	2 per SG	E
13.	Steam Generator Outlet Steam Pressure	1 per SG	E
14.	High Pressure Injection Flow	1 per injection line	E
15.	Low Pressure Injection (Decay Heat Removal) Flow	1 per train	E
16.	Borated Water Storage Tank Level	2	E
17.	Neutron Flux (Source Range)	2	E

(a) Not required for isolation valves whose associated penetration is isolated by at least one closed and deactivated automatic valve, closed manual valve, blind flange, or check valve with flow through the valve secured.

(b) Only one position indication channel is required for penetration flow paths with only one installed control room indication channel.

B 3.3 INSTRUMENTATION

B 3.3.17 Post Accident Monitoring (PAM) Instrumentation

BASES

BACKGROUND

The primary purpose of the PAM instrumentation is to display unit variables that provide information required by the control room operators during accident situations. This information provides the necessary support for the operator to take the manual actions for which no automatic control is provided and that are required for safety systems to accomplish their safety functions for Design Basis Events.

The OPERABILITY of the accident monitoring instrumentation ensures that there is sufficient information available on selected unit parameters to monitor and to assess unit status and behavior following an accident.

The availability of accident monitoring instrumentation is important so that responses to corrective actions can be observed, and so that the need for and magnitude of further actions can be determined. These essential instruments are identified by UFSAR Section 7.13 (Ref. 1) addressing the recommendations of Regulatory Guide 1.97 (Ref. 2) as required by Supplement 1 to NUREG-0737 (Ref. 3).

The instrument channels required to be OPERABLE by this LCO equate to two classes of parameters identified during unit specific implementation of Regulatory Guide 1.97 as Type A and Category 1 variables.

These key variables are identified by unit specific Regulatory Guide 1.97 analysis (Ref. 1). This analysis identifies the unit specific Type A and Category 1 variables and provides justification for deviating from the NRC guidance in Reference 2.

APPLICABLE SAFETY ANALYSES

The PAM instrumentation ensures the availability of information so that the control room operating staff can:

- Perform the diagnosis specified in the emergency operating procedures. These variables are restricted to preplanned actions for the primary success path of DBAs (e.g., loss of coolant accident (LOCA));
- Take the specified, preplanned, manually controlled actions, for which no automatic control is provided, which are required for safety systems to accomplish their safety functions;
- Determine whether systems important to safety are performing their intended functions;

BASES

APPLICABLE SAFETY ANALYSES (continued)

- Determine the potential for causing a gross breach of the barriers to radioactivity release;
- Determine if a gross breach of a barrier has occurred; and
- Initiate action necessary to protect the public and estimate the magnitude of any impending threat.

The unit specific Regulatory Guide 1.97 analysis documents the process that identifies Type A and Category 1 non-Type A variables.

PAM instrumentation that meets the definition of Type A in Regulatory Guide 1.97 satisfies Criterion 3 of 10 CFR 50.36(c)(2)(ii). Category 1, non-type A, instrumentation must be retained in Technical Specifications because it is intended to assist operators in minimizing the consequences of accidents. Therefore, Category 1, non-Type A variables are important for reducing public risk.

LCO

LCO 3.3.17 requires two OPERABLE channels for most Functions to ensure no single failure prevents the operators from being presented with the information necessary to determine the status of the unit and to bring the unit to, and maintain it in, a safe condition following that accident.

One exception to the two channel requirement is Penetration Flow Path Containment Isolation Valve Position. In this case, the important information is the status of the containment penetrations. The LCO requires one position indicator for each active containment isolation valve. This is sufficient to redundantly verify the isolation status of each isolable penetration either via indicated status of the active valve and prior knowledge of the passive valve or via system boundary status. If a normally active containment isolation valve is known to be closed and deactivated, position indication is not needed to determine status. Therefore, the position indication for valves in this state is not required to be OPERABLE.

The following list is a discussion of the specified instrument Functions listed in Table 3.3.17-1.

1. Wide Range Neutron Flux

   Wide Range Neutron Flux is a Category 1 variable provided to verify reactor shutdown. Wide Range Neutron Flux instrumentation consists of two channels; each consisting of a fission chamber detector providing continuous indication at a PAM panel located in the control room. This signal is processed for a wide range of 1E-8% power to 2E2% power.

BASES

LCO (continued)

2. Reactor Coolant Loop Outlet Temperature

Reactor Coolant Loop Outlet Temperature monitors the hot leg and is a Type A Category 1 variable provided for verification of core cooling and long term surveillance. Reactor Coolant Loop Outlet Temperature consists of two channels per reactor coolant loop. Each channel consists of a resistance temperature detector located in thermowell providing continuous indication on the PAM panel in the control room. The channels provide indication over a range of 120°F to 920°F.

3. Reactor Coolant Loop Pressure

Reactor Coolant Loop Pressure is a Type A and Category 1 variable provided for verification of core cooling and RCS integrity long term surveillance.

Wide range reactor coolant loop pressure is measured by pressure transmitters with a span of 0 psig to 3000 psig. Redundant monitoring capability is provided in each loop measured by pressure transmitters with a span of 0 psig to 2500 psig. Control room indications are provided on the PAM panel and other control panels in the control room.

4. Reactor Coolant Hot Leg Level (Wide Range)

Reactor Coolant Hot Leg Level (Wide Range) is a Category 1 variable provided for verification and long term surveillance of core cooling. The Reactor Coolant Hot Leg Level (Wide Range) provides a means to trend reactor coolant inventory and provides supplementary information to assist the operator in the assessment of the effectiveness of automatic safety functions.

Reactor Vessel Water Level channels consist of two channels (one per hot leg); each with a differential pressure transmitter measuring the differential pressure between the top and bottom of the associated hot leg and compensating for the density of water. The sensing line fluid density compensation allows for variation in fluid density resulting from variation in the containment ambient temperature. This feature is accomplished by utilizing thermistor wire that tracks the entire length of the instrument reference leg. The signal is processed from a range of 0 inches to 968 inches. Level transmitters with a differential pressure range of 0 inches to 968 inches water measure the differential pressure between the upper tap reference leg (at the steam generator inlet) and the lower tap (hot leg at the reactor outlet). The transmitter and density

BASES

LCO (continued)

compensation signal are sent to the plant computer. A computer algorithm takes these signals along with temperature and pressure signals and executes to determine actual hot leg level. The level can be accessed and displayed provided that the RCS pumps are off and rapid depressurization is not occurring.

5. Containment Water Level (Wide Range)

Containment Water Level (Wide Range) is a Category 1 variable provided for verification and long term surveillance of RCS integrity. Containment Water Level instrumentation consists of two channels. Each channel consists of a level transmitter with output to an indicator. The wide range containment water level monitors have an indicator on the PAM panel in the control room with a range of 0 feet to 55 feet.

6. Containment Pressure (Wide Range)

Containment Pressure (Wide Range) is a Type A and Category 1 variable provided for verification of RCS and containment OPERABILITY. Containment Pressure instrumentation consists of two channels. Each channel consists of a pressure transmitter with output to an indicator on the PAM panel in the control room. The indicators provide indication with a range of 0 psia to 200 psia.

7. Penetration Flow Path Containment Isolation Valve Position

Penetration Flow Path Containment Isolation Valve (CIV) (excluding check valves) Position is a Category 1 variable provided for verification of containment OPERABILITY.

CIV position is provided for verification of containment integrity. In the case of CIV position, the important information is the isolation status of the containment penetration. The LCO requires one channel of valve position indication in the control room to be OPERABLE for each active CIV in a containment penetration flow path, i.e., two total channels of CIV position indication for a penetration flow path with two active valves. For containment penetrations with only one active CIV having control room indication, Note (b) requires a single channel of valve position indication to be OPERABLE. This is sufficient to redundantly verify the isolation status of each isolable penetration via indicated status of the active valve, as applicable, and prior knowledge of passive valve or system boundary status. If a penetration flow path is isolated, position

BASES

LCO (continued)

indication for the CIV(s) in the associated penetration flow path is not needed to determine status. Therefore, the position indication for valves in an isolated penetration flow path is not required to be OPERABLE. Note (a) to the Required Channels states that the Function is not required for isolation valves whose associated penetration is isolated by at least one closed and deactivated automatic valve, closed manual valve, blind flange, or check valve with flow through the valve secured. Each penetration is treated separately and each penetration flow path is considered a separate function. Therefore, separate Condition entry is allowed for each inoperable penetration flow path.

The Penetration Flow Path CIV Position PAM instrumentation consists of position switches mounted on the valves for the positions to be indicated, associated wiring, and control room indicating lamps for active CIVs (i.e., automatic CIV - check valves are not required to have position indication). These position switches and associated indicators in the control room provide the primary indication used by the operator during an accident. Therefore, the PAM Specification deals specifically with these portions of the instrument channel.

8. Containment High Range Radiation

Containment High Range Radiation is a Category 1 variable provided to monitor the potential for significant radiation releases and to provide release assessment for use by operators in determining the need to invoke site emergency plans. Containment High Range Radiation instrumentation consists of two channels. Each channel consists of one gamma photon radiation detector with a calibrated range of 1E0 R/hr to 1E8 R/hr. Continuous indicators have been provided in the PAM panel located in the control room. In addition, both strings provide an output to recorders in the radiation monitoring panels located in the control room.

9. Pressurizer Level

Pressurizer Level is a Type A and Category 1 variable used to aid in determining whether to terminate Emergency Core Cooling Systems (ECCS), if still in progress, or to reinitiate ECCS if it has been stopped. Knowledge of pressurizer water level is also used to verify the unit conditions necessary to establish natural circulation in the RCS and to verify that the unit is maintained in a safe shutdown condition. Pressurizer Level instrumentation consists of two channels. Each channel consists of a pressurizer level transmitter with an indicator in the control room. The indicators have a 0 inches to 320 inches range.

BASES

LCO (continued)

10. Steam Generator Startup Range Level

Steam Generator Startup Range Level is a Category 1 variable provided to monitor operation of decay heat removal via the SG. The indication of SG level is the extended startup range level instrumentation, covering a span of approximately 8 inches to 396 inches above the lower tube sheet. Steam Generator Startup Range Level consists of two channels per steam generator. Two readouts are 0 inches to 250 inches of water, two are 0 inches to 300 inches of water. Indicators are provided on the PAM panel and another control panel in the control room.

If the Steam and Feedwater Rupture Control System has actuated, and either the Safety Features Actuation System (SFAS) level 2 has actuated or if Subcooling Margin is not adequate, then the Auxiliary Feedwater (AFW) System is used to maintain steam generator water level at the SFAS high level setpoint, to promote boiler-condenser heat transfer. The Main Feedwater System can be used, if available, if the AFW System is not available.

11. Incore Thermocouples

Incore Thermocouples is a Category 1 variable provided for assessing the existence of inadequate core cooling.

There are two channels of incore thermocouples per core quadrant. Each channel consists of two thermocouples, selectable for each indicator and T_{sat} meter located on the PAM panels. One thermocouple per channel is required for OPERABILITY. The thermocouples are redundant to the hot leg RTD's. The switch and temperature indicators are located in the control room. The range of the thermocouples is 0ºF to 2300ºF.

12. Auxiliary Feedwater Flow Rate

AFW Flow Rate is a Category 1 variable provided to monitor operation of decay heat removal via the SGs. The AFW Flow to each SG is determined from a differential pressure measurement calibrated to a span of 0 gpm to 1000 gpm associated with each SG. Redundant monitoring capability is provided by two independent trains of instrumentation for each SG. One differential pressure transmitter provides an input to a control room indicator on the PAM panels and the other provides indication to the control room panels.

BASES

LCO (continued)

AFW Flow is the primary indication used by the operator to verify that the AFW System is delivering the correct flow to each SG. However, the primary indication used by the operator to ensure an adequate inventory is SG level.

13. Steam Generator Outlet Steam Pressure

Steam Generator Outlet Steam Pressure is a Category 1 variable provided to monitor operation of decay heat removal via the SG. Steam Generator Outlet Steam Pressure instrumentation consists of two (one per Steam Generator) channels with indicators in the control room and corresponding plant computer points. The range of these channels is 0 psig to 1200 psig.

14. High Pressure Injection Flow

High Pressure Injection Flow instrumentation is a Type A and Category 1 variable provided to monitor the status of the high pressure injection. There is one channel for each HPI injection line with indicators in the control room. The channels have a 0 gpm to 500 gpm range.

15. Low Pressure Injection (Decay Heat Removal) Flow

Low Pressure Injection (Decay Heat Removal) Flow is a Type A and Category 1 variable used to monitor the status of the low pressure injection (decay heat removal) train. There are two channels; one for each train with indicators in the control room. These channels have a 0 gpm to 5000 gpm range.

16. Borated Water Storage Tank Level

Borated Water Storage Tank (BWST) Level is a Type A and Category 1 variable used to monitor the level in the BWST. Level instrumentation consists of four level strings with indicators in the control room. Only two channels are required to satisfy this LCO. The range of these strings is 0 feet to 50 feet.

17. Neutron Flux (Source Range)

Source Range Neutron Flux is a Category 1 variable provided to verify the reactor is subcritical. Source Range Neutron Flux instrumentation consists of two channels. Each channel consists of a fission chamber with a range from 1E-1 cps to 1E5 cps. Continuous indicators have been provided in the PAM panels located in the control room.

BASES

APPLICABILITY

The PAM instrumentation LCO is applicable in MODES 1, 2, and 3. These variables are related to the diagnosis and preplanned actions required to mitigate DBAs. The applicable DBAs are assumed to occur in MODES 1, 2, and 3. In MODES 4, 5, and 6, unit conditions are such that the likelihood of an event occurring that would require PAM instrumentation is low; therefore, the PAM instrumentation is not required to be OPERABLE in these MODES.

ACTIONS

A Note is added to the ACTIONS to clarify the application of Completion Time rules. The Conditions of this Specification may be entered independently for each Function listed in Table 3.3.17-1. The Completion Time(s) of the inoperable channels of a Function will be tracked separately for each Function starting from the time the Condition was entered for that Function.

A.1

When one or more Functions have one required channel inoperable, the inoperable channel must be restored to OPERABLE status within 30 days. The 30 day Completion Time is based on operating experience. This takes into account the remaining OPERABLE channel (or, in the case of a Function that has only one required channel, other non-Regulatory Guide 1.97 instrument channels to monitor the Function), the passive nature of the instrument (no critical automatic action is assumed to occur from these instruments), and the low probability of an event requiring PAM instrumentation during this interval.

B.1 and B.2

Condition B applies when the Required Action and associated Completion Time of Condition A are not met. Required Action B.1 specifies immediate initiation of action described in Specification 5.6.5, "Post Accident Monitoring report," which requires a written report to be submitted to the NRC. This report discusses the results of the evaluation into the cause of the inoperability and identifies proposed restorative actions. This action is appropriate in lieu of a shutdown requirement since alternative actions are identified before loss of functional capability and given the likelihood of unit conditions that would require information provided by this instrumentation. As Noted, Required Action B.1 is only applicable for Functions other than Functions 13, 14, and 15.

Required Action B.2 directs entry in the appropriate Condition referenced in Table 3.3.17-1. The applicable Condition in the Table is Function dependent. Each time an inoperable channel has not met the Required Action of Condition A and the associated Completion Time has expired, Required Action B.2 is entered for that channel and provides for transfer

BASES

ACTIONS

B.1 and B.2 (continued)

to the appropriate subsequent Condition. As noted, Required Action B.2 is only applicable for Functions 13, 14, and 15, as these are the only Functions with only one required channel. Since these Functions have only one channel, continued operations past the 30 days of ACTION A is not allowed.

The Completion Time of "Immediately" for Required Actions B.1 and B.2 ensures the requirements of Specification 5.6.5 are initiated or the proper Condition dictated by Table 3.3.17-1 is entered.

C.1

When one or more Functions have two required channels inoperable (i.e., two channels inoperable in the same Function), one channel in the Function should be restored to OPERABLE status within 7 days. The Completion Time of 7 days is based on the relatively low probability of an event requiring PAM instrumentation action operation and the availability of alternative means to obtain the required information. Continuous operation with two required channels inoperable in a Function is not acceptable because the alternate indications may not fully meet all performance of qualification requirements applied to the PAM instrumentation. Therefore, requiring restoration of one inoperable channel of the Function limits the risk that the PAM Function will be in a degraded condition should an accident occur.

D.1

Required Action D.1 directs entry into the appropriate Condition referenced in Table 3.3.17-1. The applicable Condition referenced in the Table is Function dependent. Each time an inoperable channel has not met the Required Action of Condition C and the associated Completion Time has expired, Condition D is entered for that channel and provides for transfer to the appropriate subsequent Condition.

E.1

If the Required Action and associated Completion Time of Condition A (for Functions 13, 14, and 15) or C (for all other Functions) is not met and Table 3.3.17-1 directs entry into Condition E, the unit must be brought to a MODE in which the requirements of this LCO do not apply. To achieve this status, the unit must be brought to at least MODE 3 within 6 hours

BASES

ACTIONS

E.1 (continued)

and MODE 4 within 12 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

F.1

At this unit, alternative means of monitoring Containment High Range Radiation have been developed and tested. These alternative means may be temporarily used if the normal PAM channel cannot be restored to OPERABLE status within the allowed time.

If these alternative means are used, the Required Action is not to shut the unit down, but rather to follow the directions of Specification 5.6.5, in the Administrative Controls section of the Technical Specifications. The report provided to the NRC should discuss the alternative means used, describe the degree to which the alternative means are equivalent to the installed PAM channels, justify the areas in which they are not equivalent, and provide a schedule for restoring the normal PAM channels.

At this unit, the alternative monitoring provisions consist of the Containment Vessel Area Radiation Elements or Containment Normal Range Noble Gas Channels.

SURVEILLANCE REQUIREMENTS

As noted at the beginning of the SRs, the SRs apply to each PAM instrumentation Function in Table 3.3.17-1 except as stated in the SR.

SR 3.3.17.1

Performance of the CHANNEL CHECK once every 31 days for each required instrumentation channel that is normally energized ensures that a gross failure of instrumentation has not occurred. A CHANNEL CHECK is normally a comparison of the parameter indicated on one channel with a similar parameter on other channels. It is based on the assumption that instrument channels monitoring the same parameter should read approximately the same value. Significant deviations between the two instrument channels could be an indication of excessive instrument drift in one of the channels or of something even more serious. CHANNEL CHECK will detect gross channel failure; therefore, it is key to verifying that the instrumentation continues to operate properly between each CHANNEL CALIBRATION.

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.17.1 (continued)

Agreement criteria are determined by the unit staff, based on a combination of the channel instrument uncertainties, including indication and readability. If a channel is outside the criteria, it may be an indication that the sensor or the signal processing equipment has drifted outside its limit. If the channels are within the criteria, it is an indication that the channels are OPERABLE. If the channels are normally off scale during times when surveillance is required, the CHANNEL CHECK will only verify that they are off scale in the same direction. Offscale low current loop channels are verified to be reading at the bottom of the range and not failed downscale.

The Frequency is based on unit operating experience that demonstrates channel failure is rare. The CHANNEL CHECK supplements less formal but more frequent checks of channels during normal operational use of the displays associated with this LCO's required channels.

SR 3.3.17.2

A CHANNEL CALIBRATION is performed every 18 months. CHANNEL CALIBRATION is a complete check of the instrument channel, including the sensor. This test verifies the channel responds to measured parameters within the necessary range and accuracy.

A Note clarifies that the neutron detectors are not required to be tested as part of the CHANNEL CALIBRATION. There is no adjustment that can be made to the detectors. Furthermore, adjustment of the detectors is unnecessary because they are passive devices, with minimal drift.

Whenever a sensing element is replaced, the next required CHANNEL CALIBRATION of the Incore Thermocouple sensors is accomplished by an inplace cross calibration that compares the other sensing elements with the recently installed sensing element.

The Frequency is based on operating experience and is justified by the assumption of an 18 month calibration interval in the determination of the magnitude of equipment drift.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.17.3

A CHANNEL CALIBRATION is performed every 24 months. CHANNEL CAILIBRATION is a complete check of the instrument channel, including the sensor. This test verifies the channel responds to measured parameters within the necessary range and accuracy.

For the Containment High Range Radiation Monitors, a CHANNEL CALIBRATION may consist of an electronic calibration of the channel, not including the detector, for range decades above 10 R/hr, and a one point calibration check of the detector below 10 R/hr with a gamma source.

The Frequency is based on operating experience and consistency with the typical industry refueling cycle and is justified by an assumption of a 24 month calibration interval in the determination of the magnitude of equipment drift.

REFERENCES

1. UFSAR, Section 7.13.

2. Regulatory Guide 1.97.

3. NUREG-0737, 1979.

1.0 USE AND APPLICATION

1.3 Completion Times

PURPOSE	The purpose of this section is to establish the Completion Time convention and to provide guidance for its use.
BACKGROUND	Limiting Conditions for Operation (LCOs) specify minimum requirements for ensuring safe operation of the unit. The ACTIONS associated with an LCO state Conditions that typically describe the ways in which the requirements of the LCO can fail to be met. Specified with each stated Condition are Required Action(s) and Completion Time(s).
DESCRIPTION	The Completion Time is the amount of time allowed for completing a Required Action. It is referenced to the time of discovery of a situation (e.g., inoperable equipment or variable not within limits) that requires entering an ACTIONS Condition unless otherwise specified, providing the unit is in a MODE or specified condition stated in the Applicability of the LCO. Required Actions must be completed prior to the expiration of the specified Completion Time. An ACTIONS Condition remains in effect and the Required Actions apply until the Condition no longer exists or the unit is not within the LCO Applicability. If situations are discovered that require entry into more than one Condition at a time within a single LCO (multiple Conditions), the Required Actions for each Condition must be performed within the associated Completion Time. When in multiple Conditions, separate Completion Times are tracked for each Condition starting from the time of discovery of the situation that required entry into the Condition. Once a Condition has been entered, subsequent trains, subsystems, components, or variables expressed in the Condition, discovered to be inoperable or not within limits, will not result in separate entry into the Condition, unless specifically stated. The Required Actions of the Condition continue to apply to each additional failure, with Completion Times based on initial entry into the Condition. However, when a subsequent train, subsystem, component, or variable, expressed in the Condition, is discovered to be inoperable or not within limits, the Completion Time(s) may be extended. To apply this Completion Time extension, two criteria must first be met. The subsequent inoperability: a. Must exist concurrent with the first inoperability; and b. Must remain inoperable or not within limits after the first inoperability is resolved.

1.3 Completion Times

DESCRIPTION (continued)

The total Completion Time allowed for completing a Required Action to address the subsequent inoperability shall be limited to the more restrictive of either:

a. The stated Completion Time, as measured from the initial entry into the Condition, plus an additional 24 hours; or

b. The stated Completion Time as measured from discovery of the subsequent inoperability.

The above Completion Time extensions do not apply to those Specifications that have exceptions that allow completely separate re-entry into the Condition (for each train, subsystem, component, or variable expressed in the Condition) and separate tracking of Completion Times based on this re-entry. These exceptions are stated in individual Specifications.

The above Completion Time extension does not apply to a Completion Time with a modified "time zero." This modified "time zero" may be expressed as a repetitive time (i.e., "once per 8 hours," where the Completion Time is referenced from a previous completion of the Required Action versus the time of Condition entry) or as a time modified by the phrase "from discovery . . ."

EXAMPLES

The following examples illustrate the use of Completion Times with different types of Conditions and changing Conditions.

EXAMPLE 1.3-1

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 5.	6 hours 36 hours

Condition B has two Required Actions. Each Required Action has its own separate Completion Time. Each Completion Time is referenced to the time that Condition B is entered.

1.3 Completion Times

EXAMPLES (continued)

The Required Actions of Condition B are to be in MODE 3 within 6 hours AND in MODE 5 within 36 hours. A total of 6 hours is allowed for reaching MODE 3 and a total of 36 hours (not 42 hours) is allowed for reaching MODE 5 from the time that Condition B was entered. If MODE 3 is reached within 3 hours, the time allowed for reaching MODE 5 is the next 33 hours because the total time allowed for reaching MODE 5 is 36 hours.

If Condition B is entered while in MODE 3, the time allowed for reaching MODE 5 is the next 36 hours.

EXAMPLE 1.3-2

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One pump inoperable.	A.1 Restore pump to OPERABLE status.	7 days
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 5.	6 hours 36 hours

When a pump is declared inoperable, Condition A is entered. If the pump is not restored to OPERABLE status within 7 days, Condition B is also entered and the Completion Time clocks for Required Actions B.1 and B.2 start. If the inoperable pump is restored to OPERABLE status after Condition B is entered, Conditions A and B are exited, and therefore, the Required Actions of Condition B may be terminated.

When a second pump is declared inoperable while the first pump is still inoperable, Condition A is not re-entered for the second pump. LCO 3.0.3 is entered, since the ACTIONS do not include a Condition for more than one inoperable pump. The Completion Time clock for Condition A does not stop after LCO 3.0.3 is entered, but continues to be tracked from the time Condition A was initially entered.

EXAMPLES (continued)

While in LCO 3.0.3, if one of the inoperable pumps is restored to OPERABLE status and the Completion Time for Condition A has expired, LCO 3.0.3 may be exited and operation continued in accordance with Condition B. The Completion Time for Condition B is tracked from the time the Condition A Completion Time expired.

On restoring one of the pumps to OPERABLE status, the Condition A Completion Time is not reset, but continues from the time the first pump was declared inoperable. This Completion Time may be extended if the pump restored to OPERABLE status was the first inoperable pump. A 24 hour extension to the stated 7 days is allowed, provided this does not result in the second pump being inoperable for > 7 days.

1.3 Completion Times

EXAMPLES (continued)

EXAMPLE 1.3-3

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One Function X train inoperable.	A.1 Restore Function X train to OPERABLE status.	7 days
B. One Function Y train inoperable.	B.1 Restore Function Y train to OPERABLE status.	72 hours
C. One Function X train inoperable. AND One Function Y train inoperable.	C.1 Restore Function X train to OPERABLE status. OR C.2 Restore Function Y train to OPERABLE status.	72 hours 72 hours

1.3 Completion Times

EXAMPLES (continued)

When one Function X train and one Function Y train are inoperable, Condition A and Condition B are concurrently applicable. The Completion Times for Condition A and Condition B are tracked separately for each train starting from the time each train was declared inoperable and the Condition was entered. A separate Completion Time is established for Condition C and tracked from the time the second train was declared inoperable (i.e., the time the situation described in Condition C was discovered).

If Required Action C.2 is completed within the specified Completion Time, Conditions B and C are exited. If the Completion Time for Required Action A.1 has not expired, operation may continue in accordance with Condition A. The remaining Completion Time in Condition A is measured from the time the affected train was declared inoperable (i.e., initial entry into Condition A).

It is possible to alternate between Conditions A, B, and C in such a manner that operation could continue indefinitely without ever restoring systems to meet the LCO. However, doing so would be inconsistent with the basis of the Completion Times. Therefore, there shall be administrative controls to limit the maximum time allowed for any combination of Conditions that result in a single contiguous occurrence of failing to meet the LCO. These administrative controls shall ensure that the Completion Times for those Conditions are not inappropriately extended.

1.3 Completion Times

EXAMPLES (continued)

EXAMPLE 1.3-4

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more valves inoperable.	A.1 Restore valve(s) to OPERABLE status.	4 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 4.	6 hours 12 hours

A single Completion Time is used for any number of valves inoperable at the same time. The Completion Time associated with Condition A is based on the initial entry into Condition A and is not tracked on a per valve basis. Declaring subsequent valves inoperable, while Condition A is still in effect, does not trigger the tracking of separate Completion Times.

Once one of the valves has been restored to OPERABLE status, the Condition A Completion Time is not reset, but continues from the time the first valve was declared inoperable. The Completion Time may be extended if the valve restored to OPERABLE status was the first inoperable valve. The Condition A Completion Time may be extended for up to 4 hours provided this does not result in any subsequent valve being inoperable for > 4 hours.

If the Completion Time of 4 hours (plus the extension) expires while one or more valves are still inoperable, Condition B is entered.

1.3 Completion Times

EXAMPLES (continued)

EXAMPLE 1.3-5

ACTIONS

---NOTE---

Separate Condition entry is allowed for each inoperable valve.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more valves inoperable.	A.1 Restore valve to OPERABLE status.	4 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 4.	6 hours 12 hours

The Note above the ACTIONS Table is a method of modifying how the Completion Time is tracked. If this method of modifying how the Completion Time is tracked was applicable only to a specific Condition, the Note would appear in that Condition rather than at the top of the ACTIONS Table.

The Note allows Condition A to be entered separately for each inoperable valve, and Completion Times tracked on a per valve basis. When a valve is declared inoperable, Condition A is entered and its Completion Time starts. If subsequent valves are declared inoperable, Condition A is entered for each valve and separate Completion Times start and are tracked for each valve.

If the Completion Time associated with a valve in Condition A expires, Condition B is entered for that valve. If the Completion Times associated with subsequent valves in Condition A expire, Condition B is entered separately for each valve and separate Completion Times start and are tracked for each valve. If a valve that caused entry into Condition B is restored to OPERABLE status, Condition B is exited for that valve.

1.3 Completion Times

EXAMPLES (continued)

Since the Note in this example allows multiple Condition entry and tracking of separate Completion Times, Completion Time extensions do not apply.

EXAMPLE 1.3-6

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One channel inoperable.	A.1 Perform SR 3.x.x.x. OR A.2 Reduce THERMAL POWER to ≤ 50% RTP.	Once per 8 hours 8 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	6 hours

Entry into Condition A offers a choice between Required Action A.1 or A.2. Required Action A.1 has a "once per" Completion Time, which qualifies for the 25% extension, per SR 3.0.2, to each performance after the initial performance. The initial 8 hour interval of Required Action A.1 begins when Condition A is entered and the initial performance of Required Action A.1 must be complete within the first 8 hour interval. If Required Action A.1 is followed and the Required Action is not met within the Completion Time (plus the extension allowed by SR 3.0.2), Condition B is entered. If Required Action A.2 is followed and the Completion Time of 8 hours is not met, Condition B is entered.

If after entry into Condition B, Required Action A.1 or A.2 is met, Condition B is exited and operation may then continue in Condition A.

1.3 Completion Times

EXAMPLES (continued)

EXAMPLE 1.3-7

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One subsystem inoperable.	A.1 Verify affected subsystem isolated.	1 hour AND Once per 8 hours thereafter
	AND	
	A.2 Restore subsystem to OPERABLE status.	72 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	6 hours
	AND	
	B.2 Be in MODE 5.	36 hours

Required Action A.1 has two Completion Times. The 1 hour Completion Time begins at the time the Condition is entered and each "Once per 8 hours thereafter" interval begins upon performance of Required Action A.1.

If after Condition A is entered, Required Action A.1 is not met within either the initial 1 hour or any subsequent 8 hour interval from the previous performance (plus the extension allowed by SR 3.0.2), Condition B is entered. The Completion Time clock for Condition A does not stop after Condition B is entered, but continues from the time Condition A was initially entered. If Required Action A.1 is met after Condition B is entered, Condition B is exited and operation may continue in accordance with Condition A, provided the Completion Time for Required Action A.2 has not expired.

1.3 Completion Times

IMMEDIATE COMPLETION TIME	When "Immediately" is used as a Completion Time, the Required Action should be pursued without delay and in a controlled manner.

Table 2-1
RADIOACTIVE LIQUID EFFLUENT MONITORING INSTRUMENTATION

INSTRUMENT	REQUIRED CHANNELS	APPLICABILITY	ACTION
1. Gross Radioactivity Monitors Providing Alarms and Automatic Termination of Release			
a. Liquid Radwaste Effluent Line (either Miscellaneous (RE 1878A, B) or Clean (RE 1770A, B), but not both simultaneously)*	1	(1)	A
2. Flow Rate Measurement Devices			
a. Liquid Radwaste Effluent Line	1	(1)	B
b. Dilution Flow to Collection Box	1	(1)	B
c. FE 4687 Storm Sewer	1	(1)	B
3. Gross Beta or Gamma Radioactivity Monitors Providing Alarm But Not Providing Automatic Termination of Release			
a. Storm Sewer Drain (RE 4686)	1	(1)	C

* Only one release (either MWMT or CWMT) at a time can be in progress.

Table 2-1 (continued)

TABLE NOTATION

(1) During radioactive releases via this pathway

ACTION A With less than the number of required channels FUNCTIONAL, effluent releases may be resumed, provided that prior to initiating a release:

1. At least two independent samples are analyzed in accordance with Table 2-3 for analyses performed with each batch;

2. At least two independent verification of the release rate calculations are performed;

3. At least two independent verifications of the discharge valving are performed;

Otherwise, suspend release of radioactive effluents via this pathway.

ACTION B With less than the number of required channels FUNCTIONAL, effluent releases via this pathway may continue provided the flow rate is estimated at least once per 4 hours during actual releases. Pump curves may be used to estimate flow.

ACTION C With less than the number of required channels FUNCTIONAL, or if high alarm is locked in on RE, effluent releases via this pathway may continue provided that during effluent releases, grab samples are collected, at least once per 12 hours, and analyzed, at least once per 12 hours, for gross radioactivity (beta or gamma) at a lower limit of detection no greater than 1.0E-07 μCi/ml or a gamma isotopic analysis meeting the LLD Requirement of Table 2-3.

Table 2-2
RADIOACTIVE LIQUID EFFLUENT MONITORING
INSTRUMENTATION VERIFICATION REQUIREMENTS

INSTRUMENT		CHANNEL CHECK	SOURCE CHECK	CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TEST
1.	Gross Beta or Gamma Radioactivity Monitors Providing Alarm and Automatic Isolation, if applicable.				
a.	Liquid Radwaste Effluents Lines	D(1)	P	E(3)	Q(2)
b.	Storm Sewer Discharge Line	D(4)	M	E(3)	Q(2)
2.	Flow Rate Monitors				
a.	Liquid Radwaste Effluent Lines	D(4)	N/A	E	Q
b.	Dilution Flow to Collection Box	D(4)	N/A	E	Q
c.	Storm Sewer		N/A		

Table 2-2 (continued)

TABLE NOTATION

(1) During releases via this pathway.

(2) If applicable, the CHANNEL FUNCTIONAL TEST shall also demonstrate that automatic isolation of this pathway and control room alarm annunciation occurs if the instrument indicates measured levels above the alarm/trip setpoint.

(3) The initial CHANNEL CALIBRATION for radioactivity measurement instrumentation shall be performed using one or more of the reference standards certified by the National Institute of Standards and Technology (NIST) or using standards that have been obtained from suppliers that participate in measurement assurance activities with NIST. These standards should permit calibrating the system over its intended range of energy and rate capabilities. For subsequent CHANNEL CALIBRATION, sources that have been related to the initial calibration should be used, at intervals of at least once per eighteen months. For high range monitoring instrumentation, where calibration with a radioactive source is impractical, an electronic calibration may be substituted for the radiation source calibration.

(4) CHANNEL CHECK shall consist of verifying indication of flow during periods of release. CHANNEL CHECK shall be made at least once daily on any day on which continuous, periodic, or BATCH RELEASES are made.

(D) At least once per 24 hours.

(M) At least once per 31 days.

(P) Prior to each release.

(E) At least once per 18 month (550 days).

(Q) At least once per 92 days.

(R) At least once per 24 months (730 days)