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ATTENTION: "REPLACE" directions do not affect the Table of Contents, Therefore no
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TRM2 - TECHNICAL REQUIREMENTS MANUAL UNIT 2

REMOVE MANUAL TABLE OF CONTENTS DATE: 11/06/2018

ADD MANUAL TABLE OF CONTENTS DATE: 11/07/2018

CATEGORY: DOCUMENTS TYPE: TRM2

ID: TEXT 3.7.11

ADD: REV: 2

REMOVE: REV:1

ADD
NRR

CATEGORY: DOCUMENTS TYPE: TRM2
ID: TEXT B3.7.11
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REMOVE: REV:2

CATEGORY: DOCUMENTS TYPE: TRM2
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SSES MANUAL

Manual Name: TRM2

Manual Title: TECHNICAL REQUIREMENTS MANUAL UNIT 2

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SUSQUEHANNA STEAM ELECTRIC STATION
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3.0	Technical Requirement for Operation (TRO) Applicability	06/07/2018
3.1	REACTIVITY CONTROL SYSTEMS	
3.1.1	Anticipated Transient Without Scram Alternate Rod Injection (ATWS-ARI) Instrumentation	10/31/2007
3.1.2	Control Rod Drive (CRD) Housing Support	08/31/1998
3.1.3	Control Rod Block Instrumentation	12/15/2017
3.1.4	Control Rod Scram Accumulators Instrumentation and Check Valve	02/18/1999
3.2	CORE OPERATING LIMITS REPORT	
3.2.1	Core Operating Limits Report	03/16/2017
3.3	INSTRUMENTATION	
3.3.1	Radiation Monitoring Instrumentation	07/16/1999
3.3.2	Seismic Monitoring Instrumentation	03/10/2011
3.3.3	Meteorological Monitoring Instrumentation	10/31/2007
3.3.4	TRM Post-Accident Monitoring Instrumentation	07/20/2017
3.3.5	Section Not Used	10/31/2007
3.3.6	TRM Isolation Actuation Instrumentation	04/11/2014
3.3.7	Main Turbine Overspeed Protection System	11/04/2015
3.3.8	Section Not Used	10/22/2003
3.3.9	OPRM Instrumentation Configuration	03/27/2007
3.3.10	Reactor Recirculation Pump MG Set Stops	12/03/2004
3.3.11	MVP Isolation Instrumentation	10/22/2003
3.3.12	Water Monitoring Instrumentation	02/19/2015
3.4	REACTOR COOLANT SYSTEM	
3.4.1	Reactor Coolant System Chemistry	03/31/2006
3.4.2	Section Not Used	04/02/2009
3.4.3	High/Low Pressure Interface Leakage Monitors	10/31/2007
3.4.4	Reactor Recirculation Flow and Rod Line Limit	04/17/2009
3.4.5	Reactor Vessel Materials	03/31/2006
3.4.6	Reactor Recirculation Single Loop Operation (SLO) Flow Rate Restriction	04/24/2013

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3.5	EMERGENCY CORE COOLING AND RCIC	
3.5.1	ADS Manual Inhibit	01/28/2005
3.5.2	ECCS and RCIC System Monitoring Instrumentation	10/31/2007
3.5.3	Long Term Nitrogen Supply to ADS	08/31/1998
3.6	CONTAINMENT	
3.6.1	Venting or Purging	08/31/1998
3.6.2	Suppression Chamber-to-Drywell Vacuum Breaker Position Indication	04/16/2014
3.6.3	Suppression Pool Alarm Instrumentation	01/07/2002
3.6.4	Primary Containment Closed System Boundaries	12/31/2002
3.7	PLANT SYSTEMS	
3.7.1	Emergency Service Water System (ESW) Shutdown	07/29/1999
3.7.2	Ultimate Heat Sink (UHS) and Ground Water Level	08/31/1998
3.7.3.1	Fire Suppression Water Supply System	01/26/2017
3.7.3.2	Spray and Sprinkler Systems	04/07/2009
3.7.3.3	CO ₂ Systems	05/09/2016
3.7.3.4	Halon Systems	08/02/1999
3.7.3.5	Fire Hose Station	08/02/1999
3.7.3.6	Yard Fire Hydrants and Hydrant Hose Houses	08/02/1999
3.7.3.7	Fire Rated Assemblies	03/31/2006
3.7.3.8	Fire Detection Instrumentation	12/15/2017
3.7.4	Solid Radwaste System	03/31/2006
3.7.5.1	Main Condenser Offgas Hydrogen Monitor	02/19/2015
3.7.5.2	Main Condenser Offgas Explosive Gas Mixture	08/31/1998
3.7.5.3	Liquid Holdup Tanks	03/31/2006
3.7.6	ESSW Pumphouse Ventilation	05/24/2012
3.7.7	Main Condenser Offgas Pretreatment Logarithmic Radiation Monitoring Instrumentation	09/04/2008
3.7.8	Snubbers	02/19/2015
3.7.9	Control Structure HVAC	08/16/2006
3.7.10	Spent Fuel Storage Pools (SFSPs)	12/03/2004
3.7.11	Structural Integrity	N/A

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3.8.2.1	Motor Operated Valves (MOV) Thermal Overload Protection - Continuous	10/31/2007
3.8.2.2	Motor Operated Valves (MOV) Thermal Overload Protection - Automatic	12/03/2004
3.8.3	Diesel Generator (DG) Maintenance Activities	06/12/2012
3.8.4	24 VDC Electrical Power Subsystem	01/28/2005
3.8.5	Degraded Voltage Protection	11/07/2013
3.8.6	Emergency Switchgear Room Cooling	06/11/2012
3.8.7	Battery Monitoring and Maintenance Program	10/20/2009
3.9	REFUELING OPERATIONS	
3.9.1	Decay Time	08/31/1998
3.9.2	Communications	08/31/1998
3.9.3	Refueling Platform	08/31/1998
3.10	MISCELLANEOUS	
3.10.1	Sealed Source Contamination	03/31/2006
3.10.2	Shutdown Margin Test RPS Instrumentation	03/27/2007
3.10.3	Independent Spent Fuel Storage Installation (ISFSI)	06/10/2010
3.11	RADIOACTIVE EFFLUENTS	
3.11.1.1	Liquid Effluents Concentration	03/31/2006
3.11.1.2	Liquid Effluents Dose	03/31/2006
3.11.1.3	Liquid Waste Treatment System	03/31/2006
3.11.1.4	Liquid Radwaste Effluent Monitoring Instrumentation	10/09/2012
3.11.1.5	Radioactive Liquid Process Monitoring Instrumentation	02/19/2015
3.11.2.1	Radioactive Effluents Dose Rate	03/21/2006
3.11.2.2	Dose - Noble Gases	03/31/2006
3.11.2.3	Dose - Iodine, Tritium, and Radionuclides in Particulate Form	03/31/2006
3.11.2.4	Gaseous Radwaste Treatment System	04/02/2002
3.11.2.5	Ventilation Exhaust Treatment System	06/18/2013
3.11.2.6	Radioactive Gaseous Effluent Monitoring Instrumentation	07/20/2017
3.11.3	Total Dose	03/31/2006
3.11.4.1	Monitoring Program	02/19/2015
3.11.4.2	Land Use Census	03/31/2006
3.11.4.3	Interlaboratory Comparison Program	03/31/2006

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B 3.0	Technical Requirement Surveillance (TRS)	02/09/2015
B3.1	REACTIVITY CONTROL SYSTEMS BASES	
B 3.1.1	Anticipated Transient Without Scram Alternate Rod Injection (ATWS-ARI) Instrumentation	04/16/2014
B 3.1.2	Control Rod Drive (CRD) Housing Support	08/31/1998
B 3.1.3	Control Rod Block Instrumentation	12/15/2017
B 3.1.4	Control Rod Scram Accumulators Instrumentation and Check Valve	02/18/1999
B3.2	CORE OPERATING LIMITS BASES	
B 3.2.1	Core Operating Limits Report (COLR)	08/31/1999
B 3.3	INSTRUMENT BASES	
B 3.3.1	Radiation Monitoring Instrumentation	01/21/2014
B 3.3.2	Seismic Monitoring Instrumentation	03/10/2011
B 3.3.3	Meteorological Monitoring Instrumentation	10/31/2007
B 3.3.4	TRM Post-Accident Monitoring Instrumentation	07/20/2017
B 3.3.5	Section Not Used	10/31/2007
B 3.3.6	TRM Isolation Actuation Instrumentation	02/21/2014
B 3.3.7	Turbine Overspeed Protection System	11/04/2015
B 3.3.8	Section Not Used	10/22/2003
B 3.3.9	OPRM Instrumentation	04/17/2009
B 3.3.10	Reactor Recirculation Pump MG Set Stops	02/16/2012
B 3.3.11	MVP Isolation Instrumentation	10/22/2003
B 3.3.12	Water Monitoring Instrumentation	04/07/2009
B 3.4	REACTOR COOLANT SYSTEM BASES	
B 3.4.1	Reactor Coolant System Chemistry	08/31/1998
B 3.4.2	Section Not Used	04/01/2009
B 3.4.3	High/Low Pressure Interface Leakage Monitor	10/31/2007
B 3.4.4	Reactor Recirculation Flow and Rod Line Limit	10/15/1999
B 3.4.5	Reactor Vessel Materials	08/31/1999
B 3.4.6	Reactor Recirculation Single Loop Operation (SLO) Flow Rate Restriction	04/25/2013
B 3.5	ECCS AND RCIC BASES	
B 3.5.1	ADS Manual Inhibit	08/31/1998
B 3.5.2	ECCS and RCIC System Monitoring Instrumentation	10/31/2007
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B 3.7	PLANT SYSTEMS BASES	
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B 3.7.2	Ultimate Heat Sink (UHS) Ground Water Level	08/31/1998
B 3.7.3.1	Fire Suppression Water Supply System	01/26/2017
B 3.7.3.2	Spray and Sprinkler Systems	03/31/2006
B 3.7.3.3	CO ₂ Systems	08/02/1999
B 3.7.3.4	Halon Systems	04/11/2014
B 3.7.3.5	Fire Hose Stations	03/31/2006
B 3.7.3.6	Yard Fire Hydrants and Hydrant Hose Houses	08/02/1999
B 3.7.3.7	Fire Rated Assemblies	09/25/2012
B 3.7.3.8	Fire Detection Instrumentation	09/25/2012
B 3.7.4	Solid Radwaste System	02/01/1999
B 3.7.5.1	Main Condenser Offgas Hydrogen Monitor	08/31/1998
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B 3.7.5.3	Liquid Holdup Tanks	08/31/1998
B 3.7.6	ESSW Pumphouse Ventilation	05/29/2013
B 3.7.7	Main Condenser Offgas Pretreatment Logarithmic Radiation Monitoring Instrumentation	01/30/2008
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B 3.8.3	Diesel Generator (DG) Maintenance Activities	08/31/1998
B 3.8.4	24 VDC Electrical Power Subsystem	04/02/2002
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B 3.10.1	Sealed Source Contamination	08/31/1998
B 3.10.2	Shutdown Margin Test RPS Instrumentation	03/27/2007
B 3.10.3	Independent Spent Fuel Storage Installation (ISFSI)	08/23/1999
B 3.11	RADIOACTIVE EFFLUENTS BASES	
B 3.11.1.1	Liquid Effluents Concentration	04/28/2016
B 3.11.1.2	Liquid Effluents Dose	08/31/1998
B 3.11.1.3	Liquid Waste Treatment System	08/31/1998
B 3.11.1.4	Liquid Radwaste Effluent Monitoring Instrumentation	08/31/1998
B 3.11.1.5	Radioactive Liquid Process Monitoring Instrumentation	04/07/2000
B 3.11.2.1	Dose Rate	02/01/1999
B 3.11.2.2	Dose - Noble Gases	08/31/1998
B 3.11.2.3	Dose - Iodine, Tritium, and Radionuclides in Particulate Form	08/31/1998
B 3.11.2.4	Gaseous Radwaste Treatment System	04/02/2002
B 3.11.2.5	Ventilation Exhaust Treatment System	06/18/2013
B 3.11.2.6	Radioactive Gaseous Effluent Monitoring Instrumentation	08/11/2016
B 3.11.3	Total Dose	08/31/1998
B 3.11.4.1	Monitoring Program	02/19/2015
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B.3.12	LOADS CONTROL PROGRAM BASES	
B 3.12.1	Crane Travel - Spent Fuel Storage Pool	09/19/2007
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3.7 Plant Systems

3.7.11 Structural Integrity

TRO 3.7.11 ASME Code Class 1, 2, and 3 pressure retaining components and structural support components shall maintain structural integrity.

APPLICABILITY: MODES 1, 2, 3, 4, and 5

ACTIONS

----- NOTE -----
 Separate condition entry is allowed for each pressure retaining component and structural support component.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. -----NOTE----- Required Action A.1 shall be completed if this Condition is entered ----- Unevaluated indication or failed inspection is found in ASME Code Class 1, 2, or 3 pressure retaining component(s) or structural support component(s)	A.1 Evaluate the impact of the indication or failed inspection on OPERABILITY and structural integrity of associated systems, structures, or components	72 hours
B. Required Action and associated Completion Time of Condition A not met.	B.1 Declare the associated systems, structures or components inoperable	Immediately

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Structural integrity (including through-wall flaws) of any ASME Code Class 1 component(s) not maintained	C.1 Initiate actions to isolate the affected component(s) <u>AND</u> C.2 Declare the affected components inoperable	Immediately Immediately
D. Structural integrity (including through-wall flaws) of any ASME Code Class 2 or Class 3 component(s) not maintained	D.1 Perform an immediate determination of operability <u>AND</u> D.2 Perform a prompt determination of operability (engineering evaluation) if applicable	Immediately 72 hours
E. Structural integrity of any ASME Code Class 1, 2, or 3 structural support component(s) not maintained	E.1 Perform an immediate determination of operability <u>AND</u> E.2 Perform a prompt determination of operability (engineering evaluation) if required	Immediately 72 hours
F. The pressure retaining component(s) are not OPERABLE	F.1 Declare the associated systems, structures or components inoperable	Immediately

(continued)

TECHNICAL REQUIREMENT SURVEILLANCE

SURVEILLANCE		FREQUENCY
TRS 3.7.11.1	Perform inservice inspection of ASME Section XI Code Class 1, 2, and 3 Components	In accordance with Inservice Inspection Program

B 3.7.11 Structural Integrity

BASES

TRO The inspection programs for ASME Code Class 1, 2, and 3 components ensure that the structural integrity of these components will be maintained at an acceptable level throughout the life of the plant. This requirement identifies appropriate actions to be taken upon discovery of indications or flaws in components that affect the structural integrity in piping and components.

This requirement applies to all ASME Code Class 1, 2, and 3 piping and components.

In addition to these piping and components, structural support components such as pipe hangers, vendor catalog items, supplementary steel, base plates, welds, bolts, etc are considered part of the scope of this TRO.

Snubbers are not considered part of the scope of this TRO. They are part of the scope of TRO 3.7.8.

The inservice inspection program for ASME Code Class 1, 2 and 3 components will be performed in accordance with Section XI of the ASME Boiler and Pressure Vessel Code and applicable addenda as required by 10CFR Part 50.55a(g) except where specific written relief has been granted by the NRC pursuant to 10 CFR Part 50.55a(g)(6)(i). (Reference 1)

ACTIONS The Actions are defined to ensure proper corrective measures are taken in response to the inoperable components.

A.1

Upon finding an "indication," ISI personnel will conduct further investigation. During the time frame of these investigations, no Condition Reports (CR) are generated and no Technical Requirement is considered not met.

At such time as the above examinations indicate that an "unevaluated indication" exists (i.e., an indication which fails to meet the acceptance criteria of the ASME or applicable code, the requirements of an endorsed ASME Code Case, or an NRC approved alternative), a CR will be written and forwarded for review. In addition this TRO will be declared "not met" and Condition A will be entered. As stated in a Note for Condition A, an evaluation of all "unevaluated indications" must be completed. If the "indication" is found to impact the structural integrity or OPERABILITY of the component, system, or structure, the appropriate TRO Condition shall be

(continued)

B 3.7.11 Structural Integrity

BASES

ACTIONS A.1 (continued)

entered. If the evaluation determines that the flaw does not impact the component, systems, or structure OPERABILITY or structural integrity, the "indication" becomes an "evaluated indication" and the TRO is considered met and the Actions Table is exited. The 72 hour Completion Time provides a reasonable amount of time to perform the necessary evaluations.

In accordance with Title 10 of the Code of Federal Regulations (10 CFR) 50.55a(g), structural integrity must be maintained in conformance with American Society of Mechanical Engineers (ASME) Code Section XI for those parts of a system that are subject to ASME Code requirements. 10 CFR 50.55a(g)(4) requires, "Throughout the service life of a boiling or pressurized water-cooled nuclear power facility, components (including supports) which are classified as ASME Code Class 1, Class 2, and Class 3 must meet the requirements, except design and access provisions and preservice examination requirements, set forth in Section XI..."

ASME Section XI, Article IWA 3000 contains weld examination flaw acceptance standards. If flaws are found in components for which ASME Section XI has no acceptance standards, then the construction code is to be used to establish the acceptance standards. This is supported by Sub-article IWA-3100(b) which states "if acceptance standards for a particular component, Examination Category, or examination method are not specified in this Division [Division 1] then flaws that exceed the acceptance standards for materials and welds specified in the Section III Edition applicable to construction of the component shall be evaluated to determine disposition."

The ASME Code contains requirements describing acceptable means of performing preservice and inservice inspection of welds and certain other locations in piping, vessels, and other pressure boundary components. For preservice and inservice inspections, the ASME Code also specifies acceptable flaw sizes based on material type, location, and service of the system within which the flaw is discovered. If the flaw exceeds these specified acceptance flaw sizes, the ASME Code describes an alternate method by which a calculation may be performed to evaluate the acceptability of the flaw. While ASME Section XI does not specifically provide flaw acceptance standards for components other than those specified in Table IWX-2500-1, its methods and standards may be applied to other components when appropriate.

(continued)

B 3.7.11 Structural Integrity

BASES

ACTIONS A.1 (continued)

The table below summarizes the NRC accepted methods available for evaluating structural integrity of flaws in components (including supports) classified as ASME Code Class 1, Class 2, and Class 3 components.

Pipe Class/Energy	ASME Code Section XI/ Construction Code	NRC Approved Alternative e.g. RG approved Code Case	Code Case N-513 ⁽¹⁾	GL 90-05
Class 1/HE ⁽²⁾	X	X		
Class 2/HE	X	X		
Class 2/ME ⁽³⁾	X	X	X	
Class 3/HE	X	X		X
Class 3/ME	X	X	X	X

(1) Refer to RG 1.147 for the latest revision acceptable to the NRC, and any conditions placed upon the code case.

(2) HE – High Energy – Maximum operating temperature greater than 200° F or maximum operating pressure greater than 275 psig.

(3) ME – Moderate Energy – Maximum operating temperature equal to or less than 200° F or maximum operating pressure equal to or less than 275 psig.

B.1

If the evaluation of operability can not be completed within the required Completion Time, the component shall be declared inoperable and the appropriate LCOs and TROs entered.

(continued)

B 3.7.11 Structural Integrity

BASES

ACTIONS
(continued)C.1

When ASME Class 1 components do not meet ASME Code or construction code acceptance standards, the requirements of an NRC endorsed ASME Code Case, or an NRC approved alternative, then an immediate operability determination cannot conclude a reasonable expectation of operability exists and the components are inoperable. Satisfaction of Code acceptance standards is the minimum necessary for operability of Class 1 pressure boundary components because of the importance of the safety function being performed.

TS LCO 3.4.4, RCS Operational Leakage, does not permit any reactor coolant pressure boundary leakage. Upon discovery of leakage from a Class 1 pressure boundary component (pipe wall, valve body, pump casing, etc.) the component must be declared inoperable.

D.1 and D.2

When ASME Class 2 or Class 3 components do not meet ASME Code or construction code acceptance standards, the requirements of an NRC endorsed ASME Code Case, or an NRC approved alternative, then a determination of whether the degraded or nonconforming condition results in a TS/TRM-required SSC or a TS/TRM-required support SCC being inoperable must be made. In order to determine the component is OPERABLE under an immediate operability determination, the degradation mechanism must be readily apparent. To be readily apparent, the degradation mechanism must be discernable from visual examination (such as external corrosion or wear), or there must be substantial operating experience with the identified degradation mechanism in the affected system.

In addition, detailed non-destructive examination data may be necessary to determine that a component is OPERABLE under an immediate operability determination. If detailed non-destructive examination is necessary and the examination cannot be completed within 72 hours, the component should be declared inoperable and the appropriate TS/TRM action statement entered. There is no indeterminate state of operability.

The time frame for flaw characterization and engineering analysis should be no longer than a reasonable time frame for completing the actions.

(continued)

B 3.7.11 Structural Integrity

BASES

ACTIONS
(continued)E.1 and E.2

Structural support components are required to be OPERABLE by the TS or TRM, since they are related support functions for SCCs in the TS or TRM. Examples of structural degradation are concrete cracking and spalling, excessive deflection or deformation, water leakage, rebar corrosion, missing or bent anchor bolts, and degradation of door and penetration sealing. If the support structure is degraded, the support structure's capability of performing its specified function shall be assessed. As long as the identified degradation does not result in exceeding acceptance limits specified in applicable design codes and standards referenced in the design basis documents, the affected structure is either operable or functional.

The time frame for an engineering analysis should be no longer than a reasonable time frame for completing the actions.

F.1

Once a component is evaluated for structural integrity using criteria acceptable to the NRC staff and determined to be unacceptable, the component has to be declared inoperable and the TRO or LCO action statements for the applicable system must be followed.

TRS

The TRSs are defined to be performed at the specified Frequency to ensure that the Structural Integrity requirements are maintained.

The Frequency for the TRS is defined by the Inservice Inspection (ISI) Program.

REFERENCES

1. 10 CFR Part 50.
 2. Regulatory Issue Summary 2005-20, Rev. 1, "Revision to Guidance Formerly Contained in NRC Generic Letter 91-18, 'Information to Licensees Regarding Two NRC Inspection Manual Sections on Resolution of Degraded and Nonconforming Conditions and on Operability.'"
-