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Revision 99 dated 09/27/10

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Technical Requirements Manual

Volume I

Detroit
Edison

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Fire Detection Instrumentation

FUNCTION	FIRE DETECTIO N ZONE	TOTAL NUMBER OF INSTRUMENTS ^(a)			
		IONIZATION (X/Y)	PHOTOELECTRIC (X/Y)	THERMAL (X/Y)	INFRARED (X/Y)
1. Reactor Building ^(b)					
a. Torus area	1	8/0			
b. NW corner rooms RHR pump	2	4/0			
c. SW corner rooms RHR pump	3	4/0			
d. SE corner rooms CRD HPCI	4	9/0			
e. NE corner rooms RCIC	5	5/0			
f. First floor	7	31/0		8/0	
g. EECW system area second floor	10	21/0			
h. Third floor	15	23/0			
i. Fourth floor	17	22/0		2/0	
j. Refueling area, fifth floor	17	1/0			10/0
2. Auxiliary Building					
a. Basement N control air equipment	4	6/0			
b. Corridors, 562 ft, 563 ft	5	2/0	2/0		
c. First floor mezzanine cable tray, 583 ft, 603 ft	6	17/0			
d. Switchgear room, corridor area second floor	9	10/0			
e. Cable tunnel	9	10/0			

(continued)

(a) (X/Y) X is number of Function A (early-warning fire detection and notification only) instruments.
Y is number of Function B (actuation of fire suppression system and early warning and notification) instruments.

(b) The fire detection instruments located within the containment are not required to be OPERABLE during the performance of Type A Containment Leakage Rate Tests.

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TR 5.0 ADMINISTRATIVE CONTROLS

TR 5.1 Programs

TR 5.1.1 Inservice Inspection and Testing Program for Snubbers

The Snubber Program specified in TR 5.1.1 implements the requirements of the ASME OM Code, Subsection ISTA and ISTD, 2004 Edition, as allowed by 10CFR50.55a(b)(3)(v) in lieu of ASME Section XI, IWF-5200(a) and (b) and IWF-5300(a) and (b). This program applies to preservice and inservice examination and testing requirements.

a. Inspection Types

As used in this specification, type of snubber shall mean snubbers of the same design and manufacturer, irrespective of capacity.

b. Visual Inspections

Visual examination of snubbers shall satisfy the requirements of ISTD-4000 for all preservice and inservice examinations. Snubbers are categorized as inaccessible or accessible during reactor operation. Each of these categories (inaccessible and accessible) may be inspected independently according to the schedule determined by ISTD Table 4252-1. The visual inspection interval for each category of snubber shall be determined based upon the criteria provided in Table 4252-1. The first inspection interval determined using this criteria shall be based upon the previous inspection interval. When the prerequisites of Code Case OMN-13 have been satisfied, the examination interval may be extended as allowed by the Code Case.

c. Visual Inspection Acceptance Criteria

Visual Inspection shall verify that (1) there are no visible indications of damage or impaired OPERABILITY and (2) attachments to the foundation or supporting structure are functional, and (3) fasteners for attachment of the snubber to the component and to the snubber anchorage are functional. All program snubbers are to be inspected using the VT-3 examination methodology described in ASME Section XI, IWA-2213, 2001 Edition with 2003 Addenda. If a snubber does not meet the examination requirements, an evaluation shall be performed to determine the cause of the unacceptability. Snubbers which appear inoperable as a result of visual inspections shall be classified as unacceptable and may be reclassified acceptable for the purpose of establishing the next visual inspection interval, provided that (1) the affected snubber is functionally tested in the as-found condition and determined OPERABLE per Inservice Inspection and Testing Program for Snubbers, TR 5.1.1 Section f: and

(continued)

TR 5.0 ADMINISTRATIVE CONTROLS

TR 5.1 Programs

c. Visual Inspection Acceptance Criteria (continued)

(2) the test demonstrates that the unacceptable condition did not affect operational readiness of the snubber. For those snubbers common to more than one system, the OPERABILITY of such snubbers shall be considered in assessing the OPERABILITY of each of the related systems. A review and evaluation shall be performed and documented to justify continued operation with an unacceptable snubber. If continued operation cannot be justified, the snubber shall be declared inoperable and appropriate actions taken.

d. Transient Event Inspection

A visual examination shall be performed of all hydraulic and mechanical snubbers attached to sections of systems that have experienced unexpected, potentially damaging transients as determined from a review of operational data and a visual inspection of the systems within 72 hours for accessible areas and 6 months for inaccessible areas following such an event. In addition to satisfying the visual inspection acceptance criteria, freedom-of-movement of mechanical snubbers shall be verified using at least one of the following: (1) stroking; or (2) testing. Any resultant corrective action taken due to such a transient shall be considered independent of ISTD-4100, ISTD-4200, ISTD-5200, ISTD-5300, ISTD-5400 or ISTD-5500.

e. Functional Tests

Functional testing of snubbers shall satisfy the requirements of ISTD-5000 for all preservice and inservice testing. During the first refueling shutdown and at least once per fuel cycle thereafter during shutdown, a representative sample of snubbers shall be either in-place or bench tested using one of the sample plans described below. Snubber testing may begin no earlier than 60 days before a scheduled refueling outage. Snubbers in parallel or multiple installation shall be identified and counted individually. The sample plan shall be selected prior to the test period and cannot be changed during the test period. The NRC Regional Administrator shall be notified in writing of the sample plan selected prior to the test period or the sample plan used in the prior test shall be implemented:

(continued)

e. Functional Tests (continued)

1. 10% sample plan - At least 10% of the total snubbers from each Design Test Plan Group, (DTPG) shall be functionally tested in accordance with ISTD-5300. Fractional sample sizes shall be rounded up to the next integer. For each snubber from a DTPG that does not meet the functional test acceptance criteria of the Inservice Inspection and Testing Program for Snubbers, TR 5.1.1 Section f, an additional 5% of that type of snubber shall be functionally tested from that DTPG. Testing is completed when the mathematical expressions of ISTD-5331 are satisfied, or all snubbers in the DTPG or Failure Mode Group (FMG) have been tested. Additional snubber testing is not required for isolated functional failures. An isolated functional test failure is a failure that does not cause other snubbers to be suspect; or

2. 37 sample test plan - An initial sample of 37 snubbers shall be selected randomly from each 37 plan snubber DTPG and shall be functionally tested in accordance with ISTD-5400 and Figure ISTD-5431-1. "C" is the total number of snubbers from a DTPG found not meeting the acceptance requirements of the Inservice Inspection and Testing Program for Snubbers, TR 5.1.1 Section f. The cumulative number of snubbers tested from each DTPG is denoted by "N". For each snubber from a DTPG that does not meet the functional test acceptance criteria of Section f, an additional sample equal to 18 or 19 snubbers from that DTPG shall be functionally tested. Testing is complete when the mathematical expressions of ISTD-5431 are satisfied, or all snubbers in the DTPG or FMG have been tested. Additional snubber testing is not required for isolated functional failures. An isolated functional test failure is a failure that does not cause other snubbers to be suspect.

(continued)

TR 5.0 ADMINISTRATIVE CONTROLS

TR 5.1 Programs

e. Functional Tests (continued)

3. The representative sample selected for the functional test sample plans shall be randomly selected from the snubbers of each type and reviewed before beginning the testing. The review shall ensure as far as practical that they are representative of the various configurations, operating environments, range of size, and capacity of snubber of each type. Snubbers placed in the same locations as snubbers which failed the previous functional test shall be retested at the time of the next Functional test but shall not be included in the sample plan. If during the functional testing, additional sampling is required due to snubber test failure, the functional testing results shall be reviewed at the time to determine additional testing requirements in accordance with ISTD-5300, and ISTD-5400. The unacceptable snubbers may be categorized into failure mode group(s) in accordance with ISTD-5314, ISTD-5320 or ISTD-5420. A failure mode group shall include all unacceptable snubbers that have a given failure mode and all other snubbers subject to the same failure mode. Once a failure mode group has been established, it can be separated for continued testing apart from the general population of snubbers.

f. Functional Test Acceptance Criteria

The snubber functional test shall verify that:

1. Activation (restraining action) is achieved within the specified range of velocity or acceleration in both tension and compression;
2. Snubber bleed, or release rate where required, is present in both tension and compression, within the specified range;
3. For mechanical snubbers, the drag force required to maintain motion of the snubber is within the specified range in both directions of travel; and
4. For snubbers specifically required not to displace under continuous load, the ability of the snubber to withstand load without displacement.

Testing methods may be used to measure parameters indirectly or parameters other than those specified if those results can be correlated to the specified parameters through established methods.

g. Functional Test Failure Analysis

An engineering evaluation shall be made of each failure to meet the functional test acceptance criteria to determine the cause of the failure. If a design deficiency in a snubber is found, it shall be corrected by appropriate means. The results of this evaluation shall be used, as applicable, to determine Failure Mode Groups (FMG's) in accordance with ISTD-5270, and in selecting snubbers to be tested in an effort to determine the OPERABILITY of other snubbers irrespective of type which may be subject to the same failure mode. Snubbers deleted from the plant based on analysis of the affected piping system shall nevertheless be considered in its respective examination population, examination category, or FMG for determining the corrective action.

For snubbers found inoperable, an engineering evaluation shall be performed on the components to which the inoperable snubbers are attached. The purpose of this engineering evaluation shall be to determine if the components to which the inoperable snubbers are attached were adversely affected by the inoperability of the snubbers in order to ensure that the component remains capable of meeting the designed service.

If any snubber selected for functional testing either fails to lock up or fails to move, i.e., frozen-in-place, the cause will be evaluated and if caused by manufacturer or design deficiency all snubbers of the same type subject to the same defect shall be tested, repaired, modified or replaced in accordance with ISTD-1600. Snubbers of the same type subject to the same defect shall be categorized as one failure mode group for the purpose of additional testing.

h. Functional Testing of Repaired and Replaced Snubbers

Snubbers which fail the visual inspection or the functional test acceptance criteria shall be adjusted, repaired, modified or replaced and satisfy the Repair Replacement requirements of ASME Section XI as applicable. Replacement or modified snubbers shall have a demonstrated suitability for the application and snubbers which have repairs which might affect the functional test result shall be tested to meet the functional test criteria before installation in the unit. Mechanical snubbers shall have met the acceptance criteria subsequent to their most recent service before being installed in the unit.

TR 5.0 ADMINISTRATIVE CONTROLS

TR 5.1 Programs

i. Snubber Service Life Program

The service life of hydraulic and mechanical snubbers shall be monitored in accordance with ISTD-6000, to ensure that the service life is not exceeded between surveillance inspections. The maximum expected service life for various seals, springs, and other critical parts shall be determined and predicted based on manufacturer and engineering information and shall be extended or shortened based on monitored test results and failure history. Critical parts shall be replaced so that the maximum service life will not be exceeded during a period when the snubber is required to be OPERABLE. The parts replacement shall be documented and the documentation shall be retained. Cause evaluations of any snubber test failures shall be used to determine if an adjustment to the expected service life is required. Testing of additional snubbers is not required based upon the results of snubbers tested specifically for service life monitoring purposes.

TR 5.1 Programs

TR 5.1.2 Configuration Risk Management Program

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TR 5.0 ADMINISTRATIVE CONTROLS

TR 5.2 Reports

In addition to the applicable reporting requirements of Title 10, Code of Federal Regulations, the following reports shall be submitted to the Regional Administrator of the Regional Office of the NRC unless otherwise noted.

TR 5.2.1 Startup Report

- a. A summary report of plant startup and power escalation testing shall be submitted following:
 1. Receipt of an Operating License;
 2. Amendment to the license involving a planned increase in power level;
 3. Installation of fuel that has a different design or has been manufactured by a different fuel supplier; and
 4. Modifications that may have significantly altered the nuclear, thermal, or hydraulic performance of the unit.

- b. The startup report shall address each of the tests identified in Subsection 14.1.4.8 of the Final Safety Analysis Report and shall include a description of the measured values of the operating conditions or characteristics obtained during the test program and a comparison of these values with design predictions and specifications. Any corrective actions that were required to obtain satisfactory operation shall also be described. Any additional specific details required in license conditions based on other commitments shall be included in this report.

- c. Startup reports shall be submitted within:
 1. 90 days following completion of the startup test program;
 2. 90 days following resumption or commencement of commercial power operation; or
 3. 9 months following initial criticality, whichever is earliest.

If the startup report does not cover all three events (i.e., initial criticality, completion of startup test program, and resumption or commencement of commercial operation) supplementary reports shall be submitted at least every 3 months until all three events have been completed.

TR B3.7 PLANT SYSTEMS

TR B3.7.7 Appendix R Alternative Shutdown Auxiliary Systems

BASES

The systems identified in this section are those utilized for Appendix R Alternative shutdown but not included in other sections of the Technical Specifications and Technical Requirements Manual. The ACTION statements assure that the auxiliary systems will be OPERABLE or that acceptable alternative means are established to achieve the same objective.

There are four independent Combustion Turbine-Generator units onsite. CTG 11 Unit 1 has a diesel engine starter and thus can be started independently from offsite power. CTG 11 Units 2, 3, and 4 have AC-motor starters and rely on a 480-volt AC feed. The phrase "alternative source power", as used in TRM Specification 3.7.7, Required Action C.2.2, is defined as a source of power that is not reliant on offsite power for starting (if required) or operating (if already running) and capable of supplying the required loads on the 4160-volt busses associated with the Alternative Shutdown System.

One of the two installed Standby Feedwater Pumps and one of the two listed Drywell Cooling Units are necessary for Appendix R Alternative shutdown. The Division 1 EECW system operates in support of the drywell cooling function. The nitrogen bottles associated with the Division 1 EECW makeup tank support the operation of this makeup tank during a dedicated shutdown fire until the procedural actions necessary to enable the automatic makeup capability have been completed. Therefore unlimited operation with one of the two components inoperable is justified provided increased surveillance is performed on the components which remain OPERABLE.

The SBFW pump performs a function for Appendix R Alternative Shutdown analogous to RCIC for Remote Shutdown. As such the SBFW Surveillance Requirements are patterned after RCIC Surveillance Requirements, including the flow test capacity requirement. The specified flow value includes an allowance for normal instrument tolerance above the minimum flow required for adequate core cooling.

The controls for CTG 11 Unit 1, the Standby Feedwater Pumps, and Drywell Cooling Units 1 and 2 are only required when the respective equipment is OPERABLE. The power supplies for BOP Battery Chargers 2C-1 and 2C1-2 are required to support OPERABILITY of the respective control circuits.
