

- (3) TXU Generation Company LP, pursuant to the Act and 10 CFR Part 70, to receive, possess and use at any time, special nuclear material as reactor fuel, in accordance with the limitations for storage and amounts required for reactor operation, and described in the Final Safety Analysis Report, as supplemented and amended;
- (4) TXU Generation Company LP, pursuant to the Act and 10 CFR Parts 30, 40 and 70, to receive, possess, and use, at any time, any byproduct, source, and special nuclear material as sealed neutron sources for reactor startup, sealed sources for reactor instrumentation and radiation monitoring equipment calibration, and as fission detectors in amounts as required;
- (5) TXU Generation Company LP, pursuant to the Act and 10 CFR Parts 30, 40 and 70, to receive, possess, and use in amounts as required, any byproduct, source of special nuclear material without restriction to chemical or physical form, for sample analysis or instrument calibration or associated with radioactive apparatus or components; and
- (6) TXU Generation Company LP, pursuant to the Act and 10 CFR Parts 30, 40 and 70, to possess, but not separate, such byproduct and special nuclear materials as may be produced by the operation of the facility.

C. This license shall be deemed to contain and is subject to the conditions specified in the Commission's regulations set forth in 10 CFR Chapter I and is subject to all applicable provisions of the Act and to the rules, regulations, and orders of the Commission now or hereafter in effect; and is subject to the additional conditions specified or incorporated below:

(1) Maximum Power Level

TXU Generation Company LP is authorized to operate the facility at reactor core power levels not in excess of 3458 megawatts thermal in accordance with the conditions specified herein.

(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A as revised through Amendment No. 128 and the Environmental Protection Plan contained in Appendix B, are incorporated into this license. TXU Generation Company LP shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

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1.1 Definitions (continued)

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LEAKAGE

LEAKAGE shall be:

a. Identified LEAKAGE

1. LEAKAGE, such as that from pump seals or valve packing (except reactor coolant pump (RCP) seal water injection or leakoff), that is captured and conducted to collection systems or a sump or collecting tank;
2. LEAKAGE into the containment atmosphere from sources that are both specifically located and known either not to interfere with the operation of leakage detection systems or not to be pressure boundary LEAKAGE; or
3. Reactor Coolant System (RCS) LEAKAGE through a steam generator to the Secondary System (primary to secondary LEAKAGE);

b. Unidentified LEAKAGE

All LEAKAGE (except RCP seal water injection or leakoff) that is not identified LEAKAGE;

c. Pressure Boundary LEAKAGE

LEAKAGE (except primary to secondary LEAKAGE) through a nonisolable fault in an RCS component body, pipe wall, or vessel wall.

MASTER RELAY TEST

A MASTER RELAY TEST shall consist of energizing all master relays in the channel required for channel OPERABILITY and verifying the OPERABILITY of each required master relay. The MASTER RELAY TEST shall include a continuity check of each associated required slave relay. The MASTER RELAY TEST may be performed by means of any series of sequential, overlapping or total steps.

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(continued)

### 3.4 REACTOR COOLANT SYSTEM (RCS)

#### 3.4.13 RCS Operational LEAKAGE

LCO 3.4.13 RCS operational LEAKAGE shall be limited to:

- a. No pressure boundary LEAKAGE;
- b. 1 gpm unidentified LEAKAGE;
- c. 10 gpm identified LEAKAGE; and
- d. 150 gallons per day primary to secondary LEAKAGE through any one steam generator (SG).

APPLICABILITY: MODES 1, 2, 3, and 4

#### ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. RCS operational LEAKAGE not within limits for reasons other than pressure boundary LEAKAGE or primary to secondary LEAKAGE.	A.1 Reduce LEAKAGE to within limits.	4 hours
B. Required Action and associated Completion Time of Condition A not met.  <u>OR</u>  Pressure boundary LEAKAGE exists.  <u>OR</u>  Primary to secondary LEAKAGE not within limits	B.1 Be in MODE 3.  <u>AND</u>  B.2 Be in MODE 5.	6 hours    36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.4.13.1 -----NOTES-----</p> <ol style="list-style-type: none"> <li>1. Not required to be performed until 12 hours after establishment of steady state operation.</li> <li>2. Not applicable to primary to secondary LEAKAGE.</li> </ol> <p>-----</p> <p>Verify RCS operational LEAKAGE is within limits by performance of RCS water inventory balance.</p>	<p>72 hours</p>
<p>SR 3.4.13.2 -----NOTE-----</p> <p>Not required to be performed until 12 hours after establishment of steady state operation.</p> <p>-----</p> <p>Verify primary to secondary LEAKAGE is <math>\leq 150</math> gallons per day through any one SG.</p>	<p>72 hours</p>

### 3.4 REACTOR COOLANT SYSTEM (RCS)

#### 3.4.17 Steam Generator (SG) Tube Integrity

LCO 3.4.17 SG tube integrity shall be maintained.

AND

All SG tubes satisfying the tube repair criteria shall be plugged or repaired in accordance with the Steam Generator Program.

APPLICABILITY: MODES 1, 2, 3, and 4

#### ACTIONS

-----NOTE-----

Separate Condition entry is allowed for each SG tube.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more SG tubes satisfying the tube repair criteria and not plugged or repaired in accordance with the Steam Generator Program.	A.1 Verify tube integrity of the affected tube(s) is maintained until the next refueling outage or SG tube inspection.	7 days
	<u>AND</u> A.2 Plug or repair the affected tube(s) in accordance with the Steam Generator Program.	Prior to entering MODE 4 following the next refueling outage or SG tube inspection
B. Required Action and associated Completion Time of Condition A not met.  <u>OR</u>  SG tube integrity not maintained.	B.1 Be in MODE 3.	6 hours
	<u>AND</u> B.2 Be in MODE 5.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.17.1	Verify SG tube integrity in accordance with the Steam Generator Program.	In accordance with the Steam Generator Program
SR 3.4.17.2	Verify that each inspected SG tube that satisfies the tube repair criteria is plugged or repaired in accordance with the Steam Generator Program.	Prior to entering MODE 4 following a SG tube inspection

5.5 Programs and Manuals (continued)

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5.5.9 Steam Generator (SG) Program

5.5.9.1 Unit 1 Model D4 Steam Generator (SG) Program

Each steam generator shall be demonstrated OPERABLE by performance of the following augmented inservice inspection program.

The provisions of SR 3.0.2 are applicable to the SG Surveillance Program test frequencies.

- a. Steam Generator Sample Selection and Inspection - Each steam generator shall be determined OPERABLE during shutdown by selecting and inspecting at least the minimum number of steam generators specified in Table 5.5-1.
- b. Steam Generator Tube Sample Selection and Inspection - The steam generator tube minimum sample size, inspection result classification, and the corresponding action required shall be as specified in Table 5.5-2 or 5.5-3. Table 5.5-2 applies to all tubes except repaired tubes (Unit 1 only) which are covered by Table 5.5-3. The inservice inspection of steam generator tubes shall be performed at the frequencies specified in Specification 5.5.9.1d., and the inspected tubes shall be verified acceptable per the acceptance criteria of Specification 5.5.9.1e. The tubes selected for each inservice inspection per Table 5.5-2 shall include at least 3% of all the expanded tubes and at least 3% of the remaining number of tubes in all steam generators; the tubes selected for these inspections shall be selected on a random basis except:
  1. Where experience in similar plants with similar water chemistry indicates critical areas to be inspected, then at least 50% of the tubes inspected shall be from these critical areas;
  2. The first sample of tubes selected for each inservice inspection (subsequent to the preservice inspection) of each steam generator shall include:
    - a) All nonplugged tubes that previously had detectable wall penetrations (greater than 20%),
    - b) Tubes in those areas where experience has indicated potential problems, and

(continued)

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## 5.5 Programs and Manuals

### 5.5.9.1 Unit 1 Model D4 Steam Generator (SG) Program (continued)

- c) A tube inspection (pursuant to Specification 5.5.9.1e.1.h) shall be performed on each selected tube. If any selected tube does not permit the passage of the eddy current probe for a tube inspection, this shall be recorded and an adjacent tube shall be selected and subjected to a tube inspection.
  - d) Indications left in service as a result of the application of the tube support plate voltage repair criteria shall be inspected by bobbin probe during all future refueling outages.
3. The tubes selected as the second and third samples (if required by Table 5.5-2 during each inservice inspection may be subjected to a partial tube inspection provided:
- a) The tubes selected for these samples include the tubes from those areas of the tube sheet array where tubes with imperfections were previously found, and
  - b) The inspections include those portions of the tubes where imperfections were previously found.
4. Implementation of the steam generator tube/tube support plate repair criteria requires a 100% bobbin coil inspection for hot-leg and cold-leg tube support plate intersections down to the lowest cold-leg support with known outside diameter stress corrosion cracking (ODSCC) indications. The Determination of the lowest cold leg tube support plate intersections having ODSCC indications shall be based on the performance of at least a 20% random sampling of the tubes inspected over their full length.

The results of each sample inspection shall be classified into one of the following three categories:

<u>Category</u>	<u>Inspection Results</u>
C-1	Less than 5% of the total tubes inspected are degraded tubes and none of the inspected tubes are defective.

(continued)

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5.5 Programs and Manuals5.5.9.1 Unit 1 Model D4 Steam Generator (SG) Program (continued)

- |     |  |
|-----|--|
| C-2 | One or more tubes, but not more than 1% of the total tubes inspected are defective, or between 5% and 10% of the total tubes inspected are degraded tubes. |
| C-3 | More than 10% of the total tubes inspected are degraded tubes or more than 1% of the inspected tubes are defective.  |

Note: In all inspections, previously degraded tubes must exhibit significant (greater than 10%) further wall penetrations to be included in the above percentage calculations.

- c. Steam Generator F\* Tube Inspection (Unit 1 only) - In addition to the minimum sample size as determined by Specification 5.5.9.1b., all F\* tubes will be inspected within the tubesheet region. The results of the inspections of F\* tubes identified in previous inspections will not be a cause for additional inspections per Tables 5.5-1 and 5.5-2.
- d. Inspection Frequencies - The above required inservice inspections of steam generator tubes shall be performed at the following frequencies:
1. The first inservice inspection shall be performed after 6 Effective Full Power Months (EFPM) and before 12 EFPM and shall include a special inspection of all expanded tubes in all steam generators. Subsequent inservice inspections shall be performed at intervals of not less than 12 nor more than 24 calendar months after the previous inspection. If two consecutive inspections, not including the preservice inspection, result in all inspection results falling into the C-1 category or if two consecutive inspections demonstrate that previously observed degradation has not continued and no additional degradation has occurred, the inspection interval may be extended to a maximum of once per 40 months;
  2. If the results of the inservice inspection of a steam generator conducted in accordance with Table 5.5-2 at 40-month intervals fall in Category C-3, the inspection frequency shall be increased to at least once per 20 months. The increase in inspection frequency shall apply until the subsequent inspections satisfy the criteria of Specification 5.5.9.1d.1; the interval may then be extended to a maximum of once per 40 months; and

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(continued)

## 5.5 Programs and Manuals

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### 5.5.9.1 Unit 1 Model D4 Steam Generator (SG) Program (continued)

3. Additional, unscheduled inservice inspections shall be performed on each steam generator in accordance with the first sample inspection specified in Table 5.5-2 during the shutdown subsequent to any of the following conditions:
  - a) Primary-to secondary tube leaks (not including leaks originating from tube-to-tube sheet welds) in excess of the limits of Specification 3.4.13, or
  - b) A seismic occurrence greater than the Operating Basis Earthquake, or
  - c) A loss-of-coolant accident requiring actuation of the Engineered Safety Features, or
  - d) A main steam line or feedwater line break.

e. Acceptance Criteria

1. As used in this specification:
  - a) Imperfection means an exception to the dimensions, finish, or contour of a tube from that required by fabrication drawings or specifications. Eddy-current testing indications below 20% of the nominal tube wall thickness, if detectable, may be considered as imperfections;
  - b) Degradation means a service-induced cracking, wastage, wear, or general corrosion occurring on either inside or outside of a tube;
  - c) Degraded Tube means a tube containing imperfections greater than or equal to 20% of the nominal wall thickness caused by degradation;
  - d) % Degradation means the percentage of the tube wall thickness affected or removed by degradation;
  - e) Defect means an imperfection of such severity that it exceeds the plugging limit or (for Unit 1 only) repair limit. A tube containing a defect is defective;

(continued)

## 5.5 Programs and Manuals

### 5.5.9.1 Unit 1 Model D4 Steam Generator (SG) Program (continued)

- f) Plugging or Repair Limit means the imperfection depth at or beyond which the tube shall be removed from service by plugging or (for Unit 1 only) repaired by sleeving and is equal to 40% of the wall thickness. The plugging limit for laser welded sleeves is equal to 43% of the nominal wall thickness. The plugging limit for Leak Tight sleeves is equal to 20% of the nominal wall thickness. This definition does not apply to that portion of the Unit 1 tubing that meets the definition of an F\* tube. This definition does not apply to tube support plate intersections for which the voltage-based plugging criteria are being applied. Refer to 5.5.9.1e.1m) for the repair limit applicable to these intersections. All tubes repaired with Leak Limiting sleeves shall be plugged upon detection of degradation in the sleeve and/or pressure boundary portion of the original tube wall in the sleeve/tube assembly (i.e., the sleeve-to-tube joint) regardless of depth. The F\* criteria is not applicable to the parent tube located behind the Leak Limiting sleeves installed in the tubesheet transition zone;
- g) Unserviceable describes the condition of a tube if it leaks or contains a defect large enough to affect its structural integrity in the event of an Operating Basis Earthquake, a loss-of-coolant accident, or a steam line or feedwater line break as specified in Specification 5.5.9.1d.3, above;
- h) Tube Inspection means an inspection of the steam generator tube from the tube end (hot leg side) completely around the U-bend to the top support of the cold leg. For a tube repaired by sleeving (for Unit 1 only) the tube inspection shall include the sleeved portion of the tube;
- i) Preservice Inspection means an inspection of the full length of each tube in each steam generator performed by eddy current techniques prior to service to establish a baseline condition of the tubing. This inspection shall be performed prior to initial POWER OPERATION using the equipment and techniques expected to be used during subsequent inservice inspections;
- j) F\* Distance (Unit 1 only) is the distance of the hardroll expanded portion of a tube which provides a sufficient length of non-degraded tube expansion to resist pullout of the tube from the tubesheet. The F\* distance is equal to 1.13 inches, plus an allowance for eddy current measurement uncertainty, and is measured down from the top of the tubesheet, or the bottom of the roll transition, whichever is lower in elevation. The F\* criteria is not applicable to the parent tube located behind the Leak Limiting sleeves installed in the tubesheet transition zone;
- k) F\* Tube (Unit 1 only) is that portion of the tubing in the area of the tubesheet region below the F\* distance with a) degradation below the F\* distance equal to or greater than 40%, b) which has no indication of degradation within the F\* distance, and c) that remains inservice;

(continued)

5.5 Programs and Manuals

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5.5.9.1 Unit 1 Model D4 Steam Generator (SG) Program (continued)

- l) Hard Roll Expansion (Unit 1 only) is that portion of a tube which has been increased in diameter by a rolling process such that no crevice exists between the outside diameter of the tube and the hole in the tubesheet; and
- m) For Unit 1 only, the Tube Support Plate Plugging Limit is used for the disposition of alloy 600 steam generator tubes for continued service that are experiencing predominantly axially oriented outside diameter stress corrosion cracking confined within the thickness of the tube support plates and flow distribution baffle (FDB). At tube support plate intersections (and FDB), the plugging limit is based on maintaining steam generator tube serviceability as described below:
  - 1. Steam generator tubes, whose degradation is attributed to outside diameter stress corrosion cracking within the bounds of the tube support plate with bobbin voltages less than or equal to the lower voltage repair limit (1.0 volt), will be allowed to remain in service.
  - 2. Steam generator tubes, whose degradation is attributed to outside diameter stress corrosion cracking within the bounds of the tube support plate with the bobbin voltage greater than the lower voltage repair limit (1.0 volt), will be repaired, except as noted in 5.5.9.1e.1m)3. below.
  - 3. Steam generator tubes with indications of potential degradation attributed to outside diameter stress corrosion cracking within the bounds of the tube support plate with a bobbin voltage greater than the lower voltage repair limit (1.0 volt) but less than or equal to the upper voltage repair limit\*, may remain inservice if a rotating pancake coil inspection does not detect degradation. Steam generator tubes, with indications of outside diameter stress corrosion cracking degradation with a bobbin voltage greater than the upper repair limit\*\* will be plugged or repaired.

(continued)

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\* The upper voltage repair limit is calculated according to the methodology in GL 95-05 as supplemented.

\*\*  $V_{URL}$  will differ at the TSPs and flow distribution baffle.

## 5.5 Programs and Manuals

### 5.5.9.1 Unit 1 Model D4 Steam Generator (SG) Program (continued)

4. Certain intersections as identified in WPT-15949 will be excluded from application of the voltage-based repair criteria as it is determined that these intersections may collapse or deform following a postulated LOCA + SSE event.
5. If an unscheduled mid-cycle inspection is performed, the following mid-cycle repair limits apply instead of the limits identified in 5.5.9.1e.1.m)1., 5.5.9.1e.1.m)2., and 5.5.9.1e.1.m)3. The midcycle repair limits are determined from the following equations:

$$V_{MURL} = \frac{V_{SL}}{1.0 + NDE + Gr \left( \frac{CL - \Delta t}{CL} \right)}$$

$$V_{MLRL} = V_{MURL} - (V_{URL} - V_{LRL}) \left[ \frac{CL - \Delta t}{CL} \right]$$

where:

$V_{URL}$	=	upper voltage repair limit
$V_{LRL}$	=	lower voltage repair limit
$V_{MURL}$	=	mid-cycle upper voltage limit based on time into cycle
$V_{MLRL}$	=	mid-cycle lower voltage repair limit based on $V_{MLRL}$ and time into cycle
$\Delta t$	=	length of time since last scheduled inspection during which $V_{URL}$ and $V_{LRL}$ were implemented
$CL$	=	cycle length (the time between two scheduled steam generator inspections)
$V_{SL}$	=	structural limit voltage
$Gr$	=	average growth per cycle
$NDE$	=	95-percent cumulative probability allowance for nondestructive examination uncertainty (i.e., a value of 20-percent has been approved by the NRC)

Implementation of these mid-cycle repair limits should follow the same approach as in TS 5.5.9.1e.1.m)1., 5.5.9.1e.1.m)2., and 5.5.9.1e.1.m)3.

- n. Tube Repair (for Unit 1 only) refers to the process that establishes tube serviceability. Acceptable tube repairs will be performed in accordance with the process described in Westinghouse WCAP-13698, Rev. 3 and Westinghouse Letter WPT-16094 dated March 20, 2000, WCAP-15090, Rev. 1, CEN-630-P, Rev. 2 dated June 1997, and WCAP-15918, Rev. 1, dated January, 2004.

(continued)

5.5 Programs and Manuals

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5.5.9.1 Unit 1 Model D4 Steam Generator (SG) Program (continued)

2. The steam generator shall be determined OPERABLE after completing the corresponding actions (plug all tubes exceeding the plugging limit and all tubes containing through-wall cracks) required by Table 5.5-2 and Table 5.5-3.

(continued)

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5.5 Programs and Manuals

5.5.9.1 Unit 1 Model D4 Steam Generator (SG) Program (continued)

TABLE 5.5-1

MINIMUM NUMBER OF STEAM GENERATORS TO BE  
INSPECTED DURING INSERVICE INSPECTION

Preservice Inspection	Four
No. of Steam Generators per Unit	Four
First Inservice Inspection	Two
Second & Subsequent Inservice Inspections	One <sup>1</sup>

TABLE NOTATIONS

1. The two steam generators that were not inspected during the first inservice inspection shall be inspected during the second and third inspections, one in each inspection period. For the fourth and subsequent inspections, the inservice inspection may be limited to one steam generator on a rotating schedule encompassing 12% of the tubes if the results of the previous inspections of the four steam generators indicate that all steam generators are performing in a like manner. Note that under some circumstances, the operating conditions in one or more steam generators may be found to be more severe than those in other steam generators. Under such circumstances the sample sequence shall be modified to inspect the most severe conditions.

(continued)



5.5 Programs and Manuals

5.5.9.1 Unit 1 Model D4 Steam Generator (SG) Program (continued)

TABLE 5.5-2

STEAM GENERATOR TUBE INSPECTION

	1 <sup>ST</sup> SAMPLE INSPECTION		2 <sup>ND</sup> SAMPLE INSPECTION		3 <sup>RD</sup> SAMPLE INSPECTION	
Sample size	Result	Action Required	Result	Action Required	Result	Action Required
A minimum of S Tubes per S.G.	C-1	None	N.A.	N.A.	N.A.	N.A.
	C-2	Plug or repair* defective tubes and inspect additional 2S tubes in this S.G.	C-1	None	N.A.	N.A.
			C-2	Plug or repair* defective tubes and inspect additional 4S tubes in this S.G.	C-1	None
					C-2	Plug or repair* defective tubes
					C-3	Perform action for C-3 result of first sample
			C-3	Perform action for C-3 result of first sample	N.A.	N.A.
	C-3	Inspect all tubes in this S.G., plug or repair* defective tubes and inspect 2S tubes in each other S.G.	All other S.G.s are C-1	None	N.A.	N.A.
			Some S.G.s C-2 but no additional S.G. C-3	Perform action for C-2 result of second sample	N.A.	N.A.
			Additional S.G. is C-3	Inspect all tubes in each S.G. and plug or repair* defective tubes.	N.A.	N.A.

(continued)

S = 12/n% Where n is the number of steam generators inspected during an inspection

\* for Unit 1 only

5.5 Programs and Manuals

5.5.9.1 Unit 1 Model D4 Steam Generator (SG) Program (continued)

TABLE 5.5-3

STEAM GENERATOR REPAIRED TUBE INSPECTION FOR UNIT 1 ONLY

1 <sup>ST</sup> SAMPLE INSPECTION			2 <sup>ND</sup> SAMPLE INSPECTION	
Sample Size	Result	Action Required	Result	Action Required
A minimum of 20% of repaired tubes (1)	C-1	None	N.A.	N.A.
	C-2	Plug defective repaired tubes and inspect 100% of the repaired tubes in this S.G.	C-1	None
			C-2	Plug defective repaired tubes
			C-3	Perform action for C-3 result of first sample
	C-3	Inspect all repaired tubes in this S.G., plug defective tubes and inspect 20% of the repaired tubes in each other S.G.	All other S.G.s are C-1	None
			Same S.G.s C-2 but no additional S.G. are C-3	Perform action for C-2 result of first sample
			Additional S.G is C-3	Inspect all repaired tubes in each S.G. and plug defective tubes.

(continued)

- (1) Each repair method is considered a separate population for determination of initial inservice inspection and scope expansion.

5.5 Programs and Manuals (continued)

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5.5.9.2 Unit 1 Model D76 and Unit 2 Model D5 Steam Generator (SG) Program

A Steam Generator Program shall be established and implemented to ensure that SG tube integrity is maintained. In addition, the Steam Generator Program shall include the following provisions:

- a. Provisions for condition monitoring assessments. Condition monitoring assessment means an evaluation of the "as found" condition of the tubing with respect to the performance criteria for structural integrity and accident induced leakage. The "as found" condition refers to the condition of the tubing during an SG inspection outage, as determined from the inservice inspection results or by other means, prior to the plugging of tubes. Condition monitoring assessments shall be conducted during each outage during which the SG tubes are inspected or plugged to confirm that the performance criteria are being met.
- b. Performance criteria for SG tube integrity. SG tube integrity shall be maintained by meeting the performance criteria for tube structural integrity, accident induced leakage, and operational LEAKAGE.
  1. Structural integrity performance criterion: All in-service steam generator tubes shall retain structural integrity over the full range of normal operating conditions (including startup, operation in the power range, hot standby, and cool down and all anticipated transients included in the design specification) and design basis accidents. This includes retaining a safety factor of 3.0 against burst under normal steady state full power operation primary-to-secondary pressure differential and a safety factor of 1.4 against burst applied to the design basis accident primary-to-secondary pressure differentials. Apart from the above requirements, additional loading conditions associated with the design basis accidents, or combination of accidents in accordance with the design and licensing basis, shall also be evaluated to determine if the associated loads contribute significantly to burst or collapse. In the assessment of tube integrity, those loads that do significantly affect burst or collapse shall be determined and assessed in combination with the loads due to pressure with a safety factor of 1.2 on the combined primary loads and 1.0 on axial secondary loads.
  2. Accident induced leakage performance criterion: The primary to secondary accident induced leakage rate for any design basis accident, other than a SG tube rupture, shall not exceed the leakage rate assumed in the accident analysis in terms of total leakage rate for all SGs and leakage rate for an individual SG. Leakage is not to exceed 1 gpm per SG.
  3. The operational LEAKAGE performance criterion is specified in LCO 3.4.13, "RCS Operational LEAKAGE."

(continued)

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5.5 Programs and Manuals (continued)5.5.9.2 Unit 1 Model D76 and Unit 2 Model D5 Steam Generator (SG) Program (continued)

- c. Provisions for SG tube repair criteria. Tubes found by inservice inspection to contain flaws with a depth equal to or exceeding 40% of the nominal tube wall thickness shall be plugged.
- d. Provisions for SG tube inspections. Periodic SG tube inspections shall be performed. The number and portions of the tubes inspected and methods of inspection shall be performed with the objective of detecting flaws of any type (e.g., volumetric flaws, axial and circumferential cracks) that may be present along the length of the tube, from the tube-to-tubesheet weld at the tube inlet to the tube-to-tubesheet weld at the tube outlet, and that may satisfy the applicable tube repair criteria. The tube-to-tubesheet weld is not part of the tube. In addition to meeting the requirements of d.1, d.2, and d.3 below, the inspection scope, inspection methods, and inspection intervals shall be such as to ensure that SG tube integrity is maintained until the next SG inspection. An assessment of degradation shall be performed to determine the type and location of flaws to which the tubes may be susceptible and, based on this assessment, to determine which inspection methods need to be employed and at what locations.
  - 1. Inspect 100% of the tubes in each SG during the first refueling outage following SG replacement.
  - 2a. For the Unit 2 model D5 steam generators (Alloy 600 thermally treated) inspect 100% of the tubes at sequential periods of 120, 90, and, thereafter, 60 effective full power months. The first sequential period shall be considered to begin after the first inservice inspection of the SGs. In addition, inspect 50% of the tubes by the refueling outage nearest the midpoint of the period and the remaining 50% by the refueling outage nearest the end of the period. No SG shall operate for more than 48 effective full power months or two refueling outages (whichever is less) without being inspected.]
  - 2b. For the Unit 1 model Delta-76 steam generators (Alloy 690 thermally treated) inspect 100% of the tubes at sequential periods of 144, 108, 72, and, thereafter, 60 effective full power months. The first sequential period shall be considered to begin after the first inservice inspection of the SGs. In addition, inspect 50% of the tubes by the refueling outage nearest the midpoint of the period and the remaining 50% by the refueling outage nearest the end of the period. No SG shall operate for more than 72 effective full power months or three refueling outages (whichever is less) without being inspected.

(continued)

5.5 Programs and Manuals (continued)

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5.5.9.2 Unit 1 Model D76 and Unit 2 Model D5 Steam Generator (SG) Program (continued)

3. If crack indications are found in any SG tube, then the next inspection for each SG for the degradation mechanism that caused the crack indication shall not exceed 24 effective full power months or one refueling outage (whichever is less). If definitive information, such as from examination of a pulled tube, diagnostic non-destructive testing, or engineering evaluation indicates that a crack-like indication is not associated with a crack(s), then the indication need not be treated as a crack.
- e. Provisions for monitoring operational primary to secondary LEAKAGE.

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(continued)

## 5.6 Reporting Requirements (continued)

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5.6.7 Not used

### 5.6.8 PAM Report

When a report is required by the required actions of LCO 3.3.3, "Post Accident Monitoring (PAM) Instrumentation," a report shall be submitted within the following 14 days. The report shall outline the preplanned alternate method of monitoring, the cause of the inoperability, and the plans and schedule for restoring the instrumentation channels of the Function to OPERABLE status.

### 5.6.9 Unit 1 Model D76 and Unit 2 Model D5 Steam Generator Tube Inspection Report

A report shall be submitted within 180 days after the initial entry into MODE 4 following completion of an inspection performed in accordance with the Specification 5.5.9.2, Steam Generator (SG) Program. The report shall include:

- a. The scope of inspections performed on each SG,
- b. Active degradation mechanisms found,
- c. Nondestructive examination techniques utilized for each degradation mechanism,
- d. Location, orientation (if linear), and measured sizes (if available) of service induced indications,
- e. Number of tubes plugged during the inspection outage for each active degradation mechanism,
- f. Total number and percentage of tubes plugged to date, and
- g. The results of condition monitoring, including the results of tube pulls and in-situ testing,

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(continued)

## 5.6 Reporting Requirements (continued)

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### 5.6.10 Unit 1 Model D4 Steam Generator Tube Inspection Report

- a. Within 15 days following the completion of each inservice inspection of steam generator tubes, the number of tubes plugged, repaired or designated as an F\* tube in each steam generator shall be reported to the Commission;
- b. The complete results of the steam generator tube inservice inspection shall be submitted to the Commission in a report within 12 months following the completion of the inspection. This report shall include:
  - 1) Number and extent of tubes and (for Unit 1 only) sleeves inspected,
  - 2) Location and percent of wall-thickness penetration for each indication of an imperfection, and
  - 3) Identification of tubes plugged or repaired.
- c. Results of steam generator tube inspections which fall into Category C-3 shall be reported to the Commission in a report within 30 days and prior to resumption of plant operation. This report shall provide a description of investigations conducted to determine cause of the tube degradation and corrective measures taken to prevent recurrence.

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## 5.6 Reporting Requirements

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### 5.6.10 Unit 1 Model D4 Steam Generator Tube Inspection Report (continued)

- d. For implementation of the voltage based repair criteria to tube support plate intersections, notify the staff prior to returning the steam generators to service should any of the following conditions arise:
1. If estimated leakage based on the projected end-of-cycle (or if not practical, using the actual measured end-of-cycle) voltage distribution exceeds the leakage limit (determined from the licensing basis dose calculation for the postulated main steam line break) for the next operating cycle.
  2. If circumferential crack-like indications are detected at the tube support plate intersections.
  3. If indications are identified that extend beyond the confines of the tube support plate.
  4. If indications are identified at the tube support plate elevations that are attributable to primary water stress corrosion cracking.
  5. If the calculated conditional burst probability based on the projected end-of-cycle (or if not practical, using the actual measured end-of-cycle) voltage distribution exceeds  $1 \times 10^{-2}$ , notify the NRC and provide an assessment of the safety significance of the occurrence.
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