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Remove and Insert

Replace the following page(s) of Catawba Nuclear Station Selected Licensee Commitments (SLC) Manual with the attached revised page(s). The revised page(s) are identified by Section number and contains marginal lines indicating the areas of change.

REMOVE THESE PAGES

INSERT THESE PAGES

LIST OF EFFECTIVE SECTIONS

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TAB 16.7

16.7-10, Pages 1-9
Revision 8

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TAB 16.11

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If you have any questions concerning the contents of this Catawba Nuclear Station Selected Licensee Commitments (SLC) Manual update, please contact Jordan Vaughan (678) 642-6459.

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LIST OF EFFECTIVE SECTIONS

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16.11 RADIOLOGICAL EFFLUENTS CONTROLS

16.11-2 Radioactive Liquid Effluent Monitoring Instrumentation

COMMITMENT The Radioactive Liquid Effluent Monitoring Instrumentation channels shown in Table 16.11-2-1 shall be FUNCTIONAL with their Alarm/Trip Setpoints set to ensure that the limits of SLC 16.11-1 are not exceeded.

AND

The Alarm/Trip Setpoints of these channels shall be determined and adjusted in accordance with the methodology and parameters in the OFFSITE DOSE CALCULATION MANUAL (ODCM).

APPLICABILITY: Conditions A, B, and G are applicable at all times. Conditions C, D, E, and F are applicable at all times, except when the effluent pathway is mechanically isolated; thus a release to the environment is not possible.

REMEDIAL ACTIONS

-----NOTE-----

Separate Condition entry is allowed for each Function.

Radioactive Liquid Effluent Monitoring Instrumentation
16.11-2

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more Radioactive Liquid Effluent Monitoring Instrumentation channel(s) Alarm/Trip Setpoint less conservative than required.	A.1 Suspend the release of radioactive liquid effluents monitored by the affected channel(s).	Immediately
	<u>OR</u>	
	A.2 Declare the channel(s) non-functional.	Immediately
B. One or more Radioactive Liquid Effluent Monitoring Instrumentation channel(s) non-functional.	B.1 Enter the applicable Conditions and Required Actions specified in Table 16.11-2-1 for the channel(s).	Immediately
	<u>AND</u>	
	B.2.1 Restore channel to FUNCTIONAL status.	14 Days (*Note 1)
	<u>OR</u>	
	B.2.2 Restore channel to FUNCTIONAL status.	30 Days (*Note 1)

*Note 1 – Required Action B.2.1 Applies to Instruments 1.a and 1.c ONLY. (continued)
 Required Action B.2.2 Applies to the remainder of required Instruments listed in Table 16.11-2-1.

REMEDIAL ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>C. One channel non-functional.</p>	<p>C.1.1 Analyze two independent samples per Testing Requirement 16.11-1-1.</p> <p><u>AND</u></p>	<p>Prior to initiating a release</p>
	<p>C.1.2 Perform independent verification of the discharge line valving.</p> <p><u>AND</u></p>	<p>Prior to initiating a release</p>
	<p>C.1.3.1 Perform independent verification of manual portion of the computer input for release rate calculations performed by computer.</p> <p><u>OR</u></p>	<p>Prior to initiating a release</p>
	<p>C.1.3.2 Perform independent verification of entire calculations for release rate calculations performed manually.</p> <p><u>OR</u></p>	<p>Prior to initiating a release</p>
	<p>C.2 Suspend release of radioactive effluents via this pathway.</p>	<p>Immediately</p>

(continued)

REMEDIAL ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>D. One flow rate measurement device channel non-functional.</p>	<p>D.1 -----NOTE----- Pump performance curves generated in place may be used to estimate flow. ----- Estimate the flow rate of the release.</p>	<p>Once per 4 hours during releases</p>
<p>E. One channel non-functional.</p>	<p>E.1 Perform an analysis of grab samples for radioactivity at a lower limit of detection of 10^{-7} microCurie/ml.</p>	<p>Once per 12 hours during releases when secondary specific activity is > 0.01 microCurie/gm DOSE EQUIVALENT I-131 <u>AND</u> Once per 24 hours during releases when secondary specific activity is \leq 0.01 microCurie/gm DOSE EQUIVALENT I-131</p>

(continued)

REMEDIAL ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>F. One channel non-functional.</p>	<p>F.1 Collect and analyze grab samples for principal gamma emitters (listed in Table 16.11-1-1, NOTE 3) at a lower limit of detection of no more than 5×10^{-7} microCurie/ml.</p>	<p>Once per 12 hours</p>
<p>G. Required Action and associated Completion Time of Condition B not met.</p>	<p>G.1 Explain why the non-functionality was not corrected within the specified Completion Time.</p>	<p>In the next scheduled Radioactive Effluent Release Report pursuant to Technical Specification 5.6.3</p>

TESTING REQUIREMENTS

-----NOTE-----
Refer to Table 16.11-2-1 to determine which TRs apply for each Radioactive Liquid Effluent Monitoring Instrumentation channel.

TEST	FREQUENCY
TR 16.11-2-1 Perform CHANNEL CHECK.	24 hours
TR 16.11-2-2 -----NOTE----- The CHANNEL CHECK shall consist of verifying indication of flow. ----- Perform CHANNEL CHECK.	24 hours during periods of release
TR 16.11-2-3 Perform SOURCE CHECK.	Prior to each release
TR 16.11-2-4 Perform SOURCE CHECK.	31 days
TR 16.11-2-5 Perform COT.	92 days
TR 16.11-2-6 -----NOTE----- For Instrument 1, the COT shall also demonstrate that automatic isolation of this pathway and control room alarm annunciation (for EMF-57, alarm annunciation is in the Monitor Tank Building control room and on the Monitor Tank Building control panel remote annunciator panel) occur if any of the following conditions exist: a. Instrument indicates measured levels above the Alarm/Trip Setpoint, or b. Circuit failure/instrument downscale failure (alarm only) ----- Perform COT.	9 months

(continued)

TESTING REQUIREMENTS (continued)

TEST	FREQUENCY
<p>TR 16.11-2-7 -----NOTE----- For Instrument 1, the initial CHANNEL CALIBRATION shall be performed using one or more of the reference standards certified by the National Bureau of Standards (NBS) or using standards that have been obtained from suppliers that participate in measurement assurance activities with NBS. These standards shall permit calibrating the system over its intended range of energy and measurement range. For subsequent CHANNEL CALIBRATION, sources that have been related to the initial calibration shall be used.</p> <p>-----</p> <p style="text-align: center;">Perform CHANNEL CALIBRATION.</p>	18 months

Radioactive Liquid Effluent Monitoring Instrumentation

16.11-2

Table 16.11-2-1

Radioactive Liquid Effluent Monitoring Instrumentation

INSTRUMENT	REQUIRED CHANNELS	CONDITIONS	TESTING REQUIREMENTS
1. Radioactivity Monitors Providing Alarm and Automatic Termination of Release			
1.a Waste Liquid Discharge Monitor (EMF-49 – Low Range)	1 per station	A, B, C, G	TR 16.11-2-1 TR 16.11-2-3 TR 16.11-2-6 TR 16.11-2-7
1.b Turbine Building Sump Monitor (EMF-31)	1	A, B, E, G	TR 16.11-2-1 TR 16.11-2-4 TR 16.11-2-6 TR 16.11-2-7
1.c Monitor Tank Building Liquid Discharge Monitor (EMF-57 – Low Range)	1 per station	A, B, C, G	TR 16.11-2-1 TR 16.11-2-3 TR 16.11-2-6 TR 16.11-2-7
2. Continuous Composite Samplers and Sampler Flow Monitor			
2.a Conventional Waste Water Treatment Line (no alarm/trip function)	1 per station	B, E, G	TR 16.11-2-2 TR 16.11-2-7
3. Flow Rate Measurement Devices			
3.a Waste Liquid Effluent Line (no alarm/trip function)	1 per station	B, D, G	TR 16.11-2-2 TR 16.11-2-7
3.b Conventional Waste Water Treatment Line (no alarm/trip function)	1 per station	B, D, G	TR 16.11-2-2 TR 16.11-2-7
3.c Low Pressure Service Water Minimum Flow Interlock	1 per station	B, D, G	TR 16.11-2-2 TR 16.11-2-5 TR 16.11-2-7
3.d Monitor Tank Building Waste Liquid Effluent Line (no alarm/trip function)	1 per station	B, D, G	TR 16.11-2-2 TR 16.11-2-7
4. Radioactivity Monitors Providing Alarm			
4.a Service Water Monitor on Containment Spray Heat Exchanger (EMF-45 A & B – Low Range)	1 per heat exchanger	A, B, F, G	TR 16.11-2-1 TR 16.11-2-4 TR 16.11-2-6 TR 16.11-2-7

BASES

The Radioactive Liquid Effluent Monitoring Instrumentation is provided to monitor and control, as applicable, the releases of radioactive materials in liquid effluents during actual or potential releases of liquid effluents. The Alarm/Trip Setpoints for these instruments shall be calculated and adjusted in accordance with the methodology and parameters in the ODCM to ensure that the Alarm/Trip will occur prior to exceeding the limits of 10 CFR Part 20. The FUNCTIONALITY and use of this instrumentation is consistent with the requirements of General Design Criteria 60, 63, and 64 of Appendix A to 10 CFR Part 50.

Regarding the COMMITMENT APPLICABILITY, isolation of the effluent pathway is to be by mechanical means (e.g., valve closure). Electrical or pneumatic isolation is not required, unless the isolation is designed to receive an automatic signal to open.

REFERENCES

1. Catawba Offsite Dose Calculation Manual.
2. 10 CFR Part 20.
3. 10 CFR Part 50, Appendix A.

16.11 RADIOLOGICAL EFFLUENTS CONTROLS

16.11-7 Radioactive Gaseous Effluent Monitoring Instrumentation

COMMITMENT The Radioactive Gaseous Effluent Monitoring Instrumentation channels shown in Table 16.11-7-1 shall be FUNCTIONAL with their Alarm/Trip Setpoints set to ensure that the limits of SLC 16.11-6 are not exceeded.

AND

The Alarm/Trip Setpoints of these channels shall be determined and adjusted in accordance with the methodology and parameters in the OFFSITE DOSE CALCULATION MANUAL (ODCM).

APPLICABILITY: Conditions B and K are applicable at all times. All other Conditions are applicable as shown in Table 16.11-7-1.

REMEDIAL ACTIONS

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

Radioactive Gaseous Effluent Monitoring Instrumentation
16.11-7

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. One or more Radioactive Gaseous Effluent Monitoring Instrumentation channel(s) Alarm/Trip Setpoint less conservative than required.</p>	<p>A.1 Suspend the release of radioactive gaseous effluents monitored by the affected channel(s).</p>	Immediately
	<p style="text-align: center;"><u>OR</u></p> <p>A.2 Declare the channel(s) non-functional.</p>	Immediately
<p>B. One or more Radioactive Gaseous Effluent Monitoring Instrumentation channel(s) non-functional.</p>	<p>B.1 Enter the applicable Conditions and Required Actions specified in Table 16.11-7-1 for the channel(s).</p>	Immediately
	<p style="text-align: center;"><u>AND</u></p> <p>B.2.1 Restore channel to FUNCTIONAL status.</p>	14 Days (*Note 1)
	<p style="text-align: center;"><u>OR</u></p> <p>B.2.2 Restore channel to FUNCTIONAL status.</p>	30 Days (*Note 1)

*Note 1 – Required Action B.2.1 applies to Instrument 1.a ONLY. (continued)
 Required Action B.2.2 applies to Instruments 1.b, 2, 3.a, 3.c, 3.d, 3.e, 5, 6.a, and 6.b listed in Table 16.11-7-1.

REMEDIAL ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. One channel non-functional.	C.1 Verify that EMF-36 (Low Range) is FUNCTIONAL.	Prior to initiating a release
	<u>OR</u>	
	C.2.1 Analyze two independent samples of the tank's contents.	Prior to initiating a release
	<u>AND</u>	
	C.2.2 Perform independent verification of the discharge line valving.	Prior to initiating a release
	<u>AND</u>	
	C.2.3.1 Perform independent verification of manual portion of the computer input for release rate calculations performed by computer.	Prior to initiating a release
	<u>OR</u>	
	C.2.3.2 Perform independent verification of entire calculations for release rate calculations performed manually.	Prior to initiating a release
	<u>OR</u>	
	C.3 Suspend release of radioactive effluents via this pathway.	Immediately

(continued)

REMEDIAL ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. One or more flow rate measurement device channel(s) non-functional.	D.1 Estimate the flow rate of the release.	Once per 4 hours during releases
E. One or more Noble Gas Activity Monitor channel(s) non-functional.	<p>-----NOTE----- <u>IF</u> 0EMF41 is NON-FUNCTIONAL <u>AND</u> either 1EMF36 <u>OR</u> 2EMF36 is NON-FUNCTIONAL, perform SLC 16.7-10, Required Action G.2 -----</p> <p>E.1 Obtain grab samples from effluent pathway.</p> <p><u>AND</u></p> <p>E.2 Perform an analysis of grab samples for radioactivity.</p>	<p>Once per 12 hours during releases</p> <p>Within 24 hours of obtaining the sample</p>

(continued)

REMEDIAL ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>F. Noble Gas Activity Monitor (EMF-39 – Low Range) providing automatic termination of release via the Containment Purge Exhaust System (CPES) non-functional.</p>	<p>F.1 -----NOTE----- In order to utilize Required Action F.1, the following conditions must be satisfied:</p> <ol style="list-style-type: none"> 1. The affected unit is in MODES 5 or 6. 2. EMF-36 is FUNCTIONAL and in service for the affected unit. 3. The Reactor Coolant System for the affected unit has been vented. 4. Either the reactor vessel head is in place (bolts are not required), or if it is not in place, the lifting of heavy loads over the reactor vessel and the movement of irradiated fuel assemblies within containment have been suspended. <p>-----</p> <p>Restore the non-functional channel to FUNCTIONAL status.</p>	<p>12 hours</p>
<p>G. Required Action and associated Completion Time of Condition F not met.</p> <p><u>OR</u></p> <p>Required Action F.1 not utilized.</p>	<p>G.1 Suspend PURGING of radioactive effluents via this pathway.</p>	<p>Immediately</p>

(continued)

REMEDIAL ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
H. One or more sampler channel(s) non-functional.	H.1 Perform sampling with auxiliary sampling equipment as required by Table 16.11-6-1.	Continuously
I. One Condenser Evacuation System Noble Gas Activity Monitor (EMF-33) channel non-functional.	<p>I.1 -----NOTE----- Applicable to effluent releases via the Condenser Steam Air Ejector (ZJ) System.</p> <p>Obtain grab samples from effluent pathway.</p> <p><u>AND</u></p> <p>I.2 -----NOTE----- Applicable to effluent releases via the Condenser Steam Air Ejector (ZJ) System.</p> <p>Perform an analysis of grab samples for radioactivity.</p> <p><u>AND</u></p>	<p>Once per 12 hours during releases</p> <p>Within 24 hours of obtaining the sample</p> <p style="text-align: right;">(continued)</p>

REMEDIAL ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
I. (continued)	<p>I.3 -----NOTE----- Applicable to effluent releases via the Steam Generator Blowdown (BB) System atmospheric vent valve (BB-27) in the off-normal mode.</p> <p>-----</p> <p>Perform an analysis of grab samples for radioactivity at a lower limit of detection of 10^{-7} microCurie/ml.</p>	<p>Once per 12 hours during releases when secondary specific activity is > 0.01 microCurie/gm DOSE EQUIVALENT I-131</p> <p><u>AND</u></p> <p>Once per 24 hours during releases when secondary specific activity is \leq 0.01 microCurie/gm DOSE EQUIVALENT I-131</p>
J. Noble Gas Activity Monitor (EMF-39 – Low Range) providing automatic termination of release via the Containment Air Release and Addition System non-functional.	<p>J.1 Verify that EMF-36 is FUNCTIONAL.</p> <p><u>OR</u></p> <p>J.2.1 Analyze two independent samples of the containment atmosphere.</p> <p><u>AND</u></p>	<p>Prior to initiating a release</p> <p>Prior to initiating a release</p> <p style="text-align: right;">(continued)</p>

REMEDIAL ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>J. (continued)</p>	<p>J.2.2 Perform independent verification of the discharge line valving.</p> <p><u>AND</u></p> <p>J.2.3.1 Perform independent verification of manual portion of the computer input for release rate calculations performed by computer.</p> <p><u>OR</u></p> <p>J.2.3.2 Perform independent verification of entire calculations for release rate calculations performed manually.</p>	<p>Prior to initiating a release</p> <p>Prior to initiating a release</p> <p>Prior to initiating a release</p>

(continued)

REMEDIAL ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
K. Required Action and associated Completion Time of Condition B or F not met.	K.1 Explain why the non-functionality was not corrected within the specified Completion Time.	In the next scheduled Radioactive Effluent Release Report pursuant to Technical Specification 5.6.3

TESTING REQUIREMENTS

-----NOTE-----

Refer to Table 16.11-7-1 to determine which TRs apply for each Radioactive Gaseous Effluent Monitoring Instrumentation channel.

TEST	FREQUENCY
TR 16.11-7-1 Perform CHANNEL CHECK.	Prior to each release
TR 16.11-7-2 -----NOTE----- For Instruments 1a, 4, and 5, a SOURCE CHECK for these channels shall be the qualitative assessment of channel response when the channel sensor is exposed to a light-emitting diode. ----- Perform SOURCE CHECK.	Prior to each release
TR 16.11-7-3 Perform CHANNEL CHECK.	12 hours
TR 16.11-7-4 Perform CHANNEL CHECK.	24 hours
TR 16.11-7-5 Perform CHANNEL CHECK.	7 days

(continued)

TESTING REQUIREMENTS (continued)

TEST	FREQUENCY
<p>TR 16.11-7-6 -----NOTE----- For Instruments 2 and 3a, a SOURCE CHECK for these channels shall be the qualitative assessment of channel response when the channel sensor is exposed to a light-emitting diode.</p> <p>-----</p> <p>Perform SOURCE CHECK.</p>	31 days
<p>TR 16.11-7-7 -----NOTE----- For Instruments 1a, 3a, 3c, 5, and 6a, the COT shall also demonstrate, as applicable, that automatic isolation of this pathway and control room alarm annunciation (for EMF-58, alarm annunciation is in the Monitor Tank Building control room and on the Monitor Tank Building control panel remote annunciator panel) occur if any of the following conditions exist:</p> <p>a. Instrument indicates measured levels above the Alarm/Trip Setpoint, or</p> <p>b. Circuit failure/instrument downscale failure (alarm only)</p> <p>-----</p> <p>Perform COT.</p>	9 months
<p>TR 16.11-7-8 -----NOTE----- For Instruments 2 and 4, the COT shall also demonstrate that automatic isolation of this pathway and control room alarm annunciation occur if any of the following conditions exist:</p> <p>a. Instrument indicates measured levels above the Alarm/Trip Setpoint, or</p> <p>b. Circuit failure/instrument downscale failure (alarm only)</p> <p>-----</p> <p>Perform COT.</p>	18 months

(continued)

TESTING REQUIREMENTS (continued)

TEST	FREQUENCY
<p>TR 16.11-7-9 -----NOTE----- For Instruments 1a, 2, 3a, 3c, 4, 5, and 6a, the initial CHANNEL CALIBRATION shall be performed using one or more of the reference standards certified by the National Bureau of Standards (NBS) or using standards that have been obtained from suppliers that participate in measurement assurance activities with NBS. These standards shall permit calibrating the system over its intended range of energy and measurement range. For subsequent CHANNEL CALIBRATION, sources that have been related to the initial calibration shall be used.</p> <p>-----</p> <p>Perform CHANNEL CALIBRATION.</p>	<p>18 months</p>

Radioactive Gaseous Effluent Monitoring Instrumentation
16.11-7

Table 16.11-7-1

Radioactive Gaseous Effluent Monitoring Instrumentation (page 1 of 2)

INSTRUMENT	REQUIRED CHANNELS	CONDITIONS	APPLICABLE MODES	TESTING REQUIREMENTS
1. Waste Gas Holdup System				
1.a Noble Gas Activity Monitor – Providing Alarm and Automatic Termination of Release (EMF-50 – Low Range)	1 per station	A, B, C, K	At all times except when the isolation valve is closed and locked	TR 16.11-7-1 TR 16.11-7-2 TR 16.11-7-7 TR 16.11-7-9
1.b Effluent System Flow Rate Measuring Device	1 per station	B, D, K	At all times except when the isolation valve is closed and locked	TR 16.11-7-1 TR 16.11-7-9
2. Condenser Evacuation System Noble Gas Activity Monitor (EMF-33) (BB-27 is only isolation function required) (Note 1)	1	A, B, I, K	When air ejectors are in operation (Apply Required Action 1.3 when air ejectors are not in operation)	TR 16.11-7-3 TR 16.11-7-6 TR 16.11-7-8 TR 16.11-7-9
3. Vent System				
3.a Noble Gas Activity Monitor (EMF-36 – Low Range)	1	A, B, E, K	At all times	TR 16.11-7-4 TR 16.11-7-6 TR 16.11-7-7 TR 16.11-7-9
3.b Deleted.				
3.c Particulate Sampler (EMF-35)	1	A, B, H, K	At all times (Note 2)	TR 16.11-7-4 TR 16.11-7-6 TR 16.11-7-7 TR 16.11-7-9
3.d Unit Vent Stack Flow Rate Meter (no alarm/trip function)	1	B, D, K	At all times (Note 2)	TR 16.11-7-4 TR 16.11-7-9
3.e Unit Vent Radiation Monitor Flow Meter	1	B, E, K	At all times (Note 2)	TR 16.11-7-4 TR 16.11-7-9
4. Containment Purge System Noble Gas Activity Monitor – Providing Alarm and Automatic Termination of Release (EMF-39 – Low Range)	1	A, F, G, K	5, 6	TR 16.11-7-2 TR 16.11-7-3 TR 16.11-7-8 TR 16.11-7-9

(continued)

Radioactive Gaseous Effluent Monitoring Instrumentation
16.11-7

Table 16.11-7-1

Radioactive Gaseous Effluent Monitoring Instrumentation (page 2 of 2)

INSTRUMENT	REQUIRED CHANNELS	CONDITIONS	APPLICABLE MODES	TESTING REQUIREMENTS
5. Containment Air Release and Addition System Noble Gas Activity Monitor – Providing Alarm and Automatic Termination of Release (EMF-39 – Low Range)	1	A, B, J, K	1, 2, 3, 4, 5, 6	TR 16.11-7-2 TR 16.11-7-3 TR 16.11-7-7 TR 16.11-7-9
6. Monitor Tank Building HVAC				
6.a Noble Gas Activity Monitor – Providing Alarm (EMF-58 – Low Range)	1 per station	A, B, E, K	At all times (Note 2)	TR 16.11-7-4 TR 16.11-7-6 TR 16.11-7-7 TR 16.11-7-9
6.b Effluent Flow Rate Measuring Device	1 per station	B, D, K	At all times (Note 2)	TR 16.11-7-4 TR 16.11-7-9

Note 1: The setpoint is as required by the primary to secondary leak rate monitoring program.

Note 2: Except when the effluent pathway is mechanically isolated; thus, a release to the environment is not possible.

BASES

The Radioactive Gaseous Effluent Monitoring Instrumentation is provided to monitor and control, as applicable, the releases of radioactive materials in gaseous effluents during actual or potential releases of gaseous effluents. The Alarm/Trip Setpoints for these instruments shall be calculated and adjusted in accordance with the methodology and parameters in the ODCM to ensure that the Alarm/Trip will occur prior to exceeding the limits of 10 CFR Part 20. The FUNCTIONALITY and use of this instrumentation is consistent with the requirements of General Design Criteria 60, 63, and 64 of Appendix A to 10 CFR Part 50. The sensitivity of any noble gas activity monitor used to show compliance with the gaseous effluent release requirements of SLC 16.11-8 shall be such that concentrations as low as 1×10^{-6} $\mu\text{Ci/cc}$ are measurable.

Regarding Note 2 of Table 16.11-7-1, isolation of the effluent pathway is to be by mechanical means (e.g., valve closure). Electrical or pneumatic isolation is not required, unless the isolation is designed to receive an automatic signal to open.

In MODES 5 and 6, initiation of the Containment Purge Exhaust System (CPES) with EMF-39 non-functional is not permissible. The basis for Required Action F.1 is to allow the continued operation of the CPES with EMF-39 initially FUNCTIONAL. Continued operation of the CPES is contingent upon the ability of the affected unit to meet the requirements as noted in Required Action F.1.

TR 16.11-7-7 requires the performance of a COT on the applicable Radioactive Gaseous Effluent Radiation Monitors. The test ensures that a signal from the control room module can generate the appropriate alarm and actuations. The required actuations/isolations for a High Radiation condition (i.e., radiation level above its Trip 2 setpoint) are listed below for each monitor.

0EMF-50 - Waste Gas Discharge Monitor

1WG160 closes when EMF-50 detects radiation level above its setpoint.

1/2EMF-36 - Unit Vent Noble Gas Monitor

The following actuations occur when EMF-36 detects radiation level above its setpoint:

1. Containment Air Release and Addition System fans discharge to unit vent valve VQ10 closes.
2. Auxiliary Building unfiltered ventilation exhaust fans A and B stop.
3. Fuel Handling Ventilation Exhaust System (FHVES) exhaust trains align to the filter units.
4. (For 1EMF-36 only) 1WG160 closes.

1/2EMF-35 - Unit Vent Particulate Monitor (Sampler)

The following actuations occur when EMF-35 detects radiation level above its setpoint:

1. Containment Air Release and Addition System fans discharge to unit vent valve VQ10 closes.
2. Auxiliary Building unfiltered ventilation exhaust fans A and B stop.
3. Fuel Handling Ventilation Exhaust System (FHVES) exhaust trains align to the filter units.
4. ((For 1EMF-35 only) 1WG160 closes.

BASES (continued)

1/2EMF-39 - Containment Noble Gas Monitor

The following actuations occur when EMF-39 detects radiation level above its setpoint:

1. Signals are provided to both trains of the Solid State Protection System (SSPS) to initiate a CPES isolation. This is verified by observing that Relays K615 in the SSPS A output cabinet and the SSPS B output cabinet are latched.
2. EMF-39 isolates the CPES without going through the SSPS by stopping CPES supply fans A and B, CPES exhaust fans A and B, and by closing the appropriate valves and dampers.
3. Containment Evacuation Alarm, unless the source range trip is blocked.

0EMF-58

This monitor provides no control function.

TR 16.11-7-8 requires the performance of a COT on the Condensate Steam Air Ejector Exhaust Monitor, 1/2EMF-33 and Containment Noble Gas Monitor, 1/2EMF-39. The test ensures that a signal from the control room module can generate the appropriate alarm and actuations. The required actuations/isolations for a High Radiation condition (i.e., radiation level above its Trip 2 setpoint) are listed below.

1/2EMF-33 - Condensate Steam Air Ejector Exhaust Monitor

The following actuations occur when EMF-33 detects radiation level above its setpoint:

1. Closure of BB27 is required in order to isolate the Blowdown Tank from the environment. Because of plant limitations/restrictions:
 - a. Opening the valve (in order to verify it goes closed on a High Radiation signal) is only possible during outages due to the negative effects on the Blowdown System with the unit at power.
 - b. Testing during innages will be by verification of relay contacts opening in the valve circuit.
2. Closure of BB24, BB65, BB69, and BB73 is required to minimize the amount of potentially contaminated material being delivered to the Blowdown Tank.
3. Closure of NM269, NM270, NM271, and NM272 is required to minimize the amount of potentially contaminated material being delivered to the
4. Conventional Sampling System. Closure of NM267 is required to minimize the amount of potentially contaminated material being delivered to the Condensate Storage Tank by isolating flow through EMF-34.
5. Closure of BB48 is required to minimize the amount of potentially contaminated material being delivered from the Blowdown System discharge to the Turbine Building sump.

1/2EMF-39 - Containment Noble Gas Monitor

The following actuations occur when EMF-39 detects radiation level above its setpoint:

BASES (continued)

1. Signals are provided to both trains of the Solid State Protection System (SSPS) to initiate a Containment Air Release and Addition System isolation. This is verified by observing that relays K615 in the SSPS Train A output cabinet and the SSPS Train B output cabinet are latched.
2. Containment Evacuation Alarm, unless the source range trip is blocked.

REFERENCES

1. Catawba Offsite Dose Calculation Manual.
2. 10 CFR Part 20.

16.7 INSTRUMENTATION

16.7-10 Radiation Monitoring for Plant Operations

COMMITMENT The radiation monitoring instrumentation channels for plant operations shown in Table 16.7-10-1 shall be FUNCTIONAL.

APPLICABILITY: As shown in Table 16.7-10-1.

REMEDIAL ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more radiation monitoring channels Alarm/Trip setpoint for plant operations exceeding the value shown in Table 16.7-10-1.	A.1 Adjust the setpoint to within the limit.	4 hours
	<u>OR</u> A.2 Declare the channel non-functional.	4 hours

(continued)

REMEDIAL ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>B. One Containment Atmosphere – High Gaseous Radioactivity (EMF-39 – Low Range) channel non-functional.</p>	<p>B.1 -----NOTE----- In order to utilize Required Action B.1, the following conditions must be satisfied:</p> <ol style="list-style-type: none"> 1. The affected unit is in MODES 5 or 6. 2. EMF-36 is FUNCTIONAL and in service for the affected unit. 3. The Reactor Coolant System for the affected unit has been vented. 4. Either the reactor vessel head is in place (bolts are not required), or if it is not in place, the lifting of heavy loads over the reactor vessel and the movement of irradiated fuel assemblies within containment have been suspended. <p>-----</p> <p>Restore the non-functional channel to FUNCTIONAL status.</p>	<p>12 hours</p>

(continued)

REMEDIAL ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>C. Required Action and associated Completion Time of Condition B not met.</p> <p><u>OR</u></p> <p>Required Action B.1 not utilized.</p>	<p>C.1 Close the Containment Purge Exhaust System (CPES) valves.</p>	<p>Immediately</p>
<p>D. One Control Room Air Intake – Radiation Level – High Gaseous Radioactivity (EMF-43A & B – Low Range) channel non-functional in one or both control room intakes.</p>	<p>D.1 Initiate action to restore non-functional channel(s) to FUNCTIONAL status.</p> <p><u>AND</u></p> <p>D.2 Ensure that one Control Room Area Ventilation System (CRAVS) train is in operation.</p>	<p>Immediately</p> <p>1 hour</p>
<p>E. One Fuel Storage Pool Area – Radiation Level (1EMF-15, 2EMF-4) channel non-functional.</p>	<p>E.1 Provide a portable continuous monitor with the same Alarm Setpoint in the fuel storage pool area.</p> <p><u>AND</u></p> <p>E.2.1 Restore non-functional monitor to FUNCTIONAL status.</p> <p><u>OR</u></p> <p>E.2.2 Suspend all operations involving fuel movement in the fuel building.</p>	<p>Immediately</p> <p>30 days</p> <p>30 days</p>

(continued)

REMEDIAL ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>F. One Fuel Storage Pool Area – High Gaseous Radioactivity (EMF-42) channel non-functional.</p>	<p>F.1.1 Initiate action to restore non-functional channel to FUNCTIONAL status.</p>	<p>Immediately</p>
	<p><u>AND</u></p> <p>F.1.2 -----NOTE----- Only applicable during fuel handling operations in the fuel building. -----</p>	
	<p>Ensure one Fuel Handling Ventilation Exhaust System (FHVES) train is in operation and all operating FHVES trains are in the filtered mode.</p>	<p>Immediately</p>
	<p><u>OR</u></p> <p>F.2 Suspend all operations involving fuel movement in the fuel building.</p>	<p>Immediately</p>

(continued)

REMEDIAL ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>G. One Auxiliary Building Ventilation – High Gaseous Radioactivity (EMF-41) channel non-functional.</p>	<p>G.1.1 Ensure one Auxiliary Building Filtered Ventilation Exhaust System (ABFVES) train is OPERABLE and in operation in the filtered mode for each unit that requires an OPERABLE ABFVES. Initiate action to restore non-functional channel to FUNCTIONAL status.</p>	<p>Immediately</p>
	<p><u>AND</u></p>	<p>Immediately</p>
	<p>G.1.2 <u>Verify EMF-36 is FUNCTIONAL (reference SLC 16.11-7) and in service for any affected unit in MODE 1, 2, 3 or 4.</u></p>	<p>30 days</p>
	<p><u>AND</u></p>	<p><u>Immediately</u></p>
	<p>G.1.3 <u>Restore non-functional channel to FUNCTIONAL status.</u></p> <p>G.2 <u>OROR</u></p> <p>G.2 Ensure all operatingg ABFVES trains are in thee filtered mode for any y affected unit in Mode 1, 2, 3 or 4. Ensure all other operating ABFVES trains are in the filtered mode.</p>	

(continued)

TESTING REQUIREMENTS

-----NOTE-----

Refer to Table 16.7-10-1 to determine which TRs apply for each Radiation Monitoring for Plant Operations channel.

TEST	FREQUENCY
TR 16.7-10-1 Perform CHANNEL CHECK.	12 hours
TR 16.7-10-2 Perform CHANNEL OPERATIONAL TEST.	9 months
TR 16.7-10-3 Perform CHANNEL CALIBRATION.	18 months

Table 16.7-10-1

Radiation Monitoring Instrumentation for Plant Operations

MONITOR	APPLICABLE MODES	REQUIRED CHANNELS	ALARM/TRIP SETPOINT	TESTING REQUIREMENTS
1. Containment Atmosphere – High Gaseous Radioactivity (EMF-39 – Low Range)	1, 2, 3, 4, 5, 6	1	Note (a)	TR 16.7-10-1 TR 16.7-10-2 TR 16.7-10-3
2. Fuel Storage Pool Areas – High Gaseous Radioactivity (EMF-42)	With irradiated fuel in the fuel storage pool areas	1	$\leq 1.7 \times 10^{-4} \mu\text{Ci/ml}$	TR 16.7-10-1 TR 16.7-10-2 TR 16.7-10-3
3. Fuel Storage Pool Areas – Radiation Level (Fuel Bridge – 1EMF-15, 2EMF-4)	With fuel in the fuel storage pool areas	1	$\leq 15 \text{ mR/h}$ Note (d)	TR 16.7-10-1 TR 16.7-10-2 TR 16.7-10-3
4. Control Room Air Intake – Radiation Level – High Gaseous Radioactivity (EMF-43A & B – Low Range)	At all times	2 (1/intake)	$\leq 1.7 \times 10^{-4} \mu\text{Ci/ml}$	TR 16.7-10-1 TR 16.7-10-2 TR 16.7-10-3
5. Auxiliary Building Ventilation – High Gaseous Radioactivity (EMF-41)	1, 2, 3, 4	1	$\leq 1.7 \times 10^{-4} \mu\text{Ci/ml}$	TR 16.7-10-1 TR 16.7-10-2 TR 16.7-10-3
6. Component Cooling Water System (EMF-46A & B)	At all times ^(e)	1 ^(b)	$\leq 1 \times 10^{-3} \mu\text{Ci/ml}$	TR 16.7-10-1 TR 16.7-10-2 TR 16.7-10-3
7. N-16 Leakage Monitor (EMF-71, 72, 73, & 74)	1 (40-100% reactor power)	4 (1/steamline)	Note (c)	TR 16.7-10-1 TR 16.7-10-2 TR 16.7-10-3
8. Auxiliary Building Cooling Water System (EMF-89)	At all times	1	$\leq 1 \times 10^{-3} \mu\text{Ci/ml}$	TR 16.7-10-1 TR 16.7-10-2 TR 16.7-10-3

Table 16.7-10-1 Notes

- (a) When venting or purging from containment to the atmosphere, the trip setpoint shall not exceed the equivalent limits of SLC 16.11-6 in accordance with the methodology and parameters in the ODCM. When not venting or purging in Modes 5 or 6, the alarm setpoint concentration ($\mu\text{Ci/ml}$) shall be such that the actual submersion dose rate would not exceed 5 mR/hr without alarm. When not venting or purging in Modes 1 through 4, the alarm setpoint shall be no more than 3 times the containment atmosphere activity as indicated by the radiation monitor.
- (b) For EMF-46A & B: The EMF monitor associated with the operating Component Cooling Water System train shall be FUNCTIONAL. This requirement is based on the existence of an interlock which blocks the EMF loss of flow alarm from being received in the control room when the associated train pump motor(s) are not running.
- (c) The setpoint is as required by the primary to secondary leak rate monitoring program.
- (d) Catawba's Spent Fuel Pools were originally licensed for compliance with 10 CFR 70.24. The basis for the 15 mR/hr setpoint can be found in 10 CFR 70.24(a)(2) which states, in part, "... The monitoring devices in the system shall have a preset alarm point of not less than 5 millirems per hour (in order to avoid false alarms) nor more than 20 millirems per hour. ..." Although Catawba received exemption from 10 CFR 70.24 in 1997, the 15 mR/hr setpoint limit for detection of inadvertent criticality in the Spent Fuel Pool is still appropriate. Catawba is presently committed to compliance with 10 CFR 50.68 which requires, in part, "(6) Radiation monitors are provided in storage and associated handling areas when fuel is present to detect excessive radiation levels and initiate appropriate safety actions."
- Therefore, the setpoint may be elevated, using approved plant procedures, above 15 mR/hr during Independent Spent Fuel Storage Installation (ISFSI) Transportable Storage Container (TSC) transfer activities when the loaded TSC may generate dose rates in excess of 15 mR/hr at the detector location. The setpoint shall be returned to ≤ 15 mR/hr upon completion of the TSC transfer.
- (e) The Component Cooling Water (CCW) radiation monitors are not considered to be non-functional just because there is no CCW flow through their respective trains. The EMFs would be considered non-functional if one of the inlet/outlet CCW isolation valves to the EMF were closed, if the EMF itself was not functioning properly, or if preventive maintenance/calibration activities were being performed on the EMF rendering it out of service. For the situation where the associated train related CCW pumps are not running and a section of the CCW System (e.g., CCW heat exchanger) has been isolated and drained such that the associated radiation monitor has no process fluid to monitor, grab samples are not required.

BASES

The FUNCTIONALITY of the radiation monitoring instrumentation for plant operations ensures that: (1) the associated action will be initiated when the radiation level monitored by each channel or combination thereof reaches its setpoint, (2) the specified coincidence logic is maintained, and (3) sufficient redundancy is maintained to permit a channel to be out of service for testing or maintenance. The radiation monitors for plant operations senses radiation levels in selected plant systems and locations and determines whether or not predetermined limits are being exceeded. The radiation monitors send actuation signals to initiate alarms or automatic isolation action and actuation of emergency exhaust or ventilation systems. Some of the final actuations are dependent on plant condition in addition to the actuation signals from the radiation monitors.

Operation of the Component Cooling Water (CCW) System Train A with the Train A Radiation Monitoring System (EMF) monitor non-functional and relying on the Train B EMF monitor for detection of radioactivity is not permissible. Likewise, operation of the CCW System Train B with the Train B EMF monitor non-functional and relying on the Train A EMF monitor for detection of radioactivity is not permissible. This is due to the interlock between the EMF monitor low-flow alarm and the operation of the CCW System pump motors on the same train. The EMF monitor in the operating CCW System pump train must be FUNCTIONAL, or the compensatory measures taken as specified.

In MODES 5 and 6, initiation of the Containment Purge Exhaust System (CPES) with EMF-39 non-functional is not permissible. The basis for Required Action B.1 is to allow the continued operation of the CPES with EMF-39 initially FUNCTIONAL. Continued operation of the CPES is contingent upon the ability of the affected unit to meet the requirements as noted in Required Action B.1.

REFERENCES

1. Letter from NRC to Gary R. Peterson, Duke, Issuance of Improved Technical Specifications Amendments for Catawba, September 30, 1998.
2. Letter from NRC to M. S. Tuckman, Duke, Issuance of Exemption to 10 CFR 70.24, Criticality Accident Requirements, July 29, 1997.