



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

OMAHA PUBLIC POWER DISTRICT

DOCKET NO. 50-285

FORT CALHOUN STATION, UNIT NO. 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 122
License No. DPR-40

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by the Omaha Public Power District (the licensee) dated January 6, 1989 as supplemented on February 28, 1989, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the application, as amended, the provisions of the Act, and the rules and regulations of the Commission;
 - C. There is reasonable assurance: (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
 - D. The issuance of this license amendment will not be inimical to the common defense and security or to the health and safety of the public; and
 - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

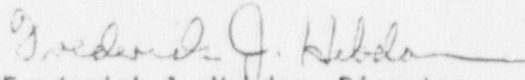
2. Accordingly, Facility Operating License No. DPR-40 is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 3.B. of Facility Operating License No. DPR-40 is hereby amended to read as follows:

B. Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 122, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. The license amendment is effective after 90 days from the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION


Frederick J. Hebdon, Director
Project Directorate - IV
Division of Reactor Projects - III,
IV, V and Special Projects
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: June 2, 1989

ATTACHMENT TO LICENSE AMENDMENT NO.122

FACILITY OPERATING LICENSE NO. DPR-40

DOCKET NO. 50-285

Revise Appendix "A" Technical Specifications as indicated below. The revised pages are identified by amendment number and contain vertical lines indicating the area of change.

Remove Pages

ii
-
-
-
3-1
3-6
3-12a
3-16c
3-17
3-63
3-69
3-70
3-71
3-72
3-73
3-76
3-80
3-84

Insert Pages

ii
3-0a
3-0b
3-0c
3-1
3-6
3-12a
3-16c
3-17
3-63
3-69
3-70
3-71
3-72
3-73
3-76
3-80
3-84

TABLE OF CONTENTS (Continued)

	<u>Page</u>
2.12 Control Room Systems.....	2-59
2.13 Nuclear Detector Cooling System.....	2-60
2.14 Engineered Safety Features System Initiation Instrumentation Settings.....	2-61
2.15 Instrumentation and Control Systems.....	2-65
2.16 River Level.....	2-71
2.17 Miscellaneous Radioactive Material Sources.....	2-72
2.18 Shock Suppressors (Snubbers).....	2-73
2.19 Fire Protection System.....	2-89
2.20 Steam Generator Coolant Radioactivity.....	2-96
2.21 Post-Accident Monitoring Instrumentation.....	2-97
2.22 Toxic Gas Monitors.....	2-99
 3.0 SURVEILLANCE REQUIREMENTS.....	 3-0a
3.1 Instrumentation and Control.....	3-1
3.2 Equipment and Sampling Tests.....	3-17
3.3 Reactor Coolant System and Other Components Subject to ASME XI Boiler and Pressure Vessel Code Inspection and Testing Surveillance.....	3-21
3.4 Reactor Coolant System Integrity Testing.....	3-36
3.5 Containment Test.....	3-37
3.6 Safety Injection and Containment Cooling Systems Tests.....	3-54
3.7 Emergency Power System Periodic Tests.....	3-58
3.8 Main Steam Isolation Valves.....	3-61
3.9 Auxiliary Feedwater System.....	3-62
3.10 Reactor Core Parameters.....	3-63
3.11 Radiological Environmental Monitoring Programs.....	3-64
3.12 Radiological Waste Sampling and Monitoring.....	3-69
3.12.1 Liquid and Gaseous Effluents.....	3-69
3.12.2 Solid Radioactive Waste.....	3-71a
3.13 Radioactive Material Sources Surveillance.....	3-76
3.14 Shock Suppressors (Snubbers).....	3-77
3.15 Fire Protection System.....	3-80
3.16 Recirculation Heat Removal System Integrity Testing.....	3-84
3.17 Steam Generator Tubes.....	3-86
 4.0 DESIGN FEATURES.....	 4-1
4.1 Site.....	4-1
4.2 Containment Design Features.....	4-1
4.2.1 Containment Structure.....	4-1
4.2.2 Penetrations.....	4-1
4.2.3 Containment Structure Cooling Systems.....	4-2

3.0 SURVEILLANCE REQUIREMENTS

3.0.1 Each surveillance requirement shall be performed within the specified time interval with

- a. a maximum allowable extension not to exceed 25% of the surveillance interval, and
- b. the combined time interval for any three consecutive surveillance intervals shall not exceed 3.25 times the specified surveillance interval.

3.0.2 The surveillance intervals are defined as follows:

Notation	Title	Frequency
S	Shift	At least once per 8 hours
D	Daily	At least once per 24 hours
W	Weekly	At least once per 7 days
BW	Biweekly	At least once per 14 days
M	Monthly	At least once per 31 days
Q	Quarterly	At least once per 92 days
SA	Semiannual	At least once per 184 days
A	Annually	At least once per 366 days
R	Refueling	At least once per plant operating cycle
P	Start up	Prior to Reactor Start up, if not completed in the previous week.

Exception to these intervals are stated in the individual Specifications.

3.0.3 The provisions of Specifications 3.0.1 and 3.0.2 are applicable to all codes and standards referenced within the Technical Specifications. The requirements of the Technical Specifications shall have precedence over the requirements of the codes and standards referenced within the Technical Specifications.

3.0.4 Failure to perform a Surveillance Requirement within the allowed surveillance interval, defined by Specifications 3.0.1 and 3.0.2, shall constitute noncompliance with the OPERABILITY requirements for the corresponding Limiting Condition for Operation. The time limits of the ACTION requirements are applicable at the time it is identified that a Surveillance Requirement has not been performed. The ACTION requirements may be delayed for up to 24 hours to permit the completion of the surveillance when the allowable outage time limits of the ACTION requirements are less than 24 hours. Surveillance Requirements do not have to be performed on inoperable equipment.

3.0 SURVEILLANCE REQUIREMENTS

BASIS

Specifications 3.0.1 through 3.0.4 establish the general requirements applicable to Surveillance Requirements. These requirements are based on the Surveillance Requirements stated in the Code of Federal Regulations, 10 CFR 50.36(c)(3):

"Surveillance requirements are requirements relating to test, calibration, or inspection to ensure that the necessary quality of systems and components is maintained, that facility operation will be within safety limits, and that the limiting condition of operation will be met."

Specification 3.0.1 established the conditions under which the specified time interval for Surveillance Requirements may be extended. Item a. permits an allowable extension of the normal surveillance interval to facilitate surveillance scheduling and consideration of plant operating conditions that may not be suitable for conducting the surveillance; e.g., transient conditions or other ongoing surveillance or maintenance activities. Item b. limits the use of the provisions of item a. to ensure that it is not used repeatedly to extend the surveillance interval beyond that specified. The limits of Specification 3.0.1 are based on engineering judgement and the recognition that the most probable result of any particular surveillance being performed is the verification of conformance with the Surveillance Requirements. These provisions are sufficient to ensure that the reliability demonstrated through actual surveillance activities is not significantly degraded beyond that obtained from the specified surveillance interval.

The provisions of Specification 3.0.2 define the surveillance intervals for use in the Technical Specifications. This clarification is provided to ensure consistency in surveillance intervals throughout the Technical Specifications. A few surveillance requirements have uncommon intervals, for example, Table 3-9 requires sampling of fish once per season. In such a case the surveillance interval shall be performed as defined by the individual specifications.

Specification 3.0.3 extends the testing interval required by codes and standards referenced by the Technical Specifications. This clarification is provided to remove any ambiguities relative to the frequencies for performing the required inservice inspection and testing activities. Under the terms of this specification, the more restrictive requirements of the Technical Specifications take precedence over the codes and standards referenced therein.

Specification 3.0.4 establishes the failure to perform a Surveillance Requirement within the allowed surveillance interval, as defined by the provisions of Specifications 3.0.1 and 3.0.2, as a condition that constitutes a failure to meet the OPERABILITY requirements for the corresponding Limiting Condition for Operation. Under the provisions

3.0 SURVEILLANCE REQUIREMENTS

Basis (continued)

of this specification, systems and components are assumed to be OPERABLE when Surveillance Requirements have been satisfactorily performed within the specified time interval. However, nothing in this provision is to be construed as implying that systems or components are OPERABLE when they are found or known to be inoperable even though the Surveillance Requirements are met. This specification also clarifies that the ACTION requirements are applicable when Surveillance Requirements have not been completed within the allowed surveillance interval and that the time limits of the ACTION requirements apply from the point in time it is identified that a surveillance has not been performed and not at the time that the allowed surveillance interval was exceeded. Completion of the Surveillance Requirement within the allowable outage time limits of the ACTION requirements restores compliance with the requirements of Specification 3.0.4. However, this does not negate the fact that the failure to have performed the surveillance within the allowed surveillance interval, defined by the provisions of Specification of 3.0.1, was a violation of the OPERABILITY requirements of a Limiting Condition for Operation that is subject to enforcement action. Further, the failure to perform a surveillance within the provisions of Specification of 3.0.1 is a violation of a Technical Specification requirement and is, therefore, a reportable event under the requirements of 10 CFR 50.73(a)(2)(i)(B) because it is a condition prohibited by the plant's Technical Specifications.

If the allowable outage time limits of the ACTION requirements are less than 24 hours or a shutdown is required to comply with the ACTION requirements, e.g., Specification 2.0.1, a 24 hour allowance is provided to permit a delay in implementing the ACTION requirements. This provides an adequate time limit to complete Surveillance Requirements that have not been performed. The purpose of this allowance is to permit the completion of a surveillance before a shutdown is required to comply with ACTION requirements or before other remedial measures would be required that may preclude completion of a surveillance. The basis for this allowance includes consideration for plant conditions, adequate planning, availability of personnel, the time required to perform the surveillance, and the safety significance of the delay in completing the required surveillance. If a surveillance is not completed within the 24 hour allowance, the time limits of the ACTION requirements are applicable at this time. When a surveillance is performed within the 24 hour allowance and the Surveillance Requirements are not met, the time limits of the ACTION requirements are applicable at the time that the surveillance is terminated.

Surveillance Requirements do not have to be performed on inoperable equipment because the ACTION requirements define the remedial measures that apply. However, the Surveillance Requirements must be met to demonstrate that inoperable equipment has been restored to operable status.

3.0 SURVEILLANCE REQUIREMENTS

3.1 Instrumentation and Control

Applicability

Applies to the reactor protective system and other critical instrumentation and controls.

Objective

To specify the minimum frequency and type of surveillance to be applied to critical plant instrumentation and controls.

Specifications

Calibration, testing and checking of instrument channels, reactor protective system and engineered safeguards system logic channels and miscellaneous instrument systems and controls shall be performed as specified in Tables 3-1 to 3-3.

Basis

Failures such as blown instrument fuses, defective indicators, and faulted amplifiers which result in "upscale" or "downscale" indication can be easily recognized by simple observation of the functioning of an instrument or system. Furthermore, such failures are, in many cases, revealed by alarm or annunciator action and a check supplements this type of built-in surveillance.

Based on the District's experience in operation of conventional power plants and on reported nuclear plant experience, a checking frequency of once-per-shift is deemed adequate for reactor and steam system instrumentation. Calibrations are performed to ensure the presentation and acquisition of accurate information.

The power range safety channels are calibrated daily against a calorimetric balance standard to account for errors induced by changing rod patterns and core physics parameters.

Other channels, subject only to the "drift" errors, can be expected to remain within acceptable tolerances if recalibration is performed at each refueling shutdown interval.

TABLE 3-1 (continued)

MINIMUM FREQUENCIES FOR CHECKS, CALIBRATIONS AND TESTING OF REACTOR PROTECTIVE SYSTEM

13. Axial Power Distribution	a. Check	S		
			a.	1.
				Comparison of four separate axial index indications.
			2.	Comparison of four separate upper trip set point indications.
			3.	Comparison of four separate lower trip set point indications.
	b. Calibrate	R	b.	Known currents applied to input of axial shape index calculator.
	c. Test	M	c.	Trip test known axial shape index applied to input of axial shape index calculator.
Notes:	(1)	The bistable trip tester injects a signal into the bistable and provides a precision readout of the trip set point.		
	(2)	All monthly tests will be done on only one of four channels at a time to prevent reactor trip.		
	(3)	Calibrate using built-in simulated signals.		
	(4)	Not required unless the reactor is in the power operating condition and is therefore not required during plant startup and shutdown periods.		

TABLE 3-2 (Continued)

MINIMUM FREQUENCIES FOR CHECKS, CALIBRATIONS AND TESTING OF
ENGINEERED SAFETY FEATURES, INSTRUMENTATION AND CONTROLS

<u>Channel Description</u>	<u>Surveillance Function</u>	<u>Frequency</u>	<u>Surveillance Method</u>
22. Auxiliary Feedwater			
a. Steam Generator Water Level Low (Wide Range)	a. Check	S	a. Compare independent level readings.
	b. Calibration	R	b. Known signal applied to sensor.
b. Steam Generator Pressure Low	a. Check	S	a. Compare independent pressure readings.
	b. Calibration	R	b. Known Signal applied to sensor.
c. Steam Generator Differential Pressure High	a. Calibrate	R	a. Known signal applied to sensor.
d. Actuation Circuitry	a. Test	M	a. Functional check of initiation circuits.
	b. Test	R	b. System functional test of AFW initiation circuits.

MP - Monthly during designated modes and prior to taking the reactor critical if not completed within the previous 31 days (not applicable to a fast trip recovery)

TABLE 3-3 (Continued)

MINIMUM FREQUENCIES FOR CHECKS, CALIBRATIONS AND TESTING
OF MISCELLANEOUS INSTRUMENTATION AND CONTROLS

<u>Channel Description</u>	<u>Surveillance Function</u>	<u>Frequency</u>	<u>Surveillance Method</u>
YIS-6287A&B (N_2H_4 , NH_3)	a. Check	S	a. Comparison of readings from redundant channels.
	b. Calibrate	Q	b. Gas calibration.
30. Core Exit Thermocouple	a. Check	M	a. Comparison of readings from redundant channels.
	b. Calibrate	R	b. Calibration of A/D converters from known voltage sources.
31. Heated Junction Thermocouple (YE-116A and YE-116B)	a. Check	M	a. Comparison readings from redundant channels.
	b. Calibrate	R	b. Calibration of A/D converters from known voltage sources.

PM - Prior to scheduled cold leg cooldown below 300°F; monthly whenever temperature remains below 300°F and reactor vessel head is installed.

3.0 SURVEILLANCE REQUIREMENTS

3.2 Equipment and Sampling Tests

Applicability

Applies to plant equipment and conditions related to safety.

Objective

To specify the minimum frequency and type of surveillance to be applied to critical plant equipment and conditions.

Specifications

Equipment and sampling tests shall be conducted as specified in Tables 3-4 and 3-5.

Basis

The equipment testing and system sampling frequencies specified in Tables 3-4 and 3-5 are considered adequate, based upon experience, to maintain the status of the equipment and systems so as to assure safe operation. Thus, those systems where changes might occur relatively rapidly are sampled frequently and those static systems not subject to changes are sampled less frequently.

The control room air treatment system consists of high efficiency particulate air filters (HEPA) and the charcoal adsorbers. HEPA filters are installed before the charcoal adsorbers to prevent clogging of the iodine adsorbers. The charcoal adsorbers are installed to reduce the potential intake of iodine to the control room. The in-place test results will confirm system integrity and performance. The laboratory carbon sample tests results should indicate methyl iodide removal efficiency of at least 90 percent for expected accident conditions.

The spent fuel storage-decontamination areas air treatment system is designed to filter the building atmosphere to the auxiliary building vent during refueling operations. The charcoal adsorbers are installed to reduce the potential release of radioiodine to the environment. In-place testing is performed to confirm the integrity of the filter system. The charcoal adsorbers are periodically sampled to insure capability for the removal of radioactive iodine.

3.0 SURVEILLANCE REQUIREMENTS

3.10 Reactor Core Parameters

Applicability

Applies to reactor core parameters that affect shutdown margin, MTC, linear heat rate and DNB margin.

Objective

To require evaluation of reactor core parameters.

Specification

(1) Shutdown Margin

a. The shutdown margin shall be determined:

1. By verifying that the CEA group withdrawal is above the Transient Insertion Limits of Specification 2.10.2 whenever the reactor is in hot standby or power operation conditions at least once per shift, or
2. By considering the following factors whenever the reactor is in hot or cold shutdown at least once per day.
 - (i) Reactor coolant system boron concentration;
 - (ii) CEA position;
 - (iii) Reactor coolant system temperature;
 - (iv) Fuel burnup;
 - (v) Xenon concentration; and
 - (vi) Samarium concentration.

b. The overall core reactivity balance shall be compared to predicted values to demonstrate agreement with $\pm 1.0\% \Delta k/k$ at least once per 31 EFPD. The predicted reactivity values shall be adjusted (normalized) to correspond to the actual core conditions prior to exceeding a cycle burnup of 2000 MWD/MTU after each refueling.

3.0 SURVEILLANCE REQUIREMENTS
3.12 Radiological Waste Sampling and Monitoring
3.12.1 Liquid and Gaseous Effluents

Applicability

Applies to the sampling, monitoring, and testing used for liquid and gaseous effluents.

Objective

To ensure that radioactive liquid and gaseous releases from the facility are maintained as low as reasonably achievable and within the limits specified by Specifications 2.9.1(1) and 2.9.1(2).

Specifications

(1) Liquid Effluents

- a. Radioactive liquid waste sampling and activity analyses shall be performed in accordance with Table 3-11. The results of these analyses shall be used with the calculational methods in the ODCM to assure that the concentration at the point of release is limited to the values in Specification 2.9.1(1)a.
- b. Prior to release of each batch of liquid effluent, the batch shall be mixed, sampled, and analyzed for principal gamma emitters. When operational or other limitations preclude specific gamma radionuclide analysis of each batch, gross radioactivity measurements shall be made to estimate the quantity and concentrations of radioactive materials released in the batch, and a weekly sample composited from proportional aliquots from each batch released during the week shall be analyzed for the principal gamma-emitting radionuclides.
- c. The overboard header radiation monitor shall have a:
 - (i) Source check prior to any release of radioactive materials from the monitor or the hotel waste tanks.
 - (ii) Quarterly channel functional test.
 - (iii) Channel calibration at refueling frequency.
- d. The steam generator blowdown radiation monitors shall have:
 - (i) Daily channel checks.
 - (ii) Monthly source checks.

3.0 SURVEILLANCE REQUIREMENTS
3.12 Radiological Waste Sampling and Monitoring (Continued)
3.12.1 Liquid and Gaseous Effluents (Continued)

- (iii) Quarterly channel functional tests.
- (iv) Channel calibration at refueling frequency.
- e. The steam generator blowdown effluent flow rate will be calibrated at refueling frequency and visually determined operable daily.
- f. Records shall be maintained of the radioactive concentrations and volume before dilution of each batch of liquid effluent released and of the average dilution flow and length of time over which each discharge occurred. Analytical results shall be submitted to the Commission in accordance with Section 5.9.4.a of these specifications.

(2) Gaseous Effluents

- a. Radioactive gaseous waste sampling and activity analyses shall be performed in accordance with Table 3-12. The results of these analyses shall be used with the calculational methods in the ODCM to assure that the concentration of radioactive materials in unrestricted areas is limited to the values in Specification 2.9.1(2)a.
- b.
 - (i) A ventilation stack radiation monitor shall have a source check prior to any release of radioactive materials from a gas decay tank or the containment. A monthly source check will be performed during refueling outages if a purge or gas decay tank release is not done during that month.
 - (ii) Each ventilation stack monitor shall have a quarterly channel functional test.
 - (iii) Each ventilation stack monitor shall be calibrated at refueling frequency.
 - (iv) The ventilation stack flow rate will be calibrated and functionally tested at refueling frequency. The stack radiation monitor flow rate will be calibrated and functionally tested at refueling frequency. Both will be determined operable by visual inspection daily.
- c. The condenser air ejector monitor shall have a:
 - (i) Daily channel check.
 - (ii) Monthly source check.

3.0 SURVEILLANCE REQUIREMENTS
3.12 Radiological Waste Sampling and Monitoring (Continued)
3.12.1 Liquid and Gaseous Effluents (Continued)

- (iii) Quarterly channel functional test.
- (iv) Channel calibration at refueling frequency.
- d. The hydrogen and oxygen monitoring system for the gas decay tanks shall have a:
 - (i) Daily channel check (when in service).
 - (ii) Monthly cross comparison with a grab sample.
 - (iii) Quarterly channel calibration using gas mixtures with concentrations in the range of interest.
- e. Records shall be maintained and reports of the sampling and results of analyses shall be submitted to the Commission in accordance with Section 5.9.4.a of these specifications.

Basis

The surveillance requirements given under Specification 3.12.1(2) provide assurance that radioactive gaseous effluents from the station are properly controlled and monitored over the life of the station in conformance with the requirements of General Design Criteria 60 and 64 of 10 CFR Part 50, Appendix A. These surveillance requirements provide the data for the licensee and the Commission to evaluate the performance of the station relative to radioactive gaseous wastes released to the environment. The existing minimum sensitivity of airborne effluent monitor RM-062 is 5E-06 mCi/cc/100 cpm and this minimum sensitivity shall be maintained if the monitor is replaced. Reports on the quantities of the radioactive materials released in gaseous effluents shall be furnished to the Commission on the basis of Section 5.9.4.a of these Technical Specifications. On the basis of such reports and any additional information the Commission may obtain from the licensee or others, the Commission may from time to time require the licensee to take such action as the Commission deems appropriate.

The surveillance requirements given under Specification 3.12.1(1) provide assurance that liquid wastes are properly controlled and monitored in conformance with the requirements of General Design Criteria 60 and 64 of 10 CFR Part 50, Appendix A, during any planned release of radioactive materials in liquid effluents. These surveillance requirements provide the data for the licensee and the Commission to evaluate the station's performance relative to radioactive liquid wastes released to the environment. Reports on the quantities of radioactive materials released in liquid effluents shall be furnished to the Commission on the basis of Section 5.9.4.a of these Technical Specifications. On the basis of such reports and any additional information the Commission may obtain from the licensee or others, the Commission may from time to time require the licensee to take such action as the Commission deems appropriate.

TABLE 3-11

RADIOACTIVE LIQUID WASTE SAMPLING AND ANALYSISA. Monitor & Hotel Waste Tanks Releases

Sampling Frequency	Type of Activity Analysis	Lower Limit of Detection (LLD) (4) ($\mu\text{Ci/ml}$)
Each Batch	Principal Gamma Emitters ⁽²⁾⁽⁵⁾	5.0 E-07
	I-131 ⁽²⁾	1.0 E-06
Monthly From One Batch	Dissolved Noble Gases ⁽²⁾ (Gamma Emitters)	1.0 E-05
Monthly Composite ⁽¹⁾	H-3	1.0 E-05
	Gross α	1.0 E-07
Quarterly Composite ⁽¹⁾	Sr-89, Sr-90	5.0 E-08

B. Steam Generator Blowdown

Sampling Frequency	Type of Activity Analysis	Lower Limit of Detection (LLD) (4) ($\mu\text{Ci/ml}$)
Weekly Composite ⁽¹⁾	Principal Gamma Emitters ⁽⁵⁾	5.0 E-07
	I-131 ⁽⁶⁾	1.0 E-06
Weekly ⁽³⁾	Dose Equivalent I-131 (Gamma Emitters)	1.0 E-06
Monthly	Dissolved Noble Gases	1.0 E-05
Monthly Composite ⁽¹⁾	H-3	1.0 E-05
	Gross α	1.0 E-07
Quarterly Composite ⁽¹⁾	Sr-89, Sr-90	5.0 E-08

NOTES:

- (1) To be representative of the average quantities and concentrations of radioactive materials in liquid effluents, samples should be collected in proportion to the rate of flow of the effluent stream. Prior to analyses, all samples taken for the composite should be mixed in order for the composite sample to be representative of the average effluent release.

TABLE 3-11

RADIOACTIVE LIQUID WASTE SAMPLING AND ANALYSIS (Continued)NOTES:

- (2) Or gross radioactivity as described in Specification 3.12.1(1)b.
- (3) When steam generator iodine activity exceeds 50 percent of limits in Specification 2.20, the sampling and analysis frequency shall be increased to a minimum of five times per week. When the steam generator iodine activity exceeds 75 percent of this limit, the sampling and analysis frequency shall be increased to a minimum of once per day.
- (4) The lower limit of detection (LLD) is defined in the ODCM based on NUREG 0472, Rev. 3.
- (5) The principal gamma emitters for which the LLD specification applies exclusively are the following radionuclides: Mn-54, Fe-59, Co-58, Co-60, Zn-65, Mo-99, Cs-134, Cs-137, Ce-141 and Ce-144.
- (6) A weekly grab sample and analyses program including gamma isotopic identification will be initiated for the turbine building sump effluent when the steam generator blowdown water composite analysis indicates the I-131 concentration is greater than $1.0 \text{ E-06 microcurie/milliliter}$.

3.0 SURVEILLANCE REQUIREMENTS

3.12 RADIOACTIVE MATERIAL SOURCES SURVEILLANCE

Applicability

Applies to leakage testing of byproduct, source, and special nuclear radioactive material sources.

Objective

To assure that leakage from byproduct, source, and special nuclear radioactive material sources does not exceed allowable limits.

Specification

Tests for leakage and/or contamination shall be performed by the licensee or by other persons specifically authorized by the NRC or an agreement State, as follows:

1. Each sealed source, except startup sources subject to core flux, containing radioactive material, other than Hydrogen 3, with a half-life greater than thirty days and in any form other than gas shall be tested for leakage and/or contamination at intervals of six months.
2. The periodic leak test required does not apply to sealed sources that are stored and not being used. The sources excepted from this test shall be tested for leakage prior to any use or transfer to another user unless they have been leak tested within six months prior to the date of use or transfer. In the absence of a certificate from a transferor indicating that a test has been made within six months prior to the transfer, sealed sources shall not be put into use until tested.
3. Startup sources shall be leak tested prior to and following any repair or maintenance and before being subjected to core flux.

3.0 SURVEILLANCE REQUIREMENTS

3.15 Fire Protection System

Applicability

Applies to fire detection and fire extinguishing subsystems in nuclear safety related areas and other areas which may impact on safety related systems.

Objective

To ensure the operability of the fire protection system in nuclear safety related systems.

Specifications

- (1) Each fire detector listed in Table 2-7 and in containment shall be demonstrated operable:
 - a. At least once per 6 months by performance of a channel functional test and a test of the supervision circuitry.
 - b. Testing interval for fire detectors which are inaccessible due to high radiation or require an equipment alignment not used in power operation may be extended until such time as the detectors become accessible for a minimum of 36 hours. However, the shutdown need not be extended solely for the purpose of this testing. Such detectors shall be functionally tested at a maximum interval of once per refueling cycle.
- (2) The fire suppression water system shall be demonstrated operable:
 - a. At least once per month by starting each pump and operating it for at least 15 minutes.
 - b. At least once per month by verifying that each valve in the flow path is in its correct position.
 - c. At least once per 12 months by cycling each testable valve (those which can be cycled without endangering the safety of equipment) in the flow path through at least one complete cycle of full travel.
 - d. At least once per 18 months by performing a system functional test which includes:
 1. Verifying that each pump develops at least 1800 gpm at a system head of 260 feet.
 2. Cycling each valve in the flow path that is not testable during plant operation through at least one complete cycle of full travel, and

3.0 SURVEILLANCE REQUIREMENTS

3.16 Recirculation Heat Removal System Integrity Testing

Applicability

Applies to determination of the integrity of the shutdown cooling system and associated components.

Objective

To verify that the leakage from the recirculation heat removal system components is within acceptable limits.

Specifications

- (1) a. The portion of the shutdown cooling system that is outside the containment shall be tested at 250 psig or a refueling interval.
- b. Piping from valves HCV-383-3 and HCV-383-4 to the discharge isolation valves of the safety injection pumps and containment spray pumps shall be hydrostatically tested at no less than 100 psig at the testing frequency specified in (1)a. above.
- c. Visual inspection of the system's components shall be performed at the frequency specified in (1)a. above to uncover any significant leakage. The leakage shall be measured by collection and weighing or by any other equivalent method.
- (2) a. The maximum allowable leakage from the recirculation heat removal system's components (which include valve stems, flanges, and pump seals) shall not exceed one gallon per minute, under the normal hydrostatic head from the SIRW tank.
- b. Repairs shall be made as required to maintain leakage within the acceptable limits.

Basis

The limiting leakage rates from the shutdown cooling system are judgment values based primarily on assuring that the components could operate without mechanical failure for a period on the order of 200 days after a design basis accident. The test pressure (250 psig) achieved either by normal system operation or by hydrostatic testing gives an adequate margin over the highest pressure within the system after a design basis accident. (1) Similarly, the hydrostatic test pressure for the return lines from the containment to the shutdown cooling system (100 psig) gives an adequate margin over the highest pressure within the lines after a design basis accident.