TECHNICAL SPECIFICATIONS

2.0 LIMITING CONDITIONS FOR OPERATION

2.7 Electrical Systems

Applicability

Applies to the availability of electrical power for the operation of plant components.

Objective

To define those conditions of electrical power availability necessary to provide for safe reactor operation and the continuing availability of engineered safety features.

Specifications

(1) Minimum Requirements

The reactor shall not be heated up or maintained at temperatures above 300°F unless the following electrical systems are operable:

a. Unit auxiliary power transformers T1A-1 or -2 (4,160 V).

b. House service transformers T1A-3 and 4 (4,160 V).

c. 4,160 V engineered safety feature buses 1A3 and 1A4.

d. 4,160 V/480 V Transformers T1B-3A, T1B-3B, T1B-3C, T1B-4A, T1B-4B, T1B-4C.

e. 480 V distribution buses 1B3A, 1B3A-4A, 1B4A, 1B3B, 1B3B-4B, 1B4B, 1B3C, 1B3C-4C, 1B4C.

f. MCC No. 3A1, 3B1, 3A2, 3C1, 3C2, 4A1, 4A2, 4C1 and 4C2.

g. 125 V d-c buses No. 1 and 2 (Panels EE-8F and EE-8G).

h. 125 V d-c distribution panels AI-41A and AI-41B.

i. 120V a-c instrument buses A, B, C, and D (Panels AI-40-A, B, C and D).

j. Inverters A, B, C, and D.

k. Station batteries No. 1 and 2 (EE-8A and EE-8B) including one battery charger on each 125V d-c bus No. 1 and 2 (EE-8F and EE-8G).

l. Two emergency diesel generators (DG-1 and DG-2).

m. One diesel fuel oil storage system containing a minimum volume of 16,000 gallons of diesel fuel in FO-1, and a minimum volume of 10,000 gallons of diesel fuel in FO-10.

n. Lubricating oil inventory for each DG is ≥ 500 gallons.

o. Each required starting air receiver bank pressure is ≥ 190 psig.

d. Either one of the 4.16kV engineered safeguards buses, 1A3 or 1A4 may be inoperable for up to 8 hours provided the operability of the diesel generator associated with the operable bus is demonstrated immediately and there are no inoperable required engineered safeguards components associated with the operable bus.

e. One of each group of 4160 V/480 V Transformers (T1B-3A or 4A), (T1B-3B or 4B), and (T1B-3C or 4C) may be inoperable for up to 8 hours provided there are no inoperable required engineered safeguards components which are redundant to components on the inoperable transformer.

f. One of the 480 V distribution buses connected to bus 1A3 or connected to bus 1A4 may be inoperable for up to 8 hours provided there are no inoperable required safeguards components which are redundant to components on the inoperable bus.

g. Either Group of MCC No.'s (3A1, 3B1, 3A2, 3C1, 3C2,) or (4A1, 4A2, 4C1, 4C2) may be inoperable for up to 8 hours provided there are no inoperable required safeguards components which are redundant to components on the inoperable MCC. MCC 3C1 may be inoperable in excess of 8 hours if battery chargers No. 1 and No. 2 are operable.

h. One of the four 120V a-c instrument buses (A, B, C or D) may be inoperable for 8 hours provided the reactor protective and engineered safeguards systems instrument channels supplied by the remaining three buses are all operable.

i. Two battery chargers may be inoperable for up to 8 hours provided battery charger No. 1 (EE-8C) or No. 2 (EE-8D) is operable.

j. Either one of the emergency diesel generators (DG-1 or DG-2) may be inoperable for up to seven days (total for both) during any month, provided there are no inoperable required engineered safeguards components associated with the operable diesel generator. If one diesel generator is inoperable, within 8 hours (regardless of when the inoperable diesel generator is restored to operability) EITHER:

   (1) Start the other diesel generator to verify operability, OR

   (2) Ensure the absence of common cause for the diesel generator inoperability for the other diesel generator.

k. Not used

l. Island buses 1B3A-4A, 1B3B-4B, and 1B3C-4C may be inoperable for up to 8 hours provided there are no inoperable required safeguards components which are redundant to components on the inoperable bus(es).

m. Either one of the 125V d-c buses No. 1 or 2 (Panels EE-8F or EE-8G) may be inoperable for up to 8 hours.

n. Either one of the 125V d-c distribution panels AI-41A or AI-41B may be inoperable for up to 8 hours.

o. One inverter (A, B, C, or D) may be inoperable for up to 24 hours provided the reactor protective and engineered safeguards systems instrument channels supplied by the remaining three inverters are all operable and the 120V a-c instrument bus associated with the inoperable inverter is powered from its bypass source.

(3) Modification on Minimum Requirements for Diesel Fuel Oil, Diesel Lube Oil, and Starting Air

The minimum requirements may be modified to the extent that any of the following conditions will be allowed after the reactor coolant has been heated above 300ºF. However, the reactor shall not be made critical unless all minimum requirements are met.

a. If the inventory of diesel fuel oil in FO-1 is less than 16,000 gallons and/or FO-10 is less than 10,000 gallons, but the combined inventory in FO-1 and FO-10 is greater than a 6 day supply (23,350 gallons), then restore the required inventory within 48 hours.

b. If one or more diesel generators has lube oil inventory < 500 gallons and > 450 gallons, then restore the lube oil inventory to within limits within 48 hours.

c. If the total particulates of fuel oil stored in FO-1 or FO-10 is not within limits, then restore fuel oil total particulates to within limits within 7 days.

d. If the properties of new fuel oil stored in FO-1 or FO-10 is not within limits, then restore stored fuel oil properties to within limits within 30 days.

e. If one or more diesel generators has the required starting air receiver bank with pressure < 190 psig and > 150 psig, then restore starting air receiver bank pressure to > 190 psig within 48 hours.

f. If the Required Action and associated Completion Time of a, b, c, d, or e are not met or one or more diesel generators have diesel fuel oil, lube oil, or a required starting air subsystem not within limits for reasons other than a, b, c, d, or e, then declare the associated DG inoperable immediately.

Basis

The electrical system equipment is arranged so that no single failure can inactivate enough engineered safeguards to jeopardize the plant safety. The 480 V safeguards are arranged on nine bus sections. The 4.16 kV safeguards are supplied from two buses.

The normal source of auxiliary power with the plant at power for the safeguards buses is from the house service power transformers being fed from the 161 Kv incoming line with on-site emergency power from either one of two diesel generators and off-site standby power via the unit auxiliary transformers.(1) The loss of the 161kV incoming line renders the house service transformers (T1A-3 and T1A-4) inoperable in that the transformers cannot supply power to the 4.16kV safeguards buses 1A3 and 1A4. Inoperability of the house service transformer(s) or loss of the 161kV incoming line is not reportable pursuant to 10 CFR 50.72 criteria; however, the NRC will be promptly notified of these events via the NRC Operations Center.

The two emergency diesel generators on site do not require outside power for start up or operation.

Upon loss of normal and standby power sources, the 4.16 Kv buses 1A3 and 1A4 are energized from the diesel generators. Bus load shedding, transfer to the diesel generator and pickup of critical loads are carried out automatically.(2)

When the turbine generator is out of service for an extended period, the generator can be isolated by opening motor operated disconnect switch DS-T1 in the bus between the generator and the main transformer, allowing the main transformer and the unit auxiliary power transformers (T1A-1 and T1A-2) to be returned to service.(3) The auxiliary power transformers are not considered inoperable during these normal plant startup/shutdown realignments.

Minimum requirements are implemented prior to raising the RCS temperature above 300ºF to assure availability of engineered safety features.

The time allowed to repair an inoperable inverter is based upon engineering judgement, taking into consideration the time required to repair an inverter and the additional risk to which the unit is exposed because of the inverter inoperability. In the event of inverter failure, the load on the inverter is automatically transferred to its safety related bypass source. The associated 120 V a-c instrument bus is considered OPERABLE when it is being powered from its bypass source and during the short time it takes to manually or automatically transfer between sources.

Equipment served by 4.16 kV and 480 V auxiliary buses and MCC's is arranged so that loss of an entire 4.16 kV bus does not compromise safety of the plant during DBA conditions. For example, if 4.16 kV bus 1A3 is lost, two raw water pumps, one low pressure safety injection pump, two high pressure safety injection pumps, one auxiliary feedwater pump, two component cooling water pumps, one containment spray pump and two containment air fans are lost. This leaves two raw water pumps, one low pressure safety injection pump, one high pressure safety injection pump, one component cooling water pump, two containment spray pumps and two containment air fans which is more than sufficient to control containment pressure below the design value during the DBA.

Each diesel generator has sufficient capacity to start and run at design load required by engineered safety features equipment. The safety features operated from one diesel generator can adequately cool the core for any loss of coolant accident and also maintain the containment pressure within the design value. The engine base tank capacity of 550 gallons on each diesel provides 3 hours running time (worst case loading) before transfer of fuel oil from the 18,000 gallon capacity emergency diesel generator fuel oil storage tank FO-1 is mandatory. Two fuel oil transfer pumps per diesel, with each being powered from the associated diesel, are available for transferring fuel oil from FO-1 to the day tanks. The minimum diesel fuel oil inventory available to the diesel generators from the emergency diesel generator fuel oil storage tank FO-1 is maintained to assure the operation of either: 1) one diesel generator at full rated design capacity for at least 3.6 days, or 2) one diesel generator at post accident load conditions for a minimum of 4.5 days.

A minimum amount of diesel fuel oil is reserved in the auxiliary boiler fuel oil storage tank FO-10 for transfer to the emergency diesel generator fuel oil storage tank in the event of an emergency to extend the fuel supply for diesel generator operation to 7 days. Methods of transfer of the fuel oil from this tank to FO-1 have been established and procedures have been developed so that the transfer can be made in a timely manner without adversely impacting diesel generator operation. Therefore, a minimum diesel fuel oil inventory available to the diesel generators from the total on-site diesel fuel oil storage capacity is maintained to assure the operation of one diesel generator at the required post accident loads for 7 days. The fuel inventory is allowed below the 7 day supply, but above a 6 day supply, for a period of 48 hours. This restriction allows sufficient time for obtaining the requisite replacement volume and performing the analyses required prior to addition of fuel oil to the tank. A period of 48 hours is considered sufficient to complete restoration of the required level prior to initiating a plant shutdown as required by Specification 2.7(3). This period is acceptable based on the remaining capacity (more than 6 days), the fact that procedures are in place to obtain replenishment, and the low probability of an event during this brief period. |

Additional supplies of diesel fuel oil are available in the Omaha area and from nearby terminals. Ample facilities exist to assure deliveries to the site within 24 hours.

One battery charger on each battery shall be operating so that the batteries will always be at full charge; this ensures that adequate d-c power will be available for all emergency uses. Each battery has one battery charger permanently connected with a third charger capable of being connected to either battery bus. The chargers are each rated for 400 amperes at 130 volts. Following a DBA the batteries and the chargers will handle all required loads. Each of the reactor protective channels instrumentation channels is supplied by one of the safety-related a-c instrument buses. The removal of one of the safety-related a-c instrument buses is permitted as the 2-of-4 logic may be manually changed to a 2-of-3 logic without compromising safety.

The engineered safeguards instrument channels use safety-related a-c instrument buses (one redundant bus for each channel) and d-c buses (one redundant bus for each logic circuit). The removal of one of the safety-related a-c instrument buses is permitted as the two of four logic automatically becomes a two of three logic.

2.0 LIMITING CONDITIONS FOR OPERATION
2.7 Electrical Systems (Continued)

Required engineered safeguards components, as described in Specification 2.7(2), refers to components required to be operable by other Limiting Conditions for Operation within these Technical Specifications. If no other LCO requires a particular ESF component to be operable, then its redundant component is also not required to be operable due to this specification. As an example, Specification 2.3 requires that safety injection pumps be operable prior to the reactor being made critical, and Specification 2.7 applies when the RCS is above 300°F. If the RCS is above 300°F but the reactor is not critical, then no safety injection pumps are required to be operable.

The DG lubrication system is designed to provide sufficient lubrication to permit proper operation of its associated DG under all loading conditions. The system is required to circulate the lube oil to the diesel engine working surfaces and to remove excess heat generated by friction during operation. The onsite storage in addition to the engine oil sump is sufficient to ensure 7 days of continuous operation. This supply is sufficient supply to allow the operator to replenish lube oil from outside sources. With lube oil inventory < 500 gallons, sufficient lubricating oil to support 7 days of continuous DG operation at full load conditions may not be available. However, the Condition is restricted to lube oil volume reductions that maintain at least a 6 day supply. This restriction allows sufficient time to obtain the requisite replacement volume. A period of 48 hours is considered sufficient to complete restoration of the required volume prior to declaring the DG inoperable. This period is acceptable based on the remaining capacity (> 6 days), the low rate of usage, the fact that procedures will be initiated to obtain replenishment, and the low probability of an event during this brief period.

For proper operation of the standby DGs, it is necessary to ensure the proper quality of the fuel oil. FCS has a Diesel Fuel Oil Testing Program which includes proper fuel oil quality. This program includes purchasing, receipt testing of new fuel oil, and periodic analyses of the stored fuel oil. FCS is not committed to the fuel analysis portion of Regulatory Guide 1.137 (Ref. 4) or ANSI N195-1976 (Ref. 5); however, these standards were utilized as guidance in the development of the Diesel Fuel Oil testing program. The fuel oil properties governed by these Surveillance Requirements are the water and sediment content, the kinematic viscosity, specific gravity (or API gravity), and impurity level. TS 2.7(3)c is entered as a result of a failure to meet the acceptance criterion of Table 3-5, Item 9c. Normally, trending of particulate levels allows sufficient time to correct high particulate levels prior to reaching the limit of acceptability. Poor sample procedures (bottom sampling), contaminated sampling equipment, and errors in laboratory analysis can produce failures that do not follow a trend. Since the presence of particulates does not mean failure of the fuel oil to burn properly in the diesel engine, and particulate concentration is unlikely to change significantly between Surveillance intervals, and proper engine performance has been recently demonstrated (within 31 days), it is prudent to allow a brief period prior to declaring the associated DG inoperable. The 7 day Completion Time allows for further evaluation, resampling, and re-analysis of the DG fuel oil.

With the new fuel oil properties defined in the Bases for Table 3-5, Item 9c not within the required limits, a period of 30 days is allowed for restoring the stored fuel oil properties. This period provides sufficient time to test the stored fuel oil to determine that the new fuel oil, when mixed with previously stored fuel oil, remains acceptable, or restore the stored fuel oil properties. This restoration may involve feed and bleed procedures, filtering, or combinations of these procedures. Even if a DG start and load was required during this time interval and the fuel oil properties were outside limits, there is a high likelihood that the DG would still be capable of performing its intended function.

Each DG has two starting air subsystems (primary and secondary), each with adequate capacity for five successive start attempts of the DG without recharging the air start receivers. Either subsystem can fulfill the function of starting the DG, however the requirements of TS 3.7(1)a.i must be met for the required starting air subsystem. With starting air receiver bank pressure < 190 psig, sufficient capacity for five successive DG start attempts does not exist. However, as long as the receiver bank pressure is > 150 psig, there is adequate capacity for at least one start attempt, and the DG can be considered OPERABLE while the air receiver bank pressure is restored to the required limit. A period of 48 hours is considered sufficient to complete restoration to the required pressure prior to declaring the DG inoperable. This period is acceptable based on the remaining air start capacity, the fact that most DG starts are accomplished on the first attempt, and the low probability of an event during this brief period.

References

(1) USAR, Section 8.3.1.2
(2) USAR, Section 8.4.1
(3) USAR, Section 8.2.2
(4) Regulatory Guide 1.137
(5) ANSI N195-1976

3.2 Equipment and Sampling Tests (continued)

The RCS water inventory balance must be performed with the reactor at stable operating conditions (stable RCS pressure, temperature, power level, pressurizer and makeup tank levels, makeup and letdown, and Reactor Coolant Pump (RCP) seal leakoff flows). Therefore, a note is added allowing that this surveillance requirement is not required to be performed until after establishing normal operating temperature and pressure.

Stable operation is required to perform a proper water inventory balance since calculations during maneuvering are not useful. For RCS operational leakage determined by water inventory balance, stable operation is defined as stable RCS pressure, temperature, power level, pressurizer and makeup tank levels, makeup and letdown, and RCP seal leakoff flows. The water inventory balance should be performed as soon as practical after stable conditions are met.

During Plant startup, a visual leak check is performed at normal system pressure prior to entering MODE 3. This verification is performed to ensure no RCPB leaks exist.

Table 3-5, Item 9b ensures that sufficient lube oil inventory is available to support at least 7 days of full load operation for each DG. The 500 gallon requirement is based on the DG manufacturer consumption values for the run time of the DG. Implicit in this Surveillance Requirement is the requirement to assure the capability to transfer the lube oil from its storage location to the DG, since the DG lube oil sump does not hold adequate inventory for 7 days of full load operation without the level reaching the manufacturer recommended minimum level. A 31 day Surveillance interval is adequate to ensure that a sufficient lube oil supply is onsite, since DG starts and run time are closely monitored by the unit staff.

For Table 3-5, Item 9c, the tests listed below are a means of determining whether new fuel oil is of the appropriate grade and has not been contaminated with substances that would have an immediate, detrimental impact on diesel engine combustion. If results from these tests are within acceptable limits, the fuel oil may be added to the storage tanks without concern for contaminating the entire volume of fuel oil in the storage tanks. These tests are to be conducted prior to adding the new fuel to the storage tank(s), but in no case is the time between receipt of new fuel and conducting the tests to exceed 31 days. The tests, limits, and applicable ASTM Standards are as follows:

a. Sample the new fuel oil in accordance with ASTM D4057-95(2000) (Ref. 2),

b. Verify in accordance with the tests specified in ASTM D975-98b (Ref. 2) that the sample has an absolute specific gravity at 60/60ºF of ≥ 0.83 and ≤ 0.89, or an API gravity at 60ºF of ≥ 27º and ≤ 39º when tested in accordance with ASTM D287-82 (Ref. 2), a kinematic viscosity at 40ºC of ≥ 1.9 centistokes and ≤ 4.1 centistokes, and a flash point ≥ 125ºF, and

c. Verify that the new fuel oil has a clear and bright appearance with proper color when tested in accordance with ASTM D4176-93 or a water and sediment content within limits when tested in accordance with ASTM D2709-96 (Ref. 2).

3.2 Equipment and Sampling Tests (continued)

Failure to meet any of the above limits is cause for rejecting the new fuel oil, but does not represent a failure to meet the LCO concern since the fuel oil is not added to the storage tanks. Within 31 days following the initial new fuel oil sample, the fuel oil is analyzed to establish that the other properties specified in Table 1 of ASTM D975-98b (Ref. 3) are met for new fuel oil when tested in accordance with ASTM D975-98b (Ref. 2), except that the analysis for sulfur may be performed in accordance with ASTM D129-00 (Ref. 2) or ASTM D2622-87 (Ref. 2). The 31 day period is acceptable because the fuel oil properties of interest, even if they were not within stated limits, would not have an immediate effect on DG operation. This Surveillance ensures the availability of high quality fuel oil for the DGs. Fuel oil degradation during long term storage shows up as an increase in particulate, due mostly to oxidation. The presence of particulate does not mean the fuel oil will not burn properly in a diesel engine. The particulate can cause fouling of filters and fuel oil injection equipment, however, which can cause engine failure. Particulate concentrations should be determined in accordance with ASTM 6217-98 (Ref. 2) with the exception that the filters specified in the ASTM method may have a nominal pore size of up to 3 microns. This method involves a gravimetric determination of total particulate concentration in the fuel oil and has a limit of 10 mg/l. It is acceptable to obtain a field sample for subsequent laboratory testing in lieu of field testing. For those designs in which the total stored fuel oil volume is contained in two or more interconnected tanks, each tank must be considered and tested separately. The Surveillance interval of this test takes into consideration fuel oil degradation trends that indicate that particulate concentration is unlikely to change significantly between Surveillance intervals.

Table 3-5, Item 9d ensures that, without the aid of the refill compressor, sufficient air start capacity for each DG is available. The system design requirements provide for a minimum of five engine start cycles without recharging. A start cycle is defined as the cranking time required to accelerate the DG to firing speed. The pressure specified in this Surveillance Requirement is intended to reflect the lowest value at which the five starts can be accomplished. The 31 day Surveillance interval takes into account the capacity, capability, redundancy, and diversity of the AC sources and other indications available in the control room, including alarms, to alert the operator to below normal air start pressure.

Microbiological fouling is a major cause of fuel oil degradation. There are numerous bacteria that can grow in fuel oil and cause fouling, but all must have a water environment in order to survive. Removal of water from the fuel storage tanks once every 92 days per Table 3-5, Item 9e, eliminates the necessary environment for bacterial survival. This is the most effective means of controlling microbiological fouling. In addition, it eliminates the potential for water entrainment in the fuel oil during DG operation. Water may come from any of several sources, including condensation, ground water, rain water, and contaminated fuel oil, and from breakdown of the fuel oil by bacteria. Frequent checking for and removal of accumulated water minimizes fouling and provides data regarding the watertight integrity of the fuel oil system. The Surveillance interval is established to ensure excessive water does not accumulate in the fuel oil system, which meets the intent of Regulatory Guide 1.137 (Ref. 4). This Surveillance Requirement is for preventative maintenance. The presence of water does not necessarily represent failure of this Surveillance Requirement provided the accumulated water is removed during performance of the Surveillance.

3.2 Equipment and Sampling Tests (continued)

References

1) USAR, Section 9.10
2) ASTM D4057-95(2000), ASTM D975-98b, ASTM D4176-93, ASTM D129-00, ASTM D2622-87, ASTM D287-82 , ASTM 6217-98, ASTM D2709-96
3) ASTM D975-98b, Table 1
4) Regulatory Guide 1.137

TABLE 3-5

MINIMUM FREQUENCIES FOR EQUIPMENT TESTS

		Test	Frequency	USAR Section Reference
1.	Control Element Assemblies	Drop times of all full-length CEA's	Prior to reactor criticality after each removal of the reactor vessel closure head	7.5.3
2.	Control Element Assemblies	Partial movement of all CEA's (Minimum of 6 in)	Q	7
3.	Pressurizer Safety Valves	Verify each pressurizer safety valve is OPERABLE in accordance with the Inservice Testing Program. Following testing, lift settings shall be 2485 psig ±1% and 2530 psig ±1% respectively.	R	7
4.	Main Steam Safety Valves	Set Point	R	4
5.	DELETED			
6.	DELETED			
7.	DELETED			
8.	Reactor Coolant System Leakage	Evaluate	D*	4
9a.	Diesel Fuel Supply	Fuel Inventory	M	8.4
9b.	Diesel Lubricating Oil Inventory	Lube Oil Inventory	M	8.4
9c.	Diesel Fuel Oil Properties	Test Properties	In Accordance with the Diesel Fuel Oil Testing Program	8.4
9d.	Required Diesel Generator Air Start Receiver Bank Pressure	Air Pressure	M	8.4

* Whenever the system is at or above operating temperature and pressure.

TABLE 3-5 (continued)

MINIMUM FREQUENCIES FOR EQUIPMENT TESTS

		Test	Frequency	USAR Section Reference
9e.	Check For and Remove Accumulated Water From Each Fuel Oil Storage Tank	Check For Water and Remove	Q	8.4
10a.	Charcoal and HEPA Filters for Control Room	1. In-Place Testing** Charcoal adsorbers and HEPA filter banks shall be leak tested and show ≥99.95% Freon (R-11 or R-112) and cold DOP particulates removal, respectively.	On a refueling frequency or every 720 hours of system operation or after each complete or partial replacement of the charcoal adsorber/HEPA filter banks, or after any major structural maintenance on the system housing or following significant painting, fire or chemical releases in a ventilation zone communicating with the system.	9.10
		2. Laboratory Testing** Verify, within 31 days after removal, that a laboratory test of a sample of the charcoal adsorber, when obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978, shows methyliodide penetration less than 0.175% when tested in accordance with ASTM D3803-1989 at a temperature of 30°C (86°F) and a relative humidity of 70%.	On a refueling frequency or every 720 hours of system operation or after any structural maintenance on the HEPA filter or charcoal adsorber housing or following significant painting, fire or chemical release in a ventilation zone communicating with the system.	

** Tests shall be performed in accordance with applicable section(s) of ANSI N510-1980.

TABLE 3-5 (continued)

MINIMUM FREQUENCIES FOR EQUIPMENT TESTS

		Test	Frequency	USAR Section Reference
10a.	(continued)	3. Overall System Operation		
		a. Each circuit shall be operated.	Ten hours every month.	
		b. The pressure drop across the combined HEPA filters and charcoal adsorber banks shall be demonstrated to be less than 9 inches of water at system design flow rate.	R	
		c. Fan shall be shown to operate within ± 10% design flow.	R	
		4. Automatic and manual initiation of the system shall be demonstrated.	R	
10b.	Charcoal Adsorbers for Spent Fuel Storage Pool Area	1. In-Place Testing** Charcoal adsorbers shall be leak tested and shall show ≥99% Freon (R-11 or R-112) removal.	On a refueling frequency or every 720 hours of system operation, or after each complete or partial replacement of the charcoal adsorber bank, or after any major structural maintenance on the system housing or following significant painting, fire or chemical release in a ventilation zone communicating with the system.	6.2 9.10
		2. Laboratory Testing Verify, within 31 days after removal, that a laboratory test of a sample of the charcoal adsorber, when obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978, shows methyliodide penetration less than 10% when tested in accordance with ASTM D3803-1989 at a temperature of 30°C (86°F) and a relative humidity of 95%.	On a refueling frequency or every 720 hours of system operation or after any structural maintenance on the HEPA filter or charcoal adsorber housing or following significant painting, fire or chemical release in a ventilation zone communicating with the system.	

** Tests shall be performed in accordance with applicable section(s) of ANSI N510-1980.

TABLE 3-5 (continued)

MINIMUM FREQUENCIES FOR EQUIPMENT TESTS

		Test	Frequency	USAR Section Reference
10b.	(continued)	3. Overall System Operation		
		a. Operation of each circuit shall be demonstrated.	Ten hours every month.	
		b. Volume flow rate through charcoal filter shall be shown to be between 4500 and 12,000 cfm.	R	
		4. Manual initiation of the system shall be demonstrated.	R	
10c.	Charcoal Adsorbers for S.I. Pump Room	1. In-Place Testing** Charcoal adsorbers shall be leak tested and shall show ≥99% Freon (R-11 or R-112) removal.	On a refueling frequency or every 720 hours of system operation, or after each complete or partial replacement of the charcoal adsorber bank, or after any major structural maintenance on the system housing or following significant painting, fire or chemical release in any ventilation zone communicating with the system.	9.10 6.2
		2. Laboratory Testing Verify, within 31 days after removal, that a laboratory test of a sample of the charcoal adsorber, when obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978, shows methyliodide penetration less than 10% when tested in accordance with ASTM D3803-1989 at a temperature of 30°C (86°F) and a relative humidity of 95%.	On a refueling frequency or following 720 hours of system operation or after any structural maintenance on the HEPA filter or charcoal adsorber housing or following significant painting, fire or chemical release in a ventilation zone communicating with the system.	
		3. Overall System Operation		
		a. Operation of each circuit shall be demonstrated.	Ten hours every month.	
		b. Volume flow rate shall be shown to be between 3000 and 6000 cfm.	R	

** Tests shall be performed in accordance with applicable section(s) of ANSI N510-1980.

5.20 Technical Specifications (TS) Bases Control Program (Continued)

1. A change in the TS incorporated in the license or

2. A change to the USAR or Bases that requires NRC approval pursuant to 10 CFR 50.59.

c. The Bases Control Program shall contain provisions to ensure that the Bases are maintained consistent with the USAR.

d. Proposed changes that meet the criteria of 5.20.b above shall be reviewed and approved by the NRC prior to implementation. Changes to the Bases implemented without prior NRC approval shall be provided to the NRC on a frequency consistent with 10 CFR 50.71(e).

5.21 Containment Tendon Testing Program

This program provides controls for monitoring any tendon degradation in prestressed concrete containments, including effectiveness of its corrosion protection medium, to ensure containment structural integrity. The program shall include baseline measurements prior to initial operations. The Containment Tendon Testing Program, inspection frequencies, and acceptance criteria shall be in accordance with Regulatory Guide 1.35, Revision 3, 1989.

The provisions of TS 3.0.1 and TS 3.0.5 are applicable to the Containment Tendon Testing Program inspection frequencies.

If the acceptance criteria are not met, an immediate investigation shall be made to determine the cause(s) and extent of the non-conformance to the criteria, and the results shall be reported to the Commission within 90 days via a special report in accordance with Technical Specification 5.9.3.

5.22 Diesel Fuel Oil Testing Program

A diesel fuel oil testing program to implement required testing of both new fuel oil and stored fuel oil shall be established. The program shall include sampling and testing requirements, and acceptance criteria, all in accordance with applicable ASTM Standards. The purpose of the program is to establish the following:

a. Acceptability of new fuel oil for use prior to addition to storage tanks by determining that the fuel oil has:

   1. An API gravity or an absolute specific gravity within limits,
   2. A flash point and kinematic viscosity within limits for ASTM 2D fuel oil, and
   3. A clear and bright appearance with proper color, or a water and sediment content within limits;

b. Within 31 days following addition of the new fuel oil to storage tanks, verify that the properties of the new fuel oil, other than those addressed in a., above, are within limits for ASTM 2D fuel oil, and

c. Total particulate concentration of the fuel oil is ≤ 10 mg/l when tested every 31 days.

The provisions of TS 3.0.1 and TS 3.0.5 are applicable to the Diesel Fuel Oil Testing Program test frequencies.