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Doc Id	Doc Title	Rev	Rev Date	Qty
TRM	TECHNICAL REQUIREMENTS MANUAL FOR GINNA STATION	017	06/08/2001	1

A001

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Rochester Gas and Electric Corporation
Inter-Office Correspondence

June 7, 2001

Subject: Improved Technical Specifications (ITS), Amendment No. 79;
ITS Bases Revision 20; and
Technical Requirements Manual (TRM) Revision 17

To: Distribution

Attached is Amendment No. 79 to the Ginna Station Improved Technical Specifications (ITS). This Amendment revises the ITS requirements for the storage of new and spent fuel within the Spent Fuel Pool. This Amendment was approved by the NRC in a safety evaluation dated December 7, 2000.

In addition to the Amendment, the associated changes to the ITS Bases and the Technical Requirements Manual are included. Instructions for the necessary changes to your controlled copy of the ITS are attached.

These changes are considered effective June 8, 2001.

Please contact Tom Harding (extension 3384) if you have any questions.

Thomas L. Harding

Attachment A

Please replace the following pages of your controlled copy of the ITS as follows:

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R.E. Ginna Nuclear Power Plant

Technical Requirements Manual
TRM

Revision 17

Responsible Manager: ______________________
George Wrobel

Effective Date: 6/8/2001
6/8/2001

Controlled Copy No. 1217

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3.7 PLANT SYSTEMS

TR 3.7.7 Spent Fuel Pool (SFP) Cooling System

TR 3.7.7 The SFP cooling system shall be maintained as follows:

a. The SFP water temperature shall be ≥ 50°F and ≤ 150°F; and

b. Two SFP cooling systems shall be OPERABLE, each commensurate with the SFP heat load.

- NOTE -

The SFP heat load and SFP cooling capabilities are determined by Nuclear Engineering Services.

APPLICABILITY: Whenever any irradiated fuel assembly is stored in the SFP.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. SFP temperature not within limit.	A.1 Suspend movement of irradiated fuel assemblies from the reactor to the SFP.	Immediately
	<u>AND</u>	
	A.2 Initiate action to restore SFP temperature to within limit.	Immediately
B. One required SFP cooling system inoperable.	B.1 Suspend movement of irradiated fuel assemblies from the reactor to the SFP.	Immediately
	<u>AND</u>	
	B.2 Restore a second SFP cooling system to OPERABLE status.	14 days

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Both required SFP cooling systems inoperable.	C.1 Perform TSR 3.7.7.1.	Once within 1 hour and every 4 hours thereafter
	AND	
	C.2 Restore one SFP cooling system to OPERABLE status.	Prior to the SFP water temperature exceeding 120°F

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
TSR 3.7.7.1	Verify SFP temperature is within limit.	24 Hours
TSR 3.7.7.2	Verify power available to the two OPERABLE SFP cooling systems.	7 days

B 3.7 PLANT SYSTEMS

TRB 3.7.7 Spent Fuel Pool (SFP) Cooling System

BASES

BACKGROUND

The Spent Fuel Pool (SFP) Cooling System is designed to remove from the SFP the heat generated by stored spent fuel assemblies.

The SFP Cooling System consists of three cooling loops (see Figure TRB 3.7.7-1). The primary loop (loop B) is made up of the SFP Pump B, SFP Heat Exchanger B, and piping. The backup loops include installed loop A with the SFP Pump A, SFP Heat Exchanger A, and piping, and a standby loop with the Skid-Mounted SFP Pump, SFP Standby Heat Exchanger, and hoses. Service water (SW) circulates through the shell while SFP water circulates through the tubes of all three heat exchangers. The SFP Cooling System loop B is sized for 100% of the design SFP heat load. The SFP Cooling System loop A and the standby loop are each capable of removing the normal basis heat load and when operated in parallel can remove more than 100% of the design heat load (Ref. 1). Motor-operated valves provide automatic and remote manual isolation of the SW supply to the heat exchangers associated with the SFP Cooling System loops A and B and the Component Cooling Water Heat Exchangers. These valves close automatically upon coincidence of safety injection and loss of offsite power. Handwheels are provided for manual operation.

The SFP Cooling System is designed to maintain the pool ≤ 120°F during normal refueling conditions and ≤ 150°F during full core discharge operations (Ref. 1). The cooling systems can take a suction from either near the surface of the SFP and/or at a point above the irradiated fuel assemblies, such that a failure of any pipe in the system will not drain the pool to a point where the fuel would be exposed. The cooling system return line to the pool also contains a 0.25 inch vent hole located near the SFP surface level to prevent siphoning. Control board alarms exist with respect to the SFP level and temperature. These features all help to prevent inadvertent draining of the SFP.

APPLICABLE SAFETY ANALYSES

In accordance with the assumptions of the SFP criticality safety analysis, the pool water temperature is not to be less than 50°F. For structural integrity reasons, the pool water temperature is not to exceed 180°F. In order to provide sufficient time to take corrective action in the event of a SFP Cooling System failure, the pool temperature limit is not to exceed 150°F for all modes of operation including a full core discharge. The requirement for two 100% SFP Cooling Systems is based on being able to provide cooling following either a loss of offsite power or an active single failure within the SFP Cooling System.

TR

The SFP water temperature is required to be ≥ 50°F and ≤ 150°F. The specified lower water temperature is an assumption of the SFP criticality safety analysis, and as such it is the minimum allowed while storing fuel assemblies within the SFP. Additional margin to the criticality safety analysis is not provided since the fuel assemblies do not contribute to the overcooling affect, only the cooling system. The specified water upper temperature provides sufficient margin to the assumptions of the SFP structural integrity. As such, it is the maximum allowed while storing irradiated fuel assemblies within the SFP.

To ensure that the SFP temperature can be maintained within the required limit, two SFP Cooling Systems must be OPERABLE. This requirement provides for 100% backup capability assuming either a loss of offsite power or an active single failure within the SFP Cooling System.

SFP Cooling System loop A and loop B are considered OPERABLE when the respective pump has power available and the respective heat exchanger is capable of providing cooling water with the ability to remove the decay heat load of the irradiated fuel assemblies stored within the SFP. The standby loop is considered OPERABLE when the Skid-Mounted SFP Pump has power connected to a temporary power source, the SFP Standby Heat Exchanger has been staged, and the temporary hoses have been connected and leak checked. During a full core offload the SFP Cooling System loop A and standby loop may be operated in parallel to comprise one of the required OPERABLE systems. Loop A and the standby loop have the ability to utilize fire water for cooling in lieu of SW to provide for increased redundancy. The temporary electrical power source for the standby loop pump may also be varied to provide for increased redundancy.

Also included in the determination of OPERABILITY are all necessary support systems not addressed by this TR (e.g., service water, fire water, electrical). Single active failures are not required to be considered within the support systems for the purpose of this TR; however, the support systems must be capable of performing their support function per the definition of OPERABLE-OPERABILITY in ITS Section 1.1.

The TR is modified by a note. The SFP heat load from the irradiated fuel assemblies stored within the SFP is a variable based on the total number of assemblies stored, the power history of the individual assemblies, and the time since the assemblies were last irradiated. The heat removal capabilities of the individual SFP cooling loops is also a variable based on the temperature and flow rate of the cooling source, SW or fire water. The SFP heat load and the SFP Cooling System heat removal capabilities are determined by Nuclear Engineering Services and provided, as necessary, based on plant conditions.

APPLICABILITY

This TR applies whenever any irradiated fuel assembly is stored in the SFP, to maintain the assumptions of the criticality safety analysis and to provide sufficient margin to the assumptions of the SFP structural integrity. Specific requirements applicable during a full core discharge are covered by TR 3.9.4.

ACTIONS

A.1 and A.2

If the SFP temperature is not below the upper limit, steps should be taken to preclude the assumptions of the SFP structural integrity from being exceeded. Suspending any operation that would increase SFP decay heat load, such as discharging a fuel assembly from the reactor to the SFP, is a prudent action under this condition. If the SFP temperature is not above the lower limit, the assumptions of the criticality safety analyses are not met. Therefore, actions shall be taken immediately to suspend movement of irradiated fuel assemblies from the core to the SFP.

With the potential for exceeding the assumptions of the SFP criticality safety analysis or the SFP structural integrity, corrective actions to restore the SFP temperature to within limit shall be initiated immediately.

B.1 and B.2

With one of the required SFP Cooling Systems inoperable, suspending any operation that would increase SFP decay heat load, such as discharging an irradiated fuel assembly from the reactor to the SFP, is a prudent action under this condition. Therefore, actions shall be taken immediately to suspend movement of irradiated fuel assemblies from the core to the SFP.

With the suspension of fuel discharge into the SFP then a second SFP Cooling System must be restored to OPERABLE status within 14 days. In this condition the remaining OPERABLE SFP Cooling System is adequate to remove the decay heat load. The 14 day Completion Time is adequate to perform typical maintenance activities associated with a SFP Cooling System and takes into account the large heat sink capabilities of the SFP.

C.1 and C.2

If no SFP Cooling System is OPERABLE, there will be no forced cooling of the SFP and as such the SFP temperature must be monitored more frequently until the cooling is restored. This monitoring is accomplished by performing surveillance TSR 3.7.7.1 to verify SFP temperature is within limit. The Completion Time of 1 hour and every 4 hours thereafter is sufficient due to the large heat sink of the SFP and slow heatup rate.

Actions must also be initiated to restore one SFP Cooling System to OPERABLE status prior to the SFP temperature exceeding 120°F. The 120°F is not a safety requirement but is a limit set for normal operation and provides adequate margin to the 150°F limit.

SURVEILLANCE REQUIREMENTS

TSR 3.7.7.1

This TSR verifies that the SFP temperature is within the required limits. The temperature in the SFP must be checked periodically to ensure the SFP criticality safety analysis assumptions and structural integrity are met. The 24 hour Frequency is appropriate due to the large volume of water in the pool and the relatively slow heatup and cool down rate.

Verification of SFP water temperature is normally accomplished by the use of TIA-635, which also provides a SFP high temperature alarm to alert the operators of an increasing SFP temperature.

TSR 3.7.7.2

Verification that the required pumps are OPERABLE ensures that an additional SFP pump can be placed in operation, if needed, to maintain decay heat removal. Verification is performed by verifying proper breaker alignment and power available to the required pumps. The Frequency of 7 days is considered reasonable in view of other administrative controls available and has been shown to be acceptable by operating experience.

REFERENCES

1. UFSAR, Section 9.1.3.

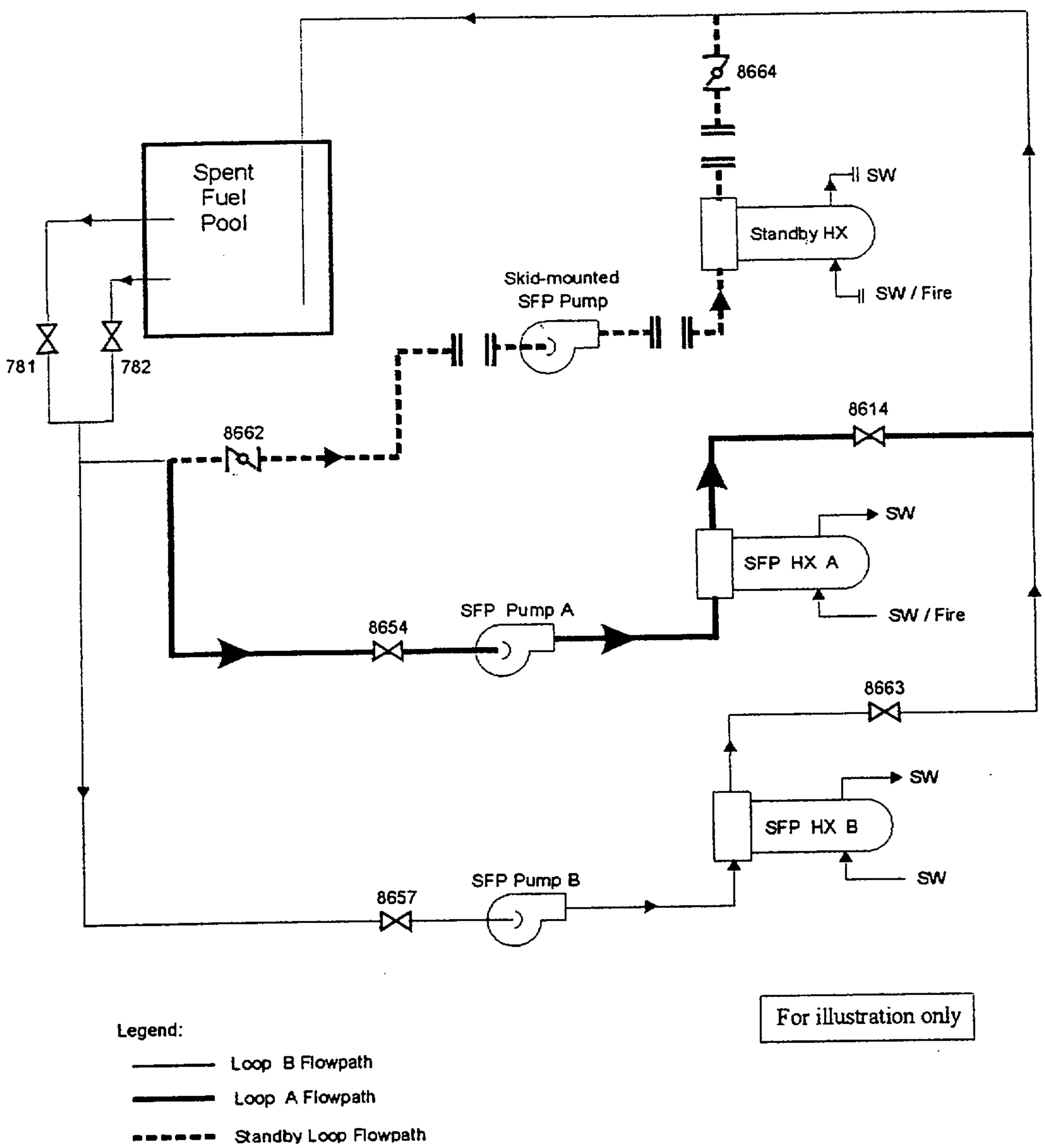

Figure TRB 3.7.7-1
SFP Cooling System