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Final Safety ANALYSIS REPORT
February 2005 Update
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TABLE 3.2-1

CLASSIFICATION OF OPERABLE STRUCTURES, SYSTEMS, AND COMPONENTS HADDAM NECK NUCLEAR POWER PLANT

Structures, Systems, Components	Quality Classification: Codes and Standards[2] RG 1.26[3]	Quality Classification: Codes and Standards[1] Used in Plant Design	Seismic / Quality Classification: RG 1.29 [9] Classification	Original [4] Plant Design	Current Defueled Licensing Seismic Requirements	Current Design
Spent Fuel Pool Cooling System						
"A" Spent Fuel Pool Heat Exchanger	ASME III Class 3	ASME VIII (1962) and Code Case 1270N, ASME III (1974) - Class 3	Category I	.03g	Category I[6]	.17g
"B" Spent Fuel Pool Heat Exchanger	ASME III Class 3	ASME III Class 3	Category I	.17g	Category I[6]	.17g
"A" Spent Fuel Pool Pump	ASME III Class 3	ASA B16.5 Standards of the Hydraulic Institute NEMA Standard MG1-1963	Category I	.03g[5]	Category I[6]	.17g
Spent Fuel Pool Pump	ASME III Class 3	Standards of the Hydraulic Institute (Per spec SP-CE-218)	Category I	.17g	Category I[6]	.17g
Piping and Valves	ASME III Class 3	ASA B31.1 (1955)	Category I	0.17g	Category[6]	.17g
Structures						
Spent Fuel Building & Yard Crane	N/A	ACI 318 (1963) AISC (6th Edition)	Category I	0.17g	Category I (pool concrete structure only) Category II/I (remainder of building & yard crane)	.21g[8] .21g[8]
Spent Fuel Racks (Region 1, 2)	N/A	AISC (6th Edition)	Category I	0.17g	Category I	.21g[8]
Spent Fuel Racks (Region 3)		AISC (6th Edition)	Category I	0.17g	Non-QA	NA
"A" Makeup Water Storage Tank Foundation	N/A	ACI 318 AISC (6th Edition)	Category I	0.03g	None	NA
Containment	N/A	ACI 318 (1963) AISC (6th Edition)	Category I	0.17g	Category I (transfer tube portion only and structural support bracket for yard crane)	.17g

pool level could not be gravity-drained below the spent fuel pool pump suction line which penetrates the spent fuel pool wall approximately 13 ft above the top of the fuel assemblies stored in the pool.

Two skimmer pumps, each with an associated dedicated suction line, are located in the spent fuel pool cooling pump cubical. The two skimmer pumps share a common power supply through a manual transfer switch so that only one pump may be operated at any time. The skimmer suction lines are located on the south end of the SFP and draw water from just below the SFP surface. Both skimmer pumps discharge into a common pump discharge header. Two filter assemblies in parallel are located downstream of the pump discharges. The filter assemblies remove particulates from the flow stream and contain the necessary valving so that one filter may be isolated and changed while the other filter is in operation.

Skimmer filter effluent may either be returned directly to the north end of the SFP or diverted to the inlet of the Spent Fuel Pool Demineralizers (I-10-1A & B), located on elevation 35' 6" in radiation shields. Effluent from the Spent Fuel Pool demineralizers may either returned directly to the SFP or diverted to the inlet of the Annulus Flush demineralizers. The Annulus Flush demineralizers are submerged in the SFP and provide additional purification of SFP water. The effluent from the Annulus Flush demineralizers is injected between the fuel transfer cask and Transportable Storage Canister (TSC) during fuel transfer operations to minimize the amount of contamination on the external TSC surfaces.

The resin for the Spent Fuel Pool demineralizers is housed in disposable demineralizer vessels which are pre loaded with resin prior to installation into their associated shields. When the resin in a vessel is depleted, it is dewatered within the vessel and shipped within the vessel to a licensed disposal facility. This configuration eliminates the need to slurry spent resin to another container and minimizes the likelihood of a resin spill.

The process and instrumentation diagram for the spent fuel pool cooling system is shown on Figure 9.1-1. The figure indicates that the majority of the system has been categorized as Operable and Available using the definitions in Section 1.1

9.1.3.3 Safety Evaluation

Safety evaluations of the spent fuel pool cooling system can be found in References 9.1-4 and 9.1-6. A synopsis of the Reference 9.1-4 safety evaluation is provided in the following paragraphs.

The portions of the system categorized as Operable include the pool, cooling loops, and filtration loops. In order to meet the maximum pool temperature limits and operability requirements for the system pumps and the plate heat exchanger, these portions of the system must remain in the Operable category. Maintaining these portions of the system in the Operable category will satisfy applicable regulatory and operability requirements.

The Available portions of the system include the spent fuel building floor drains, sump, and sump pumps. There are no regulatory requirements applicable to the spent fuel building sump, but the sump is needed as a low point drain for the spent fuel building and the system components. Therefore, the spent fuel building sump is categorized as Available. Maintaining this portion of the system Available will satisfy applicable regulatory and operability requirements.

9.1.4 Fuel Handling System

9.1.4.1 Design Bases

Instructions, safety limits and conditions, and the design of the fuel handling equipment

CHAPTER 11

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11.4 SOLID WASTE MANAGEMENT SYSTEM

The function of the solid waste system is to receive, concentrate, solidify (as necessary) package, collect and store radioactive wastes that result from plant operation, maintenance and decommissioning activities.

11.4.1 Design Bases

The radioactive solid waste system is designed to:

(1) Package radioactive solid wastes for off-site shipment and disposal in accordance with the applicable Nuclear Regulatory Commission and Department of Transportation (DOT) regulations. DOT approved steel or high integrity liners and shipping containers are used for the packaging of dry solid wastes, solidified liquid waste, spent resins, and spent filter cartridges.

(2) Achieve system safety compliance requirements by the equipment layout, shielding, accurate radiation and process monitoring, and remotely operated and reliable equipment.

(3) Contain selected equipment and storage capacities which meet the station's solid waste processing requirements.

(4) DELETED

(5) Hold Dry Activated Waste (DAW) in the Radwaste Reduction Facility (RRF). The capacity of the RRF is dependent upon:

a) the wastes generated, and

b) waste volume reduction techniques employed.

(6) Collect and store dried spent filter cartridges and/or other similar dried radioactive waste in on-site storage containers.

(7) Collect and store DAW in Sea/Land type containers

(8) Store three canisters of Greater Than Class C radioactive waste in three concrete casks on the ISFSI pad.

11.4.2 System Description

The solid waste system receives radioactive dry solid wastes produced during operation, maintenance and decommissioning activities of the HNP. The solid waste system is equipped to provide interim storage for the radioactive solid wastes prior to off-site shipment and disposal.

The types of wastes handled and processed by the solid waste system include the following:

(1) Demineralizer spent resins

(2) Expended cartridge filter elements

(3) Contaminated dry wastes consisting of air filters, miscellaneous paper, rags, etc., from contaminated areas; contaminated clothing; tools and equipment parts; and solid laboratory wastes.

The estimated volumes and the activities and isotopic contents of solid wastes are given in Reference 11.2-1, the Annual Radioactive Effluent and Waste Disposal Report.

11.4.2.1 Handling of Spent Resins

Spent resins from radioactive demineralizers are slurried to spent resin shipping containers (i.e., disposal liner or high integrity container) using temporary equipment and plant procedures.

The shipping container is made ready for storage and eventual shipping. It is stored in a cask on site.

Spent resins generated from the Spent Fuel Pool purification process are handled as described in Section 9.1.3.2.

11.4.2.2 Handling of Expended Filter Cartridges

Liquid filters from the spent fuel pool and the waste liquid system are removed from service when the pressure drop across the filters become excessive or the radiation level exceeds a prescribed maximum. The filter cartridges are removed from the filter housing with long-handled tools by personnel protected by a filter removal shield. The expended filter cartridges are lifted into the filter removal shield and transferred to a high integrity container.

11.4.2.3 Handling of Dry Solid Wastes

Contaminated DAW and metallic materials are placed into suitable transport packages such as steel boxes or Sea/Land containers, for storage and transport to a waste processor and/or disposal. Equipment too large to be handled in this way are first cut into small pieces before placement in the packages.

11.4.2.4 GTCC Waste Storage

The GTCC waste is stored in three stainless steel canisters which have been evacuated of water, filled with helium and welded shut. Each canister is stored within a concrete cask on the ISFSI pad. The canister and casks are described in reference 11.4.1.

REFERENCES

11.4-1 NAC-MPC Final Safety Analysis Report (FSAR), Docket 72-1025