DUKE POWER COMPANY
OCONEE NUCLEAR STATION

ATTACHMENT 2

REVISIONS TO JULY 1, 1980
POISON RERACK LICENSING SUBMITTAL
FOR UNITS 1 AND 2 SPENT FUEL POOL

Pages

2
34
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45

July, 1980

using Westinghouse designed/constructed poison racks in the Oconee 1 and 2 pool. The expanded storage capacity (to 1312 spaces) will allow storage of 562 additional assemblies.

The following chapters are provided with intent to provide information necessary for review and approval of the request for amendment to the Oconee Nuclear Station Technical Specifications (Attachment 1). It is considered that the modification is not inimical to the health and safety of personnel or the general public and that it represents an environmentally acceptable alternative which meets the requirements of NEPA and the guidance provided by the Commission on such applications (References 5 and 6).

References

1. Oconee Nuclear Station Technical Specification Section 5.4.2.1
2. Oconee Nuclear Station Final Safety Analysis Report Section 9.7.1.3
3. "OT Position for Review and Acceptance of Spent Fuel Storage and Handling Applications"
4. September 16, 1975 Federal Register Notice (FR-42801)

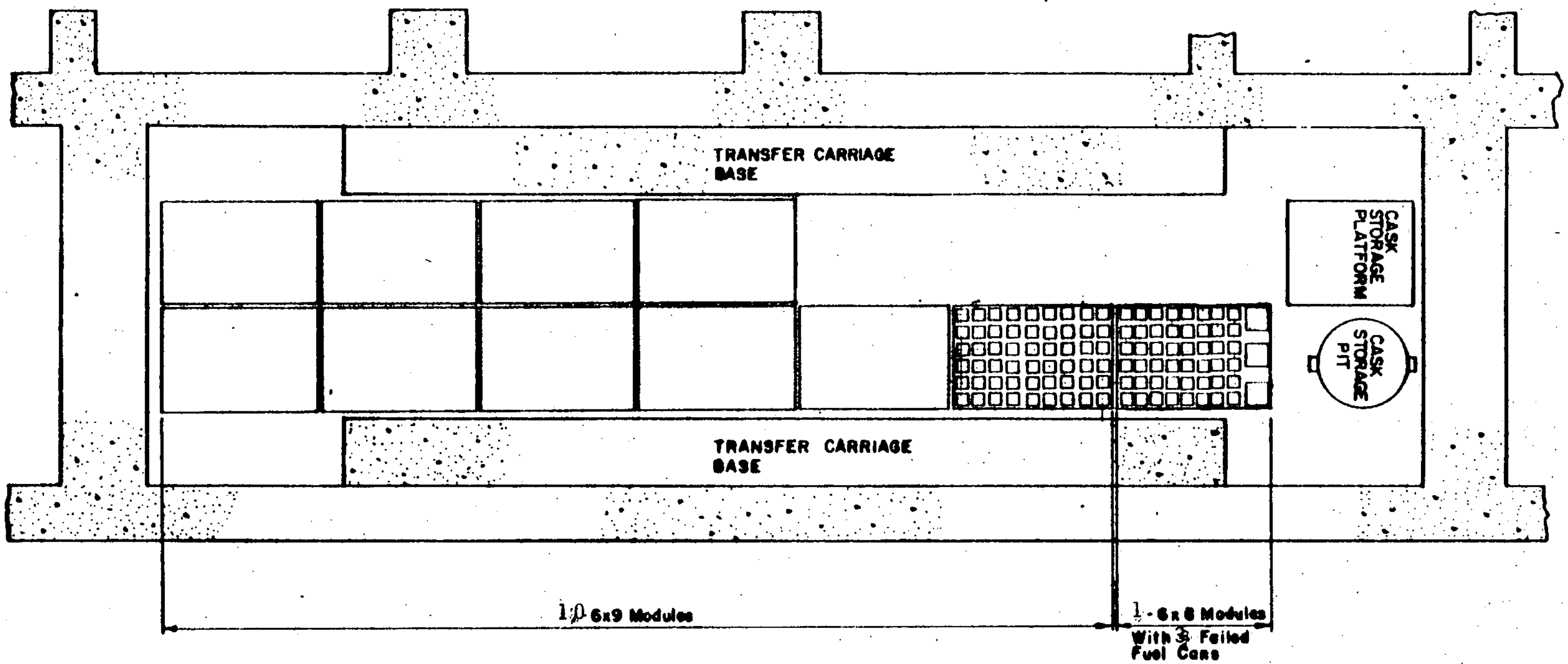
TABLE 3.2-1

Normal Heat Loads for Oconee 1 & 2 Spent Fuel Pool

Number Of Assemblies	Irradiation (EFPD)	Decay Time	Heat Output (10^6 BTU/hr)
72	1263	7 days	10.7
72	1263	35 days	5.44
144	1263	1.5 yrs	1.56
144	1263	3.0 yrs	.879
144	1263	4.5 yrs	.704
144	1263	6.0 yrs	.644
144	1263	7.5 yrs	.613
144	1263	9.0 yrs	.589
144	1263	10.5 yrs	.568
42	1263	12.0 yrs	.160
1194			21.857

TABLE 3.2-2
Maximum Heat Loads for Oconee 1 & 2 Spent Fuel Pool

Number Of Assemblies	Irradiation (EFPD)	Decay Time	Heat Output (10^6 BTU/hr)
72	11	7 days	4.1
72	432	7 days	10.1
33	853	7 days	4.8
72	1263	35 days	5.4
72	1263	60 days	4.1
144	1263	1.5 yrs	1.6
144	1263	3.0 yrs	.9
144	1263	4.5 yrs	.704
144	1263	6.0 yrs	.644
144	1263	7.5 yrs	.613
144	1263	9.0 yrs	.589
127	1263	10.5 yrs	.500
1312			34.050



EXISTING SPENT FUEL RACK CONFIGURATION

OCONEE NUCLEAR STATION

Figure 4-1

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6.0 SAFETY ANALYSIS

The following analyses are related to postulated accidents associated with operations in and around the spent fuel pool.

6.1 CONSTRUCTION ACCIDENT

The approximately 342 fuel assemblies in the fuel pool during the installation of the new racks, will have decayed at least 235 days prior to reracking. Therefore, the possibility of the failure of a temporary crane or other construction accident is considered less severe than a cask drop accident. As an additional precaution, the rack modules will not be moved over stored spent fuel during the installation process.

6.2 CASK/HEAVY-LOAD ACCIDENT

In order to calculate the consequences of a cask drop accident, it is necessary to determine the maximum number of fuel assemblies which could be contacted. The worst case is considered to be a hoist cable failure when the cask is positioned over the fuel pool wall and the cask has an eccentric drop into the wall. In this case, yoke and load block could be deflected onto the spent fuel.

There are 138 cans under the projected cask, yoke, and block impact area. These cans buckle and deflect into adjacent cans until the total energy of the falling cask is absorbed. In total, 576 cans can potentially suffer a total loss of integrity during a cask drop accident.

The radiological consequences of the cask drop accident will be mitigated by limiting the age of fuel stored in the first 36 rows. No cask movement will be allowed if fuel in these locations has decayed less than 55 days. The worst radiological consequences experienced would result from 100% of the activity contained in the fission gases trapped in gaps in the fuel stored in the locations being released into the pool water. The exclusion area boundary dose, taking no credit for ventilation system filtration, would be 0.1 rem whole body and 232 rem to the thyroid. These doses are well below 10CFR Part 100 limits.

6.3 LOSS OF FORCED COOLING

The large volume of water in the spent fuel pool takes several hours to heat up to boiling if all cooling capacity is lost. There is ample time to effect repairs to the cooling system or arrange alternate cooling should adequate cooling capacity be lost. The amount of time before the pool begins to boil is dependent on both the heat load and the initial pool temperature. With three pump-cooler configurations in operation prior to loss of forced cooling, the time to adiabatically heat up to boiling from the normal operating temperature of 125°F or less given in the FSAR and from the maximum temperature of 150°F or less is shown in Table 6.3-1. With any two pump-cooler configurations in operation prior to loss of forced cooling, the time to adiabatically heat up to boiling from normal operating temperatures of 140°F or less and from the maximum temperature of 163°F is shown in Table 6.3-2.