



A.12 FUEL BASKET SYSTEM DESIGN ANALYSES

The fuel unloading and storage basins at Morris Operation (GE-MO) are designed in accordance with earthquake and tornado criteria as described in Chapter 4. General criteria also apply to the design of the fuel basket system:

- a. No deformation or damage shall occur to the concrete or to the liner that would result in significant leakage.
- b. There shall be no piping or penetration failure that would lower water level significantly.
- c. Cranes may be derailed, but must not fall into the basins.
- d. The enclosure framework above the basin must remain essentially intact.
- e. Handling and storage areas shall withstand contact or impact with stored materials.

The fuel basket system design is consistent with the response spectra specified in Regulatory Guide 1.60 and dampening values specified in regulatory Guide 1.61.

Because the supporting grid system transmits earthquake forces to the basin walls, the basin structure has been analyzed to ensure that these forces are adequately carried.

Design analyses have been performed under General Electric direction as follows:

- a¹. Manual static analyses of
 - (1) Grid support structure
 - (2) Latch Mechanism
 - (3) Fuel basket
- b¹. Computer analysis of the grid:
 - (1) Natural frequency analysis
 - (2) Dynamic model analysis
 - (3) Static load analysis
- c¹. Thermal analysis of the grid
- d¹. Analysis of friction loading on the latch mechanism
- e¹. Static load test of the latch mechanism
- f². Dynamic load test of the latch mechanism
- g³. Effects from pilot model spacing and section changes
- h³. Load effects on basin walls and liner from pilot model changes
- i³. Unloading pit basket retainer frame
- j³. Basket lifting tools (yokes)

A.12.1 REFERENCES



1. Programmed & Remote Systems Corporation (PaR), Fuel Storage System Design Report - GE Morris Operation, April 1975. (See Appendix B.16)
2. Construction Engineering Research Lab, Seismic Shock Environment Test of Simulated Nuclear Fuel Storage Basket, Department of Army, August 1975 (Technical report M-150). See Appendix B.
3. Supplement 1, Fuel Storage System Design Report - GE Morris Operation, General Electric, May 1975 (no publication number). See Appendix B.