ROCHESTER GAS AND ELECTRIC CORPORATION • 89 EAST AVENUE, ROCHESTER, N.Y. 14649

August 5, 1976

A. Schwencer, Chief
Operating Reactors Branch #1
Division of Operating Reactors
Office of Nuclear Reactor Regulations
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Mr. Schwencer:

This letter is in response to your letter of June 24, 1976, which requested additional information regarding our proposed spent fuel pool modification. Enclosed please find the responses to your questions and the responses to the Staff's questions resulting from the May 21, 1976 meeting between the NRC Staff and RG&E.

Very truly yours,

Leon D. White, Jr.

Leon D. White, Jr.

LDW/cem
Enclosures

Question 15 The proposal to increase the storage capability of the spent fuel storage pool from 210 fuel assemblies to 595 appears to change the possible consequences if an object such as a tornado missile or dropped crane load impacts on the stored spent fuel. Provide the following additional information:

(a) What consideration has been given to reducing the probability or consequences of a tornado missile impacting on stored spent fuel?

RESPONSE: The consequences of a postulated missile impacting stored spent fuel in the proposed racks (595 locations) has been decreased below that of the existing racks (210 locations) by preventing the fuel assemblies in the latest discharge batch from being all grouped together.

The fission product density is greatest in fuel assemblies that have the shortest cooldown time, assuming similar irradiation. Therefore, the stored fission product density can be reduced by surrounding a recently discharge fuel assembly with fuel assemblies that have been stored for a year or more. Figure 15-1 illustrates a section of the proposed spent fuel storage racks with the recent discharge stored as illustrated. The remaining storage locations were assumed to be filled with fuel assemblies that have been out of the reactor for one year (See Figure 15-2).

The possible consequences of a postulated missile impacting stored fuel was evaluated by comparing the sum of the fission product per unit of spent fuel pool volume divided by the MPC for that nuclide, or

$$\sum_i \frac{x_i}{MPC_i} \quad \text{unit of spent fuel pool volume}$$

where: X_i is the i^{th} fission product.

MPC_i is the Maximum Permissive Concentration of the i^{th} fission product (10CFR20).

Question 15
(Continued)

This quantity weights the fission product density so that the nuclides most important in dose calculations are given more weight. This weighting represents a more meaningful comparison than if the comparison were done on fission product density only.

The above quantity was calculated for the existing spent fuel racks and the proposed spent fuel racks with the loading pattern illustrated on Figure 15-2. Since this quantity is less for the proposed rack and loading pattern than for the existing racks, the consequences of a missile which transverses the same spent fuel pool volume will also be less than for the existing pool structure.

Figure 15-1

Proposed Spent Fuel Rack With Recent Discharge Stored As Illustrated

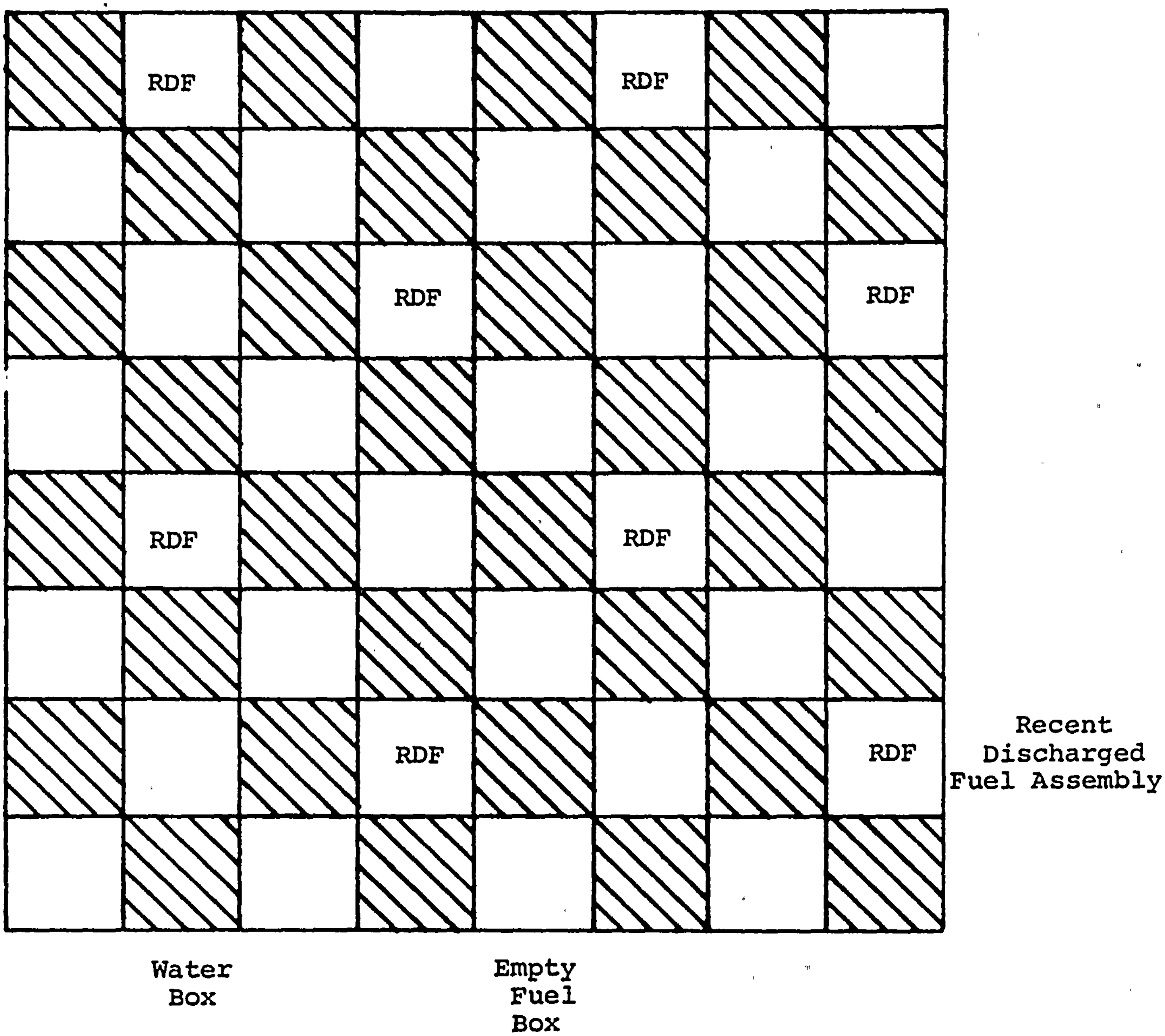
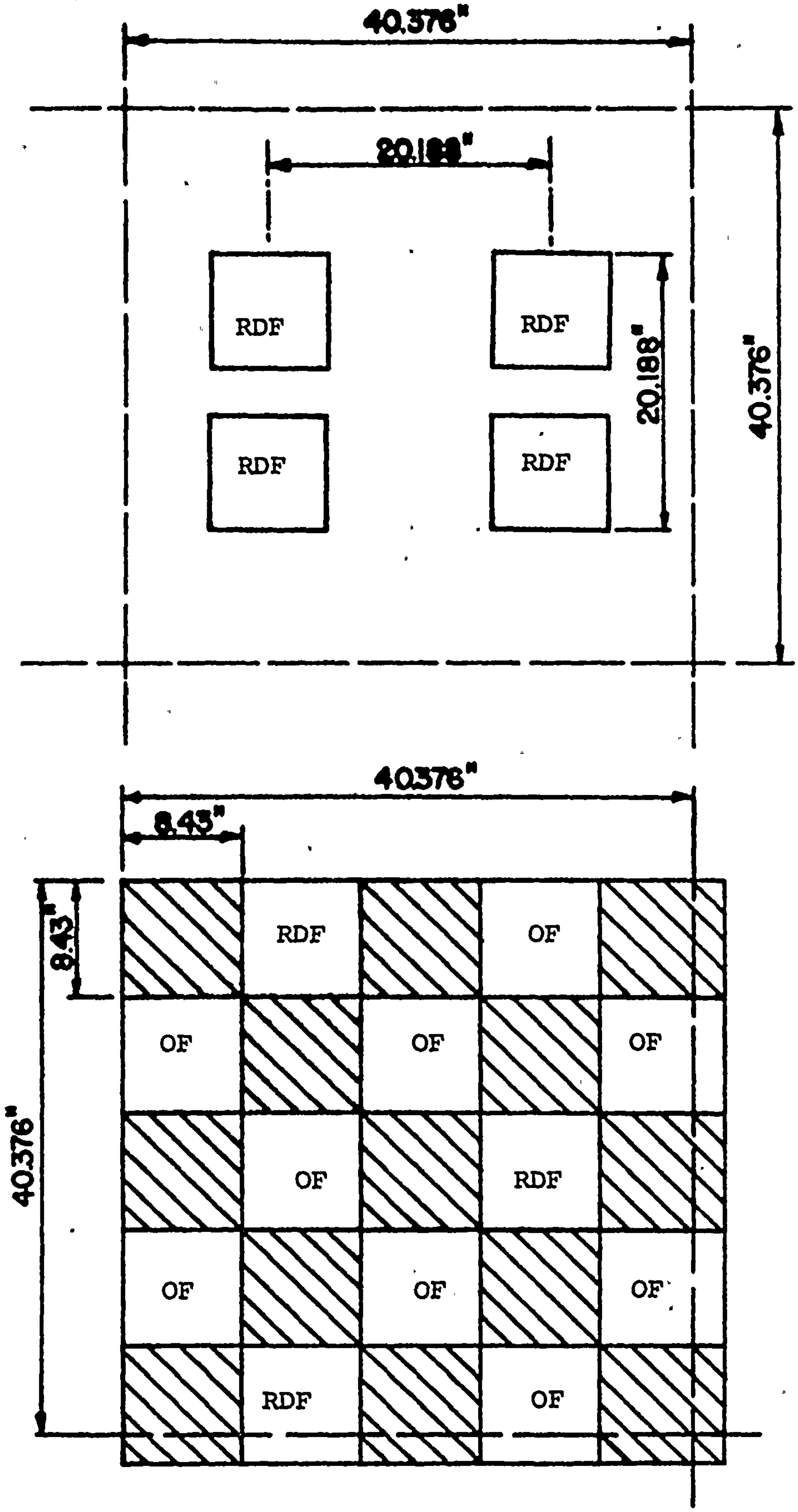


Figure 15-2



RDF = Recent Discharged Fuel
OF = Old Fuel