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MEMORANDUM FOR: W. T. Crow, Section Leader
Uranium Process Licensing Section
Uranium Fuel Licensing Branch

FROM: N. Ketzlach
Uranium Process Licensing Section
Uranium Fuel Licensing Branch

SUBJECT: SUSQUEHANNA STEAM ELECTRIC STATION APPLICATION DATED
OCTOBER 16, 1980, FOR LICENSE TO RECEIVE AND STORE
FUEL (DOCKET NO. 70-2937)

The initial review of the subject application has been completed.
Additional information is required to complete our evaluation (see
enclosure). Our comments were discussed by phone with Mr. T. E. Gangloff
of the Nuclear Licensing Group of the Pennsylvania Power & Light Company
(PP&L), the applicant. The comments were also sent to Mr. Gangloff by
telefax on November 24, 1980.

Original Signed by:

N. Ketzlach
Uranium Process Licensing Section
Uranium Fuel Licensing Branch

Enclosure: As stated

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Comments on Pennsylvania Power & Light Company
License Application for Fuel Storage Only at Unit 1 of the
Susquehanna Steam Electric Station (Dated October 16, 1980)

1. Page 2

a. Section 4.0

- (1) Specify the maximum ²³⁵U enrichment and the composition and location of each type fuel rod in the assembly having the highest enrichment.
- (2) Include the fuel rod pitch and the maximum UO₂ density in an assembly.

2. Page 3

a. Section 6.1

- (1) Specify the maximum size and shape of the array of metal shipping containers on the refueling floor.
- (2) Provide the minimum allowable distance between the metal shipping container array and other fuel handling or storage arrays.
- (3) Specify the maximum number of fuel assemblies that will be outside the shipping containers or storage racks at one time. Provide the basis for safety of this number.

3. Page 4

a. Section 6.1

- (1) Identify the responsibility for administrative controls and for the development and approval requirements to ensure safety of all fuel handling and storage operations.
- (2) Confirm preoperational testing for necessary fuel handling and support systems will be completed prior to the receipt of unirradiated fuel. All equipment should be inspected and tested for safe operation prior to use in fuel handling activities.
- (3) Describe the nature of activities conducted in adjacent areas and potential effects of such activities on the safety of storage.

b. Section 6.2.1

- (1) Confirm all degrees of credible interspersed moderation (e.g., from sprinklers) have been considered in the nuclear criticality safety evaluation.

- (2) Confirm the new fuel assemblies are packaged in the storage racks so that if the fuel were flooded and drained, the water could not be retained around or within an assembly. If this is not the case, provide a nuclear criticality safety evaluation of the arrays with water retention within an assembly and optimum credible interspersed moderation between assemblies.

4. Page 6

a. Section 6.2.3

- (1) Consideration should be given to all degrees of credible interspersed moderation (e.g., from sprinklers) in evaluating the nuclear criticality safety of the high density spent fuel racks.
- (2) Provide the results of the nuclear criticality safety analyses, the method of analysis used, validation of the applicability of the method, and the assumptions made in the analysis. The referenced NAI 78-75 report should be included with the application.

5. Page 7

a. Section 6.2.4

- (1) Confirm the minimum density of B-10 is 0.0232 g/cm^2 . Provide the composition of the boral plates (B, C, Al).
- (2) Describe the high density fuel rack design in sufficient detail so that a nuclear criticality safety evaluation of the storage racks may be made (e.g., dimensions of boral core, dimensions of its aluminum cladding, dimensions of inner and outer poison cans in which the clad boral plates are inserted, the enrichments and locations of the different types of fuel rods in an assembly, the minimum center-to-center spacing between assemblies in the rack).
- (3) Consideration should be given in the nuclear criticality safety evaluation to the possibility that two racks may be put together so that adjacent fuel assemblies will not have a plate between them.
- (4) Include the quality assurance requirements to assure the presence of the specified quantity of boral in all design locations in the rack and specify the minimum periodic verification of its effectiveness.

6. Page 8

a. Section 6.3.1

Identify the personnel responsible for nuclear criticality safety related to the fuel handling and storage operations and for the training they receive.

7. Page 9

a. Section 6.3.3

Provide the criteria that establish the minimum survey frequency.

b. Add a section on fire protection.

(1) Briefly describe the fire protection and fire control system (e.g., water hoses, sprinklers, dry chemicals, location) in all fuel handling and storage areas.

(2) Confirm all construction related to fire protection of the fuel handling and storage areas is completed prior to receipt of unirradiated fuel.

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