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SS 396

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Docket No. 30-19311/50-387/388
NMSS R/F JCutchin IV
FCAF R/F Wagner
PDR JGray
LCRouse RLPerch
PLoysen LA File
FSturz

Docket No. 30-19311

Pennsylvania Power & Light Company
ATTN: Mr. Thomas E. Gangloff
Nuclear Licensing Department
Two North Ninth Street
Allentown, PA 18101

Gentlemen:

We are reviewing your application dated August 5, 1981 for a Part 30 license to store low level radioactive wastes generated from the operation of the Susquehanna Steam Electric Station in an on-site Low Level Radioactive Waste Holding Facility.

Based on our review of your submittal, several matters were found that require clarification, expansion and resolution so that our safety and environmental reviews may continue. As a result, we have prepared a list of questions and request for additional information that is enclosed.

As a result of a meeting with you and other PP&L representatives on December 1, 1981, we understand that additional changes in design are to be made which will require an amended application to be submitted for our review. Therefore, we will not require a separate item-by-item response to our list of questions and request for additional information. However, they should be considered in your forthcoming amended application. If you have any questions or wish to meet to discuss the list of questions and request for additional information, please contact Peter Loysen (301-427-4205).

Sincerely,
Original signed by
Leland C. Rouse

Leland C. Rouse, Chief
Advanced Fuel and Spent Fuel
Licensing Branch
Division of Fuel Cycle and
Material Safety

Enclosure: As stated

OFFICE	FCAF	FCAF	FCAF				
SURNAME	FSturz:sds/fl	LCRouse	PLoysen				
DATE	1/7/82	1/8/82	1/7/82				

LIST OF QUESTIONS AND REQUEST FOR ADDITIONAL INFORMATION

1. Resin Characteristics and Container Integrity

Historically, there have been several accidents involving resins stored in a radiation field that have caused considerable damage. More recently, safe storage of TMI-EPICOR loaded resin liners for long periods of time has been questioned; with estimates of liner perforation occurring in 15 to 19 months. Although these situations may not be directly applicable to your proposed action, we have similar concerns regarding the ability of the storage containers to maintain their integrity for the duration of storage. Based upon the information in the application and discussions with the PP&L staff (1 December 1981), there is insufficient information to support any conclusion regarding container integrity and potential problems with four year storage of wastes, in particular spent ion exchange resin liners. We therefore request you to provide us with an evaluation of potential problems and the ability of waste storage containers to maintain their integrity during the license term.

The evaluation and its bases should consider, but not be limited to such things as follows:

1. Physical, chemical and radiological characteristics of the wastes;
2. changes in the physical and chemical characteristics of wastes; which may be expected to occur (i.e., decomposition, gas generation, etc.);
3. physical and chemical characteristics of the container materials.
4. compatability of the container materials to the waste forms and environmental conditions external to the containers;
5. ranges of waste compositions that could be stored in the containers;
6. provisions to minimize potential problems (i.e., containers equipped with special vent designs to allow depressurization).

2. Integrity Monitoring

Please provide a description of your proposed container monitoring program. Features to be considered might include, but not necessarily be limited to the following:

1. type inspection to be performed;
   a. visual
   b. TV monitors,
   c. inspecting and sampling designated waste containers. (Designated waste containers should comprise a representative sample of types of waste containers stored and the length of time stored.)
2. the characteristics to be monitored;
3. other monitoring to detect potential problems;
   a. Fire detection,
   b. air sampling
   c. liquids sampling.
4. evaluation of occupational and population doses, if any, resulting from the monitoring program.

3. Storage Facility Use and Worker Exposure

Based on discussion with PP&L staff it appears that there is no consistent feel for the utilization of the interim LLRW storage facility. Consequences of operation of this facility are therefore incomplete in that the degree of facility worker (and perhaps other persons) exposure is vague.

We feel that the number of times the facility is opened and occupied and the duration of each opening and occupation are factors that must be considered. As there is no experience on which to base these factors it is suggested that an operational scenario be postulated. It would seem reasonable that such a scenario be developed to cover a year of operation and be based on, but not necessarily limited to, the following:

- Estimated average annual waste generation by waste type
- Number of the various types of waste containers required
- Time required for storage (off loading and placing in assigned location) of each type container
- Number of each container type to be stored per facility opening
- Time (5 - 7 days per week other) during which containers will be placed in the storage facility.

Please provide the above described information/calculations.

4. Liner, Bell Shield Description

During the meeting with PP&L staff the liner for containing solified wastes was described as a steel cylinder, six feet in diameter and six feet in height with a capacity of 169 ft.^{3}. It was explained that this liner would be transported to the storage facility inside a bell shield, that this assembly would be indexed over a previously opened cell, that the liner would be lowered from inside the bell shield into the designated cell, the bell shields would then be removed, the cell cap replaced, etc. The physical/mechanical features of the liner top that make this procedure, and retrival of a liner from within a cell, are unclear.

Please provide a detailed description/drawings of both the bell shield and liner top.

5. Tornado

Please provide an estimate of the consequences of a tornado strike on the LLRW storage facility.

6. Safety Analysis Report

"Safety Analysis Report for the Operation of the On-Site Low-Level Radioactive Waste Holding Facility (Interim Storage) at Sesquehanna Steam Electric Station, August 1981", Attachment 2 to the licence application. Tables 4.1-1 and 4.1-2 of this document; part C. in both tables indicate the distance of the storage facility to the site boundary as 1308 ft. The facility is located 75 ft. east of the western primeter fence and Township Road 438. Does this road not constitute the western site boundary? When redoing the accident analyses for the revised design features, please estimate dose at the perimeter fence as well as at the property line.

7. Electric Power

Please provide more information on the source of electric power for the facility. What would happen if a loss of off-site power occurred during facility operations? Would it be possible to replace a cover on a loaded but open vault? If not, what would the consequences be in terms of skyshine dose at the perimeter fence or the property boundary?

8. Loading and Offloading Systems

Description of these systems include; "The loading system for cemented wastes will allow the transfer of these wastes from one area of the building to another as the vaults are filled. This capability will also include the trash storage area in the event the vault storage is expanded into this area at a later time."

We do not understand why cemented wastes might be transferred from place to place in the building. We had perceived that once a cemented waste/liner was placed in a vault it would remain therein until such time as it was to be retrieved for off-site shipment. Please explain.

The second sentence in the above quote; what design, construction and procedural activities/changes would be involved in the expansion of vault storage? What doses would the workers effecting vault expansion be exposed to? Please explain, in detail, what vault storage expansion would involve and provide appropriate calculations regarding potential worker exposure and the dose rates at any accessible area outside the storage facility.