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Memo to Files (50-219)
THRU: Dennis L. Ziemann, Chief, Operating Reactors Branch #2, L

MEETING WITH JERSEY CENTRAL POWER AND LIGHT COMPANY ON OYSTER CREEK ISSUES

On February 21, 1974, a meeting was held in Bethesda with representatives of the Jersey Central Power and Light Company (JCPL) regarding the following issues relating to the Oyster Creek facility:

1. Augmented off-gas system
2. Explosions in the off-gas system
3. Outstanding items for the FTOL
4. Expected changes to the Technical Specifications prior to issuance of the FTOL

A list of the meeting attendees is attached. The results of the meeting are summarized below:

1. Augmented off-gas system

A discussion of the JCPL submittal dated September 20, 1973, "Description of Proposed Modifications to the Liquid, Solid and Off-Gas Radioactive Waste Systems for the Oyster Creek Nuclear Generating Stations" summarized our findings that the present design results in offsite doses in excess of 5.0 Rem if a rupture in the off-gas system occurs due to the Safe Shutdown Earthquake (SSE). On this basis JCPL proposed to submit a reanalysis and redesign that would limit doses to not greater than 5.0 Rem under the condition postulated. The discussion centered around Regulatory Guides 1.26 and 1.29 and the possibility of a hydrogen explosion in the modified system. Results of the accident analysis performed by the Regulatory staff were displayed in tabular form, shown below, to identify doses resulting from failure of various parts of the off-gas system at various release points.

	- 1 -	- 2 -	- 3 -	- 4 -
Equipment	TB Dose (REM)	AOG Dose (REM)	Total Dose* (REM)	Total Dose** (REM)
SJAE (1 hr. isolation)	2.5	-------	2.5	2.5
	or		or	or
SJAE (10 min. isolation)	0.42	-------	0.42	0.42
Delay Line (2 hr. release)	-----	1.48	1.48	-----
Charcoal Beds* (2 hr. release)	-----	6.14	0	-----

*Seismic I AOG Bldg. and AOG system

TB- Turbine Bldg release point
AOG - AOG Bldg. release point

**Seismic I AOG Bldg and AOG System with delay line proven for OBE by dynamic analysis.

The total dose from columns 1 and 2 is 8.04 to 10.12 REM depending on the isolation time of the Steam Jet Air Ejector (SJAE)

The total dose from column 3 is 1.9 to 3.98 REM and the total dose from column 4 is 0.42 to 2.5 REM depending on the SJAE isolation time.

The assumptions used in the Regulatory staff's calculations are as follows:

- Release rate = 260,000 cc /sec
- X/Q (Turbine Bldg) = 2.3×10^{-3} sec/cm^3
- X/Q (AOG Bldg) = 4.6×10^{-3} sec/cm^3
- Semi infinite cloud model

- 100% release of gases from charcoal beds
- Total beta, gamma dose
- 60 minute delay for delay line holdup
- 2 hour release period from charcoal beds and delay line
- SJAE isolation times of 10 minutes and 60 minutes

From the above table it is evident that the proposed off-gas system when subject to the SSE is not adequate to limit doses to less than 5.0 Rem at the site boundary. Corrective measures require at least a Seismic Category I design for the Augmented Off-Gas (AOG) system and building to meet the accident dose limit requirements for operating plants specified by the Regulatory staff.

2. Explosion in the off-gas system

The Regulatory staff's analysis of doses at the site boundary resulting from the explosive recombination of disassociated hydrogen and oxygen gases indicate that the dose could exceed 0.5 Rem. The calculated dose at the site boundary would be 2.5 Rem for a one hour release at ground level, recognizing that the turbine building exhausts at roof level and that the SJAE isolation valves may not be safety grade. Isolation valves of safety grade quality, i.e., Quality Group C without N stamp and material certification, would be required to assure SJAE isolation. The dose at the site boundary due to an explosion in the off-gas system would not exceed 0.5 Rem if closure of safety grade SJAE isolation valves occurred within 10 minutes of the incident. If safety grade isolation valves are not installed, the system could be isolated by closure of the main steam isolation valves. Appropriate administrative measures and means to immediately detect rupture of the off-gas system rupture disk are required to restrict the dose under these conditions.

3. Outstanding Items for the FTOL

The following list of items required for the Regulatory staff review were discussed and dates JCPL expected to submit each item were established as shown:

Outstanding Items:	JCPL Submittal Dates
(1) Vacuum Breakers	3/29/74
(2) Emergency Plans	2/25/74
(3) Personnel Qualifications	3/29/74
(4) High Energy Line Break	3/29/74
(5) Rod Worth	3/1/74
(6) Rod Worth Minimizer Tech. Spec. Change	3/1/74
(7) ATWS	10/74
(8) Pipe Break Inside Containment	3/1/74
(9) On Site Radiation Protection	2/25/74
(10) EI&C ques. 5b & 5d in our ltr. of 7/3/73	3/1/74
(11) EI&C ques. 5e in our letter of 7/3/73	3/1/74
(12) Fracture Toughness, Primary System	4/1/74
(13) Leak Detection System	unknown
(14) Coolant Chemistry	4/1/74
(15) Comparison w/Regulatory Guides (19 Outstanding)	9 by 3/4/74; remaining 10 by 3/29/74
(16) Flood of Equipment Important to Safety	submitted
(17) ECCS	8/6/74
(18) Torus	unknown
(19) AOG System	4/15/74

4. Expected Changes to the Technical Specification Prior to Issuance of the FTOL

The extent of expected Technical Specification changes were discussed in general. It is expected that JCPL will submit a list of areas for which they propose to request changes. The Regulatory project manager will also prepare a list of the changes he considers appropriate. These items will be discussed in detail at future meetings.

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