

#### UNITED STATES NUCLEAR REGULATORY COMMISSION WASHINGTON, D. C. 20555

# FEE 1 & 1982

Docket No. 50-583

MEMORANDUM FOR: George Lear, Chief

Hydrologic and Geotechnical Engineering Branch Division of Engineering



Myron Fliegel, Leader, Hydrologic Engineering Section Hydrologic and Geotechnical Engineering Branch Division of Engineering

FROM:

Sump Pump - Cooling Tower Flood

Naterford

Raymond Gonzales, Hydrologic Engineering Section Hydrologic and Geotechnical Engineering Branch Division of Engineering

SUBJECT: MEETING SUMMARY

Plant Name: Waterford Steam Electric Station Licensing Stage: OL Responsible Branch: LB No. 3, S. Black, PM

On February 10, 1982, we met with the applicant, Louisiana Power and Light and its consultant, Ebasco, to discuss an open item in the SER concerning flooding in the Cooling Tower areas. The enclosed is a summary of this meeting together with a list of attendees.

Raymond Gonzales Hydrologic Engineering Section Hydrologic and Geotechnical Engineering Branch Division of Engineering

Enclosure: As stated

82\$3\$4\$\$58 XA

- cc: R. Vollmer J. P. Knight
  - S. Black
    - M. Fliegel
    - R. Gonzales
    - T. Chang
  - M. Haughey
- O. Chopra J. E. Knight J. Wermiel M. Fliegel R. Gonzales

PP.

FOIA -84-455

### Meeting Summary Waterford Steam Electric Station February 10, 1982

#### Background

In the SER-OL - July 1981, we determined that safety-related equipment in the dry cooling tower areas were susceptible to flooding during extreme precipitation events. As a result, we took a position specifying levels (depths) to which all safety-related equipment had to be protected (or) as an alternative we stated that lower ponding levels would be acceptable if larger sump pumps were used or if the applicant could provide adequate assurances that roof drains would not be blocked during a design basis rainfall event. Subsequently, the applicant proposed to reduce ponding levels by allowing ponded water to flow from the cooling tower areas and pond in the Fuel Handling Building. This would result in a lower depth of flooding because the accumulated volume of water would spread over a larger floor area. In addition, a discussion of the potential for clogging of roof drains was provided together with a revision to the FSAR stating that the sump pumps already installed in the cooling tower areas were larger than what had been stated initially in the FSAR. We reviewed the applicant's submittals and performed independent analysis. This showed that ponding levels in the Cooling Tower Areas, due to Probable Maximum Precipitation (PMP), would be below the level at ... ich safety-related equipment located on the floors of the cooling tower areas would be affected.

Early in the review process (Q-1's) we had told the applicant that in addition to considering PMP as a design basis event, it also had to consider a less severe rainfall event coincident with an OBE which would fail the sump pumps. The applicant stated that the sump pumps were seismically qualified so a seismic event would not affect them. However, when we requested that the sump pumps be included in the Q-List, they were listed as seismically designed but not seismically qualified. We then requested that a flood analysis be performed assuming that a less severe rainfall event than the PMP occurs coincident with an OBE that fails the sump pumps. In response, the applicant performed a probability analysis showing that the combined probability of a rainfall event coincident with an OBE was less than required for design of nuclear power plants. In our evaluation of the applicant's analysis we did not agree with some of the assumptions made by the applicant so we concluded that a rainfall event less severe than the PMP coincident with an OBE had to be considered. The applicant's analysis of this combination of events showed that there would be flooding of safety-related equipment about 7 hours after ponding in the cooling tower areas began. The applicant felt that this would provide sufficient time to reactivate at least one of the failed sump pumps. There was no description however, of how the sump pumps would be reactivated or how long it would take to do so. The staff was unable to conclude that a rainfall event coincident with an OBE would not result in flooding of some motor-control centers located in the cooling tower areas.

### Meeting

12

The meeting was held to discuss our concerns and possible solutions to the problem. After considerable discussion, it was decided that there are several solutions that the applicant will consider. These are:

-2-

- 1) The applicant can perform the necessary analysis to show that the sump pumps will withstand an OBE. Representatives of EQB discussed what would be needed by NRC for review. The applicant must also show that the discharge pipes leading from the sump pumps will also withstand an OBE.
- 2) The applicant can keep portable pumps on site for use in case the sump pumps are incapacitated. The applicant must describe the procedures to assure the pumps availability when needed and procedures which would be followed in utilizing the portable pumps.
- 3) The applicant can build an enclosure around and over safety related equipment to prevent flooding of critical components. Possible inundation of the motors of the inplace sump pumps must also be considered in this case if higher ponding levels are expected.

In the FSAR, the applicant stated that in the event of the loss of off-site power, the sump pumps will be manually switched to the diesels. However, a procedure describing how this will be done has not been provided. This was discussed at this meeting and the applicant committed to providing NRC a description of the procedures that will be used to assure that the sump pumps are functional during loss of offsite power.

-3-

# Attendees

Waterford Meeting February 10, 1981

## NRC/NRR

s.	Black	LB-3/DL
т.	Y. Chang	EQB/DE
Μ.	Haughey	EQB/DE
Om	Chopra	PSB/DSI
J.	E. Knight	PSB/DSI
J.	Wermiel	ASB/DE
Μ.	Fliegel	HGEB/DE
R.	Gonzales	HGEB/DE

## LP&L

R. Foley

### Ebasco

J. Hart

- J. Healey
- D. Hunter
- I. Sydoriak
- W. Wittich

Goolde : 720 82 On your copy of the meeting onnouncement memo that we received from F. Miraglia, you, wrote & note to Flidgel and me requesting that we let you know what happened at this meeting the attached. That is what I did on the "meeting Summary" that Vollmet is guestioning. I would have made nites on the meeting for my files anyway so I quess the answer to Volmers question is that it is the LPM's responsibility prepare memory on meetings T but we make notes anyway. Since you had asked mo you know what happened, I thought it would be a good idea a good dea to send information copies 7 Knight, Vollmer and Mack Jalso. Fliegel also attendeex. I quese that is what makes it appear m's job. Back in June, 1981, we tried to get EQB involved in this so we prepared a memo to ROSE to czy. For some reason, they Tout know why Again on Sept 14, 1981 we attended to Send 2 memo, this time to Miraglia, frying to emphasize the problem but again J. Knight dien 4 concur in it. Finally, on Jan 15, 1982 sent a menio. This & again time it got to Miraglia because for were acting for Knight. This memo is what led to the recting. I thought it would (aver)

FOIA - 84 - 455 E/B.8

2/20/82

·· ·· be 2 good idea to let man-agement know that there is a Hodproblem so I sent copies of the meeting summary to them. Gonzales