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Nuclear

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Writer's Direct Dial Number:

January 20, 1984

Mr. Thomas T. Martin, Director
Division of Engineering and
Technical Programs
U.S. Nuclear Regulatory Commission
Region I
631 Park Avenue
King of Prussia, PA 19406

Dear Sir:

Subject: Oyster Creek Nuclear Generating Station
Docket No. 50-219
Emergency Preparedness Items
Sea Breeze Summary, Backup Power Supply

The purpose of this letter is to update you on the status of two Emergency Preparedness items. Attachment one provides you with the summary of our Sea Breeze Study. The complete report including tables and figures is available at your request.

The second item concerns the backup power supply system to our Emergency Operations Facility and our Emergency Communications System. We have determined that a backup power supply system is not required to achieve the overall system availability requirements stated in NUREG 0696. Attachment two provides the justification for this decision.

Should you require additional information or have any questions, please contact me or Mr. Michael Laggart at (609)971-4643.

Very truly yours,

Peter B. Fiedler
Vice President and Director
Oyster Creek

PBF:BH:dam
Enclosures

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Attachment 1

SEA BREEZE STUDY

The purpose of this study was to investigate the sea breeze at Oyster Creek Nuclear Generating Station (OCNGS) and to analyze its effects on gaseous plume transport and diffusion.

The study focused on answering four questions:

1. How often does the sea breeze occur at OCNGS?

2. How representative is the OCNGS on-site wind direction monitoring during a sea breeze?

3. What are the implications of the answers to questions (1) and (2) above on gaseous effluent plume transport?

4. Is a supplementary meteorological monitoring tower needed to further provide data for predicting sea breeze occurrence and for determining the effect on plant gaseous plume transport.

Based on analyses of hourly meteorological data for the five-year period 1977-1981, the results of the study showed that:

1. During the months of May through August, the sea breeze at OCNGS occured one day in four, or an average of about 30 days. On these sea breeze days, the sea breeze persisted for an average of about 9 hours with a range of 4 to 16 hours.

2. On days when OCNGS had sea breezes, the Atlantic City (National Weather Service Station) wind direction was within 45° of the OCNGS wind direction over one-half the time. In contrast, the Lakehurst (Naval Air Station) wind direction was within 45° of the OCNGS wind direction only about one-third of the time.

3. Meteorological conditions conducive to sea breeze fumigation at OCNGS occured on 1/3 of the OCNGS sea breeze days, or an average of about 10 days between May and August.

4. The OCNGS sea breeze seems to have penetrated to 16 km inland and occasionally to 21 km. where is he measuring sea breeze from?

From these results it can be concluded that:

1. The sea breeze at OCNGS is a significant local climatological effect.

2. The on-site meteorological monitoring system alone would not be adequate to predict the effect of the sea breeze on gaseous plume transport and diffusion.

3. In about one of every three sea breeze days, (May through August) sea breeze conditions would bring the radiological effluents in the plume centerline down to the ground.

4. The usefulness of a supplementary meteorological tower to predict the effects of the sea breeze on gaseous plume transport and diffusion is questionable. Whether such a tower is useful depends on the answers to several questions:

(a) Can the supplementary meteorological tower data be used to predict the inland penetration distance of the sea breeze? Or will the data indicate only where the sea breeze is, and not where it is going?

(b) Can the supplementary meteorological tower data be used to realistically simulate the sea breeze in the Class A model?

The answers to these questions are being investigated. In the interim, a plan will be developed for compensating actions to be taken during sea breeze regimes.

The analysis described in this report required the processing of 900,000 pieces of meteorological data. The data processing and analysis culminated in the generation of 425 tables and figures, which, in part, consisted of 1590 daily time series plots of meteorological parameters.
All tables, figures and time series plots were included in this report.

The report is available upon request.

Get persons from Parsippany (Warner Heck)

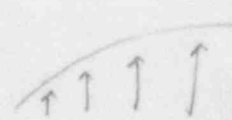
How high is the Turbulence Internal Boundary layer (TIBL)?

Where does it start?

How far (from where?) does the sea breeze penetrate inland?

How does it affect the EPZ?

Suggestion use acoustic sounders to plot TIBL.



TIBL = f { Land-Sea Temp. difference
Stability of air over water
Inverse of wind speed

A Gaussian model Trajectory ≠ f(t,x)
Turbulence ≠ f(t,x)

Considering Sea Breeze Trajectory } f(t,x)
Turbulence

Attachment 2

BACKUP POWER SUPPLY TO OYSTER CREEK EOF TELEPHONE SYSTEM

The unavailability of the power supply to the ERF system is 6.54×10^{-4}. This unavailability meets the requirement of NRC-NUREG-0696 which states that "the Emergency Response Facilities EOF shall be designed to achieve an unavailability goal of 0.01 during all plant operating conditions above cold shutdown".

To analyze this unavailability, the fault tree logic of Figure 1 was employed. The top event of this logic is "power supply to emergency response phone system is unavailable". There are three ways in which this event can occur:

1. Loss of offsite power (230 lines). The unavailability for this event is 3×10^{-5}. The probability of losing the 34.5 KV given the simultaneous loss of the 230 KV circuits is close to 1. This means that the unavailability of 34.5 KV = unavailability of 230 KV = 3×10^{-5}.

2. The event "power distribution from Q-121 to emergency phone system, building #12 is unavailable" = 5.35×10^{-4}. This event considers the unavailabilities of the components shown on Figure 2. These components are transformers and circuit breakers.

3. The event "Line Q-121 is unavailable" = 8.93×10^{-5}.

The evaluation of the unavailability is based on the computer output of JCP&L Listing of Selected Disturbances. This output reported that Line Q-121 was unavailable for 1 hour and 48 minutes during the time period of 5/81 to 9/83. The unavailability is equal to $\frac{108 \text{ minutes}}{(28)(30)(24)(60)} = 8.93 \times 10^{-5}$.

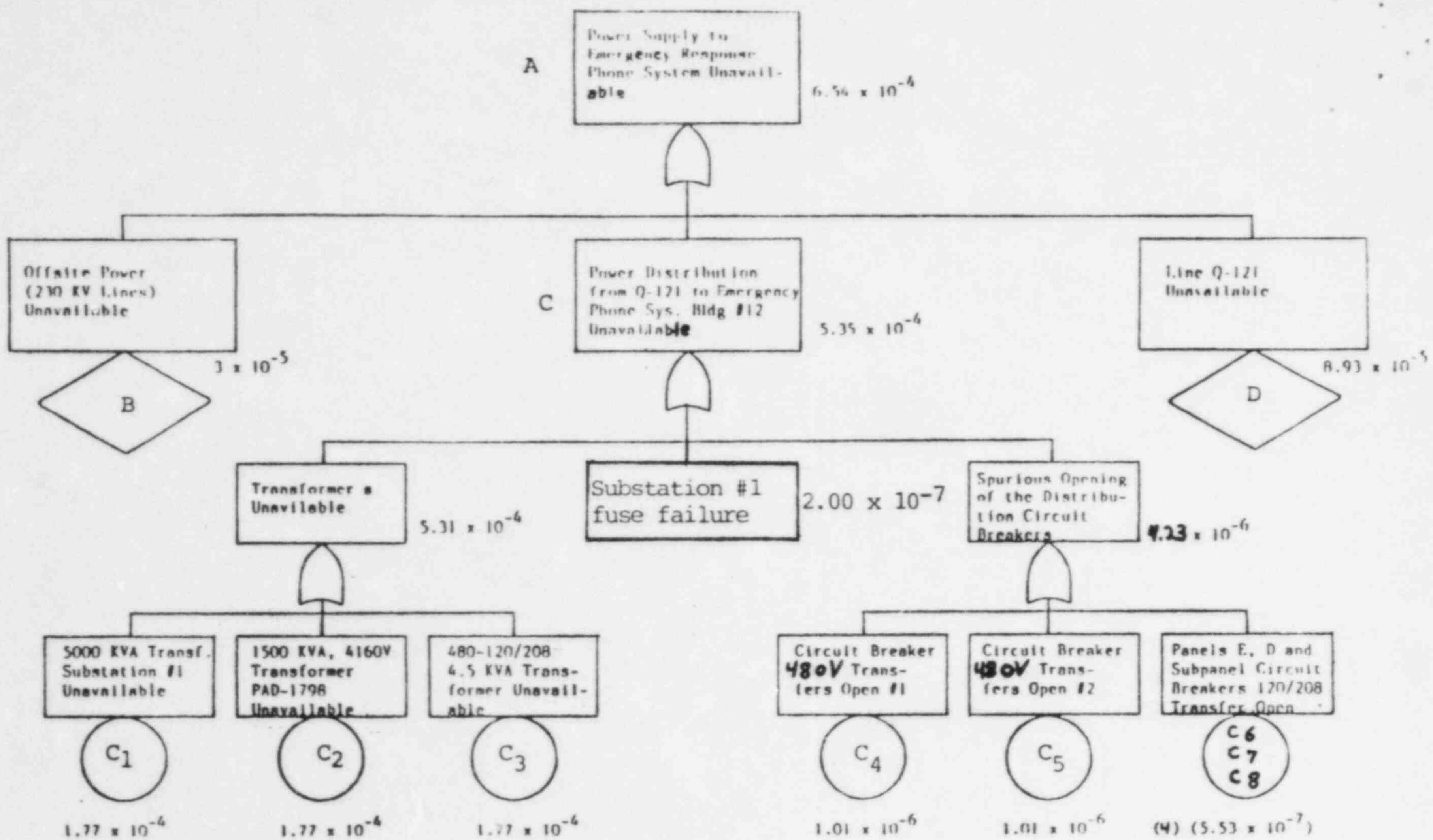


FIGURE 2: FAULT TREE LOGIC FOR THE POWER SUPPLY TO EMERGENCY RESPONSE PHONE SYSTEM: FORKED RIVER - BUILDING #12