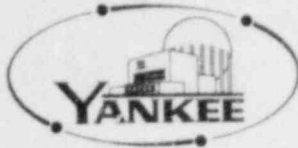


YANKEE ATOMIC ELECTRIC COMPANY

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2.C.2.1
FYR 81-96

June 30, 1981



United States Nuclear Regulatory Commission
Washington, D.C. 20555

Attention: Mr. Dennis M. Crutchfield, Chief
Operating Reactors Branch #5
Division of Licensing

References: (a) License No. DPR-3 (Docket No. 50-29)
(b) NUREG-0737, Clarification of TMI Action Plan Requirements,
November, 1980
(c) NUREG-0654, Revision 1, Criteria for Preparation and
Evaluation of Radiological Emergency Response Plans and
Preparedness in Support of Nuclear Power Plants, November,
1980.

Subject: TMI Action Plan Item III.A.2-4

Dear Sir:

This letter provides a functional description of the upgraded meteorological program for the Yankee Plant (see Attachment) as required by Reference (b). This information responds to the four basic elements in Appendix 2 to Reference (c). These four elements are:

1. Primary Meteorological Measurements Program
2. Backup Meteorological Measurements Program
3. Real Time Predictions of Atmospheric Effluent Transport and Diffusion
4. Remote Interrogation of the Atmospheric Measurement and Prediction Systems

We trust this information is satisfactory; however if you have any questions, please contact us.

Very truly yours,

YANKEE ATOMIC ELECTRIC COMPANY

J. A. Kay

J. A. Kay
Senior Engineering, Licensing

JAK/sec

Attachment

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ATTACHMENT

Functional Description of the Upgraded Yankee Plant Meteorological Program

Primary Meteorological Measurement System

The existing primary meteorological monitoring system at the Yankee Plant utilizes a free-standing 200' Rohn Model SSV (heavy series) tower located onsite as shown in the attached figure. The parameters measured on the tower include the following:

- Wind Speed @ 33' and 196' (Climet 011-1 sensors)
- Wind Direction @ 33' and 196' (Climet 012-10 sensors)
- Temperature @ 33' (Climet 015-3 sensor in a Climet 016-1 aspirator)
- Delta-Temperature between 33'-196' (Climet 015-3 sensors in Climet 016-1 aspirators)
- Dew Point @ 33' (Climatronics Lithium Chloride Dew Point)

In addition, both precipitation and solar radiation are measured on the ground.

The translator cards for the tower sensors are located in an instrument shed near the base of the tower. The analog output is then transmitted through a v/f converter to a f/v converter. The output of the f/v converter is input to the Data General NOVA III minicomputer and to the Analog strip chart recorders located in the control room. The NOVA III periodically scans each parameter and then digitally compiles and records the data as 15-minute averages. The 15-minute averages are automatically displayed on a teletype located in the control room and are also recorded on floppy diskette. The analog strip recorders are utilized as auxiliary data loggers.

Regional meteorological data will be available through the use of Weather Service International's (WSI) Real-Time Weather Information System. WSI's system will be available on a 24-hour basis and will be accessible by terminal via commercial telephone lines. Data available through the system will include current weather data from surrounding official weather service stations. Current synoptic conditions for the site region will be approximated by interpolating meteorological data from surrounding official weather service stations to the site area. This data will be used to represent meteorological conditions outside of the river valley.

Backup Meteorological Measurements Program

An existing 140' free-standing tower used previously for meteorological monitoring is currently being reinstrumented to serve as a backup tower. This tower's location is also shown in Figure 1. In spite of the close proximity of the primary and backup towers to each other, the probability of common mode failure is minimal since both towers are free-standing structures with small cross-sectional areas. There is also a lack of a suitable alternative location for the backup tower; i.e., a location which is representative of conditions prevailing in the valley near the point of release and which are also free of natural or man-made obstructions. In addition, the existing 140' structure also has an advantage in that it is tall enough for the wind sensors to escape the influence of nocturnal drainage winds flowing down the east slope of the river valley.

The parameters which will be measured on the backup tower include:

- Wind Speed @ 100' (Climet 011-1 sensors)
- Wind Direction @ 100' (Climet 012-10 sensors)
- Delta-Temperature between 33'-120' (Climet 015-3 sensors in Climet 016-1 aspirators)

Both the translator cards and the strip chart recorders for the tower will be located in the control room. The backup system is powered by a different power supply than the primary and serves as the redundant meteorological measurements system. The backup system should be in operation by September, 1981.

Real Time Predictions of Atmospheric Effluent Transport and Diffusion

The Yankee Plant emergency plan currently contains procedures for calculating offsite external gamma dose rates using current onsite meteorological data and radiation monitor readings. In addition, a fixed trajectory model with Gaussian dispersion is currently being developed to serve as an emergency response "Class A" dispersion model to produce initial transport and diffusion estimates for the plume exposure EPZ. The model will use automatically supplied meteorological data from the primary monitoring system to produce plume dimensions and position, location and magnitude of the peak relative concentration, and relative concentration at several downwind locations. Using manually supplied effluent release information and a finite cloud external gamma dose model, estimates of near-real-time dose rates and accumulative sector average doses will also be available. The model will have the graphics capability of drawing relative concentration and dose isopleths over a background map of the site. The model is scheduled to be completed and in operation by April 1982.

Remote Interrogation of the Atmospheric Measurement and Prediction Systems

The dispersion model will be executed on an existing Sperry Univac Varian V77 600 minicomputer located in the Framingham, Massachusetts engineering office. During an emergency, 15-minute averaged meteorological data will be automatically telemetered from the site NOVA III minicomputer to the Varian minicomputer via dedicated telephone lines. Access to the data and dispersion models on the Varian will be available via the same dedicated telephone network to terminals located in the Framingham engineering office as well as both the primary and alternate EOF. Yankee's Emergency Plan and NRC's emergency planning philosophy require that decision making relative to protective actions be made in a coordinated manner. As such, the Emergency Operations Facility has been designated as a location for representatives of state and federal agencies to gather to relay the latest information to their respective agencies for further evaluation. Thus, in the interest of assuring a coordinated response and the proper use of the latest data, representatives of the agencies present at the EOF will provide the latest atmospheric conditions and dose predictions to their respective agencies directly. This approach incorporates the lessons learned from TMI and will help minimize in appropriate actions based on an incomplete or incorrect interpretation of data.