ROCHESTER GAS AND ELECTRIC CORPORATION • 89 EAST AVENUE, ROCHESTER, N.Y. 14649-0001

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TELEPHONE
AREA CODE 716 546-2700

September 10, 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

Subject: Inspection 50-244/84-08

Dear Sir:

In response to the referenced inspection report, the following actions have been completed.

Item 50-244-84-08-01 complete. See letter of July 20, 1984 from R. W. Kober.

Item 50-244-84-08-02 complete. See letter of July 20, 1984 from R. W. Kober.

Item 50-244-84-08-03 complete. See letter of July 20, 1984 from R. W. Kober.

Item 50-244-84-08-04 Determine by survey, review of literature and discussion with a qualified meteorologist, if necessary, that the microwave antenna and shelter do not adversely impact meteorological measurements. Provide written documentation to the Region I NRC office.

Response:

The microwave antenna and shelter have no effect on the meteorological data collected on the Ginna meteorological tower. Two authoritative documents, "Meteorology and Atomic Energy" and the EPA's "Guideline for Determination of Good Engineering Practice for Stack Heights," were reviewed to determine the effects of the shelter and antenna. The result of this review indicates that the height affected is equal to the height of the structure (the shelter, 9.5 ft.) plus 1.5 times the minimum of the height or width of the structure (9.5 ft.) (See Figure 1)

Therefore, at Ginna the following area is affected:

$$9.5 + 1.5\ (9.5) = 23.75 \text{ ft.}$$

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there should be no wake effects from the shelter on the wind speed and direction sensors. The antenna, approximately 10 ft. in diameter, located midway between the 150 ft. and 250 ft. levels, will have no effect on instrumentation at either level since it is approximately 50 ft. from each instrument position.

The thermometers at all levels are shielded and aspirated. In addition, the shelter has been fiberglassed so heat buildup should be restricted. With about 35 ft. between the top of the shelter and the sensor, all possible heat buildup from the sun should be dissipated.

Two meteorologists, experts in these areas, were consulted in conjunction with this question. Both Dr. J. Halitsky (wake effects) and Dr. G. Gill (instrumentation) stated that there would be no effects from the shelter or microwave antenna.

References:

"Meteorology and Atomic Energy", U.S. Atomic Energy Commission, 1968.

EPA PB82-145301 "Guideline for Determination of Good Engineering Practice for Stack Height"; Technical Support Document for Stack Height Regulations, July 1981.

This Item is complete.

Item 50-244-84-08-05 completed. See letter of July 20, 1984 from R. W. Kober.

Item 50-244-84-08-06 will be submitted with the updated FSAR in December 1984.

Item 50-244-84-08-07: Modify procedure SC-420 "Estimating Offsite Doses" as follows:

a. Include centerline X/Q values in Table I for the limiting site boundary distance(s).

b. Obtain meteorological measurements from the plant computer and use "actual 15 minute average delta-temperature values (not derived)".

c. Computerize this dose assessment method to insure precise dose calculations and timely protection action recommendations.

Responses:

a. Procedure change PCN 84-1087 was approved for use on August 16, 1984, centerline X/Q values for the limiting site boundary distance are included in Table I.

b. Step 3.3.1.1 of procedure SC-420 and Attachment II give instructions for obtaining 15 minute average delta temperature values. This was approved for use on August 16, 1984.

c. The computerization of the dose assessment method has been programmed for an IBM Personal Computer for use at the EOF.

This Item is complete.

Item 50-244-84-08-08 Include a procedure for implementing the currently available, refined dose model and describe the technical bases and justification used for selection of the MIDAS dose assessment model. Please address the following areas:

a. How are mesoscale transport and diffusion of effluents from ground level and/or elevated releases modelled and what meteorological data is available for use with MIDAS in the vicinity (up to 10 miles) of the plant.

b. How is the physical height of the mixing lay or turbulent internal boundary layer (TIBL) determined and on what parameters is it based (onsite measurements, model statistics and/or climatology from local research projects). How accurate is this going to be?

c. Are diffusion rates based on the most appropriate stability indicator(s)?

d. Are building wake influences factored into the model?

Responses:

a. Mesoscale transport and diffusion of effluents are modelled using a straight-line, Gaussian plume dispersion

model as described in NRC Regulatory Guide 1.145 (with exception that the plume meander algorithm is not used). Ground level releases are made into the building wake. Initial dispersion due to wake effects is modelled using a virtual source correction model. Vents higher than the top of the facade are treated as mixed mode releases with the option of using jet plume rise. The entrainment factor is computed as described in NRC Regulatory Guide 1.111. MIDAS currently utilizes near real-time data from the on-site meteorological tower to make calculations.

Supplemental meteorological data sources are not currently used in performing dose projections with MIDAS. No averaged (15 minute average) meteorological data are available within 10 miles of the plant.

Instantaneous readout of wind speed and direction is available from the Williamson Airport 10 miles away from the plant. At a distance of about 15 miles, 15 minute averaged values of wind speed, direction and temperature are being collected at an RG&E Substation.

b. The physical height of the mixing layer is not measured nor used in the dispersion analysis.

It was our understanding that requirements for dose modeling and weather data use will be clarified at a workshop to be scheduled for Region I licensees. We have not been advised of any scheduled dates.

c. Vertical temperature difference (150-33 ft.) is used to determine stability at the users discretion. This is the indicator of choice. However, other means to determine the stability class are used when delta temperatures are not available. MIDAS has the capability to use either delta temperature or sigma theta to determine atmospheric stability classification.

d. Building wake influences are factored into the MIDAS model. (See a. above).

Very truly yours,

Roger W. Kober

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