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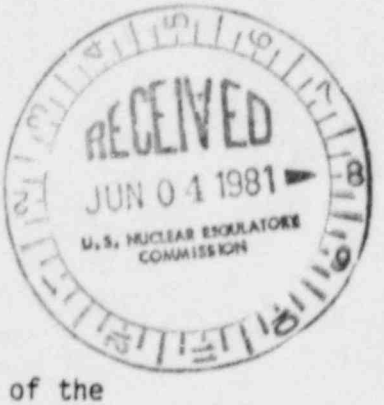
UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

JUN 2 1981

Docket No.: STN 50-482



Mr. Glenn L. Koester
Vice President - Nuclear
Kansas Gas and Electric Company
201 N. Market Street
Wichita, Kansas 67201

Dear Mr. Koester:

Subject: Request for Additional Information for the Review of the Wolf Creek Plant, Unit 1: Meterology

As a result of our continuing review of the Wolf Creek Plant Unit 1 FSAR, we find that we need additional information to complete our evaluation. The specific information required is in the area of meterology and is described in the Enclosure.

To maintain our licensing review schedule for the Wolf Creek Plant FSAR, we will need responses to the enclosed request by June 30, 1981. If you cannot meet this date, please inform us within seven days after receipt of this letter of the date you plan to submit your responses so that we may review our schedule for any necessary changes.

Please contact Dr. G. E. Edison, Wolf Creek Licensing Project Manager, if you desire any discussion or clarification of the enclosed request.

Sincerely,

R Tedesco

Robert L. Tedesco, Assistant Director
for Licensing
Division of Licensing

Enclosure:
As stated

cc: See next page

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WOLF CREEK - FSAR
DOCKET NO. 50-482
METEOROLOGY QUESTIONS

451.0 Accident Evaluation Branch

451.01 WC Please provide hour-by-hour meteorological data for the periods 6/1/73 - 5/31/75 and 3/5/79 - 3/4/80 on magnetic tape using the enclosed guidance on format and tape attributes.

451.02 WC Describe the status of the onsite meteorological measurements program since 3/4/80 and provide additional data for the period 3/5/80 - 3/4/81, if available.

451.03WC Table 2.3-37 (Rev.1, 2/81) of the FSAR indicates that extremely unstable (Pasquill Type A), moderately stable (Pasquill Type F), and extremely stable (Pasquill Type G) conditions have persisted for long durations (i.e., greater than 12 hours) at the Wolf Creek site. Apparently, extremely unstable conditions persisted for a 24-hour period during the Phase 2 program. Persistence of these stability classes for periods greater than 12 hours in duration is very unusual. Discuss the causes of persistent stability conditions for periods greater than 12 hours for classes A, F, and G. Identify the synoptic conditions during the observed periods of persistent stability for periods greater than 12 hours and discuss the possibility of instrument malfunction.

451.04WC Table 2.3-29 (Rev.1, 2/81) of the FSAR indicates a lower data recovery for joint frequency distributions of wind speed and wind direction by atmospheric stability for the period 3/5/79 - 3/4/80 than for the previous two years of data collection (6/1/73 - 5/31/75) despite increased attention to the onsite meteorological program. The major difference between the Phase 1 (6/1/73 - 5/31/75) program and the Phase 2 program (3/5/79 - 3/4/80) appears to be the type of data recording system, with the Phase 2 system consisting solely of analog charts. Discuss the reasons for the lower data recovery and indicate whether complete reliance on an analog recording system could be a major factor in reduced data recovery. Identify periods of extended instrument outage (e.g., for 24 hours or more) during the Phase 2 program and the cause of the outage. Indicate the corrective measures taken to minimize extended outages in the future. Describe the data availability (e.g., remote display in the control room or elsewhere) and data reduction procedures to be used for the meteorological measurements program during plant operation.

451.05WC Section 2.3.2.2 (Rev.1, 2/81) of the FSAR (see also Revision 1 (4/81) to the Environmental Report section 5.1.4) presents an analysis of the atmospheric impacts of the heat dissipation facilities using the model FOGALL. This analysis replaces the previous analysis based on the model POND.

a. Describe the improvements in the analysis using FOGALL compared to the analysis using POND.

b. Describe the validation (or verification) of FOGALL for analyzing atmospheric impacts of a 5090 acre cooling lake.

c. Describe the meteorological measurements program to be used to evaluate actual meteorological impacts of the heat dissipation system once the cooling lake is filled and the plant is operational.

451.06WC Section 2.3.2.2 (Rev.1, 2/81) of the FSAR also discusses the effect of the cooling lake on atmospheric transport and diffusion and concludes "for winds less than about 6 mph flowing from or into this sector [South-southwest to south-southeast] (and less than 2 mph in any sector over the lake) modifications in the atmospheric stability of the diffusion properties of the air may be expected." Winds less than about 6 mph blowing from or into the south-southwest to south-southeast sector occur about 13% of the time. Discuss the modifications to transport and dispersion characteristics during these conditions and indicate if the calculations in Sections 2.3.4 and 2.3.5 of the FSAR should be changed to reflect the modified dispersion conditions.

451.07WC Tables 2.3-59 and 2.3-60 of the FSAR (Rev.1, 2/81) present terrain/recirculation correction factors to be applied to a straight-line Gaussian dispersion model to better characterize temporal variations in meteorological conditions. These correction factors were estimated based on the results of a variable-trajectory puff advection model using one year of hour-by-hour meteorological data from the Wolf Creek site. Substantial reductions (up to a factor of 100 lower than the straight-line model) are suggested for distances approaching 80 km. For several directions, correction factors of zero are suggested, implying that no release from the site would affect a particular receptor location. Discuss the reasonableness and appropriateness of correction factors for receptors greater than 8 km from the source developed by use of a variable trajectory model with only a single source of meteorological data as input. Indicate the merit of a correction factor calculated to be zero.

451.08WC The expected number of lightning strikes to ground per year in a square mile area surrounding the site could be as high as 46 (p. 2.3-8 of the FSAR). Provide seasonal and annual estimates of lightning strikes to safety-related structures at the site, considering the "attractive area" of the structures. A suggested reference for this type of analysis is J. L. Marshall, Lightning Protection, 1973.

451.09WC The tornado statistics presented in Section 2.3.1.2.6 are based on a regional data base that ended in 1971. Identify any tornadoes that have occurred in the vicinity of the site since 1971, and provide estimates of the intensity (maximum wind speed) and path area of each.

451.10 WC a. Describe the procedures used for determining "the worst temperature period" and "the worst evaporation period" (Table 2.3-9 A and B) used for the analysis of the ultimate heat sink.

b. Regulatory Guide 1.27 (Rev. 2) recommends that the meteorological conditions used for analysis of the ultimate heat sink be selected from a recent 30-year period. Only 16 years of data from Chanute Flight Service Station were used in this evaluation (p. 2.3-12). Explain why 16 years of data (1949 through 1964) is considered representative of regional climatological conditions for analysis of the ultimate heat sink.