



KANSAS GAS AND ELECTRIC COMPANY

GLENN L. KOESTER
VICE PRESIDENT - NUCLEAR

May 24, 1982

Mr. Harold R. Denton, Director
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

KMLNPC 82-203

Re: Docket Number STN 50-482

Ref: KMLNRC 82-163, dated February 19, 1982, from
GLKoester, KG&E, to HRDenton, NRC

Subj: Meteorology

Dear Mr. Denton:

In discussions with a member of your staff (J. Fairbent), it was determined that the 0.5% accident X/Q's submitted with the reference were determined based on a misinterpretation of the methodology described in Regulatory Guide 1.145. The X/Q's have now been determined using the correct method and the affected Wolf Creek FSAR pages and tables are enclosed.

An updated method for interpolation to find 8, 16, 72 and 624 hour values for the 0.5% X/Q's to comply with Regulatory Guide 1.145 dated 8/79 has also been employed. This change resulted in increases in the derived values from approximately 40% for the 8 hour X/Q's to approximately 15% for the 624 hour X/Q's; however, the maximum X/Q's used to calculate accident doses had only minor changes, if any.

The resultant accident doses calculated using these new X/Q's will only be changed a minor amount. Any affected doses will be updated in Revision 10 of the SNUPPS FSAR.

The attached changes will be included in Revision 9 of the Wolf Creek FSAR Addendum. This information is hereby incorporated into the Wolf Creek Generating Station, Unit No. 1, Operating License Agreement.

Yours very truly,

GLK:bb
Attach
cc: Mr. J.B. Hopkins (2)

8205280287 Mr. Thomas Vandel

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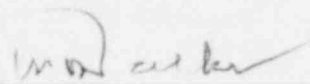
OATH OF AFFIRMATION

STATE OF KANSAS)
) SS:
COUNTY OF SEDGWICK)

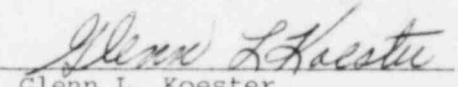
I, Glenn L. Koester, of lawful age, being duly sworn upon oath, do depose, state and affirm that I am Vice President - Nuclear of Kansas Gas and Electric Company, Wichita, Kansas, that I have signed the foregoing letter of transmittal, know the contents thereof, and that all statements contained therein are true.

KANSAS GAS AND ELECTRIC COMPANY

ATTEST:



W.B. Walker, Secretary

By 

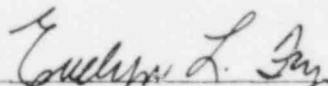
Glenn L. Koester
Vice President - Nuclear

STATE OF KANSAS)
) SS:
COUNTY OF SEDGWICK)

BE IT REMEMBERED that on this 24th day of May, 1982, before me, Evelyn L. Fry, a Notary, personally appeared Glenn L. Koester, Vice President - Nuclear of Kansas Gas and Electric Company, Wichita, Kansas, who is personally known to me and who executed the foregoing instrument, and he duly acknowledged the execution of the same for and on behalf of and as the act and deed of said corporation.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my seal the date and year above written.





Evelyn L. Fry, Notary

Commission expires on August 15, 1984.

TABLE 2.3-55

ACCIDENT ATMOSPHERIC RELATIVE CONCENTRATIONS (χ/Q)^a
FOR 3-YEAR DATA PERIOD

Affected Sector	Exclusion Zone Circular (1200 m)	Low Population Zone Circular (4023 m)					Remarks
	Time						
	2-Hr	2-Hr	8-Hr	16-Hr	72-Hr	624-Hr	
NNE	1.0E-04	2.9E-05	1.3E-05	8.3E-06	3.4E-06	9.3E-07	Highest 0.5%
NE	7.6E-05	1.9E-05	7.9E-06	5.1E-06	1.9E-06	4.9E-07	Highest 0.5%
ENE	7.8E-05	2.1E-05	8.4E-06	5.3E-06	2.0E-06	4.7E-07	Highest 0.5%
E	8.0E-05	2.2E-05	9.0E-06	5.8E-06	2.2E-06	5.5E-07	Highest 0.5%
ESE	1.1E-04	3.3E-05	1.3E-05	8.4E-06	3.1E-06	7.4E-07	Highest 0.5%
SE	1.3E-04	4.3E-05	1.7E-05	1.0E-05	3.7E-06	8.5E-07	Highest 0.5%
SSE	8.8E-05	2.7E-05	1.1E-05	7.3E-06	2.8E-06	7.3E-07	Highest 0.5%
S	1.1E-04	3.2E-05	1.3E-05	8.2E-06	3.0E-06	7.4E-07	Highest 0.5%
SSW	1.4E-04	4.3E-05	1.7E-05	1.1E-05	3.8E-06	8.9E-07	Highest 0.5%
SW	1.2E-04	3.8E-05	1.5E-05	9.1E-06	3.2E-06	7.4E-07	Highest 0.5%
WSW	8.0E-05	2.3E-05	9.9E-06	6.5E-06	2.6E-06	7.0E-07	Highest 0.5%
W	1.3E-04	4.2E-05	1.6E-05	1.0E-05	3.7E-06	8.4E-07	Highest 0.5%
WNW	1.3E-04	4.2E-05	1.7E-05	1.0E-05	3.8E-06	8.9E-07	Highest 0.5%
NW	1.5E-04*	4.4E-05*	1.8E-05	1.2E-05	4.7E-06	1.2E-06	Highest 0.5%
NNW	1.5E-04*	4.4E-05*	2.0E-05*	1.3E-05*	5.4E-06*	1.5E-06*	Highest 0.5%
N	1.5E-04*	4.4E-05*	1.9E-05	1.3E-05*	5.4E-06*	1.5E-06*	Highest 0.5%
5%	1.4E-04	4.4E-05	1.4E-05	9.8E-06	4.3E-06	1.3E-06	Highest 5%
50%	2.5E-05	4.4E-06	2.4E-06	2.0E-06	1.3E-06	6.9E-07	Highest 50%

^aUnits sec/m³.

*Maximum sector values.

TABLE 2.3-56

ACCIDENT ATMOSPHERIC RELATIVE CONCENTRATIONS (χ/Q)^a
FOR 6/1/73 TO 5/31/74 DATA PERIOD

Affected Sector	Exclusion Zone Circular (1200 m)	Low Population Zone Circular (4023 m)					Remarks
	Time						
	2-Hr	2-Hr	8-Hr	16-Hr	72-Hr	624-Hr	
NNE	1.2E-04	3.9E-05	1.6E-05	1.0E-05	3.9E-06	9.8E-07	Highest 0.5%
NE	7.6E-05	1.8E-05	7.6E-06	4.9E-06	1.9E-06	5.0E-07	Highest 0.5%
ENE	7.8E-05	2.0E-05	8.2E-06	5.3E-06	2.0E-06	5.0E-07	Highest 0.5%
E	1.0E-04	3.1E-05	1.2E-05	7.4E-06	2.6E-06	6.0E-07	Highest 0.5%
ESE	1.1E-04	3.3E-05	1.3E-05	8.4E-06	3.1E-06	7.4E-07	Highest 0.5%
SE	1.3E-04	4.0E-05	1.6E-05	1.0E-05	3.7E-06	8.7E-07	Highest 0.5%
SSE	8.8E-05	2.7E-05	1.1E-05	7.4E-06	2.9E-06	7.7E-07	Highest 0.5%
S	8.3E-05	2.2E-05	9.5E-06	6.3E-06	2.5E-06	6.9E-07	Highest 0.5%
SSW	1.5E-04*	4.4E-05*	1.8E-05	1.1E-05	4.3E-06	1.1E-06	Highest 0.5%
SW	8.4E-05	2.4E-05	1.0E-05	6.6E-06	2.6E-06	6.7E-07	Highest 0.5%
WSW	7.8E-05	2.1E-05	8.9E-06	5.8E-06	2.3E-06	6.1E-07	Highest 0.5%
W	1.3E-04	4.1E-05	1.6E-05	9.8E-06	3.5E-06	8.0E-07	Highest 0.5%
WNW	8.8E-05	2.7E-05	1.1E-05	7.2E-06	2.8E-06	7.0E-07	Highest 0.5%
NW	1.4E-04	4.4E-05*	1.8E-05	1.2E-05	4.5E-06	1.1E-06	Highest 0.5%
NNW	1.5E-04*	4.4E-05*	2.0E-05*	1.3E-05*	5.6E-06*	1.6E-06*	Highest 0.5%
N	1.5E-04*	4.4E-05*	2.0E-05*	1.3E-05*	5.5E-06	1.6E-06*	Highest 0.5%
5%	1.4E-04	4.4E-05	1.5E-05	1.0E-05	4.5E-06	1.4E-06	Highest 5%
50%	2.5E-05	4.5E-06	2.5E-06	2.1E-06	1.4E-06	7.4E-07	Highest 50%

^aUnits sec/m³

*Maximum sector values

TABLE 2.3-57

ACCIDENT ATMOSPHERIC RELATIVE CONCENTRATIONS (X/Q)^a
FOR 6/1/74 TO 5/31/75 DATA PERIOD

Affected Sector	Exclusion Zone Circular (1200 m)	Low Population Zone Circular (4023 m)					Remarks
	Time						
	2-Hr	2-Hr	8-Hr	16-Hr	72-Hr	624-Hr	
NNE	9.3E-05	2.7E-05	1.2E-05	7.8E-06	3.2E-06	8.7E-07	Highest 0.5%
NE	7.7E-05	1.9E-05	7.7E-06	4.9E-06	1.9E-06	4.6E-07	Highest 0.5%
ENE	7.7E-05	1.8E-05	7.0E-06	4.4E-06	1.6E-06	3.7E-07	Highest 0.5%
E	7.8E-05	1.9E-05	7.7E-06	4.9E-06	1.8E-06	4.5E-07	Highest 0.5%
ESE	7.8E-05	1.9E-05	8.1E-06	5.3E-06	2.1E-06	5.6E-07	highest 0.5%
SE	1.0E-04	3.1E-05	1.2E-05	7.7E-06	2.8E-06	6.5E-07	Highest 0.5%
SSE	1.0E-04	3.1E-05	1.3E-05	8.0E-06	3.0E-06	7.3E-07	Highest 0.5%
S	1.1E-04	3.3E-05	1.3E-05	8.2E-06	3.0E-06	7.0E-07	Highest 0.5%
SSW	1.1E-04	3.4E-05	1.4E-05	8.5E-06	3.1E-06	7.5E-07	Highest 0.5%
SW	8.0E-05	2.2E-05	9.0E-06	5.8E-06	2.2E-06	5.5E-07	Highest 0.5%
WSW	1.1E-04	3.5E-05	1.4E-05	8.6E-06	3.1E-06	7.2E-07	Highest 0.5%
W	1.3E-04	3.9E-05	1.5E-05	9.5E-06	3.4E-06	7.8E-07	Highest 0.5%
WNW	8.8E-05	2.7E-05	1.1E-05	7.0E-06	2.7E-06	6.6E-07	Highest 0.5%
NW	1.5E-04*	4.4E-05*	1.8E-05	1.2E-05	4.5E-06	1.1E-06	Highest 0.5%
NNW	1.5E-04*	4.4E-05*	1.9E-05*	1.3E-05*	5.2E-06*	1.4E-06*	Highest 0.5%
N	1.4E-04	4.3E-05	1.8E-05	1.2E-05	4.8E-06	1.3E-06	Highest 0.5%
5%	1.4E-04	4.3E-05	1.4E-05	9.4E-06	4.1E-06	1.3E-06	Highest 5%
50%	2.1E-05	3.7E-06	2.1E-06	1.7E-06	1.1E-06	6.2E-07	Highest 50%

^aUnits sec/m³

*Maximum sector values

TABLE 2.3-58

ACCIDENT ATMOSPHERIC RELATIVE CONCENTRATIONS (χ/Q)^a
FOR 3/5/79 TO 3/4/80 DATA PERIOD

Affected Sector	Exclusion Zone Circular (1200 m)	Low Population Zone Circular (4023 m)					Remarks
		Time					
		2-Hr	2-Hr	8-Hr	16-Hr	72-Hr	
NNE	7.8E-05	2.3E-05	1.0E-05	7.1E-06	3.0E-06	8.9E-07	Highest 0.5%
NE	7.6E-05	1.9E-05	7.9E-06	5.1E-06	2.0E-06	5.0E-07	Highest 0.5%
ENE	7.8E-05	2.2E-05	9.0E-06	5.8E-06	2.2E-06	5.4E-07	Highest 0.5%
E	1.2E-04	3.3E-05	1.3E-05	8.5E-06	3.2E-06	7.8E-07	Highest 0.5%
ESE	1.4E-04	4.5E-05	1.8E-05	1.1E-05	3.9E-06	9.0E-07	Highest 0.5%
SE	1.4E-04	4.5E-05	1.8E-05	1.1E-05	3.9E-06	9.0E-07	Highest 0.5%
SSE	8.8E-05	2.7E-05	1.1E-05	7.3E-06	2.8E-06	7.3E-07	Highest 0.5%
S	1.3E-04	4.3E-05	1.7E-05	1.0E-05	3.7E-06	8.5E-07	Highest 0.5%
SSW	1.3E-04	4.2E-05	1.6E-05	1.0E-05	3.7E-06	8.4E-07	Highest 0.5%
SW	1.4E-04	4.3E-05	1.7E-05	1.1E-05	3.8E-06	8.9E-07	Highest 0.5%
WSW	8.4E-05	2.3E-05	1.0E-05	6.9E-06	2.9E-06	8.3E-07	Highest 0.5%
W	1.4E-04	4.3E-05	1.7E-05	1.1E-05	4.0E-06	9.7E-07	Highest 0.5%
WNW	1.4E-04	4.4E-05	1.8E-05	1.2E-05	4.4E-06	1.1E-06	Highest 0.5%
NW	1.5E-04*	5.0E-05*	2.1E-05*	1.4E-05*	5.4E-06	1.4E-06	Highest 0.5%
NNW	1.5E-04*	4.5E-05	2.0E-05	1.3E-05	5.4E-06	1.5E-06	Highest 0.5%
N	1.5E-04*	4.4E-05	2.0E-05	1.3E-05	5.6E-06*	1.6E-06*	Highest 0.5%
5%	1.5E-04	4.5E-05	1.5E-05	1.0E-05	4.6E-06	1.5E-06	Highest 5%
50%	2.8E-05	5.0E-06	2.7E-06	2.2E-06	1.4E-07	7.7E-07	Highest 50%

^aUnits sec/m³

*Maximum sector values

and the annual average X/Q (see Section 2.3.5) at the same point. The highest of the 16 sector X/Q values are identified for each time period.

2.3.4.1.3 Five and Fifty Percent Overall Site X/Q Value

The X/Q values that are exceeded no more than 5 and 50 percent of the total time around the exclusion area boundary and the outer LPZ boundary are determined in a manner similar to the 0.5 percent sector X/Q values. All of the hourly X/Q values were sorted according to magnitude (independent of the direction) and the 5 and 50 percent values chosen from the list. For the same time periods used in Section 2.3.4.1.2, the 5 and 50 percent X/Q values are determined by logarithmic interpolation between the maximum annual average X/Q values at the LPZ distance and the LPZ 2-hour 5 and 50 percent X/Q value.

2.3.4.2 Results of Short-Term Diffusion Estimates

Two-hour X/Q values were computed at the exclusion zone boundary (1200 m) and X/Q values for 2-, 8-, 16-, 72-, and 624-hour postulated accident periods were computed at the LPZ (4023 m). The computations were based on onsite meteorological data for three one-year data sets; June 1, 1973 through May 31, 1975, and March 5, 1979 through March 4, 1980. An analysis was also performed for the 3 years of data combined.

Results of the analysis for each data set and the combined three-year period are presented in Tables 2.3-55 through 58. Each table presents the greatest 0.5 percent 0-2 hour X/Q values for each of the 16 sectors at the exclusion zone boundary (1200 m) and the greatest 0.5 percent 2-, 8-, 16-, 72-, and 624-hour X/Q values for each of the 16 sectors at the LPZ (4023 m). The highest sector value for each accident period is asterisked to clarify the maximum sector X/Q value at the exclusion zone boundary and the LPZ for each accident period. Also presented in each table are the greatest 0-2 hour 5 and 50 percent X/Q values at the exclusion zone boundary and the greatest 5 and 50 percent X/Q values for each accident period at the LPZ.

The highest 0.5 percent 2-hour X/Q values at the exclusion zone boundary was 1.5×10^{-4} for all 3 individual years and for the 3 years combined. The highest values occurred in the northwest through north sectors. The maximum sector X/Q at the LPZ from this data set was 5.0×10^{-5} sec/m³ in the northwest sector for the data period March 5, 1979 through March 4, 1980. The highest 5 and 50 percent 2-hour X/Q values resulted from the analysis of the March 5, 1979 through March 4, 1980 data set. The greatest 5 and 50 percent X/Q values were 4.5×10^{-5} sec/m³ and 5.0×10^{-6} sec/m³ for the LPZ and 1.5×10^{-4} sec/m³ and 2.8×10^{-5} sec/m³ for the exclusion zone boundary, respectively.