REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR:8405080236 DOC.DATE: 84/05/01 NOTARIZED: NO DOCKET #
FACIL:50-269 Oconee Nuclear Station, Unit 1, Duke Power Co. 05000269
50-270 Oconee Nuclear Station, Unit 2, Duke Power Co. 05000270
50-287 Oconee Nuclear Station, Unit 3, Duke Power Co. 05000287
AUTH.NAME AUTHOR AFFILIATION
TUCKER,H.B. Duke Power Co.
RECIP.NAME RECIPIENT AFFILIATION
DENTON,H.R. Office of Nuclear Reactor Regulation, Director
STOLZ,J.F. Operating Reactors Branch 4

SUBJECT: Forwards X/Q & D/Q values for ground level releases from roof vents contained in offsite dose calculation manual, in response to NRC 840116 ltr issuing Amends 125,125 & 122.

DISTRIBUTION CODE: A009S COPIES RECEIVED:LTR 1 ENCL 1 SIZE: 2
TITLE: OR/Licensing Submittal: Appendix I

NOTES:AEOD/Ornstein:1cy. 05000269
AEOD/Ornstein:1cy. 05000270
AEOD/Ornstein:1cy. 05000287

	RECIPIENT ID CODE/NAME		COPIES LTTR	COPIES ENCL	RECIPIENT ID CODE/NAME		COPIES LTTR	COPIES ENCL
	NRR ORB4 BC	01	7	7				
INTERNAL:	ELD/HDS4	19	1	0	NRR/DL/ORAB		1	0
	NRR/DL/TAPMG		1	1	NRR/DSI/AEB		1	0
	NRR/DSI/METB	08	1	1	NRR/DSI/RAB	10	1	1
	REG FILE	04	1	1	RGN2		1	1
EXTERNAL:	ACRS	11	6	6	LPDR	03	1	1
	NRC PDR	02	1	1	NSIC	05	1	1
	NTIS		1	1				
NOTES:			1	1				

TOTAL NUMBER OF COPIES REQUIRED: LTTR 26 ENCL 23

DUKE POWER COMPANY
P.O. BOX 33189
CHARLOTTE, N.C. 28242

HAL B. TUCKER
VICE PRESIDENT
NUCLEAR PRODUCTION

TELEPHONE
(704) 373-4531

May 1, 1984

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

Attention: Mr. John F. Stolz, Chief
Operating Reactors Branch No. 4

Subject: Oconee Nuclear Station
Docket Nos. 50-269, -270, and -287

Dear Sir:

In your January 16, 1984 letter that issued Amendment Nos. 125, 125, and 122 (which incorporated changes to the Oconee Nuclear Station Radiological Effluent Technical Specifications (RETS)), it was stated that Duke Power Company (Duke) should provide meteorological dispersion data (X/Q and D/Q) for ground level releases from the roof vents in the next revision of the Offsite Dose Calculation Manual (ODCM). Duke will be using the X/Q and D/Q values presently contained in the Oconee Nuclear Station ODCM for ground level releases from rooftops. The attached information explains our position and is submitted at this time, before the August 29, 1984 ODCM revision submittal date, for your review.

Very truly yours,

H.B. Tucker /JSO

Hal B. Tucker

JCP/php

Attachment

cc: Mr. James P. O'Reilly
Regional Administrator
U. S. Nuclear Regulatory Commission
Region II
101 Marietta Street, NW, Suite 2900
Atlanta, Georgia 30303

Mr. J. C. Bryant
NRC Resident Inspector
Oconee Nuclear Station

Ms. Helen Nicolaras
Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

A009
1/1

Attachment

Oconee ODCM X/Q and D/Q Values
for Ground Level Releases from Roof Vents

For the Oconee Nuclear Station, Duke will be using present ODCM X/Q, D/Q values for ground level releases from roof vents:

X/Q (undepleted) = 4.1E-7 sec/m^3 @ 3.5 miles south of plant
D/Q = 3.0E-10m^{-2} @ 2.8 miles east-southeast of plant

These values appear acceptable from the standpoint that conservative scaling indicates true ground level values would still yield doses well within Appendix I dose limits for whole body and infant thyroid dose categories. Therefore, for simplicity, only one set of X/Q, D/Q values will be used for all releases.

The scaling arguments are as follow. The ratio of release rate for the interim radwaste facility roof vents to the release rate for the entire station is estimated at 5% and 6% for whole body and infant thyroid doses, respectively. The ratio of release rate for turbine building roof vents to the release rate for the entire station is estimated at less than 0.1% for both whole body and infant thyroid doses. The ratio of release rate for the hot machine shop roof vents to the release rate for the entire station is also estimated at less than 0.1% for both whole body and infant thyroid doses.

The highest whole body dose for the entire station calculated with a mixed mode release height assumption was approximately 0.2 mr for the period 1976 - 1983. The highest infant thyroid dose for the entire station calculated with a mixed mode release height assumption was approximately 12 mr for the period 1976 - 1983.

For whole body dose considerations, we assume conservatively that the ground level release height X/Q increases by a factor of 1000 over the mixed mode release height X/Q. On this basis, the whole body dose from the interim radwaste facility roof vents would be 0.2 mr x 0.05 x 1000 = 10mr; the whole body dose from both the turbine building roof vents and the hot machine shop roof vents would be 0.2 mr x 0.001 x 1000 = 0.2mr. The adjusted whole body dose from the unit vents would be 0.2 mr - 0.052 x 0.2mr = 0.19mr. The whole body dose for the entire station then would be 10mr + 0.2mr + 0.2mr + 0.19mr = 10.59mr which is well within the Appendix I dose limit of 45 mr.

For infant thyroid dose considerations, we assume conservatively that the ground level release height D/Q increases by a factor of 20 over the mixed mode release height D/Q. On this basis, the infant thyroid dose from the interim radwaste facility roof vents would be 12mr x 0.06 x 20 = 14.4mr; the infant thyroid dose from both the turbine building roof vents and the hot machine shop roof vents would be 12mr x 0.001 x 20 = 0.24mr. The adjusted infant thyroid dose from the unit vents would be 12mr - 0.062 x 12mr = 11.26mr. The infant thyroid dose for the entire station then would be 14.4mr + 0.24mr + 0.24mr + 11.26mr = 26.14mr which again is well within the Appendix I dose limit of 45mr.