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AUTH.NAME AUTHOR AFFILIATION
TUCKER,H.B. Duke Power Co.
RECIP.NAME RECIPIENT AFFILIATION
DENTON,H.R. Office of Nuclear Reactor Regulation, Director (post 851125

SUBJECT: Submits addl info & rev to util 850610 request to operate low level radwaste incinerator.Requests approval by Apr 1886.

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December 13, 1985

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

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

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

Dear Sir:

By letter dated June 10, 1985, Duke Power Company (Duke) requested NRC specific approval to operate a low level radioactive waste incinerator at Oconee Nuclear Station. Please find attached (Attachment 1) a revision to this submittal.

By letter dated September 6, 1985, the NRC requested additional information concerning this submittal. By letters dated October 9, 1985 and October 25, 1985 Duke responded, in part, to this request. Attached (Attachment 2) please find Duke's response to the previously unanswered requests.

By the June 10, 1985 letter, Duke requested that the review and approval process be completed by January 1, 1986 in order to support the earliest possible use of the incinerator following functional testing. Please be advised that due to schedule revisions, April, 1986 is the requested NRC approval date.

Very truly yours,

H.B. Tucker /SSS

Hal B. Tucker

SGG:slb

Attachment

A001
1/1

A001

cc: Dr. J. Nelson Grace, Regional Administrator
U. S. Nuclear Regulatory Commission
Region II
101 Marietta Street, NW, Suite 2900
Atlanta, Georgia 30323

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

Mr. Heyward G. Shealy, Chief
Bureau of Radiological Health
South Carolina Department of Health &
Environmental Control
2600 Bull Street
Columbia, South Carolina 29201

Attachment 1

(Incinerator License Submittal Revision)

Remove	Insert
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page 51	page 51-51d

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2.3 RADIOLOGICAL RELEASES FROM NORMAL OPERATIONS

2.3.1 AIRBORNE RELEASE

Total Volume Reduction Subsystem DF's (including filter/adsorber assembly) of 10^6 for particulate and 10^4 for iodine are used for the purpose of estimating airborne radiological releases resulting from normal system operation. Table 2.3.1 summarizes, by radionuclide, the estimated activity available for processing and release by the Volume Reduction Subsystem on an annual basis.

The release rates listed in Table 2.3.1 are used to estimate Maximum Exposed Individual annual dosage and Exclusion Area Boundary (EAB) annual average radionuclide concentrations resulting from the operation of the Volume Reduction Subsystem. Table 2.3.2 summarizes the Maximum Individual dose results as well as the 10 CFR 50, Appendix I dose objectives for Oconee Nuclear Station. Table 2.3.3 lists the maximum EAB isotopic concentrations along with 10 CFR 20, Appendix B, Table II, Column 1 concentration limits for unrestricted areas. All values listed in Tables 2.3.2 and 2.3.3 are calculated using ground level release, annual average meteorological parameters corresponding to the maximum unrestricted boundary location as presented in Section 3.2 of this submittal.

2.3.2 LIQUID RELEASE

There will be no liquid effluent released as a direct result of Volume Reduction Subsystem operation. The only liquid product generated by Volume Reduction Subsystem operation is the secondary scrubber condenser condensate. The condensate may contain a small amount of radioactivity, but this stream is used to supply the incinerator sprays or is returned to the plant liquid waste system.

TABLE 2.3.2

BREAKDOWN BY PATHWAY OF SIGNIFICANT NUCLIDE CONTRIBUTION TO MAXIMUM(1)

TOTAL BODY AND CRITICAL ORGAN DOSES FOR AIRBORNE EFFLUENTS

Maximum Total Body: Child				Maximum Critical Organ: Infant Thyroid		
Pathway	Dose (mrem/yr)	Isotope	% of Total Pathway Dose	Dose (mrem/yr)	Isotope	% of Total Pathway Dose
Milk	1.6(-2)	C14 I131 H3	54.8% 17.5% 14.5%	3.9(+0)	I131	99.4%
Vegetable	2.2(-2)	C14 H3	82.4% 12.9%	----	---	---
Meat Ingestion	3.0(-3)	C14	92.2%	----	---	---
Air Inhalation	8.8(-4)	H3	89.5%	4.4(-2)	I131	98.4%
Ground Contamination	2.2(-3)	Cs137 Co60	47.0% 30.2%	2.2(-3)	Cs137 Co60	47.0% 30.2%
TOTAL	4.4(-2)			3.9(+0)		
Appendix I ONS	3.0(+1)(2)			4.5(+1)		

(1) All doses evaluated at a location in the unrestricted area where the highest radiation doses to the total body and maximum organ have been estimated assuming all dose pathways are applicable (1.0 miles; 5 Sector).

(2) Total body dose results from non-noble gas exposure from inhalation, food and ground pathways. VR System releases not expected to impact site ability to meet technical specification total body dose limitations.

TABLE 2.3.3

SITE BOUNDARY CONCENTRATIONS FROM NORMAL OPERATIONS

ISOTOPE	RELEASE RATE	CONCENTRATION LIMIT[a]	BOUNDARY CONCENTRATION[b]
	(Ci/Yr)	(pCi/M^3)	(pCi/M^3)
H3	2.4	2.0(+5)	7.0(-1)
C14	8.8(-2)	1.0(+5)	2.6(-2)
Mn54	3.0(-6)	1.0(+3)	8.7(-7)
Fe55	2.2(-5)	3.0(+4)	6.4(-6)
Ni59	2.6(-8)	2.0(+4)	7.6(-9)
Co58	1.3(-4)	2.0(+3)	4.4(-5)
Co60	4.6(-5)	3.0(+2)	1.3(-5)
Ni63	8.0(-6)	2.0(+3)	2.3(-6)
Nb94	8.3(-10)	1.0(+2)	2.4(-10)
Sr90	1.7(-7)	3.0(+1)	5.0(-8)
Tc99M	5.5(-7)	5.0(+5)	1.6(-7)
Tc99	7.4(-10)	2.0(+3)	2.2(-10)
Mo99	6.0(-7)	7.0(+3)	1.7(-7)
I129	2.2(-7)	2.0(+1)	6.4(-8)
I131	1.0(-2)	1.0(+2)	2.9(-3)
I133	2.6(-4)	4.0(+2)	7.6(-5)
I134	2.6(-4)	6.0(+3)	7.6(-5)
Cs134	8.8(-5)	4.0(+2)	2.6(-5)
Cs135	7.4(-10)	3.0(+3)	2.2(-10)
Cs137	1.5(-4)	5.0(+2)	4.4(-5)
	Total 10CFR20 MPC Fraction = 3.4E-5		

[a] 10 CFR 20, Appendix B, Table II, Column 1 concentration limits for unrestricted areas.

[b] Maximum location at 1.0 miles; S sector (X/Q = 9.2(-6) S/M^3).

3.1.1 PROCESS GAS CARBON ADSORBER RELEASE

This postulated accident involves the release of iodine activity collected on the process gas carbon adsorber. A fire of undetermined origin involving the process gas carbon adsorber section is the postulated release mechanism.

3.1.1.1 Detection of an Accident

High temperatures in the carbon bed would be detected by the operator who could initiate the fire protection system as necessary. The loss of differential pressure across the filter/adsorber assembly would also alert the operator to the accident.

3.1.1.2 Radiological Consequences

It was conservatively assumed that all iodine activity input to the Volume Reduction Subsystem is collected on the carbon adsorber and that the adsorber was in service for six months prior to the event. Credit for iodine decay was taken and a 95 percentile accident X/Q[1] of 2.7(-4) s/m^3 was used in the dose analysis. The resulting maximum whole body dose offsite for this event was calculated to be 2.3 mrem. The maximum organ dose was found to be 1260 mrem to the thyroid of an individual breathing air[2] at the site boundary during the event.

---

[1] See section 3.2 for a discussion on dispersion factor derivation. This value is used for all accident doses quoted in this submittal.

[2] A maximum individual breathing rate of 3.47 (-4) m^3/s assumed in all accident inhalation doses calculated.

3.1.2 PRODUCT HOPPER RUPTURE

The rupture of a loaded Product Hopper would result in the release of dry product ash to the surrounding cubicle. Ventilation systems serving the cubicle could transport this ash to the outside environment; resulting in offsite exposure.

A Product Hopper rupture could result from natural phenomena, such as an earthquake, or an overpressure transient from an undetermined source within the system.

3.1.2.1 Detection of Accident

The postulated causes (i.e., explosion or earthquake) of a Product Hopper rupture would be readily detected by the operator at the onset of any such event; resulting in immediate VR System shutdown. In any case, where a rupture occurred unnoticed, the operator would be alerted by high radioactivity concentrations in the HVAC exhaust flow, hopper pressure change, and area monitors.

3.1.2.2 Radiological Consequences

It was conservatively assumed that 100% of the product ash contained in a fully loaded hopper escapes unfiltered via the cubicle ventilation system. Worst case product ash nuclide concentrations were calculated based on calcined concentrates with an assumed volume reduction factor of 11. The resulting particulate plume was assumed to be transported undepleted to the site boundary. The resulting maximum whole body dose offsite was calculated to be 104 mrem. The

maximum organ dose was determined to be 1050 mrem to the thyroid of an individual breathing air at the site boundary during the event.

3.1.3 SCRUB LIQUOR CIRCUIT FAILURE

The postulated failure of the preconcentrator scrub liquor circuit would result in the spillage of concentrated liquid containing iodine. The concern here will be the evolution of gaseous radioactive iodines which could be transported offsite in air. Any liquid released from the scrub circuit will be contained within the facility and should not be available for transport in ground or surface waters offsite.

The release of the scrub inventory could result from a rupture of either the Scrubber Preconcentrator vessel or recirculation piping.

3.1.3.1 Detection of Accident

The loss of a significant quantity of scrub liquor would result in the lowering of the scrub liquor level in the Scrubber Preconcentrator sump. This would be noticed by the operator. If no operator action is taken or the sump inventory is lost rapidly, the process would automatically shutdown due to loss of fluid flow to the venturi.

3.1.3.2 Radiological Consequences

It was assumed that all the scrub solution in the Scrubber Preconcentrator sump and recirculation piping is spilled. Iodine recirculation and decay within the

dryer/off-gas loop is analyzed assuming an iodine DF of 2 for the dryer/cyclone. Maximum activity releases are calculated for each isotope. The postulated release assumes 100% of the calculated maximum buildup activity is available for transport offsite. The resulting maximum whole body dose offsite was calculated to be 0.04 mrem. The maximum organ dose was determined to be 24 mrem to the thyroid of the individual breathing at the site boundary during the event.

A groundwater transport analysis was also analyzed for this postulated worst case liquid release event. The saprolite soil characteristic of the Oconee site is an effective natural barrier to the migration of radionuclides. The movement of radionuclides released in this postulated worst case event would be so extremely slow that concentrations resulting at the nearest potable intake would be well below 10CFR20, Appendix B, Table II, Column 2 maximum permissible concentration values.

3.1.4 TRASH FIRE

A fire involving contaminated trash being stored prior to incineration would result in offsite exposure from activity transported along with other combustion products through the air. A fire could result from accidental causes.

3.1.4.1 Detection of Accident

Facility smoke detectors would assure prompt detection of any fire in the storage areas. The visible smoke resulting from a fire would provide a secondary means for detection of this postulated accident.

3.1.4.2 Radiological Consequences

It was conservatively assumed that as much as 80 cubic meters of contaminated trash activity is released and transported offsite due to the fire. The resulting maximum whole body dose was calculated to be 0.3 mrem. The maximum organ dose was determined to be 7.0 mrem to the bone of an individual breathing air at the site boundary during the fire.

3.1.5 ACCIDENT ANALYSIS SUMMARY

Table 3.1.1 summarizes the activity release by nuclide for each of the worst case accidents analyzed. The doses estimated for each accident case are summarized on Table 3.1.2. The doses calculated and presented in this section were derived with conservative assumptions and were found to be below 10 CFR 20 normal operation annual dose limits. This demonstrates that the systems may properly be considered "Non-Nuclear Safety."

TABLE 3.1.2

ACCIDENT DOSES

Accident	Whole Body Dose (mrem)	Maximum Organ Dose (mrem)	Maximum Organ
Carbon Adsorber Fire	2.3	1260	Thyroid
Product Hopper Rupture	104	1050	Thyroid
Scrub Liquor Circuit Failure	0.04	24	Thyroid
Trash Fire	0.3	7.0	Lung
Maximum Credible[1] Accident Doses	104	1260	Thyroid

[1] Highest dose value listed in each column. Whole body dose Maximum Credible Accident is Product Hopper rupture; maximum organ dose Maximum Credible Accident is Filter/Adsorber Assembly release.

3.2 ATMOSPHERIC TRANSPORT CONDITIONS

3.2.1 Release Point Information

Radiological effluents from the radwaste facility are exhausted horizontally through three 48" x 48" HVAC rooftop vents at an elevation of 843 feet MSL (47 feet AGL). (See Figure 3.2.1) Exit speed is approximately 11 m/sec; exit temperature is assumed to be nonbuoyant.

All accidental releases assume a two hour uniform release of gaseous or aerosol material through the HVAC vents and/or other building openings. The release point, therefore, is taken at ground level.

Normal operational releases assume a continuous uniform release of gaseous or aerosol material through the HVAC vents. The release point, then, is effectively at ground level due to the turbulent wake from higher structures in proximity to the radwaste facility building.

3.2.2 Meteorological Data and Dispersion/Deposition Models

The accident analysis meteorological data base is for the period March 15, 1970 - March 14, 1972. Joint frequency tables of wind direction, wind speed and atmospheric stability are shown in the Oconee FSAR Supplement 11, Docket Nos. 50-270 and -287. (See discussion in the Oconee SER Section 3.2.4, Units 2 and 3.)

A straight-line gaussian model is used to calculate two-hour X/Q values for accidental releases from the radwaste facility (See Oconee SER Section 3.2.4, Units 2 and 3). It is based on a CA factor of 1270 m^2, taken to approximate building wake effects for general releases within the reactor building complex. The X/Q value which is exceeded 5% of the time at the exclusion radius of 1609 m is 2.2E-4 (sec/m^3), a relative concentration equivalent to dispersion

conditions produced by Pasquill Type F stability and a wind speed of 1 (m/sec). This same analysis based on the more limited assumption of a building wake influence involving only the radwaste facility itself, yields a 5% X/Q value of 2.7E-4 (sec/m^3). Here a CA factor of 350 m^2 represents the minimum cross-sectional area of the radwaste facility building.

The meteorological data base for normal operational releases is for the period January 1, 1975 - December 31, 1975. Corresponding joint frequency tables are presented in the Meteorological Analysis, Oconee Evaluation of Compliance with 10CFR50 Appendix I and Supporting Information, June, 1976.

A straight-line gaussian model is also used to calculate annual average X/Q and D/Q values for normal operational releases. Dispersion and deposition values are generated with the NRC XOQDOQ code, assuming a ground level release. Inputed adjacent building height is 58 m; standard open terrain recirculation factors apply. (Tables 3.2.1 and 3.2.2.)

6.3 METEOROLOGICAL DATA

Western South Carolina is far south of major storm tracks but experiences higher precipitation amounts than the east coast due to its location in the lee of the Appalachian Mountains. A semi-permanent belt of high pressure usually influences the regional climate. During the fall season, the area has a high probability of experiencing atmospheric stagnation during which the dilution rate for effluents is low due to low wind speeds.

The Oconee plant site is situated on Lake Keowee which was established to provide cooling for the three existing Oconee Nuclear units and future steam generating units as well as storage for Jocassee (pumped storage) and Keowee (conventional) hydroelectric stations. The topography in the vicinity of the site is hilly and the local air flow is influenced to some extent by the contour of the lake. The prevailing winds are divided between the southwest and northeast quadrants due to the lake orientation and large scale pressure effects.

A complete description of regional and local wind data, including normal and extreme parameters can be found in Section 2.3 of the FSAR.

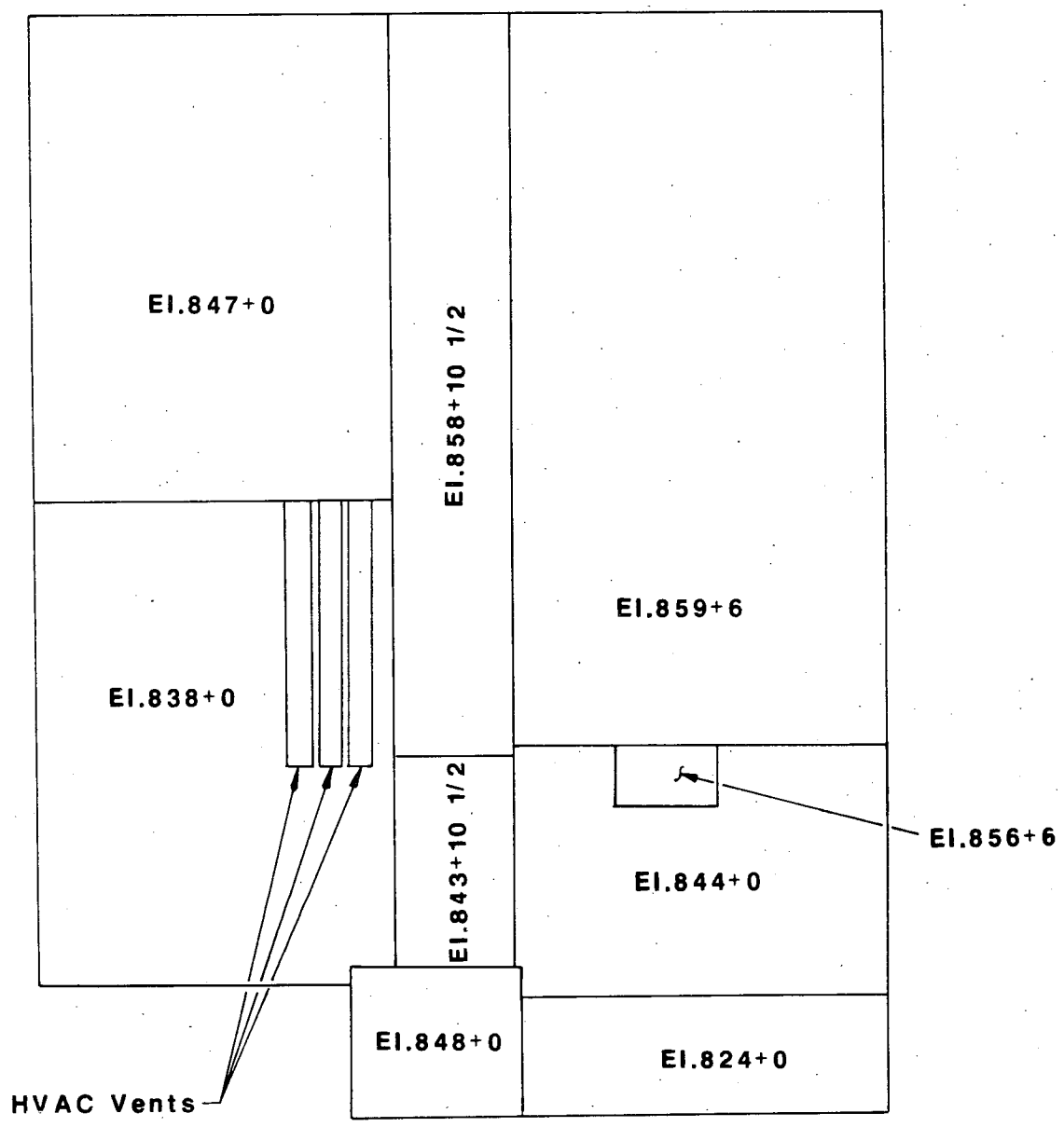
Design values of atmospheric variables for structural considerations in the radwaste facility are:

1. The design wind velocity is 95 mph at 30 feet above the nominal ground elevation (1 in 100 year wind, reference ASCE paper 3269, "Wind Forces on Structures" and Oconee FSAR, Section 3.3.2.4).

2. The design rainfall used for roof drains is 4 in/hour (1 in 100 year, 1 hour rainfall, reference Technical Paper No. 40, "Rainfall Frequency Atlas of the United States, Soil Conservation Service, U.S. Department of Agriculture).

The Parameters which form the bases of the information regarding normal and accident releases are presented in Section 3.2.

FIG. 3.2.1



Radwaste Facility Roof Plan

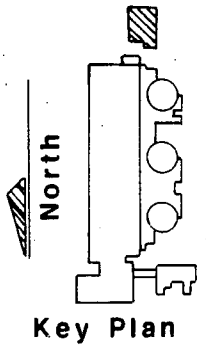


Table 3.2.1

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GSNRC COMPUTER CODE - XOQDOQ,  VERSION 2.0          RUN DATE: 10/25/85

GCENEE XOQDOQ

GCENEE
NO DECAY,  UNDEPLETED
CORRECTED USING STANDARD OPEN TERRAIN FACTORS

ANNUAL AVERAGE CHI/Q (SEC/METER CUBED)                    DISTANCE IN MILES FROM THE SITE
  SECTOR      0.250      0.500      0.750      1.000      1.500      2.000      2.500      3.000      3.500      4.000      4.500

     S  1.202E-04 3.578E-05 1.794E-05 9.171E-06 3.746E-06 2.100E-06 1.370E-06 9.775E-07 7.411E-07 5.867E-07 4.796E-07
   SSW  5.830E-05 1.734E-05 8.750E-06 4.428E-06 1.789E-06 1.000E-06 6.514E-07 4.645E-07 3.519E-07 2.785E-07 2.277E-07
    SW  5.603E-05 1.703E-05 8.745E-06 4.481E-06 1.827E-06 1.012E-06 6.596E-07 4.684E-07 3.484E-07 2.743E-07 2.232E-07
   WSW  3.208E-05 9.839E-06 5.120E-06 2.625E-06 1.069E-06 5.880E-07 3.772E-07 2.656E-07 1.992E-07 1.563E-07 1.268E-07
     W  2.775E-05 8.477E-06 4.389E-06 2.244E-06 9.116E-07 5.010E-07 3.212E-07 2.264E-07 1.696E-07 1.330E-07 1.079E-07
   WNW  2.032E-05 6.107E-06 3.120E-06 1.601E-06 6.559E-07 3.631E-07 2.341E-07 1.656E-07 1.246E-07 9.802E-08 7.972E-08
    NW  2.416E-05 7.360E-06 3.751E-06 1.963E-06 7.674E-07 4.247E-07 2.706E-07 1.911E-07 1.430E-07 1.123E-07 9.115E-08
   NNW  3.062E-05 9.252E-06 4.772E-06 2.434E-06 9.876E-07 5.441E-07 3.446E-07 2.466E-07 1.852E-07 1.455E-07 1.180E-07
     N  3.501E-05 1.051E-05 5.396E-06 2.738E-06 1.108E-06 6.116E-07 3.841E-07 2.786E-07 2.096E-07 1.649E-07 1.341E-07
   NNE  3.125E-05 9.369E-06 4.826E-06 2.440E-06 9.825E-07 5.382E-07 3.444E-07 2.422E-07 1.814E-07 1.422E-07 1.155E-07
    NE  3.681E-05 1.114E-05 5.796E-06 2.943E-06 1.189E-06 6.514E-07 4.167E-07 2.933E-07 2.196E-07 1.721E-07 1.395E-07
   ENE  3.221E-05 9.756E-06 5.047E-06 2.555E-06 1.028E-06 5.662E-07 3.641E-07 2.570E-07 1.932E-07 1.518E-07 1.234E-07
     E  3.725E-05 1.128E-05 5.817E-06 2.954E-06 1.196E-06 6.610E-07 4.260E-07 3.011E-07 2.265E-07 1.782E-07 1.449E-07
   ESE  3.950E-05 1.174E-05 5.962E-06 3.052E-06 1.247E-06 6.948E-07 4.506E-07 3.201E-07 2.416E-07 1.909E-07 1.557E-07
    SE  4.744E-05 1.419E-05 7.143E-06 3.676E-06 1.501E-06 8.360E-07 5.445E-07 3.874E-07 2.931E-07 2.315E-07 1.890E-07
   SSE  6.890E-05 2.054E-05 1.036E-05 5.309E-06 2.174E-06 1.217E-06 7.928E-07 5.651E-07 4.279E-07 3.385E-07 2.766E-07

ANNUAL AVERAGE CHI/Q (SEC/METER CUBED)                    DISTANCE IN MILES FROM THE SITE
  SECTOR      5.000      7.500     10.000     15.000     20.000     25.000     30.000     35.000     40.000     45.000     50.000

     S  4.024E-07 2.164E-07 1.451E-07 8.690E-08 6.057E-08 4.583E-08 3.653E-08 3.017E-08 2.556E-08 2.212E-08 1.943E-08
   SSW  1.404E-07 1.028E-07 6.881E-08 4.121E-08 2.874E-08 2.177E-08 1.736E-08 1.435E-08 1.217E-08 1.053E-08 9.251E-09
    SW  1.864E-07 9.891E-08 6.549E-08 3.866E-08 2.670E-08 2.007E-08 1.591E-08 1.318E-08 1.118E-08 9.522E-09 8.339E-09
   WSW  1.055E-07 5.545E-08 3.646E-08 2.133E-08 1.465E-08 1.096E-08 8.661E-09 7.162E-09 5.983E-09 5.145E-09 4.498E-09
     W  8.483E-08 4.717E-08 3.102E-08 1.816E-08 1.246E-08 9.342E-09 7.384E-09 6.057E-09 5.145E-09 4.343E-09 3.841E-09
   WNW  6.653E-08 3.523E-08 2.330E-08 1.373E-08 9.473E-09 7.114E-09 5.636E-09 4.632E-09 3.911E-09 3.369E-09 2.950E-09
    NW  7.553E-08 3.995E-08 2.636E-08 1.544E-08 1.069E-08 8.026E-09 6.360E-09 5.228E-09 4.415E-09 3.805E-09 3.332E-09
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   ENE  1.024E-07 5.441E-08 3.596E-08 2.120E-08 1.465E-08 1.102E-08 8.738E-09 7.190E-09 6.075E-09 5.239E-09 4.590E-09
     E  1.264E-07 6.406E-08 4.238E-08 2.501E-08 1.726E-08 1.297E-08 1.028E-08 8.456E-09 7.142E-09 6.157E-09 5.393E-09
   ESE  1.302E-07 6.962E-08 4.632E-08 2.753E-08 1.909E-08 1.440E-08 1.144E-08 9.429E-09 7.978E-09 6.887E-09 6.040E-09
    SE  1.562E-07 8.481E-08 5.654E-08 3.364E-08 2.340E-08 1.767E-08 1.405E-08 1.159E-06 9.812E-09 8.475E-09 7.436E-09
   SSE  2.318E-07 1.246E-07 8.321E-08 4.967E-08 3.454E-08 2.609E-08 2.077E-08 1.713E-06 1.451E-08 1.254E-08 1.100E-08

VENT AND BUILDING PARAMETERS:
    RELEASE HEIGHT  (METERS)   60.00          REP. WIND HEIGHT      (METERS)    10.0
    DIAMETER        (METERS)    0.0           BUILDING HEIGHT       (METERS)    58.0
    EXIT VELOCITY   (METERS)    0.0           BLDG.MIN.CRS.SEC.AREA (SQ.METERS) 700.0
                                              HEAT EMISSION RATE    (CAL/SEC)    0.0

ALL GROUND LEVEL RELEASES.
```

Table 3.2.2

USNRC COMPUTER CODE - XOQDOQ, VERSION 2.0 RUN DATE: 10/25/85SECTION ATM6SP

OCONEE XOQDOQ

OCONEE
CORRECTED USING STANDARD OPEN TERRAIN FACTORS
********** RELATIVE DEPOSITION PER UNIT AREA (M**-2) AT FIXED POINTS BY DOWNWIND SECTORS **********

DIRECTION FROM SITE	DISTANCES IN MILES 0.25	0.50	0.75	1.00	1.50	2.00	2.50	3.00	3.50	4.00	4.50
S	2.512E-07	8.496E-08	4.362E-08	2.074E-08	7.450E-09	3.694E-09	2.175E-09	1.424E-09	1.002E-09	7.428E-10	5.724E-10
SSW	1.395E-07	4.717E-08	2.422E-08	1.151E-08	4.136E-09	2.051E-09	1.208E-09	7.907E-10	5.564E-10	4.123E-10	3.176E-10
SW	1.995E-07	6.745E-08	3.463E-08	1.646E-08	5.914E-09	2.933E-09	1.727E-09	1.131E-09	7.957E-10	5.897E-10	4.544E-10
WSW	1.517E-07	5.130E-08	2.634E-08	1.252E-08	4.498E-09	2.231E-09	1.313E-09	8.600E-10	6.052E-10	4.485E-10	3.456E-10
W	1.176E-07	4.025E-08	2.066E-08	9.824E-09	3.529E-09	1.750E-09	1.030E-09	6.747E-10	4.748E-10	3.519E-10	2.711E-10
WNW	7.144E-08	2.417E-08	1.241E-08	5.901E-09	2.120E-09	1.051E-09	6.187E-10	4.053E-10	2.852E-10	2.113E-10	1.629E-10
NW	8.854E-08	2.994E-08	1.537E-08	7.311E-09	2.625E-09	1.302E-09	7.666E-10	5.020E-10	3.532E-10	2.618E-10	2.017E-10
NNW	1.170E-07	3.955E-08	2.031E-08	9.654E-09	3.468E-09	1.720E-09	1.013E-09	6.631E-10	4.666E-10	3.456E-10	2.665E-10
N	1.447E-07	4.895E-08	2.513E-08	1.195E-08	4.292E-09	2.128E-09	1.253E-09	8.206E-10	5.774E-10	4.279E-10	3.298E-10
NNE	1.715E-07	5.967E-08	3.064E-08	1.457E-08	5.232E-09	2.595E-09	1.528E-09	1.000E-09	7.035E-10	5.217E-10	4.020E-10
NE	2.002E-07	6.771E-08	3.477E-08	1.653E-08	5.937E-09	2.944E-09	1.734E-09	1.135E-09	7.987E-10	5.920E-10	4.562E-10
ENE	1.318E-07	4.457E-08	2.288E-08	1.088E-08	3.908E-09	1.938E-09	1.141E-09	7.472E-10	5.257E-10	3.896E-10	3.003E-10
E	1.406E-07	4.753E-08	2.440E-08	1.160E-08	4.168E-09	2.067E-09	1.217E-09	7.966E-10	5.607E-10	4.155E-10	3.202E-10
ESE	1.266E-07	4.356E-08	2.237E-08	1.063E-08	3.819E-09	1.894E-09	1.115E-09	7.303E-10	5.139E-10	3.808E-10	2.935E-10
SE	1.155E-07	3.900E-08	2.002E-08	9.520E-09	3.420E-09	1.696E-09	9.985E-10	6.538E-10	4.601E-10	3.410E-10	2.628E-10
SSE	1.402E-07	4.741E-08	2.434E-08	1.157E-08	4.157E-09	2.062E-09	1.214E-09	7.946E-10	5.593E-10	4.145E-10	3.194E-10

DIRECTION FROM SITE	DISTANCES IN MILES 5.00	7.50	10.00	15.00	20.00	25.00	30.00	35.00	40.00	45.00	50.00
S	4.547E-10	2.020E-10	1.224E-10	6.185E-11	3.743E-11	2.510E-11	1.798E-11	1.350E-11	1.050E-11	8.388E-12	6.846E-12
SSW	2.524E-10	1.121E-10	6.793E-11	3.434E-11	2.078E-11	1.393E-11	9.964E-12	7.477E-12	5.825E-12	4.656E-12	3.801E-12
SW	3.610E-10	1.604E-10	9.714E-11	4.910E-11	2.972E-11	1.993E-11	1.428E-11	1.072E-11	8.336E-12	6.659E-12	5.435E-12
WSW	2.746E-10	1.220E-10	7.388E-11	3.734E-11	2.260E-11	1.515E-11	1.086E-11	8.154E-12	6.340E-12	5.064E-12	4.134E-12
W	2.154E-10	9.569E-11	5.795E-11	2.930E-11	1.773E-11	1.189E-11	8.519E-12	6.397E-12	4.974E-12	3.973E-12	3.243E-12
WNW	1.294E-10	5.748E-11	3.482E-11	1.760E-11	1.065E-11	7.141E-12	5.117E-12	3.842E-12	2.986E-12	2.387E-12	1.946E-12
NW	1.603E-10	7.119E-11	4.312E-11	2.180E-11	1.319E-11	8.845E-12	6.336E-12	4.759E-12	3.700E-12	2.956E-12	2.413E-12
WNW	2.117E-10	9.404E-11	5.696E-11	2.879E-11	1.743E-11	1.168E-11	8.372E-12	6.287E-12	4.888E-12	3.905E-12	3.187E-12
NW	2.620E-10	1.164E-10	7.050E-11	3.563E-11	2.157E-11	1.446E-11	1.036E-11	7.780E-12	6.049E-12	4.832E-12	3.944E-12
NNW	3.174E-10	1.414E-10	8.575E-11	4.334E-11	2.629E-11	1.763E-11	1.263E-11	9.485E-12	7.375E-12	5.891E-12	4.807E-12
N	3.624E-10	1.610E-10	9.752E-11	4.929E-11	2.983E-11	2.000E-11	1.433E-11	1.076E-11	8.366E-12	6.685E-12	5.456E-12
NNE	2.385E-10	1.060E-10	6.419E-11	3.244E-11	1.964E-11	1.317E-11	9.434E-12	7.084E-12	5.508E-12	4.400E-12	3.591E-12
NE	2.544E-10	1.130E-10	6.846E-11	3.460E-11	2.094E-11	1.404E-11	1.006E-11	7.555E-12	5.874E-12	4.692E-12	3.830E-12
ENE	2.331E-10	1.036E-10	6.274E-11	3.171E-11	1.919E-11	1.287E-11	9.221E-12	6.924E-12	5.384E-12	4.300E-12	3.510E-12
E	2.067E-10	9.273E-11	5.617E-11	2.839E-11	1.718E-11	1.152E-11	8.256E-12	6.199E-12	4.820E-12	3.850E-12	3.143E-12
ESE	2.537E-10	1.127E-10	6.828E-11	3.451E-11	2.089E-11	1.401E-11	1.004E-11	7.536E-12	5.859E-12	4.680E-12	3.820E-12

Attachment 2

(Response to Questions A(2) and B(1-5) of

NRC Request for Additional Information)

Request 2:

Describe the location and elevation of the point of release to the environmental of radioactive effluents from the VR system; and provide characteristics of the releases from the stack, i.e., velocity, temperature and direction. (See question B.1.)

Response:

See question B.1.

B. Meteorology

Request 1:

Atmospheric dispersion parameters such as relative concentration (X/Q) and relative deposition (D/Q) are dependent on location of releases, release characteristics (e.g., particle size, temperature, exit velocity, stack diameter, and duration) and influences of plant structures and terrain features. Provide a description of the release point(s), release characteristics, and other plant structures and/or terrain features which influence atmospheric transport and diffusion for both accidental releases and releases from normal operations of the incinerator.

Response:

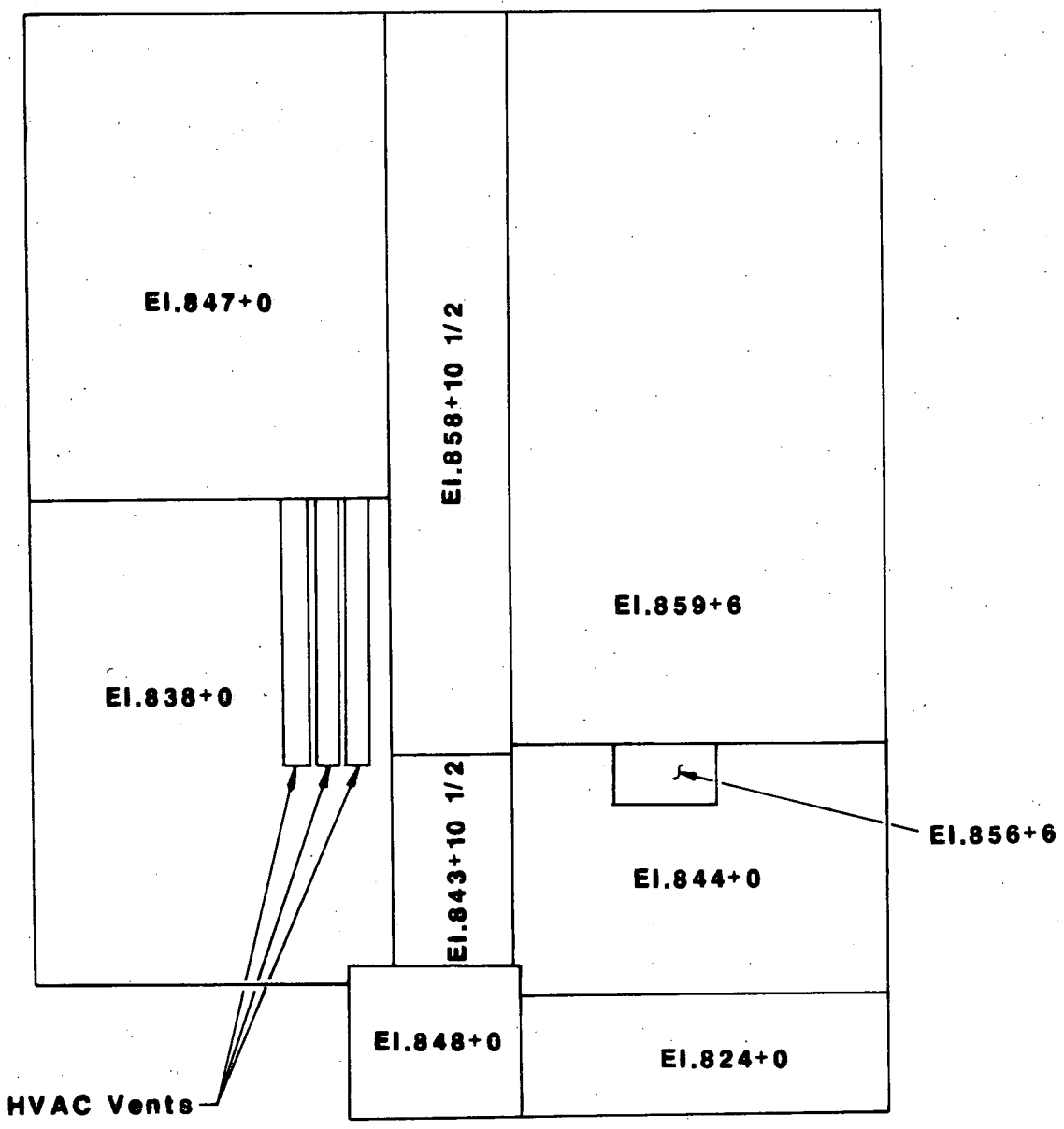
Radiological effluents from the radwaste facility are exhausted horizontally through three 48" x 48" HVAC rooftop vents at an elevation of 843 feet MSL (47 feet AGL). (See Figure 1.) Exit speed is approximately 11 m/sec; exit temperature is assumed to be non-bouyant.

All accidental releases assume a two hour uniform release of gaseous or aerosol material through the HVAC vents and/or other building openings. The release point, therefore, is taken at ground level.

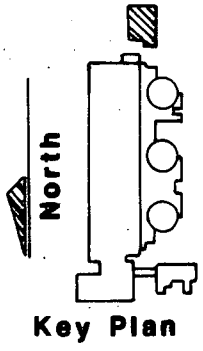
Normal operational releases assume a continuous uniform release of gaseous or aerosol material through the HVAC vents. The release point, then, is effectively at ground level due to the turbulent wake from higher structures in proximity to the radwaste facility building. For

simplicity, however, scaling arguments show, for the very low levels of release, that dispersion and deposition parameters for plant vent releases can be applied to the radwaste facility without concern of violating Appendix I dose limits. (See May 1, 1984 letter H. B. Tucker to Harold R. Denton, Docket Nos. 50-269, -270, and -287 for scaling regarding the interim radwaste facility.) As stated in this letter, 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. Since releases from the permanent radwaste facility are estimated at 5% of plant releases for both whole body and infant thyroid considerations, scaling results for the interim radwaste facility are also applicable to the permanent radwaste facility. A mixed mode type of release is assumed for plant vents. (See Meteorological Analysis in the Oconee Evalutaion of Compliance with 10CFR50 Appendix I and Supporting Information, June 4, 1976.)

Figure 1



Radwaste Facility Roof Plan



Request 2:

Considering the release point(s) and release characteristics described in response to RAI #1 above, provide a description of the atmospheric dispersion model used to calculate appropriate X/Q and D/Q values for accidental and normal releases including specification of and justification for model input information such as release mode (e.g., ground level, elevated, or a mixture of ground level and elevated), characteristic building shapes (height and cross-sectional area), and meteorological data base (period of record and distributions of wind speed, wind direction, and atmospheric stability). For example, a characteristic building wake factor, cA, of 1270m^2 is assumed for evaluating short-term accidental releases (Section 3.2 page 40). This is a value typically assumed for accidental releases from or in the immediate vicinity of the reactor building, and may or may not be applicable to accidental releases from the incinerator. No comparable building information is presented in either this document or in the cross-referenced Offsite Dose Calculation Manual (ODCM) for consideration in evaluating normal releases from the incinerator.

Response:

The accident analysis meteorological data base is for the period March 15, 1970 - March 14, 1972. Joint frequency tables of wind direction, wind speed and atmospheric stability are shown in the Oconee FSAR Supplement 11, Docket Nos. 50-270 and -287 (See discussion in the Oconee SER Section 3.2.4, Units 2 and 3.)

A straight-line gaussian model is used to calculate two-hour X/Q values for accidential releases from the radwaste facility (See Oconee SER Section 3.2.4, Units 2 and 3). It is based on a CA factor of 1270 m^2, taken to approximate building wake effects for general releases within the reactor building complex. The X/Q value which is exceeded 5% of the time at the exclusion radius of 1609 m is 2.2E-4 (sec/m^3), a relative concentraction equivalent to dispersion conditions produced by Pasquill Type F stability and a wind speed of 1 (m/sec). This same analysis based on the more limited assumption of a building wake influence involving only the radwaste facility itself, yields a 5% X/Q value of 2/7E-4 (sec/m^3). Here a CA factor of 350 m^2 represents the minimum cross-sectional area of the radwaste facility building.

The meteorological data base for normal operational releases is for the period January 1, 1975 - December 31, 1975. Corresponding joint frequency tables are presented in the Meterological Analysis. Oconee Evaluation of Compliance with 10CFR50 Appendix I and Supporting Information, June 4, 1976.

A straight-line gaussian model is also used to calculate annual average X/Q and D/Q values for normal operational releases. Dispersion and deposition valves are generated with the NRC XOQDOQ code, assuming a ground level release. Inputed adjacent building height is 58 m; standard open terrain recirculation factors apply. (See Tables 1 and 2.)

Table 1

```
LSNRC COMPUTER CODE - XOQDOQ,  VERSION 2.0          RUN DATE: 10/25/85
GCENEE XOCDOQ

GCENEE
NO DECAY,  UNDEPLETED
CORRECTED USING STANDARD OPEN TERRAIN FACTORS

ANNUAL AVERAGE CHI/Q (SEC/METER CUBED)                    DISTANCE IN MILES FROM THE SITE
  SECTOR      0.250     0.500     0.750     1.000     1.500     2.000     2.500     3.000     3.500     4.000     4.500
     S     1.202E-04 3.578E-05 1.794E-05 9.171E-06 3.746E-06 2.100E-06 1.370E-06 9.775E-07 7.411E-07 5.867E-07 4.798E-07
   SSW     5.830E-05 1.734E-05 8.750E-06 4.428E-06 1.789E-06 1.000E-06 6.514E-07 4.645E-07 3.515E-07 2.785E-07 2.277E-07
    SW     5.603E-05 1.703E-05 8.745E-06 4.481E-06 1.827E-06 1.014E-06 6.536E-07 4.627E-07 3.484E-07 2.743E-07 2.232E-07
   WSW     3.208E-05 9.834E-06 5.120E-06 2.625E-06 1.069E-06 5.880E-07 3.772E-07 2.656E-07 1.992E-07 1.563E-07 1.268E-07
     W     2.775E-05 8.477E-06 4.389E-06 2.244E-06 9.116E-07 5.010E-07 3.212E-07 2.264E-07 1.696E-07 1.330E-07 1.079E-07
   WNW     2.032E-05 6.107E-06 3.120E-06 1.601E-06 6.559E-07 3.631E-07 2.341E-07 1.656E-07 1.246E-07 9.802E-08 7.972E-08
    NW     2.412E-05 7.320E-06 3.751E-06 1.963E-06 7.674E-07 4.217E-07 2.706E-07 1.911E-07 1.430E-07 1.123E-07 9.115E-08
   NNW     3.062E-05 9.252E-06 4.772E-06 2.434E-06 9.876E-07 5.441E-07 3.496E-07 2.466E-07 1.852E-07 1.455E-07 1.182E-07
     N     3.501E-05 1.051E-05 5.396E-06 2.738E-06 1.108E-06 6.116E-07 3.941E-07 2.786E-07 2.096E-07 1.649E-07 1.341E-07
   NNE     3.125E-05 9.369E-06 4.826E-06 2.440E-06 9.825E-07 5.382E-07 3.444E-07 2.422E-07 1.814E-07 1.422E-07 1.155E-07
    NE     3.681E-05 1.114E-05 5.796E-06 2.943E-06 1.184E-06 6.514E-07 4.167E-07 2.932E-07 2.196E-07 1.721E-07 1.395E-07
   ENE     3.221E-05 9.756E-06 5.047E-06 2.555E-06 1.028E-06 5.662E-07 3.641E-07 2.570E-07 1.932E-07 1.518E-07 1.234E-07
     E     3.725E-05 1.128E-05 5.817E-06 2.954E-06 1.196E-06 6.610E-07 4.260E-07 3.011E-07 2.265E-07 1.782E-07 1.449E-07
   ESE     3.930E-05 1.174E-05 5.962E-06 3.052E-06 1.247E-06 6.948E-07 4.506E-07 3.211E-07 2.416E-07 1.909E-07 1.557E-07
    SE     4.744E-05 1.414E-05 7.193E-06 3.678E-06 1.501E-06 8.380E-07 5.445E-07 3.874E-07 2.915E-07 2.315E-07 1.890E-07
   SSE     6.890E-05 2.054E-05 1.036E-05 5.309E-06 2.174E-06 1.217E-06 7.928E-07 5.651E-07 4.279E-07 3.385E-07 2.766E-07

ANNUAL AVERAGE CHI/Q (SEC/METER CUBED)                    DISTANCE IN MILES FROM THE SITE
  SECTOR      5.000     7.500    10.000    15.000    20.000    25.000    30.000    35.000    40.000    45.000    50.000
     S     4.024E-07 2.164E-07 1.451E-07 8.690E-08 6.057E-08 4.583E-08 3.653E-08 3.017E-08 2.556E-08 2.212E-08 1.943E-08
   SSW     1.404E-07 1.028E-07 6.881E-08 4.121E-08 2.874E-08 2.177E-08 1.736E-08 1.435E-08 1.217E-08 1.053E-08 9.251E-09
    SW     1.864E-07 9.891E-08 6.549E-08 3.866E-08 2.670E-08 2.007E-08 1.591E-08 1.318E-08 1.119E-08 9.522E-09 8.339E-09
   WSW     1.051E-07 5.545E-08 3.646E-08 2.133E-08 1.465E-08 1.096E-08 8.661E-09 7.162E-09 5.983E-09 5.145E-09 4.498E-09
     W     8.703E-08 4.717E-08 3.102E-08 1.816E-08 1.246E-08 9.342E-09 7.384E-09 6.057E-09 5.116E-09 4.393E-09 3.841E-09
   WNW     6.653E-08 3.523E-08 2.330E-08 1.373E-08 9.473E-09 7.114E-09 5.636E-09 4.631E-09 3.911E-09 3.369E-09 2.956E-09
    NW     7.553E-08 3.999E-08 2.636E-08 1.549E-08 1.069E-08 8.026E-09 6.360E-09 5.228E-09 4.415E-09 3.805E-09 3.332E-09
   NNW     9.852E-08 5.197E-08 3.426E-08 2.016E-08 1.390E-08 1.044E-08 8.271E-09 6.797E-09 5.738E-09 4.944E-09 4.326E-09
     N     1.119E-07 5.930E-08 3.924E-08 2.317E-08 1.602E-08 1.205E-08 9.560E-09 7.867E-09 6.644E-09 5.734E-09 5.025E-09
   NNE     9.600E-08 5.039E-08 3.315E-08 1.944E-08 1.339E-08 1.005E-08 7.962E-09 6.543E-09 5.524E-09 4.768E-09 4.178E-09
    NE     1.161E-07 6.068E-08 4.000E-08 2.340E-08 1.608E-08 1.203E-08 9.525E-09 7.816E-09 6.590E-09 5.672E-09 4.962E-09
   ENE     1.025E-07 5.441E-08 3.596E-08 2.120E-08 1.465E-08 1.102E-08 8.738E-09 7.190E-09 6.075E-09 5.239E-09 4.590E-09
     E     1.205E-07 6.406E-08 4.238E-08 2.501E-08 1.726E-08 1.297E-08 1.028E-08 8.456E-09 7.142E-09 6.157E-09 5.393E-09
   ESE     1.302E-07 6.962E-08 4.632E-08 2.753E-08 1.904E-08 1.440E-08 1.144E-08 9.429E-09 7.978E-09 6.887E-09 6.040E-09
    SE     1.566E-07 8.461E-08 5.654E-08 3.364E-08 2.340E-08 1.767E-08 1.405E-08 1.154E-08 9.812E-09 8.475E-09 7.436E-09
   SSE     2.318E-07 1.246E-07 8.321E-08 4.967E-08 3.454E-08 2.609E-08 2.077E-08 1.713E-08 1.451E-08 1.254E-08 1.100E-08

VENT AND BUILDING PARAMETERS:
    RELEASE HEIGHT   (METERS)    60.00          REP. WIND HEIGHT      (METERS)     10.0
    DIAMETER         (METERS)     0.0           BUILDING HEIGHT       (METERS)     58.0
    EXIT VELOCITY    (METERS)     0.0           BLDG.MIN.CRS.SEC.AREA (SQ.METERS)  700.0
                                                HEAT EMISSION RATE    (CAL/SEC)      0.0

ALL GROUND LEVEL RELEASES.
```

Table 2

```
USNRC COMPUTER CODE - XOQDOQ,  VERSION 2.0          RUN DATE: 10/25/85RECTION          ATMOSP
OCONEE XOQDOQ

OCONEE
CORRECTED USING STANDARD OPEN TERRAIN FACTORS
********************     RELATIVE DEPOSITION PER UNIT AREA (M**-2) AT FIXED POINTS BY DOWNWIND SECTORS     **********************
DIRECTION                                                    DISTANCES IN MILES
FROM SITE      0.25       0.50       0.75       1.00       1.50       2.00       2.50       3.00       3.50       4.00       4.50
     S  2.512E-07  8.496E-08  4.362E-08  2.074E-08  7.450E-09  3.644E-09  2.175E-09  1.424E-09  1.062E-09  7.428E-10  5.724E-10
   SSW  1.395E-07  4.717E-08  2.422E-08  1.151E-08  4.136E-09  2.051E-09  1.208E-09  7.907E-10  5.564E-10  4.123E-10  3.176E-10
    SW  1.995E-07  6.745E-08  3.463E-08  1.646E-08  5.914E-09  2.933E-09  1.727E-09  1.131E-09  7.957E-10  5.897E-10  4.544E-10
   WSW  1.517E-07  5.130E-08  2.634E-08  1.252E-08  4.498E-09  2.231E-09  1.313E-09  8.600E-10  6.052E-10  4.485E-10  3.456E-10
     W  1.196E-07  4.025E-08  2.066E-08  9.824E-09  3.529E-09  1.750E-09  1.030E-09  6.747E-10  4.748E-10  3.519E-10  2.711E-10
   WNW  7.144E-08  2.417E-08  1.241E-08  5.901E-09  2.120E-09  1.051E-09  6.184E-10  4.053E-10  2.852E-10  2.113E-10  1.629E-10
    NW  8.854E-08  2.994E-08  1.537E-08  7.311E-09  2.625E-09  1.302E-09  7.666E-10  5.024E-10  3.534E-10  2.618E-10  2.017E-10
   NNW  1.170E-07  3.955E-08  2.031E-08  9.654E-09  3.468E-09  1.720E-09  1.013E-09  6.631E-10  4.666E-10  3.456E-10  2.665E-10
     N  1.447E-07  4.895E-08  2.513E-08  1.195E-08  4.292E-09  2.128E-09  1.253E-09  8.206E-10  5.774E-10  4.279E-10  3.298E-10
   NNE  1.765E-07  5.967E-08  3.064E-08  1.457E-08  5.232E-09  2.595E-09  1.528E-09  1.000E-09  7.035E-10  5.217E-10  4.020E-10
    NE  2.002E-07  6.771E-08  3.477E-08  1.653E-08  5.937E-09  2.944E-09  1.734E-09  1.135E-09  7.987E-10  5.920E-10  4.562E-10
   ENE  1.318E-07  4.457E-08  2.288E-08  1.088E-08  3.908E-09  1.938E-09  1.141E-09  7.472E-10  5.257E-10  3.896E-10  3.003E-10
     E  1.406E-07  4.753E-08  2.440E-08  1.160E-08  4.168E-09  2.067E-09  1.217E-09  7.968E-10  5.607E-10  4.155E-10  3.202E-10
   ESE  1.268E-07  4.356E-08  2.237E-08  1.063E-08  3.819E-09  1.894E-09  1.115E-09  7.303E-10  5.139E-10  3.808E-10  2.935E-10
    SE  1.153E-07  3.900E-08  2.002E-08  9.520E-09  3.420E-09  1.696E-09  9.985E-10  6.538E-10  4.601E-10  3.410E-10  2.628E-10
   SSE  1.402E-07  4.741E-08  2.434E-08  1.157E-08  4.157E-09  2.062E-09  1.214E-09  7.946E-10  5.593E-10  4.145E-10  3.194E-10

DIRECTION                                                    DISTANCES IN MILES
FROM SITE      5.00       7.50      10.00      15.00      20.00      25.00      30.00      35.00      40.00      45.00      50.00
     S  4.547E-10  2.020E-10  1.224E-10  6.185E-11  3.743E-11  2.510E-11  1.798E-11  1.350E-11  1.050E-11  8.388E-12  6.846E-12
   SSW  2.524E-10  1.121E-10  6.793E-11  3.434E-11  2.078E-11  1.393E-11  9.984E-12  7.497E-12  5.825E-12  4.656E-12  3.801E-12
    SW  3.610E-10  1.604E-10  9.714E-11  4.910E-11  2.972E-11  1.993E-11  1.428E-11  1.072E-11  8.336E-12  6.659E-12  5.435E-12
   WSW  2.746E-10  1.220E-10  7.388E-11  3.734E-11  2.260E-11  1.515E-11  1.086E-11  8.154E-12  6.340E-12  5.064E-12  4.134E-12
     W  2.154E-10  9.569E-11  5.796E-11  2.930E-11  1.773E-11  1.189E-11  8.519E-12  6.397E-12  4.974E-12  3.973E-12  3.243E-12
   WNW  1.279E-10  5.682E-11  3.440E-11  1.739E-11  1.052E-11  7.055E-12  5.055E-12  3.795E-12  2.950E-12  2.356E-12  1.923E-12
    NW  1.603E-10  7.119E-11  4.312E-11  2.180E-11  1.319E-11  8.845E-12  6.336E-12  4.756E-12  3.700E-12  2.956E-12  2.413E-12
   NNW  2.117E-10  9.404E-11  5.696E-11  2.879E-11  1.743E-11  1.168E-11  8.372E-12  6.287E-12  4.889E-12  3.905E-12  3.187E-12
     N  2.620E-10  1.164E-10  7.050E-11  3.563E-11  2.157E-11  1.446E-11  1.036E-11  7.780E-12  6.049E-12  4.832E-12  3.944E-12
   NNE  3.194E-10  1.419E-10  8.595E-11  4.344E-11  2.629E-11  1.763E-11  1.263E-11  9.485E-12  7.375E-12  5.891E-12  4.807E-12
    NE  3.624E-10  1.610E-10  9.752E-11  4.929E-11  2.983E-11  2.000E-11  1.433E-11  1.076E-11  8.366E-12  6.685E-12  5.456E-12
   ENE  2.385E-10  1.060E-10  6.419E-11  3.244E-11  1.964E-11  1.317E-11  9.434E-12  7.084E-12  5.508E-12  4.400E-12  3.591E-12
     E  2.544E-10  1.130E-10  6.846E-11  3.460E-11  2.094E-11  1.404E-11  1.006E-11  7.555E-12  5.874E-12  4.692E-12  3.830E-12
   ESE  2.331E-10  1.036E-10  6.274E-11  3.171E-11  1.919E-11  1.287E-11  9.221E-12  6.924E-12  5.384E-12  4.300E-12  3.510E-12
    SE  2.087E-10  9.273E-11  5.617E-11  2.839E-11  1.718E-11  1.152E-11  8.256E-12  6.199E-12  4.820E-12  3.850E-12  3.143E-12
   SSE  2.537E-10  1.127E-10  6.828E-11  3.451E-11  2.089E-11  1.401E-11  1.004E-11  7.536E-12  5.859E-12  4.680E-12  3.820E-12
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Request 3:

Table 2.3.3, "Site Boundary Concentrations from Normal Operations," is apparently based on a X/Q value of 4.1×10^{-7} sec/m^3 representative of a "maximum location at 3.5 miles" south of the facility. However, site boundary distances presented or implied in Tables A4.0-1, A4.0-2, and A5.0-1 of the ODCM appear to be considerably smaller distances. Provide justification for the use of a X/Q value of 4.1×10^{-7} sec/m^3 to represent maximum annual average atmospheric dispersion information at or beyond the site boundary for releases from the incinerator, considering release point and release characteristic information provided in response to RAI #1 above and atmospheric dispersion modeling information provided in response to RAI #2 above.

Response:

Table 2.3.3 is now based on a X/Q = 9.2E-6 (sec/m^3), representative of a maximum location at 1.0 mile south of the facility. (See new modeling approach in B.1.).

Request 4:

From the description of the airborne releases from normal operations (Section 2.3.1) and of the potential accidental releases (Section 3.1), atmospheric deposition could be a significant dose pathway for particles and radioiodines released from the incinerator. Provide a discussion of atmospheric deposition of particles and radioiodines from normal and accidental releases, and, if deposition is a significant dose pathway, provide estimates of relative deposition (D/Q) at appropriate locations, considering information provided in response to RAIs #1 and #2 above.

Response:

For the assumed two hour accidental release, ground plane exposure is not limiting with respect to the presently calculated undepleted inhalation dose. Annual average D/Q values for normal operational releases are referenced in question B.2.

Request 5:

Provide more specific information on meteorological data used to represent atmospheric transport and diffusion characteristics (see RAI #2 above) and expand Section 6.3, "Meteorological Data," accordingly. Also, Section 6.3 should include specific meteorological conditions (e.g., extreme winds and tornadoes) considered in the design of the radwaste facility structure allowed to in Section 5.0.

Response:

Design values of atmospheric variables for structural considerations in the radwaste facility are:

1. The design wind velocity is 95 mph at 30 feet above the nominal ground elevation. (1 in 100 year wind, reference ASCE paper 3269, "Wind Forces on Structures" and Oconee FSAR, Section 3.3.2.4.)

2. The design rainfall used for roof drains is 4 in/hour. (1 in 100 year, 1 hour rainfall, reference Technical Paper No. 40, "Rainfall Frequency Atlas of the United States, Soil Conservation Service, U.S. Department of Agriculture.)