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 STOLZ, J. F. PWR Project Directorate 6

SUBJECT: Requests exception to Option 1 of Table 2 in Suppl 1 to NUREG-0737 transmitted by Generic Ltr 82-33. Encl shows little measurable differ on personnel between emergency operating facility located 9.4 miles & 10 miles.

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 TITLE: DR/Licensing Submittal: Suppl 1 to NUREG-0737(Generic Ltr 82-33)

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

	RECIPIENT ID CODE/NAME	COPIES LTTR ENCL	RECIPIENT ID CODE/NAME	COPIES LTTR ENCL
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	PWR-B PEICSB	2 2	PWR-B FOB	1 1
	PWR-B PD& LA	1 1	PWR-B PD& PD	7 7
	NICOLARAS, H	1 1	PWR-B PEICSB	1 1
	PWR-B RSB	1 1		
INTERNAL:	ADM/LFMB	1 0	IE/DEPER/EPB	3 3
	NRR BWR ADTS	1 1	NRR PAULSON, W	1 1
	NRR PWR-B ADTS	1 1	NRR/DHFT/MTB	1 1
	NRR/DSRO EMRIT	1 1	NRR/DSRO/EIB	1 1
	NRR/DSRO/RSIB	1 1	<u>REG FILES</u>	1 1
	RGN2	1 1		
EXTERNAL:	LPDR	1 1	NRC PDR	1 1
	NSIC	1 1		

NOTES: *Rec'd w/out check*

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June 18, 1986

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

Attention: Mr. John F. Stolz, Project Director  
PWR Project Directorate No. 6

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

Dear Sir:

By Generic Letter 82-33 dated December 17, 1982, the NRC transmitted Supplement 1 to NUREG-0737. This document contains the most recent NRC position regarding the location and habitability criteria for Emergency Operating Facilities (EOFs). Option 1 in Table 1 of Supplement 1 to NUREG-0737 specifies the location and habitability guidelines for an EOF located within 10 miles. Specifically the guidance offered by Option 1 of Table 1 states that two facilities would be required, a primary (within 10 miles) and a backup (between 10 to 20 miles). Furthermore, the table states that the primary facility should have a protection factor of 5 and a ventilation system that can be isolated and also includes HEPA filters.

By letter dated December 2, 1985, Duke Power Company (Duke) provided to the NRC information concerning the EOF for the Oconee Nuclear Station. Within the December 2, 1985 Duke letter, the NRC was advised that the proposed site location is approximately 9.5 miles southeast of Oconee. The facility will provide a protection factor of 5; however, Duke does not plan on incorporating HEPA filter trains and the capability to isolate the ventilation system. In addition, Duke does not plan to have a "backup" facility.

As such, Duke requests an Exception to the NRC position specified in Option 1 of Table 2 in Supplement 1 to NUREG-0737. Specifically, Duke requests an Exception to the criteria for a backup facility and the criteria for ventilation isolation with HEPA filters for the primary facility.

In support of this request, Duke has performed analyses that shows that the radiological effects from postulated severe reactor accidents are essentially the same for an EOF located at 10.0 miles as well as an EOF located at 9.4 miles. Thus, Duke contends that the NRC position for an EOF at 10 miles is applicable to an EOF located at 9.4 miles.

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Duke calls your attention to Option 2 in Table 1 in Supplement 1 to NUREG-0737, which states:

OPTION 2  
ONE FACILITY

- At or beyond 10 miles.
- No special protection factor.
- If beyond 20 miles, specific approval required by the Commission and some provisions for NRC site team closer to site.
- Strongly recommended location be coordinated with offsite authorities.

In short, the criteria specified in Option 2 does not recommend any special protection factor nor does it require a backup facility.

The attachment to this letter provides the basis for Duke's position. In that there is little measurable difference between radiological effect on personnel within an EOF located 9.4 miles and one located 10.0 miles. As such, the NRC position specified in option 2 above is applicable to an EOF located 9.4 miles from Oconee.

Duke is committed to establishing an EOF at the proposed site location at the earliest possible time. In support of this effort, Duke requests that the resolution of this exception request be handled in a expeditious manner. Your assistance, by a timely review and approval of this exception request, is greatly appreciated and will significantly enhance our ability to meet our proposed scheduled provided to you by my letter dated December 2, 1985.

In accordance with 10 CFR 170.12 a check in the amount of \$150.00 to cover the application fee is enclosed.

Very truly yours,



Hal B. Tucker

PFG:slb

Attachment

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

Mr. Harold R. Denton, Director

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xc: Mrs. Helen Pastis  
Office of Nuclear Reactor Regulation  
U. S. Nuclear Regulatory Commission  
Washington, D. C. 20555

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

ATTACHMENT

DUKE POWER COMPANY  
OCONEE NUCLEAR STATION

EMERGENCY OPERATION FACILITY  
SITE LOCATION

## Introduction

NRC Guidance offered by Supplement 1 to NUREG-0737 provided the NRC's position with respect to location and habitability criteria for Emergency Operating Facilities (EOFs). Table 1 identified two options available to licensees for the development of an EOF. Option 1 indicated that if a primary EOF was located within 10 miles of the site, it is necessary to have at least a protection factor equal to 5. Further, ventilation isolation with HEPA is also specified. In addition, a backup EOF between 10 and 20 miles is required. Option 2 simply indicated that it was acceptable to locate one facility at or beyond 10 miles but less than 20 miles with no special protection factor or other habitability features are required at all.

The proposed site location of Oconee Nuclear Station's EOF is approximately 9.5 miles from Oconee. The apparent reasons for special ventilation equipment and a need for a backup EOF is to preclude the interruption of EOF functions during radiation releases for which it would be necessary to recommend protective actions for the public to offsite officials. Duke agrees with the desirability to preclude such interruption of EOF functions. This appears to dictate that an assumption requiring evacuation of a "primary" EOF must clearly be related to the extent of the habitability of the "primary" EOF.

To this end, an analysis was performed by Duke to assess the habitability of an EOF located 9.4 miles from Oconee. The analysis determined the difference between the expected doses at 9.4 miles versus the expected doses at 10 miles, which in accordance with Option 2 in Table 1 of Supplement 1 to NUREG-0737 requires no special ventilation, no protection factor, and no backup facility. The analyses utilized the CRAC2 computer code and information provided in the Oconee PRA. These computer analyses were also used to determine the probability of exceeding the EPA Protective Action Guide (PAG) values for a facility located at 9.4 miles and for one located at 10 miles. Through these comparisons, it can be shown that the criteria specified in Option 2 is applicable for an EOF located at or greater than 9.4 miles from Oconee.

## Summary of Methodology

The CRAC2 computer code was used with Oconee PRA release categories and meteorological data. The output options chosen were dose vs. distance curves for the whole body, thyroid, and bone marrow pathways. The following were the general assumptions used to perform the analysis:

- Oconee PRA Release Categories and Frequencies
- Total Core-Melt Frequency =  $2.5E-4$
- Meteorological Data from Oconee PRA which is based on the period of record February 1, 1976 through January 31, 1977
- CRAC2 site specific data is derived from the Oconee PRA
- Non-site specific data is based on latest version of CRAC2 user manual
- Meteorological Bin Method used to select meteorological data - 29 bins, 4 samples from each bin
- Distances of interest are 9.4 and 10.0 miles
- Direction of interest is the SE sector
- All doses are acute pathway doses accumulated over a 24-hour period which begins at the start of the warning time
- All doses are with no sheltering
- Whole body, thyroid, and bone marrow dose vs. distance curves will be produced
- Spatial grid redefined such that Interval 18 corresponds to 9.4 miles and Interval 20 corresponds to 10.0 miles
- Since all curves produced are for the entire radius, all values should be multiplied by the probability of the plume being directed toward the SE sector, probability of SE plume direction - 0.058

## Summary of Results

The results of the analyses are summarized in Tables 1, 2, and 3. Table 1 shows the comparison of doses at 9.4 and 10.0 miles assuming that a core melt has taken place. Table 2 shows the comparison of the probability that the EPA PAGs will be exceeded at 9.4 and 10.0 miles if a core melt does occur. Table 3 shows the comparison of the probability that the PAGs will be exceeded at 9.4 and 10.0 miles in any given year. The values in Table 3 have been modified to account for all three Oconee units contributing to the risk for this one EOF. The above results are based on that there is no special ventilation equipment installed and that there is no special design features which would allow assigning a Protective factor for the facility.



Table 1

CRAC2 Results Summary - Conditional  
Mean Consequence Comparison

Dose Pathway	Given a Core Melt*	
	9.4(mi)distance	10.0(mi)distance
Whole Body	4.6E-2	4.4E-2
Thyroid	3.3E-1	3.1E-1
Bone Marrow	5.5E-2	5.3E-2

\*These values are CRAC2 means modified by multiplying by the probability of SE plume (0.058) and divided by the total core-melt frequency (2.5E-4).

Table 2

CRAC2 Results Summary -  
Conditional Risk Comparison

Dose Pathway	EPA PAG(Rem)	Probability of Exceeding PAG*	
		9.4(mi)distance	10.0(mi)distance
Whole Body	5.0	5.5E-4	5.5E-4
Thyroid	25.0	8.2E-4	8.1E-4

\*Assumes probability of SE plume is 0.058 and core-melt frequency is 2.5E-4.

Table 3

CRAC2 Results Summary -  
Actual Risk Comparison

Dose Pathway	EPA PAG(Rem)	Oconee Nuclear Station*	
		Probability of Exceeding PAG/yr 9.4(mi)distance	10.0(mi)distance
Whole Body	5.0	4.2E-7	4.1E-7
Thyroid	25.0	6.1E-7	6.1E-7

\*Assumes Unit 1 and 2 core-melt frequency is the same as Unit 3; therefore, multiply by 3. Also assumes probability of SE plume is 0.058.

### Conclusions

Based on the results summarized in Tables 1, 2, and 3, there is little measurable difference between the radiological effect on personnel within an EOF located 9.4 miles and one located 10.0 miles. From this prospective, Duke concludes that the NRC position specified in Option 2 in Table 1 of Supplement 1 to NUREG-0737 is applicable for an EOF located 9.4 miles from Oconee. As such, the request for exception to the criteria for ventilation isolation with HEPA for the primary and the criteria for a backup facility is justifiable.