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Docket Nos. 50-348  
50-364

U. S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Washington, DC 20555

Gentlemen:

Joseph M. Farley Nuclear Plant - Units 1 and 2  
Offsite Dose Calculation Manual Review

By letter dated November 9, 1989 the Nuclear Regulatory Commission (NRC) issued a Technical Evaluation Report (TER) prepared by EG&G Idaho, Inc. which documents their review of the J. M. Farley Nuclear Plant Offsite Dose Calculation Manual (ODCM), Revision 7. As a result of this technical review, several concerns were raised for which the NRC requested resolution within six months of the November 9, 1989 letter.

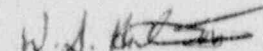
Alabama Power Company has evaluated the concerns identified in the TER and provides a response to each in an attachment to this letter. Resolution for some of the concerns will require a formal change to the ODCM computer software. Due to the amount of time required to prepare a correction, perform testing of the software revisions and implement the changes, the requested schedule for resolution cannot be met. Alabama Power Company commits to complete the necessary changes to the ODCM and the computer software by August 30, 1990. This schedule change has been discussed with the NRC Project Manager.

In addition, several suggestions for possible changes to the ODCM were provided in the TER for which specific responses were not requested. Alabama Power Company will consider these suggestions during a future ODCM revision.

Alabama Power Company considers the November 9, 1989 TER to be a letter of acceptance by the NRC pending implementation of the resolutions described in the attachment. If the NRC disagrees with this position, please advise.

If there are any questions, please advise.

Respectfully submitted,

  
W. G. Hairston, III

WGH,III/BHW:dst 18.1.19  
Attachment

cc: Mr. S. D. Ebnetter  
Mr. S. T. Hoffman  
Mr. G. F. Maxv211

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## ATTACHMENT

### J. M. Farley Nuclear Plant - Units 1 and 2 Offsite Dose Calculation Manual Review

#### NRC Concern

In section 2.1, another figure and/or a detailed description should be added to clearly define the pathways of radioactive liquid waste and dilution water from each source to the discharge point in the Chattahoochee River.

#### APCo Position

A figure will be added to the ODCM that clearly defines the pathways of liquid waste and the dilution water from each source.

#### NRC Concern

Figure 2-1 should be expanded to show the solid waste management system or a figure showing this system should be added to the ODCM.

#### APCo Position

Solid waste management systems are discussed in the FNP Process Control Program. A review of NUREG-0133 indicates no guidance regarding duplication of this information in the ODCM. Therefore, we propose that the ODCM not include a diagram of the solid waste management system.

#### NRC Concern

Section 2.2 should include methodology to determine setpoints for the monitors on the steam generator blowdown effluent lines.

#### APCo Position

Section 2.2 will be modified to include the methodology for determining the setpoints for the steam generator blowdown monitor.

NRC Concern

The methodology to determine setpoints of liquid effluent monitors in Section 2.2 and compliance with the 10 CFR 20 limits in Section 2.3 should specifically address the simultaneous release of radioactive materials from several sources, including the turbine building sumps. Also, the source of dilution water flow for each radioactive effluent stream should be identified.

APCo Position

The methodology to determine setpoints for all liquid effluent monitors that considers the simultaneous release of radioactive materials from several sources has been developed and will be included in the next revision. Also a new figure will be added to the ODCM showing the source of dilution water for each radioactive effluent stream.

NRC Concern

Liquid pathways other than fish consumption should be addressed in Section 2.4, either by including the methodology for calculating doses or stating that the pathways do not exist, as appropriate.

APCo Position

A water use survey of the Chattahoochee River will be performed, and the pathways for human exposure that are identified will be incorporated into the ODCM by August 30, 1990. Those pathways that do not exist will be explicitly stated as not existing.

NRC Concern

Table 2-3, Liquid Dose Conversion Factors, should include Mo-99, since it is one of the principal gamma emitters for which analysis is required by Notation e) of Technical Specification Table 4.11-1.

APCo Position

Table 2-3, Liquid Dose Conversion Factors, contains Mo-99.

NRC Concern

In Section 3.3, the term "average" should be removed from the definition of  $Q_{1v}$ , since the dose rate limits are instantaneous.

APCo Position

This correction will be made in the next revision of the ODCM.

NRC Concern

The methodology in Section 3.3 to determine setpoints of the gaseous monitors should account for releases from the ILRT vents.

APCo Position

The original intent of the ODCM was to include the ILRT vents and the computer software implementing the ODCM currently includes the ILRT vents. The wording of the ODCM will be changed in the next revision to clarify the inclusion of the ILRT vents in the setpoint calculations.

NRC Concern

The averaging of noble gas releases in Section 3.4 over a period of 1 hour and other releases over 1 week should be changed or justified, since NUREG-0133 recommends "1 second" for the averaging period.

APCo Position

Section 2.2 of NUREG-0133 states that a release rate is defined as "the discharge of radioactive materials in liquid or gaseous effluents per unit time." A "second" is used as the practical reporting time unit for establishing compliance with the instantaneous limitations of 10CFR Part 20. The methodology described in Section 3.3 of the ODCM for calculating the alarm setpoint, which defines the allowed instantaneous release rate, agrees with the guidance provided in NUREG-0133. The allowable instantaneous release rate is calculated on a "per second" basis.

The methodology described in Section 3.4 of the ODCM for assessing compliance with the limits of 10CFR Part 20 is being performed in order to show compliance with technical specifications and agrees with the guidance provided in NUREG-0133. The hourly or weekly averaging of release rates is a practical means of assessing compliance with the regulatory limits and is consistent with the surveillance requirements of technical specifications.

NRC Concern

The following corrections should be made in Table 3-4, Infant Dose Factors, which is used with equation 3.25 for calculating the organ dose rate: (a) The ground plane dose factor for C-14 should be 0.0; (b) The cow-milk and goat-milk dose factors for C-14 should be  $3.23E+06$  mrem/yr per uCi/m<sup>3</sup> instead of  $2.34E+09$  m<sup>2</sup> (mrem/yr) per uCi/s, based on the dose methodology for C-14 in Appendix C of Regulatory Guide 1.109; and (c) goat-milk dose factors should be non-zero for all nuclides with a transfer factor in either Table E-1 or E-2 in Regulatory Guide 1.109.

APCo Position

For items (a) and (b) the dose factor for C-14 will be eliminated from the ODCM since analysis of C-14 is not required by present NRC guidance. (c) Goat milk dose factors that are currently listed as zero will be calculated using the appropriate factors and will be provided in the next revision of the ODCM.

NRC Concern

In Section 3.4 (b), all assumptions used in calculations of the  $R_{oi}$ 's should be furnished in the ODCM (e.g., it could be stated that the default values of Regulatory Guide 1.109 are used for consumption, transit times, etc.).

APCo Position

Assumptions and calculations for the  $R_{oi}$ 's are based on the default values from Regulatory Guide 1.109 and NUREG-0133 and the ODCM will be revised to reflect the basis for the values in the next revision.

NRC Concern

The definitions of  $W_{mv}$  in Section 3.4 (b) and of  $R_{oi}$ ,  $W_{iv}$  and  $W$  in Section 3.6.2 should specify the use of  $(X/Q)_{iv}$  for C-14 for all pathways (See Equation C-8 in Regulatory Guide 1.109). Alternatively, the calculation of doses due to C-14 could be eliminated since it is not required by recent NRC guidance.

APCo Position

C-14 will be eliminated from the calculations and all tables of the ODCM in the next revision.

NRC Concern

In Section 3.6.1 and 3.6.2, all release points, including the ILRT vents, should be specifically included in the calculations (e.g., by identifying the vents included and summing over the subscript v).

APCo Position

The formulas in Section 3.6.1 and 3.6.2 will be revised to include the ILRT vents in the calculations by inclusion in the sum term over all pathways in the next revision to the ODCM.

NRC Concern

The basic equation for Method B in Section 3.6.2 should require the summation of doses over the applicable pathways.

APCo Position

The equation for Method B in Section 3.6.2 will be revised to include summation of doses over all applicable pathways in the next revision to the ODCM.

NRC Concern

The first sentence of Section 3.6.2 should be relocated so it applies to both Method A and Method B, and reworded so it requires calculation of doses due to tritium releases.

APCo Position

The first sentence of section 3.6.2 will be relocated as it applies to both Methods A and B. The current wording is exactly the same as the Farley Technical Specification and will be maintained as it is. The parenthetical statement, "tritium, radioiodines, and radionuclides in particulate form with half lives greater than eight days" will be added for clarification.

NRC Concern

Indicator locations for milk sampling should be added to Table 5-1, or an explanation given for their omission.

APCo Position

The table will be changed to reflect the absence of milk animals within 5 miles of the plant based on the current land use survey.

NRC Concern

A subscript should be added to F in the definition of  $t_e$  in Section 2-4.

APCo Position

The appropriate subscript will be added to the F in the next revision of the ODCM.

NRC Concern

The 3 in Equation 3.5 of Section 3.2 should be  $(3)^{1/2}$ .

APCo Position

The ODCM uses the square root symbol and is correct.

NRC Concern

A definition of  $M_1$  should be included in Section 3.6.1.

APCo Position

The definition will be included in the next revision of the ODCM.

NRC Concern

In ODCM Figure 3-1, monitor R-13 should apparently be shown on the effluent line from all the waste gas decay tanks.

APCo Position

Figure 3-1 has been revised to reflect the actual configuration of the waste gas system, radiation monitors and the vent stack.

NRC Concern

The word "radionuclides" in the first sentence of Section 3.4(b) should read "radioiodines." This sentence should also be reworded so doses due to tritium are required to be calculated.

APCo Position

The current wording is exactly the same as the Farley Technical Specification and will be maintained as it is. The parenthetical statement, "tritium, radioiodines, and radionuclides in particulate form with half lives greater than eight days" will be added for clarification.

NRC Concern

The definition of  $R_{i, E, T}$  in Section 3.6.2 should reference Table 3-5 instead of "an appendix."

APCo Position

This change will be made in the next revision of the ODCM.

NRC Concern

The units of distance should be specified in Table 5-1.

APCo Position

This correction will be made in the next revision of the ODCM.