Enclosure 1

Revised Pages

Offsite Dose Calculation Manaul

San Onofre Nuclear Generating Station

Unit 1

8410170235 841015 PDR ADDCK 05000204 P PDR

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2.4 Total Dose Calculations (3.17)

2.4.1 Total Dose to Most Likely Member of the Public

The total annual dose or total dose commitment to any member of the public, due to releases of radioactivity and to radiation, from uranium fuel cycle sources within 5 miles of the site is calculated using the following expressions. This methodology is used to meet the dose limitations of 40 CFR 190 per twelve consecutive months. The transportation of radioactive material is excluded from the dose calculations.

The total air dose is calculated as follows:

$$D_A = D_{A1} \Delta t_B + D_{A23} \Delta t_B \qquad (2-13)$$

where:

 D_{Λ} = total air dose in mrem/year

 D_{A1} = Air dose for Unit 1 in mrem/year

 Δt_B = percent (decimal equivalent) meteorology in the beach sectors

2-38

 D_{A23} = Air dose for Units 2&3 in mrem/year.

The total body liquid dose is determined by:

$$D_{L} = D_{L1} + D_{L23}$$
 (2-14)

where:

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 $D_{T_{i}}$ = total body liquid dose in mrem/year

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- D_{L23} = total body liquid dose in mrem/year for Units 2 and 3 for the past 12 consecutive months

The background dose to an individual member of the public is obtained by calculating the average quarterly TLD dose of those TLD's from 5 to 50 miles distant from the site. The background is subtracted from the highest quarterly reading beach TLD to determine the direct dose as given below:

$$D_{D} = \sum_{i} (D_{beach_{i}} - D_{bkg_{i}})$$
(2-15)

where:

D_D = direct dose in mrem/year

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$$= D_{bkg_i} = average quarterly TLD dose of those TLD's from 5 to 50$$

miles distant from the site in mrem for quarter i

The total dose can now be determined by:

$$D_{T} = (D_{A} + D_{D}) T_{o} + D_{L}$$
 (2-16)

where:

 D_{T} = total dose in mrem/year

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 D_A = total air dose in mrem/year from Equation 2-13

 D_D = direct dose in mrem/year from Equation 2-15

 T_{o} = beach occupancy factor which is equivalent to a beach occupancy time of 300 hours per year.

 D_{L} = total body liquid dose in mrem/year from Equation 2-14 ,

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2.4.2 Thyroid Dose

The dose from gaseous effluents is calculated as follows:

$$D_{I} = (D_{T1} \times \Delta t_{B}) + (D_{T23} \times \Delta t_{B})$$
 (2-17)

where:

- D_I = total thyroid dose from gaseous effluents in mrem/year
- D_{T23} = thyroid dose from gaseous effluents for Units 2 and 3 in mrem/year for the past 12 consecutive months
 - $\Delta t_B = \text{percent} (\text{decimal equivalent}) \text{ meteorology in the beach}$ sectors

The thyroid dose from liquid effluents is determined as follows:

$$D_{TL} = D_{TL1} + D_{TL23}$$
 (2-18)

where:

- D_{TL} = total thyroid dose from liquid effluents in mrem/year

$$2 - 41$$

Rev. 2 9-20-84 D_{TL23} = thyroid dose for Units 2&3 from liquid effluents in mrem/year for the past 12 consecutive months

The thyroid dose from all effluents during the reporting period are calculated as follows:

$$D_{TD} = D_{T} + D_{TT}$$
 (2-19)

where:

$$D_{TD}$$
 = total thyroid dose in mrem/year

2

 D_{T} = thyroid dose from gaseous effluents in mrem/year

 D_{TL} = thyroid dose from liquid effluents in mrem/year