

OPERATING DATA REPORT
SUPPLEMENTAL INFORMATION

Grand Gulf Nuclear Station Offsite Dose Calculation Manual (ODCM)

REVISION 2

Changes made in Revision 2 are outlined below:

(1) Page ii

Line 2 was changed to read "Grand Gulf Nuclear Station Radiological Effluent Technical Specifications (RETS)."

Justification: This change is administrative in nature and was made in order to maintain consistency with the GGNS RETS.

(2) Page ii

Lines 8 & 9 were changed to read "Diagrams of the liquid and gaseous radwaste treatment systems are also included."

Justification: This change is administrative in nature. By deleting the words "minimum operable configuration" it will be consistent with proposed U. S. Nuclear Regulatory Commission (NRC) changes to the GGNS RETS. Diagram 1.3 and 2.5 which outline the liquid and gaseous radwaste treatment systems will contain the operability requirement until the RETS changes have been approved by the NRC.

(3) Page iii

Line 19 was changed to delete the Containment Purge Monitors.

Justification: The calculations for the Containment Purge Monitor setpoints (2.1.2) are the same as those for the Continuous Ventilation Monitors setpoints (2.1.1). As a result, all monitor setpoint calculations were combined in Section 2.1.1 and the terms altered to be consistent for all ventilation monitors. Since the Containment Purge Monitor setpoint and continuous Ventilation Monitor Setpoint equations are the same this change does not reduce the accuracy or reliability of the setpoint determinations.

(4) Page iv

Lines 9, 11 and 12 were changed to revise the titles of the figures identifying the environmental monitoring locations.

Justification: The maps outlining the environmental monitoring locations were revised to incorporate new sampling locations. The new maps consolidate information thereby deleting the information provided in Figure 3.0-4.

(5) Page vi

Line 5 was changed to read NUREG-0133 (October 1978).

Justification: The change is administrative in nature and was made to correct a typing error in Revision 0.

(6) Page 1.0-2

Line 14 was changed to read $\sum_i C_i = \sum_g C_g + (\sum C_a + \sum C_s + C_t)$

Justification: The change is administrative in nature and was made to correct a typing error in Revision 0.

(7) Page 1.0-3

Lines 13 and 14 were changed to incorporate the following changes:

Line 13: D.F.

Line 14: C_g

Justification: The change is administrative in nature and was made to correct an error made in Revision 0.

(8) Page 1.0-9

Lines 7 through 36 were changed to include a positive exponent for fish and invertebrate bioaccumulation factors.

Justification: The change is administrative in nature and was made to correct a typing error made in the preparation of Revision 1.

(9) Page 1.0-13

Line 10 was changed to read Cr-51.

Justification: The change is administrative in nature and was made to correct an error made in Revision 0.

(10) Page 1.0-15

Diagram 1.3, Liquid Radwaste Treatment System, was changed to add several new flow paths, delete the operability requirement for the condensate demineralizers and the radiation monitors and add several notes which clarify the diagram.

Justification: The majority of the changes made to the diagram make the terminology and flow paths consistent with the GGNS Liquid Radwaste Treatment System. The second part of the change deleted the operability requirements for the condensate demineralizer and the radiation monitors. The operability requirement for the condensate demineralizer was eliminated because it plays no part in the reduction of doses to the public. The operability requirement for the radiation monitor was eliminated because isotopic analysis of the sample tanks is performed on a batch basis prior to release which eliminates the need for the radwaste monitor if it should become inoperable. This change does not reduce the accuracy or reliability of dose calculations or setpoints determinations nor does it affect the levels of radioactive material discharged to the environment.

(11) Page 2.0-1

Lines 14, 15 and 20 were changed to read "...at the Site Boundary..."

Justification: This change makes the ODCM consistent with the GGNS RETS which requires the calculation of doses from the Site Boundary.

(12) Page 2.0-1

Lines 17, 18, 22 and 23 were changed to eliminate the elapsed fraction of the year (F) from the equations.

Justification: This change was made based on the recommendation of Mr. Charlie Willis, NRC Meteorology and Effluent Treatment Branch. Revision 2 which deletes the F factor is more conservative than the method used before because it uses the instantaneous release rate and not the average release rate for the elapsed fraction of the year. The inclusion of the limits (≤ 500 , ≤ 3000) next to their respective calculation has been added for clarification purposes only.

(13) Page 2.0-2

Line 5 was changed to read "...the Site Boundary."

Justification: See the justification for Item 11, Page 2.0-1 above.

(14) Page 2.0-2

Lines 10 through 14 were changed to delete the F factor and to read "rate of release of noble gas radionuclide i from the release point."

Justification: See the justification for Page 2.0-1 above.

(15) Page 2.0-3

The entire page was deleted.

Justification: See the justification for Page iii above.

(16) Page 2.0-4

Lines 6 through 11 were deleted.

Justification: By deleting the F factor on Page 2.0-1 this note no longer applies.

(17) Page 2.0-7

Lines 3 and 17 were changed to substitute "Site Boundary" for "unrestricted area".

Justification: See the justification for Item 11, Page 2.0-1 above.

(18) Page 2.0-7

Line 19 was changed to read $X/Q = 5.176 \times 10^{-6} \text{ sec/m}^3$ for inhalation in the WSW Sector.

Justification: This change is administrative in nature. The additional information added was provided for clarification only.

(19) Page 2.0-8

Line 2 was changed to read " $\text{m}^2 \cdot \text{mrem/yr per uCi/sec} \dots$ ".

Justification: This change is administrative in nature and was made to be consistent with other sections in the ODCM.

(20) Page 2.0-8

Lines 9 and 15 were changed to substitute "Site Boundary" for "unrestricted areas".

Justification: The justification for this change is the same as that provided for Item 11, Page 2.0-1 above.

(21) Page 2.0-9

Line 5 was changed to substitute "Site Boundary" for "unrestricted areas".

Justification: See the justification for Item 11, Page 2.0-1 above.

(22) Page 2.0-9

Lines 18 through 20 and 23 were changed as identified in the markup.

Justification: These changes were made to provide clarification for the origin and location of the X/Q and D/Q factors used.

(23) Page 2.0-10

Line 6 was changed to read "Technical Specification 6.9.1."
Line 10 was deleted.

Justification: Line 6 was changed to maintain consistency with the most recent NRC reporting requirements. Line 10 was deleted because there was no reference to this footnote on this page.

(24) Page 2.0-13

Line 40 was changed to read "Nb-95".

Justification: This change is administrative in nature and was made to correct a typing error made in Revision 0.

(25) Page 2.0-15

Line 44 was changed to read "1.055 E+05" for the "Infant Grs/Cow/Milk" ingestion pathway dose factor.

Justification: This change is administrative in nature and was made to correct an error made in Revision 1.

(26) Page 2.0-16

Line 14 was changed to read "3.402 E+05" for the "Infant" inhalation pathway dose factor.

Justification: This change is administrative in nature and was made to correct an error made in Revision 1.

(27) Page 2.0-18

Line 21 was changed to read "1.014 E+06" for the "Child" inhalation pathway dose factor.

Justification: This change is administrative in nature and was made to correct an error made in Revision 1.

(28) Page 2.0-21

Line 44 was changed to read "1.229 E+10" for the "Adult Grs/Cow/Meat" ingestion pathway dose factor.

Justification: This change is administrative in nature and was made to correct an error made in Revision 1.

(29) Page 2.0-23

The entire page was changed as identified in the markup.

Justification: Table 2.2-3 was changed to reflect information obtained in the 1983 Land Use Census. This information is incorporated into the ODCM to ensure that changes in the unrestricted area are considered in dose calculations as required by the Bases for Technical Specification 3/4.12.2.

(30) Page 2.0-24

Line 15 was changed to read "page 2.0-34."

Justification: This change is administrative in nature. It corrects a typing error made in Revision 0.

(31) Page 2.0-26

The entire page was changed as identified in the markup.

Justification: See the justification for Page 2.0-23 above.

Significant Hazards Category

Revision 2 to the ODCM involves no changes to the safety-related equipment at GGNS. It does not introduce a significant reduction in the margin of safety and does not involve a significant increase in the probability or consequences of an accident previously evaluated. It does not create the possibility of a new or different kind of accident from any accident previously evaluated nor does it reduce the accuracy or reliability of dose calculations or setpoint determinations. Thus there are no significant hazards involved.

Grand Gulf Nuclear Station Offsite Dose Calculation Manual (ODCM)

Revision 3

Changes made in Revision 3 are outlined below:

(1) Page 2.0-1

Line 25 was changed to read

$$= C + [\overline{X/Q} \sum_i K_i \overline{Q_i}]$$

Justification: The change was made to make the terms used throughout the ODCM consistent.

(2) Page 2.0-2

Lines 10 and 11 were deleted and Line 17 was changed to substitute $\overline{Q_i}$ for $\dot{Q_i}$.

Justification: See the justification for Page 2.0-1 above.

(3) Pages 2.0-4 and 2.0-5

Changes were made as identified in the markup.

Justification: These changes were necessary:

- o Because of the consolidation of Containment Purge Monitor setpoint calculations (ODCM Section 2.1.2) with the Continuous Ventilation Monitor setpoint calculations (ODCM Section 2.1.1).
- o To make the terms used in the ODCM consistent throughout the manual.

(4) Page 2.0-26

Line 5 was changed to " 7.751×10^{-9} " for D/Q.

Justification: This change corrects a typing error made in Revision 2.

(5) Page 2.0-27

Lines 7 and 8 were deleted.

Justification: See the justifications for Pages 2.0-4 and 2.0-5 above.

(6) Page 2.0-28

Lines 10 through 17, 32 and 33 were deleted and Line 34 was changed to read " \bar{Q}_i = rate of release of noble gas radionuclide i (uCi/sec) (2.1.1)."

Justification: See the justifications for Item 3, Pages 2.0-4 and 2.0-5 above.

(7) Page 2.0-29

Lines 11 through 14, 18 through 20, 31 through 36 were deleted and line 15 was changed to read " \bar{Q}_i ".

Justification: See the justifications for Pages 2.0-4 and 2.0-5 above.

(8) Page 2.0-30

Lines 2 through 5 were deleted.

Justification: The justification for this change is the same as that identified for page 2.0-4 and 2.0-5 above.

(9) Page 2.0-35

The diagram of the Gaseous Radwaste Treatment System was revised as indicated in the markup.

Justification: This change was made to eliminate unnecessary information and to make diagram 2.5 consistent with the GGNS Gaseous Radwaste Offgas Treatment System and with the operability requirements of GGNS Technical Specification 3.11.2.4.

(10) Pages 3.0-2 and 3.0-10

The tables and figures depicting the environmental sampling locations are changed as indicated in the markup.

Justification: These changes were made so as to be consistent with the GGNS environmental monitoring locations.

Significant Hazards Category

Revision 3 to the ODCM involves no changes to the safety-related equipment at GGNS. It does not introduce a significant reduction in the margin of safety and does not involve a significant increase in the probability or consequences of an accident previously evaluated. It does not create the possibility of a new or different kind of accident from any accident previously evaluated nor does it reduce the accuracy or reliability of dose calculations or setpoint determinations. Thus there are no significant hazards involved.

REVISIONS 2 AND 3 INCORPORATED
THE GGNS ODCM