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OCT 30 2000

U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Mail Station OP1-17
Washington, D.C. 20555

SUSQUEHANNA STEAM ELECTRIC STATION
SUBMITTAL OF THE OFFSITE DOSE
CALCULATION MANUAL
PLA-5247

Docket Nos. 50-387
and 50-388

The purpose of this letter is to submit a complete updated Offsite Dose Calculation Manual (ODCM) pursuant to Technical Specification section 5.5.1.C.3 (Offsite Dose Calculation Manual). Prior to this submittal, revisions to the ODCM were submitted annually as an attachment to the Radioactive Effluent Release Report (Technical Specification section 5.6.3); however, the complete ODCM was not submitted with the report. The requirement to submit a complete ODCM, versus only revisions to it, on an annual basis is being addressed in our corrective action program.

The only change made to the ODCM in 1999 was a revision to procedure ODCM-QA-008 (Radiological Environmental Monitoring Program). The revisions to this procedure are clearly identified on the procedure's "revision summary" page.

Please contact Mr. R. D. Kichline at 610-774-7705, if there are questions concerning this submittal.

Sincerely,

R. G. Byram

Attachment

cc: Copy: Regional Administrator – Region I
Mr. S. L. Hansell, NRC Sr. Resident Inspector
Mr. R. G. Schaaf, NRC Sr. Project Manager

A009

PROCEDURE COVER SHEET

	NUCLEAR DEPARTMENT PROCEDURE	
	ODCM INTRODUCTION	ODCM-QA-001 Revision 0 Page 1 of 11

QUALITY CLASSIFICATION:	APPROVAL CLASSIFICATION:
☒ QA Program ☐ Non-QA Program	☒ Plant ☐ Non-Plant ☐ Instruction

EFFECTIVE DATE: 8-14-98

PERIODIC REVIEW FREQUENCY: N/A

PERIODIC REVIEW DUE DATE: N/A

RECOMMENDED REVIEWS:

Procedure Owner: R. K. Barclay

Responsible Supervisor: Supervisor - Operations Technology

Responsible FUM: Manager - Nuclear Technology

Responsible Approver: General Manager - SSES

PROCEDURE REVISION SUMMARY

TITLE: ODCM INTRODUCTION

EVALUATION OF THE IMPACT OF REV. 0 TO ODCM-QA-001 ON THE LEVEL OF EFFLUENT CONTROL AND THE OVERALL ACCURACY AND RELIABILITY OF CALCULATIONS

Revision 0 to the ODCM in procedure format is being made as part of the conversion from Current Technical Specifications (CTS) to Improved Technical Specifications (ITS). In addition, 10CFR20.1001 to .2402 are being incorporated as applicable.

The revision moves elements of the Radioactive Effluent Control Program (RECP) (formerly called the Radioactive Effluent Technical Specifications) and the Radiological Environmental Monitoring Program (REMP) from Technical Specifications to the Technical Requirements Manual. In addition, administrative and reporting requirements formerly contained in Technical Specifications were moved to the appropriate sections of the ODCM procedures which implement them. Requirements formerly contained in the ODCM (e.g., dose calculation formulae, dose conversion factors and setpoint calculation formulae) were maintained in this revision of the ODCM.

The revisions described below are editorial in nature, changing only the format of the ODCM and/or location of the required elements of the RECP and the REMP without any change in the actual limits. Thus, Revision 0 of ODCM-QA-001 maintains the level of radioactive effluent control required pursuant to 10CFR20.1302, 40CFR190, 10CFR50.36a and Appendix I to 10CFR50 and does not impact the accuracy or reliability of effluent, dose, or setpoint calculations.

1. Initial Issue in procedural format.

2. Section 1 of ODCM Revision 7 is reorganized in the format established by NDAP-QA-0002. No revision bars are used since the change was to the entire section.

3. Cover sheet, Revision Summary, and Table of Contents are added.

4. Description of all ODCM sections is provided.

5. Table 1 of ODCM Revision 7 is deleted because there are no requirements to present this information in the ODCM.

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6. Section 3 of ODCM Revision 7 is deleted. It essentially duplicates Technical Specification 3.11.1.1 and there are no requirements to present this information in the ODCM.

7. Incorporated Radiological Effluent and Environmental responsibilities appropriate to the ODCM from NEPM-QA-1010 in Section 4. Changed responsibilities formerly assigned to Manager - Nuclear Engineering to Manager - Nuclear Modifications.

Information required by ITS/TRM has been added in Section 2.

8. Document titles (TS, LCOs, 10CFR20 App B) were changed to agree with ITS/TRM terminology.

9. Expanded the purpose (Section 1) of the ODCM to include requirements added to the ODCM under ITS/TRM.

10. MPCs were changed to ECLs to agree with the new 10CFR20 nomenclature.

11. Added sections 2.3, 2.4, 2.5 on required reporting.

12. Attachment A was added to specify the contents of the Annual Effluent and Waste Disposal Report.

13. Referenced ST-099-002 as the procedure for preparing the Annual Effluent and Waste Disposal Report.

14. Added NDAP-QA-0646, Solid Waste PCP as one of the documents for which changes must be reported in the Annual Effluent and Waste Disposal Report.

15. Expanded the description of ODCM-QA-007 to include system changes and reporting requirements.

16. Added reference 3.6 for ITS/TRM.

Approval	MWS
Date	see page 1

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1.0 PURPOSE

The purpose of this procedure is to describe the overall purpose and organization of the SSES Offsite Dose Calculation Manual (ODCM).

2.0 POLICY/DISCUSSION

The SSES Offsite Dose Calculation Manual (ODCM) is a licensing basis document required by Technical Specifications. It provides the methodology and parameters to be used in calculating offsite doses and effluent monitor setpoints for the Susquehanna Steam Electric Station, Units 1 and 2. Methods are included for determining maximum individual, whole body, and organ doses due to waterborne and airborne effluents to ensure compliance with the dose limitations in the Technical Specifications. Methods are included for performing dose calculations to ensure compliance with the waterborne and airborne treatment system operability sections of the Technical Specifications. This manual includes the methods used for determining quarterly individual doses for inclusion in Annual Effluent and Waste Disposal Reports.

The purpose of the ODCM is to provide the parameters and methodology to be used in calculating offsite doses and effluent monitoring setpoints for the Susquehanna Steam Electric Station, Units 1 and 2. The ODCM contains the requirements of the Radiological Effluent Control Program (RECP) as described in Section 2.2 and the Radiological Environmental Monitoring Program (REMP) as defined in TR 3.11.4. Remedial actions to be taken when program limits (TROs) are exceeded are specified in the Technical Requirements Manual (TRM). The ODCM includes methods for determining maximum individual, whole body, and organ doses due to waterborne and airborne effluents to ensure compliance with the dose limitations in the Technical Requirements (TR). Methods are also included for performing dose calculations to ensure compliance with the waterborne and airborne treatment system operability sections of the Technical Requirements. This manual includes the required inputs for inclusion in the Annual Effluent and Waste Disposal Report and the Annual Radiological Environmental Operating Report.

2.1 Derived Release Concentrations and Dose Rates

The ODCM uses 10 times the limits of Appendix B, Table 2, Column 2 of 10CFR20.1001-20.2402 as concentration limits for liquid releases and the instantaneous release rates which are no longer referenced in 10CFR20 but come directly from TR 3.11.2 for gaseous releases as confirmed in the 6/93 NRC response to NUMARC.

2.2 Radioactive Effluent Control Program (RECP)

The Radioactive Effluent Control Program (RECP) is a comprehensive program as detailed in TS 5.5.4 which provides control of radioactive effluent for maintaining the dose to members of the public from radioactive effluent as low as reasonably achievable. The RECP is defined in TR's 3.6.1, 3.11.1, 3.11.2, and 3.11.3.

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2.3 Annual Effluent and Waste Disposal Report

The radioactive effluent release report is titled, "Annual Effluent and Waste Disposal Report."

It covers the operation of the station during the previous year and must be submitted prior to May 1 of each year in accordance with TS 5.6.3. The report is prepared in accordance with Procedure ST-099-002 and the required topics for the report are provided in Attachment A.

2.4 Annual Radiological Environmental Operating Report

This report, submitted prior to May 15 of each year, contains the summaries, interpretations and analyses of the results of the Radiological Environmental Monitoring Program as spelled out in ODCM-QA-008 (TR's 3.11.4.1, 3.11.4.2, 3.11.4.3).

2.5 Special Reports

These reports are required to be submitted to the NRC when the limits of TR's 3.11.1.2, 3.11.1.3, 3.11.2.2, 3.11.2.3, 3.11.2.4, 3.11.2.5, 3.11.3, and 3.11.4.1 (Condition B, C, or D) are exceeded. Special reports shall be submitted within 30 days and shall address the actions required in the TRM.

3.0 REFERENCES

3.1 TS 6.14, Offsite Dose Calculation Manual (ODCM)

3.1 TS 5.5.1, Offsite Dose Calculation Manual (ODCM)

3.2 TR 3.6.1, Containment Venting or Purging

3.3 TR 3.11, Radioactive Effluents

3.4 NDAP-QA-0152, Quality Assurance for Radiological Environmental Monitoring, Radioactive Effluents, Meteorology, The Environmental Protection Plan, and The Offsite Dose Calculation Manual

3.5 ST-099-002, Radioactive Effluent Release Report

3.6 10CFR20 Appendix B, Annual Limits on Intake and Derived Air Concentrations of Radionuclides for Occupational Exposure; Effluent Concentrations; Concentrations for Release to Sewerage

3.7 NDAP-QA-0646, Solid Radwaste Process Control Program

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3.8 Letter from T. Murley, Director, Office of Nuclear Reactor Regulations, to T. Tipton, Vice President and Director of Operations, NUMARC, 6/93

3.9 ODCM-QA-008, Radiological Environmental Monitoring Program

3.10 NDAP-00-1203, Modification Identification and Scoping Process

4.0 RESPONSIBILITIES

4.1 General Manager - SSES

4.1.1 Ensures that the ODCM is used in performance of the surveillance requirements and for compliance with the limiting conditions of operation stated in the Technical Specifications relative to radioactive effluent.

4.1.1 Ensures that the ODCM is used in performance of the surveillance requirements and for compliance with the TROs stated in the TRM relative to radioactive effluent.

4.1.2 Approves revisions to the ODCM.

4.2 Manager - Nuclear Modifications

4.2.1 Provides modification engineering and support in accordance with NDAP-00-1203 for equipment and systems involved with the conduct of the effluent and environmental monitoring programs at SSES.

4.3 Manager - Nuclear Technology

4.3.1 Manages the programs for the assessment of the radiological environmental impact of SSES.

4.4 Manager - Nuclear Assessment Services

4.4.1 Periodically assesses the SSES effluent and environmental programs (including meteorological data) for compliance with the requirements of the Technical Specifications and the ODCM.

4.4.1 Periodically assesses the SSES effluent, environmental and meteorological programs for compliance with the requirements of the TRM and the ODCM.

4.5 Supervisor - Operations Technology

4.5.1 Ensures the adequacy and correctness of methodologies described in the ODCM.

4.5.2 Is responsible for reviewing revisions to the ODCM.

4.5.3 Approves both the Annual Effluent and Waste Disposal and the Annual Radiological Environmental Operating Reports submitted to the NRC.

4.6 Supervisor - Nuclear Licensing

4.6.1 Submits the required radiological effluent and environmental reports to the NRC.

4.6.2 Notifies the appropriate groups of NRC licensing requirements.

4.7 Environmental Services - Health Physicist (Effluent)

4.7.1 Develops methodologies used in performance of effluent dose calculations and establishment of setpoints.

4.7.2 Performs dose calculations necessary for fulfillment of SSES Technical Specification Surveillance Requirements.

4.7.2 Performs dose calculations necessary for fulfillment of SSES Technical Requirements Surveillance.

4.7.3 Prepares and submits the Annual Effluent and Waste Disposal Report to Nuclear Licensing for submittal to the NRC.

4.8 Environmental Services - Health Physicist (REMP)

4.8.1 Prepares and submits the Annual Radiological Environmental Operating Report to Nuclear Licensing for submittal to the NRC.

5.0 DEFINITIONS

5.1 ECL - Effluent Concentration Limit as defined in 10CFR20, Appendix B.

5.2. Site Boundary - Is that line beyond which the land is not owned, leased or otherwise controlled by the licensee. (PPL Drawing C243786, SH1, Rev. 1, "U-1&2 Site Facilities and Boundary Map."

5.3 Unrestricted Area - The area at or beyond the site boundary access to which is neither limited nor controlled by the licensee for purposes of protection of individuals from exposure to radiation and radioactive materials, or any area within the site boundary used for residential quarters or for industrial, commercial, institutional and/or recreational purposes.

6.0 PROCEDURE

6.1 Organization

Environmental Services shall develop and maintain a set of procedures as described in the following sub-sections.

6.1.1 ODCM-QA-001 - ODCM Introduction

This procedure describes the overall purpose and organization of the ODCM.

6.1.2 ODCM-QA-002 - ODCM Review And Revision Control

This procedure describes the initiation, review and processing of revisions to the ODCM and establishes responsibility for the ODCM.

6.1.3 ODCM-QA-003 - Effluent Monitor Setpoints

This procedure describes the policies pertaining to and the methodology used in establishing effluent monitor setpoints.

6.1.4 ODCM-QA-004 - Airborne Effluent Dose Calculations

This procedure provides the methodology and parameters used in calculating air dose resulting from noble gas effluent and maximum individual, whole body, and organ doses due to airborne effluents to ensure compliance with the dose limitations in the Technical Specifications.

This procedure provides the methodology and parameters used in calculating air dose resulting from noble gas effluent and maximum individual, whole body, and organ doses due to airborne effluents to ensure compliance with the dose limitations in the Technical Requirements Manual.

6.1.5 ODCM-QA-005 - Waterborne Effluent Dose Calculations

This procedure provides the methodology and parameters to be used in calculating maximum individual, whole body, and organ doses due to waterborne effluents to ensure compliance with the dose limitations in the Technical Specifications.

This procedure provides the methodology and parameters to be used in calculating maximum individual, whole body, and organ doses due to waterborne effluents to ensure compliance with the dose limitations in the Technical Requirements Manual.

6.1.6 ODCM-QA-006 - Total Dose Calculations

This procedure provides the methodology and parameters to determine the total dose to a member of the public from the fuel cycle in the vicinity of the SSES site.

6.1.7 ODCM-QA-007 - Radioactive Waste Treatment Systems

This procedure defines the operability requirements of the radioactive waste treatment systems.

This procedure defines the operability requirements of the radioactive waste treatment systems and monitoring instruments. It also includes reporting requirements where changes are made to systems or when operability is not maintained in accordance with the TRM.

6.1.8 ODCM-QA-008 - Radiological Environmental Monitoring Program

This procedure provides the methodology and parameters used to determine doses to the public resulting from inhalation, ingestion, and direct shine from radiologically contaminated environmental sampling media based on measured activity concentrations in those media. This procedure also describes the Radiological Environmental Monitoring Program (REMP), which includes the annual land use census survey and interlaboratory comparison program.

6.1.9 ODCM-QA-009- Dose Assessment Policy Statements

The purpose of this procedure is to state dose and effluent policy statements that are not directly associated with any other section of the ODCM.

7.0 RECORDS

Except for ODCM-QA-002, no records are specified by the ODCM. Records are generated in performance of other procedures that use the information contained in the ODCM. Control of these records is specified in the controlling procedures.

Approval	MWS
Date	see page 1

CONTENTS OF ANNUAL EFFLUENT AND WASTE DISPOSAL REPORT

- A summary of the quantities of radioactive liquid and gaseous effluents and solid waste released from each unit and/or the station.
- An annual summary of meteorological data collected over the previous year.
- An assessment of the radiation doses from radioactive liquid and gaseous effluents to members of the public due to their activities inside the site boundary as well as at or beyond the site boundary.
- An assessment of radiation doses to the most exposed member of the public from reactor releases and other nearby uranium fuel cycle sources to show conformance with 40CFR190.
- A list and description of unplanned releases from the site to unrestricted areas of radioactive materials in gaseous and liquid effluents during the reporting period.
- Any changes made during the reporting period to the ODCM, Section 3.11 of the TRM, and the Process Control Program (NDAP-QA-0646), as well as any major changes to liquid, gaseous or solid radwaste treatment systems.
- A listing of new locations for dose calculations and/or environmental monitoring identified by the land use census.
- An explanation as to why the inoperability of liquid or gaseous effluent monitoring instrumentation was not corrected within the time specified in the TRO (3.11.1.4, 3.11.1.5 or 3.11.2.6), if any.
- A report of the cause of the unavailability of REMP samples and the identity of new locations for taking replacement samples.

Approval	MWS
Date	see page 1

PROCEDURE COVER SHEET

	NUCLEAR DEPARTMENT PROCEDURE	
	ODCM REVIEW AND REVISION CONTROL	ODCM-QA-002 Revision 0 Page 1 of 10

QUALITY CLASSIFICATION: ☒ QA Program ☐ Non-QA Program	APPROVAL CLASSIFICATION: ☒ Plant ☐ Non-Plant ☐ Instruction

EFFECTIVE DATE: 8-14-98

PERIODIC REVIEW FREQUENCY: N/A

PERIODIC REVIEW DUE DATE: N/A

RECOMMENDED REVIEWS:

Procedure Owner: R. K. Barclay

Responsible Supervisor: Supervisor - Operations Technology

Responsible FUM: Manager - Nuclear Technology

Responsible Approver: General Manager - SSES

PROCEDURE REVISION SUMMARY

TITLE: ODCM REVIEW AND REVISION CONTROL

EVALUATION OF THE IMPACT OF REV. 0 TO ODCM-QA-002 ON THE LEVEL OF EFFLUENT CONTROL AND THE OVERALL ACCURACY AND RELIABILITY OF CALCULATIONS

Revision 0 to the ODCM in procedure format is being made as part of the conversion from Current Technical Specifications (CTS) to Improved Technical Specifications (ITS). In addition, 10CFR20.1001 to .2402 are being incorporated as applicable.

The revision moves elements of the Radioactive Effluent Control Program (RECP) (formerly called the Radioactive Effluent Technical Specifications) and the Radiological Environmental Monitoring Program (REMP) from Technical Specifications to the Technical Requirements Manual. In addition, administrative and reporting requirements formerly contained in Technical Specifications were moved to the appropriate sections of the ODCM procedures which implement them. Requirements formerly contained in the ODCM (e.g., dose calculation formulae, dose conversion factors and setpoint calculation formulae) were maintained in this revision of the ODCM.

The revisions described below are editorial in nature, changing only the format of the ODCM and/or location of the required elements of the RECP and the REMP without any change in the actual limits. This procedure establishes the review and revision control of the ODCM required to meet the applicable requirements. Thus, Revision 0 of ODCM-QA-002 maintains the level of radioactive effluent control required pursuant to 10CFR20.1302, 40CFR190, 10CFR50.36a and Appendix I to 10CFR50 and does not impact the accuracy or reliability of effluent, dose, or setpoint calculations.

1. Initial Issue in procedure format.
2. Section 11 of ODCM Revision 7 is reorganized in the format established by NDAP-QA-0002. No revision bars are used since the change was to the entire section.
3. Cover sheet, Revision Summary, and Table of Contents are added.
4. NEPM-QA-1011, Attachment H is relocated to this procedure.
5. Form ODCM-QA-002-1 is created.
6. Document titles and section references were revised to reflect ITS/TRM.
7. Added (Section 6) the requirement for evaluations for changes to the ODCM and the need to submit a complete copy of the revised ODCM per ITS/TRM.

Approval	MWS
Date	see page 1

8. Added the General Manager - SSES as the approval authority for ODCM revisions.

Approval	MWS
Date	see page 1

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ATTACHMENTS

ATTACHMENT		PAGE
A	SSES ODCM CHANGE REQUEST (FORM ODCM-QA-002-1)	10

Approval	MWS
Date	see page 1

1.0 PURPOSE

The purpose of this procedure is to describe the initiation, review, and processing of revisions to the ODCM and to establish responsibility for the ODCM.

This procedure constitutes part of the SSES Offsite Dose Calculation Manual (ODCM), which is a licensing basis document.

2.0 POLICY/DISCUSSION

2.1 The ODCM is part of the Licensing Basis of SSES and is controlled by CTS 6.14, Offsite Dose Calculation Manual (ODCM).

2.1 The ODCM is part of the Licensing Basis of SSES and is controlled by ITS 5.5.1, Offsite Dose Calculation Manual (ODCM).

2.2 The ODCM procedures are controlled as Plant Functional Unit Procedures in accordance with the requirements of NDAP-QA-0002, with the following additional guidance and controls:

2.2.1 ODCM procedures shall be numbered as follows: ODCM-QA-nnn, where nnn is a sequential number starting with 001.

2.2.2 ODCM procedures shall be reviewed and accepted by the Manager - Nuclear Technology prior to PORC review.

2.2.3 ODCM procedures shall be approved by the General Manager - SSES.

2.2.4 Changes to the procedures comprising the ODCM require PORC review prior to approval. Changes which are solely administrative corrections or an expedited review revision are excepted. PORC review will be indicated by recording the PORC meeting number on the Procedure Change Process Form (NDAP-QA-0002-8).

2.2.5 ODCM procedures shall be issued and controlled by Nuclear Records Document Control Services (NR-DCS) in accordance with NR procedures. The distribution list shall be maintained by DCS.

2.2.6 All pages shall be page controlled and provided with an approval and date box.

2.2.6 Deleted

2.3 Changes to the Radioactive Effluent Control Program (RECP) are controlled in accordance with NDAP-QA-0728, but are reported as changes to the ODCM in the Annual Effluent and Waste Disposal Report.

3.0 REFERENCES

3.1 TS 6.14, Offsite Dose Calculation Manual (ODCM)

3.1 TS 5.5.1, Offsite Dose Calculation Manual (ODCM)

3.2 NDAP-QA-0002, Nuclear Department Procedure Program

3.3 NDAP-QA-0101, Document Review

3.4 NDAP-QA-0152, Quality Assurance for Radiological Environmental Monitoring, Radioactive Effluents, Meteorology, The Environmental Protection Plan, and The Offsite Dose Calculation Manual

3.5 NDAP-QA-0728, SSES Technical Requirements Program

3.6 10CFR20.1302, Compliance with Dose Limits for Individual Members of the Public

3.7 40CFR190, Environmental Radiation Protection Standards for Nuclear Power Operation

3.8 10CFR50.36a, Technical Specifications on Effluents from Power Reactors

3.9 10CFR50, Appendix I, Numerical Guides for Design Objectives and Limiting Conditions for Operation to Meet "As Low As Is Reasonably Achievable" for Radioactive Material in Light-Water Cooled Nuclear Power Reactors

3.10 TS 6.9.1.6, Monthly Operating Reports

3.10 Deleted

4.0 RESPONSIBILITIES

4.1 General Manager - SSES

4.1.1 Approves revisions to the ODCM.

4.2 Manager - Nuclear Technology

4.2.1 Is the Responsible Functional Unit Manager (FUM)

4.3 Supervisor - Operations Technology

4.3.1 Ensures the adequacy and correctness of methodologies described in the ODCM.

4.3.2 Is responsible for reviewing revisions to the ODCM.

4.4 Environmental Services - Health Physicist (Effluent

4.4.1 Maintains the ODCM.

4.4.2 Processes revisions to the ODCM.

4.5 All Personnel

4.5.1 Submit comments on ODCM contents and proposed revisions to the Environmental Services- Health Physicist (Effluent).

5.0 DEFINITIONS

None.

6.0 PROCEDURE

6.1 Personnel shall submit proposed ODCM revisions on the SSES Offsite Dose Calculation Manual Change Request Form ODCM-QA-002-1. The submitter shall complete Sections 1 through 5 according to the directions on the form, including sufficient detail of the revision and technical basis of the change to support the rationale for the change and to enable the Environmental Services-Health Physicist (Effluent) to proceed. The submitter should provide at least one month lead time between the submittal date and the requested implementation date to permit preparation, review by NAS and interested parties, and approval of the ODCM revision.

6.2 The Environmental Services Health Physicist shall sign and date Form(s) ODCM-QA-002-1 on receipt, and retain the form(s) in a work file created for this ODCM revision. The Environmental Services - Health Physicist (Effluent) may contact the form submitter to discuss the details of the revision.

6.3 The Environmental Services Health Physicist or designee prepares a draft of the ODCM revision based on information in Form(s) ODCM-QA-002-1.

6.3.1 The preparer shall ensure that the change does not reduce the accuracy or reliability of dose calculations or setpoint determinations.

~~6.3.1 The preparer shall ensure that the change does not reduce the level of effluent control or the accuracy and/or reliability of dose calculations or setpoint determinations as required by 10CFR20.1302, 40CFR190, 10CFR50.36a and 10CFR50, Appendix I.~~

6.3.2 The preparer shall include a statement to this effect in the Procedure Revision Summary.

Approval	MWS
Date	see page 1

6.3.3 If compliance to the criterion in §6.3.1 cannot be demonstrated, the preparer shall make appropriate changes to ensure compliance, else the proposed revision shall be dismissed.

6.4 The Environmental Services Health Physicist follows the process described in NDAP-QA-0002, Section 7.0, for non-plant procedures.

6.4 The Environmental Services Health Physicist follows the process described in NDAP-QA-0002, Section 7.0, for plant procedures.

6.4.1 All review comments and resolutions shall be documented according to NDAP-QA-0101.

6.4.2 The review shall sustain that the change does not reduce the accuracy or reliability of dose calculations and/or setpoint determinations.

6.5 The Environmental Services Health Physicist schedules the proposed ODCM revision for PORC review in accordance with PORC procedures.

6.6 The Environmental Services Health Physicist presents the ODCM revision to PORC, along with originating information (Form(s) ODCM-QA-002-1), review documentation (Form NDAP-QA-0101-1), 50.59 Determination (Form NDAP-QA-0726-3), Safety Evaluation (if required, Forms NDAP-QA-0726-1, -2, -4) and any technical material (calculations, studies, etc.) necessary to support the ODCM revision.

6.6 The Environmental Services Health Physicist presents the ODCM revision to PORC, along with originating information (Form(s) ODCM-QA-002-1), review documentation (Form NDAP-QA-0101-1), 50.59 Determination (Form NDAP-QA-0726-3), Safety Evaluation (if required, Forms NDAP-QA-0726-1, -2, -4) any technical material (calculations, studies, etc.) necessary to support the ODCM revision, the evaluation required in Section 6.3.1 and appropriate signature approvals.

6.7 Any changes to the ODCM shall be submitted with the Monthly Operating Report in accordance with TS 6.9.1.b and with the Annual Effluent and Waste Disposal Report in accordance with TS 6.14.2.

6.7 The Environmental Services Health Physicist shall submit to the NRC a complete, legible copy of the revised ODCM in the Annual Effluent and Waste Disposal Report.

Approval	MWS
Date	see page 1

7.0 RECORDS

The following shall be submitted to Nuclear Records in accordance with NR procedures:

7.1 Form(s) ODCM-QA-002-1, with attachments, if any.

7.2 Review package, assembled in accordance with the requirements of NDAP-QA-0002 and NDAP-QA-0101.

odcm-qa-002(26)

Approval	MWS
Date	see page 1

SSES OFFSITE DOSE CALCULATION MANUAL
CHANGE REQUEST

1. ODCM-QA-___ Submit a separate form for each ODCM procedure to be revised.

2. Describe proposed revisions to the SSES ODCM below. Include references to sections, figures, tables, parameters, and equations with sufficient detail to convey complete and correct information. If necessary, use additional pages. If proposed revision can be more clearly indicated on marked up copy(s) of the current ODCM, then attach these marked up pages to this form.

3. Reason for revision: include references to Condition Reports, Audit Services observations or findings, Licensing Issues, DCPs, etc., as applicable. If necessary, use additional pages.

4. Additional pages attached? No ☐ Yes ☐
   Number of additional pages _____

5. Requested date for implementation of revision: _____

   Requested by: _____ Cost Area: _____ Date _____

To be completed by Environmental Services
Received by: _____ Date: _____

Approval	MWS
Date	see page 1

PROCEDURE COVER SHEET

	NUCLEAR DEPARTMENT PROCEDURE	
	EFFLUENT MONITOR SETPOINTS	ODCM-QA-003 Revision 0 Page 1 of 25

QUALITY CLASSIFICATION: ☒ QA Program ☐ Non-QA Program	APPROVAL CLASSIFICATION: ☒ Plant ☐ Non-Plant ☐ Instruction

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RECOMMENDED REVIEWS:

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Responsible Supervisor: Supervisor - Operations Technology

Responsible FUM: Manager - Nuclear Technology

Responsible Approver: General Manager - SSES

PROCEDURE REVISION SUMMARY

TITLE: **EFFLUENT MONITOR SETPOINTS**

EVALUATION OF THE IMPACT OF REV. 0 TO ODCM-QA-003 ON THE LEVEL OF EFFLUENT CONTROL AND THE OVERALL ACCURACY AND RELIABILITY OF CALCULATIONS

Revision 0 to the ODCM in procedure format is being made as part of the conversion from Current Technical Specifications (CTS) to Improved Technical Specifications (ITS). In addition, 10CFR20.1001 to .2402 are being incorporated as applicable.

The revision moves elements of the Radioactive Effluent Control Program (RECP) (formerly called the Radioactive Effluent Technical Specifications) and the Radiological Environmental Monitoring Program (REMP) from Technical Specifications to the Technical Requirements Manual. In addition, administrative and reporting requirements formerly contained in Technical Specifications were moved to the appropriate sections of the ODCM procedures which implement them. Requirements formerly contained in the ODCM (e.g., dose calculation formulae, dose conversion factors and setpoint calculation formulae) were maintained in this revision of the ODCM.

Most of the revisions described below are editorial in nature, changing only the format of the ODCM and/or location of the required elements of the RECP associated with radioactive effluent setpoints. Editorial changes were made to clarify the methodology for liquid monitors, the methodology presented is mathematically the same as before except for replacement of MPCs by ECLs under ITS. Editorial changes were made to clarify the methodology for airborne monitors. For CTS, the methodology presented is mathematically the same as before and the parameters presented in Attachment A are those used to determine the existing setpoints. For ITS, apportionment of the site limiting release rate is changed from an equal release rate basis to an equal concentration basis. Attachment A ITS presents parameters based on current design basis calculations that are to be used to determine setpoints implementing ITS. Incorporation of NRC imposed changes, use of an equal concentration basis for airborne effluent, and use of current design basis input do not impact the accuracy or reliability of the setpoints. Thus, Revision 0 of ODCM-QA-003 maintains the level of radioactive effluent control required pursuant to 10CFR20.1302, 40CFR190, 10CFR50.36a and Appendix I to 10CFR50 and does not impact the accuracy or reliability of effluent, dose, or setpoint calculations.

1. Section 2 of ODCM Revision 7 is reorganized in the format established by NDAP-QA-0002. No revision bars are used since the change was to the entire section.

2. Cover sheet, Revision Summary, and Table of Contents are added.

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3. Policy statement regarding noble gas activity monitor setpoints in Section 4.1 of ODCM Revision 7 is relocated to §2 of this procedure.

4. Policy statements provided in Section 10 of ODCM Revision 7 pertaining to setpoints are relocated to §2 (§10.5, and §10.8) and §6.4 (§10.7) of this procedure.

5. Sample calculations from Appendix A of ODCM Revision 7 for determining setpoints for waterborne and airborne effluent monitors are deleted. The description of the methodology has been clarified, eliminating the need for sample calculations.

6. Added parameters used for determination of airborne effluent monitor setpoints as Attachment A.

7. Procedural step addressing post-release evaluations for liquid releases has been added.

8. SDHR Service Water radiation monitor added to §6.1.4.

9. Terminology and references were revised to agree with ITS/TRM.

10. MPC values were changed to ECL values from the new 10CFR20.

11. Setpoint calculations were revised to reflect the new ECL values.

12. Iodine-133 was added to the airborne effluents section as required by ITS/TRM.

13. Changed the method of apportioning the site airborne limiting release rates from an equal release rate per vent to an equal concentration basis.

14. Added current design basis parameters used for determination of airborne effluent monitor setpoints as Attachment A.ITS.

15. Added policy stating liquid effluent monitor setpoints are "field set."

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1.0 PURPOSE

This procedure discusses the methodology to be used in determining effluent monitor alarm/trip setpoints to be used to ensure compliance with the instantaneous release rate limits in Technical Specifications 3.11.1.1 and 3.11.2.1 and provides operational flexibility while giving reasonable assurance of meeting the design objectives of 10CFR50, Appendix I.

This procedure discusses the methodology to be used in determining effluent monitor alarm/trip setpoints to be used to ensure compliance with the concentration and instantaneous release rate limits in the Technical Requirements Manual (sections 3.11.1.1 and 3.11.2.1) and provides operational flexibility while giving reasonable assurance of meeting the design objectives of 10CFR50, Appendix I.

This procedure constitutes part of the SSES Offsite Dose Calculation Manual which is a licensing basis document.

2.0 POLICY/DISCUSSION

2.1 ODCM Setpoints are Upper Limit Values

2.1.1 Effluent monitor alarm/trip setpoints calculated in accordance with the ODCM shall be considered upper limit values. Higher (less conservative) setpoints shall not be used, however lower (more conservative) setpoints may be used as required to maximize the utility of the monitor.

2.2 Waterborne Effluent Monitors

2.2.1 A gross radioactivity monitor providing automatic termination of liquid effluent releases is present on the liquid radwaste effluent line. Flow rate measurement devices are also present on the liquid radwaste effluent line and the discharge line (cooling tower blowdown).

2.2.2 Precautions, limitations, and setpoints applicable to the operation of the SSES liquid effluent monitors are provided in the applicable plant procedures.

2.2.3 The liquid effluent monitor setpoints are determined in accordance with the methodology and parameters described in Section 6.1 and controlled as "field set" in accordance with applicable plant procedures.

2.2.4 Setpoint values are to be calculated to ensure that alarm and trip actions occur upon approaching the MPC limits of 10 CFR 20, Appendix B, Table II, Column 2 at the release point to the unrestricted area.

2.2.4 Setpoint values are to be calculated to ensure that alarm and trip actions occur upon approaching 10 times the EC limits of 10 CFR 20, Appendix

B, Table II, Column 2 or 2E-4 μCi/ml for total dissolved gases at the release point to the Unrestricted Area.

2.2.5 Setpoint values for monitors used for leak detection (if set more conservatively than the EC limits) should be based on X times background values provided such values do not result in concentrations greater than the EC limits at the Unrestricted Area. Chemistry establishes the setpoint based on operating experience.

2.3 Airborne Effluent Monitors

2.3.1 Noble gas activity monitors, iodine samplers and monitors, and particulate samplers and monitors are present on the reactor building ventilation system (Units 1 and 2), the turbine building ventilation system (Units 1 and 2), and the standby gas treatment system exhaust vents. Effluent system flow rate and sampler flow rate are measured on all of the systems allowing the vent monitor microprocessor to calculate release rates based on measured flow rates.

2.3.2 Precautions, limitations, and setpoints applicable to the operation of the SSES airborne effluent monitors are provided in the applicable plant procedures.

2.3.3 Setpoints are conservatively established for each effluent monitor so that the instantaneous dose rates from all sources corresponding to annual dose limits in 10 CFR 20.105 for unrestricted areas will not be exceeded.

2.3.3 Setpoints are conservatively established for each effluent monitor so that the instantaneous dose rates of TRO 3.11.2.1 will not be exceeded.

2.3.4 The general methodology for establishing plant ventilation airborne effluent monitor setpoints is based upon vent release rates derived from site-specific meteorological dispersion conditions, vent flow rates, and measured or expected radionuclide mixtures in the gaseous effluents. The vent release rate can then be converted to vent concentrations for input as setpoints for the applicable detectors. Since the vent monitors are programmed to calculate concentrations of iodine and particulate being released based on the rate of accumulation of activity on the filters, setpoints can be established for the iodine and particulate channels.

2.3.5 The main condenser offgas pre-treatment monitor provides indication of offgas activity prior to input to the holdup system. Alarm setpoints are based on the Technical Specification 3.11.2.7 noble gas release rate limit of 330 millicuries/second or less at the motive steam jet condenser discharge.

2.3.5 The main condenser offgas pre-treatment monitor provides indication of offgas activity prior to input to the holdup system. Alarm setpoints are based on the Technical Specification 3.7.5 noble gas release rate limit of 330 millicuries/second or less at the motive steam jet condenser discharge.

2.3.6 Noble gas activity monitor setpoints are established at release rates which permit some margin for corrective action to be taken before exceeding offsite dose rates corresponding to the 10 CFR 20 annual dose limits as described herein.

2.3.6 Noble gas activity monitor setpoints are established at release rates which permit some margin for corrective action to be taken before exceeding the offsite instantaneous dose rates of TRO 3.11.2.1.

2.4 Selection of Data for Determination of Dose Rate Compliance

2.4.1 Airborne effluent monitor setpoints are maintained in accordance with Section 2.3, to alarm before the dose rate limits of Technical Specification 3.11.2.1 are exceeded. Station alarm response procedures contain instructions for investigation and verification of monitor alarms. Because setpoint calculations must include assumptions about the composition of the monitored effluent, a monitor high alarm does not necessarily indicate that a dose rate limit has been exceeded.

2.4.1 Airborne effluent monitor setpoints are maintained in accordance with Section 2.3, to alarm before the dose rate limits of the Technical Requirements Manual 3.11.2.1 are exceeded. Station alarm response procedures contain instructions for investigation and verification of monitor alarms. Because setpoint calculations must include assumptions about the composition of the monitored effluent, a monitor high alarm does not necessarily indicate that a dose rate limit has been exceeded.

2.4.2 Valid 10-minute averaged data should be the primary information used to determine the compliance status of an incident. One-minute averaged data should also be reviewed if available, but they may or may not provide additional information depending on the magnitude of the release due to the manner in which the monitors update values to be stored and associated statistical considerations. Averages over a longer period should be used only when data with higher resolution is not available. Grab sample analyses should be performed whenever possible to confirm or disprove monitor data, and to provide indication of the nuclide specific composition of the effluent. When grab sample data are available which, based on vent monitor data, are indicative of the period of elevated release, dose rate calculations should be performed

using the actual effluent mix. The determination of compliance status should not be based on monitor data alone when it is possible to collect and analyze a vent sample which will be representative of the period of elevated release.

2.5 Offgas Hydrogen Analyzers

The main condenser offgas treatment system explosive monitoring system (offgas hydrogen analyzers) have setpoints to alarm at 1% and 2% hydrogen with automatic isolation occurring at 2%.

2.5 Deleted

3.0 REFERENCES

3.1 TS 3.11.2.7, [Radioactive Effluents] Main Condenser

3.1 TS 3.7.5, [Radioactive Effluents] Main Condenser

3.2 TS 3.11.1.1, [Radioactive Effluents] Liquid Effluents Concentration

3.2 TR 3.11.1.1, [Radioactive Effluents] [Liquid Effluents] Concentration

3.3 TS 3.3.7.10, Radioactive Liquid Effluent Monitoring Instrumentation

3.3 TR 3.11.1.4, Liquid Radwaste Effluent Monitoring Instrumentation

3.4 TR 3.11.1.5, Radioactive Liquid Effluent Monitoring Instrumentation

3.5 TS 3.11.2.1, [Radioactive Effluents] Gaseous Effluents Dose Rate

3.5 TR 3.11.2.1, [Radioactive Effluents] [Gaseous Effluents] Dose Rate

3.6 TS 3.3.7.11, Radioactive Gaseous Effluent Monitoring Instrumentation

3.6 TR 3.11.2.6, Radioactive Gaseous Effluent Monitoring Instrumentation

3.7 10 CFR 20.105, Permissible Levels of Radiation in Unrestricted Areas

3.7 10 CFR 20.1301, Dose limits for individual members of the public

3.8 10 CFR 20 Appendix B, Concentrations in Air and Water Above Natural Background

3.8 10 CFR 20 Appendix B, Annual Limits on Intake (ALIs) and Derived Air Concentrations (DACs) of Radionuclides for Occupational Exposure; Effluent Concentrations; Concentrations for Release to Sewerage

3.9 40CFR190, Environmental radiation protection standards for nuclear power operations

3.10 10CFR50 Appendix I, Numerical Guides for Design Objectives and Limiting Conditions for Operation to Meet the Criterion "As Low as is Reasonably Achievable" for Radioactive Material in Light-Water Cooled Nuclear Power Reactor Effluents

3.11 NUREG-0564, Final Environmental Statement related to the operation of SSES, Units 1 and 2

3.11 EC-RADN-1041, SSES "Expected" Liquid and Gaseous Effluent Releases, Aquatic Doses, and Atmospheric Doses - Incorporates Condensate Filtration System and Hydrogen Water Chemistry

3.12 EC-ENVR-1040, Evaluation of Setpoint Methodology for Airborne Iodine and Particulate Monitors

3.13 TS 3.11.2.6, [Radioactive Effluents] Explosive Mixture

3.13 Deleted

3.14 1982 SSES Meteorology Report

3.14 Deleted

4.0 RESPONSIBILITIES

4.1 Supervisor - Chemistry

4.1.1 Is responsible for calibrating, functionally testing, and providing alarm responses for radiological effluent monitoring equipment.

4.2 Supervisor - Operations Technology

4.2.1 Ensures adequacy and correctness of methodology used to establish setpoints.

4.3 Environmental Services - Health Physicist

4.3.1 Is responsible for development of methodology and calculations used to establish setpoints.

5.0 DEFINITIONS

5.1 Actual Tank Activity - The sum of the products of tank concentrations and volume for each isotope.

5.2 Cs-137 Equivalent - Concentration equivalent of 2.00E-05 µCi/ml MPC for Cs-137.

5.2 Cs-137 Equivalent- Concentration equivalent of 1.00E-06 µCi/ml ECL for Cs-137.

5.3 MPC - Maximum Permissible Concentration as defined in 10CFR20, Appendix B.

5.3 ECL - Effluent Concentration Limits as defined in 10CFR20, Appendix B.

6.0 PROCEDURE

6.1 Liquid Effluent Monitoring

Chemistry shall develop procedures implementing the following requirements for Liquid Effluent Monitoring.

6.1.1 Discharge Termination

Chemistry shall determine the setpoint concentration for the discharge termination, which limits the maximum concentration being released, as follows:

$$C_\gamma = X * \sum_n C_{\gamma n} \qquad \text{(Eq. 6.1-1)}$$

where:

C_γ = The setpoint concentration at which the discharge would be terminated (µCi/ml).

X = A unitless number greater than one that is chosen to prevent spurious alarms that might result from non-uniformity in the activity concentrations of the liquid discharges.

$C_{\gamma n}$ = The concentration of isotope n in the contents of the tank to be discharged as determined by pre-release sampling and analyses. The summation shall include gamma emitting isotopes only (including noble gases).

The setpoint concentration is based on the activity of the isotopes to which the monitor responds, i.e., gamma-emitting isotopes only. It is used to establish the radiation monitor setpoint (count rate) in units of cpm or cps.

6.1.2 Radiation Monitor Setpoint

The radiation monitor setpoint is the sum of the background count rate and the count rate equivalent of the setpoint concentration. The count rate equivalent of the setpoint concentration in units of μCi/ml is determined by dividing the setpoint concentration by the calibration factor (μCi/ml/cpm).

Chemistry shall determine the radiation monitor setpoint as follows:

$$S = \frac{C_\gamma}{K} + B \qquad \text{(Eq. 6.1-2)}$$

where:

S = the radiation monitor setpoint (cpm)

C_γ = the setpoint concentration at which the discharge would be terminated from Eq. 6.1-1 (μCi/ml)

K = the radiation monitor calibration factor (μCi/ml/cpm)

B = the background radiation level for the radiation monitor (cpm)

The alarm setpoint may be established at a suitable fraction of the setpoint for discharge termination.

6.1.3 Discharge Flow Rate Limit Determination

The flow rate below which tank discharges must be maintained depends on the magnitude of the dilution required to ensure compliance with the limits of TS 3.11.1.1.

Chemistry shall establish the maximum Discharge Flow Rate using the following equation:

$$f = \frac{F}{(Y * \sum_n C_n / MPC_n) - 1} \qquad \text{(Eq. 6.1-3)}$$

where:

f = the maximum discharge rate from the tank (gpm).

F = the minimum dilution flow rate of 5000 gpm provided by the blowdown flow from the Cooling Towers and any overflow from the spray pond.

Y = a unitless number greater than X used in §6.1.1 that is chosen to ensure that the dilution flow is conservatively determined.

C_n = The concentration of isotope n in the contents of the tank to be discharged as determined by pre-release sampling and analyses. The summation shall include previous composite sample results for non-gamma emitting radionuclides such as H-3, P-32, Fe-55, Sr-89, and Sr-90 (μCi/ml).

MPC_n = the maximum permissible concentration for isotope n per 10CFR20, Appendix B, Table II, column 2 for radionuclides other than noble gases and the values in TS Table 3.11.1.1-1 for dissolved and entrained noble gases.

The flow rate below which tank discharges must be maintained depends on the magnitude of the dilution required to ensure the dilution required to ensure compliance with the limits of TR 3.11.1.1.

Chemistry shall establish the maximum Discharge Flow Rate using the following equation:

$$f = \frac{F}{Y * \left(\sum_{n} C_n / L_n + \sum_{NGi} C_{NGi} / 2E-4 \right) - 1} \qquad \text{(Eq. 6.1-3)}$$

where:

f = the maximum discharge rate from the tank (gpm).

F = the minimum dilution flow rate of 5000 gpm provided by the blowdown flow from the Cooling Towers and any overflow from the spray pond (gpm).

Y = a unitless number that is chosen to ensure that the dilution flow is conservatively determined.

C_n = The concentration of isotope n in the contents of the tank to be discharged as determined by pre-release sampling and analyses. The summation shall include previous composite sample results for non-gamma emitting radionuclides such as H-3, P-32, Fe-55, Sr-89, and Sr-90 (μCi/ml).

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L_n	=	Ten (10) times the effluent concentration (EC) for isotope n per 10CFR20, Appendix B, Table 2, Column 2 for radionuclides other than noble gases. To maintain compatibility with other federal regulations, the maximum permissible concentration (MPC) value from 10CFR20, Appendix B, Table II, Column 2 (pre-1994 10CFR20) may be used for those isotopes for which the MPC is more restrictive than 10EC.
C_{NGi}	=	The concentration of noble gas isotope i in the contents of the tank to be discharged. The summation shall include all dissolved and entrained noble gases.

Selecting values of X and Y is a matter of experience and the expected margin needed between the activity concentration and the maximum permissible concentration.

Selecting values of X and Y is a matter of experience and the expected margin needed between the activity concentration and the maximum concentration limit (10 x ECL).

6.1.4 Post-Release Evaluation

Chemistry shall perform post-release evaluations when the actual composite sample results for non-gamma-emitting radionuclides exceed pre-selected criteria.

6.1.5 Service Water, SDHR Service Water, and RHR Service Water

The Service Water System provides screened water from the cooling tower basin for cooling plant systems and equipment. The supplemental Decay Heat Removal Service Water System (SDHR) provides decay heat removal during refueling outages when the Service Water System is shutdown. The Residual Heat Removal (RHR) Service Water System provides water from the Engineered Safeguard Service Water (ESSW) spray pond to the RHR heat exchangers. In post-accident conditions, RHR Service Water can supply water for vessel and containment flooding. The Service Water, SDHR Service Water, and RHR Service Water Systems are not normal pathways for liquid effluents. Radiation monitors are in place on these systems to provide indication of leaks across heat exchangers into the service water. The high radiation setpoints for these monitors are set at 2E-5 μCi/ml Cs-137 equivalent. Considering the gamma emitting radionuclides predominant in SSES liquid effluents. e.g., Zn-65, Co-58, Co-60, Fe-59, Mn-54 and Cr-51, use

of a setpoint based on the Cs-137 MPC is conservative based on the following parameters:

1) photon abundance (85%), (0.662 MeV)

2) magnitude of applicable MPC (2E-5 μCi/ml)

The high radiation setpoints for these monitors are set at 1E-5 μCi/ml (10 times the Cs-137 equivalent). Considering the radionuclides predominant in SSES liquid effluents e.g., Co-58, Co-60, Fe-59, Mn-54 and Cr-51, use of a setpoint based on the Cs-137 ECL is reasonable based on the following parameters:

1) photon abundance (85%), photon energy (0.662 MeV)

2) magnitude of applicable ECL (1E-6 μCi/ml)

Because Service Water, SDHR Service Water, and RHR Service Water systems are not normal release pathways for liquid effluents, no credit should be taken for possible dilution scenarios. All service water should be maintained below 2E-5 μCi/ml Cs-137 equivalent.

Because Service Water, SDHR Service Water, and RHR Service Water systems are not normal release pathways for liquid effluents, no credit should be taken for possible dilution scenarios. All service water should be maintained below 1E-5 μCi/ml (10 times the Cs-137 equivalent ECL) or as established by Chemistry based on operating experience (Section 2.2.6).

In order to minimize the chance of a change in the background of a monitor masking a significant trend in monitored activity, the alarm setpoints for the Service Water, SDHR Service Water, and RHR Service Water monitors are determined as follows:

a. When monitor background ≤ (2E-5)/Cal. Factor:

HI RAD Setpoint = 0.5 Background + (2E-5)/Cal. Factor

DOWNSCALE or LOW RAD Setpoint = 0.5 Background

a. When monitor background ≤(1E-5)/Cal. Factor:

HI RAD Setpoint = 0.5 Background + (1E-5)/Cal. Factor

DOWNSCALE or LOW RAD Setpoint = 0.5 Background

b. When monitor background>(2E-5)/Cal. Factor:

HI RAD Setpoint = Background + 0.5 (2E-5)/Cal. Factor

DOWNSCALE or LOW RAD Setpoint = Background - 0.5 (2E-5)/Cal. Factor

Where:

Setpoint	=	alarm threshold value to be entered into monitor (cps for Service Water and SDHR Service Water, cpm for RHR Service Water)
Background	=	monitor background at most recent background determination (cps for Service Water and SDHR Service Water, cpm for RHR Service Water)
(2E-5)	=	Cs-137 Maximum Permissible Concentration (μCi/ml)
Cal. Factor	=	monitor response factor per unit Cs-137 concentration determined during most recent calibration (μCi/ml per cps for Service Water and SDHR Service Water, μCi/ml per cpm for RHR Service Water)

The ALERT RAD setpoints for the RHR Service Water monitors are maintained at 80% of the applicable HI RAD setpoint (cpm).

b. When monitor background >(1E-5)/Cal. Factor:

HI RAD Setpoint = Background + 0.5 (1E-5)/Cal. Factor

DOWNSCALE or LOW RAD Setpoint = Background - 0.5 (1E-5)/Cal. Factor

Where:

Setpoint	=	alarm threshold value to be entered into monitor (cps for Service Water and SDHR Service Water, cpm for RHR Service Water)
Background	=	monitor background at most recent background determination (cps for Service Water, and SDHR Service Water, cpm for RHR Service Water)
(1E-5)	=	10 times the Cs-137 ECL (μCi/ml)

Cal. Factor = monitor response factor per unit Cs-137 concentration determined during most recent calibration (µCi/ml per cps for Service Water and SDHR Service Water, µCi/ml per cpm for RHR Service Water)

The ALERT RAD setpoints for the RHR Service Water monitors are maintained at 80% of the applicable HI RAD setpoint (cpm).

6.2 Airborne Effluent Monitoring - Noble Gas

Environmental Services shall prepare calculations implementing the following requirements for Airborne Effluent Monitoring of Noble Gas.

6.2.1 Site Limiting Release Rate - Noble Gas

a. Environmental Services shall determine the limiting total body and skin release rates calculated as follows:

$$L_{TB} = \frac{Q_{NG} * DR_{TB} * k}{D_{TB}} \qquad \text{(Eq. 6.2-1a)}$$

$$L_S = \frac{Q_{NG} * DR_S * k}{D_S} \qquad \text{(Eq. 6.2-1b)}$$

where:

L_{TB} = limiting release rate- noble gas total body (µCi/min)

L_S = limiting release rate- noble gas skin (µCi/min)

Q_{NG} = total noble gas source term (Ci)

DR_{TB} = total body dose rate limit for the noble gas effluent (500 mrem/year) (ref. TS 3.11.2.1.a)

DR_{TB} = total body dose rate limit for the noble gas effluent (500 mrem/year) (ref. TRO 3.11.2.1, I.A)

DR_S = total skin dose rate limit for the noble gas effluent (3000 mrem/year) (ref. TS 3.11.2.1.a)

DR_S = total skin dose rate limit for the noble gas effluent (3000 mrem/year) (ref. TRO 3.11.2.1, I.B)

D_{TB} = limiting total body offsite dose resulting from the noble gas source term Q_{NG} (mrem)

D_S = limiting skin offsite dose resulting from the noble gas source term Q_{NG} (mrem)

k = units conversion factor (1E6 μCi/Ci) * (1 yr/365 days) * (1 day/ 24 hours) * (1 hour/ 60 minutes)

Environmental Services shall determine D_{TB} and D_S in accordance with ODCM-QA-004 using the noble gas source term and dispersion parameters provided in Attachment A.

Note, Q_{NG} is the sum of the noble gas activities provided in Attachment A. The ratio of the annual source term to the corresponding total body and skin dose is used in the above equations. Thus, either the total annual release per unit or the total annual release for the site may be used.

b. Environmental Services shall set the site limiting release rate for noble gas, L_{NG}, as the lesser of L_{TB} and L_S and the site limiting release rate for noble gas implemented in the Emergency Plan. The Emergency Plan may be revised to implement the lesser of L_{TB} and L_S to provide additional flexibility in plant operations.

6.2.2 Monitor Limiting Concentration - Noble Gas

Environmental Services shall determine the limiting noble gas release rate for each vent as follows.

$$L_V = 0.2\, L_{NG} \qquad \text{(Eq. 6.2-2)}$$

Where:

L_V = limiting noble gas release rate per vent (μCi/min)

L_{NG} = lesser of L_{TB} and L_S from §6.2.1 (μCi/min)

Environmental Services shall determine the Noble Gas Monitor Limiting Concentration for each monitor as follows:

$$C_{NG-max-V} = \frac{L_V}{F_V} \qquad \text{(Eq. 6.2-3)}$$

where:

$C_{NG-max-V}$ = limiting noble gas concentration for vent V (μCi/cc)

L_V = limiting noble gas release rate per vent from Equation 6.2-2 (μCi/min)

F_V = vent flow high limit for vent V (cc/min)

6.2.2 Monitor Limiting Concentration - Noble Gas

Environmental Services shall determine the limiting noble gas concentration as follows:

$$C_{NG} = \frac{L_{NG}}{\sum F_V} \qquad \text{(Eq. 6.2-2)}$$

Where:

C_{NG} = limiting noble gas concentration (μCi/cc)

L_{NG} = site limiting release rate - noble gas from §6.2.1 (μCi/min)

F_V = vent flow high limit for vent V (cc/min)

6.3 Airborne Effluent Monitoring - Iodine and Particulate

Environmental Services shall prepare calculations implementing the following requirements for Airborne Effluent Monitoring of iodine and particulates. Note, the methodology for determining the limiting release rate and concentration for airborne iodine and particulates is evaluated in EC-ENVR-1040.

6.3.1 Site Limiting Release Rate - Iodine

a. Environmental Services shall determine the limiting I-131 release rate as follows:

$$L'_I = \frac{Q_I * DR_{IP} * k}{D_{IP}} \qquad \text{(Eq. 6.3-1)}$$

where:

L'_I = provisional limiting release rate- I-131 (μCi/min)

Q_I = total I-131 source term (Ci)

DR_{IP} = dose rate limit for I-131, tritium, and particulate effluent (1500 mrem/year maximum organ, inhalation) (ref. TS 3.11.2.1.b)

DR_{IP} = dose rate limit for I-131, I-133, tritium, and particulate effluent (1500 mrem/year maximum organ, inhalation) (ref. TRO 3.11.2.1, II.A)

D_{IP} = limiting (maximum) organ dose for all age groups resulting from the I-131 source term (mrem)

D_{IP} = limiting (maximum) organ dose for all age groups resulting from the total I-131 and I-133 source term (mrem)

k = units conversion factor
(1E6 µCi/Ci) * (1 yr/365 days) * (1 day/ 24 hours) * (1 hour/ 60 minutes)

Environmental Services shall determine D_{IP} in accordance with ODCM-QA-004 using the iodine source term and dispersion parameters provided in Attachment A.

Note, Q_I is the I-131 activity provided in Attachment A. The ratio of the annual source term to the corresponding organ dose is used in the above equations. Thus, either the total annual release per unit or the total annual release for the site may be used.

b. Environmental Services shall set the site limiting release rate for I-131, L_I, as the lesser of L'_I and the site limiting release rate for I-131 implemented in the Emergency Plan. The Emergency Plan may be revised to implement L'_I to provide additional flexibility in plant operations.

6.3.2 Monitor Limiting Concentration - Iodine

Environmental Services shall determine the limiting I-131 release rate for each vent as follows:

$$L_{I-V} = 0.2 L'_I \qquad \text{(Eq. 6.3-2)}$$

where:

L_{I-V} = limiting I-131 release rate per vent (µCi/min)

L'_I = limiting I-131 release rate from §6.3.1 (µCi/min)

Environmental Services shall determine the I-131 Limiting Concentration for each monitor as follows:

$$C_{I-max-V} = \frac{L_{I-V}}{F_V} \qquad \text{(Eq. 6.3-3)}$$

where:

$C_{I-max-V}$ = limiting I-131 concentration for vent V (μCi/cc)

L_{I-V} = limiting I-131 release rate per vent from Equation 6.3-2 (μCi/min)

F_V = vent flow high limit for vent V (cc/min)

6.3.2 Monitor Limiting Concentration Iodine

Environmental Services shall determine the limiting I-131 concentration as follows:

$$C_I = \frac{L_I}{\sum F_V} \qquad \text{(Eq. 6.3-2)}$$

Where:

C_I = limiting I-131 concentration (μCi/cc)

L_I = limiting I-131 release rate from §6.3.1 (μCi/min)

F_V = vent flow high limit for vent V (cc/min)

6.3.3 Site Limiting Release Rate - Particulates

a. Environmental Service shall determine the limiting release rate for particulates as follows:

$$L'_P = \frac{Q_P * DR_{IP} * k}{D_P} \qquad \text{(Eq. 6.3-4)}$$

where:

L'_P = provisional limiting release rate- particulates (μCi/min)

Q_P = total particulate source term (Ci)

DR_{IP} = dose rate limit for I-131, tritium, and particulate effluent (1500 mrem/year maximum organ, inhalation) (ref. TS 3.11.2.1.b)

DR_{IP} = dose rate limit for I-131, I-133, tritium, and particulate effluent (1500 mrem/year maximum organ, inhalation) (ref. TRO 3.11.2.1, II.A)

D_P = limiting (maximum) organ dose for all age groups resulting from the source term Q_P (mrem)

k = units conversion factor
(1E6 µCi/Ci) * (1 yr/365 days) * (1 day/ 24 hours) * (1 hour/ 60 minutes)

Environmental Services shall determine D_P in accordance with ODCM-QA-004 using the particulate source term and dispersion parameters provided in Attachment A.

Note, Q_P is the sum of the particulate activities provided in Attachment A. The ratio of the annual source term to the corresponding organ dose is used in the above equations. Thus, either the total annual release per unit or the total annual release for the site may be used.

b. Environmental Services shall set the site limiting release rate for particulates, L_P, as the lesser of L'_P and the site limiting release rate for particulates implemented in the Emergency Plan. The Emergency Plan may be revised to implement L'_P to provide additional flexibility in plant operations.

6.3.4 Monitor Limiting Concentration - Particulates

Environmental Services shall determine the limiting particulate release rate for each vent as follows:

$$L_{P-V} = 0.2 L'_P \qquad \text{(Eq. 6.3-5)}$$

where:

L_{P-V} = limiting particulate release rate per vent (µCi/min)

L'_P = limiting release rate - particulate from §6.3.3 (µCi/min)

Environmental Services shall determine the Particulates Limiting Concentration for each monitor as follows:

$$C_{P-max-V} = \frac{L_{P-V}}{F_V} \qquad \text{(Eq. 6.3-6)}$$

where:

where:

$C_{P\text{-}max\text{-}V}$ = limiting particulate concentration for vent V (µCi/cc)

$L_{P\text{-}V}$ = limiting particulate release rate per vent from Equation 6.3-5 (µCi/min)

F_V = vent flow high limit for vent V (cc/min)

6.3.4 Monitoring Limiting Concentration - Particulates

Environmental Services shall determine the limiting particulate concentration as follows:

$$C_P = \frac{L_P}{\sum F_V} \qquad \text{(Eq. 6.3-5)}$$

where:

C_p = limiting particulate concentration (µCi/cc)

L_p = limiting particulate release rate from §6.3.3 (µCi/min)

F_v = vent flow high limit for vent v (cc/min)

6.4 Airborne Monitor Line Loss Corrections

6.4.1 Chemistry shall apply the following correction factors to monitor data and sample analysis results in order to correct for airborne effluent monitor sample line loss in accordance with station procedures:

CORRECTION FACTORS

Routine Effluent Monitors	Iodine	Particulates
Reactor Building Unit 1	1.5	3.2
Reactor Building Unit 2	1.5	3.2
Turbine Building Unit 1	1.6	3.6
Turbine Building Unit 2	1.6	3.6
Standby Gas Treatment	1.5	3.9

Post-Accident Vent Monitors	Iodine	Particulates
Turbine Building Unit 1	1.7	4.2
Turbine Building Unit 2	1.7	4.3
Standby Gas Treatment	1.6	4.4

7.0 RECORDS

None.

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7.0 RECORDS

None.

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PARAMETERS USED TO DETERMINE AIRBORNE EFFLUENT MONITOR SETPOINTS

NUCLIDE	TOTAL RELEASE (1) (Ci/year per reactor)
Ar-41	2.5E+01
Kr-83m	4.0E+00
Kr-85m	1.7E+03
Kr-85	2.7E+02
Kr-87	3.2E+01
Kr-88	6.6E+02
Xe-131m	7.1E+01
Xe-133m	1.4E+01
Xe-133	1.25E+04
Xe-135m	2.2E+02
Xe-135	5.9E+02
Xe-138	2.9E+02

NUCLIDE	TOTAL RELEASE (1) (Ci/year per reactor)
I-131	1.2E-01
Cr-51	1.2E-04
Mn-54	3.6E-04
Fe-59	1.6E-04
Co-58	5.8E-05
Co-60	1.1E-03
Zn-65	5.5E-05
Sr-89	1.8E-05
Sr-90	3.1E-06
Zr-95	8.7E-06
Sb-124	5.1E-06
Cs-134	1.3E-04
Cs-136	1.3E-03
Cs-137	2.1E-04
Ba-140	4.2E-05
Ce-141	2.9E-05

Annual Average Dispersion Parameters (2)

Relative Concentration	4.1E-5 sec/m^3
Decayed Relative Concentration	4.1E-5 sec/m^3
Decayed, depleted Relative Concentration	3.8E-5 sec/m^3
Deposition Rate	4.2E-8 m^{-2}

Notes:
1. Final Environmental Statement Table 4.4.
2. SSES 1982 Meteorology Report.

Approval MWS
Date see page 1

PARAMETERS USED TO DETERMINE AIRBORNE EFFLUENT MONITOR SETPOINTS

NUCLIDE	TOTAL RELEASE (1) (Ci/year per reactor)
Ar-41	2.60E+01
Kr-83m	0.00E+00
Kr-85m	1.10E+01
Kr-85	2.30E+02
Kr-87	1.42E+01
Kr-88	2.22E+01
Kr-89	1.47E+02
Xe-131m	1.80E+01
Xe-133m	0.00E+00
Xe-133	2.23E+03
Xe-135m	6.70E+02
Xe-135	9.73E+02
Xe-137	4.68E+02
Xe-138	2.10E+02

NUCLIDE	TOTAL RELEASE (1) (Ci/year per reactor)
I-131 (2)	1.02E-01/1.23E-01
I-133(2)	1.14E+00/1.45E+00
Cr-51	2.08E-05
Mn-54	5.52E-05
Fe-59	7.10E-06
Co-58	7.00E-06
Co-60	1.23E-04
Zn-65	6.53E-05
Sr-89	1.25E-05
Sr-90	1.40E-07
Nb-95	1.00E-04
Zr-95	1.81E-05
Ru-103	4.21E-05
Ag-110m	2.40E-08
Sb-124	1.40E-06
Cs-134	7.46E-05
Cs-136	7.10E-06
Cs-137	1.11E-04
Ba-140	2.51E-04
Ce-141	2.91E-05

Annual Average Dispersion Parameters - Limiting Site Boundary (3)

Relative Concentration	1.46E-5 sec/m^3
Decayed Relative Concentration	1.46E-5 sec/m^3
Decayed, Depleted Relative Concentration	1.35E-5 sec/m^3
Deposition Rate	3.35E-8 m^{-2}

Notes:

1. Design basis "expected" gaseous effluent releases per EC-RADN-1041 (particulates with half-lives greater than 8 days)
2. Use limiting case Normal Water Chemistry/Hydrogen Water Chemistry
3. 1973-76 Meteorological Data Updated to 1996 Land Use Survey per EC-RADN-1041

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PROCEDURE COVER SHEET

SUSQUEHANNA STEAM ELECTRIC STATION PP&L	NUCLEAR DEPARTMENT PROCEDURE AIRBORNE EFFLUENT DOSE CALCULATIONS	ODCM-QA-004 Revision 0 Page 1 of 59

QUALITY CLASSIFICATION:	APPROVAL CLASSIFICATION:
☒ QA Program ☐ Non-QA Program	☒ Plant ☐ Non-Plant ☐ Instruction

EFFECTIVE DATE: 8-14-98

PERIODIC REVIEW FREQUENCY: N/A

PERIODIC REVIEW DUE DATE: N/A

RECOMMENDED REVIEWS:

Procedure Owner: R. K. Barclay

Responsible Supervisor: Supervisor - Operations Technology

Responsible FUM: Manager - Nuclear Technology

Responsible Approver: General Manager - SSES

PROCEDURE REVISION SUMMARY

TITLE: AIRBORNE EFFLUENT DOSE CALCULATIONS

EVALUATION OF THE IMPACT OF REV. 0 TO ODCM-QA-004 ON THE LEVEL OF EFFLUENT CONTROL AND THE OVERALL ACCURACY AND RELIABILITY OF CALCULATIONS

Revision 0 to the ODCM in procedure format is being made as part of the conversion from Current Technical Specifications (CTS) to Improved Technical Specifications (ITS). In addition, 10CFR20.1001 to .2402 are being incorporated as applicable.

The revision moves elements of the Radioactive Effluent Control Program (RECP) (formerly called the Radioactive Effluent Technical Specifications) and the Radiological Environmental Monitoring Program (REMP) from Technical Specifications to the Technical Requirements Manual. In addition, administrative and reporting requirements formerly contained in Technical Specifications were moved to the appropriate sections of the ODCM procedures which implement them. Requirements formerly contained in the ODCM (e.g., dose calculation formulae, dose conversion factors and setpoint calculation formulae) were maintained in this revision of the ODCM.

The revisions described below are editorial in nature, changing only the format of the ODCM and/or location of the required elements of the RECP and the REMP without any change in the actual limits. The addition of the Fraction Iodine Deposited (FID) improves consistency with Regulatory Guide 1.109. Thus, Revision 0 of ODCM-QA-004 maintains the level of radioactive effluent control required pursuant to 10CFR20.1302, 40CFR190, 10CFR50.36a and Appendix I to 10CFR50 and does not impact the accuracy or reliability of effluent, dose, or setpoint calculations.

1. Initial issue in procedure format.

2. Sections 4 and 6 of ODCM Revision 7 are reorganized in the format established by NDAP-QA-0002. Revision bars are used in Attachment D to show changes to the dose factors; otherwise, revision bars are not used since the change was to the entire section.

3. Cover sheet, Revision Summary, and Table of Contents are added.

4. §6.2.3- Computation of doses from radionuclides other than noble gases is revised to describe application of Fraction Iodine Deposited (FID).

5. Policy statements provided in Section 10 of ODCM Revision 7 pertaining to airborne effluents (§10.1 and §10.2.a through c) are relocated to §2 of this procedure.

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6. Policy statement regarding noble gas activity monitor setpoints in Section 4.1 of ODCM Revision 7 is relocated to ODCM-QA-003.

7. Tables 2 and 4 of ODCM Revision 7 are incorporated as Attachments A and D, respectively.

8. Deposition pathway dose factors for radioiodines (Attachment D) are adjusted to reflect a value of 0.5 for the FID.

9. Appendix C of ODCM Revision 7 is incorporated as Attachment C.

10. Sample airborne dose calculations from Appendix A of ODCM Revision 7 are deleted. Policy statements found in Appendix A of ODCM Revision 7 regarding use of GASPAR and instructions on its use are relocated to Sections 2 and 6.

11. Added Annual Average Dispersion Factors used for Monthly Surveillances as Attachment B.

12. Document titles and references were revised to agree with ITS/TRM.

13. I-133 was added (Section 6.2) as required by ITS/TRM.

14. Added (Section 4) the requirement to perform dose calculations every 31 days as required by the TRM.

15. Added (Section 4) the required actions for doses exceeding twice the quarterly or annual TRM limits.

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1.0 PURPOSE

The purpose of this procedure is to provide the methodology and parameters used in calculating air dose resulting from noble gas effluent and maximum individual, whole body, and organ doses due to airborne effluents to ensure compliance with the dose limitations in the Technical Specifications 3.11.2.2, 3.11.2.3, 3.11.2.5, and 3.11.4.

The purpose of this procedure is to provide the methodology and parameters used in calculating air dose resulting from noble gas effluent and maximum individual, whole body, and organ doses due to airborne effluents to ensure compliance with the dose limitations in the Technical Requirements Manual (Sections 3.11.2.2, 3.11.2.3, 3.11.2.5 and 3.11.3) and 10CFR20.1302.

This procedure constitutes part of the SSES Offsite Dose Calculation Manual (ODCM) which is a licensing basis document.

2.0 POLICY/DISCUSSION

2.1 Meteorological Parameters

2.1.1 The meteorological parameters are provided by the SSES meteorology program.

2.1.1 The meteorological parameters are provided by the SSES meteorology program. Instrumentation and controls necessary to ensure that sufficient meteorological data are available to determine radiation doses to the public as a result of radioactive releases are specified in TR 3.3.3. Data reduction and evaluation are performed in accordance with NEPM-QA-1017.

2.1.2 Annual dose calculations for the Annual Effluent and Waste Disposal Report are based on the actual meteorological conditions concurrent with the reporting year.

2.1.3 Monthly dose calculations are based on the limiting sector average annual dispersion factors based on a selected period of time. The dispersion factors currently used are provided in Attachment B.

2.1.4 The methodology described herein incorporates parameters specific to the SSES site (Attachment C).

2.1.5 Use of the no-decay-undepleted X/Q is recommended for manual dose computations, because it is conservative for all isotopes. Consideration for depletion of radioiodines and particulates and radioactive decay of the plume is acceptable, but not required. The Environmental Services - Health Physicist (Effluent) or the Meteorological Contract Administrator should be contacted for details.

2.2 Noble Gases

2.2.1 The methods for sampling and analysis of continuous ventilation releases are given in the applicable plant procedures.

2.3 Radionuclides Other Than Noble Gases

2.3.1 The methods for sampling and analysis of ventilation releases for radioiodines, tritium, and radioactive particulates are given in the applicable plant procedures and shall be performed in accordance with TS Table 4.11.2.1.2-1.

2.3.1 The methods for sampling and analysis of continuous ventilation releases for radioiodines and radioactive particulates are given in the applicable plant procedures and shall be performed in accordance with TR Table 3.11.2.1-1.

2.4 Use of GASPAR Computer Program

2.4.1 Airborne effluent surveillances and dose projection calculations are performed using the GASPAR computer program as a method of implementing the methodology of Regulatory Guide 1.109. This program calculates the maximum individual doses due to radionuclides released in gaseous effluents from SSES. The GASPAR computer code was developed by the NRC to perform dose calculations from airborne effluent using the assumptions of Regulatory Guide 1.109.

The code implements the semi-infinite cloud model and the dose calculational models of Regulatory Guide 1.109 and is used to calculate maximum individual doses and maximum individual organ doses from SSES. A more detailed description of the GASPAR code can be found in NUREG-0597 and NUREG/CR-4653.

2.4.2 A margin of 15% shall be added to doses for the cow milk ingestion pathway computed by GASPAR (a factor of 1.15) to account for the non-conservative discrepancy discussed in EC-ENVR-1035.

2.5 Effluent Data

2.5.1 The total number of Curies released for each radionuclide during the time period being evaluated is supplied by the SSES effluent monitoring program.

2.5.2 For determination of compliance with SSES Technical Specification dose limits, effluent totals shall be based only on activity positively detected at the 95% confidence level.

2.5.2 For determination of compliance with the Technical Requirements Manual dose limits, effluent totals shall be based only on activity positively detected at the 95% confidence level.

2.5.3 Applicable airborne pathways at SSES include immersion, inhalation, ground exposure, vegetable ingestion, and cow-milk ingestion.

2.5.4 Quarterly doses are the summation of the applicable monthly values.

2.6 Assignment of Releases to the Reactor Units

2.6.1 For determination of compliance with SSES radioactive effluent dose limits which are on a "per reactor unit" basis:

a. Effluents from the Unit 1 Reactor Building vent and the Unit 1 Turbine Building vent shall be included as Unit 1 releases. The Radwaste Building vent is also included in Unit 1 releases.

b. Effluents from the Unit 2 Reactor Building vent and the Unit 2 Turbine Building vent shall be included as Unit 2 releases.

c. Effluents from the Standby Gas Treatment System vent shall be equally divided between Unit 1 and Unit 2 release totals.

3.0 REFERENCES

3.1 TS Table 4.11.2.1.2-1, Radioactive Gaseous Waste Sampling and Analysis Program.

3.1 TR Table 3.11.2.1-1, Radioactive Gaseous Waste Sampling and Analysis Program.

3.2 TS 3.11.2.2, [Radioactive Effluents] Dose-Noble Gases.

3.2 TR 3.11.2.2, [Radioactive Effluents] [Gaseous Effluents] Dose-Noble Gases.

3.3 TS 3.11.2.3, [Radioactive Effluents] Dose-Iodine-131, Tritium, and Radionuclides in Particulate Form.

3.3 TR 3.11.2.3, [Radioactive Effluents] [Gaseous Effluents] Dose-Iodine, Tritium, and Radionuclides in Particulate Form.

3.4 TS 3.11.2.5, [Radioactive Effluents] Ventilation Exhaust Treatment System

3.4 TR 3.11.2.5, [Radioactive Effluents] [Gaseous Effluents] Ventilation Exhaust Treatment System

3.5 TS 3.11.4, Total Dose

3.5 TR 3.11.3, Total Dose

3.6 TR 3.3.3, Meteorological Instrumentation.

3.7 10CFR20 Appendix B, Concentrations in Air and Water Above Natural Background.

3.7 10CFR20 Appendix B, Annual Limits on Intake (ALIs) and Derived Air Concentrations (DACs) of Radionuclides for Occupational Exposure; Effluent Concentrations; Concentrations for Release to Sewerage.

3.8 Regulatory Guide 1.109, Rev. 1, October, 1977, Calculation of Annual Doses to Man from Routine Releases of Reactor Effluents for the Purposes of Evaluating Compliance with 10 CFR 50, Appendix I.

3.9 NUREG-0133, Preparation of Radiological Effluent Technical Specifications for Nuclear Power Plants.

3.10 NEPM-QA-1011, Radiological Effluent Dose Calculation and Reporting.

3.11 NEPM-QA-1017, SSES Meteorological Data Processing and Reporting.

3.12 ODCM-QA-006, Total Dose Calculations.

3.13 NUREG/CR-0597, "User's Guide to GASPAR Code."

3.14 NUREG/CR-4653, 1987, GASPAR II - Technical Reference and User Guide.

3.15 PP&L Study EC-ENVR-1031, "Software Verification and Validation Test Report-GASPAR."

3.16 Reference letter R. K. Barclay to File R9-5, "Technical Documentation of Lotus 1-2-3 ODCMTAB and TGTMSTR Files: Gaseous Factor Calculation using NUREG-0133/ Reg. Guide 1.109 Methodology," PLI-69605, 11/8/91.

3.17 Reference letter R. K. Barclay to File R9-5, "Technical Documentation: ODCMTAB.WK1 Revision 1 Correction of Tritium in Vegetation Pathway Dose Calculations Factor Algorithm," PLI 72980, 11/24/92.

3.18 PP&L Calculation EC-ENVR-1035, "Investigation of GASPAR Program Cow Milk Ingestion Pathway Discrepancy," Rev. 0.

3.19 FSAR Chapter 11.3, Gaseous Waste Management Systems.

4.0 RESPONSIBILITIES

4.1 Supervisor- Operations Technology

4.1.1 Ensures adequacy and correctness of methodology to be used in calculating doses resulting from airborne effluents.

4.2 Environmental Services- Health Physicist (Effluent)

4.2.1 Performs dose calculations necessary for fulfillment of SSES Technical Specification Surveillance Requirements.

4.2.1 Is responsible for determining the cumulative dose contributions for the current calendar quarter and current calendar year every 31 days in fulfillment of TRSs 3.11.2.2.1, 3.11.2.3.1, 3.11.3.1 in accordance with NEPM-QA-1011, Radiological Effluent Dose Calculation and Reporting.

4.2.2 Develops methodology and parameters to be used in calculating doses resulting from airborne effluents to ensure compliance with the dose limitations in the Technical Specifications.

4.2.2 Develops methodology and parameters to be used in calculating doses resulting from airborne effluents to ensure compliance with the dose limitations in the Technical Requirements Manual.

4.3 Meteorological Contract Administrator

4.3.1 Coordinates and reviews data collection, processing, and reporting of SSES meteorological data.

5.0 DEFINITIONS

5.1 FID - fraction of airborne radioiodine effluent that is estimated to be elemental iodine. The fraction of iodine deposited (FID) is assumed to be 0.5 (Regulatory Guide 1.109 (page 1.109-26)).

5.2 MEMBER(S) OF THE PUBLIC - Shall include all persons who are not occupationally associated with the plant. This category does not include employees of the utility, its contractors, or vendors. Also excluded from this category are persons who enter the site to service equipment or to make deliveries. This category does include persons who use portions of the site for recreational, occupational, or other purposes not associated with the plant.

5.3 UNRESTRICTED AREA - shall be any area at or beyond the site boundary, access to which is not controlled by the licensee for purposes of protection of individuals from exposure to radiation and radioactive materials, or any area within the site boundary used for residential quarters or for industrial, commercial, institutional, and/or recreational purposes.

6.0 PROCEDURE

6.1 Noble Gases

6.1.1 The Environmental Services Health Physicist shall determine the dose rate at a specified location due to noble gases released in airborne effluents by the following equation for whole body dose:

$$D_{wb} = \sum_i (K_i)(X/Q)_v \, (Q'_{iv}) \, (S_F) \qquad \text{(Eq. 1)}$$

and by the following equation for skin dose:

$$D_S = \sum_i [L_i + ((1.11 \ (M_i)(S_F))] \ (X/Q)_v (Q'_{iv}) \qquad \text{(Eq. 2)}$$

where:

D_{wb} = the annual whole body dose (mrem/yr).

K_i = the whole body dose factor due to gamma emissions for each identified noble gas radionuclide (i) (mrem/yr per $\mu Ci/m^3$) from Attachment A.

$(X/Q)_v$ = the relative concentration factor for the specified location from vent release point (v) such as from Attachment B (sec/m^3).

Q'_{iv} = the release rate of radionuclide (i) from vent (v) (µCi/sec).

S_F = the gamma shielding factor
= 0.7 for maximally exposed individual
= 1.0 for instantaneous dose rate

D_S = the annual skin dose (mrem/yr).

L_i = the skin dose factor due to the beta emissions for each identified noble gas radionuclide (i) (mrem/yr per $\mu Ci/m^3$) from Attachment A.

M_i = the air dose factor due to gamma emissions for each identified noble gas radionuclide (i) (mrad/yr per $\mu Ci/m^3$) from Attachment A (conversion constant of 1.11 converts [air dose- mrad] to [skin dose-mrem]).

6.1.2 The Environmental Services Health Physicist shall determine the air dose at a specified location due to noble gases released in airborne effluents during any specified time period by the following equation for gamma radiation:

$$D_g = 3.17E-8 \sum_i (M_i)(X/Q)_v (Q_{iv}) \quad \text{(Eq. 3)}$$

and by the following equation for beta radiation:

$$D_b = 3.17E-8 \sum_i (N_i)(X/Q)_v (Q_{iv}) \quad \text{(Eq. 4)}$$

where:

D_g = the total gamma air dose from airborne effluents for the specified time period (mrad).

D_b = the total beta air dose from airborne effluents for the specified time period (mrad).

3.17E-8 = the inverse of seconds in a year (yr/sec).

M_i = the air dose factor due to gamma emissions for each identified noble gas radionuclide (i) (mrad/yr per μCi/m^3) from Attachment A.

N_i = the air dose factor due to beta emissions for each identified noble gas radionuclide (i) (mrad/yr per μCi/m^3) from Attachment A.

$(X/Q)_v$ = the relative concentration factor for the specified location from vent release point (v) such as from Attachment B (sec/m^3).

Q_{iv} = the integrated release rate of radionuclide (i) from all vents (v) for a specified time period (μCi).

6.2 Radionuclides Other Than Noble Gases

6.2.1 The Environmental Services Health Physicist shall determine the dose rate at a specified location due to inhalation of radioactive materials released in airborne effluents (including I-131 and I-133) by the following equation for any organ:

$$D_c = \sum_i (R_i)(W_v)(Q'_{iv}) \quad \text{(Eq. 5)}$$

where:

D_c = the annual organ dose (mrem/yr).

R_i = the dose rate parameter based on inhalation pathway for radionuclides other than noble gases for the inhalation pathway (mrem/yr per μCi/m^3) from Attachment D.

W_v = the relative concentration factor for the specified location from vent release point (v) from Attachment B (sec/m^3).

Q'_{iv} = the release rate of radionuclide (i) from vent (v) (μCi/sec).

6.2.2 The Environmental Services Health Physicist shall determine the critical organ dose to an individual from radionuclides other than noble gases released in airborne effluents (including I-131 and I-133) during any specified time period at a specified location by the following equation:

$$D_c = 3.17E-8 \sum_i (R_i)(W_v)(Q_{iv}) \qquad \text{(Eq. 6)}$$

where:

D_c = the total dose to a critical organ from radionuclides other than noble gases for a specified time period (mrem).

R_i = the dose rate parameter based on inhalation pathway for each radionuclide other than noble gases (i) for the inhalation pathway (mrem/yr per μCi/m^3) and for ingestion and ground plane pathways (mrem-m^2/yr per μCi/sec) from Attachment D.

W_v = Relative concentration (X/Q) (sec/m^3) for the inhalation pathway and relative deposition (D/Q: m^{-2}) for the ingestion and ground pathways such as from Attachment B.

Q_{iv} = the integrated release of radionuclide (i) from all vents (v) for a specified time period (μCi).

3.17E-8= the inverse of seconds in a year (yr/sec)

For radioiodines, the deposition model considers only the elemental fraction of the effluent. Thus, deposition is computed only for that fraction of the effluent that is estimated to be elemental iodine. The fraction iodine deposited (FID) is assumed to be 0.5 (Regulatory Guide 1.109 (page 1.109-26)). The deposition pathway dose factors for radioiodines presented in Attachment D have been adjusted by a factor of 0.5.

6.3 Use of GASPAR Computer Program

6.3.1 The Environmental Services Health Physicist shall use the standard site specific information listed in Attachment C when GASPAR is used for surveillance purposes as described in NEPM-QA-1011, Attachments D and E.

6.4 Airborne Effluent Dose Calculations Exceeding Twice the Quarterly or Annual TRM Values

6.4.1 When the results of airborne dose calculations exceed twice the value of TR's 3.11.2.2.a, 3.11.2.2.b, 3.11.2.3.a, or 3.11.2.3.b, calculations shall be made which include the direct radiation contribution in accordance with ODCM-QA-006 to determine if the limits of TR 3.11.3 have been exceeded. If the limits of TR 3.11.3 have been exceeded, a special report shall be prepared and submitted to the NRC within 30 days which addresses the actions specified in TR 3.11.3.

7.0 RECORDS

None.

odcm-qa-004(26)

DOSE FACTORS FOR NOBLE GASES (1)

	Whole Body Dose Factor	Skin Dose Factor	Gamma Air Dose Factor	Beta Air Dose Factor
	K_i	L_i	M_i	N_i
Radionuclide	(mrem/yr per $\mu Ci/m^3$)	(mrem/yr-per $\mu Ci/m^3$)	(mrad/yr per $\mu Ci/m^3$)	(mrad/yr per $\mu Ci/m^3$)
Kr-83m	7.56E-02	---	1.93E+01	2.88E+02
Kr-85m	1.17E+03	1.46E+03	1.23E+03	1.97E+03
Kr-85	1.61E+01	1.34E+03	1.72E+01	1.95E+03
Kr-87	5.92E+03	9.73E+03	6.17E+03	1.03E+04
Kr-88	1.47E+04	2.37E+03	1.52E+04	2.93E+03
Kr-89	1.66E+04	1.01E+04	1.73E+04	1.06E+04
Kr-90	1.56E+04	7.29E+03	1.63E+04	7.83E+03
Xe-131m	9.15E+01	4.76E+02	1.56E+02	1.11E+03
Xe-133m	2.51E+02	9.94E+02	3.27E+02	1.48E+03
Xe-133	2.94E+02	3.06E+02	3.53E+02	1.05E+03
Xe-135m	3.12E+03	7.11E+02	3.36E+03	7.39E+02
Xe-135	1.81E+03	1.86E+03	1.92E+03	2.46E+03
Xe-137	1.42E+03	1.22E+04	1.51E+03	1.27E+04
Xe-138	8.83E+03	4.13E+03	9.21E+03	4.75E+03
Ar-41	8.84E+03	2.69E+03	9.30E+03	3.28E+03

1. The listed dose factors are for radionuclides that may be detected in airborne effluents and derived from Table B-1 in Reg. Guide 1.109.

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ANNUAL AVERAGE DISPERSION FACTORS
USED FOR MONTHLY SURVEILLANCES [1]

Type of Location	Direction	Distance (miles)	X/Q (sec/m^3)	X/Q (sec/m^3)	X/Q (sec/m^3)	D/Q (per m^2)
			no decay	2.260 day decay	8.000 day decay	
			undepleted	undepleted	depleted	
Maximum Site Boundary	SW	0.60	2.40E-05	2.40E-05	2.10E-05	3.00E-08
Closest Site Boundary	S	0.34	1.40E-05	1.40E-05	1.30E-05	4.50E-08
Maximum X/Q Residence	WSW	1.16	1.10E-05	1.10E-05	9.70E-06	1.10E-08
Maximum Dairy Animal	WSW	1.70	6.60E-06	6.50E-06	5.50E-06	6.10E-09
Maximum D/Q Residence	SE	0.38	4.10E-06	4.10E-06	3.80E-06	2.20E-08

Notes:

1. July, 1981, through December, 1985, meteorological data.

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SITE SPECIFIC INFORMATION USED BY GASPAR CODE

1)	The distance from the facility to the NE corner of the U.S. (Maine)	590 miles
2)	Fraction of year leafy vegetables are grown	0.33
3)	Fraction of year cows are on pasture (April-Nov.)	0.60
4)	Fraction of crop from garden	0.76
5)	Fraction of daily intake of cows derived from pasture while on pasture	0.42
6)	Absolute humidity over growing season	9.0 g/m^3
	Relative humidity if T is supplied	67.6%
7)	Average temperature over growing season	60.2 °F
	Fraction of year goats are on pasture	0.60
9)	Fraction of daily intake of goat from pasture while on pasture	0.75
10)	Fraction of year beef cattle are on pasture	0.60
11)	Fraction of daily intake of beef cattle derived from pasture while on pasture	0.55

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ODCM MAXIMUM PATHWAY DOSE FACTORS: RADIONUCLIDES OTHER THAN NOBLE GASES

Isotope:	H-3								
PATHWAY	AGE GROUP	BONE	LIVER	T.BODY	THYROID	KIDNEY	LUNG	G.I.	SKIN
GROUND	ADULT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	TEEN	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	CHILD	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	INFANT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
GOAT	ADULT	0.00E+00	1.38E+03	1.38E+03	1.38E+03	1.38E+03	1.38E+03	1.38E+03	N/A
MILK	TEEN	0.00E+00	1.80E+03	1.80E+03	1.80E+03	1.80E+03	1.80E+03	1.80E+03	N/A
	CHILD	0.00E+00	2.84E+03	2.84E+03	2.84E+03	2.84E+03	2.84E+03	2.84E+03	N/A
	INFANT	0.00E+00	4.31E+03	4.31E+03	4.31E+03	4.31E+03	4.31E+03	4.31E+03	N/A
COW	ADULT	0.00E+00	6.77E+02	6.77E+02	6.77E+02	6.77E+02	6.77E+02	6.77E+02	N/A
MILK	TEEN	0.00E+00	8.82E+02	8.82E+02	8.82E+02	8.82E+02	8.82E+02	8.82E+02	N/A
	CHILD	0.00E+00	1.39E+03	1.39E+03	1.39E+03	1.39E+03	1.39E+03	1.39E+03	N/A
	INFANT	0.00E+00	2.11E+03	2.11E+03	2.11E+03	2.11E+03	2.11E+03	2.11E+03	N/A
MEAT	ADULT	0.00E+00	2.89E+02	2.89E+02	2.49E+05	2.89E+02	2.89E+02	2.89E+02	N/A
	TEEN	0.00E+00	1.72E+02	1.72E+02	1.72E+02	1.72E+02	1.72E+02	1.72E+02	N/A
	CHILD	0.00E+00	2.08E+02	2.08E+02	2.08E+02	2.08E+02	2.08E+02	2.08E+02	N/A
	INFANT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	N/A
VEGETABLE	ADULT	0.00E+00	1.82E+03	1.82E+03	1.82E+03	1.82E+03	1.82E+03	1.82E+03	N/A
	TEEN	0.00E+00	2.18E+03	2.18E+03	2.18E+03	2.18E+03	2.18E+03	2.18E+03	N/A
	CHILD	0.00E+00	3.42E+03	3.42E+03	3.42E+03	3.42E+03	3.42E+03	3.42E+03	N/A
	INFANT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	N/A
TOTAL	ADULT	0.00E+00	4.17E+03	4.17E+03	4.17E+03	4.17E+03	4.17E+03	4.17E+03	N/A
INGESTION	TEEN	0.00E+00	5.03E+03	5.03E+03	5.03E+03	5.03E+03	5.03E+03	5.03E+03	N/A
	CHILD	0.00E+00	7.86E+03	7.86E+03	7.86E+03	7.86E+03	7.86E+03	7.86E+03	N/A
	INFANT	0.00E+00	6.43E+03	6.43E+03	6.43E+03	6.43E+03	6.43E+03	6.43E+03	N/A
INHALATION	ADULT	0.00E+00	1.26E+03	1.26E+03	1.26E+03	1.26E+03	1.26E+03	1.26E+03	N/A
	TEEN	0.00E+00	1.27E+03	1.27E+03	1.27E+03	1.27E+03	1.27E+03	1.27E+03	N/A
	CHILD	0.00E+00	1.12E+03	1.12E+03	1.12E+03	1.12E+03	1.12E+03	1.12E+03	N/A
	INFANT	0.00E+00	6.47E+02	6.47E+02	6.47E+02	6.47E+02	6.47E+02	6.47E+02	N/A

*Airborne pathways and tritium ingestion: units are mrem/yr/μCi/m3
Deposition pathways: units are mrem-m2/yr/μCi/sec

*** MAXIMUM VALUES FOR PATHWAYS ***							
GROUND: T.B./ORG.	GROUND: SKIN	GOAT MILK	COW MILK	MEAT	VEGETABLE	TOTAL INGESTION	INHALATION
0.00E+00	0.00E+00	4.31E+03	2.11E+03	2.89E+02	3.42E+03	7.86E+03	1.27E+03

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ODCM MAXIMUM PATHWAY DOSE FACTORS: RADIONUCLIDES OTHER THAN NOBLE GASES

Isotope:	C-14								
PATHWAY	AGE GROUP	BONE	LIVER	T.BODY	THYROID	KIDNEY	LUNG	G.I.	SKIN
GROUND	ADULT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	TEEN	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	CHILD	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	INFANT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
GOAT	ADULT	1.69E+08	3.39E+07	3.39E+07	3.39E+07	3.39E+07	3.39E+07	3.39E+07	N/A
MILK	TEEN	3.12E+08	6.24E+07	6.24E+07	6.24E+07	6.24E+07	6.24E+07	6.24E+07	N/A
	CHILD	7.68E+08	1.54E+08	1.54E+08	1.54E+08	1.54E+08	1.54E+08	1.54E+08	N/A
	INFANT	1.50E+09	3.21E+08	3.21E+08	3.21E+08	3.21E+08	3.21E+08	3.21E+08	N/A
COW	ADULT	1.35E+08	2.71E+07	2.71E+07	2.71E+07	2.71E+07	2.71E+07	2.71E+07	N/A
MILK	TEEN	2.50E+08	4.99E+07	4.99E+07	4.99E+07	4.99E+07	4.99E+07	4.99E+07	N/A
	CHILD	6.14E+08	1.23E+08	1.23E+08	1.23E+08	1.23E+08	1.23E+08	1.23E+08	N/A
	INFANT	1.20E+09	2.57E+08	2.57E+08	2.57E+08	2.57E+08	2.57E+08	2.57E+08	N/A
MEAT	ADULT	1.36E+08	2.72E+07	2.72E+07	2.72E+07	2.72E+07	2.72E+07	2.72E+07	N/A
	TEEN	1.15E+08	2.30E+07	2.30E+07	2.30E+07	2.30E+07	2.30E+07	2.30E+07	N/A
	CHILD	2.16E+08	4.33E+07	4.33E+07	4.33E+07	4.33E+07	4.33E+07	4.33E+07	N/A
	INFANT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	N/A
VEGETABLE	ADULT	2.06E+08	4.13E+07	4.13E+07	4.13E+07	4.13E+07	4.13E+07	4.13E+07	N/A
	TEEN	3.49E+08	6.98E+07	6.98E+07	6.98E+07	6.98E+07	6.98E+07	6.98E+07	N/A
	CHILD	8.53E+08	1.71E+08	1.71E+08	1.71E+08	1.71E+08	1.71E+08	1.71E+08	N/A
	INFANT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	N/A
TOTAL	ADULT	6.47E+08	1.29E+08	1.29E+08	1.29E+08	1.29E+08	1.29E+08	1.29E+08	N/A
INGESTION	TEEN	1.03E+09	2.05E+08	2.05E+08	2.05E+08	2.05E+08	2.05E+08	2.05E+08	N/A
	CHILD	2.45E+09	4.90E+08	4.90E+08	4.90E+08	4.90E+08	4.90E+08	4.90E+08	N/A
	INFANT	2.71E+09	5.78E+08	5.78E+08	5.78E+08	5.78E+08	5.78E+08	5.78E+08	N/A
INHALATION	ADULT	1.82E+04	3.41E+03	3.41E+03	3.41E+03	3.41E+03	3.41E+03	3.41E+03	N/A
	TEEN	2.60E+04	4.87E+03	4.87E+03	4.87E+03	4.87E+03	4.87E+03	4.87E+03	N/A
	CHILD	3.59E+04	6.73E+03	6.73E+03	6.73E+03	6.73E+03	6.73E+03	6.73E+03	N/A
	INFANT	2.65E+04	5.31E+03	5.31E+03	5.31E+03	5.31E+03	5.31E+03	5.31E+03	N/A

*Airborne pathways and tritium ingestion: units are mrem/yr/μCi/m3
Deposition pathways: units are mrem-m2/yr/μCi/sec

*** MAXIMUM VALUES FOR PATHWAYS ***							
GROUND: T.B./ORG.	GROUND: SKIN	GOAT MILK	COW MILK	MEAT	VEGETABLE	TOTAL INGESTION	INHALATION
0.00E+00	0.00E+00	1.50E+09	1.20E+09	2.16E+08	8.53E+08	2.71E+09	3.59E+04

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ODCM MAXIMUM PATHWAY DOSE FACTORS: RADIONUCLIDES OTHER THAN NOBLE GASES

Isotope:	P-32								
PATHWAY	AGE GROUP	BONE	LIVER	T.BODY	THYROID	KIDNEY	LUNG	G.I.	SKIN
GROUND	ADULT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	TEEN	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	CHILD	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	INFANT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
GOAT	ADULT	9.28E+09	5.77E+08	3.59E+08	0.00E+00	0.00E+00	0.00E+00	1.04E+09	N/A
MILK	TEEN	1.71E+10	1.06E+09	6.64E+08	0.00E+00	0.00E+00	0.00E+00	1.44E+09	N/A
	CHILD	4.22E+10	1.98E+09	1.63E+09	0.00E+00	0.00E+00	0.00E+00	1.17E+09	N/A
	INFANT	7.25E+10	5.12E+09	3.37E+09	0.00E+00	0.00E+00	0.00E+00	1.18E+09	N/A
COW	ADULT	4.36E+09	2.71E+08	1.69E+08	0.00E+00	0.00E+00	0.00E+00	4.91E+08	N/A
MILK	TEEN	8.05E+09	4.99E+08	3.12E+08	0.00E+00	0.00E+00	0.00E+00	6.77E+08	N/A
	CHILD	1.99E+10	9.29E+08	7.65E+08	0.00E+00	0.00E+00	0.00E+00	5.49E+08	N/A
	INFANT	4.09E+10	2.41E+09	1.59E+09	0.00E+00	0.00E+00	0.00E+00	5.54E+08	N/A
MEAT	ADULT	1.55E+09	9.63E+07	5.99E+07	0.00E+00	0.00E+00	0.00E+00	1.74E+08	N/A
	TEEN	1.31E+09	8.11E+07	5.07E+07	0.00E+00	0.00E+00	0.00E+00	1.10E+08	N/A
	CHILD	2.47E+09	1.15E+08	9.51E+07	0.00E+00	0.00E+00	0.00E+00	6.82E+07	N/A
	INFANT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	N/A
VEGETABLE	ADULT	7.09E+08	4.41E+07	2.74E+07	0.00E+00	0.00E+00	0.00E+00	7.98E+07	N/A
	TEEN	9.57E+08	5.93E+07	3.71E+07	0.00E+00	0.00E+00	0.00E+00	8.05E+07	N/A
	CHILD	2.16E+09	1.01E+08	8.34E+07	0.00E+00	0.00E+00	0.00E+00	5.98E+07	N/A
	INFANT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	N/A
TOTAL	ADULT	1.59E+10	9.89E+08	6.15E+08	0.00E+00	0.00E+00	0.00E+00	1.79E+09	N/A
INGESTION	TEEN	2.74E+10	1.70E+09	1.06E+09	0.00E+00	0.00E+00	0.00E+00	2.31E+09	N/A
	CHILD	6.67E+10	3.12E+09	2.57E+09	0.00E+00	0.00E+00	0.00E+00	1.84E+09	N/A
	INFANT	1.13E+11	7.53E+09	4.96E+09	0.00E+00	0.00E+00	0.00E+00	1.73E+09	N/A
INHALATION	ADULT	1.32E+06	7.71E+04	5.01E+04	0.00E+00	0.00E+00	0.00E+00	8.64E+04	N/A
	TEEN	1.89E+06	1.10E+05	7.16E+04	0.00E+00	0.00E+00	0.00E+00	9.28E+04	N/A
	CHILD	2.60E+06	1.14E+05	9.88E+04	0.00E+00	0.00E+00	0.00E+00	4.22E+04	N/A
	INFANT	2.03E+06	1.12E+05	7.74E+04	0.00E+00	0.00E+00	0.00E+00	1.61E+04	N/A

*Airborne pathways and tritium ingestion: units are mrem/yr/μCi/m3
Deposition pathways: units are mrem-m2/yr/μCi/sec

*** MAXIMUM VALUES FOR PATHWAYS ***							
GROUND: T.B./ORG.	GROUND: SKIN	GOAT MILK	COW MILK	MEAT	VEGETABLE	TOTAL INGESTION	INHALATION
0.00E+00	0.00E+00	7.25E+10	4.09E+10	2.47E+09	2.16E+09	1.13E+11	2.60E+06

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ODCM MAXIMUM PATHWAY DOSE FACTORS: RADIONUCLIDES OTHER THAN NOBLE GASES

Isotope:	Cr-51								
PATHWAY	AGE GROUP	BONE	LIVER	T.BODY	THYROID	KIDNEY	LUNG	G.I.	SKIN
GROUND	ADULT	4.61E+06	4.61E+06	4.61E+06	4.61E+06	4.61E+06	4.61E+06	4.61E+06	5.45E+06
	TEEN	4.61E+06	4.61E+06	4.61E+06	4.61E+06	4.61E+06	4.61E+06	4.61E+06	5.45E+06
	CHILD	4.61E+06	4.61E+06	4.61E+06	4.61E+06	4.61E+06	4.61E+06	4.61E+06	5.45E+06
	INFANT	4.61E+06	4.61E+06	4.61E+06	4.61E+06	4.61E+06	4.61E+06	4.61E+06	5.45E+06
GOAT	ADULT	0.00E+00	0.00E+00	1.61E+03	9.64E+02	3.55E+02	2.14E+03	4.06E+05	N/A
MILK	TEEN	0.00E+00	0.00E+00	2.82E+03	1.56E+03	6.17E+02	4.02E+03	4.73E+05	N/A
	CHILD	0.00E+00	0.00E+00	5.74E+03	3.19E+03	8.71E+02	5.82E+03	3.05E+05	N/A
	INFANT	0.00E+00	0.00E+00	9.10E+03	5.94E+03	1.30E+03	1.16E+04	2.65E+05	N/A
COW	ADULT	0.00E+00	0.00E+00	7.99E+03	4.77E+03	1.76E+03	1.06E+04	2.01E+06	N/A
MILK	TEEN	0.00E+00	0.00E+00	1.39E+04	7.75E+03	3.06E+03	1.99E+04	2.34E+06	N/A
	CHILD	0.00E+00	0.00E+00	2.84E+04	1.58E+04	4.32E+03	2.88E+04	1.51E+06	N/A
	INFANT	0.00E+00	0.00E+00	4.51E+04	2.94E+04	6.43E+03	5.72E+04	1.31E+06	N/A
MEAT	ADULT	0.00E+00	0.00E+00	2.50E+03	1.49E+03	5.50E+02	3.31E+03	6.28E+05	N/A
	TEEN	0.00E+00	0.00E+00	2.00E+03	1.11E+03	4.38E+02	2.85E+03	3.36E+05	N/A
	CHILD	0.00E+00	0.00E+00	3.11E+03	1.73E+03	4.72E+02	3.16E+03	1.65E+05	N/A
	INFANT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	N/A
VEGETABLE	ADULT	0.00E+00	0.00E+00	3.35E+04	2.01E+04	7.39E+03	4.45E+04	8.44E+06	N/A
	TEEN	0.00E+00	0.00E+00	5.02E+04	2.79E+04	1.10E+04	7.17E+04	8.44E+06	N/A
	CHILD	0.00E+00	0.00E+00	9.96E+04	5.53E+04	1.51E+04	1.01E+05	5.28E+06	N/A
	INFANT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	N/A
TOTAL	ADULT	0.00E+00	0.00E+00	4.56E+04	2.73E+04	1.01E+04	6.06E+04	1.15E+07	N/A
INGESTION	TEEN	0.00E+00	0.00E+00	6.90E+04	3.83E+04	1.51E+04	9.85E+04	1.16E+07	N/A
	CHILD	0.00E+00	0.00E+00	1.37E+05	7.60E+04	2.08E+04	1.39E+05	7.26E+06	N/A
	INFANT	0.00E+00	0.00E+00	5.42E+04	3.53E+04	7.72E+03	6.88E+04	1.58E+06	N/A
INHALATION	ADULT	0.00E+00	0.00E+00	1.00E+02	5.95E+01	2.28E+01	1.44E+04	3.32E+03	N/A
	TEEN	0.00E+00	0.00E+00	1.35E+02	7.50E+01	3.07E+01	2.10E+04	3.00E+03	N/A
	CHILD	0.00E+00	0.00E+00	1.54E+02	8.55E+01	2.43E+01	1.70E+04	1.08E+03	N/A
	INFANT	0.00E+00	0.00E+00	8.95E+01	5.75E+01	1.32E+01	1.28E+04	3.57E+02	N/A

*Airborne pathways and tritium ingestion: units are mrem/yr/μCi/m3
Deposition pathways: units are mrem-m2/yr/μCi/sec

*** MAXIMUM VALUES FOR PATHWAYS ***							
GROUND: T.B./ORG.	GROUND: SKIN	GOAT MILK	COW MILK	MEAT	VEGETABLE	TOTAL INGESTION	INHALATION
4.61E+06	5.45E+06	4.73E+05	2.34E+06	6.28E+05	8.44E+06	1.16E+07	2.10E+04

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ODCM MAXIMUM PATHWAY DOSE FACTORS: RADIONUCLIDES OTHER THAN NOBLE GASES

Isotope:	Mn-54								
PATHWAY	AGE GROUP	BONE	LIVER	T.BODY	THYROID	KIDNEY	LUNG	G.I.	SKIN
GROUND	ADULT	1.37E+09	1.37E+09	1.37E+09	1.37E+09	1.37E+09	1.37E+09	1.37E+09	1.61E+09
	TEEN	1.37E+09	1.37E+09	1.37E+09	1.37E+09	1.37E+09	1.37E+09	1.37E+09	1.61E+09
	CHILD	1.37E+09	1.37E+09	1.37E+09	1.37E+09	1.37E+09	1.37E+09	1.37E+09	1.61E+09
	INFANT	1.37E+09	1.37E+09	1.37E+09	1.37E+09	1.37E+09	1.37E+09	1.37E+09	1.61E+09
GOAT	ADULT	0.00E+00	6.14E+05	1.17E+05	0.00E+00	1.83E+05	0.00E+00	1.88E+06	N/A
MILK	TEEN	0.00E+00	1.02E+06	2.03E+05	0.00E+00	3.05E+05	0.00E+00	2.10E+06	N/A
	CHILD	0.00E+00	1.53E+06	4.07E+05	0.00E+00	4.29E+05	0.00E+00	1.28E+06	N/A
	INFANT	0.00E+00	2.84E+06	6.45E+05	0.00E+00	6.30E+05	0.00E+00	1.04E+06	N/A
COW	ADULT	0.00E+00	3.92E+06	7.49E+05	0.00E+00	1.17E+06	0.00E+00	1.20E+07	N/A
MILK	TEEN	0.00E+00	6.54E+06	1.30E+06	0.00E+00	1.95E+06	0.00E+00	1.34E+07	N/A
	CHILD	0.00E+00	9.78E+06	2.61E+06	0.00E+00	2.74E+06	0.00E+00	8.21E+06	N/A
	INFANT	0.00E+00	1.82E+07	4.12E+06	0.00E+00	4.03E+06	0.00E+00	6.68E+06	N/A
MEAT	ADULT	0.00E+00	4.79E+06	9.14E+05	0.00E+00	1.43E+06	0.00E+00	1.47E+07	N/A
	TEEN	0.00E+00	3.65E+06	7.25E+05	0.00E+00	1.09E+06	0.00E+00	7.49E+06	N/A
	CHILD	0.00E+00	4.18E+06	1.11E+06	0.00E+00	1.17E+06	0.00E+00	3.51E+06	N/A
	INFANT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	N/A
VEGETABLE	ADULT	0.00E+00	2.80E+08	5.35E+07	0.00E+00	8.34E+07	0.00E+00	8.58E+08	N/A
	TEEN	0.00E+00	4.27E+08	8.46E+07	0.00E+00	1.27E+08	0.00E+00	8.75E+08	N/A
	CHILD	0.00E+00	6.34E+08	1.69E+08	0.00E+00	1.78E+08	0.00E+00	5.32E+08	N/A
	INFANT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	N/A
TOTAL	ADULT	0.00E+00	2.90E+08	5.53E+07	0.00E+00	8.62E+07	0.00E+00	8.87E+08	N/A
INGESTION	TEEN	0.00E+00	4.38E+08	8.69E+07	0.00E+00	1.31E+08	0.00E+00	8.98E+08	N/A
	CHILD	0.00E+00	6.49E+08	1.73E+08	0.00E+00	1.82E+08	0.00E+00	5.45E+08	N/A
	INFANT	0.00E+00	2.10E+07	4.77E+06	0.00E+00	4.66E+06	0.00E+00	7.73E+06	N/A
INHALATION	ADULT	0.00E+00	3.96E+04	6.30E+03	0.00E+00	9.84E+03	1.40E+06	7.74E+04	N/A
	TEEN	0.00E+00	5.11E+04	8.40E+03	0.00E+00	1.27E+04	1.98E+06	6.68E+04	N/A
	CHILD	0.00E+00	4.29E+04	9.51E+03	0.00E+00	1.00E+04	1.58E+06	2.29E+04	N/A
	INFANT	0.00E+00	2.53E+04	4.98E+03	0.00E+00	4.98E+03	1.00E+06	7.06E+03	N/A

*Airborne pathways and tritium ingestion: units are mrem/yr/μCi/m3
Deposition pathways: units are mrem-m2/yr/μCi/sec

*** MAXIMUM VALUES FOR PATHWAYS ***							
GROUND: T.B./ORG.	GROUND: SKIN	GOAT MILK	COW MILK	MEAT	VEGETABLE	TOTAL INGESTION	INHALATION
1.37E+09	1.61E+09	2.84E+06	1.82E+07	1.47E+07	8.75E+08	8.98E+08	1.98E+06

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ODCM MAXIMUM PATHWAY DOSE FACTORS: RADIONUCLIDES OTHER THAN NOBLE GASES

Isotope:	Fe-55								
PATHWAY	AGE GROUP	BONE	LIVER	T.BODY	THYROID	KIDNEY	LUNG	G.I.	SKIN
GROUND	ADULT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	TEEN	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	CHILD	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	INFANT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
GOAT	ADULT	2.06E+05	1.42E+05	3.32E+04	0.00E+00	0.00E+00	7.94E+04	8.16E+04	N/A
MILK	TEEN	3.65E+05	2.59E+05	6.04E+04	0.00E+00	0.00E+00	1.64E+05	1.12E+05	N/A
	CHILD	9.17E+05	4.86E+05	1.51E+05	0.00E+00	0.00E+00	2.75E+05	9.01E+04	N/A
	INFANT	8.52E+07	7.16E+05	1.91E+05	0.00E+00	0.00E+00	3.50E+05	9.09E+04	N/A
COW	ADULT	1.25E+07	8.64E+06	2.01E+06	0.00E+00	0.00E+00	4.82E+06	4.95E+06	N/A
MILK	TEEN	2.22E+07	1.57E+07	3.67E+06	0.00E+00	0.00E+00	9.97E+06	6.80E+06	N/A
	CHILD	5.56E+07	2.95E+07	9.14E+06	0.00E+00	0.00E+00	1.67E+07	5.47E+06	N/A
	INFANT	6.73E+07	4.34E+07	1.16E+07	0.00E+00	0.00E+00	2.12E+07	5.52E+06	N/A
MEAT	ADULT	1.61E+08	1.11E+08	2.60E+07	0.00E+00	0.00E+00	6.22E+07	6.39E+07	N/A
	TEEN	1.31E+08	9.29E+07	2.17E+07	0.00E+00	0.00E+00	5.89E+07	4.02E+07	N/A
	CHILD	2.51E+08	1.33E+08	4.13E+07	0.00E+00	0.00E+00	7.54E+07	2.47E+07	N/A
	INFANT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	N/A
VEGETABLE	ADULT	1.89E+08	1.31E+08	3.05E+07	0.00E+00	0.00E+00	7.30E+07	7.50E+07	N/A
	TEEN	3.08E+08	2.18E+08	5.09E+07	0.00E+00	0.00E+00	1.38E+08	9.44E+07	N/A
	CHILD	7.67E+08	4.07E+08	1.26E+08	0.00E+00	0.00E+00	2.30E+08	7.53E+07	N/A
	INFANT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	N/A
TOTAL	ADULT	3.63E+08	2.51E+08	5.85E+07	0.00E+00	0.00E+00	1.40E+08	1.44E+08	N/A
INGESTION	TEEN	4.61E+08	3.27E+08	7.62E+07	0.00E+00	0.00E+00	2.07E+08	1.41E+08	N/A
	CHILD	1.07E+09	5.70E+08	1.77E+08	0.00E+00	0.00E+00	3.22E+08	1.06E+08	N/A
	INFANT	1.52E+08	4.42E+07	1.18E+07	0.00E+00	0.00E+00	2.16E+07	5.61E+06	N/A
INHALATION	ADULT	2.46E+04	1.70E+04	3.94E+03	0.00E+00	0.00E+00	7.21E+04	6.03E+03	N/A
	TEEN	3.34E+04	2.38E+04	5.54E+03	0.00E+00	0.00E+00	1.24E+05	6.39E+03	N/A
	CHILD	4.74E+04	2.52E+04	7.77E+03	0.00E+00	0.00E+00	1.11E+05	2.87E+03	N/A
	INFANT	1.97E+04	1.17E+04	3.33E+03	0.00E+00	0.00E+00	8.69E+04	1.09E+03	N/A

*Airborne pathways and tritium ingestion: units are mrem/yr/μCi/m3
Deposition pathways: units are mrem-m2/yr/μCi/sec

*** MAXIMUM VALUES FOR PATHWAYS ***							
GROUND: T.B./ORG.	GROUND: SKIN	GOAT MILK	COW MILK	MEAT	VEGETABLE	TOTAL INGESTION	INHALATION
0.00E+00	0.00E+00	8.52E+07	6.73E+07	2.51E+08	7.67E+08	1.07E+09	1.24E+05

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ODCM MAXIMUM PATHWAY DOSE FACTORS: RADIONUCLIDES OTHER THAN NOBLE GASES

Isotope:	Mn-56								
PATHWAY	AGE GROUP	BONE	LIVER	T.BODY	THYROID	KIDNEY	LUNG	G.I.	SKIN
GROUND	ADULT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	TEEN	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	CHILD	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	INFANT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
GOAT	ADULT	0.00E+00	7.17E-04	1.27E-04	0.00E+00	9.11E-04	0.00E+00	2.29E-02	N/A
MILK	TEEN	0.00E+00	1.27E-03	2.26E-04	0.00E+00	1.61E-03	0.00E+00	8.37E-02	N/A
	CHILD	0.00E+00	2.22E-03	5.01E-04	0.00E+00	2.68E-03	0.00E+00	3.21E-01	N/A
	INFANT	0.00E+00	5.43E-03	9.36E-04	0.00E+00	4.67E-03	0.00E+00	4.93E-01	N/A
COW	ADULT	0.00E+00	1.05E-03	1.86E-04	0.00E+00	1.33E-03	0.00E+00	3.34E-02	N/A
MILK	TEEN	0.00E+00	1.85E-03	3.30E-04	0.00E+00	2.35E-03	0.00E+00	1.22E-01	N/A
	CHILD	0.00E+00	3.23E-03	7.30E-04	0.00E+00	3.91E-03	0.00E+00	4.69E-01	N/A
	INFANT	0.00E+00	7.92E-03	1.37E-03	0.00E+00	6.81E-03	0.00E+00	7.19E-01	N/A
MEAT	ADULT	0.00E+00	5.00E-54	8.86E-55	0.00E+00	6.34E-54	0.00E+00	1.59E-52	N/A
	TEEN	0.00E+00	4.06E-54	7.21E-55	0.00E+00	5.14E-54	0.00E+00	2.67E-52	N/A
	CHILD	0.00E+00	5.41E-54	1.22E-54	0.00E+00	6.54E-54	0.00E+00	7.84E-52	N/A
	INFANT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	N/A
VEGETABLE	ADULT	0.00E+00	5.25E+00	9.31E-01	0.00E+00	6.66E+00	0.00E+00	1.67E+02	N/A
	TEEN	0.00E+00	4.73E+00	8.42E-01	0.00E+00	5.99E+00	0.00E+00	3.11E+02	N/A
	CHILD	0.00E+00	6.19E+00	1.40E+00	0.00E+00	7.49E+00	0.00E+00	8.97E+02	N/A
	INFANT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	N/A
TOTAL	ADULT	0.00E+00	5.25E+00	9.31E-01	0.00E+00	6.66E+00	0.00E+00	1.68E+02	N/A
INGESTION	TEEN	0.00E+00	4.73E+00	8.42E-01	0.00E+00	5.99E+00	0.00E+00	3.12E+02	N/A
	CHILD	0.00E+00	6.20E+00	1.40E+00	0.00E+00	7.50E+00	0.00E+00	8.98E+02	N/A
	INFANT	0.00E+00	1.34E-02	2.30E-03	0.00E+00	1.15E-02	0.00E+00	1.21E+00	N/A
INHALATION	ADULT	0.00E+00	1.24E+00	1.83E-01	0.00E+00	1.30E+00	9.44E+03	2.02E+04	N/A
	TEEN	0.00E+00	1.70E+00	2.52E-01	0.00E+00	1.79E+00	1.52E+04	5.74E+04	N/A
	CHILD	0.00E+00	1.66E+00	3.12E-01	0.00E+00	1.67E+00	1.31E+04	1.23E+05	N/A
	INFANT	0.00E+00	1.54E+00	2.21E-01	0.00E+00	1.10E+00	1.25E+04	7.17E+04	N/A

*Airborne pathways and tritium ingestion: units are mrem/yr/μCi/m3
Deposition pathways: units are mrem-m2/yr/μCi/sec

*** MAXIMUM VALUES FOR PATHWAYS ***							
GROUND: T.B./ORG.	GROUND: SKIN	GOAT MILK	COW MILK	MEAT	VEGETABLE	TOTAL INGESTION	INHALATION
0.00E+00	0.00E+00	4.93E-01	7.19E-01	7.84E-52	8.97E+02	8.98E+02	1.23E+05

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ODCM MAXIMUM PATHWAY DOSE FACTORS: RADIONUCLIDES OTHER THAN NOBLE GASES

Isotope:	Co-58								
PATHWAY	AGE GROUP	BONE	LIVER	T.BODY	THYROID	KIDNEY	LUNG	G.I.	SKIN
GROUND	ADULT	3.75E+08	3.75E+08	3.75E+08	3.75E+08	3.75E+08	3.75E+08	3.75E+08	4.39E+08
	TEEN	3.75E+08	3.75E+08	3.75E+08	3.75E+08	3.75E+08	3.75E+08	3.75E+08	4.39E+08
	CHILD	3.75E+08	3.75E+08	3.75E+08	3.75E+08	3.75E+08	3.75E+08	3.75E+08	4.39E+08
	INFANT	3.75E+08	3.75E+08	3.75E+08	3.75E+08	3.75E+08	3.75E+08	3.75E+08	4.39E+08
GOAT	ADULT	0.00E+00	3.00E+05	6.72E+05	0.00E+00	0.00E+00	0.00E+00	6.07E+06	N/A
MILK	TEEN	0.00E+00	5.05E+05	1.16E+06	0.00E+00	0.00E+00	0.00E+00	6.96E+06	N/A
	CHILD	0.00E+00	7.71E+05	2.36E+06	0.00E+00	0.00E+00	0.00E+00	4.50E+06	N/A
	INFANT	0.00E+00	1.54E+06	3.85E+06	0.00E+00	0.00E+00	0.00E+00	3.84E+06	N/A
COW	ADULT	0.00E+00	1.70E+06	3.81E+06	0.00E+00	0.00E+00	0.00E+00	3.44E+07	N/A
MILK	TEEN	0.00E+00	2.86E+06	6.59E+06	0.00E+00	0.00E+00	0.00E+00	3.94E+07	N/A
	CHILD	0.00E+00	4.37E+06	1.34E+07	0.00E+00	0.00E+00	0.00E+00	2.55E+07	N/A
	INFANT	0.00E+00	8.74E+06	2.18E+07	0.00E+00	0.00E+00	0.00E+00	2.18E+07	N/A
MEAT	ADULT	0.00E+00	7.78E+06	1.74E+07	0.00E+00	0.00E+00	0.00E+00	1.58E+08	N/A
	TEEN	0.00E+00	6.00E+06	1.38E+07	0.00E+00	0.00E+00	0.00E+00	8.27E+07	N/A
	CHILD	0.00E+00	7.01E+06	2.14E+07	0.00E+00	0.00E+00	0.00E+00	4.09E+07	N/A
	INFANT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	N/A
VEGETABLE	ADULT	0.00E+00	2.61E+07	5.86E+07	0.00E+00	0.00E+00	0.00E+00	5.29E+08	N/A
	TEEN	0.00E+00	3.96E+07	9.14E+07	0.00E+00	0.00E+00	0.00E+00	5.47E+08	N/A
	CHILD	0.00E+00	5.99E+07	1.83E+08	0.00E+00	0.00E+00	0.00E+00	3.49E+08	N/A
	INFANT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	N/A
TOTAL	ADULT	0.00E+00	3.59E+07	8.05E+07	0.00E+00	0.00E+00	0.00E+00	7.28E+08	N/A
INGESTION	TEEN	0.00E+00	4.90E+07	1.13E+08	0.00E+00	0.00E+00	0.00E+00	6.76E+08	N/A
	CHILD	0.00E+00	7.20E+07	2.20E+08	0.00E+00	0.00E+00	0.00E+00	4.20E+08	N/A
	INFANT	0.00E+00	1.03E+07	2.56E+07	0.00E+00	0.00E+00	0.00E+00	2.56E+07	N/A
INHALATION	ADULT	0.00E+00	1.58E+03	2.07E+03	0.00E+00	0.00E+00	9.28E+05	1.06E+05	N/A
	TEEN	0.00E+00	2.07E+03	2.78E+03	0.00E+00	0.00E+00	1.34E+06	9.52E+04	N/A
	CHILD	0.00E+00	1.77E+03	3.16E+03	0.00E+00	0.00E+00	1.11E+06	3.44E+04	N/A
	INFANT	0.00E+00	1.22E+03	1.82E+03	0.00E+00	0.00E+00	7.77E+05	1.11E+04	N/A

*Airborne pathways and tritium ingestion: units are mrem/yr/μCi/m3
Deposition pathways: units are mrem-m2/yr/μCi/sec

*** MAXIMUM VALUES FOR PATHWAYS ***							
GROUND: T.B./ORG.	GROUND: SKIN	GOAT MILK	COW MILK	MEAT	VEGETABLE	TOTAL INGESTION	INHALATION
3.75E+08	4.39E+08	6.96E+06	3.94E+07	1.58E+08	5.47E+08	7.28E+08	1.34E+06

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ODCM MAXIMUM PATHWAY DOSE FACTORS: RADIONUCLIDES OTHER THAN NOBLE GASES

Isotope:	Fe-59								
PATHWAY	AGE GROUP	BONE	LIVER	T.BODY	THYROID	KIDNEY	LUNG	G.I.	SKIN
GROUND	ADULT	2.70E+08	2.70E+08	2.70E+08	2.70E+08	2.70E+08	2.70E+08	2.70E+08	3.17E+08
	TEEN	2.70E+08	2.70E+08	2.70E+08	2.70E+08	2.70E+08	2.70E+08	2.70E+08	3.17E+08
	CHILD	2.70E+08	2.70E+08	2.70E+08	2.70E+08	2.70E+08	2.70E+08	2.70E+08	3.17E+08
	INFANT	2.70E+08	2.70E+08	2.70E+08	2.70E+08	2.70E+08	2.70E+08	2.70E+08	3.17E+08
GOAT	ADULT	1.92E+05	4.52E+05	1.73E+05	0.00E+00	0.00E+00	1.26E+05	1.51E+06	N/A
MILK	TEEN	3.35E+05	7.83E+05	3.02E+05	0.00E+00	0.00E+00	2.47E+05	1.85E+06	N/A
	CHILD	7.78E+05	1.26E+06	6.27E+05	0.00E+00	0.00E+00	3.65E+05	1.31E+06	N/A
	INFANT	1.12E+08	2.54E+06	9.99E+05	0.00E+00	0.00E+00	7.49E+05	1.21E+06	N/A
COW	ADULT	9.41E+06	2.21E+07	8.47E+06	0.00E+00	0.00E+00	6.18E+06	7.37E+07	N/A
MILK	TEEN	1.64E+07	3.83E+07	1.48E+07	0.00E+00	0.00E+00	1.21E+07	9.06E+07	N/A
	CHILD	3.81E+07	6.16E+07	3.07E+07	0.00E+00	0.00E+00	1.79E+07	6.41E+07	N/A
	INFANT	7.11E+07	1.24E+08	4.89E+07	0.00E+00	0.00E+00	3.67E+07	5.93E+07	N/A
MEAT	ADULT	1.03E+08	2.42E+08	9.27E+07	0.00E+00	0.00E+00	6.76E+07	8.06E+08	N/A
	TEEN	8.23E+07	1.92E+08	7.41E+07	0.00E+00	0.00E+00	6.05E+07	4.54E+08	N/A
	CHILD	1.46E+08	2.36E+08	1.18E+08	0.00E+00	0.00E+00	6.84E+07	2.46E+08	N/A
	INFANT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	N/A
VEGETABLE	ADULT	1.02E+08	2.39E+08	9.17E+07	0.00E+00	0.00E+00	6.68E+07	7.97E+08	N/A
	TEEN	1.58E+08	3.68E+08	1.42E+08	0.00E+00	0.00E+00	1.16E+08	8.71E+08	N/A
	CHILD	3.60E+08	5.82E+08	2.90E+08	0.00E+00	0.00E+00	1.69E+08	6.06E+08	N/A
	INFANT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	N/A
TOTAL	ADULT	2.14E+08	5.04E+08	1.93E+08	0.00E+00	0.00E+00	1.41E+08	1.68E+09	N/A
INGESTION	TEEN	2.57E+08	5.99E+08	2.31E+08	0.00E+00	0.00E+00	1.89E+08	1.42E+09	N/A
	CHILD	5.45E+08	8.81E+08	4.39E+08	0.00E+00	0.00E+00	2.55E+08	9.18E+08	N/A
	INFANT	1.83E+08	1.27E+08	4.99E+07	0.00E+00	0.00E+00	3.74E+07	6.05E+07	N/A
INHALATION	ADULT	1.18E+04	2.78E+04	1.06E+04	0.00E+00	0.00E+00	1.02E+06	1.88E+05	N/A
	TEEN	1.59E+04	3.70E+04	1.43E+04	0.00E+00	0.00E+00	1.53E+06	1.78E+05	N/A
	CHILD	2.07E+04	3.34E+04	1.67E+04	0.00E+00	0.00E+00	1.27E+06	7.07E+04	N/A
	INFANT	1.36E+04	2.35E+04	9.48E+03	0.00E+00	0.00E+00	1.01E+06	2.48E+04	N/A

*Airborne pathways and tritium ingestion: units are mrem/yr/μCi/m3
Deposition pathways: units are mrem-m2/yr/μCi/sec

*** MAXIMUM VALUES FOR PATHWAYS ***							
GROUND: T.B./ORG.	GROUND: SKIN	GOAT MILK	COW MILK	MEAT	VEGETABLE	TOTAL INGESTION	INHALATION
2.70E+08	3.17E+08	1.12E+08	1.24E+08	8.06E+08	8.71E+08	1.68E+09	1.53E+06

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ODCM MAXIMUM PATHWAY DOSE FACTORS: RADIONUCLIDES OTHER THAN NOBLE GASES

Isotope:	Co-60								
PATHWAY	AGE GROUP	BONE	LIVER	T.BODY	THYROID	KIDNEY	LUNG	G.I.	SKIN
GROUND	ADULT	2.13E+10	2.13E+10	2.13E+10	2.13E+10	2.13E+10	2.13E+10	2.13E+10	2.51E+10
	TEEN	2.13E+10	2.13E+10	2.13E+10	2.13E+10	2.13E+10	2.13E+10	2.13E+10	2.51E+10
	CHILD	2.13E+10	2.13E+10	2.13E+10	2.13E+10	2.13E+10	2.13E+10	2.13E+10	2.51E+10
	INFANT	2.13E+10	2.13E+10	2.13E+10	2.13E+10	2.13E+10	2.13E+10	2.13E+10	2.51E+10
GOAT	ADULT	0.00E+00	1.25E+06	2.76E+06	0.00E+00	0.00E+00	0.00E+00	2.35E+07	N/A
MILK	TEEN	0.00E+00	2.12E+06	4.78E+06	0.00E+00	0.00E+00	0.00E+00	2.77E+07	N/A
	CHILD	0.00E+00	3.30E+06	9.72E+06	0.00E+00	0.00E+00	0.00E+00	1.83E+07	N/A
	INFANT	0.00E+00	6.73E+06	1.59E+07	0.00E+00	0.00E+00	0.00E+00	1.60E+07	N/A
COW	ADULT	0.00E+00	8.29E+06	1.83E+07	0.00E+00	0.00E+00	0.00E+00	1.56E+08	N/A
MILK	TEEN	0.00E+00	1.41E+07	3.17E+07	0.00E+00	0.00E+00	0.00E+00	1.83E+08	N/A
	CHILD	0.00E+00	2.18E+07	6.44E+07	0.00E+00	0.00E+00	0.00E+00	1.21E+08	N/A
	INFANT	0.00E+00	4.46E+07	1.05E+08	0.00E+00	0.00E+00	0.00E+00	1.06E+08	N/A
MEAT	ADULT	0.00E+00	4.19E+07	9.23E+07	0.00E+00	0.00E+00	0.00E+00	7.86E+08	N/A
	TEEN	0.00E+00	3.25E+07	7.32E+07	0.00E+00	0.00E+00	0.00E+00	4.23E+08	N/A
	CHILD	0.00E+00	3.86E+07	1.14E+08	0.00E+00	0.00E+00	0.00E+00	2.14E+08	N/A
	INFANT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	N/A
VEGETABLE	ADULT	0.00E+00	1.51E+08	3.34E+08	0.00E+00	0.00E+00	0.00E+00	2.84E+09	N/A
	TEEN	0.00E+00	2.35E+08	5.29E+08	0.00E+00	0.00E+00	0.00E+00	3.06E+09	N/A
	CHILD	0.00E+00	3.62E+08	1.07E+09	0.00E+00	0.00E+00	0.00E+00	2.01E+09	N/A
	INFANT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	N/A
TOTAL	ADULT	0.00E+00	2.03E+08	4.47E+08	0.00E+00	0.00E+00	0.00E+00	3.81E+09	N/A
INGESTION	TEEN	0.00E+00	2.84E+08	6.39E+08	0.00E+00	0.00E+00	0.00E+00	3.69E+09	N/A
	CHILD	0.00E+00	4.26E+08	1.26E+09	0.00E+00	0.00E+00	0.00E+00	2.36E+09	N/A
	INFANT	0.00E+00	5.13E+07	1.21E+08	0.00E+00	0.00E+00	0.00E+00	1.22E+08	N/A
INHALATION	ADULT	0.00E+00	1.15E+04	1.48E+04	0.00E+00	0.00E+00	5.97E+06	2.85E+05	N/A
	TEEN	0.00E+00	1.51E+04	1.98E+04	0.00E+00	0.00E+00	8.72E+06	2.59E+05	N/A
	CHILD	0.00E+00	1.31E+04	2.26E+04	0.00E+00	0.00E+00	7.07E+06	9.62E+04	N/A
	INFANT	0.00E+00	8.02E+03	1.18E+04	0.00E+00	0.00E+00	4.51E+06	3.19E+04	N/A

*Airborne pathways and tritium ingestion: units are mrem/yr/μCi/m3
Deposition pathways: units are mrem-m2/yr/μCi/sec

*** MAXIMUM VALUES FOR PATHWAYS ***							
GROUND: T.B./ORG.	GROUND: SKIN	GOAT MILK	COW MILK	MEAT	VEGETABLE	TOTAL INGESTION	INHALATION
2.13E+10	2.51E+10	2.77E+07	1.83E+08	7.86E+08	3.06E+09	3.81E+09	8.72E+06

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ODCM MAXIMUM PATHWAY DOSE FACTORS: RADIONUCLIDES OTHER THAN NOBLE GASES

Isotope:	Ni-63								
PATHWAY	AGE GROUP	BONE	LIVER	T.BODY	THYROID	KIDNEY	LUNG	G.I.	SKIN
GROUND	ADULT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	TEEN	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	CHILD	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	INFANT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
GOAT	ADULT	5.19E+08	3.59E+07	1.74E+07	0.00E+00	0.00E+00	0.00E+00	7.50E+06	N/A
MILK	TEEN	9.11E+08	6.43E+07	3.09E+07	0.00E+00	0.00E+00	0.00E+00	1.02E+07	N/A
	CHILD	2.28E+09	1.22E+08	7.77E+07	0.00E+00	0.00E+00	0.00E+00	8.24E+06	N/A
	INFANT	2.24E+10	1.66E+08	9.34E+07	0.00E+00	0.00E+00	0.00E+00	8.28E+06	N/A
COW	ADULT	3.45E+09	2.39E+08	1.16E+08	0.00E+00	0.00E+00	0.00E+00	5.00E+07	N/A
MILK	TEEN	6.07E+09	4.29E+08	2.06E+08	0.00E+00	0.00E+00	0.00E+00	6.82E+07	N/A
	CHILD	1.52E+10	8.15E+08	5.18E+08	0.00E+00	0.00E+00	0.00E+00	5.49E+07	N/A
	INFANT	1.79E+10	1.11E+09	6.22E+08	0.00E+00	0.00E+00	0.00E+00	5.52E+07	N/A
MEAT	ADULT	1.06E+10	7.38E+08	3.57E+08	0.00E+00	0.00E+00	0.00E+00	1.54E+08	N/A
	TEEN	8.56E+09	6.05E+08	2.90E+08	0.00E+00	0.00E+00	0.00E+00	9.63E+07	N/A
	CHILD	1.64E+10	8.79E+08	5.59E+08	0.00E+00	0.00E+00	0.00E+00	5.92E+07	N/A
	INFANT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	N/A
VEGETABLE	ADULT	9.43E+09	6.54E+08	3.16E+08	0.00E+00	0.00E+00	0.00E+00	1.36E+08	N/A
	TEEN	1.52E+10	1.07E+09	5.15E+08	0.00E+00	0.00E+00	0.00E+00	1.71E+08	N/A
	CHILD	3.79E+10	2.03E+09	1.29E+09	0.00E+00	0.00E+00	0.00E+00	1.37E+08	N/A
	INFANT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	N/A
TOTAL	ADULT	2.40E+10	1.67E+09	8.07E+08	0.00E+00	0.00E+00	0.00E+00	3.48E+08	N/A
INGESTION	TEEN	3.07E+10	2.17E+09	1.04E+09	0.00E+00	0.00E+00	0.00E+00	3.46E+08	N/A
	CHILD	7.18E+10	3.84E+09	2.44E+09	0.00E+00	0.00E+00	0.00E+00	2.59E+08	N/A
	INFANT	4.04E+10	1.28E+09	7.16E+08	0.00E+00	0.00E+00	0.00E+00	6.34E+07	N/A
INHALATION	ADULT	4.32E+05	3.14E+04	1.45E+04	0.00E+00	0.00E+00	1.78E+05	1.34E+04	N/A
	TEEN	5.80E+05	4.34E+04	1.98E+04	0.00E+00	0.00E+00	3.07E+05	1.42E+04	N/A
	CHILD	8.21E+05	4.63E+04	2.80E+04	0.00E+00	0.00E+00	2.75E+05	6.33E+03	N/A
	INFANT	3.39E+05	2.04E+04	1.16E+04	0.00E+00	0.00E+00	2.09E+05	2.42E+03	N/A

*Airborne pathways and tritium ingestion: units are mrem/yr/μCi/m3
Deposition pathways: units are mrem-m2/yr/μCi/sec

*** MAXIMUM VALUES FOR PATHWAYS ***							
GROUND: T.B./ORG.	GROUND: SKIN	GOAT MILK	COW MILK	MEAT	VEGETABLE	TOTAL INGESTION	INHALATION
0.00E+00	0.00E+00	2.24E+10	1.79E+10	1.64E+10	3.79E+10	7.18E+10	8.21E+05

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ODCM MAXIMUM PATHWAY DOSE FACTORS: RADIONUCLIDES OTHER THAN NOBLE GASES

Isotope:	Zn-65								
PATHWAY	AGE GROUP	BONE	LIVER	T.BODY	THYROID	KIDNEY	LUNG	G.I.	SKIN
GROUND	ADULT	7.40E+08	7.40E+08	7.40E+08	7.40E+08	7.40E+08	7.40E+08	7.40E+08	8.50E+08
	TEEN	7.40E+08	7.40E+08	7.40E+08	7.40E+08	7.40E+08	7.40E+08	7.40E+08	8.50E+08
	CHILD	7.40E+08	7.40E+08	7.40E+08	7.40E+08	7.40E+08	7.40E+08	7.40E+08	8.50E+08
	INFANT	7.40E+08	7.40E+08	7.40E+08	7.40E+08	7.40E+08	7.40E+08	7.40E+08	8.50E+08
GOAT	ADULT	9.87E+07	3.14E+08	1.42E+08	0.00E+00	2.10E+08	0.00E+00	1.98E+08	N/A
MILK	TEEN	1.51E+08	5.26E+08	2.45E+08	0.00E+00	3.37E+08	0.00E+00	2.23E+08	N/A
	CHILD	2.97E+08	7.92E+08	4.93E+08	0.00E+00	4.99E+08	0.00E+00	1.39E+08	N/A
	INFANT	3.33E+09	1.37E+09	6.31E+08	0.00E+00	6.64E+08	0.00E+00	1.16E+09	N/A
COW	ADULT	6.24E+08	1.99E+09	8.97E+08	0.00E+00	1.33E+09	0.00E+00	1.25E+09	N/A
MILK	TEEN	9.58E+08	3.33E+09	1.55E+09	0.00E+00	2.13E+09	0.00E+00	1.41E+09	N/A
	CHILD	1.88E+09	5.01E+09	3.12E+09	0.00E+00	3.16E+09	0.00E+00	8.80E+08	N/A
	INFANT	2.53E+09	8.66E+09	3.99E+09	0.00E+00	4.20E+09	0.00E+00	7.3!E+09	N/A
MEAT	ADULT	1.82E+08	5.79E+08	2.62E+08	0.00E+00	3.87E+08	0.00E+00	3.65E+08	N/A
	TEEN	1.28E+08	4.44E+08	2.07E+08	0.00E+00	2.84E+08	0.00E+00	1.88E+08	N/A
	CHILD	1.92E+08	5.11E+08	3.18E+08	0.00E+00	3.22E+08	0.00E+00	8.98E+07	N/A
	INFANT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	N/A
VEGETABLE	ADULT	2.83E+08	9.01E+08	4.07E+08	0.00E+00	6.03E+08	0.00E+00	5.68E+08	N/A
	TEEN	3.97E+08	1.38E+09	6.43E+08	0.00E+00	8.83E+08	0.00E+00	5.84E+08	N/A
	CHILD	7.73E+08	2.06E+09	1.28E+09	0.00E+00	1.30E+09	0.00E+00	3.62E+08	N/A
	INFANT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	N/A
TOTAL	ADULT	1.19E+09	3.78E+09	1.71E+09	0.00E+00	2.53E+09	0.00E+00	2.38E+09	N/A
INGESTION	TEEN	1.63E+09	5.68E+09	2.65E+09	0.00E+00	3.63E+09	0.00E+00	2.40E+09	N/A
	CHILD	3.14E+09	8.37E+09	5.21E+09	0.00E+00	5.28E+09	0.00E+00	1.47E+09	N/A
	INFANT	5.85E+09	1.00E+10	4.63E+09	0.00E+00	4.86E+09	0.00E+00	8.47E+09	N/A
INHALATION	ADULT	3.24E+04	1.03E+05	4.66E+04	0.00E+00	6.90E+04	8.64E+07	5.34E+04	N/A
	TEEN	3.86E+04	1.34E+05	6.24E+04	0.00E+00	8.64E+04	1.24E+06	4.66E+04	N/A
	CHILD	4.25E+04	1.13E+05	7.03E+04	0.00E+00	7.14E+04	9.95E+05	1.63E+04	N/A
	INFANT	1.93E+04	6.26E+04	3.11E+04	0.00E+00	3.25E+04	6.47E+05	5.14E+04	N/A

*Airborne pathways and tritium ingestion: units are mrem/yr/μCi/m3
Deposition pathways: units are mrem-m2/yr/μCi/sec

*** MAXIMUM VALUES FOR PATHWAYS ***							
GROUND: T.B./ORG.	GROUND: SKIN	GOAT MILK	COW MILK	MEAT	VEGETABLE	TOTAL INGESTION	INHALATION
7.40E+08	8.50E+08	3.33E+09	8.66E+09	5.79E+08	2.06E+09	1.00E+10	1.24E+06

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ODCM MAXIMUM PATHWAY DOSE FACTORS: RADIONUCLIDES OTHER THAN NOBLE GASES

Isotope:	Rb-86								
PATHWAY	AGE GROUP	BONE	LIVER	T.BODY	THYROID	KIDNEY	LUNG	G.I.	SKIN
GROUND	ADULT	8.89E+06	8.89E+06	8.89E+06	8.89E+06	8.89E+06	8.89E+06	8.89E+06	1.02E+07
	TEEN	8.89E+06	8.89E+06	8.89E+06	8.89E+06	8.89E+06	8.89E+06	8.89E+06	1.02E+07
	CHILD	8.89E+06	8.89E+06	8.89E+06	8.89E+06	8.89E+06	8.89E+06	8.89E+06	1.02E+07
	INFANT	8.89E+06	8.89E+06	8.89E+06	8.89E+06	8.89E+06	8.89E+06	8.89E+06	1.02E+07
GOAT MILK	ADULT	0.00E+00	1.42E+08	6.63E+07	0.00E+00	0.00E+00	0.00E+00	2.80E+07	N/A
	TEEN	0.00E+00	2.59E+08	1.22E+08	0.00E+00	0.00E+00	0.00E+00	3.84E+07	N/A
	CHILD	0.00E+00	4.81E+08	2.96E+08	0.00E+00	0.00E+00	0.00E+00	3.09E+07	N/A
	INFANT	0.00E+00	1.22E+09	6.03E+08	0.00E+00	0.00E+00	0.00E+00	3.12E+07	N/A
COW MILK	ADULT	0.00E+00	6.78E+08	3.16E+08	0.00E+00	0.00E+00	0.00E+00	1.34E+08	N/A
	TEEN	0.00E+00	1.24E+09	5.80E+08	0.00E+00	0.00E+00	0.00E+00	1.83E+08	N/A
	CHILD	0.00E+00	2.29E+09	1.41E+09	0.00E+00	0.00E+00	0.00E+00	1.47E+08	N/A
	INFANT	0.00E+00	5.81E+09	2.87E+09	0.00E+00	0.00E+00	0.00E+00	1.49E+08	N/A
MEAT	ADULT	0.00E+00	1.65E+08	7.67E+07	0.00E+00	0.00E+00	0.00E+00	3.25E+07	N/A
	TEEN	0.00E+00	1.37E+08	6.45E+07	0.00E+00	0.00E+00	0.00E+00	2.03E+07	N/A
	CHILD	0.00E+00	1.95E+08	1.20E+08	0.00E+00	0.00E+00	0.00E+00	1.25E+07	N/A
	INFANT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	N/A
VEGETABLE	ADULT	0.00E+00	1.32E+08	6.17E+07	0.00E+00	0.00E+00	0.00E+00	2.61E+07	N/A
	TEEN	0.00E+00	1.93E+08	9.07E+07	0.00E+00	0.00E+00	0.00E+00	2.86E+07	N/A
	CHILD	0.00E+00	3.40E+08	2.09E+08	0.00E+00	0.00E+00	0.00E+00	2.19E+07	N/A
	INFANT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	N/A
TOTAL INGESTION	ADULT	0.00E+00	1.12E+09	5.20E+08	0.00E+00	0.00E+00	0.00E+00	2.20E+08	N/A
	TEEN	0.00E+00	1.83E+09	8.57E+08	0.00E+00	0.00E+00	0.00E+00	2.70E+08	N/A
	CHILD	0.00E+00	3.31E+09	2.03E+09	0.00E+00	0.00E+00	0.00E+00	2.13E+08	N/A
	INFANT	0.00E+00	7.03E+09	3.48E+09	0.00E+00	0.00E+00	0.00E+00	1.80E+08	N/A
INHALATION	ADULT	0.00E+00	1.35E+05	5.90E+04	0.00E+00	0.00E+00	0.00E+00	1.66E+04	N/A
	TEEN	0.00E+00	1.90E+05	8.40E+04	0.00E+00	0.00E+00	0.00E+00	1.77E+04	N/A
	CHILD	0.00E+00	1.98E+05	1.14E+05	0.00E+00	0.00E+00	0.00E+00	7.99E+03	N/A
	INFANT	0.00E+00	1.90E+05	8.82E+04	0.00E+00	0.00E+00	0.00E+00	3.04E+03	N/A

*Airborne pathways and tritium ingestion: units are mrem/yr/μCi/m3
Deposition pathways: units are mrem-m2/yr/μCi/sec

*** MAXIMUM VALUES FOR PATHWAYS ***							
GROUND: T.B./ORG.	GROUND: SKIN	GOAT MILK	COW MILK	MEAT	VEGETABLE	TOTAL INGESTION	INHALATION
8.89E+06	1.02E+07	1.22E+09	5.81E+09	1.95E+08	3.40E+08	7.03E+09	1.98E+05

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ODCM MAXIMUM PATHWAY DOSE FACTORS: RADIONUCLIDES OTHER THAN NOBLE GASES

Isotope:	Sr-89								
PATHWAY	AGE GROUP	BONE	LIVER	T.BODY	THYROID	KIDNEY	LUNG	G.I.	SKIN
GROUND	ADULT	2.14E+04	2.14E+04	2.14E+04	2.14E+04	2.14E+04	2.14E+04	2.14E+04	2.49E+04
	TEEN	2.14E+04	2.14E+04	2.14E+04	2.14E+04	2.14E+04	2.14E+04	2.14E+04	2.49E+04
	CHILD	2.14E+04	2.14E+04	2.14E+04	2.14E+04	2.14E+04	2.14E+04	2.14E+04	2.49E+04
	INFANT	2.14E+04	2.14E+04	2.14E+04	2.14E+04	2.14E+04	2.14E+04	2.14E+04	2.49E+04
GOAT	ADULT	1.54E+09	0.00E+00	4.43E+07	0.00E+00	0.00E+00	0.00E+00	2.47E+08	N/A
MILK	TEEN	2.84E+09	0.00E+00	8.14E+07	0.00E+00	0.00E+00	0.00E+00	3.39E+08	N/A
	CHILD	7.04E+09	0.00E+00	2.01E+08	0.00E+00	0.00E+00	0.00E+00	2.72E+08	N/A
	INFANT	6.37E+09	0.00E+00	3.84E+08	0.00E+00	0.00E+00	0.00E+00	2.75E+08	N/A
COW	ADULT	4.76E+08	0.00E+00	1.37E+07	0.00E+00	0.00E+00	0.00E+00	7.64E+07	N/A
MILK	TEEN	8.78E+08	0.00E+00	2.51E+07	0.00E+00	0.00E+00	0.00E+00	1.05E+08	N/A
	CHILD	2.17E+09	0.00E+00	6.20E+07	0.00E+00	0.00E+00	0.00E+00	8.41E+07	N/A
	INFANT	4.13E+09	0.00E+00	1.18E+08	0.00E+00	0.00E+00	0.00E+00	8.49E+07	N/A
MEAT	ADULT	1.20E+08	0.00E+00	3.44E+06	0.00E+00	0.00E+00	0.00E+00	1.92E+07	N/A
	TEEN	1.01E+08	0.00E+00	2.90E+06	0.00E+00	0.00E+00	0.00E+00	1.21E+07	N/A
	CHILD	1.92E+08	0.00E+00	5.48E+06	0.00E+00	0.00E+00	0.00E+00	7.42E+06	N/A
	INFANT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	N/A
VEGETABLE	ADULT	8.19E+09	0.00E+00	2.35E+08	0.00E+00	0.00E+00	0.00E+00	1.31E+09	N/A
	TEEN	1.35E+10	0.00E+00	3.86E+08	0.00E+00	0.00E+00	0.00E+00	1.60E+09	N/A
	CHILD	3.29E+10	0.00E+00	9.39E+08	0.00E+00	0.00E+00	0.00E+00	1.27E+09	N/A
	INFANT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	N/A
TOTAL	ADULT	1.03E+10	0.00E+00	2.96E+08	0.00E+00	0.00E+00	0.00E+00	1.66E+09	N/A
INGESTION	TEEN	1.73E+10	0.00E+00	4.95E+08	0.00E+00	0.00E+00	0.00E+00	2.06E+09	N/A
	CHILD	4.23E+10	0.00E+00	1.21E+09	0.00E+00	0.00E+00	0.00E+00	1.64E+09	N/A
	INFANT	1.05E+10	0.00E+00	5.02E+08	0.00E+00	0.00E+00	0.00E+00	3.60E+08	N/A
INHALATION	ADULT	3.04E+05	0.00E+00	8.72E+03	0.00E+00	0.00E+00	1.40E+06	3.50E+05	N/A
	TEEN	4.34E+05	0.00E+00	1.25E+04	0.00E+00	0.00E+00	2.42E+06	3.71E+05	N/A
	CHILD	5.99E+05	0.00E+00	1.72E+04	0.00E+00	0.00E+00	2.16E+06	1.67E+05	N/A
	INFANT	3.98E+05	0.00E+00	1.14E+04	0.00E+00	0.00E+00	2.03E+06	6.40E+04	N/A

*Airborne pathways and tritium ingestion: units are mrem/yr/μCi/m3
Deposition pathways: units are mrem-m2/yr/μCi/sec

*** MAXIMUM VALUES FOR PATHWAYS ***							
GROUND: T.B./ORG.	GROUND: SKIN	GOAT MILK	COW MILK	MEAT	VEGETABLE	TOTAL INGESTION	INHALATION
2.14E+04	2.49E+04	7.04E+09	4.13E+09	1.92E+08	3.29E+10	4.23E+10	2.42E+06

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ODCM MAXIMUM PATHWAY DOSE FACTORS: RADIONUCLIDES OTHER THAN NOBLE GASES

Isotope:	Sr-90								
PATHWAY	AGE GROUP	BONE	LIVER	T.BODY	THYROID	KIDNEY	LUNG	G.I.	SKIN
GROUND	ADULT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	TEEN	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	CHILD	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	INFANT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
GOAT	ADULT	6.30E+10	0.00E+00	1.55E+10	0.00E+00	0.00E+00	0.00E+00	1.82E+09	N/A
MILK	TEEN	8.91E+10	0.00E+00	2.20E+10	0.00E+00	0.00E+00	0.00E+00	2.50E+09	N/A
	CHILD	1.51E+11	0.00E+00	3.82E+10	0.00E+00	0.00E+00	0.00E+00	2.03E+09	N/A
	INFANT	7.80E+10	0.00E+00	4.17E+10	0.00E+00	0.00E+00	0.00E+00	2.05E+09	N/A
COW	ADULT	2.40E+10	0.00E+00	5.88E+09	0.00E+00	0.00E+00	0.00E+00	6.93E+08	N/A
MILK	TEEN	3.39E+10	0.00E+00	8.37E+09	0.00E+00	0.00E+00	0.00E+00	9.51E+08	N/A
	CHILD	5.72E+10	0.00E+00	1.45E+10	0.00E+00	0.00E+00	0.00E+00	7.71E+08	N/A
	INFANT	6.23E+10	0.00E+00	1.59E+10	0.00E+00	0.00E+00	0.00E+00	7.78E+08	N/A
MEAT	ADULT	7.00E+09	0.00E+00	1.72E+09	0.00E+00	0.00E+00	0.00E+00	2.02E+08	N/A
	TEEN	4.53E+09	0.00E+00	1.12E+09	0.00E+00	0.00E+00	0.00E+00	1.27E+08	N/A
	CHILD	5.85E+09	0.00E+00	1.48E+09	0.00E+00	0.00E+00	0.00E+00	7.88E+07	N/A
	INFANT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	N/A
VEGETABLE	ADULT	5.48E+11	0.00E+00	1.34E+11	0.00E+00	0.00E+00	0.00E+00	1.58E+10	N/A
	TEEN	7.10E+11	0.00E+00	1.75E+11	0.00E+00	0.00E+00	0.00E+00	1.99E+10	N/A
	CHILD	1.19E+12	0.00E+00	3.02E+11	0.00E+00	0.00E+00	0.00E+00	1.61E+10	N/A
	INFANT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	N/A
TOTAL	ADULT	6.42E+11	0.00E+00	1.58E+11	0.00E+00	0.00E+00	0.00E+00	1.85E+10	N/A
INGESTION	TEEN	8.37E+11	0.00E+00	2.07E+11	0.00E+00	0.00E+00	0.00E+00	2.35E+10	N/A
	CHILD	1.41E+12	0.00E+00	3.56E+11	0.00E+00	0.00E+00	0.00E+00	1.89E+10	N/A
	INFANT	1.40E+11	0.00E+00	5.76E+10	0.00E+00	0.00E+00	0.00E+00	2.82E+09	N/A
INHALATION	ADULT	9.92E+07	0.00E+00	6.10E+06	0.00E+00	0.00E+00	9.60E+06	7.22E+05	N/A
	TEEN	1.08E+08	0.00E+00	6.68E+06	0.00E+00	0.00E+00	1.65E+07	7.65E+05	N/A
	CHILD	1.01E+08	0.00E+00	6.44E+06	0.00E+00	0.00E+00	1.48E+07	3.43E+05	N/A
	INFANT	4.09E+07	0.00E+00	2.59E+06	0.00E+00	0.00E+00	1.12E+07	1.31E+05	N/A

*Airborne pathways and tritium ingestion: units are mrem/yr/μCi/m3
Deposition pathways: units are mrem-m2/yr/μCi/sec

*** MAXIMUM VALUES FOR PATHWAYS ***							
GROUND: T.B./ORG.	GROUND: SKIN	GOAT MILK	COW MILK	MEAT	VEGETABLE	TOTAL INGESTION	INHALATION
0.00E+00	0.00E+00	1.51E+11	6.23E+10	7.00E+09	1.19E+12	1.41E+12	1.08E+08

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ODCM MAXIMUM PATHWAY DOSE FACTORS: RADIONUCLIDES OTHER THAN NOBLE GASES

Isotope:	Y-90								
PATHWAY	AGE GROUP	BONE	LIVER	T.BODY	THYROID	KIDNEY	LUNG	G.I.	SKIN
GROUND	ADULT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	TEEN	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	CHILD	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	INFANT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
GOAT	ADULT	3.83E+00	0.00E+00	1.03E-01	0.00E+00	0.00E+00	0.00E+00	4.06E+04	N/A
MILK	TEEN	7.03E+00	0.00E+00	1.89E-01	0.00E+00	0.00E+00	0.00E+00	5.80E+04	N/A
	CHILD	1.74E+01	0.00E+00	4.66E-01	0.00E+00	0.00E+00	0.00E+00	4.95E+04	N/A
	INFANT	3.07E+02	0.00E+00	9.86E-01	0.00E+00	0.00E+00	0.00E+00	5.08E+04	N/A
COW	ADULT	1.79E+01	0.00E+00	4.79E-01	0.00E+00	0.00E+00	0.00E+00	1.89E+05	N/A
MILK	TEEN	3.28E+01	0.00E+00	8.84E-01	0.00E+00	0.00E+00	0.00E+00	2.71E+05	N/A
	CHILD	8.12E+01	0.00E+00	2.17E+00	0.00E+00	0.00E+00	0.00E+00	2.31E+05	N/A
	INFANT	1.72E+02	0.00E+00	4.60E+00	0.00E+00	0.00E+00	0.00E+00	2.37E+05	N/A
MEAT	ADULT	3.55E+01	0.00E+00	9.52E-01	0.00E+00	0.00E+00	0.00E+00	3.76E+05	N/A
	TEEN	2.99E+01	0.00E+00	8.04E-01	0.00E+00	0.00E+00	0.00E+00	2.46E+05	N/A
	CHILD	5.65E+01	0.00E+00	1.51E+00	0.00E+00	0.00E+00	0.00E+00	1.61E+05	N/A
	INFANT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	N/A
VEGETABLE	ADULT	4.39E+03	0.00E+00	1.18E+02	0.00E+00	0.00E+00	0.00E+00	4.65E+07	N/A
	TEEN	4.10E+03	0.00E+00	1.10E+02	0.00E+00	0.00E+00	0.00E+00	3.38E+07	N/A
	CHILD	7.61E+03	0.00E+00	2.04E+02	0.00E+00	0.00E+00	0.00E+00	2.17E+07	N/A
	INFANT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	N/A
TOTAL	ADULT	4.44E+03	0.00E+00	1.19E+02	0.00E+00	0.00E+00	0.00E+00	4.71E+07	N/A
INGESTION	TEEN	4.17E+03	0.00E+00	1.12E+02	0.00E+00	0.00E+00	0.00E+00	3.44E+07	N/A
	CHILD	7.77E+03	0.00E+00	2.08E+02	0.00E+00	0.00E+00	0.00E+00	2.21E+07	N/A
	INFANT	4.78E+02	0.00E+00	5.59E+00	0.00E+00	0.00E+00	0.00E+00	2.88E+05	N/A
INHALATION	ADULT	2.09E+03	0.00E+00	5.61E+01	0.00E+00	0.00E+00	1.70E+05	5.06E+05	N/A
	TEEN	2.98E+03	0.00E+00	8.00E+01	0.00E+00	0.00E+00	2.93E+05	5.59E+05	N/A
	CHILD	4.11E+03	0.00E+00	1.11E+02	0.00E+00	0.00E+00	2.62E+05	2.68E+05	N/A
	INFANT	3.29E+03	0.00E+00	8.82E+01	0.00E+00	0.00E+00	2.69E+05	1.04E+05	N/A

*Airborne pathways and tritium ingestion: units are mrem/yr/μCi/m3
Deposition pathways: units are mrem-m2/yr/μCi/sec

*** MAXIMUM VALUES FOR PATHWAYS ***							
GROUND: T.B./ORG.	GROUND: SKIN	GOAT MILK	COW MILK	MEAT	VEGETABLE	TOTAL INGESTION	INHALATION
0.00E+00	0.00E+00	5.80E+04	2.71E+05	3.76E+05	4.65E+07	4.71E+07	5.59E+05

Approval MWS
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ODCM MAXIMUM PATHWAY DOSE FACTORS: RADIONUCLIDES OTHER THAN NOBLE GASES

Isotope:	Sr-91								
PATHWAY	AGE GROUP	BONE	LIVER	T.BODY	THYROID	KIDNEY	LUNG	G.I.	SKIN
GROUND	ADULT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	TEEN	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	CHILD	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	INFANT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
GOAT	ADULT	2.73E+04	0.00E+00	1.10E+03	0.00E+00	0.00E+00	0.00E+00	1.30E+05	N/A
MILK	TEEN	5.02E+04	0.00E+00	2.00E+03	0.00E+00	0.00E+00	0.00E+00	2.28E+05	N/A
	CHILD	1.23E+05	0.00E+00	4.65E+03	0.00E+00	0.00E+00	0.00E+00	2.72E+05	N/A
	INFANT	1.22E+05	0.00E+00	9.29E+03	0.00E+00	0.00E+00	0.00E+00	3.04E+05	N/A
COW	ADULT	7.29E+03	0.00E+00	2.94E+02	0.00E+00	0.00E+00	0.00E+00	3.47E+04	N/A
MILK	TEEN	1.34E+04	0.00E+00	5.32E+02	0.00E+00	0.00E+00	0.00E+00	6.07E+04	N/A
	CHILD	3.28E+04	0.00E+00	1.24E+03	0.00E+00	0.00E+00	0.00E+00	7.25E+04	N/A
	INFANT	6.84E+04	0.00E+00	2.48E+03	0.00E+00	0.00E+00	0.00E+00	8.10E+04	N/A
MEAT	ADULT	5.01E-11	0.00E+00	2.02E-12	0.00E+00	0.00E+00	0.00E+00	2.38E-10	N/A
	TEEN	4.21E-11	0.00E+00	1.68E-12	0.00E+00	0.00E+00	0.00E+00	1.91E-10	N/A
	CHILD	7.90E-11	0.00E+00	2.98E-12	0.00E+00	0.00E+00	0.00E+00	1.74E-10	N/A
	INFANT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	N/A
VEGETABLE	ADULT	1.01E+05	0.00E+00	4.06E+03	0.00E+00	0.00E+00	0.00E+00	4.79E+05	N/A
	TEEN	9.39E+04	0.00E+00	3.74E+03	0.00E+00	0.00E+00	0.00E+00	4.26E+05	N/A
	CHILD	1.73E+05	0.00E+00	6.53E+03	0.00E+00	0.00E+00	0.00E+00	3.82E+05	N/A
	INFANT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	N/A
TOTAL	ADULT	1.35E+05	0.00E+00	5.46E+03	0.00E+00	0.00E+00	0.00E+00	6.44E+05	N/A
INGESTION	TEEN	1.58E+05	0.00E+00	6.27E+03	0.00E+00	0.00E+00	0.00E+00	7.14E+05	N/A
	CHILD	3.29E+05	0.00E+00	1.24E+04	0.00E+00	0.00E+00	0.00E+00	7.26E+05	N/A
	INFANT	1.91E+05	0.00E+00	1.18E+04	0.00E+00	0.00E+00	0.00E+00	3.85E+05	N/A
INHALATION	ADULT	6.19E+01	0.00E+00	2.50E+00	0.00E+00	0.00E+00	3.65E+04	1.91E+05	N/A
	TEEN	8.80E+01	0.00E+00	3.51E+00	0.00E+00	0.00E+00	6.07E+04	2.59E+05	N/A
	CHILD	1.21E+02	0.00E+00	4.59E+00	0.00E+00	0.00E+00	5.33E+04	1.74E+05	N/A
	INFANT	9.56E+01	0.00E+00	3.46E+00	0.00E+00	0.00E+00	5.26E+04	7.34E+04	N/A

*Airborne pathways and tritium ingestion: units are mrem/yr/μCi/m3
Deposition pathways: units are mrem-m2/yr/μCi/sec

*** MAXIMUM VALUES FOR PATHWAYS ***							
GROUND: T.B./ORG.	GROUND: SKIN	GOAT MILK	COW MILK	MEAT	VEGETABLE	TOTAL INGESTION	INHALATION
0.00E+00	0.00E+00	3.04E+05	8.10E+04	2.38E-10	4.79E+05	7.26E+05	2.59E+05

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ODCM MAXIMUM PATHWAY DOSE FACTORS: RADIONUCLIDES OTHER THAN NOBLE GASES

Isotope:	Y-91								
PATHWAY	AGE GROUP	BONE	LIVER	T.BODY	THYROID	KIDNEY	LUNG	G.I.	SKIN
GROUND	ADULT	1.06E+06	1.06E+06	1.06E+06	1.06E+06	1.06E+06	1.06E+06	1.06E+06	1.20E+06
	TEEN	1.06E+06	1.06E+06	1.06E+06	1.06E+06	1.06E+06	1.06E+06	1.06E+06	1.20E+06
	CHILD	1.06E+06	1.06E+06	1.06E+06	1.06E+06	1.06E+06	1.06E+06	1.06E+06	1.20E+06
	INFANT	1.06E+06	1.06E+06	1.06E+06	1.06E+06	1.06E+06	1.06E+06	1.06E+06	1.20E+06
GOAT	ADULT	5.32E+02	0.00E+00	1.42E+01	0.00E+00	0.00E+00	0.00E+00	2.93E+05	N/A
MILK	TEEN	9.79E+02	0.00E+00	2.62E+01	0.00E+00	0.00E+00	0.00E+00	4.01E+05	N/A
	CHILD	2.42E+03	0.00E+00	6.47E+01	0.00E+00	0.00E+00	0.00E+00	3.22E+05	N/A
	INFANT	3.78E+04	0.00E+00	1.21E+02	0.00E+00	0.00E+00	0.00E+00	3.25E+05	N/A
COW	ADULT	2.94E+03	0.00E+00	7.85E+01	0.00E+00	0.00E+00	0.00E+00	1.62E+06	N/A
MILK	TEEN	5.40E+03	0.00E+00	1.45E+02	0.00E+00	0.00E+00	0.00E+00	2.22E+06	N/A
	CHILD	1.34E+04	0.00E+00	3.57E+02	0.00E+00	0.00E+00	0.00E+00	1.78E+06	N/A
	INFANT	2.51E+04	0.00E+00	6.68E+02	0.00E+00	0.00E+00	0.00E+00	1.80E+06	N/A
MEAT	ADULT	4.65E+05	0.00E+00	1.24E+04	0.00E+00	0.00E+00	0.00E+00	2.56E+08	N/A
	TEEN	3.91E+05	0.00E+00	1.05E+04	0.00E+00	0.00E+00	0.00E+00	1.60E+08	N/A
	CHILD	7.39E+05	0.00E+00	1.98E+04	0.00E+00	0.00E+00	0.00E+00	9.85E+07	N/A
	INFANT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	N/A
VEGETABLE	ADULT	4.27E+06	0.00E+00	1.14E+05	0.00E+00	0.00E+00	0.00E+00	2.35E+09	N/A
	TEEN	7.05E+06	0.00E+00	1.89E+05	0.00E+00	0.00E+00	0.00E+00	2.89E+09	N/A
	CHILD	1.72E+07	0.00E+00	4.60E+05	0.00E+00	0.00E+00	0.00E+00	2.29E+09	N/A
	INFANT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	N/A
TOTAL	ADULT	4.74E+06	0.00E+00	1.27E+05	0.00E+00	0.00E+00	0.00E+00	2.61E+09	N/A
INGESTION	TEEN	7.45E+06	0.00E+00	2.00E+05	0.00E+00	0.00E+00	0.00E+00	3.05E+09	N/A
	CHILD	1.79E+07	0.00E+00	4.80E+05	0.00E+00	0.00E+00	0.00E+00	2.39E+09	N/A
	INFANT	6.29E+04	0.00E+00	7.88E+02	0.00E+00	0.00E+00	0.00E+00	2.12E+06	N/A
INHALATION	ADULT	4.62E+05	0.00E+00	1.24E+04	0.00E+00	0.00E+00	1.70E+06	3.85E+05	N/A
	TEEN	6.61E+05	0.00E+00	1.77E+04	0.00E+00	0.00E+00	2.94E+06	4.09E+05	N/A
	CHILD	9.14E+05	0.00E+00	2.44E+04	0.00E+00	0.00E+00	2.63E+06	1.84E+05	N/A
	INFANT	5.88E+05	0.00E+00	1.57E+04	0.00E+00	0.00E+00	2.45E+06	7.03E+04	N/A

*Airborne pathways and tritium ingestion: units are mrem/yr/μCi/m3
Deposition pathways: units are mrem-m2/yr/μCi/sec

*** MAXIMUM VALUES FOR PATHWAYS ***							
GROUND: T.B./ORG.	GROUND: SKIN	GOAT MILK	COW MILK	MEAT	VEGETABLE	TOTAL INGESTION	INHALATION
1.06E+06	1.20E+06	4.01E+05	2.22E+06	2.56E+08	2.89E+09	3.05E+09	2.94E+06

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ODCM MAXIMUM PATHWAY DOSE FACTORS: RADIONUCLIDES OTHER THAN NOBLE GASES

Isotope:	Nb-95								
PATHWAY	AGE GROUP	BONE	LIVER	T.BODY	THYROID	KIDNEY	LUNG	G.I.	SKIN
GROUND	ADULT	1.35E+08	1.35E+08	1.35E+08	1.35E+08	1.35E+08	1.35E+08	1.35E+08	1.59E+08
	TEEN	1.35E+08	1.35E+08	1.35E+08	1.35E+08	1.35E+08	1.35E+08	1.35E+08	1.59E+08
	CHILD	1.35E+08	1.35E+08	1.35E+08	1.35E+08	1.35E+08	1.35E+08	1.35E+08	1.59E+08
	INFANT	1.35E+08	1.35E+08	1.35E+08	1.35E+08	1.35E+08	1.35E+08	1.35E+08	1.59E+08
GOAT	ADULT	4.78E+03	2.66E+03	1.43E+03	0.00E+00	2.63E+03	0.00E+00	1.61E+07	N/A
MILK	TEEN	8.15E+03	4.52E+03	2.49E+03	0.00E+00	4.38E+03	0.00E+00	1.93E+07	N/A
	CHILD	1.84E+04	7.17E+03	5.12E+03	0.00E+00	6.73E+03	0.00E+00	1.33E+07	N/A
	INFANT	2.86E+05	1.42E+04	8.18E+03	0.00E+00	1.01E+04	0.00E+00	1.19E+07	N/A
COW	ADULT	2.44E+04	1.36E+04	7.31E+03	0.00E+00	1.34E+04	0.00E+00	8.25E+07	N/A
MILK	TEEN	4.17E+04	2.31E+04	1.27E+04	0.00E+00	2.24E+04	0.00E+00	9.89E+07	N/A
	CHILD	9.41E+04	3.67E+04	2.62E+04	0.00E+00	3.44E+04	0.00E+00	6.78E+07	N/A
	INFANT	1.76E+05	7.24E+04	4.18E+04	0.00E+00	5.19E+04	0.00E+00	6.11E+07	N/A
MEAT	ADULT	8.48E+05	4.72E+05	2.54E+05	0.00E+00	4.66E+05	0.00E+00	2.86E+09	N/A
	TEEN	6.62E+05	3.67E+05	2.02E+05	0.00E+00	3.56E+05	0.00E+00	1.57E+09	N/A
	CHILD	1.14E+06	4.45E+05	3.18E+05	0.00E+00	4.18E+05	0.00E+00	8.23E+08	N/A
	INFANT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	N/A
VEGETABLE	ADULT	1.10E+05	6.11E+04	3.28E+04	0.00E+00	6.04E+04	0.00E+00	3.71E+08	N/A
	TEEN	1.64E+05	9.10E+04	5.01E+04	0.00E+00	8.82E+04	0.00E+00	3.89E+08	N/A
	CHILD	3.63E+05	1.41E+05	1.01E+05	0.00E+00	1.33E+05	0.00E+00	2.61E+08	N/A
	INFANT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	N/A
TOTAL	ADULT	9.87E+05	5.49E+05	2.95E+05	0.00E+00	5.43E+05	0.00E+00	3.33E+09	N/A
INGESTION	TEEN	8.76E+05	4.86E+05	2.68E+05	0.00E+00	4.71E+05	0.00E+00	2.08E+09	N/A
	CHILD	1.62E+06	6.30E+05	4.50E+05	0.00E+00	5.92E+05	0.00E+00	1.17E+09	N/A
	INFANT	4.62E+05	8.65E+04	5.00E+04	0.00E+00	6.20E+04	0.00E+00	7.30E+07	N/A
INHALATION	ADULT	1.41E+04	7.82E+03	4.21E+03	0.00E+00	7.74E+03	5.05E+05	1.04E+05	N/A
	TEEN	1.86E+04	1.03E+04	5.66E+03	0.00E+00	1.00E+04	7.51E+05	9.68E+04	N/A
	CHILD	2.35E+04	9.18E+03	6.55E+03	0.00E+00	8.62E+03	6.14E+05	3.70E+04	N/A
	INFANT	1.57E+04	6.43E+03	3.78E+03	0.00E+00	4.72E+03	4.79E+05	1.27E+04	N/A

*Airborne pathways and tritium ingestion: units are mrem/yr/μCi/m3
Deposition pathways: units are mrem-m2/yr/μCi/sec

*** MAXIMUM VALUES FOR PATHWAYS ***							
GROUND: T.B./ORG.	GROUND: SKIN	GOAT MILK	COW MILK	MEAT	VEGETABLE	TOTAL INGESTION	INHALATION
1.35E+08	1.59E+08	1.93E+07	9.89E+07	2.86E+09	3.89E+08	3.33E+09	7.51E+05

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ODCM MAXIMUM PATHWAY DOSE FACTORS: RADIONUCLIDES OTHER THAN NOBLE GASES

Isotope:	Zr-95								
PATHWAY	AGE GROUP	BONE	LIVER	T.BODY	THYROID	KIDNEY	LUNG	G.I.	SKIN
GROUND	ADULT	2.42E+08	2.42E+08	2.42E+08	2.42E+08	2.42E+08	2.42E+08	2.42E+08	2.81E+08
	TEEN	2.42E+08	2.42E+08	2.42E+08	2.42E+08	2.42E+08	2.42E+08	2.42E+08	2.81E+08
	CHILD	2.42E+08	2.42E+08	2.42E+08	2.42E+08	2.42E+08	2.42E+08	2.42E+08	2.81E+08
	INFANT	2.42E+08	2.42E+08	2.42E+08	2.42E+08	2.42E+08	2.42E+08	2.42E+08	2.81E+08
GOAT	ADULT	5.92E+01	1.90E+01	1.28E+01	0.00E+00	2.98E+01	0.00E+00	6.01E+04	N/A
MILK	TEEN	1.03E+02	3.26E+01	2.25E+01	0.00E+00	4.80E+01	0.00E+00	7.53E+04	N/A
	CHILD	2.40E+02	5.28E+01	4.70E+01	0.00E+00	7.56E+01	0.00E+00	5.51E+04	N/A
	INFANT	3.56E+03	1.04E+02	7.38E+01	0.00E+00	1.12E+02	0.00E+00	5.18E+04	N/A
COW	ADULT	3.31E+02	1.06E+02	7.18E+01	0.00E+00	1.67E+02	0.00E+00	3.36E+05	N/A
MILK	TEEN	5.79E+02	1.83E+02	1.26E+02	0.00E+00	2.68E+02	0.00E+00	4.21E+05	N/A
	CHILD	1.34E+03	2.95E+02	2.63E+02	0.00E+00	4.23E+02	0.00E+00	3.08E+05	N/A
	INFANT	2.39E+03	5.82E+02	4.12E+02	0.00E+00	6.27E+02	0.00E+00	2.90E+05	N/A
MEAT	ADULT	7.83E+05	2.51E+05	1.70E+05	0.00E+00	3.94E+05	0.00E+00	7.96E+08	N/A
	TEEN	6.27E+05	1.98E+05	1.36E+05	0.00E+00	2.91E+05	0.00E+00	4.57E+08	N/A
	CHILD	1.11E+06	2.45E+05	2.18E+05	0.00E+00	3.50E+05	0.00E+00	2.55E+08	N/A
	INFANT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	N/A
VEGETABLE	ADULT	9.90E+05	3.17E+05	2.15E+05	0.00E+00	4.98E+05	0.00E+00	1.01E+09	N/A
	TEEN	1.56E+06	4.91E+05	3.38E+05	0.00E+00	7.22E+05	0.00E+00	1.13E+09	N/A
	CHILD	3.57E+06	7.85E+05	6.99E+05	0.00E+00	1.12E+06	0.00E+00	8.19E+08	N/A
	INFANT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	N/A
TOTAL	ADULT	1.77E+06	5.69E+05	3.85E+05	0.00E+00	8.92E+05	0.00E+00	1.80E+09	N/A
INGESTION	TEEN	2.18E+06	6.89E+05	4.74E+05	0.00E+00	1.01E+06	0.00E+00	1.59E+09	N/A
	CHILD	4.69E+06	1.03E+06	9.17E+05	0.00E+00	1.47E+06	0.00E+00	1.07E+09	N/A
	INFANT	5.94E+03	6.86E+02	4.86E+02	0.00E+00	7.39E+02	0.00E+00	3.41E+05	N/A
INHALATION	ADULT	1.07E+05	3.44E+04	2.33E+04	0.00E+00	5.42E+04	1.77E+06	1.50E+05	N/A
	TEEN	1.46E+05	4.58E+04	3.15E+04	0.00E+00	6.74E+04	2.69E+06	1.49E+05	N/A
	CHILD	1.90E+05	4.18E+04	3.70E+04	0.00E+00	5.96E+04	2.23E+06	6.11E+04	N/A
	INFANT	1.15E+05	2.79E+04	2.03E+04	0.00E+00	3.11E+04	1.75E+06	2.17E+04	N/A

*Airborne pathways and tritium ingestion: units are mrem/yr/μCi/m3
Deposition pathways: units are mrem-m2/yr/μCi/sec

*** MAXIMUM VALUES FOR PATHWAYS ***							
GROUND: T.B./ORG.	GROUND: SKIN	GOAT MILK	COW MILK	MEAT	VEGETABLE	TOTAL INGESTION	INHALATION
2.42E+08	2.81E+08	7.53E+04	4.21E+05	7.96E+08	1.13E+09	1.80E+09	2.69E+06

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ODCM MAXIMUM PATHWAY DOSE FACTORS: RADIONUCLIDES OTHER THAN NOBLE GASES

Isotope:	Mo-99								
PATHWAY	AGE GROUP	BONE	LIVER	T.BODY	THYROID	KIDNEY	LUNG	G.I.	SKIN
GROUND	ADULT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	TEEN	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	CHILD	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	INFANT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
GOAT	ADULT	0.00E+00	1.34E+06	2.55E+05	0.00E+00	3.03E+06	0.00E+00	3.10E+06	N/A
MILK	TEEN	0.00E+00	2.42E+06	4.61E+05	0.00E+00	5.53E+06	0.00E+00	4.33E+06	N/A
	CHILD	0.00E+00	4.39E+06	1.09E+06	0.00E+00	9.38E+06	0.00E+00	3.63E+06	N/A
	INFANT	0.00E+00	1.12E+07	2.19E+06	0.00E+00	1.68E+07	0.00E+00	3.70E+06	N/A
COW	ADULT	0.00E+00	6.24E+06	1.19E+06	0.00E+00	1.41E+07	0.00E+00	1.45E+07	N/A
MILK	TEEN	0.00E+00	1.13E+07	2.15E+06	0.00E+00	2.58E+07	0.00E+00	2.02E+07	N/A
	CHILD	0.00E+00	2.05E+07	5.07E+06	0.00E+00	4.38E+07	0.00E+00	1.70E+07	N/A
	INFANT	0.00E+00	5.24E+07	1.02E+07	0.00E+00	7.83E+07	0.00E+00	1.73E+07	N/A
MEAT	ADULT	0.00E+00	3.30E+04	6.27E+03	0.00E+00	7.46E+04	0.00E+00	7.64E+04	N/A
	TEEN	0.00E+00	2.73E+04	5.20E+03	0.00E+00	6.24E+04	0.00E+00	4.88E+04	N/A
	CHILD	0.00E+00	3.79E+04	9.38E+03	0.00E+00	8.10E+04	0.00E+00	3.14E+04	N/A
	INFANT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	N/A
VEGETABLE	ADULT	0.00E+00	2.03E+06	3.86E+05	0.00E+00	4.60E+06	0.00E+00	4.71E+06	N/A
	TEEN	0.00E+00	1.86E+06	3.55E+05	0.00E+00	4.27E+06	0.00E+00	3.34E+06	N/A
	CHILD	0.00E+00	2.54E+06	6.30E+05	0.00E+00	5.43E+06	0.00E+00	2.10E+06	N/A
	INFANT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	N/A
TOTAL	ADULT	0.00E+00	9.64E+06	1.83E+06	0.00E+00	2.18E+07	0.00E+00	2.24E+07	N/A
INGESTION	TEEN	0.00E+00	1.56E+07	2.97E+06	0.00E+00	3.56E+07	0.00E+00	2.79E+07	N/A
	CHILD	0.00E+00	2.75E+07	6.80E+06	0.00E+00	5.87E+07	0.00E+00	2.27E+07	N/A
	INFANT	0.00E+00	6.37E+07	1.24E+07	0.00E+00	9.51E+07	0.00E+00	2.10E+07	N/A
INHALATION	ADULT	0.00E+00	1.21E+02	2.30E+01	0.00E+00	2.91E+02	9.12E+04	2.48E+05	N/A
	TEEN	0.00E+00	1.69E+02	3.22E+01	0.00E+00	4.11E+02	1.54E+05	2.69E+05	N/A
	CHILD	0.00E+00	1.72E+02	4.26E+01	0.00E+00	3.92E+02	1.35E+05	1.27E+05	N/A
	INFANT	0.00E+00	1.65E+02	3.23E+01	0.00E+00	2.65E+02	1.35E+05	4.87E+04	N/A

*Airborne pathways and tritium ingestion: units are mrem/yr/μCi/m3
Deposition pathways: units are mrem-m2/yr/μCi/sec

*** MAXIMUM VALUES FOR PATHWAYS ***							
GROUND: T.B./ORG.	GROUND: SKIN	GOAT MILK	COW MILK	MEAT	VEGETABLE	TOTAL INGESTION	INHALATION
0.00E+00	0.00E+00	1.68E+07	7.83E+07	8.10E+04	5.43E+06	9.51E+07	2.69E+05

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ODCM MAXIMUM PATHWAY DOSE FACTORS: RADIONUCLIDES OTHER THAN NOBLE GASES

Isotope:	Tc-99m								
PATHWAY	AGE GROUP	BONE	LIVER	T.BODY	THYROID	KIDNEY	LUNG	G.I.	SKIN
GROUND	ADULT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	TEEN	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	CHILD	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	INFANT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
GOAT	ADULT	1.79E-01	5.07E-01	6.46E+00	0.00E+00	7.70E+00	2.48E-01	3.00E+02	N/A
MILK	TEEN	3.11E-01	8.68E-01	1.12E+01	0.00E+00	1.29E+01	4.82E-01	5.70E+02	N/A
	CHILD	7.13E-01	1.40E+00	2.32E+01	0.00E+00	2.03E+01	7.10E-01	7.96E+02	N/A
	INFANT	1.24E+01	3.06E+00	3.94E+01	0.00E+00	3.29E+01	1.60E+00	8.89E+02	N/A
COW	ADULT	8.37E-01	2.36E+00	3.01E+01	0.00E+00	3.59E+01	1.16E+00	1.40E+03	N/A
MILK	TEEN	1.45E+00	4.05E+00	5.25E+01	0.00E+00	6.03E+01	2.25E+00	2.66E+03	N/A
	CHILD	3.33E+00	6.53E+00	1.08E+02	0.00E+00	9.49E+01	3.31E+00	3.71E+03	N/A
	INFANT	6.92E+00	1.43E+01	1.84E+02	0.00E+00	1.54E+02	7.47E+00	4.15E+03	N/A
MEAT	ADULT	1.47E-21	4.14E-21	5.28E-20	0.00E+00	6.29E-20	2.03E-21	2.45E-18	N/A
	TEEN	1.16E-21	3.25E-21	4.21E-20	0.00E+00	4.84E-20	1.80E-21	2.13E-18	N/A
	CHILD	2.04E-21	4.01E-21	6.64E-20	0.00E+00	5.82E-20	2.03E-21	2.28E-18	N/A
	INFANT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	N/A
VEGETABLE	ADULT	1.02E+00	2.89E+00	3.68E+01	0.00E+00	4.39E+01	1.42E+00	1.71E+03	N/A
	TEEN	9.03E-01	2.52E+00	3.26E+01	0.00E+00	3.75E+01	1.40E+00	1.65E+03	N/A
	CHILD	1.55E+00	3.05E+00	5.05E+01	0.00E+00	4.43E+01	1.55E+00	1.73E+03	N/A
	INFANT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	N/A
TOTAL	ADULT	2.04E+00	5.76E+00	7.34E+01	0.00E+00	8.75E+01	2.82E+00	3.41E+03	N/A
INGESTION	TEEN	2.67E+00	7.43E+00	9.63E+01	0.00E+00	1.11E+02	4.13E+00	4.88E+03	N/A
	CHILD	5.60E+00	1.10E+01	1.82E+02	0.00E+00	1.59E+02	5.57E+00	6.25E+03	N/A
	INFANT	1.93E+01	1.73E+01	2.23E+02	0.00E+00	1.87E+02	9.07E+00	5.04E+03	N/A
INHALATION	ADULT	1.03E-03	2.91E-03	3.70E-02	0.00E+00	4.42E-02	7.64E+02	4.16E+03	N/A
	TEEN	1.38E-03	3.86E-03	4.99E-02	0.00E+00	5.76E-02	1.15E+03	6.13E+03	N/A
	CHILD	1.78E-03	3.48E-03	5.77E-02	0.00E+00	5.07E-02	9.51E+02	4.81E+03	N/A
	INFANT	1.40E-03	2.88E-03	3.72E-02	0.00E+00	3.11E-02	8.11E+02	2.03E+03	N/A

*Airborne pathways and tritium ingestion: units are mrem/yr/µCi/m3
Deposition pathways: units are mrem-m2/yr/µCi/sec

*** MAXIMUM VALUES FOR PATHWAYS ***							
GROUND: T.B./ORG.	GROUND: SKIN	GOAT MILK	COW MILK	MEAT	VEGETABLE	TOTAL INGESTION	INHALATION
0.00E+00	0.00E+00	8.89E+02	4.15E+03	2.45E-18	1.73E+03	6.25E+03	6.13E+03

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ODCM MAXIMUM PATHWAY DOSE FACTORS: RADIONUCLIDES OTHER THAN NOBLE GASES

Isotope:	Ru-103								
PATHWAY	AGE GROUP	BONE	LIVER	T.BODY	THYROID	KIDNEY	LUNG	G.I.	SKIN
GROUND	ADULT	1.07E+08	1.07E+08	1.07E+08	1.07E+08	1.07E+08	1.07E+08	1.07E+08	1.25E+08
	TEEN	1.07E+08	1.07E+08	1.07E+08	1.07E+08	1.07E+08	1.07E+08	1.07E+08	1.25E+08
	CHILD	1.07E+08	1.07E+08	1.07E+08	1.07E+08	1.07E+08	1.07E+08	1.07E+08	1.25E+08
	INFANT	1.07E+08	1.07E+08	1.07E+08	1.07E+08	1.07E+08	1.07E+08	1.07E+08	1.25E+08
GOAT	ADULT	5.98E+01	0.00E+00	2.58E+01	0.00E+00	2.28E+02	0.00E+00	6.98E+03	N/A
MILK	TEEN	1.06E+02	0.00E+00	4.55E+01	0.00E+00	3.75E+02	0.00E+00	8.88E+03	N/A
	CHILD	2.52E+02	0.00E+00	9.67E+01	0.00E+00	6.33E+02	0.00E+00	6.50E+03	N/A
	INFANT	4.24E+03	0.00E+00	1.70E+02	0.00E+00	1.06E+03	0.00E+00	6.19E+03	N/A
COW	ADULT	3.11E+02	0.00E+00	1.34E+02	0.00E+00	1.19E+03	0.00E+00	3.63E+04	N/A
MILK	TEEN	5.53E+02	0.00E+00	2.37E+02	0.00E+00	1.95E+03	0.00E+00	4.62E+04	N/A
	CHILD	1.31E+03	0.00E+00	5.03E+02	0.00E+00	3.29E+03	0.00E+00	3.38E+04	N/A
	INFANT	2.65E+03	0.00E+00	8.86E+02	0.00E+00	5.51E+03	0.00E+00	3.22E+04	N/A
MEAT	ADULT	3.97E+07	0.00E+00	1.71E+07	0.00E+00	1.52E+08	0.00E+00	4.64E+09	N/A
	TEEN	3.24E+07	0.00E+00	1.38E+07	0.00E+00	1.14E+08	0.00E+00	2.70E+09	N/A
	CHILD	5.85E+07	0.00E+00	2.25E+07	0.00E+00	1.47E+08	0.00E+00	1.51E+09	N/A
	INFANT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	N/A
VEGETABLE	ADULT	3.77E+06	0.00E+00	1.62E+06	0.00E+00	1.44E+07	0.00E+00	4.40E+08	N/A
	TEEN	5.91E+06	0.00E+00	2.53E+06	0.00E+00	2.08E+07	0.00E+00	4.94E+08	N/A
	CHILD	1.37E+07	0.00E+00	5.28E+06	0.00E+00	3.46E+07	0.00E+00	3.55E+08	N/A
	INFANT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	N/A
TOTAL	ADULT	4.35E+07	0.00E+00	1.87E+07	0.00E+00	1.66E+08	0.00E+00	5.08E+09	N/A
INGESTION	TEEN	3.83E+07	0.00E+00	1.64E+07	0.00E+00	1.35E+08	0.00E+00	3.20E+09	N/A
	CHILD	7.22E+07	0.00E+00	2.78E+07	0.00E+00	1.82E+08	0.00E+00	1.87E+09	N/A
	INFANT	6.89E+03	0.00E+00	1.06E+03	0.00E+00	6.57E+03	0.00E+00	3.84E+04	N/A
INHALATION	ADULT	1.53E+03	0.00E+00	6.58E+02	0.00E+00	5.83E+03	5.05E+05	1.10E+05	N/A
	TEEN	2.10E+03	0.00E+00	8.96E+02	0.00E+00	7.43E+03	7.83E+05	1.09E+05	N/A
	CHILD	2.79E+03	0.00E+00	1.07E+03	0.00E+00	7.03E+03	6.62E+05	4.48E+04	N/A
	INFANT	2.02E+03	0.00E+00	6.79E+02	0.00E+00	4.24E+03	5.52E+05	1.61E+04	N/A

*Airborne pathways and tritium ingestion: units are mrem/yr/μCi/m3
Deposition pathways: units are mrem-m2/yr/μCi/sec

*** MAXIMUM VALUES FOR PATHWAYS ***							
GROUND: T.B./ORG.	GROUND: SKIN	GOAT MILK	COW MILK	MEAT	VEGETABLE	TOTAL INGESTION	INHALATION
1.07E+08	1.25E+08	8.88E+03	4.62E+04	4.64E+09	4.94E+08	5.08E+09	7.83E+05

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ODCM MAXIMUM PATHWAY DOSE FACTORS: RADIONUCLIDES OTHER THAN NOBLE GASES

Isotope:	Ru-106								
PATHWAY	AGE GROUP	BONE	LIVER	T.BODY	THYROID	KIDNEY	LUNG	G.I.	SKIN
GROUND	ADULT	4.18E+08	4.18E+08	4.18E+08	4.18E+08	4.18E+08	4.18E+08	4.18E+08	5.01E+08
	TEEN	4.18E+08	4.18E+08	4.18E+08	4.18E+08	4.18E+08	4.18E+08	4.18E+08	5.01E+08
	CHILD	4.18E+08	4.18E+08	4.18E+08	4.18E+08	4.18E+08	4.18E+08	4.18E+08	5.01E+08
	INFANT	4.18E+08	4.18E+08	4.18E+08	4.18E+08	4.18E+08	4.18E+08	4.18E+08	5.01E+08
GOAT	ADULT	1.50E+03	0.00E+00	1.90E+02	0.00E+00	2.90E+03	0.00E+00	9.71E+04	N/A
MILK	TEEN	2.76E+03	0.00E+00	3.48E+02	0.00E+00	5.32E+03	0.00E+00	1.32E+05	N/A
	CHILD	6.79E+03	0.00E+00	8.47E+02	0.00E+00	9.17E+03	0.00E+00	1.06E+05	N/A
	INFANT	1.17E+05	0.00E+00	1.75E+03	0.00E+00	1.65E+04	0.00E+00	1.06E+05	N/A
COW	ADULT	9.65E+03	0.00E+00	1.22E+03	0.00E+00	1.86E+04	0.00E+00	6.24E+05	N/A
MILK	TEEN	1.77E+04	0.00E+00	2.24E+03	0.00E+00	3.42E+04	0.00E+00	8.51E+05	N/A
	CHILD	4.37E+04	0.00E+00	5.45E+03	0.00E+00	5.90E+04	0.00E+00	6.80E+05	N/A
	INFANT	9.00E+04	0.00E+00	1.12E+04	0.00E+00	1.06E+05	0.00E+00	6.83E+05	N/A
MEAT	ADULT	1.48E+09	0.00E+00	1.87E+08	0.00E+00	2.85E+09	0.00E+00	9.56E+10	N/A
	TEEN	1.24E+09	0.00E+00	1.57E+08	0.00E+00	2.40E+09	0.00E+00	5.97E+10	N/A
	CHILD	2.34E+09	0.00E+00	2.92E+08	0.00E+00	3.16E+09	0.00E+00	3.64E+10	N/A
	INFANT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	N/A
VEGETABLE	ADULT	1.73E+08	0.00E+00	2.19E+07	0.00E+00	3.34E+08	0.00E+00	1.12E+10	N/A
	TEEN	2.91E+08	0.00E+00	3.67E+07	0.00E+00	5.61E+08	0.00E+00	1.40E+10	N/A
	CHILD	7.11E+08	0.00E+00	8.88E+07	0.00E+00	9.61E+08	0.00E+00	1.11E+10	N/A
	INFANT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	N/A
TOTAL	ADULT	1.65E+09	0.00E+00	2.09E+08	0.00E+00	3.19E+09	0.00E+00	1.07E+11	N/A
INGESTION	TEEN	1.53E+09	0.00E+00	1.93E+08	0.00E+00	2.96E+09	0.00E+00	7.36E+10	N/A
	CHILD	3.05E+09	0.00E+00	3.81E+08	0.00E+00	4.12E+09	0.00E+00	4.75E+10	N/A
	INFANT	2.07E+05	0.00E+00	1.30E+04	0.00E+00	1.23E+05	0.00E+00	7.90E+05	N/A
INHALATION	ADULT	6.91E+04	0.00E+00	8.72E+03	0.00E+00	1.34E+05	9.36E+06	9.12E+05	N/A
	TEEN	9.84E+04	0.00E+00	1.24E+04	0.00E+00	1.90E+05	1.61E+07	9.60E+05	N/A
	CHILD	1.36E+05	0.00E+00	1.69E+04	0.00E+00	1.84E+05	1.43E+07	4.29E+05	N/A
	INFANT	8.68E+04	0.00E+00	1.09E+04	0.00E+00	1.07E+05	1.16E+07	1.64E+05	N/A

*Airborne pathways and tritium ingestion: units are mrem/yr/μCi/m3
Deposition pathways: units are mrem-m2/yr/μCi/sec

*** MAXIMUM VALUES FOR PATHWAYS ***							
GROUND: T.B./ORG.	GROUND: SKIN	GOAT MILK	COW MILK	MEAT	VEGETABLE	TOTAL INGESTION	INHALATION
4.18E+08	5.01E+08	1.32E+05	8.51E+05	9.56E+10	1.40E+10	1.07E+11	1.61E+07

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ODCM MAXIMUM PATHWAY DOSE FACTORS: RADIONUCLIDES OTHER THAN NOBLE GASES

Isotope:	Ag-110m								
PATHWAY	AGE GROUP	BONE	LIVER	T.BODY	THYROID	KIDNEY	LUNG	G.I.	SKIN
GROUND	ADULT	3.40E+09	3.40E+09	3.40E+09	3.40E+09	3.40E+09	3.40E+09	3.40E+09	3.97E+09
	TEEN	3.40E+09	3.40E+09	3.40E+09	3.40E+09	3.40E+09	3.40E+09	3.40E+09	3.97E+09
	CHILD	3.40E+09	3.40E+09	3.40E+09	3.40E+09	3.40E+09	3.40E+09	3.40E+09	3.97E+09
	INFANT	3.40E+09	3.40E+09	3.40E+09	3.40E+09	3.40E+09	3.40E+09	3.40E+09	3.97E+09
GOAT	ADULT	4.19E+06	3.88E+06	2.30E+06	0.00E+00	7.63E+06	0.00E+00	1.58E+09	N/A
MILK	TEEN	6.93E+06	6.56E+06	3.99E+06	0.00E+00	1.25E+07	0.00E+00	1.84E+09	N/A
	CHILD	1.50E+07	1.02E+07	8.12E+06	0.00E+00	1.89E+07	0.00E+00	1.21E+09	N/A
	INFANT	2.32E+08	2.03E+07	1.34E+07	0.00E+00	2.90E+07	0.00E+00	1.05E+09	N/A
COW	ADULT	2.65E+07	2.46E+07	1.46E+07	0.00E+00	4.83E+07	0.00E+00	1.00E+10	N/A
MILK	TEEN	4.39E+07	4.15E+07	2.53E+07	0.00E+00	7.92E+07	0.00E+00	1.17E+10	N/A
	CHILD	9.52E+07	6.43E+07	5.14E+07	0.00E+00	1.20E+08	0.00E+00	7.65E+09	N/A
	INFANT	1.76E+08	1.28E+08	8.50E+07	0.00E+00	1.84E+08	0.00E+00	6.66E+09	N/A
MEAT	ADULT	3.42E+06	3.17E+06	1.88E+06	0.00E+00	6.23E+06	0.00E+00	1.29E+09	N/A
	TEEN	2.59E+06	2.45E+06	1.49E+06	0.00E+00	4.68E+06	0.00E+00	6.89E+08	N/A
	CHILD	4.30E+06	2.90E+06	2.32E+06	0.00E+00	5.41E+06	0.00E+00	3.45E+08	N/A
	INFANT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	N/A
VEGETABLE	ADULT	9.41E+06	8.70E+06	5.17E+06	0.00E+00	1.71E+07	0.00E+00	3.55E+09	N/A
	TEEN	1.42E+07	1.34E+07	8.18E+06	0.00E+00	2.56E+07	0.00E+00	3.78E+09	N/A
	CHILD	3.06E+07	2.06E+07	1.65E+07	0.00E+00	3.85E+07	0.00E+00	2.46E+09	N/A
	INFANT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	N/A
TOTAL	ADULT	4.36E+07	4.03E+07	2.39E+07	0.00E+00	7.92E+07	0.00E+00	1.64E+10	N/A
INGESTION	TEEN	6.76E+07	6.40E+07	3.89E+07	0.00E+00	1.22E+08	0.00E+00	1.80E+10	N/A
	CHILD	1.45E+08	9.80E+07	7.83E+07	0.00E+00	1.83E+08	0.00E+00	1.17E+10	N/A
	INFANT	4.07E+08	1.49E+08	9.84E+07	0.00E+00	2.13E+08	0.00E+00	7.71E+09	N/A
INHALATION	ADULT	1.08E+04	1.00E+04	5.94E+03	0.00E+00	1.97E+04	4.63E+06	3.02E+05	N/A
	TEEN	1.38E+04	1.31E+04	7.99E+03	0.00E+00	2.50E+04	6.75E+06	2.73E+05	N/A
	CHILD	1.69E+04	1.14E+04	9.14E+03	0.00E+00	2.12E+04	5.48E+06	1.00E+05	N/A
	INFANT	9.98E+03	7.22E+03	5.00E+03	0.00E+00	1.09E+04	3.67E+06	3.30E+04	N/A

*Airborne pathways and tritium ingestion: units are mrem/yr/μCi/m3
Deposition pathways: units are mrem-m2/yr/μCi/sec

*** MAXIMUM VALUES FOR PATHWAYS ***							
GROUND: T.B./ORG.	GROUND: SKIN	GOAT MILK	COW MILK	MEAT	VEGETABLE	TOTAL INGESTION	INHALATION
3.40E+09	3.97E+09	1.84E+09	1.17E+10	1.29E+09	3.78E+09	1.80E+10	6.75E+06

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ODCM MAXIMUM PATHWAY DOSE FACTORS: RADIONUCLIDES OTHER THAN NOBLE GASES

Isotope:	Te-129m								
PATHWAY	AGE GROUP	BONE	LIVER	T.BODY	THYROID	KIDNEY	LUNG	G.I.	SKIN
GROUND	ADULT	1.96E+07	1.96E+07	1.96E+07	1.96E+07	1.96E+07	1.96E+07	1.96E+07	2.29E+07
	TEEN	1.96E+07	1.96E+07	1.96E+07	1.96E+07	1.96E+07	1.96E+07	1.96E+07	2.29E+07
	CHILD	1.96E+07	1.96E+07	1.96E+07	1.96E+07	1.96E+07	1.96E+07	1.96E+07	2.29E+07
	INFANT	1.96E+07	1.96E+07	1.96E+07	1.96E+07	1.96E+07	1.96E+07	1.96E+07	2.29E+07
GOAT	ADULT	3.47E+06	1.29E+06	5.49E+05	1.19E+06	1.45E+07	0.00E+00	1.75E+07	N/A
MILK	TEEN	6.34E+06	2.35E+06	1.00E+06	2.05E+06	2.65E+07	0.00E+00	2.38E+07	N/A
	CHILD	1.56E+07	4.37E+06	2.43E+06	5.04E+06	4.59E+07	0.00E+00	1.91E+07	N/A
	INFANT	2.68E+08	1.10E+07	4.94E+06	1.23E+07	8.03E+07	0.00E+00	1.92E+07	N/A
COW	ADULT	1.76E+07	6.58E+06	2.79E+06	6.06E+06	7.36E+07	0.00E+00	8.88E+07	N/A
MILK	TEEN	3.22E+07	1.20E+07	5.10E+06	1.04E+07	1.35E+08	0.00E+00	1.21E+08	N/A
	CHILD	7.95E+07	2.22E+07	1.23E+07	2.56E+07	2.33E+08	0.00E+00	9.69E+07	N/A
	INFANT	1.63E+08	5.60E+07	2.51E+07	6.27E+07	4.08E+08	0.00E+00	9.74E+07	N/A
MEAT	ADULT	4.15E+08	1.55E+08	6.57E+07	1.43E+08	1.73E+09	0.00E+00	2.09E+09	N/A
	TEEN	3.48E+08	1.29E+08	5.51E+07	1.12E+08	1.46E+09	0.00E+00	1.31E+09	N/A
	CHILD	6.56E+08	1.83E+08	1.02E+08	2.11E+08	1.93E+09	0.00E+00	8.00E+08	N/A
	INFANT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	N/A
VEGETABLE	ADULT	1.92E+08	7.16E+07	3.04E+07	6.59E+07	8.01E+08	0.00E+00	9.66E+08	N/A
	TEEN	3.06E+08	1.14E+08	4.85E+07	9.89E+07	1.28E+09	0.00E+00	1.15E+09	N/A
	CHILD	7.39E+08	2.06E+08	1.15E+08	2.38E+08	2.17E+09	0.00E+00	9.01E+08	N/A
	INFANT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	N/A
TOTAL	ADULT	6.28E+08	2.34E+08	9.94E+07	2.16E+08	2.62E+09	0.00E+00	3.16E+09	N/A
INGESTION	TEEN	6.93E+08	2.57E+08	1.10E+08	2.24E+08	2.90E+09	0.00E+00	2.60E+09	N/A
	CHILD	1.49E+09	4.16E+08	2.31E+08	4.80E+08	4.37E+09	0.00E+00	1.82E+09	N/A
	INFANT	4.31E+08	6.70E+07	3.01E+07	7.50E+07	4.88E+08	0.00E+00	1.17E+08	N/A
INHALATION	ADULT	9.76E+03	4.67E+03	1.58E+03	3.44E+03	3.66E+04	1.16E+06	3.83E+05	N/A
	TEEN	1.39E+04	6.58E+03	2.25E+03	4.58E+03	5.19E+04	1.98E+06	4.05E+05	N/A
	CHILD	1.92E+04	6.85E+03	3.04E+03	6.33E+03	5.03E+04	1.76E+06	1.82E+05	N/A
	INFANT	1.41E+04	6.09E+03	2.23E+03	5.47E+03	3.18E+04	1.68E+06	6.90E+04	N/A

*Airborne pathways and tritium ingestion: units are mrem/yr/μCi/m3
Deposition pathways: units are mrem-m2/yr/μCi/sec

*** MAXIMUM VALUES FOR PATHWAYS ***							
GROUND: T.B./ORG.	GROUND: SKIN	GOAT MILK	COW MILK	MEAT	VEGETABLE	TOTAL INGESTION	INHALATION
1.96E+07	2.29E+07	2.68E+08	4.08E+08	2.09E+09	2.17E+09	4.37E+09	1.98E+06

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ODCM MAXIMUM PATHWAY DOSE FACTORS: RADIONUCLIDES OTHER THAN NOBLE GASES

Isotope:	I-131								
PATHWAY	AGE GROUP	BONE	LIVER	T.BODY	THYROID	KIDNEY	LUNG	G.I.	SKIN
GROUND	ADULT	8.50E+06	8.50E+06	8.50E+06	8.50E+06	8.50E+06	8.50E+06	8.50E+06	1.04E+07
	TEEN	8.50E+06	8.50E+06	8.50E+06	8.50E+06	8.50E+06	8.50E+06	8.50E+06	1.04E+07
	CHILD	8.50E+06	8.50E+06	8.50E+06	8.50E+06	8.50E+06	8.50E+06	8.50E+06	1.04E+07
	INFANT	8.50E+06	8.50E+06	8.50E+06	8.50E+06	8.50E+06	8.50E+06	8.50E+06	1.04E+07
GOAT	ADULT	8.00E+07	1.15E+08	6.55E+07	3.75E+10	1.96E+08	0.00E+00	3.02E+07	N/A
MILK	TEEN	1.45E+08	2.03E+08	1.09E+08	5.95E+10	3.50E+08	0.00E+00	4.02E+07	N/A
	CHILD	3.52E+08	3.54E+08	2.01E+08	1.17E+11	5.80E+08	0.00E+00	3.15E+07	N/A
	INFANT	6.10E+08	8.65E+08	3.81E+08	2.85E+11	1.01E+09	0.00E+00	3.09E+07	N/A
COW	ADULT	3.73E+07	5.35E+07	3.06E+07	1.75E+10	9.15E+07	0.00E+00	1.41E+07	N/A
MILK	TEEN	6.75E+05	9.50E+07	5.10E+07	2.77E+10	1.63E+08	0.00E+00	1.88E+07	N/A
	CHILD	1.65E+08	1.65E+08	9.40E+07	5.45E+10	2.71E+08	0.00E+00	1.47E+07	N/A
	INFANT	3.43E+08	4.04E+08	1.78E+08	1.33E+11	4.72E+08	0.00E+00	1.44E+07	N/A
MEAT	ADULT	1.77E+06	2.54E+06	1.45E+06	8.30E+08	4.34E+06	0.00E+00	6.70E+05	N/A
	TEEN	1.47E+06	2.06E+06	1.11E+06	6.00E+08	3.55E+06	0.00E+00	4.08E+05	N/A
	CHILD	2.73E+06	2.75E+06	1.56E+06	9.05E+08	4.51E+06	0.00E+00	2.45E+05	N/A
	INFANT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	N/A
VEGETABLE	ADULT	1.43E+07	2.05E+07	1.18E+07	6.70E+09	3.51E+07	0.00E+00	5.40E+06	N/A
	TEEN	1.44E+07	2.02E+07	1.08E+07	5.90E+09	3.47E+07	0.00E+00	3.98E+06	N/A
	CHILD	2.77E+07	2.79E+07	1.59E+07	9.20E+09	4.58E+07	0.00E+00	2.48E+06	N/A
	INFANT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	N/A
TOTAL	ADULT	1.34E+08	1.91E+08	1.10E+08	6.25E+10	3.27E+08	0.00E+00	5.05E+07	N/A
INGESTION	TEEN	2.29E+08	3.20E+08	1.72E+08	9.35E+10	5.50E+08	0.00E+00	6.35E+07	N/A
	CHILD	5.45E+08	5.50E+08	3.13E+08	1.82E+11	9.05E+08	0.00E+00	4.90E+07	N/A
	INFANT	9.55E+08	1.27E+09	5.60E+08	4.17E+11	1.49E+09	0.00E+00	4.53E+07	N/A
INHALATION	ADULT	2.52E+04	3.58E+04	2.05E+04	1.19E+07	6.13E+04	0.00E+00	6.28E+03	N/A
	TEEN	3.54E+04	4.91E+04	2.64E+04	1.46E+07	8.40E+04	0.00E+00	6.49E+03	N/A
	CHILD	4.81E+04	4.81E+04	2.73E+04	1.62E+07	7.88E+04	0.00E+00	2.84E+03	N/A
	INFANT	3.79E+04	4.44E+04	1.96E+04	1.48E+07	5.18E+04	0.00E+00	1.06E+03	N/A

*Airborne pathways and tritium ingestion: units are mrem/yr/μCi/m3
Deposition pathways: units are mrem-m2/yr/μCi/sec
Deposition pathways adjusted for Fraction Iodine Deposited (FID).

*** MAXIMUM VALUES FOR PATHWAYS ***							
GROUND: T.B./ORG.	GROUND: SKIN	GOAT MILK	COW MILK	MEAT	VEGETABLE	TOTAL INGESTION	INHALATION
8.50E+06	1.04E+07	2.85E+11	1.33E+11	9.05E+08	9.20E+09	4.17E+11	1.62E+07

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ODCM MAXIMUM PATHWAY DOSE FACTORS: RADIONUCLIDES OTHER THAN NOBLE GASES

Isotope:	I-132								
PATHWAY	AGE GROUP	BONE	LIVER	T.BODY	THYROID	KIDNEY	LUNG	G.I.	SKIN
GROUND	ADULT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	TEEN	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	CHILD	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	INFANT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
GOAT	ADULT	4.44E-02	1.19E-01	4.15E-02	4.15E+00	1.89E-01	0.00E+00	2.23E-02	N/A
MILK	TEEN	7.85E-02	2.06E-01	7.40E-02	6.95E+00	3.24E-01	0.00E+00	8.95E-02	N/A
	CHILD	1.86E-01	3.42E-01	1.57E-01	1.59E+01	5.25E-01	0.00E+00	4.03E-01	N/A
	INFANT	3.22E-01	7.85E-01	2.79E-01	3.68E+01	8.75E-01	0.00E+00	6.35E-01	N/A
COW	ADULT	2.07E-02	5.55E-02	1.94E-02	1.94E+00	8.80E-02	0.00E+00	1.04E-02	N/A
MILK	TEEN	3.67E-02	9.60E-02	3.45E-02	3.24E+00	1.52E-01	0.00E+00	4.19E-02	N/A
	CHILD	8.70E-02	1.60E-01	7.35E-02	7.40E+00	2.44E-01	0.00E+00	1.88E-01	N/A
	INFANT	1.80E-01	3.66E-01	1.30E-01	1.72E+01	4.08E-01	0.00E+00	2.97E-01	N/A
MEAT	ADULT	1.15E-59	3.07E-59	1.08E-59	1.08E-57	4.90E-59	0.00E+00	5.75E-60	N/A
	TEEN	9.35E-60	2.44E-59	8.75E-60	8.20E-58	3.85E-59	0.00E+00	1.07E-59	N/A
	CHILD	1.69E-57	3.10E-59	1.43E-59	1.44E-57	4.75E-59	0.00E+00	3.65E-59	N/A
	INFANT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	N/A
VEGETABLE	ADULT	9.50E+00	2.54E+01	8.90E+00	8.90E+02	4.05E+01	0.00E+00	4.78E+00	N/A
	TEEN	8.55E+00	2.24E+01	8.05E+00	7.55E+02	3.53E+01	0.00E+00	9.75E+00	N/A
	CHILD	1.52E+01	2.80E+01	1.29E+01	1.30E+03	4.28E+01	0.00E+00	3.29E+01	N/A
	INFANT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	N/A
TOTAL	ADULT	9.55E+00	2.56E+01	8.95E+00	8.95E+02	4.08E+01	0.00E+00	4.81E+00	N/A
INGESTION	TEEN	8.70E+00	2.27E+01	8.15E+00	7.65E+02	3.58E+01	0.00E+00	9.90E+00	N/A
	CHILD	1.55E+01	2.85E+01	1.31E+01	1.32E+03	4.36E+01	0.00E+00	3.35E+01	N/A
	INFANT	5.00E-01	1.15E+00	4.10E-01	5.40E+01	1.29E+00	0.00E+00	9.30E-01	N/A
INHALATION	ADULT	1.16E+03	3.26E+03	1.16E+03	1.14E+05	5.18E+03	0.00E+00	4.06E+02	N/A
	TEEN	1.59E+03	4.38E+03	1.58E+03	1.51E+05	6.92E+03	0.00E+00	1.27E+03	N/A
	CHILD	2.12E+03	4.07E+03	1.88E+03	1.94E+05	6.25E+03	0.00E+00	3.20E+03	N/A
	INFANT	1.69E+03	3.54E+03	1.26E+03	1.69E+05	3.95E+03	0.00E+00	1.90E+03	N/A

*Airborne pathways and tritium ingestion: units are mrem/yr/μCi/m3
Deposition pathways: units are mrem-m2/yr/μCi/sec
Deposition pathways adjusted for Fraction Iodine Deposited (FID).

*** MAXIMUM VALUES FOR PATHWAYS ***							
GROUND: T.B./ORG.	GROUND: SKIN	GOAT MILK	COW MILK	MEAT	VEGETABLE	TOTAL INGESTION	INHALATION
0.00E+00	0.00E+00	3.68E+01	1.72E+01	1.44E-57	1.30E+03	1.32E+03	1.94E+05

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ODCM MAXIMUM PATHWAY DOSE FACTORS: RADIONUCLIDES OTHER THAN NOBLE GASES

Isotope:	Te-132								
PATHWAY	AGE GROUP	BONE	LIVER	T.BODY	THYROID	KIDNEY	LUNG	G.I.	SKIN
GROUND	ADULT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	TEEN	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	CHILD	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	INFANT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
GOAT	ADULT	1.30E+05	8.39E+04	7.88E+04	9.27E+04	8.08E+05	0.00E+00	3.97E+06	N/A
MILK	TEEN	2.32E+05	1.47E+05	1.38E+05	1.55E+05	1.41E+06	0.00E+00	4.65E+06	N/A
	CHILD	5.53E+05	2.45E+05	2.96E+05	3.57E+05	2.27E+06	0.00E+00	2.47E+06	N/A
	INFANT	9.50E+06	5.64E+05	5.27E+05	8.33E+05	3.53E+06	0.00E+00	2.09E+06	N/A
COW	ADULT	6.05E+05	3.91E+05	3.67E+05	4.32E+05	3.77E+06	0.00E+00	1.85E+07	N/A
MILK	TEEN	1.08E+06	6.85E+05	6.45E+05	7.22E+05	6.57E+06	0.00E+00	2.17E+07	N/A
	CHILD	2.58E+06	1.14E+06	1.38E+06	1.66E+06	1.06E+07	0.00E+00	1.15E+07	N/A
	INFANT	5.32E+06	2.63E+06	2.46E+06	3.89E+06	1.65E+07	0.00E+00	9.74E+06	N/A
MEAT	ADULT	4.68E+05	3.03E+05	2.84E+05	3.34E+05	2.92E+06	0.00E+00	1.43E+07	N/A
	TEEN	3.83E+05	2.43E+05	2.28E+05	2.56E+05	2.33E+06	0.00E+00	7.68E+06	N/A
	CHILD	6.99E+05	3.09E+05	3.74E+05	4.51E+05	2.87E+06	0.00E+00	3.11E+06	N/A
	INFANT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	N/A
VEGETABLE	ADULT	1.42E+06	9.18E+05	8.62E+05	1.01E+06	8.84E+06	0.00E+00	4.34E+07	N/A
	TEEN	1.29E+06	8.17E+05	7.69E+05	8.61E+05	7.83E+06	0.00E+00	2.59E+07	N/A
	CHILD	2.31E+06	1.02E+06	1.24E+06	1.49E+06	9.49E+06	0.00E+00	1.03E+07	N/A
	INFANT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	N/A
TOTAL	ADULT	2.62E+06	1.70E+06	1.59E+06	1.87E+06	1.63E+07	0.00E+00	8.02E+07	N/A
INGESTION	TEEN	2.99E+06	1.89E+06	1.78E+06	1.99E+06	1.81E+07	0.00E+00	5.99E+07	N/A
	CHILD	6.15E+06	2.72E+06	3.29E+06	3.96E+06	2.53E+07	0.00E+00	2.74E+07	N/A
	INFANT	1.48E+07	3.20E+06	2.98E+06	4.72E+06	2.00E+07	0.00E+00	1.18E+07	N/A
INHALATION	ADULT	2.60E+02	2.15E+02	1.62E+02	1.90E+02	1.46E+03	2.88E+05	5.10E+05	N/A
	TEEN	3.60E+02	2.90E+02	2.19E+02	2.46E+02	1.95E+03	4.49E+05	4.63E+05	N/A
	CHILD	4.81E+02	2.72E+02	2.63E+02	3.17E+02	1.77E+03	3.77E+05	1.38E+05	N/A
	INFANT	3.72E+02	2.37E+02	1.76E+02	2.79E+02	1.03E+03	3.40E+05	4.41E+04	N/A

*Airborne pathways and tritium ingestion: units are mrem/yr/μCi/m3
Deposition pathways: units are mrem-m2/yr/μCi/sec

*** MAXIMUM VALUES FOR PATHWAYS ***							
GROUND: T.B./ORG.	GROUND: SKIN	GOAT MILK	COW MILK	MEAT	VEGETABLE	TOTAL INGESTION	INHALATION
0.00E+00	0.00E+00	9.50E+06	2.17E+07	1.43E+07	4.34E+07	8.02E+07	5.10E+05

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ODCM MAXIMUM PATHWAY DOSE FACTORS: RADIONUCLIDES OTHER THAN NOBLE GASES

Isotope:	I-133								
PATHWAY	AGE GROUP	BONE	LIVER	T.BODY	THYROID	KIDNEY	LUNG	G.I.	SKIN
GROUND	ADULT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	TEEN	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	CHILD	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	INFANT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
GOAT	ADULT	1.05E+06	1.82E+06	5.55E+05	2.67E+08	3.17E+06	0.00E+00	1.64E+06	N/A
MILK	TEEN	1.91E+06	3.24E+06	v1980000	4.52E+08	5.70E+06	0.00E+00	2.45E+06	N/A
	CHILD	4.64E+06	5.75E+06	2.17E+06	1.07E+09	9.55E+06	0.00E+00	2.31E+06	N/A
	INFANT	8.15E+06	1.43E+07	4.18E+06	2.60E+09	1.68E+07	0.00E+00	2.42E+06	N/A
COW	ADULT	4.88E+05	8.50E+05	2.59E+05	1.25E+08	1.48E+06	0.00E+00	7.60E+05	N/A
MILK	TEEN	8.90E+05	1.51E+06	4.61E+05	2.11E+08	2.65E+06	0.00E+00	1.15E+06	N/A
	CHILD	2.17E+06	2.68E+06	1.01E+06	4.97E+08	4.46E+06	0.00E+00	1.08E+06	N/A
	INFANT	4.57E+06	6.65E+06	1.95E+06	1.21E+09	7.80E+06	0.00E+00	1.13E+06	N/A
MEAT	ADULT	6.00E-02	1.05E-01	3.19E-02	1.54E+01	1.83E-01	0.00E+00	9.40E-02	N/A
	TEEN	5.05E-02	8.55E-02	2.61E-02	1.19E+01	1.50E-01	0.00E+00	6.45E-02	N/A
	CHILD	9.35E-02	1.16E-01	4.38E-02	2.15E+01	1.93E-01	0.00E+00	4.66E-02	N/A
	INFANT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	N/A
VEGETABLE	ADULT	3.44E+05	6.00E+05	1.83E+05	8.80E+07	1.05E+06	0.00E+00	5.40E+05	N/A
	TEEN	3.20E+05	5.40E+05	1.66E+05	7.55E+07	9.50E+05	0.00E+00	4.10E+05	N/A
	CHILD	5.85E+05	7.20E+05	2.73E+05	1.34E+08	1.20E+06	0.00E+00	2.91E+05	N/A
	INFANT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	N/A
TOTAL	ADULT	1.88E+06	3.27E+06	9.95E+05	4.80E+08	5.70E+06	0.00E+00	2.94E+06	N/A
INGESTION	TEEN	3.12E+06	5.30E+06	1.62E+06	7.40E+08	9.30E+06	0.00E+00	4.01E+06	N/A
	CHILD	7.40E+06	9.15E+06	3.46E+06	1.70E+09	1.52E+07	0.00E+00	3.68E+06	N/A
	INFANT	1.28E+07	2.09E+07	6.10E+06	3.81E+09	2.46E+07	0.00E+00	3.54E+06	N/A
INHALATION	ADULT	8.64E+03	1.48E+04	4.52E+03	2.15E+06	2.58E+04	0.00E+00	8.88E+03	N/A
	TEEN	1.22E+04	2.05E+04	6.22E+03	2.92E+06	3.59E+04	0.00E+00	1.03E+04	N/A
	CHILD	1.66E+04	2.03E+04	7.70E+03	3.85E+06	3.38E+04	0.00E+00	5.48E+03	N/A
	INFANT	1.32E+04	1.92E+04	5.60E+03	3.56E+06	2.24E+04	0.00E+00	2.16E+03	N/A

*Airborne pathways and tritium ingestion: units are mrem/yr/μCi/m3
Deposition pathways: units are mrem-m2/yr/μCi/sec
Deposition pathways adjusted for Fraction Iodine Deposited (FID).

*** MAXIMUM VALUES FOR PATHWAYS ***							
GROUND: T.B./ORG.	GROUND: SKIN	GOAT MILK	COW MILK	MEAT	VEGETABLE	TOTAL INGESTION	INHALATION
0.00E+00	0.00E+00	2.60E+09	1.21E+09	2.15E+01	1.34E+08	3.81E+09	3.85E+06

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ODCM MAXIMUM PATHWAY DOSE FACTORS: RADIONUCLIDES OTHER THAN NOBLE GASES

Isotope:	I-134								
PATHWAY	AGE GROUP	BONE	LIVER	T.BODY	THYROID	KIDNEY	LUNG	G.I.	SKIN
GROUND	ADULT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	TEEN	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	CHILD	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	INFANT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
GOAT	ADULT	5.45E-13	1.48E-12	5.30E-13	2.57E-11	2.36E-12	0.00E+00	1.29E-15	N/A
MILK	TEEN	9.70E-13	2.57E-12	9.20E-13	4.28E-11	4.05E-12	0.00E+00	3.38E-14	N/A
	CHILD	2.29E-12	4.26E-12	1.96E-12	9.80E-11	6.50E-12	0.00E+00	2.82E-12	N/A
	INFANT	3.96E-12	9.75E-12	3.46E-12	2.27E-10	1.09E-11	0.00E+00	1.01E-11	N/A
COW	ADULT	2.54E-13	6.90E-13	2.47E-13	1.20E-11	1.10E-12	0.00E+00	6.00E-16	N/A
MILK	TEEN	4.52E-13	1.20E-12	4.30E-13	2.00E-11	1.89E-12	0.00E+00	1.58E-14	N/A
	CHILD	1.07E-12	1.99E-12	9.15E-13	4.57E-11	3.04E-12	0.00E+00	1.32E-12	N/A
	INFANT	2.22E-12	4.54E-12	1.62E-12	1.06E-10	5.10E-12	0.00E+00	4.70E-12	N/A
MEAT	ADULT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	N/A
	TEEN	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	N/A
	CHILD	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	N/A
	INFANT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	N/A
VEGETABLE	ADULT	1.60E-05	4.33E-05	1.55E-05	7.50E-04	6.90E-05	0.00E+00	3.77E-08	N/A
	TEEN	1.44E-05	3.82E-05	1.37E-05	6.35E-04	6.00E-05	0.00E+00	5.05E-07	N/A
	CHILD	2.56E-05	4.75E-05	2.19E-05	1.10E-03	7.25E-05	0.00E+00	3.15E-05	N/A
	INFANT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	N/A
TOTAL	ADULT	1.60E-05	4.33E-05	1.55E-05	7.50E-04	6.90E-05	0.00E+00	3.77E-08	N/A
INGESTION	TEEN	1.44E-05	3.82E-05	1.37E-05	6.35E-04	6.00E-05	0.00E+00	5.05E-07	N/A
	CHILD	2.56E-05	4.75E-05	2.19E-05	1.10E-03	7.25E-05	0.00E+00	3.15E-05	N/A
	INFANT	6.20E-12	1.43E-11	5.10E-12	3.33E-10	1.60E-11	0.00E+00	1.48E-11	N/A
INHALATION	ADULT	6.44E+02	1.73E+03	6.15E+02	2.98E+04	2.75E+03	0.00E+00	1.01E+00	N/A
	TEEN	8.88E+02	2.32E+03	8.40E+02	3.95E+04	3.66E+03	0.00E+00	2.04E+01	N/A
	CHILD	1.17E+03	2.16E+03	9.95E+02	5.07E+04	3.30E+03	0.00E+00	9.55E+02	N/A
	INFANT	9.21E+02	1.88E+03	6.65E+02	4.45E+04	2.09E+03	0.00E+00	1.29E+03	N/A

*Airborne pathways and tritium ingestion: units are mrem/yr/μCi/m3
Deposition pathways: units are mrem-m2/yr/μCi/sec
Deposition pathways adjusted for Fraction Iodine Deposited (FID).

*** MAXIMUM VALUES FOR PATHWAYS ***							
GROUND: T.B./ORG.	GROUND: SKIN	GOAT MILK	COW MILK	MEAT	VEGETABLE	TOTAL INGESTION	INHALATION
0.00E+00	0.00E+00	2.27E-10	1.06E-10	0.00E+00	1.10E-03	1.10E-03	5.07E+04

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ODCM MAXIMUM PATHWAY DOSE FACTORS: RADIONUCLIDES OTHER THAN NOBLE GASES

Isotope:	Cs-134								
PATHWAY	AGE GROUP	BONE	LIVER	T.BODY	THYROID	KIDNEY	LUNG	G.I.	SKIN
GROUND	ADULT	6.79E+09	6.79E+09	6.79E+09	6.79E+09	6.79E+09	6.79E+09	6.79E+09	7.92E+09
	TEEN	6.79E+09	6.79E+09	6.79E+09	6.79E+09	6.79E+09	6.79E+09	6.79E+09	7.92E+09
	CHILD	6.79E+09	6.79E+09	6.79E+09	6.79E+09	6.79E+09	6.79E+09	6.79E+09	7.92E+09
	INFANT	6.79E+09	6.79E+09	6.79E+09	6.79E+09	6.79E+09	6.79E+09	6.79E+09	7.92E+09
GOAT	ADULT	1.06E+10	2.53E+10	2.07E+10	0.00E+00	8.19E+09	2.72E+09	4.43E+08	N/A
MILK	TEEN	1.85E+10	4.35E+10	2.02E+10	0.00E+00	1.38E+10	5.27E+09	5.41E+08	N/A
	CHILD	4.26E+10	6.99E+10	1.47E+10	0.00E+00	2.17E+10	7.77E+09	3.77E+08	N/A
	INFANT	2.29E+10	1.28E+11	1.29E+10	0.00E+00	3.30E+10	1.35E+10	3.48E+08	N/A
COW	ADULT	2.79E+09	6.63E+09	5.42E+09	0.00E+00	2.15E+09	7.12E+08	1.16E+08	N/A
MILK	TEEN	4.84E+09	1.14E+10	5.28E+09	0.00E+00	3.62E+09	1.38E+09	1.42E+08	N/A
	CHILD	1.12E+10	1.83E+10	3.86E+09	0.00E+00	5.68E+09	2.04E+09	9.87E+07	N/A
	INFANT	1.80E+10	3.35E+10	3.39E+09	0.00E+00	8.63E+09	3.54E+09	9.11E+07	N/A
MEAT	ADULT	3.59E+08	8.54E+08	6.98E+08	0.00E+00	2.76E+08	9.17E+07	1.49E+07	N/A
	TEEN	2.85E+08	6.71E+08	3.12E+08	0.00E+00	2.13E+08	8.15E+07	8.35E+06	N/A
	CHILD	5.03E+08	8.26E+08	1.74E+08	0.00E+00	2.56E+08	9.18E+07	4.45E+06	N/A
	INFANT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	N/A
VEGETABLE	ADULT	4.21E+09	1.00E+10	8.19E+09	0.00E+00	3.24E+09	1.08E+09	1.75E+08	N/A
	TEEN	6.70E+09	1.58E+10	7.31E+09	0.00E+00	5.01E+09	1.91E+09	1.96E+08	N/A
	CHILD	1.53E+10	2.52E+10	5.31E+09	0.00E+00	7.80E+09	2.80E+09	1.36E+08	N/A
	INFANT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	N/A
TOTAL	ADULT	1.80E+10	4.28E+10	3.50E+10	0.00E+00	1.39E+10	4.60E+09	7.49E+08	N/A
INGESTION	TEEN	3.03E+10	7.13E+10	3.31E+10	0.00E+00	2.27E+10	8.65E+09	8.87E+08	N/A
	CHILD	6.96E+10	1.14E+11	2.41E+10	0.00E+00	3.54E+10	1.27E+10	6.16E+08	N/A
	INFANT	4.09E+10	1.62E+11	1.63E+10	0.00E+00	4.16E+10	1.70E+10	4.39E+08	N/A
INHALATION	ADULT	3.73E+05	8.48E+05	7.28E+05	0.00E+00	2.87E+05	9.76E+04	1.04E+04	N/A
	TEEN	5.02E+05	1.13E+06	5.49E+05	0.00E+00	3.75E+05	1.46E+05	9.76E+03	N/A
	CHILD	6.51E+05	1.01E+06	2.25E+05	0.00E+00	3.30E+05	1.21E+05	3.85E+03	N/A
	INFANT	3.96E+05	7.03E+05	7.45E+04	0.00E+00	1.90E+05	7.97E+04	1.33E+03	N/A

*Airborne pathways and tritium ingestion: units are mrem/yr/μCi/m3
Deposition pathways: units are mrem-m2/yr/μCi/sec

*** MAXIMUM VALUES FOR PATHWAYS ***							
GROUND: T.B./ORG.	GROUND: SKIN	GOAT MILK	COW MILK	MEAT	VEGETABLE	TOTAL INGESTION	INHALATION
6.79E+09	7.92E+09	1.28E+11	3.35E+10	8.54E+08	2.52E+10	1.62E+11	1.13E+06

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ODCM MAXIMUM PATHWAY DOSE FACTORS: RADIONUCLIDES OTHER THAN NOBLE GASES

Isotope:	I-135								
PATHWAY	AGE GROUP	BONE	LIVER	T.BODY	THYROID	KIDNEY	LUNG	G.I.	SKIN
GROUND	ADULT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	TEEN	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	CHILD	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	INFANT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
GOAT	ADULT	3.47E+03	9.10E+03	3.35E+03	6.00E+05	1.46E+04	0.00E+00	1.03E+04	N/A
MILK	TEEN	6.15E+03	1.59E+04	5.90E+03	1.02E+06	2.51E+04	0.00E+00	1.76E+04	N/A
	CHILD	1.46E+04	2.63E+04	1.24E+04	2.33E+06	4.03E+04	0.00E+00	2.00E+04	N/A
	INFANT	2.53E+04	6.05E+04	2.20E+04	5.40E+06	6.70E+04	0.00E+00	2.19E+04	N/A
COW	ADULT	1.62E+03	4.24E+03	1.57E+03	2.80E+05	6.80E+03	0.00E+00	4.79E+03	N/A
MILK	TEEN	2.88E+03	7.40E+03	2.74E+03	4.76E+05	1.17E+04	0.00E+00	8.20E+03	N/A
	CHILD	6.80E+03	1.23E+04	5.80E+03	1.09E+06	1.88E+04	0.00E+00	9.35E+03	N/A
	INFANT	1.42E+04	2.82E+04	1.03E+04	2.53E+06	3.14E+04	0.00E+00	1.02E+04	N/A
MEAT	ADULT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	N/A
	TEEN	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	N/A
	CHILD	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	N/A
	INFANT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	N/A
VEGETABLE	ADULT	6.45E+03	1.69E+04	6.20E+03	1.11E+06	2.70E+04	0.00E+00	1.90E+04	N/A
	TEEN	5.80E+03	1.50E+04	5.55E+03	9.60E+05	2.37E+04	0.00E+00	1.66E+04	N/A
	CHILD	1.03E+04	1.86E+04	8.80E+03	1.65E+06	2.85E+04	0.00E+00	1.42E+04	N/A
	INFANT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	N/A
TOTAL	ADULT	1.15E+04	3.02E+04	1.12E+04	1.99E+06	4.84E+04	0.00E+00	3.41E+04	N/A
INGESTION	TEEN	1.49E+04	3.82E+04	1.42E+04	2.46E+06	6.05E+04	0.00E+00	4.24E+04	N/A
	CHILD	3.17E+04	5.70E+04	2.70E+04	5.05E+06	8.75E+04	0.00E+00	4.35E+04	N/A
	INFANT	3.94E+04	8.85E+04	3.23E+04	7.95E+06	9.85E+04	0.00E+00	3.20E+04	N/A
INHALATION	ADULT	2.68E+03	6.98E+03	2.57E+03	4.48E+05	1.11E+04	0.00E+00	5.25E+03	N/A
	TEEN	3.70E+03	9.44E+03	3.49E+03	6.21E+05	1.49E+04	0.00E+00	6.95E+03	N/A
	CHILD	4.92E+03	8.73E+03	4.14E+03	7.92E+05	1.34E+04	0.00E+00	4.44E+03	N/A
	INFANT	3.86E+03	7.60E+03	2.77E+03	6.96E+05	8.47E+03	0.00E+00	1.83E+03	N/A

*Airborne pathways and tritium ingestion: units are mrem/yr/μCi/m3
Deposition pathways: units are mrem-m2/yr/μCi/sec
Deposition pathways adjusted for Fraction Iodine Deposited (FID).

*** MAXIMUM VALUES FOR PATHWAYS ***							
GROUND: T.B./ORG.	GROUND: SKIN	GOAT MILK	COW MILK	MEAT	VEGETABLE	TOTAL INGESTION	INHALATION
0.00E+00	0.00E+00	5.40E+06	2.53E+06	0.00E+00	1.65E+06	7.95E+06	7.92E+05

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ODCM MAXIMUM PATHWAY DOSE FACTORS: RADIONUCLIDES OTHER THAN NOBLE GASES

Isotope:	Cs-136								
PATHWAY	AGE GROUP	BONE	LIVER	T.BODY	THYROID	KIDNEY	LUNG	G.I.	SKIN
GROUND	ADULT	1.49E+08	1.49E+08	1.49E+08	1.49E+08	1.49E+08	1.49E+08	1.49E+08	1.69E+08
	TEEN	1.49E+08	1.49E+08	1.49E+08	1.49E+08	1.49E+08	1.49E+08	1.49E+08	1.69E+08
	CHILD	1.49E+08	1.49E+08	1.49E+08	1.49E+08	1.49E+08	1.49E+08	1.49E+08	1.69E+08
	INFANT	1.49E+08	1.49E+08	1.49E+08	1.49E+08	1.49E+08	1.49E+08	1.49E+08	1.69E+08
GOAT	ADULT	3.57E+08	1.41E+09	1.01E+09	0.00E+00	7.84E+08	1.07E+08	1.60E+08	N/A
MILK	TEEN	6.07E+08	2.39E+09	1.61E+09	0.00E+00	1.30E+09	2.05E+08	1.92E+08	N/A
	CHILD	1.37E+09	3.77E+09	2.44E+09	0.00E+00	2.01E+09	2.99E+08	1.32E+08	N/A
	INFANT	8.93E+08	7.88E+09	2.94E+09	0.00E+00	3.14E+09	6.42E+08	1.20E+08	N/A
COW	ADULT	6.69E+07	2.64E+08	1.90E+08	0.00E+00	1.47E+08	2.02E+07	3.00E+07	N/A
MILK	TEEN	1.14E+08	4.48E+08	3.01E+08	0.00E+00	2.44E+08	3.85E+07	3.61E+07	N/A
	CHILD	2.57E+08	7.07E+08	4.58E+08	0.00E+00	3.77E+08	5.62E+07	2.48E+07	N/A
	INFANT	5.02E+08	1.48E+09	5.52E+08	0.00E+00	5.89E+08	1.20E+08	2.24E+07	N/A
MEAT	ADULT	4.00E+06	1.58E+07	1.14E+07	0.00E+00	8.78E+06	1.20E+06	1.79E+06	N/A
	TEEN	3.12E+06	1.23E+07	8.24E+06	0.00E+00	6.68E+06	1.05E+06	9.87E+05	N/A
	CHILD	5.38E+06	1.48E+07	9.57E+06	0.00E+00	7.87E+06	1.17E+06	5.20E+05	N/A
	INFANT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	N/A
VEGETABLE	ADULT	2.03E+07	8.01E+07	5.76E+07	0.00E+00	4.46E+07	6.11E+06	9.10E+06	N/A
	TEEN	2.43E+07	9.58E+07	6.43E+07	0.00E+00	5.21E+07	8.22E+06	7.71E+06	N/A
	CHILD	4.96E+07	1.36E+08	8.82E+07	0.00E+00	7.26E+07	1.08E+07	4.79E+06	N/A
	INFANT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	N/A
TOTAL	ADULT	4.48E+08	1.77E+09	1.27E+09	0.00E+00	9.84E+08	1.35E+08	2.01E+08	N/A
INGESTION	TEEN	7.49E+08	2.95E+09	1.98E+09	0.00E+00	1.60E+09	2.53E+08	2.37E+08	N/A
	CHILD	1.68E+09	4.63E+09	2.99E+09	0.00E+00	2.46E+09	3.67E+08	1.63E+08	N/A
	INFANT	1.40E+09	9.35E+09	3.49E+09	0.00E+00	3.73E+09	7.62E+08	1.42E+08	N/A
INHALATION	ADULT	3.90E+04	1.46E+05	1.10E+05	0.00E+00	8.56E+04	1.20E+04	1.17E+04	N/A
	TEEN	5.15E+04	1.94E+05	1.37E+05	0.00E+00	1.10E+05	1.78E+04	1.09E+04	N/A
	CHILD	6.51E+04	1.71E+05	1.16E+05	0.00E+00	9.55E+04	1.45E+04	4.18E+03	N/A
	INFANT	4.83E+04	1.35E+05	5.29E+04	0.00E+00	5.64E+04	1.18E+04	1.43E+03	N/A

*Airborne pathways and tritium ingestion: units are mrem/yr/μCi/m3
Deposition pathways: units are mrem-m2/yr/μCi/sec

*** MAXIMUM VALUES FOR PATHWAYS ***							
GROUND: T.B./ORG.	GROUND: SKIN	GOAT MILK	COW MILK	MEAT	VEGETABLE	TOTAL INGESTION	INHALATION
1.49E+08	1.69E+08	7.88E+09	1.48E+09	1.58E+07	1.36E+08	9.35E+09	1.94E+05

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ODCM MAXIMUM PATHWAY DOSE FACTORS: RADIONUCLIDES OTHER THAN NOBLE GASES

Isotope:	Cs-137								
PATHWAY	AGE GROUP	BONE	LIVER	T.BODY	THYROID	KIDNEY	LUNG	G.I.	SKIN
GROUND	ADULT	1.02E+10	1.02E+10	1.02E+10	1.02E+10	1.02E+10	1.02E+10	1.02E+10	1.19E+10
	TEEN	1.02E+10	1.02E+10	1.02E+10	1.02E+10	1.02E+10	1.02E+10	1.02E+10	1.19E+10
	CHILD	1.02E+10	1.02E+10	1.02E+10	1.02E+10	1.02E+10	1.02E+10	1.02E+10	1.19E+10
	INFANT	1.02E+10	1.02E+10	1.02E+10	1.02E+10	1.02E+10	1.02E+10	1.02E+10	1.19E+10
GOAT	ADULT	1.42E+10	1.94E+10	1.27E+10	0.00E+00	6.59E+09	2.19E+09	3.76E+08	N/A
MILK	TEEN	2.58E+10	3.43E+10	1.19E+10	0.00E+00	1.17E+10	4.53E+09	4.88E+08	N/A
	CHILD	6.20E+10	5.94E+10	8.77E+09	0.00E+00	1.94E+10	6.96E+09	3.72E+08	N/A
	INFANT	3.30E+10	1.16E+11	8.22E+09	0.00E+00	3.11E+10	1.26E+10	3.62E+08	N/A
COW	ADULT	3.78E+09	5.17E+09	3.39E+09	0.00E+00	1.76E+09	5.84E+08	1.00E+08	N/A
MILK	TEEN	6.86E+09	9.12E+09	3.18E+09	0.00E+00	3.10E+09	1.21E+09	1.30E+08	N/A
	CHILD	1.65E+10	1.58E+10	2.33E+09	0.00E+00	5.15E+09	1.85E+09	9.90E+07	N/A
	INFANT	2.64E+10	3.09E+10	2.19E+09	0.00E+00	8.28E+09	3.35E+09	9.65E+07	N/A
MEAT	ADULT	4.91E+08	6.71E+08	4.40E+08	0.00E+00	2.28E+08	7.58E+07	1.30E+07	N/A
	TEEN	4.08E+08	5.42E+08	1.89E+08	0.00E+00	1.85E+08	7.17E+07	7.72E+06	N/A
	CHILD	7.51E+08	7.19E+08	1.06E+08	0.00E+00	2.34E+08	8.42E+07	4.50E+06	N/A
	INFANT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	N/A
VEGETABLE	ADULT	5.76E+09	7.88E+09	5.16E+09	0.00E+00	2.68E+09	8.89E+08	1.53E+08	N/A
	TEEN	9.58E+09	1.27E+10	4.44E+09	0.00E+00	4.34E+09	1.69E+09	1.81E+08	N/A
	CHILD	2.29E+10	2.19E+10	3.24E+09	0.00E+00	7.15E+09	2.57E+09	1.37E+08	N/A
	INFANT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	N/A
TOTAL	ADULT	2.42E+10	3.32E+10	2.17E+10	0.00E+00	1.13E+10	3.74E+09	6.42E+08	N/A
INGESTION	TEEN	4.26E+10	5.67E+10	1.97E+10	0.00E+00	1.93E+10	7.49E+09	8.06E+08	N/A
	CHILD	1.02E+11	9.79E+10	1.44E+10	0.00E+00	3.19E+10	1.15E+10	6.13E+08	N/A
	INFANT	5.94E+10	1.47E+11	1.04E+10	0.00E+00	3.94E+10	1.60E+10	4.59E+08	N/A
INHALATION	ADULT	4.78E+05	6.21E+05	4.28E+05	0.00E+00	2.22E+05	7.52E+04	8.40E+03	N/A
	TEEN	6.70E+05	8.48E+05	3.11E+05	0.00E+00	3.04E+05	1.21E+05	8.48E+03	N/A
	CHILD	9.07E+05	8.25E+05	1.28E+05	0.00E+00	2.82E+05	1.04E+05	3.62E+03	N/A
	INFANT	5.49E+05	6.12E+05	4.55E+04	0.00E+00	1.72E+05	7.13E+04	1.33E+03	N/A

*Airborne pathways and tritium ingestion: units are mrem/yr/μCi/m3
Deposition pathways: units are mrem-m2/yr/μCi/sec

*** MAXIMUM VALUES FOR PATHWAYS ***							
GROUND: T.B./ORG.	GROUND: SKIN	GOAT MILK	COW MILK	MEAT	VEGETABLE	TOTAL INGESTION	INHALATION
1.02E+10	1.19E+10	1.16E+11	3.09E+10	7.51E+08	2.29E+10	1.47E+11	9.07E+05

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ODCM MAXIMUM PATHWAY DOSE FACTORS: RADIONUCLIDES OTHER THAN NOBLE GASES

Isotope:	Ba-140								
PATHWAY	AGE GROUP	BONE	LIVER	T.BODY	THYROID	KIDNEY	LUNG	G.I.	SKIN
GROUND	ADULT	2.03E+07	2.03E+07	2.03E+07	2.03E+07	2.03E+07	2.03E+07	2.03E+07	2.32E+07
	TEEN	2.03E+07	2.03E+07	2.03E+07	2.03E+07	2.03E+07	2.03E+07	2.03E+07	2.32E+07
	CHILD	2.03E+07	2.03E+07	2.03E+07	2.03E+07	2.03E+07	2.03E+07	2.03E+07	2.32E+07
	INFANT	2.03E+07	2.03E+07	2.03E+07	2.03E+07	2.03E+07	2.03E+07	2.03E+07	2.32E+07
GOAT	ADULT	1.46E+06	1.83E+03	9.54E+04	0.00E+00	6.22E+02	1.05E+03	3.00E+06	N/A
MILK	TEEN	2.63E+06	3.22E+03	1.69E+05	0.00E+00	1.09E+03	2.17E+03	4.05E+06	N/A
	CHILD	6.35E+06	5.56E+03	3.70E+05	0.00E+00	1.81E+03	3.31E+03	3.22E+06	N/A
	INFANT	1.09E+08	1.31E+04	6.73E+05	0.00E+00	3.10E+03	8.02E+03	3.21E+06	N/A
COW	ADULT	6.83E+06	8.58E+03	4.47E+05	0.00E+00	2.92E+03	4.91E+03	1.41E+07	N/A
MILK	TEEN	1.23E+07	1.51E+04	7.94E+05	0.00E+00	5.12E+03	1.02E+04	1.90E+07	N/A
	CHILD	2.97E+07	2.61E+04	1.74E+06	0.00E+00	8.48E+03	1.55E+04	1.51E+07	N/A
	INFANT	6.12E+07	6.12E+04	3.15E+06	0.00E+00	1.45E+04	3.76E+04	1.50E+07	N/A
MEAT	ADULT	9.52E+06	1.20E+04	6.24E+05	0.00E+00	4.07E+03	6.85E+03	1.96E+07	N/A
	TEEN	7.87E+06	9.65E+03	5.07E+05	0.00E+00	3.27E+03	6.49E+03	1.21E+07	N/A
	CHILD	1.45E+07	1.27E+04	8.48E+05	0.00E+00	4.14E+03	7.59E+03	7.36E+06	N/A
	INFANT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	N/A
VEGETABLE	ADULT	5.98E+07	7.51E+04	3.92E+06	0.00E+00	2.55E+04	4.30E+04	1.23E+08	N/A
	TEEN	7.50E+07	9.19E+04	4.83E+06	0.00E+00	3.12E+04	6.18E+04	1.16E+08	N/A
	CHILD	1.62E+08	1.42E+05	9.48E+06	0.00E+00	4.63E+04	8.48E+04	8.23E+07	N/A
	INFANT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	N/A
TOTAL	ADULT	7.76E+07	9.75E+04	5.08E+06	0.00E+00	3.31E+04	5.58E+04	1.60E+08	N/A
INGESTION	TEEN	9.78E+07	1.20E+05	6.31E+06	0.00E+00	4.07E+04	8.06E+04	1.51E+08	N/A
	CHILD	2.13E+08	1.87E+05	1.24E+07	0.00E+00	6.08E+04	1.11E+05	1.08E+08	N/A
	INFANT	1.70E+08	7.43E+04	3.83E+06	0.00E+00	1.76E+04	4.56E+04	1.82E+07	N/A
INHALATION	ADULT	3.90E+04	4.90E+01	2.57E+03	0.00E+00	1.67E+01	1.27E+06	2.18E+05	N/A
	TEEN	5.47E+04	6.94E+01	3.52E+03	0.00E+00	2.28E+01	2.03E+06	2.29E+05	N/A
	CHILD	7.40E+04	6.48E+01	4.33E+02	0.00E+00	2.11E+01	1.74E+06	1.02E+05	N/A
	INFANT	5.60E+04	5.60E+01	2.90E+03	0.00E+00	1.34E+01	1.60E+06	3.84E+04	N/A

*Airborne pathways and tritium ingestion: units are mrem/yr/μCi/m3
Deposition pathways: units are mrem-m2/yr/μCi/sec

*** MAXIMUM VALUES FOR PATHWAYS ***							
GROUND: T.B./ORG.	GROUND: SKIN	GOAT MILK	COW MILK	MEAT	VEGETABLE	TOTAL INGESTION	INHALATION
2.03E+07	2.32E+07	1.09E+08	6.12E+07	1.96E+07	1.62E+08	2.13E+08	2.03E+06

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ODCM MAXIMUM PATHWAY DOSE FACTORS: RADIONUCLIDES OTHER THAN NOBLE GASES

Isotope:	La-140								
PATHWAY	AGE GROUP	BONE	LIVER	T.BODY	THYROID	KIDNEY	LUNG	G.I.	SKIN
GROUND	ADULT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	TEEN	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	CHILD	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	INFANT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
GOAT	ADULT	2.44E-01	1.23E-01	3.25E-02	0.00E+00	0.00E+00	0.00E+00	9.02E+03	N/A
MILK	TEEN	4.38E-01	2.15E-01	5.72E-02	0.00E+00	0.00E+00	0.00E+00	1.24E+04	N/A
	CHILD	1.05E+00	3.66E-01	1.23E-01	0.00E+00	0.00E+00	0.00E+00	1.02E+04	N/A
	INFANT	1.82E+01	8.63E-01	2.22E-01	0.00E+00	0.00E+00	0.00E+00	1.OIE+04	N/A
COW	ADULT	1.14E+00	5.73E-01	1.51E-01	0.00E+00	0.00E+00	0.00E+00	4.21E+04	N/A
MILK	TEEN	2.04E+00	1.00E+00	2.67E-01	0.00E+00	0.00E+00	0.00E+00	5.76E+04	N/A
	CHILD	4.89E+00	1.71E+00	5.76E-01	0.00E+00	0.00E+00	0.00E+00	4.76E+04	N/A
	INFANT	1.02E+01	4.03E+00	1.04E+00	0.00E+00	0.00E+00	0.00E+00	4.73E+04	N/A
MEAT	ADULT	1.22E-02	6.16E-03	1.63E-03	0.00E+00	0.00E+00	0.00E+00	4.53E+02	N/A
	TEEN	1.01E-02	4.94E-03	1.32E-03	0.00E+00	0.00E+00	0.00E+00	2.84E+02	N/A
	CHILD	1.84E-02	6.44E-03	2.17E-03	0.00E+00	0.00E+00	0.00E+00	1.79E+02	N/A
	INFANT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	N/A
VEGETABLE	ADULT	6.53E+02	3.29E+02	8.69E+01	0.00E+00	0.00E+00	0.00E+00	2.41E+07	N/A
	TEEN	5.96E+02	2.93E+02	7.79E+01	0.00E+00	0.00E+00	0.00E+00	1.68E+07	N/A
	CHILD	1.07E+03	3.74E+02	1.26E+02	0.00E+00	0.00E+00	0.00E+00	1.04E+07	N/A
	INFANT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	N/A
TOTAL	ADULT	6.54E+02	3.30E+02	8.71E+01	0.00E+00	0.00E+00	0.00E+00	2.42E+07	N/A
INGESTION	TEEN	5.99E+02	2.94E+02	7.83E+01	0.00E+00	0.00E+00	0.00E+00	1.69E+07	N/A
	CHILD	1.08E+03	3.76E+02	1.27E+02	0.00E+00	0.00E+00	0.00E+00	1.05E+07	N/A
	INFANT	2.85E+01	4.89E+00	1.26E+00	0.00E+00	0.00E+00	0.00E+00	5.74E+04	N/A
INHALATION	ADULT	3.44E+02	1.74E+02	4.58E+01	0.00E+00	0.00E+00	1.36E+05	4.58E+05	N/A
	TEEN	4.79E+02	2.36E+02	6.26E+01	0.00E+00	0.00E+00	2.14E+05	4.87E+05	N/A
	CHILD	6.44E+02	2.25E+02	7.55E+01	0.00E+00	0.00E+00	1.83E+05	2.26E+05	N/A
	INFANT	5.05E+02	2.00E+02	5.15E+01	0.00E+00	0.00E+00	1.68E+05	8.48E+04	N/A

*Airborne pathways and tritium ingestion: units are mrem/yr/μCi/m3
Deposition pathways: units are mrem-m2/yr/μCi/sec

*** MAXIMUM VALUES FOR PATHWAYS ***							
GROUND: T.B./ORG.	GROUND: SKIN	GOAT MILK	COW MILK	MEAT	VEGETABLE	TOTAL INGESTION	INHALATION
0.00E+00	0.00E+00	1.24E+04	5.76E+04	4.53E+02	2.41E+07	2.42E+07	4.87E+05

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ODCM MAXIMUM PATHWAY DOSE FACTORS: RADIONUCLIDES OTHER THAN NOBLE GASES

Isotope:	Ce-141								
PATHWAY	AGE GROUP	BONE	LIVER	T.BODY	THYROID	KIDNEY	LUNG	G.I.	SKIN
GROUND	ADULT	1.35E+07	1.35E+07	1.35E+07	1.35E+07	1.35E+07	1.35E+07	1.35E+07	1.52E+07
	TEEN	1.35E+07	1.35E+07	1.35E+07	1.35E+07	1.35E+07	1.35E+07	1.35E+07	1.52E+07
	CHILD	1.35E+07	1.35E+07	1.35E+07	1.35E+07	1.35E+07	1.35E+07	1.35E+07	1.52E+07
	INFANT	1.35E+07	1.35E+07	1.35E+07	1.35E+07	1.35E+07	1.35E+07	1.35E+07	1.52E+07
GOAT	ADULT	2.78E+02	1.88E+02	2.13E+01	0.00E+00	8.73E+01	0.00E+00	7.19E+05	N/A
MILK	TEEN	5.10E+02	3.40E+02	3.91E+01	0.00E+00	1.60E+02	0.00E+00	9.74E+05	N/A
	CHILD	1.26E+03	6.26E+02	9.30E+01	0.00E+00	2.75E+02	0.00E+00	7.81E+05	N/A
	INFANT	2.07E+04	1.52E+03	1.79E+02	0.00E+00	4.68E+02	0.00E+00	7.84E+05	N/A
COW	ADULT	1.41E+03	9.51E+02	1.08E+02	0.00E+00	4.42E+02	0.00E+00	3.64E+06	N/A
MILK	TEEN	2.58E+03	1.72E+03	1.98E+02	0.00E+00	8.11E+02	0.00E+00	4.93E+06	N/A
	CHILD	6.35E+03	3.17E+03	4.70E+02	0.00E+00	1.39E+03	0.00E+00	3.95E+06	N/A
	INFANT	1.26E+04	7.68E+03	9.04E+02	0.00E+00	2.37E+03	0.00E+00	3.97E+06	N/A
MEAT	ADULT	5.11E+03	3.46E+03	3.92E+02	0.00E+00	1.61E+03	0.00E+00	1.32E+07	N/A
	TEEN	4.29E+03	2.87E+03	3.29E+02	0.00E+00	1.35E+03	0.00E+00	8.20E+06	N/A
	CHILD	8.08E+03	4.03E+03	5.99E+02	0.00E+00	1.77E+03	0.00E+00	5.03E+06	N/A
	INFANT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	N/A
VEGETABLE	ADULT	1.49E+05	1.01E+05	1.14E+04	0.00E+00	4.69E+04	0.00E+00	3.86E+08	N/A
	TEEN	2.38E+05	1.59E+05	1.83E+04	0.00E+00	7.49E+04	0.00E+00	4.55E+08	N/A
	CHILD	5.73E+05	2.86E+05	4.25E+04	0.00E+00	1.25E+05	0.00E+00	3.57E+08	N/A
	INFANT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	N/A
TOTAL	ADULT	1.56E+05	1.06E+05	1.20E+04	0.00E+00	4.90E+04	0.00E+00	4.03E+08	N/A
INGESTION	TEEN	2.46E+05	1.64E+05	1.88E+04	0.00E+00	7.72E+04	0.00E+00	4.69E+08	N/A
	CHILD	5.89E+05	2.94E+05	4.36E+04	0.00E+00	1.29E+05	0.00E+00	3.67E+08	N/A
	INFANT	3.33E+04	9.20E+03	1.08E+03	0.00E+00	2.84E+03	0.00E+00	4.75E+06	N/A
INHALATION	ADULT	1.99E+04	1.35E+04	1.53E+03	0.00E+00	6.26E+03	3.62E+05	1.20E+05	N/A
	TEEN	2.84E+04	1.90E+04	2.17E+03	0.00E+00	8.88E+03	6.14E+05	1.26E+05	N/A
	CHILD	3.92E+04	1.95E+04	2.90E+03	0.00E+00	8.55E+03	5.44E+05	5.66E+04	N/A
	INFANT	2.77E+04	1.67E+04	1.99E+03	0.00E+00	5.25E+03	5.17E+05	2.16E+04	N/A

*Airborne pathways and tritium ingestion: units are mrem/yr/μCi/m3
Deposition pathways: units are mrem-m2/yr/μCi/sec

*** MAXIMUM VALUES FOR PATHWAYS ***							
GROUND: T.B./ORG.	GROUND: SKIN	GOAT MILK	COW MILK	MEAT	VEGETABLE	TOTAL INGESTION	INHALATION
1.35E+07	1.52E+07	9.74E+05	4.93E+06	1.32E+07	4.55E+08	4.69E+08	6.14E+05

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ODCM MAXIMUM PATHWAY DOSE FACTORS: RADIONUCLIDES OTHER THAN NOBLE GASES

Isotope:	Pr-143								
PATHWAY	AGE GROUP	BONE	LIVER	T.BODY	THYROID	KIDNEY	LUNG	G.I.	SKIN
GROUND	ADULT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	TEEN	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	CHILD	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	INFANT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
GOAT	ADULT	8.57E+00	3.44E+00	4.25E-01	0.00E+00	1.98E+00	0.00E+00	3.75E+04	N/A
MILK	TEEN	1.57E+01	6.28E+00	7.83E-01	0.00E+00	3.65E+00	0.00E+00	5.18E+04	N/A
	CHILD	3.89E+01	1.17E+01	1.93E+00	0.00E+00	6.33E+00	0.00E+00	4.20E+04	N/A
	INFANT	6.71E+02	3.01E+01	3.99E+00	0.00E+00	1.12E+01	0.00E+00	4.25E+04	N/A
COW	ADULT	4.02E+01	1.61E+01	1.99E+00	0.00E+00	9.31E+00	0.00E+00	1.76E+05	N/A
MILK	TEEN	7.39E+01	2.95E+01	3.68E+00	0.00E+00	1.71E+01	0.00E+00	2.43E+05	N/A
	CHILD	1.83E+02	5.49E+01	9.07E+00	0.00E+00	2.97E+01	0.00E+00	1.97E+05	N/A
	INFANT	3.78E+02	1.41E+02	1.87E+01	0.00E+00	5.26E+01	0.00E+00	2.00E+05	N/A
MEAT	ADULT	6.96E+03	2.79E+03	3.45E+02	0.00E+00	1.61E+03	0.00E+00	3.05E+07	N/A
	TEEN	5.86E+03	2.34E+03	2.92E+02	0.00E+00	1.36E+03	0.00E+00	1.93E+07	N/A
	CHILD	1.11E+04	3.33E+03	5.50E+02	0.00E+00	1.80E+03	0.00E+00	1.20E+07	N/A
	INFANT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	N/A
VEGETABLE	ADULT	3.04E+04	1.22E+04	1.51E+03	0.00E+00	7.04E+03	0.00E+00	1.33E+08	N/A
	TEEN	4.00E+04	1.60E+04	1.99E+03	0.00E+00	9.27E+03	0.00E+00	1.31E+08	N/A
	CHILD	8.98E+04	2.69E+04	4.45E+03	0.00E+00	1.46E+04	0.00E+00	9.68E+07	N/A
	INFANT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	N/A
TOTAL	ADULT	3.74E+04	1.50E+04	1.86E+03	0.00E+00	8.67E+03	0.00E+00	1.64E+08	N/A
INGESTION	TEEN	4.59E+04	1.83E+04	2.28E+03	0.00E+00	1.07E+04	0.00E+00	1.51E+08	N/A
	CHILD	1.01E+05	3.03E+04	5.01E+03	0.00E+00	1.64E+04	0.00E+00	1.09E+08	N/A
	INFANT	1.05E+03	1.72E+02	2.27E+01	0.00E+00	6.38E+01	0.00E+00	2.42E+05	N/A
INHALATION	ADULT	9.36E+03	3.75E+03	4.64E+02	0.00E+00	2.16E+03	2.81E+05	2.00E+05	N/A
	TEEN	1.34E+04	5.31E+03	6.62E+02	0.00E+00	3.09E+03	4.83E+05	2.14E+05	N/A
	CHILD	1.85E+04	5.55E+03	9.14E+02	0.00E+00	3.00E+03	4.33E+05	9.73E+04	N/A
	INFANT	1.40E+04	5.24E+03	6.99E+02	0.00E+00	1.97E+03	4.33E+05	3.72E+04	N/A

*Airborne pathways and tritium ingestion: units are mrem/yr/μCi/m3
Deposition pathways: units are mrem-m2/yr/μCi/sec

*** MAXIMUM VALUES FOR PATHWAYS ***							
GROUND: T.B./ORG.	GROUND: SKIN	GOAT MILK	COW MILK	MEAT	VEGETABLE	TOTAL INGESTION	INHALATION
0.00E+00	0.00E+00	5.18E+04	2.43E+05	3.05E+07	1.33E+08	1.64E+08	4.83E+05

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ODCM MAXIMUM PATHWAY DOSE FACTORS: RADIONUCLIDES OTHER THAN NOBLE GASES

Isotope:	Ce-144								
PATHWAY	AGE GROUP	BONE	LIVER	T.BODY	THYROID	KIDNEY	LUNG	G.I.	SKIN
GROUND	ADULT	6.88E+07	6.88E+07	6.88E+07	6.88E+07	6.88E+07	6.88E+07	6.88E+07	7.96E+07
	TEEN	6.88E+07	6.88E+07	6.88E+07	6.88E+07	6.88E+07	6.88E+07	6.88E+07	7.96E+07
	CHILD	6.88E+07	6.88E+07	6.88E+07	6.88E+07	6.88E+07	6.88E+07	6.88E+07	7.96E+07
	INFANT	6.88E+07	6.88E+07	6.88E+07	6.88E+07	6.88E+07	6.88E+07	6.88E+07	7.96E+07
GOAT	ADULT	2.60E+04	1.09E+04	1.39E+03	0.00E+00	6.44E+03	0.00E+00	8.78E+06	N/A
MILK	TEEN	4.78E+04	1.98E+04	2.57E+03	0.00E+00	1.18E+04	0.00E+00	1.20E+07	N/A
	CHILD	1.18E+05	3.69E+04	6.28E+03	0.00E+00	2.04E+04	0.00E+00	9.63E+06	N/A
	INFANT	1.41E+06	6.91E+04	9.46E+03	0.00E+00	2.79E+04	0.00E+00	9.68E+06	N/A
COW	ADULT	1.65E+05	6.91E+04	8.88E+03	0.00E+00	4.10E+04	0.00E+00	5.59E+07	N/A
MILK	TEEN	3.04E+05	1.26E+05	1.63E+04	0.00E+00	7.52E+04	0.00E+00	7.65E+07	N/A
	CHILD	7.50E+05	2.35E+05	4.00E+04	0.00E+00	1.30E+05	0.00E+00	6.13E+07	N/A
	INFANT	1.07E+06	4.40E+05	6.02E+04	0.00E+00	1.78E+05	0.00E+00	6.17E+07	N/A
MEAT	ADULT	7.55E+05	3.16E+05	4.05E+04	0.00E+00	1.87E+05	0.00E+00	2.55E+08	N/A
	TEEN	6.36E+05	2.63E+05	3.42E+04	0.00E+00	1.57E+05	0.00E+00	1.60E+08	N/A
	CHILD	1.20E+06	3.76E+05	6.40E+04	0.00E+00	2.08E+05	0.00E+00	9.80E+07	N/A
	INFANT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	N/A
VEGETABLE	ADULT	2.94E+07	1.23E+07	1.58E+06	0.00E+00	7.30E+06	0.00E+00	9.95E+09	N/A
	TEEN	4.95E+07	2.05E+07	2.66E+06	0.00E+00	1.22E+07	0.00E+00	1.24E+10	N/A
	CHILD	1.21E+08	3.80E+07	6.46E+06	0.00E+00	2.10E+07	0.00E+00	9.90E+09	N/A
	INFANT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	N/A
TOTAL	ADULT	3.04E+07	1.27E+07	1.63E+06	0.00E+00	7.53E+06	0.00E+00	1.03E+10	N/A
INGESTION	TEEN	5.05E+07	2.09E+07	2.71E+06	0.00E+00	1.25E+07	0.00E+00	1.27E+10	N/A
	CHILD	1.23E+08	3.86E+07	6.57E+06	0.00E+00	2.14E+07	0.00E+00	1.01E+10	N/A
	INFANT	2.48E+06	5.09E+05	6.97E+04	0.00E+00	2.06E+05	0.00E+00	7.14E+07	N/A
INHALATION	ADULT	3.43E+06	1.43E+06	1.84E+05	0.00E+00	8.48E+05	7.78E+06	8.16E+05	N/A
	TEEN	4.89E+06	2.02E+06	2.62E+05	0.00E+00	1.21E+06	1.34E+07	8.64E+05	N/A
	CHILD	6.77E+06	2.12E+06	3.61E+05	0.00E+00	1.17E+06	1.20E+07	3.89E+05	N/A
	INFANT	3.19E+06	1.21E+06	1.76E+05	0.00E+00	5.38E+05	9.84E+06	1.48E+05	N/A

*Airborne pathways and tritium ingestion: units are mrem/yr/μCi/m3
Deposition pathways: units are mrem-m2/yr/μCi/sec

*** MAXIMUM VALUES FOR PATHWAYS ***							
GROUND: T.B./ORG.	GROUND: SKIN	GOAT MILK	COW MILK	MEAT	VEGETABLE	TOTAL INGESTION	INHALATION
6.88E+07	7.96E+07	1.20E+07	7.65E+07	2.55E+08	1.24E+10	1.27E+10	1.34E+07

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ODCM MAXIMUM PATHWAY DOSE FACTORS: RADIONUCLIDES OTHER THAN NOBLE GASES

Isotope:	Pr-144								
PATHWAY	AGE GROUP	BONE	LIVER	T.BODY	THYROID	KIDNEY	LUNG	G.I.	SKIN
GROUND	ADULT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	TEEN	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	CHILD	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	INFANT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
GOAT	ADULT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	N/A
MILK	TEEN	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	N/A
	CHILD	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	N/A
	INFANT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	N/A
COW	ADULT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	N/A
MILK	TEEN	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	N/A
	CHILD	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	N/A
	INFANT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	N/A
MEAT	ADULT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	N/A
	TEEN	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	N/A
	CHILD	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	N/A
	INFANT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	N/A
VEGETABLE	ADULT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	N/A
	TEEN	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	N/A
	CHILD	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	N/A
	INFANT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	N/A
TOTAL	ADULT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	N/A
INGESTION	TEEN	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	N/A
	CHILD	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	N/A
	INFANT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	N/A
INHALATION	ADULT	3.01E-02	1.25E-02	1.53E-03	0.00E+00	7.05E-03	1.02E+03	2.15E-08	N/A
	TEEN	4.30E-02	1.76E-02	2.18E-03	0.00E+00	1.01E-02	1.75E+03	2.35E-04	N/A
	CHILD	5.96E-02	1.85E-02	3.00E-03	0.00E+00	9.77E-03	1.57E+03	1.97E+02	N/A
	INFANT	4.79E-02	1.85E-02	2.41E-03	0.00E+00	6.72E-03	1.61E+03	4.28E+03	N/A

*Airborne pathways and tritium ingestion: units are mrem/yr/μCi/m3
Deposition pathways: units are mrem-m2/yr/μCi/sec

*** MAXIMUM VALUES FOR PATHWAYS ***							
GROUND: T.B./ORG.	GROUND: SKIN	GOAT MILK	COW MILK	MEAT	VEGETABLE	TOTAL INGESTION	INHALATION
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.28E+03

Approval MWS
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ODCM MAXIMUM PATHWAY DOSE FACTORS: RADIONUCLIDES OTHER THAN NOBLE GASES

Isotope:	Nd-147								
PATHWAY	AGE GROUP	BONE	LIVER	T.BODY	THYROID	KIDNEY	LUNG	G.I.	SKIN
GROUND	ADULT	8.31E+06	8.31E+06	8.31E+06	8.31E+06	8.31E+06	8.31E+06	8.31E+06	9.97E+06
	TEEN	8.31E+06	8.31E+06	8.31E+06	8.31E+06	8.31E+06	8.31E+06	8.31E+06	9.97E+06
	CHILD	8.31E+06	8.31E+06	8.31E+06	8.31E+06	8.31E+06	8.31E+06	8.31E+06	9.97E+06
	INFANT	8.31E+06	8.31E+06	8.31E+06	8.31E+06	8.31E+06	8.31E+06	8.31E+06	9.97E+06
GOAT	ADULT	5.09E+00	5.89E+00	3.52E-01	0.00E+00	3.44E+02	0.00E+00	2.83E+04	N/A
MILK	TEEN	9.80E+00	1.07E+01	6.38E-01	0.00E+00	6.26E+00	0.00E+00	3.84E+04	N/A
	CHILD	2.40E+01	1.95E+01	1.51E+00	0.00E+00	1.07E+01	0.00E+00	3.09E+04	N/A
	INFANT	3.97E+02	4.90E+01	3.00E+00	0.00E+00	1.89E+01	0.00E+00	3.10E+04	N/A
COW	ADULT	2.38E+01	2.75E+01	1.65E+00	0.00E+00	1.61E+01	0.00E+00	1.32E+05	N/A
MILK	TEEN	4.58E+01	4.98E+01	2.98E+00	0.00E+00	2.93E+01	0.00E+00	1.80E+05	N/A
	CHILD	1.12E+02	9.11E+01	7.05E+00	0.00E+00	5.00E+01	0.00E+00	1.44E+05	N/A
	INFANT	2.23E+02	2.29E+02	1.40E+01	0.00E+00	8.82E+01	0.00E+00	1.45E+05	N/A
MEAT	ADULT	2.34E+03	2.70E+03	1.62E+02	0.00E+00	1.58E+03	0.00E+00	1.30E+07	N/A
	TEEN	2.06E+03	2.24E+03	1.34E+02	0.00E+00	1.31E+03	0.00E+00	8.08E+06	N/A
	CHILD	3.86E+03	3.13E+03	2.42E+02	0.00E+00	1.72E+03	0.00E+00	4.96E+06	N/A
	INFANT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	N/A
VEGETABLE	ADULT	1.39E+04	1.61E+04	9.61E+02	0.00E+00	9.39E+03	0.00E+00	7.71E+07	N/A
	TEEN	1.72E+04	1.87E+04	1.12E+03	0.00E+00	1.10E+04	0.00E+00	6.74E+07	N/A
	CHILD	3.65E+04	2.95E+04	2.29E+03	0.00E+00	1.62E+04	0.00E+00	4.68E+07	N/A
	INFANT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	N/A
TOTAL	ADULT	1.63E+04	1.88E+04	1.12E+03	0.00E+00	1.10E+04	0.00E+00	9.03E+07	N/A
INGESTION	TEEN	1.93E+04	2.10E+04	1.26E+03	0.00E+00	1.23E+04	0.00E+00	7.57E+07	N/A
	CHILD	4.05E+04	3.28E+04	2.54E+03	0.00E+00	1.80E+04	0.00E+00	5.19E+07	N/A
	INFANT	6.20E+02	2.78E+02	1.70E+01	0.00E+00	1.07E+02	0.00E+00	1.76E+05	N/A
INHALATION	ADULT	5.27E+03	6.10E+03	3.65E+02	0.00E+00	3.56E+03	2.21E+05	1.73E+05	N/A
	TEEN	7.86E+03	8.56E+03	5.13E+02	0.00E+00	5.02E+03	3.72E+05	1.82E+05	N/A
	CHILD	1.08E+04	8.73E+03	6.81E+02	0.00E+00	4.81E+03	3.28E+05	8.21E+04	N/A
	INFANT	7.94E+03	8.13E+03	5.00E+02	0.00E+00	3.15E+03	3.22E+05	3.12E+04	N/A

*Airborne pathways and tritium ingestion: units are mrem/yr/μCi/m3
Deposition pathways: units are mrem-m2/yr/μCi/sec

*** MAXIMUM VALUES FOR PATHWAYS ***							
GROUND: T.B./ORG.	GROUND: SKIN	GOAT MILK	COW MILK	MEAT	VEGETABLE	TOTAL INGESTION	INHALATION
8.31E+06	9.97E+06	3.84E+04	1.80E+05	1.30E+07	7.71E+07	9.03E+07	3.72E+05

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ODCM MAXIMUM PATHWAY DOSE FACTORS: RADIONUCLIDES OTHER THAN NOBLE GASES

Isotope:	Np-239								
PATHWAY	AGE GROUP	BONE	LIVER	T.BODY	THYROID	KIDNEY	LUNG	G.I.	SKIN
GROUND	ADULT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	TEEN	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	CHILD	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	INFANT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
GOAT MILK	ADULT	1.98E-01	1.95E-02	1.08E-02	0.00E+00	6.08E-02	0.00E+00	4.00E+03	N/A
	TEEN	3.79E-01	3.57E-02	1.98E-02	0.00E+00	1.12E-01	0.00E+00	5.74E+03	N/A
	CHILD	9.32E-01	6.69E-02	4.70E-02	0.00E+00	1.93E-01	0.00E+00	4.95E+03	N/A
	INFANT	1.64E+01	9.96E-02	9.96E-02	0.00E+00	3.51E-01	0.00E+00	5.09E+03	N/A
COW MILK	ADULT	9.26E-01	9.10E-02	5.02E-02	0.00E+00	2.84E-01	0.00E+00	1.87E+04	N/A
	TEEN	1.77E+00	1.67E-01	9.25E-02	0.00E+00	5.23E-01	0.00E+00	2.68E+04	N/A
	CHILD	4.35E+00	3.12E-01	2.19E-01	0.00E+00	9.02E-01	0.00E+00	2.31E+04	N/A
	INFANT	9.19E+00	8.22E-01	4.64E-01	0.00E+00	1.64E+00	0.00E+00	2.38E+04	N/A
MEAT	ADULT	8.54E-02	8.40E-03	4.63E-03	0.00E+00	2.62E-02	0.00E+00	1.72E+03	N/A
	TEEN	7.47E-02	7.04E-03	3.91E-03	0.00E+00	2.21E-02	0.00E+00	1.13E+03	N/A
	CHILD	1.41E-01	1.01E-02	7.09E-03	0.00E+00	2.92E-02	0.00E+00	7.47E+02	N/A
	INFANT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	N/A
VEGETABLE	ADULT	4.71E+02	4.63E+01	2.55E+01	0.00E+00	1.45E+02	0.00E+00	9.50E+06	N/A
	TEEN	4.57E+02	4.31E+01	2.40E+01	0.00E+00	1.35E+02	0.00E+00	6.94E+06	N/A
	CHILD	8.44E+02	6.06E+01	4.26E+01	0.00E+00	1.75E+02	0.00E+00	4.49E+06	N/A
	INFANT	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	N/A
TOTAL INGESTION	ADULT	4.72E+02	4.64E+01	2.56E+01	0.00E+00	1.45E+02	0.00E+00	9.53E+06	N/A
	TEEN	4.60E+02	4.33E+01	2.41E+01	0.00E+00	1.36E+02	0.00E+00	6.97E+06	N/A
	CHILD	8.50E+02	6.10E+01	4.29E+01	0.00E+00	1.76E+02	0.00E+00	4.52E+06	N/A
	INFANT	2.56E+01	9.22E-01	5.64E-01	0.00E+00	1.99E+00	0.00E+00	2.89E+04	N/A
INHALATION	ADULT	2.30E+02	2.26E+01	1.24E+01	0.00E+00	7.00E+01	3.76E+04	1.19E+05	N/A
	TEEN	3.38E+02	3.19E+01	1.77E+01	0.00E+00	1.00E+02	6.49E+04	1.32E+05	N/A
	CHILD	4.66E+02	3.34E+01	2.35E+01	0.00E+00	9.73E+01	5.81E+04	6.40E+04	N/A
	INFANT	3.71E+02	3.32E+01	1.88E+01	0.00E+00	6.62E+01	5.95E+04	2.49E+04	N/A

*Airborne pathways and tritium ingestion: units are mrem/yr/μCi/m3
Deposition pathways: units are mrem-m2/yr/μCi/sec

*** MAXIMUM VALUES FOR PATHWAYS ***							
GROUND: T.B./ORG.	GROUND: SKIN	GOAT MILK	COW MILK	MEAT	VEGETABLE	TOTAL INGESTION	INHALATION
0.00E+00	0.00E+00	5.74E+03	2.68E+04	1.72E+03	9.50E+06	9.53E+06	1.32E+05

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Date see page 1

PROCEDURE COVER SHEET

	NUCLEAR DEPARTMENT PROCEDURE	
	WATERBORNE EFFLUENT DOSE CALCULATIONS	ODCM-QA-005 Revision 1 Page 1 of 38

QUALITY CLASSIFICATION: ☒ QA Program ☐ Non-QA Program	APPROVAL CLASSIFICATION: ☒ Plant ☐ Non-Plant ☐ Instruction

EFFECTIVE DATE: 10-21-98

PERIODIC REVIEW FREQUENCY: N/A

PERIODIC REVIEW DUE DATE: N/A

RECOMMENDED REVIEWS:

Procedure Owner: R. K. Barclay

Responsible Supervisor: Supervisor - Operations Technology

Responsible FUM: Manager - Nuclear Technology

Responsible Approver: General Manager - SSES

PROCEDURE REVISION SUMMARY

TITLE: WATERBORNE EFFLUENT DOSE CALCULATIONS

1. The description of the Composite Dose Conversion Factors, K_{aipj} (Attachment F) has been expanded to include the Maximum Hypothetical Water Ingestion Dose Factors (Attachment G).

2. Two numerical corrections are made to Attachment F, as follows:

AGE GROUP	ISOTOPE	ORGAN	CORRECTED VALUE (mrem/Ci)
Adult	Mn-56	Skin	1.59E-06
Teen	Na-24	T. Body	7.43E-03

Approval	MWS
Date	see page 1

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Approval	MWS
Date	see page 1

1.0 PURPOSE

The purpose of this procedure is to provide the methodology and parameters to be used in calculating maximum individual, whole-body, and organ doses due to waterborne effluents to ensure compliance with the dose limitations in Technical Specifications (3.11.1.2 and 3.11.4).

The purpose of this procedure is to provide the methodology and parameters to be used in calculating maximum individual, whole-body and organ doses due to waterborne effluents to ensure compliance with the dose limitations in the Technical Requirements Manual (Sections 3.11.1.2, 3.11.3) and 10CFR20.1302.

This procedure constitutes part of the SSES Offsite Dose Calculation Manual (ODCM) which is a licensing basis document.

2.0 POLICY/DISCUSSION

2.1 Applicable Pathways

2.1.1 The calculations of dose received by the hypothetical maximally exposed individual are based on ingestion of fish and drinking water and exposure on the shoreline. Drinking water is taken from the nearest public drinking water intake location (Danville Water Authority). Shoreline and fish ingestion are associated with the SSES river outfall (edge of initial mixing zone).

2.1.2 Methodology for calculating dose to the maximum hypothetical offsite individual has been developed for separate (fish, drinking water and shoreline exposure) and composite liquid effluent pathways. This methodology incorporates shore width, usage, dilution, and transit parameters specific to the SSES site. Any revision to these parameters should be reviewed against FSAR Table 11.2-15.

2.1.3 Calculated dose contributions from the three waterborne effluent pathways are summed to obtain the total dose to a member of the public from liquid effluent.

2.2 Use of LADTAP II Computer Program

2.2.1 Waterborne effluent surveillances and dose projection calculations are performed using the LADTAP II computer program as a method of implementing the methodology of Regulation Guide 1.109.

This program may be used to calculate the quarterly (or any other time period) doses to the maximum exposed individual. The computer code LADTAP II, which was developed by the NRC to perform dose calculations from liquid effluent uses the assumptions of Regulatory Guide 1.109.

2.3 Effluent Data

2.3.1 The total number of curies released for each radionuclide during the time period being evaluated is supplied by the SSES radiation monitoring program.

2.3.2 For determination of compliance with SSES Technical Specification dose limits, effluent totals shall be based only on activity positively detected at the 95% confidence level.

2.3.2 For determination of compliance with SSES Technical Requirements Manual dose limits, effluent totals shall be based only on activity positively detected at the 95% confidence level.

2.3.3 Insignificant liquid effluent (i.e. causes underflow errors when input to LADTAP II) may be excluded from further computations.

2.4 Projected Dose

2.4.1 The projected quarterly dose contribution from batch releases for which radionuclide concentrations are determined by periodic composite sample analysis, as stated in TS Table 4.11.1.1.1-1 may be approximated by assuming an average concentration based on the previous monthly (rolling 31 day) or quarterly composite analysis.

2.4.1 The projected quarterly dose contribution from batch releases for which radionuclide concentrations are determined by periodic composite sample analysis, as stated in TR Table 3.11.1.1-1 may be approximated by assuming an average concentration based on the previous monthly (rolling 31 day) or quarterly composite analysis.

2.4.2 The calculated dose contributions from these radionuclides shall be based on the actual composite analysis. The cumulative dose commitment to the total body or any organ for a quarterly or annual analysis shall be based on the summation of isotopic activities and average cooling tower blowdown from all releases occurring during that time period.

2.5 Assignment of Releases to the Reactor Units

2.5.1 For determination of compliance with SSES radioactive effluent dose limits which are on a "per reactor unit" basis:

a. Waterborne effluents shall be equally divided between Unit 1 and Unit 2 release totals.

3.0 REFERENCES

3.1 TS Table 4.11.1.1.1-1, Radioactive Liquid Waste Sampling and Analysis Program.

3.1 TR Table 3.11.1.1-1, Radioactive Liquid Waste Sampling and Analysis Program.

3.2 TS 3.11.1.2, [Radioactive Effluents] [Liquid Effluent] Dose.

3.2 TR 3.11.1.2 [Liquid Effluent] Dose

3.3 TS 3.11.4, [Radioactive Effluents] Total Dose

3.3 TR 3.11.3 Total Dose

3.4 10CFR20.1302, Compliance with the Dose Limits for Individual Members of the Public

3.5 10 CFR 20 Appendix B, Concentrations in Air and Water Above Natural Background.

3.5 10 CFR 20 Appendix B, Annual Limits on Intake (ALIs) and Derived Air Concentrations (DACs) of Radionuclides for Occupational Exposure; Effluent Concentrations; Concentrations for Release to Sewerage.

3.6 10CFR50 Appendix I, Numerical Guides for Design Objectives and Limiting Conditions for Operation to Meet the Criterion "As Low as is Reasonably Achievable" for Radioactive Material in Light-water Cooled Nuclear Power Reactor Effluents.

3.7 40CFR190, Environmental radiation protection standards for nuclear power operations.

3.8 Regulatory Guide 1.109, Rev. 1, October, 1977, Calculation of Annual Doses to Man from Routine Releases of Reactor Effluents for the Purposes of Evaluating Compliance with 10 CFR 50, Appendix I.

3.9 NRC NUREG/CR-1276, "User's Manual for LADTAP II - A Computer Program for Calculating the Radiation Exposure to Man from Routine Release of Nuclear Reactor Effluents", 3/80.

3.10 NEPM-QA-1011, Radiological Effluent Dose Calculation and Reporting.

3.11 NEPM-QA-1012, Offsite Liquid Dose Calculation.

3.12 PP&L Calculation EC-ENVR-0501 (OT-93-RKB-019), Liquid Dose Factor Calculations- Liquid Pathway Dose Factors for SSES ODCM.

3.13 PP&L Calculation EC-ENVR-0502 (OT-93-RKB-021), Determination of Liquid Doses from SSES Pursuant to Recommendations in Calculation OT-93-RKB-019.

3.14 PP&L Study EC-ENVR-1030, "Software Verification and Validation Test Report-LADTAP II," Rev. 0.

3.15 SSES License Action Request 97-002, Clarification of Specifications 3.11.1.2 and 3.11.1.3, 1/20/97.

3.16 FSAR Table 11.2-15, Input Data for Aquatic Dose Calculations.

4.0 RESPONSIBILITIES

4.1 Supervisor- Operations Technology

4.1.1 Ensures adequacy and correctness of methodology used in calculating doses resulting from waterborne effluents.

4.2 Environmental Services- Health Physicist (Effluent)

4.2.1 Performs dose calculations necessary for fulfillment of SSES Technical Specification Surveillance Requirements.

4.2.1 Performs dose calculations necessary for fulfillment of Technical Requirement Surveillances (Sections 3.11.1.2.1 and 3.11.3.1) in accordance with NEPM-QA-1011.

4.2.2 Develops methodology and parameters to be used in calculating doses resulting from waterborne effluents to ensure compliance with the dose limitations in the Technical Specifications.

4.2.2 Develops methodology and parameters to be used in calculating doses resulting from waterborne effluents to ensure compliance with the dose limitations in the Technical Requirements Manual.

5.0 DEFINITIONS

None.

6.0 PROCEDURE

6.1 Fish Pathway Liquid Effluent Dose Calculation Methodology

6.1.1 The Environmental Services Health Physicist shall determine the dose due to radionuclides released in liquid effluent to unrestricted areas during a specified time period via the fish ingestion pathway by the following:

$$R_{apj} = \sum_i \left[\frac{K_{aipj}}{F} * C_i * V * k \right] \qquad \text{Eq. 1}$$

where:

R_{apj} = Total fish ingestion dose during period to organ j to individuals of age group a from all radionuclides in pathway p (mrem).

K_{aipj} = Fish ingestion dose conversion factor to organ j of individuals of age group a from radionuclide i in pathway p (mrem-ft^3/Ci-sec: Attachment A).

C_i = Average concentration of radionuclide i in undiluted liquid effluent during batch release from radwaste (Ci/ml).

V = Total undiluted batch volume released from radwaste (gallons).

k = Conversion factor (3.785E3 ml/gallon).

F = Minimum blowdown flow (ft^3/sec).

6.2 Potable Water Pathway Effluent Dose Calculation Methodology

6.2.1 The Environmental Services Health Physicist shall determine the dose due to radionuclides released in liquid effluent to unrestricted areas during a specified time period via the potable water ingestion pathway by the following:

$$R_{apj} = \sum_i \left[\frac{K_{aipj} * \exp(-\lambda_i * t_p) * C_i * V * k}{DF_p * F} \right] \qquad \text{Eq. 2}$$

where:

R_{apj} = Total potable water ingestion dose during period to organ j to individuals of age group a from all radionuclides in pathway p (mrem);

K_{aipj} = Potable water ingestion dose conversion factor to organ j of individuals of age group a from radionuclide i in pathway p (mrem-ft^3/Ci-sec: Attachment B);

λ_i = Radioactive decay constant of radionuclide i (hr^{-1}: Attachment C);

t_p = River transit time (hr: Attachment D);

DF_p = Dilution factor (dimensionless: Attachment D); other factors described in Section 6.1.

6.3 Shoreline Exposure Pathway

6.3.1 The Environmental Services Health Physicist shall determine the dose due to radionuclides released in liquid effluent to unrestricted areas during a specified time period via the shoreline exposure pathway by the following:

$$R_{apj} = \sum_i \left[\frac{K_{aipj}}{F} * C_i * V * k \right] \qquad \text{Eq. 3}$$

where:

R_{apj} = Total shoreline dose during period to organ j (total body or skin) to individuals of age group a from all radionuclides in pathway p (mrem);

K_{aipj} = Shoreline dose conversion factor to organ j of individuals of age group a from radionuclide i in pathway p (mrem-ft^3/Ci-sec: Attachment E);

other factors described in Section 6.1.

6.4 Projected Dose from Liquid Effluent

6.4.1 The Environmental Services Health Physicist shall determine the combined fish, water ingestion and shoreline exposure pathway dose contribution for the projected release period and volume from all radionuclides released in liquid effluent to unrestricted areas using the following equation:

$$R_{apj} = \sum_i [K_{aipj} * C_i * V * k] \qquad \text{Eq. 4}$$

where:

R_{apj} = Total projected dose during period to organ j from fish, water ingestion and shoreline exposure to individuals of age group a from all radionuclides in pathway p (mrem);

K_{aipj} = Composite dose conversion factor (adult, teen, child) or water ingestion dose factor (infant) to organ j of individuals to age group a from radionuclide i in pathway p (mrem/Ci released: Attachment F for Maximum Hypothetical Composite Dose Factors, Attachment G for Maximum Hypothetical Water Ingestion Dose Factors);

other factors described in Section 6.1.

6.5 Use of LADTAP II Computer Program

The Environmental Services Health Physicist shall use the standard site specific information listed in Attachment H when LADTAP II is used for surveillance purposes as described in Attachments F and G to NEPM-QA-1011 and in NEPM-QA-1012.

6.6 Waterborne Effluent Dose Calculations Exceeding Twice the TRM Values

6.6.1 When the results of waterborne dose calculations exceed twice the value of the TR 3.11.1.2.a or 3.11.1.2.b), calculations shall be made including the direct radiation contribution in accordance with NEPM-QA-1012, Offsite Liquid Dose Calculation, to determine if the limits of TR 3.11.3 have been exceeded. If the limits of TR 3.11.3 have been exceeded, a special report shall be prepared and submitted to the NRC within 30 days addressing the actions specified in TR 3.11.3.

7.0 RECORDS

None.

odcm-qa-005(26)

MAXIMUM HYPOTHETICAL DOSE FACTORS FOR FISH PATHWAY

Dose Factors for Fish Pathway: Maximum Hypothetical Adult (Page 1 of 2)
Dose Factor Units: mrem-ft^3/Ci-sec
Location: Outfall/FIXED DILUTION

Usage (Uap) (kg/yr:FISH) 21
Dilution (1/Mp:FISH) 15.90
Transit time (tf) hrs. 25

	Isotope	Bone	Liver	T. Body	Thyroid	Kidney	Lung	GI-LLI
1	H-3	0.00E+00	1.37E-04	1.37E-04	1.37E-04	1.37E-04	1.37E-04	1.37E-04
2	C-14	1.90E+01	3.80E+00	3.80E+00	3.80E+00	3.60E+00	3.80E+00	3.80E+00
3	Na-24	7.78E-02	7.78E-02	7.78E-02	7.78E-02	7.78E-02	7.78E-02	7.78E-02
4	P-32	8.00E+02	4.97E+01	3.09E+01	0.00E+00	0.00E+00	8.00E-03	8.99E+01
5	Cr-51	0.00E+00	0.00E+00	7.53E-04	4.50E-04	1.66E-04	9.99E-04	1.89E-01
6	Mn-54	0.00E+00	2.65E+00	5.06E-01	0.00E+00	7.89E-01	0.00E+00	8.12E+00
7	Mn-56	0.00E+00	8.06E-05	1.43E-05	0.00E+00	1.02E-04	0.00E+00	2.57E-03
8	Fe-55	3.99E-01	2.76E-01	6.43E-02	0.00E+00	0.00E+00	1.54E-01	1.58E-01
9	Fe-59	6.20E-01	1.46E+00	5.59E-01	0.00E+00	0.00E+00	4.07E-01	4.86E+00
10	Co-58	0.00E+00	5.36E-02	1.20E-01	0.00E+00	0.00E+00	0.00E+00	1.09E+00
11	Co-60	0.00E+00	1.55E-01	3.43E-01	0.00E+00	0.00E+00	0.00E+00	2.92E+00
12	Ni-63	1.89E+01	1.31E+00	6.33E-01	0.00E+00	0.00E+00	0.00E+00	2.73E-01
13	Ni-65	7.91E-05	1.03E-05	4.69E-06	0.00E+00	0.00E+00	0.00E+00	2.61E-04
14	Cu-64	0.00E+00	1.55E-03	7.26E-04	0.00E+00	3.90E-03	0.00E+00	1.32E-01
15	Zn-65	1.40E+01	4.46E+01	2.02E+01	0.00E+00	2.98E+01	0.00E+00	2.81E+01
16	Zn-69	2.35E-10	4.49E-10	3.13E-11	0.00E+00	2.92E-10	0.00E+00	6.75E-11
17	Br-83	0.00E+00	0.00E+00	1.74E-05	0.00E+00	0.00E+00	0.00E+00	2.51E-05
18	Br-84	0.00E+00	0.00E+00	2.14E-16	0.00E+00	0.00E+00	0.00E+00	1.68E-21
19	Br-85	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
20	Rb-86	0.00E+00	5.90E+01	2.75E+01	0.00E+00	0.00E+00	0.00E+00	1.16E+01
21	Rb-88	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
22	Rb-89	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
23	Sr-89	1.32E+01	0.00E+00	3.80E-01	0.00E+00	0.00E+00	0.00E+00	2.12E+00
24	Sr-90	3.30E+02	0.00E+00	8.11E+01	6.00E-03	0.00E+00	0.00E+00	9.54E+00
25	Sr-91	3.99E-02	0.00E+00	1.61E-03	0.00E+00	0.00E+00	0.00E+00	1.90E-01
26	Sr-92	1.57E-04	0.00E+00	6.77E-06	0.00E+00	0.00E+00	0.00E+00	3.10E-03
27	Y-90	2.67E-04	0.00E+00	7.15E-06	0.00E+00	0.00E+00	0.00E+00	2.83E+00
28	Y-91m	2.84E-15	0.00E+00	1.10E-16	0.00E+00	0.00E+00	0.00E+00	8.34E-15
29	Y-91	5.06E-03	0.00E+00	1.35E-04	0.00E+00	0.00E+00	0.00E+00	2.78E+00
30	Y-92	2.30E-07	0.00E+00	6.71E-09	0.00E+00	0.00E+00	0.00E+00	4.02E-03
31	Y-93	1.75E-05	0.00E+00	4.83E-07	0.00E+00	0.00E+00	0.00E+00	5.55E-01
32	Zr-95	1.44E-04	4.62E-05	3.13E-05	0.00E+00	7.25E-05	0.00E+00	1.46E-01
33	Zr-97	2.89E-06	5.83E-07	2.67E-07	0.00E+00	8.80E-07	0.00E+00	1.81E-01
34	Nb-95	2.66E-01	1.48E-01	7.94E-02	0.00E+00	1.46E-01	0.00E+00	8.97E+02
35	Mo-99	0.00E+00	4.82E-02	9.16E-03	0.00E+00	1.09E-01	0.00E+00	1.12E-01

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MAXIMUM HYPOTHETICAL DOSE FACTORS FOR FISH PATHWAY

Dose Factors for Fish Pathway: Maximum Hypothetical Adult (Page 2 of 2)
Dose Factor Units: mrem-ft^3/Ci-sec
Location: Outfall/FIXED DILUTION

	Isotope	Bone	Liver	T. Body	Thyroid	Kidney	Lung	GI-LLI
36	Tc-99m	3.03E-07	8.55E-07	1.09E-05	0.00E+00	1.30E-05	4.19E-07	5.06E-04
37	Tc-101	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
38	Ru-103	2.64E-03	0.00E+00	1.14E-03	0.00E+00	1.01E-02	0.00E+00	3.08E-01
39	Ru-105	4.52E-06	0.00E+00	1.78E-06	0.00E+00	5.84E-05	0.00E+00	2.76E-03
40	Ru-106	3.99E-02	0.00E+00	5.05E-03	0.00E+00	7.70E-02	0.00E+00	2.58E+00
41	Ag-110m	5.33E-04	4.93E-04	2.93E-04	0.00E+00	9.70E-04	0.00E+00	2.01E-01
42	Te-125m	1.54E+00	5.57E-01	2.06E-01	4.63E-01	6.26E+00	0.00E+00	6.14E+00
43	Te-127m	3.91E+00	1.40E+00	4.76E-01	9.99E-01	1.59E+01	0.00E+00	1.31E+01
44	Te-127	1.00E-02	3.60E-03	2.17E-03	7.42E-03	4.08E-02	0.00E+00	7.90E-01
45	Te-129m	6.54E+00	2.44E+00	1.04E+00	2.25E+00	2.73E+01	0.00E+00	3.29E+01
46	Te-129	1.79E-02	6.71E-03	4.35E-03	1.37E-02	7.51E-02	0.00E+00	1.35E-02
47	Te-131m	5.64E-01	2.76E-01	2.30E-01	4.37E-01	2.80E+00	0.00E+00	2.74E+01
48	Te-131	1.08E-20	4.51E-21	3.41E-21	8.87E-21	4.73E-20	0.00E+00	1.53E-21
49	Te-132	1.17E+00	7.59E-01	7.12E-01	8.38E-01	7.31E+00	0.00E+00	3.59E+01
50	I-130	4.05E-03	1.20E-02	4.72E-03	1.01E+00	1.87E-02	0.00E+00	1.03E-02
51	I-131	8.29E-02	1.19E-01	6.79E-02	3.88E+01	2.03E-01	0.00E+00	3.13E-02
52	I-132	2.36E-06	6.32E-06	2.21E-06	2.21E-04	1.01E-05	0.00E+00	1.19E-06
53	I-133	1.35E-02	2.34E-02	7.13E-03	3.44E+00	4.08E-02	0.00E+00	2.10E-02
54	I-134	6.26E-12	1.70E-11	6.08E-12	2.94E-10	2.70E-11	0.00E+00	1.48E-14
55	I-135	7.02E-04	1.84E-03	6.78E-04	1.21E-01	2.95E-03	0.00E+00	2.08E-03
56	Cs-134	1.81E+02	4.30E+02	3.51E+02	0.00E+00	1.39E+02	4.62E+01	7.52E+00
57	Cs-136	1.79E+01	7.07E+01	5.09E+01	0.00E+00	3.93E+01	5.39E+00	8.03E+00
58	Cs-137	2.32E+02	3.17E+02	2.07E+02	0.00E+00	1.08E+02	3.57E+01	6.13E+00
59	Cs-138	1.62E-15	3.20E-15	1.59E-15	0.00E+00	2.35E-15	2.32E-16	1.37E-20
60	Ba-139	2.13E-09	1.52E-12	6.23E-11	0.00E+00	1.42E-12	8.60E-13	3.77E-09
61	Ba-140	1.11E-01	1.40E-04	7.30E-03	0.00E+00	4.76E-05	8.02E-05	2.30E-01
62	Ba-141	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
63	Ba-142	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
64	La-140	5.90E-05	2.97E-05	7.86E-06	0.00E+00	0.00E+00	0.00E+00	2.18E+00
65	La-142	8.78E-11	3.99E-11	9.95E-12	0.00E+00	0.00E+00	0.00E+00	2.92E-07
66	Ce-141	1.33E-05	8.99E-06	1.02E-06	0.00E+00	4.18E-06	0.00E+00	3.44E-02
67	Ce-143	1.42E-06	1.05E-03	1.16E-07	0.00E+00	4.61E-07	0.00E+00	3.92E-02
68	Ce-144	7.07E-04	2.96E-04	3.80E-05	0.00E+00	1.75E-04	0.00E+00	2.39E-01
69	Pr-143	3.17E-04	1.27E-04	1.57E-05	0.00E+00	7.34E-05	0.00E+00	1.39E+00
70	Pr-144	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
71	Nd-147	2.14E-04	2.47E-04	1.48E-05	0.00E+00	1.45E-04	0.00E+00	1.19E+00
72	W-187	8.68E-02	7.25E-02	2.54E-02	0.00E+00	0.00E+00	0.00E+00	2.38E+01
73	Np-239	1.27E-05	1.25E-06	6.90E-07	0.00E+00	3.90E-06	0.00E+00	2.57E-01

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MAXIMUM HYPOTHETICAL DOSE FACTORS FOR FISH PATHWAY

Dose Factors for Fish Pathway: Maximum Hypothetical Teen (Page 1 of 2)
Dose Factor Units: mrem-ft^3/Ci-sec
Location: Outfall/FIXED DILUTION

Usage (Uap) (kg/yr: FISH) 16
Dilution (1/Mp:FISH) 15.9
Transit time (tf) hrs. 25

	Isotope	Bone	Liver	T. Body	Thyroid	Kidney	Lung	GI-LLI
1	H-3	0.00E+00	1.06E-04	1.06E-04	1.06E-04	1.06E-04	1.06E-04	1.06E-04
2	C-14	2.07E+01	4.13E+00	4.13E+00	4.13E+00	4.13E+00	4.13E+00	4.13E+00
3	Na-24	8.02E-02	8.02E-02	8.02E-02	8.02E-02	8.02E-02	8.02E-02	8.02E-02
4	P-32	8.71E+02	5.40E+01	3.38E+01	0.00E+00	0.00E+00	0.00E+00	7.32E+01
5	Cr-51	0.00E+00	0.00E+00	7.76E-04	4.31E-04	1.70E-04	1.11E-03	1.30E-01
6	Mn-54	0.00E+00	2.61E+00	5.17E-01	0.00E+00	7.77E-01	0.00E+00	5.35E+00
7	Mn-56	0.00E+00	8.44E-05	1.50E-05	0.00E+00	1.07E-04	0.00E+00	5.55E-03
8	Fe-55	4.18E-01	2.96E-01	6.91E-02	0.00E+00	0.00E+00	1.88E-01	1.28E-01
9	Fe-59	6.39E-01	1.49E+00	5.76E-01	0.00E+00	0.00E+00	4.71E-01	3.53E+00
10	Co-58	0.00E+00	5.33E-02	1.23E-01	0.00E+00	0.00E+00	0.00E+00	7.34E-01
11	Co-60	0.00E+00	1.55E-01	3.50E-01	0.00E+00	0.00E+00	0.00E+00	2.02E+00
12	Ni-63	1.96E+01	1.38E+00	6.64E-01	0.00E+00	0.00E+00	0.00E+00	2.20E-01
13	Ni-65	8.55E-05	1.09E-05	4.98E-06	0.00E+00	0.00E+00	0.00E+00	5.93E-04
14	Cu-64	0.00E+00	1.63E-03	7.65E-04	0.00E+00	4.12E-03	0.00E+00	1.26E-01
15	Zn-65	1.27E+01	4.41E+01	2.06E+01	0.00E+00	2.83E+01	0.00E+00	1.87E+01
16	Zn-69	2.55E-10	4.87E-10	3.41E-11	0.00E+00	3.18E-10	0.00E+00	8.97E-10
17	Br-83	0.00E+00	0.00E+00	1.89E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00
18	Br-84	0.00E+00	0.00E+00	2.26E-16	0.00E+00	0.00E+00	0.00E+00	0.00E+00
19	Br-85	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
20	Rb-86	0.00E+00	6.35E+01	2.98E+01	0.00E+00	0.00E+00	0.00E+00	9.39E+00
21	Rb-88	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
22	Rb-89	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
23	Sr-89	1.44E+01	0.00E+00	4.12E-01	0.00E+00	0.00E+00	0.00E+00	1.72E+00
24	Sr-90	2.76E+02	0.00E+00	6.81E+01	0.00E+00	0.00E+00	0.00E+00	7.74E+00
25	Sr-91	4.32E-02	0.00E+00	1.72E-03	0.00E+00	0.00E+00	0.00E+00	1.96E-01
26	Sr-92	1.69E-04	0.00E+00	7.21E-06	0.00E+00	0.00E+00	0.00E+00	4.31E-03
27	Y-90	2.89E-04	0.00E+00	7.79E-06	0.00E+00	0.00E+00	0.00E+00	2.39E+00
28	Y-91m	3.07E-15	0.00E+00	1.17E-16	0.00E+00	0.00E+00	0.00E+00	1.45E-13
29	Y-91	5.49E-03	0.00E+00	1.47E-04	0.00E+00	0.00E+00	0.00E+00	2.25E+00
30	Y-92	2.51E-07	0.00E+00	7.25E-09	0.00E+00	0.00E+00	0.00E+00	6.88E-03
31	Y-93	1.91E-05	0.00E+00	5.23E-07	0.00E+00	0.00E+00	0.00E+00	5.82E-01
32	Zr-95	1.49E-04	4.70E-05	3.23E-05	0.00E+00	6.90E-05	0.00E+00	1.08E-01
33	Zr-97	3.11E-06	6.14E-07	2.83E-07	0.00E+00	9.32E-07	0.00E+00	1.66E-01
34	Nb-95	2.67E-01	1.48E-01	8.17E-02	0.00E+00	1.44E-01	0.00E+00	6.34E+02
35	Mo-99	0.00E+00	5.13E-02	9.79E-03	0.00E+00	1.17E-01	0.00E+00	9.19E-02

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MAXIMUM HYPOTHETICAL DOSE FACTORS FOR FISH PATHWAY

Dose Factors for Fish Pathway: Maximum Hypothetical Teen (Page 2 of 2)
Dose Factor Units: mrem-ft^3/Ci-sec
Location: Outfall/FIXED DILUTION

	Isotope	Bone	Liver	T. Body	Thyroid	Kidney	Lung	GI-LLI
36	Tc-99m	3.10E-07	8.64E-07	1.12E-05	0.00E+00	1.29E-05	4.80E-07	5.68E-04
37	Tc-101	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
38	Ru-103	2.77E-03	0.00E+00	1.18E-03	0.00E+00	9.77E-03	0.00E+00	2.31E-01
39	Ru-105	4.87E-06	0.00E+00	1.89E-06	0.00E+00	6.14E-05	0.00E+00	3.93E-03
40	Ru-106	4.33E-02	0.00E+00	5.46E-03	0.00E+00	8.35E-02	0.00E+00	2.08E+00
41	Ag-110m	5.20E-04	4.92E-04	3.00E-04	0.00E+00	9.39E-04	0.00E+00	1.38E-01
42	Te-125m	1.67E+00	6.03E-01	2.24E-01	4.68E-01	0.00E+00	0.00E+00	4.94E+00
43	Te-127m	4.25E+00	1.51E+00	5.06E-01	1.01E+00	1.72E+01	0.00E+00	1.06E+01
44	Te-127	1.10E-02	3.89E-03	2.36E-03	7.56E-03	4.44E-02	0.00E+00	8.47E-01
45	Te-129m	7.06E+00	2.62E+00	1.12E+00	2.28E+00	2.96E+01	0.00E+00	2.65E+01
46	Te-129	1.94E-02	7.24E-03	4.72E-03	1.39E-02	8.15E-02	0.00E+00	1.06E-01
47	Te-131m	6.06E-01	2.91E-01	2.43E-01	4.37E-01	3.03E+00	0.00E+00	2.33E+01
48	Te-131	1.16E-20	4.80E-21	3.64E-21	8.97E-21	5.09E-20	0.00E+00	9.56E-22
49	Te-132	1.24E+00	7.84E-01	7.38E-01	8.27E-01	7.52E+00	0.00E+00	2.48E+01
50	I-130	4.21E-03	1.22E-02	4.86E-03	9.93E-01	1.88E-02	0.00E+00	9.36E-03
51	I-131	8.88E-02	1.24E-01	6.68E-02	3.63E+01	2.14E-01	0.00E+00	2.46E-02
52	I-132	2.48E-06	6.48E-06	2.33E-06	2.18E-04	1.02E-05	0.00E+00	2.82E-06
53	I-133	1.45E-02	2.46E-02	7.51E-03	3.44E+00	4.32E-02	0.00E+00	1.86E-02
54	I-134	6.56E-12	1.74E-11	6.25E-12	2.90E-10	2.74E-11	0.00E+00	2.29E-13
55	I-135	7.36E-04	1.89E-03	7.02E-04	1.22E-01	2.99E-03	0.00E+00	2.10E-03
56	Cs-134	1.85E+02	4.36E+02	2.02E+02	0.00E+00	1.38E+02	5.29E+01	5.42E+00
57	Cs-136	1.80E+01	7.08E+01	4.76E+01	0.00E+00	3.86E+01	6.08E+00	5.70E+00
58	Cs-137	2.48E+02	3.30E+02	1.15E+02	0.00E+00	1.12E+02	4.36E+01	4.69E+00
59	Cs-138	1.74E-15	3.34E-15	1.67E-15	0.00E+00	2.46E-15	2.87E-16	1.51E-18
60	Ba-139	2.32E-09	1.64E-12	6.77E-11	0.00E+00	1.54E-12	1.13E-12	2.07E-08
61	Ba-140	1.19E-01	1.46E-04	7.66E-03	0.00E+00	4.94E-05	9.79E-05	1.83E-01
62	Ba-141	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
63	Ba-142	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
64	La-140	6.26E-05	3.08E-05	8.18E-06	0.00E+00	0.00E+00	0.00E+00	1.77E+00
65	La-142	9.36E-11	4.16E-11	1.04E-11	0.00E+00	0.00E+00	0.00E+00	1.27E-06
66	Ce-141	1.44E-05	9.61E-06	1.10E-06	0.00E+00	4.53E-06	0.00E+00	2.75E-02
67	Ce-143	1.54E-06	1.12E-03	1.25E-07	0.00E+00	5.02E-07	0.00E+00	3.37E-02
68	Ce-144	7.68E-04	3.18E-04	4.13E-05	0.00E+00	1.90E-04	0.00E+00	1.93E-01
69	Pr-143	3.44E-04	1.37E-04	1.71E-05	0.00E+00	7.98E-05	0.00E+00	1.13E+00
70	Pr-144	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
71	Nd-147	2.43E-04	2.64E-04	1.58E-05	0.00E+00	1.55E-04	0.00E+00	9.54E-01
72	W-187	9.37E-02	7.64E-02	2.68E-02	0.00E+00	0.00E+00	0.00E+00	2.07E+01
73	Np-239	1.43E-05	1.35E-06	7.51E-07	0.00E+00	4.24E-06	0.00E+00	2.18E-01

Approval	MWS
Date	see page 1

MAXIMUM HYPOTHETICAL DOSE FACTORS FOR FISH PATHWAY

Dose Factors for Fish Pathway: Maximum Hypothetical Child (Page 1 of 2)
Dose Factor Units: mrem-ft^3/Ci-sec
Location: Outfall/FIXED DILUTION

Usage (Uap) (kg/yr: FISH) 6.9
Dilution (1/Mp:FISH) 15.9
Transit time (tf) hrs. 25

	Isotope	Bone	Liver	T. Body	Thyroid	Kidney	Lung	GI-LLI
1	H-3	0.00E+00	8.72E-05	8.72E-05	8.72E-05	8.72E-05	8.72E-05	8.72E-05
2	C-14	2.66E+01	5.31E+00	5.31E+00	5.31E+00	5.31E+00	5.31E+00	5.31E+00
3	Na-24	8.72E-02	8.72E-02	8.72E-02	8.72E-02	8.72E-02	8.72E-02	8.72E-02
4	P-32	1.12E+03	5.26E+01	4.33E+01	0.00E+00	0.00E+00	0.00E+00	3.10E+01
5	Cr-51	0.00E+00	0.00E+00	8.28E-04	4.59E-04	1.26E-04	8.39E-04	4.39E-02
6	Mn-54	0.00E+00	2.04E+00	5.43E-01	0.00E+00	5.72E-01	0.00E+00	1.71E+00
7	Mn-56	0.00E+00	7.69E-05	1.74E-05	0.00E+00	9.30E-05	0.00E+00	1.11E-02
8	Fe-55	5.49E-01	2.91E-01	9.02E-02	0.00E+00	0.00E+00	1.65E-01	5.39E-02
9	Fe-59	7.75E-01	1.25E+00	6.25E-01	0.00E+00	0.00E+00	3.64E-01	1.31E+00
10	Co-58	0.00E+00	4.25E-02	1.30E-01	0.00E+00	0.00E+00	0.00E+00	2.48E-01
11	Co-60	0.00E+00	1.26E-01	3.72E-01	0.00E+00	0.00E+00	0.00E+00	6.99E-01
12	Ni-63	2.57E+01	1.37E+00	8.74E-01	0.00E+00	0.00E+00	0.00E+00	9.26E-02
13	Ni-65	1.09E-04	1.03E-05	6.01E-06	0.00E+00	0.00E+00	0.00E+00	1.26E-03
14	Cu-64	0.00E+00	1.49E-03	9.03E-04	0.00E+00	3.61E-03	0.00E+00	7.01E-02
15	Zn-65	1.30E+01	3.47E+01	2.16E+01	0.00E+00	2.19E+01	0.00E+00	6.10E+00
16	Zn-69	3.28E-10	4.74E-10	4.38E-11	0.00E+00	2.88E-10	0.00E+00	2.99E-08
17	Br-83	0.00E+00	0.00E+00	2.43E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00
18	Br-84	0.00E+00	0.00E+00	2.68E-16	0.00E+00	0.00E+00	0.00E+00	0.00E+00
19	Br-85	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
20	Rb-86	0.00E+00	6.15E+01	3.78E+01	0.00E+00	0.00E+00	0.00E+00	3.96E+00
21	Rb-88	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
22	Rb-89	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
23	Sr-89	1.86E+01	0.00E+00	5.32E-01	0.00E+00	0.00E+00	0.00E+00	7.21E-01
24	Sr-90	2.43E+02	0.00E+00	6.17E+01	0.00E+00	0.00E+00	0.00E+00	3.28E+00
25	Sr-91	5.55E-02	0.00E+00	2.09E-03	0.00E+00	0.00E+00	0.00E+00	1.22E-01
26	Sr-92	2.16E-04	0.00E+00	8.66E-06	0.00E+00	0.00E+00	0.00E+00	4.09E-03
27	Y-90	3.74E-04	0.00E+00	1.00E-05	0.00E+00	0.00E+00	0.00E+00	1.07E+00
28	Y-91m	3.92E-15	0.00E+00	1.43E-16	0.00E+00	0.00E+00	0.00E+00	7.68E-12
29	Y-91	7.10E-03	0.00E+00	1.90E-04	0.00E+00	0.00E+00	0.00E+00	9.45E-01
30	Y-92	3.21E-07	0.00E+00	9.20E-09	0.00E+00	0.00E+00	0.00E+00	9.29E-03
31	Y-93	2.45E-05	0.00E+00	6.72E-07	0.00E+00	0.00E+00	0.00E+00	3.65E-01
32	Zr-95	1.81E-04	3.97E-05	3.54E-05	0.00E+00	5.69E-05	0.00E+00	4.14E-02
33	Zr-97	3.95E-06	5.71E-07	3.37E-07	0.00E+00	8.19E-07	0.00E+00	8.64E-02
34	Nb-95	3.16E-01	1.23E-01	8.78E-02	0.00E+00	1.15E-01	0.00E+00	2.27E+02
35	Mo-99	0.00E+00	4.88E-02	1.21E-02	0.00E+00	1.04E-01	0.00E+00	4.04E-02

Approval MWS
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MAXIMUM HYPOTHETICAL DOSE FACTORS FOR FISH PATHWAY

Dose Factors for Fish Pathway: Maximum Hypothetical Child (Page 2 of 2)
Dose Factor Units: mrem-ft^3/Ci-sec
Location: Outfall/FIXED DILUTION

	Isotope	Bone	Liver	T. Body	Thyroid	Kidney	Lung	GI-LLI
36	Tc-99m	3.72E-07	7.29E-07	1.21E-05	0.00E+00	1.06E-05	3.70E-07	4.15E-04
37	Tc-101	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
38	Ru-103	3.43E-04	0.00E+00	1.32E-03	0.00E+00	8.62E-03	0.00E+00	8.86E-02
39	Ru-105	6.21E-06	0.00E+00	2.25E-06	0.00E+00	5.46E-05	0.00E+00	4.06E-03
40	Ru-106	5.57E-02	0.00E+00	6.96E-03	0.00E+00	7.53E-02	0.00E+00	8.67E-01
41	Ag-110m	5.90E-04	3.98E-04	3.19E-04	0.00E+00	7.42E-04	0.00E+00	4.74E-02
42	Te-125m	2.15E+00	5.83E-01	2.87E-01	6.03E-01	0.00E+00	0.00E+00	2.07E+00
43	Te-127m	5.48E+00	1.48E+00	6.51E-01	1.31E+00	1.56E+01	0.00E+00	4.44E+00
44	Te-127	1.41E-02	3.80E-03	3.02E-03	9.76E-03	4.01E-02	0.00E+00	5.51E-01
45	Te-129m	9.10E+00	2.54E+00	1.41E+00	2.93E+00	2.67E+01	0.00E+00	1.11E+01
46	Te-129	2.50E-02	6.99E-03	5.94E-03	1.79E-02	7.33E-02	0.00E+00	1.56E+00
47	Te-131m	7.72E-01	2.67E-01	2.84E-01	5.49E-01	2.58E+00	0.00E+00	1.08E+01
48	Te-131	1.49E-20	4.55E-21	4.44E-21	1.14E-20	4.52E-20	0.00E+00	7.85E-20
49	Te-132	1.55E+00	6.84E-01	8.26E-01	9.96E-01	6.35E+00	0.00E+00	6.88E+00
50	I-130	5.15E-03	1.04E-02	5.36E-03	1.15E+00	1.55E-02	0.00E+00	4.86E-03
51	I-131	1.13E-01	1.13E-01	6.43E-02	3.74E+01	1.86E-01	0.00E+00	1.01E-02
52	I-132	3.06E-06	5.63E-06	2.59E-06	2.61E-04	8.61E-06	0.00E+00	6.62E-06
53	I-133	1.84E-02	2.28E-02	8.62E-03	4.23E+00	3.80E-02	0.00E+00	9.18E-03
54	I-134	8.12E-12	1.51E-11	6.94E-12	3.47E-10	2.31E-11	0.00E+00	1.00E-11
55	I-135	9.11E-04	1.64E-03	7.76E-04	1.45E-01	2.51E-03	0.00E+00	1.25E-03
56	Cs-134	2.23E+02	3.66E+02	7.73E+01	0.00E+00	1.14E+02	4.07E+01	1.97E+00
57	Cs-136	2.12E+01	5.84E+01	3.78E+01	0.00E+00	3.11E+01	4.64E+00	2.05E+00
58	Cs-137	3.12E+02	2.99E+02	4.41E+01	0.00E+00	9.74E+01	3.50E+01	1.87E+00
59	Cs-138	2.20E-15	3.06E-15	1.94E-15	0.00E+00	2.15E-15	2.32E-16	1.41E-15
60	Ba-139	2.99E-09	1.59E-12	8.65E-11	0.00E+00	1.39E-12	9.37E-13	1.72E-07
61	Ba-140	1.50E-01	1.31E-04	8.75E-03	0.00E+00	4.28E-05	7.83E-05	7.60E-02
62	Ba-141	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
63	Ba-142	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
64	La-140	7.83E-05	2.74E-05	9.23E-06	0.00E+00	0.00E+00	0.00E+00	7.63E-01
65	La-142	1.18E-10	3.77E-11	1.18E-11	0.00E+00	0.00E+00	0.00E+00	7.46E-06
66	Ce-141	1.85E-05	9.24E-06	1.37E-06	0.00E+00	4.05E-06	0.00E+00	1.15E-02
67	Ce-143	1.97E-06	1.07E-03	1.55E-07	0.00E+00	4.49E-07	0.00E+00	1.57E-02
68	Ce-144	9.90E-04	3.10E-04	5.29E-05	0.00E+00	1.72E-04	0.00E+00	8.09E-02
69	Pr-143	4.45E-04	1.34E-04	2.21E-05	0.00E+00	7.23E-05	0.00E+00	4.80E-01
70	Pr-144	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
71	Nd-147	3.12E-04	2.53E-04	1.96E-05	0.00E+00	1.39E-04	0.00E+00	4.00E-01
72	W-187	1.19E-01	7.03E-02	3.16E-02	0.00E+00	0.00E+00	0.00E+00	9.88E+00
73	Np-239	1.84E-05	1.32E-06	9.31E-07	0.00E+00	3.83E-06	0.00E+00	9.80E-02

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MAXIMUM HYPOTHETICAL DOSE FACTORS
FOR POTABLE WATER PATHWAY

Dose Factors for Potable Water Pathway: Maximum Hypothetical Adult (Page 1 of 2)
Dose Factor Units: mrem-ft^3/Ci-sec
Location: Danville Receiver/VARIABLE DILUTION

Usage (Uap) (kg/yr: WATER) 730

	Isotope	Bone	Liver	T. Body	Thyroid	Kidney	Lung	GI-LLI
1	H-3	0.00E+00	8.43E-02	8.43E-02	8.43E-02	8.43E-02	8.43E-02	8.43E-02
2	C-14	2.28E+00	4.56E-01	4.56E-01	4.56E-01	4.56E-01	4.56E-01	4.56E-01
3	Na-24	1.37E+00	1.37E+00	1.37E+00	1.37E+00	1.37E+00	1.37E+00	1.37E+00
4	P-32	1.55E+02	9.64E+00	5.99E+00	0.00E+00	0.00E+00	0.00E+00	1.74E+01
5	Cr-51	0.00E+00	0.00E+00	2.14E-03	1.28E-03	4.71E-04	2.83E-03	5.37E-01
6	Mn-54	0.00E+00	3.67E+00	7.00E-01	0.00E+00	1.09E+00	0.00E+00	1.12E+01
7	Mn-56	0.00E+00	9.23E-02	1.64E-02	0.00E+00	1.17E-01	0.00E+00	2.95E+00
8	Fe-55	2.21E+00	1.53E+00	3.56E-01	0.00E+00	0.00E+00	8.51E-01	8.75E-01
9	Fe-59	3.49E+00	8.19E+00	3.14E+00	0.00E+00	0.00E+00	2.29E+00	2.73E+01
10	Co-58	0.00E+00	5.98E-01	1.34E+00	0.00E+00	0.00E+00	0.00E+00	1.21E+01
11	Co-60	0.00E+00	1.72E+00	3.79E+00	0.00E+00	0.00E+00	0.00E+00	3.23E+01
12	Ni-63	1.04E+02	7.24E+00	3.50E+00	0.00E+00	0.00E+00	0.00E+00	1.51E+00
13	Ni-65	4.24E-01	5.51E-02	2.51E-02	0.00E+00	0.00E+00	0.00E+00	1.40E+00
14	Cu-64	0.00E+00	6.69E-02	3.14E-02	0.00E+00	1.69E-01	0.00E+00	5.70E+00
15	Zn-65	3.89E+00	1.24E+01	5.59E+00	0.00E+00	8.27E+00	0.00E+00	7.79E+00
16	Zn-69	8.27E-03	1.58E-02	1.10E-03	0.00E+00	1.03E-02	0.00E+00	2.38E-03
17	Br-83	0.00E+00	0.00E+00	3.23E-02	0.00E+00	0.00E+00	0.00E+00	4.65E-02
18	Br-84	0.00E+00	0.00E+00	4.18E-02	0.00E+00	0.00E+00	0.00E+00	3.28E-07
19	Br-85	0.00E+00	0.00E+00	1.72E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00
20	Rb-86	0.00E+00	1.69E+01	7.89E+00	0.00E+00	0.00E+00	0.00E+00	3.34E+00
21	Rb-88	0.00E+00	4.86E-02	2.58E-02	0.00E+00	0.00E+00	0.00E+00	6.71E-13
22	Rb-89	0.00E+00	3.22E-02	2.26E-02	0.00E+00	0.00E+00	0.00E+00	1.87E-15
23	Sr-89	2.47E+02	0.00E+00	7.10E+00	0.00E+00	0.00E+00	0.00E+00	3.97E+01
24	Sr-90	6.09E+03	0.00E+00	1.49E+03	0.00E+00	0.00E+00	0.00E+00	1.76E+02
25	Sr-91	4.55E+00	0.00E+00	1.84E-01	0.00E+00	0.00E+00	0.00E+00	2.17E+01
26	Sr-92	1.73E+00	0.00E+00	7.47E-02	0.00E+00	0.00E+00	0.00E+00	3.42E+01
27	Y-90	7.72E-03	0.00E+00	2.07E-04	0.00E+00	0.00E+00	0.00E+00	8.19E+01
28	Y-91m	7.30E-05	0.00E+00	2.83E-06	0.00E+00	0.00E+00	0.00E+00	2.14E-04
29	Y-91	1.13E-01	0.00E+00	3.03E-03	0.00E+00	0.00E+00	0.00E+00	6.23E+01
30	Y-92	6.79E-04	0.00E+00	1.98E-05	0.00E+00	0.00E+00	0.00E+00	1.19E+01
31	Y-93	2.15E-03	0.00E+00	5.94E-05	0.00E+00	0.00E+00	0.00E+00	6.83E+01
32	Zr-95	2.44E-02	7.83E-03	5.30E-03	0.00E+00	1.23E-02	0.00E+00	2.48E+01
33	Zr-97	1.35E-03	2.72E-04	1.24E-04	0.00E+00	4.11E-04	0.00E+00	8.43E+01
34	Nb-95	4.99E-03	2.78E-03	1.49E-03	0.00E+00	2.75E-03	0.00E+00	1.69E+01
35	Mo-99	0.00E+00	3.46E+00	6.58E-01	0.00E+00	7.84E+00	0.00E+00	8.02E+00

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MAXIMUM HYPOTHETICAL DOSE FACTORS
FOR POTABLE WATER PATHWAY

Dose Factors for Potable Water Pathway:Maximum Hypothetical Adult (Page 2 of 2)
Dose Factor Units: mrem-ft^3/Ci-sec
Location: Danville Receiver/VARIABLE DILUTION

	Isotope	Bone	Liver	T. Body	Thyroid	Kidney	Lung	GI-LLI
36	Tc-99m	1.98E-04	5.60E-04	7.14E-03	0.00E+00	8.51E-03	2.75E-04	3.32E-01
37	Tc-101	2.04E-04	2.94E-04	2.88E-03	0.00E+00	5.29E-03	1.50E-04	8.83E-16
38	Ru-103	1.49E-01	0.00E+00	6.40E-02	0.00E+00	5.67E-01	0.00E+00	1.73E+01
39	Ru-105	1.24E-02	0.00E+00	4.88E-03	0.00E+00	1.60E-01	0.00E+00	7.56E+00
40	Ru-106	2.21E+00	0.00E+00	2.79E-01	0.00E+00	4.26E+00	0.00E+00	1.43E+02
41	Ag-110m	1.28E-01	1.19E-01	7.06E-02	0.00E+00	2.34E-01	0.00E+00	4.85E+01
42	Te-125m	2.15E+00	7.80E-01	2.88E-01	6.47E-01	8.75E+00	0.00E+00	8.59E+00
43	Te-127m	5.44E+00	1.94E+00	6.62E-01	1.39E+00	2.21E+01	0.00E+00	1.82E+01
44	Te-127	8.83E-02	3.17E-02	1.91E-02	6.54E-02	3.60E-01	0.00E+00	6.97E+00
45	Te-129m	9.23E+00	3.44E+00	1.46E+00	3.17E+00	3.85E+01	0.00E+00	4.65E+01
46	Te-129	2.52E-02	9.48E-03	6.14E-03	1.94E-02	1.06E-01	0.00E+00	1.90E-02
47	Te-131m	1.39E+00	6.79E-01	5.66E-01	1.08E+00	6.88E+00	0.00E+00	6.75E+01
48	Te-131	1.58E-02	6.61E-03	4.99E-03	1.30E-02	6.93E-02	0.00E+00	2.24E-03
49	Te-132	2.02E+00	1.31E+00	1.23E+00	1.45E+00	1.26E+01	0.00E+00	6.19E+01
50	I-130	6.07E-01	1.79E+00	7.07E-01	1.52E+02	2.79E+00	0.00E+00	1.54E+00
51	I-131	3.34E+00	4.78E+00	2.74E+00	1.57E+03	8.19E+00	0.00E+00	1.26E+00
52	I-132	1.63E-01	4.36E-01	1.53E-01	1.53E+01	6.95E-01	0.00E+00	8.19E-02
53	I-133	1.14E+00	1.98E+00	6.05E-01	2.91E+02	3.46E+00	0.00E+00	1.78E+00
54	I-134	8.51E-02	2.31E-01	8.27E-02	4.01E+00	3.68E-01	0.00E+00	2.02E-04
55	I-135	3.56E-01	9.31E-01	3.44E-01	6.14E+01	1.49E+00	0.00E+00	1.05E+00
56	Cs-134	4.99E+01	1.19E+02	9.72E+01	0.00E+00	3.85E+01	1.28E+01	2.08E+00
57	Cs-136	5.23E+00	2.06E+01	1.49E+01	0.00E+00	1.15E+01	1.57E+00	2.34E+00
58	Cs-137	6.40E+01	8.75E+01	5.73E+01	0.00E+00	2.97E+01	9.88E+00	1.69E+00
59	Cs-138	4.43E-02	8.75E-02	4.34E-02	0.00E+00	6.43E-02	6.35E-03	3.73E-07
60	Ba-139	7.79E-02	5.55E-05	2.28E-03	0.00E+00	5.19E-05	3.15E-05	1.38E-01
61	Ba-140	1.63E+01	2.05E-02	1.07E+00	0.00E+00	6.96E-03	1.17E-02	3.36E+01
62	Ba-141	3.78E-02	2.86E-05	1.28E-03	0.00E+00	2.66E-05	1.62E-05	1.78E-11
63	Ba-142	1.71E-02	1.76E-05	1.08E-03	0.00E+00	1.49E-05	9.96E-06	2.41E-20
64	La-140	2.01E-03	1.01E-03	2.67E-04	0.00E+00	0.00E+00	0.00E+00	7.43E+01
65	La-142	1.03E-04	4.67E-05	1.16E-05	0.00E+00	0.00E+00	0.00E+00	3.41E-01
66	Ce-141	7.52E-03	5.08E-03	5.77E-04	0.00E+00	2.36E-03	0.00E+00	1.94E+01
67	Ce-143	1.32E-03	9.80E-01	1.08E-04	0.00E+00	4.31E-04	0.00E+00	3.66E+01
68	Ce-144	3.92E-01	1.64E-01	2.10E-02	0.00E+00	9.72E-02	0.00E+00	1.32E+02
69	Pr-143	7.39E-03	2.96E-03	3.66E-04	0.00E+00	1.71E-03	0.00E+00	3.24E+01
70	Pr-144	2.42E-05	1.00E-05	1.27E-06	0.00E+00	5.66E-06	0.00E+00	3.48E-12
71	Nd-147	5.05E-03	5.84E-03	3.49E-04	0.00E+00	3.41E-03	0.00E+00	2.80E+01
72	W-187	8.27E-02	6.91E-02	2.42E-02	0.00E+00	0.00E+00	0.00E+00	2.26E+01
73	Np-239	9.56E-04	9.40E-05	5.18E-05	0.00E+00	2.93E-04	0.00E+00	1.93E+01

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MAXIMUM HYPOTHETICAL DOSE FACTORS
FOR POTABLE WATER PATHWAY

Dose Factors for Potable Water Pathway: Maximum Hypothetical Teen (Page 1 of 2)
Dose Factor Units: mrem-ft^3/Ci-sec
Location: Danville Receiver/VARIABLE DILUTION

Usage (Uap) (kg/yr: WATER) 510

	Isotope	Bone	Liver	T. Body	Thyroid	Kidney	Lung	GI-LLI
1	H-3	0.00E+00	5.95E-02	5.95E-02	5.95E-02	5.95E-02	5.95E-02	5.95E-02
2	C-14	2.28E+00	4.56E-01	4.56E-01	4.56E-01	4.56E-01	4.56E-01	4.56E-01
3	Na-24	1.29E+00	1.29E+00	1.29E+00	1.29E+00	1.29E+00	1.29E+00	1.29E+00
4	P-32	1.55E+02	9.59E+00	6.00E+00	0.00E+00	0.00E+00	0.00E+00	1.30E+01
5	Cr-51	0.00E+00	0.00E+00	2.02E-03	1.12E-03	4.43E-04	2.88E-03	3.39E-01
6	Mn-54	0.00E+00	3.31E+00	6.56E-01	0.00E+00	9.87E-01	0.00E+00	6.79E+00
7	Mn-56	0.00E+00	8.86E-02	1.58E-02	0.00E+00	1.12E-01	0.00E+00	5.83E+00
8	Fe-55	2.12E+00	1.50E+00	3.51E-01	0.00E+00	0.00E+00	9.54E-01	6.51E-01
9	Fe-59	3.29E+00	7.69E+00	2.97E+00	0.00E+00	0.00E+00	2.42E+00	1.82E+01
10	Co-58	0.00E+00	5.45E-01	1.26E+00	0.00E+00	0.00E+00	0.00E+00	7.52E+00
11	Co-60	0.00E+00	1.58E+00	3.55E+00	0.00E+00	0.00E+00	0.00E+00	2.05E+01
12	Ni-63	9.93E+01	7.01E+00	3.37E+00	0.00E+00	0.00E+00	0.00E+00	1.12E+00
13	Ni-65	4.20E-01	5.37E-02	2.45E-02	0.00E+00	0.00E+00	0.00E+00	2.91E+00
14	Cu-64	0.00E+00	6.45E-02	3.04E-02	0.00E+00	1.63E-01	0.00E+00	5.00E+00
15	Zn-65	3.23E+00	1.12E+01	5.23E+00	0.00E+00	7.18E+00	0.00E+00	4.75E+00
16	Zn-69	8.25E-03	1.57E-02	1.10E-03	0.00E+00	1.03E-02	0.00E+00	2.89E-02
17	Br-83	0.00E+00	0.00E+00	3.22E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00
18	Br-84	0.00E+00	0.00E+00	4.05E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00
19	Br-85	0.00E+00	0.00E+00	1.71E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00
20	Rb-86	0.00E+00	1.67E+01	7.85E+00	0.00E+00	0.00E+00	0.00E+00	2.47E+00
21	Rb-88	0.00E+00	4.78E-02	2.55E-02	0.00E+00	0.00E+00	0.00E+00	4.10E-09
22	Rb-89	0.00E+00	3.09E-02	2.18E-02	0.00E+00	0.00E+00	0.00E+00	4.73E-11
23	Sr-89	2.47E+02	0.00E+00	7.07E+00	0.00E+00	0.00E+00	0.00E+00	2.94E+01
24	Sr-90	4.66E+03	0.00E+00	1.15E+03	0.00E+00	0.00E+00	0.00E+00	1.31E+02
25	Sr-91	4.53E+00	0.00E+00	1.80E-01	0.00E+00	0.00E+00	0.00E+00	2.05E+01
26	Sr-92	1.71E+00	0.00E+00	7.29E-02	0.00E+00	0.00E+00	0.00E+00	4.36E+01
27	Y-90	7.69E-03	0.00E+00	2.07E-04	0.00E+00	0.00E+00	0.00E+00	6.34E+01
28	Y-91m	7.24E-05	0.00E+00	2.77E-06	0.00E+00	0.00E+00	0.00E+00	3.42E-03
29	Y-91	1.13E-01	0.00E+00	3.02E-03	0.00E+00	0.00E+00	0.00E+00	4.62E+01
30	Y-92	6.79E-04	0.00E+00	1.96E-05	0.00E+00	0.00E+00	0.00E+00	1.86E+01
31	Y-93	2.15E-03	0.00E+00	5.89E-05	0.00E+00	0.00E+00	0.00E+00	6.56E+01
32	Zr-95	2.31E-02	7.29E-03	5.02E-03	0.00E+00	1.07E-02	0.00E+00	1.68E-01
33	Zr-97	1.33E-03	2.63E-04	1.21E-04	0.00E+00	3.99E-04	0.00E+00	7.12E+01
34	Nb-95	4.61E-03	2.56E-03	1.41E-03	0.00E+00	2.48E-03	0.00E+00	1.09E+01
35	Mo-99	0.00E+00	3.38E+00	6.45E-01	0.00E+00	7.74E+00	0.00E+00	6.06E+00

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MAXIMUM HYPOTHETICAL DOSE FACTORS
FOR POTABLE WATER PATHWAY

Dose Factors for Potable Water Pathway: Maximum Hypothetical Teen (Page 2 of 2)
Dose Factor Units: mrem-ft^3/Ci-sec
Location: Danville Receiver/VARIABLE DILUTION

	Isotope	Bone	Liver	T. Body	Thyroid	Kidney	Lung	GI-LLI
36	Tc-99m	1.86E-04	5.19E-04	6.73E-03	0.00E+00	7.74E-03	2.88E-04	3.41E-01
37	Tc-101	2.02E-04	2.87E-04	2.82E-03	0.00E+00	5.19E-03	1.75E-04	4.91E-11
38	Ru-103	1.43E-01	0.00E+00	6.11E-02	0.00E+00	5.04E-01	0.00E+00	1.19E+01
39	Ru-105	1.22E-02	0.00E+00	4.75E-03	0.00E+00	1.54E-01	0.00E+00	9.87E+00
40	Ru-106	2.20E+00	0.00E+00	2.77E-01	0.00E+00	4.24E+00	0.00E+00	1.05E+02
41	Ag-110m	1.15E-01	1.09E-01	6.62E-02	0.00E+00	2.08E-01	0.00E+00	3.06E+01
42	Te-125m	2.15E+00	7.74E-01	2.87E-01	6.00E-01	0.00E+00	0.00E+00	6.34E+00
43	Te-127m	5.42E+00	1.92E+00	6.45E-01	1.29E+00	2.20E+01	0.00E+00	1.35E+01
44	Te-127	8.86E-02	3.14E-02	1.91E-02	6.11E-02	3.59E-01	0.00E+00	6.84E+00
45	Te-129m	9.14E+00	3.39E+00	1.45E+00	2.95E+00	3.83E+01	0.00E+00	3.43E+01
46	Te-129	2.51E-02	9.37E-03	6.11E-03	1.80E-02	1.05E-01	0.00E+00	1.37E-01
47	Te-131m	1.37E+00	6.56E-01	5.48E-01	9.87E-01	6.84E+00	0.00E+00	5.27E+01
48	Te-131	1.57E-02	6.45E-03	4.89E-03	1.21E-02	6.84E-02	0.00E+00	1.28E-03
49	Te-132	1.96E+00	1.24E+00	1.17E+00	1.31E+00	1.19E+01	0.00E+00	3.93E+01
50	I-130	5.78E-01	1.67E+00	6.68E-01	1.36E+02	2.57E+00	0.00E+00	1.28E+00
51	I-131	3.28E+00	4.59E+00	2.47E+00	1.34E+03	7.91E+00	0.00E+00	9.09E-01
52	I-132	1.57E-01	4.10E-01	1.47E-01	1.38E+01	6.45E-01	0.00E+00	1.78E-01
53	I-133	1.13E+00	1.91E+00	5.83E-01	2.67E+02	3.35E+00	0.00E+00	1.45E+00
54	I-134	8.19E-02	2.17E-01	7.80E-02	3.62E+00	3.42E-01	0.00E+00	2.86E-03
55	I-135	3.42E-01	8.81E-01	3.27E-01	5.67E+01	1.39E+00	0.00E+00	9.76E-01
56	Cs-134	4.70E+01	1.11E+02	5.13E+01	0.00E+00	3.51E+01	1.34E+01	1.37E+00
57	Cs-136	4.82E+00	1.90E+01	1.27E+01	0.00E+00	1.03E+01	1.63E+00	1.53E+00
58	Cs-137	6.28E+01	8.36E+01	2.91E+01	0.00E+00	2.84E+01	1.11E+01	1.19E+00
59	Cs-138	4.35E-02	8.36E-02	4.18E-02	0.00E+00	6.17E-02	7.18E-03	3.79E-05
60	Ba-139	7.80E-02	5.49E-05	2.27E-03	0.00E+00	5.17E-05	3.78E-05	6.96E-01
61	Ba-140	1.59E+01	1.95E-02	1.03E+00	0.00E+00	6.62E-03	1.31E-02	2.46E+01
62	Ba-141	3.76E-02	2.81E-05	1.26E-03	0.00E+00	2.61E-05	1.92E-05	8.02E-08
63	Ba-142	1.68E-02	1.68E-05	1.03E-03	0.00E+00	1.42E-05	1.12E-05	5.15E-14
64	La-140	1.95E-03	9.59E-04	2.55E-04	0.00E+00	0.00E+00	0.00E+00	5.51E+01
65	La-142	1.00E-04	4.46E-05	1.11E-05	0.00E+00	0.00E+00	0.00E+00	1.36E+00
66	Ce-141	7.46E-03	4.98E-03	5.72E-04	0.00E+00	2.34E-03	0.00E+00	1.42E+01
67	Ce-143	1.32E-03	9.59E-01	1.07E-04	0.00E+00	4.30E-04	0.00E+00	2.88E+01
68	Ce-144	3.90E-01	1.62E-01	2.10E-02	0.00E+00	9.65E-02	0.00E+00	9.82E+01
69	Pr-143	7.35E-03	2.93E-03	3.66E-04	0.00E+00	1.71E-03	0.00E+00	2.42E+01
70	Pr-144	2.41E-05	9.87E-06	1.22E-06	0.00E+00	5.67E-06	0.00E+00	2.66E-08
71	Nd-147	5.26E-03	5.72E-03	3.43E-04	0.00E+00	3.36E-03	0.00E+00	2.06E+01
72	W-187	8.19E-02	6.68E-02	2.34E-02	0.00E+00	0.00E+00	0.00E+00	1.81E+01
73	Np-239	9.87E-04	9.31E-05	5.17E-05	0.00E+00	2.92E-04	0.00E+00	1.50E+01

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MAXIMUM HYPOTHETICAL DOSE FACTORS
FOR POTABLE WATER PATHWAY

Dose Factors for Potable Water Pathway:Maximum Hypothetical Child (Page 1 of 2)
Dose Factor Units: mrem-ft^3/Ci-sec
Location: Danville Receiver/VARIABLE DILUTION

Usage (Uap) (kg/yr: WATER) 510

	Isotope	Bone	Liver	T. Body	Thyroid	Kidney	Lung	GI-LLI
1	H-3	0.00E+00	1.14E-01	1.14E-01	1.14E-01	1.14E-01	1.14E-01	1.14E-01
2	C-14	6.79E+00	1.36E+00	1.36E+00	1.36E+00	1.36E+00	1.36E+00	1.36E+00
3	Na-24	3.25E+00	3.25E+00	3.25E+00	3.25E+00	3.25E+00	3.25E+00	3.25E+00
4	P-32	4.63E+02	2.17E+01	1.78E+01	0.00E+00	0.00E+00	0.00E+00	1.28E+01
5	Cr-51	0.00E+00	0.00E+00	4.99E-03	2.77E-03	7.57E-04	5.06E-03	2.65E-01
6	Mn-54	0.00E+00	0.00E+00	1.60E+00	0.00E+00	1.68E+00	0.00E+00	5.04E+00
7	Mn-56	0.00E+00	1.87E-01	4.23E-02	0.00E+00	2.27E-01	0.00E+00	2.72E+01
8	Fe-55	6.45E+00	3.42E+00	1.06E+00	0.00E+00	0.00E+00	1.94E+00	6.34E-01
9	Fe-59	9.26E+00	1.50E+01	7.46E+00	0.00E+00	0.00E+00	4.34E+00	1.56E+01
10	Co-58	0.00E+00	1.01E+00	3.09E+00	0.00E+00	0.00E+00	0.00E+00	5.89E+00
11	Co-60	0.00E+00	2.97E+00	8.75E+00	0.00E+00	0.00E+00	0.00E+00	1.64E+01
12	Ni-63	3.02E+02	1.62E+01	1.03E+01	0.00E+00	0.00E+00	0.00E+00	1.09E+00
13	Ni-65	1.25E+00	1.17E-01	6.84E-02	0.00E+00	0.00E+00	0.00E+00	1.44E+01
14	Cu-64	0.00E+00	1.37E-01	8.30E-02	0.00E+00	3.32E-01	0.00E+00	6.45E+00
15	Zn-65	7.69E+00	2.05E+01	1.27E+01	0.00E+00	1.29E+01	0.00E+00	3.60E+00
16	Zn-69	2.46E-02	3.55E-02	3.28E-03	0.00E+00	2.15E-02	0.00E+00	2.24E+00
17	Br-83	0.00E+00	0.00E+00	9.59E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00
18	Br-84	0.00E+00	0.00E+00	1.11E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
19	Br-85	0.00E+00	0.00E+00	5.12E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00
20	Rb-86	0.00E+00	3.76E+01	2.31E+01	0.00E+00	0.00E+00	0.00E+00	2.42E+00
21	Rb-88	0.00E+00	1.07E-01	7.41E-02	0.00E+00	0.00E+00	0.00E+00	5.23E-03
22	Rb-89	0.00E+00	6.56E-02	5.83E-02	0.00E+00	0.00E+00	0.00E+00	5.72E-04
23	Sr-89	7.41E+02	0.00E+00	2.11E+01	0.00E+00	0.00E+00	0.00E+00	2.87E+01
24	Sr-90	9.54E+03	0.00E+00	2.42E+03	0.00E+00	0.00E+00	0.00E+00	1.28E+02
25	Sr-91	1.35E+01	0.00E+00	5.08E-01	0.00E+00	0.00E+00	0.00E+00	2.97E+01
26	Sr-92	5.07E+00	0.00E+00	2.03E-01	0.00E+00	0.00E+00	0.00E+00	9.59E+01
27	Y-90	2.31E-02	0.00E+00	6.17E-04	0.00E+00	0.00E+00	0.00E+00	6.56E+01
28	Y-91m	2.14E-04	0.00E+00	7.80E-06	0.00E+00	0.00E+00	0.00E+00	4.20E-01
29	Y-91	3.38E-01	0.00E+00	9.03E-03	0.00E+00	0.00E+00	0.00E+00	4.50E+01
30	Y-92	2.02E-03	0.00E+00	5.78E-05	0.00E+00	0.00E+00	0.00E+00	5.83E+01
31	Y-93	6.40E-03	0.00E+00	1.76E-04	0.00E+00	0.00E+00	0.00E+00	9.54E+01
32	Zr-95	6.51E-02	1.43E+02	1.27E-02	0.00E+00	2.05E-02	0.00E+00	1.49E+01
33	Zr-97	3.92E-03	5.67E-04	3.34E-04	0.00E+00	8.13E-04	0.00E+00	8.58E+01
34	Nb-95	1.26E-02	4.91E-03	3.51E-03	0.00E+00	4.62E-03	0.00E+00	9.09E+00
35	Mo-99	0.00E+00	7.46E+00	1.85E+00	0.00E+00	1.59E+01	0.00E+00	6.17E+00

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MAXIMUM HYPOTHETICAL DOSE FACTORS
FOR POTABLE WATER PATHWAY

Dose Factors for Potable Water Pathway:Maximum Hypothetical Child (Page 2 of 2)
Dose Factor Units: mrem-ft^3/Ci-sec
Location: Danville Receiver/VARIABLE DILUTION

	Isotope	Bone	Liver	T. Body	Thyroid	Kidney	Lung	GI-LLI
36	Tc-99m	5.18E-04	1.02E-03	1.68E-02	0.00E+00	1.48E-02	5.16E-04	5.78E-01
37	Tc-101	6.00E-04	6.28E-04	7.97E-03	0.00E+00	1.07E-02	3.32E-04	2.00E-03
38	Ru-103	4.10E-01	0.00E+00	1.58E-01	0.00E+00	1.03E+00	0.00E+00	1.06E+01
39	Ru-105	3.62E-02	0.00E+00	1.31E-02	0.00E+00	3.18E-01	0.00E+00	2.36E+01
40	Ru-106	6.56E+00	0.00E+00	8.19E-01	0.00E+00	8.86E+00	0.00E+00	1.02E+02
41	Ag-110m	3.02E-01	2.04E-01	1.63E-01	0.00E+00	3.80E-01	0.00E+00	2.43E+01
42	Te-125m	6.40E+00	1.73E+00	8.53E-01	1.80E+00	0.00E+00	0.00E+00	6.17E+00
43	Te-127m	1.62E+01	4.36E+00	1.92E+00	3.88E+00	4.62E+01	0.00E+00	1.31E+01
44	Te-127	2.64E-01	7.12E-02	5.67E-02	1.83E-01	7.52E-01	0.00E+00	1.03E+01
45	Te-129m	2.73E+01	7.63E+00	4.24E+00	8.81E+00	8.02E+01	0.00E+00	3.33E+01
46	Te-129	7.52E-02	2.10E-02	1.78E-02	5.36E-02	2.20E-01	0.00E+00	4.68E+00
47	Te-131m	4.04E+00	1.40E+00	1.49E+00	2.87E+00	1.35E+01	0.00E+00	5.67E+01
48	Te-131	4.66E-02	1.42E-02	1.39E-02	3.56E-02	1.41E-01	0.00E+00	2.45E-01
49	Te-132	5.67E+00	2.51E+00	3.03E+00	3.65E+00	2.33E+01	0.00E+00	2.52E+01
50	I-130	1.64E+00	3.31E+00	1.71E+00	3.65E+02	4.95E+00	0.00E+00	1.55E+00
51	I-131	9.65E+00	9.71E+00	5.51E+00	3.21E+03	1.59E+01	0.00E+00	8.64E-01
52	I-132	4.49E-01	8.25E-01	3.79E-01	3.83E+01	1.26E+00	0.00E+00	9.71E-01
53	I-133	3.32E+00	4.11E+00	1.55E+00	7.63E+02	6.84E+00	0.00E+00	1.65E+00
54	I-134	2.35E-01	4.36E-01	2.01E-01	1.00E+01	6.68E-01	0.00E+00	2.89E-01
55	I-135	9.82E-01	1.77E+00	8.36E-01	1.57E+02	2.71E+00	0.00E+00	1.35E+00
56	Cs-134	1.31E+02	2.15E+02	4.54E+01	0.00E+00	6.68E+01	2.40E+01	1.16E+00
57	Cs-136	1.32E+01	3.62E+01	2.34E+01	0.00E+00	1.93E+01	2.88E+00	1.27E+00
58	Cs-137	1.83E+02	1.76E+02	2.59E+01	0.00E+00	5.72E+01	2.06E+01	1.10E+00
59	Cs-138	1.28E-01	1.78E-01	1.13E-01	0.00E+00	1.25E-01	1.35E-02	8.19E-02
60	Ba-139	2.32E-01	1.24E-04	6.73E-03	0.00E+00	1.08E-04	7.29E-05	1.34E+01
61	Ba-140	4.66E+01	4.08E-02	2.72E+00	0.00E+00	1.33E-02	2.43E-02	2.36E+01
62	Ba-141	1.12E-01	6.28E-05	3.65E-03	0.00E+00	5.44E-05	3.69E-04	6.40E-02
63	Ba-142	4.90E-02	3.53E-05	2.74E-03	0.00E+00	2.86E-05	2.08E-05	6.40E-04
64	La-140	5.67E-03	1.98E-03	6.68E-04	0.00E+00	0.00E+00	0.00E+00	5.52E+01
65	La-142	2.94E-04	9.37E-05	2.93E-05	0.00E+00	0.00E+00	0.00E+00	1.86E+01
66	Ce-141	2.23E-02	1.11E-02	1.65E-03	0.00E+00	4.87E-03	0.00E+00	1.39E+01
67	Ce-143	3.92E-03	2.13E+00	3.08E-04	0.00E+00	8.92E-04	0.00E+00	3.11E+01
68	Ce-144	1.17E+00	3.66E-01	6.23E-02	0.00E+00	2.03E-01	0.00E+00	9.54E+01
69	Pr-143	2.20E-02	6.62E-03	1.09E-03	0.00E+00	3.58E-03	0.00E+00	2.38E+01
70	Pr-144	7.24E-05	2.24E-05	3.64E-06	0.00E+00	1.18E-05	0.00E+00	4.82E-02
71	Nd-147	1.57E-02	1.27E-02	9.82E-04	0.00E+00	6.96E-03	0.00E+00	2.01E+01
72	W-187	2.41E-01	1.42E-01	6.40E-02	0.00E+00	0.00E+00	0.00E+00	2.00E+01
73	Np-239	2.95E-03	2.11E-04	1.49E-04	0.00E+00	6.11E-04	0.00E+00	1.57E+01

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MAXIMUM HYPOTHETICAL DOSE FACTORS
FOR POTABLE WATER PATHWAY

Dose Factors for Potable Water Pathway:Maximum Hypothetical Infant (Page 1 of 2)
Dose Factor Units: mrem-ft^3/Ci-sec
Location: Danville Receiver/VARIABLE DILUTION

Usage (Uap) (kg/yr: WATER) 330

	Isotope	Bone	Liver	T. Body	Thyroid	Kidney	Lung	GI-LLI
1	H-3	0.00E+00	1.12E-01	1.12E-01	1.12E-01	1.12E-01	1.12E-01	1.12E-01
2	C-14	8.60E+00	1.84E+00	1.84E+00	1.84E+00	1.84E+00	1.84E+00	1.84E+00
3	Na-24	3.67E+00	3.67E+00	3.67E+00	3.67E+00	3.67E+00	3.67E+00	3.67E+00
4	P-32	6.17E+02	3.63E+01	2.39E+01	0.00E+00	0.00E+00	0.00E+00	8.35E+00
5	Cr-51	0.00E+00	0.00E+00	5.12E-03	3.34E-03	7.30E-04	6.50E-03	1.49E-01
6	Mn-54	0.00E+00	7.22E+00	1.64E+00	0.00E+00	1.60E+00	0.00E+00	2.65E+00
7	Mn-56	0.00E+00	2.97E-01	5.12E-02	0.00E+00	2.55E-01	0.00E+00	2.70E+01
8	Fe-55	5.05E+00	3.26E+00	8.71E-01	0.00E+00	0.00E+00	1.59E+00	4.14E-01
9	Fe-59	1.12E+01	1.95E+01	7.70E+00	0.00E+00	0.00E+00	5.77E+00	9.33E+00
10	Co-58	0.00E+00	1.31E+00	3.26E+00	0.00E+00	0.00E+00	0.00E+00	3.26E+00
11	Co-60	0.00E+00	3.92E+00	9.26E+00	0.00E+00	0.00E+00	0.00E+00	9.33E+00
12	Ni-63	2.30E+02	1.42E+01	7.99E+00	0.00E+00	0.00E+00	0.00E+00	7.08E-01
13	Ni-65	1.71E+00	1.93E-01	8.78E-02	0.00E+00	0.00E+00	0.00E+00	1.47E+01
14	Cu-64	0.00E+00	2.21E-01	1.02E-01	0.00E+00	3.74E-01	0.00E+00	4.54E+00
15	Zn-65	6.68E+00	2.29E+01	1.06E+01	0.00E+00	1.11E+01	0.00E+00	1.93E+01
16	Zn-69	3.39E-02	6.10E-02	4.54E-03	0.00E+00	2.53E-02	0.00E+00	4.97E+00
17	Br-83	0.00E+00	0.00E+00	1.32E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
18	Br-84	0.00E+00	0.00E+00	1.39E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
19	Br-85	0.00E+00	0.00E+00	7.04E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00
20	Rb-86	0.00E+00	6.17E+01	3.05E+01	0.00E+00	0.00E+00	0.00E+00	1.58E+00
21	Rb-88	0.00E+00	1.81E-01	9.91E-02	0.00E+00	0.00E+00	0.00E+00	1.76E-01
22	Rb-89	0.00E+00	1.04E-01	7.15E-02	0.00E+00	0.00E+00	0.00E+00	3.54E-02
23	Sr-89	9.11E+02	0.00E+00	2.61E+01	0.00E+00	0.00E+00	0.00E+00	1.87E+01
24	Sr-90	6.72E+03	0.00E+00	1.71E+03	0.00E+00	0.00E+00	0.00E+00	8.39E+01
25	Sr-91	1.82E+01	0.00E+00	6.57E-01	0.00E+00	0.00E+00	0.00E+00	2.15E+01
26	Sr-92	6.97E+00	0.00E+00	2.59E-01	0.00E+00	0.00E+00	0.00E+00	7.51E+01
27	Y-90	3.15E-02	0.00E+00	8.46E-04	0.00E+00	0.00E+00	0.00E+00	4.36E+01
28	Y-91m	2.94E-04	0.00E+00	1.00E-05	0.00E+00	0.00E+00	0.00E+00	9.80E-01
29	Y-91	4.10E-01	0.00E+00	1.09E-02	0.00E+00	0.00E+00	0.00E+00	2.94E+01
30	Y-92	2.78E-03	0.00E+00	7.80E-05	0.00E+00	0.00E+00	0.00E+00	5.30E+01
31	Y-93	8.82E-03	0.00E+00	2.40E-04	0.00E+00	0.00E+00	0.00E+00	6.97E+01
32	Zr-95	7.48E-02	1.82E-02	1.29E-02	0.00E+00	1.96E-02	0.00E+00	9.08E+00
33	Zr-97	5.37E-03	9.22E-04	4.21E-04	0.00E+00	9.29E-04	0.00E+00	5.88E+01
34	Nb-95	1.52E-02	6.28E-03	3.63E-03	0.00E+00	4.50E-03	0.00E+00	5.30E+00
35	Mo-99	0.00E+00	1.23E+01	2.41E+00	0.00E+00	1.84E+01	0.00E+00	4.07E+00

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MAXIMUM HYPOTHETICAL DOSE FACTORS
FOR POTABLE WATER PATHWAY

Dose Factors for Potable Water Pathway:Maximum Hypothetical Infant (Page 2 of 2)
Dose Factor Units: mrem-ft^3/Ci-sec
Location: Danville Receiver/VARIABLE DILUTION

	Isotope	Bone	Liver	T. Body	Thyroid	Kidney	Lung	GI-LLI
36	Tc-99m	6.97E-04	1.44E-03	1.85E-02	0.00E+00	1.55E-02	7.51E-04	4.17E-01
37	Tc-101	8.24E-04	1.04E-03	1.03E-02	0.00E+00	1.23E-02	5.66E-04	1.76E-01
38	Ru-103	5.37E-01	0.00E+00	1.80E-01	0.00E+00	1.12E+00	0.00E+00	6.53E+00
39	Ru-105	4.94E-02	0.00E+00	1.66E-02	0.00E+00	3.63E-01	0.00E+00	1.96E+01
40	Ru-106	8.75E+00	0.00E+00	1.09E+00	0.00E+00	1.03E+01	0.00E+00	6.64E+01
41	Ag-110m	3.62E-01	2.64E-01	1.75E-01	0.00E+00	3.78E-01	0.00E+00	1.37E+01
42	Te-125m	8.46E+00	2.83E+00	1.14E+00	2.85E+00	0.00E+00	0.00E+00	4.03E+00
43	Te-127m	2.12E+01	7.04E+00	2.57E+00	6.13E+00	5.23E+01	0.00E+00	8.57E+00
44	Te-127	3.63E-01	1.22E-01	7.80E-02	2.95E-01	8.86E-01	0.00E+00	7.62E+00
45	Te-129m	3.63E+01	1.25E+01	5.59E+00	1.39E+01	9.08E+01	0.00E+00	2.17E+01
46	Te-129	1.03E-01	3.55E-02	2.41E-02	8.64E-02	2.57E-01	0.00E+00	8.24E+00
47	Te-131m	5.52E+00	2.22E+00	1.83E+00	4.50E+00	1.53E+01	0.00E+00	3.74E+01
48	Te-131	6.39E-02	2.36E-02	1.79E-02	5.70E-02	1.63E-01	0.00E+00	2.58E+00
49	Te-132	7.55E+00	3.74E+00	3.49E+00	5.52E+00	2.34E+01	0.00E+00	1.38E+01
50	I-130	2.18E+00	4.79E+00	1.92E+00	5.37E+02	5.26E+00	0.00E+00	1.03E+00
51	I-131	1.30E+01	1.54E+01	6.75E+00	5.05E+03	1.79E+01	0.00E+00	5.48E-01
52	I-132	6.03E-01	1.22E+00	4.36E-01	5.74E+01	1.36E+00	0.00E+00	9.91E-01
53	I-133	4.54E+00	6.61E+00	1.93E+00	1.20E+03	7.77E+00	0.00E+00	1.12E+00
54	I-134	3.15E-01	6.46E-01	2.30E-01	1.51E+01	7.22E-01	0.00E+00	6.68E-01
55	I-135	1.32E+00	2.63E+00	9.58E-01	2.36E+02	2.93E+00	0.00E+00	9.51E-01
56	Cs-134	1.37E+02	2.55E+02	2.58E+01	0.00E+00	6.57E+01	2.69E+01	6.93E-01
57	Cs-136	1.67E+01	4.90E+01	1.83E+01	0.00E+00	1.95E+01	3.99E+00	7.44E-01
58	Cs-137	1.89E+02	2.22E+02	1.57E+01	0.00E+00	5.95E+01	2.41E+01	6.93E-01
59	Cs-138	1.75E-01	2.84E-01	1.38E-01	0.00E+00	1.42E-01	2.21E-02	4.54E-01
60	Ba-139	3.20E-01	2.12E-04	9.26E-03	0.00E+00	1.27E-04	1.29E-04	2.03E+01
61	Ba-140	6.21E+01	6.21E-02	3.20E+00	0.00E+00	1.47E-02	3.81E-02	1.52E+01
62	Ba-141	1.54E-01	1.06E-04	4.86E-03	0.00E+00	6.35E-05	6.43E-05	1.88E+00
63	Ba-142	6.68E-02	5.55E-05	3.29E-03	0.00E+00	3.20E-05	3.36E-05	2.76E-01
64	La-140	7.66E-03	3.02E-03	7.77E-04	0.00E+00	0.00E+00	0.00E+00	3.55E+01
65	La-142	3.99E-04	1.47E-04	3.51E-05	0.00E+00	0.00E+00	0.00E+00	2.49E+01
66	Ce-141	2.86E-02	1.74E-02	2.05E-03	0.00E+00	5.37E-03	0.00E+00	9.00E+00
67	Ce-143	5.37E-03	3.56E+00	4.07E-04	0.00E+00	1.04E-03	0.00E+00	2.08E+01
68	Ce-144	1.08E+00	4.43E-01	6.06E-02	0.00E+00	1.79E-01	0.00E+00	6.21E+01
69	Pr-143	2.95E-02	1.10E-02	1.46E-03	0.00E+00	4.10E-03	0.00E+00	1.56E+01
70	Pr-144	9.95E-05	3.85E-05	5.01E-06	0.00E+00	1.39E-05	0.00E+00	1.79E+00
71	Nd-147	2.01E-02	2.06E-02	1.26E-03	0.00E+00	7.95E-03	0.00E+00	1.31E+01
72	W-187	3.28E-01	2.28E-01	7.88E-02	0.00E+00	0.00E+00	0.00E+00	1.34E+01
73	Np-239	4.03E+00	3.60E-04	2.04E-04	0.00E+00	7.19E-04	0.00E+00	1.04E+01

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RADIOACTIVE DECAY CONSTANTS

	Isotope	Half-life	Period (S.M.H.D.Y)	Decay Constant (Hr-1)		Isotope	Half-life	Period (S.M.H.D.Y)	Decay Constant (Hr-1)
1	H-3	12.28	Y	6.44E-06	38	Ru-103	39.35	D	7.34E-04
2	C-14	5730	Y	1.38E-08	39	Ru-105	4.44	H	1.56E-01
3	Na-24	15	H	4.62E-02	40	Ru-106	368.2	D	7.84E-06
4	P-32	14.29	D	2.02E-03	41	Ag-110m	249.85	D	1.16E-04
5	Cr-51	27.704	D	1.04E-03	42	Te-125m	58	D	4.98E-04
6	Mn-54	312.7	D	9.24E-05	43	Te-127m	109	D	2.65E-04
7	Mn-56	2.5785	H	2.69E-01	44	Te-127	9.35	H	7.41E-02
8	Fe-55	2.7	Y	2.93E-05	45	Te-129m	33.6	D	8.60E-04
9	Fe-59	44.63	D	6.47E-04	46	Te-129	69.6	M	5.98E-01
10	Co-58	70.8	D	4.08E-04	47	Te-131m	30	H	2.31E-02
11	Co-60	5.271	Y	1.50E-05	48	Te-131	25	M	1.66E+00
12	Ni-63	100.1	Y	7.90E-07	49	Te-132	78.2	H	8.86E-03
13	Ni-65	2.52	H	2.75E-01	50	I-130	12.36	H	5.61E-02
14	Cu-64	12.701	H	5.46E-02	51	I-131	8.04	D	3.59E-03
15	Zn-65	244.4	D	1.18E-04	52	I-132	2.3	H	3.01E-01
16	Zn-69	55.6	M	7.47E-01	53	I-133	20.8	H	3.33E-02
17	Br-83	2.39	H	2.90E-01	54	I-134	52.6	M	7.89E-01
18	Br-84	31.8	M	1.31E+00	55	I-135	6.61	H	1.05E-01
19	Br-85	172	S	1.45E+01	56	Cs-134	2.062	Y	3.84E-05
20	Rb-86	18.66	D	1.55E-03	57	Cs-136	13.16	D	2.19E-03
21	Rb-88	17.8	M	2.33E+00	58	Cs-137	30.17	Y	2.62E-06
22	Rb-89	15.44	M	2.69E+00	59	Cs-138	32.2	M	1.29E+00
23	Sr-89	50.55	D	5.71E-04	60	Ba-139	83.1	M	4.99E-01
24	Sr-90	28.6	Y	2.77E-06	61	Ba-140	12.789	D	2.26E-03
25	Sr-91	9.5	H	7.30E-02	62	Ba-141	18.27	M	2.27E+00
26	Sr-92	2.71	H	2.56E-01	63	Ba-142	10.7	M	3.88E+00
27	Y-90	64.1	H	1.08E-02	64	La-140	40.22	H	1.72E-02
28	Y-91m	49.71	M	8.35E-01	65	La-142	95.4	M	4.35E-01
29	Y-91	58.51	D	4.94E-04	66	Ce-141	32.5	D	8.89E-04
30	Y-92	3.54	H	1.96E-01	67	Ce-143	33	H	2.10E-02
31	Y-93	10.1	H	6.86E-02	68	Ce-144	284.3	D	1.02E-04
32	Zr-95	64.02	D	4.51E-04	69	Pr-143	13.56	D	2.13E-03
33	Zr-97	16.9	H	4.10E-02	70	Pr-144	17.28	M	2.40E+00
34	Nb-95	35.06	D	8.24E-04	71	Nd-147	10.98	D	2.63E-03
35	Mo-99	66.02	H	1.05E-02	72	W-187	23.83	H	2.91E-02
36	Tc-99m	6.02	H	1.15E-01	73	Np-239	2.355	D	1.23E-02
37	Tc-101	14.2	M	2.92E+00					

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DILUTION FACTORS AND TRANSIT TIMES FOR SSES EFFLUENTS TO DANVILLE, PA

RIVER DEPTH MEAS. AT ENV. LAB (FEET)	RIVER DEPTH MEAS. AT MCR (INCHES)	RIVER DISCHARGE (CFS)	LEADING EDGE (HOURS)	DILUTION FACTOR
1.5	144	500	68.7	136.4
1.6	145	530	67.8	140.1
1.8	148	600	66.3	147.3
2	150	670	64.8	155.5
2.2	152	730	63.3	164.5
2.4	155	780	61.8	173.9
2.5*	156*	825*	61.1*	179.1*
2.6	157	870	60.3	184.5
2.8	160	930	58.8	195.7
3	162	1000	57.2	208.3
3.2	164	1200	52.7	250.6
3.4	167	1400	48.2	291.5
3.5*	168*	1500*	45.9*	280.9*
3.6	169	1600	43.5	271.0
3.8	172	1800	39.0	250.6
4	174	2000	35.5	250.6
4.2	176	2280	35.2	254.5
4.4	179	2560	34.7	259.1
4.5*	180*	2730*	34.5*	261.4*
4.6	181	2900	34.2	263.9
4.8	184	3300	33.7	270.3
5	186	3700	33.0	277.8
5.2	188	4140	32.3	284.1
5.4	191	4580	31.7	292.4
5.5*	192*	4820*	31.4*	297.2*
5.6	193	5060	31.0	302.1
5.8	196	5580	30.2	312.5
6	198	6100	29.5	323.6
6.2	200	6780	28.5	339.0
6.4	203	7460	27.5	354.6
6.5*	204*	7890*	26.9*	366.3*
6.6	205	8320	26.2	378.8

* Interpolated value

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DILUTION FACTORS AND TRANSIT TIMES FOR SSES EFFLUENTS TO DANVILLE, PA

RIVER DEPTH MEAS. AT ENV. LAB (FEET)	RIVER DEPTH MEAS. AT MCR (INCHES)	RIVER DISCHARGE (CFS)	LEADING EDGE (HOURS)	DILUTION FACTOR
6.8	208	9360	24.7	413.2
7	210	10400	23.0	456.6
7.5	216	12500	20.0	588.2
8	222	14900	16.5	869.6
8.5	228	17500	15.3	980.4
9	234	20700	14.7	1071.8
9.5	240	24000	14.2	1173.7
10	246	27000	13.5	1285.3
10.5	252	30100	13.0	1373.6
11	258	34570	12.2	1567.4
11.5	264	38730	11.3	1795.3
12	270	42530	10.7	2057.6
12.5	276	46490	10.0	2398.1
13	282	50630	10.0	2597.4
13.5	288	54940	10.0	2832.9
14	294	59430	9.8	3067.5
14.5	300	64090	9.8	3311.3
15	306	68930	9.8	3558.7
15.5*	312*	74030*	9.8*	3802.3*
16	318	79130	9.8	4081.6
16.5*	324*	84580*	9.8*	4347.8*
17	330	90030	9.7	4651.2
17.5*	336*	95830*	9.7*	4926.1*
18	342	101630	9.7	5235.6
18.5*	348*	107780*	9.7*	5540.2*
19	354	113930	9.7	5882.4
19.5*	360*	120430*	9.6*	6192.0*
20	366	126930	9.5	6535.9
20.5*	372*	133780*	9.5*	6872.9*
21	378	140630	9.5	7246.4
21.5*	384*	147830*	9.4*	7604.6*
22	390	155030	9.3	8000.0

* Interpolated value

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MAXIMUM HYPOTHETICAL DOSE FACTORS FOR SHORE EXPOSURE PATHWAY

Dose Factors for Shore Exposure Pathway: All Age Groups (Page 1 of 2)
Dose Factor Units: mrem-ft^3/Ci-sec
Location: Edge of Initial Mixing Zone/FIXED DILUTION

Dilution (1/Mp:SHORE) 15.9
Transit time (ts) hrs. 1
Sediment dep. time (tb) hrs = 131400

		ADULT		TEEN		CHILD	
Usage (USP) (hr/yr) =		12		67		14	
	Isotope	T. Body	Skin	T. Body	Skin	T. Body	Skin
1	H-3	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2	C-14	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3	Na-24	2.48E-04	2.87E-04	1.38E-03	1.60E-03	2.89E-04	3.35E-04
4	P-32	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
5	Cr-51	1.01E-04	1.19E-04	5.64E-04	6.67E-04	1.18E-04	1.39E-04
6	Mn-54	3.01E-02	3.53E-02	1.68E-01	1.97E-01	3.51E-02	4.12E-02
7	Mn-56	1.50E-05	1.77E-05	8.37E-05	9.90E-05	1.75E-05	2.07E-05
8	Fe-55	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
9	Fe-59	5.92E-03	6.96E-03	3.31E-02	3.89E-02	6.91E-03	8.12E-03
10	Co-58	8.23E-03	9.64E-03	4.59E-02	5.38E-02	9.60E-03	1.12E-02
11	Co-60	4.68E-01	5.50E-01	2.61E+00	3.07E+00	5.45E-01	6.42E-01
12	Ni-63	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
13	Ni-65	4.90E-06	5.69E-06	2.74E-05	3.18E-05	5.72E-06	6.64E-06
14	Cu-64	1.25E-05	1.41E-05	6.97E-05	7.90E-05	1.46E-05	1.65E-05
15	Zn-65	1.62E-02	1.87E-02	9.06E-02	1.04E-01	1.89E-02	2.18E-02
16	Zn-69	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
17	Br-83	7.92E-08	1.15E-07	4.42E-07	6.42E-07	9.24E-08	1.34E-07
18	Br-84	1.20E-06	1.39E-06	6.67E-06	7.79E-06	1.39E-06	1.63E-06
19	Br-85	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
20	Rb-86	1.95E-04	2.23E-04	1.09E-03	1.24E-03	2.27E-04	2.60E-04
21	Rb-88	6.99E-08	7.99E-08	3.90E-07	4.46E-07	8.16E-08	9.32E-08
22	Rb-89	1.82E-07	2.18E-07	1.02E-06	1.22E-06	2.12E-07	2.55E-07
23	Sr-89	4.70E-07	5.45E-07	2.62E-06	3.04E-06	5.48E-07	6.36E-07
24	Sr-91	4.34E-05	5.07E-05	2.42E-04	2.83E-04	5.06E-05	5.92E-05
25	Sr-92	1.31E-05	1.45E-05	7.29E-05	8.11E-05	1.52E-05	1.69E-05
26	Y-90	9.65E-08	1.14E-07	5.39E-07	6.37E-07	1.13E-07	1.33E-07
27	Y-91m	9.47E-07	1.10E-06	5.29E-06	6.12E-06	1.10E-06	1.28E-06
28	Y-91	2.33E-05	2.62E-05	1.30E-04	1.46E-04	2.72E-05	3.06E-05
29	Y-92	3.22E-06	3.83E-06	1.80E-05	2.14E-05	3.76E-06	4.46E-06
30	Y-93	3.72E-06	5.09E-06	2.08E-05	2.84E-05	4.34E-06	5.94E-06
31	Zr-95	5.31E-03	6.16E-03	2.97E-02	3.44E-02	6.20E-03	7.19E-03
32	Zr-97	6.17E-05	7.18E-05	3.45E-04	4.01E-04	7.20E-05	8.38E-05
33	Nb-95	2.97E-03	3.49E-03	1.66E-02	1.95E-02	3.46E-03	4.07E-03
34	Mo-99	8.59E-05	9.94E-05	4.79E-04	5.55E-04	1.00E-04	1.16E-04

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MAXIMUM HYPOTHETICAL DOSE FACTORS
FOR SHORE EXPOSURE PATHWAY

Dose Factors for Shore Exposure Pathway: All Age Groups (Page 2 of 2)
Dose Factor Units: mrem-ft^3/Ci-sec
Location: Edge of Initial Mixing Zone/FIXED DILUTION

		ADULT		TEEN		CHILD	
	Isotope	T. Body	Skin	T. Body	Skin	T. Body	Skin
35	Tc-99m	3.56E-06	4.08E-06	1.99E-05	2.28E-05	4.16E-06	4.76E-06
36	Tc-101	2.38E-08	2.65E-08	1.33E-07	1.48E-07	2.78E-08	3.09E-08
37	Ru-103	2.35E-03	2.74E-03	1.31E-02	1.53E-02	2.74E-03	3.20E-03
38	Ru-105	1.18E-05	1.34E-05	6.60E-05	7.48E-05	1.38E-05	1.56E-05
39	Ru-106	9.17E-03	1.10E-02	5.12E-02	6.14E-02	1.07E-02	1.28E-02
40	Ag-110m	7.47E-02	8.71E-02	4.17E-01	4.86E-01	8.71E-02	1.02E-01
41	Te-125m	3.37E-05	4.62E-05	1.88E-04	2.58E-04	3.93E-05	5.39E-05
42	Te-127m	1.99E-06	2.35E-06	1.11E-05	1.31E-05	2.32E-06	2.74E-06
43	Te-127	6.01E-08	6.61E-08	3.35E-07	3.69E-07	7.01E-08	7.71E-08
44	Te-129m	4.29E-04	5.02E-04	2.40E-03	2.80E-03	5.01E-04	5.85E-04
45	Te-129	3.14E-07	3.72E-07	1.76E-06	2.08E-06	3.67E-07	4.34E-07
46	Te-131m	1.70E-04	2.01E-04	9.51E-04	1.12E-03	1.99E-04	2.34E-04
47	Te-131	1.21E-07	1.43E-04	6.74E-07	7.97E-04	1.41E-07	1.67E-04
48	Te-132	9.12E-05	1.07E-04	5.09E-04	5.99E-04	1.06E-04	1.25E-04
49	I-130	1.13E-04	1.37E-04	6.32E-04	7.67E-04	1.32E-04	1.60E-04
50	I-131	3.72E-04	4.52E-04	2.08E-03	2.53E-03	4.35E-04	5.28E-04
51	I-132	2.00E-05	2.35E-05	1.12E-04	1.31E-04	2.33E-05	2.75E-05
52	I-133	5.15E-05	6.26E-05	2.88E-04	3.50E-04	6.01E-05	7.31E-05
53	I-134	4.42E-06	5.25E-06	2.47E-05	2.93E-05	5.15E-06	6.12E-06
54	I-135	4.94E-05	5.76E-05	2.76E-04	3.22E-04	5.76E-05	6.73E-05
55	Cs-134	1.49E-01	1.74E-01	8.32E-01	9.70E-01	1.74E-01	2.03E-01
56	Cs-136	3.27E-03	3.71E-03	1.83E-02	2.07E-02	3.82E-03	4.32E-03
57	Cs-137	2.24E-01	2.61E-01	1.25E+00	1.46E+00	2.61E-01	3.05E-01
58	Cs-138	2.15E-06	2.46E-06	1.20E-05	1.37E-05	2.51E-06	2.87E-06
59	Ba-139	1.40E-06	1.57E-06	7.81E-06	8.78E-06	1.63E-06	1.84E-06
60	Ba-140	4.45E-04	5.08E-04	2.48E-03	2.84E-03	5.19E-04	5.93E-04
61	Ba-141	9.36E-08	1.07E-07	5.23E-07	5.96E-07	1.09E-07	1.24E-07
62	Ba-142	2.02E-08	2.30E-08	1.13E-07	1.28E-07	2.36E-08	2.68E-08
63	La-140	4.10E-04	4.65E-04	2.29E-03	2.60E-03	4.79E-04	5.42E-04
64	La-142	1.07E-05	1.28E-05	5.97E-05	7.17E-05	1.25E-05	1.50E-05
65	Ce-141	2.97E-04	3.34E-04	1.66E-03	1.87E-03	3.46E-04	3.90E-04
66	Ce-143	4.92E-05	5.59E-05	2.75E-04	3.12E-04	5.74E-05	6.52E-05
67	Ce-144	1.51E-03	1.75E-03	8.43E-03	9.75E-03	1.76E-03	2.04E-03
68	Pr-143	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
69	Pr-144	3.62E-09	4.16E-09	2.02E-08	2.32E-08	4.22E-09	4.85E-09
70	Nd-147	1.82E-04	2.18E-04	1.02E-03	1.22E-03	2.12E-04	2.55E-04
71	W-187	4.96E-05	5.76E-05	2.77E-04	3.22E-04	5.79E-05	6.73E-05
72	Np-239	3.67E-05	4.25E-05	2.05E-04	2.37E-04	4.28E-05	4.96E-05

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MAXIMUM HYPOTHETICAL COMPOSITE DOSE FACTORS

Composite Dose Factors: Maximum Hypothetical Adult (Page 1 of 2)
Dose Factor Units: mrem/Ci Released
Location: Danville (Water Ing.)/Outfall (Fish and Shoreline)/FIXED DILUTION

Usage (Uap) (kg/yr: FISH) =	21	Usage (Uap) (kg/yr: WATER) =	730
Usage (Uap) (hr/yr: SHORE) =	12	Dilution (1/Mp:SHORE) =	15.9
Dilution (1/Mp:FISH) =	15.9	Dilution (1/Mp:WATER) =	321
Transit time (tf) hrs. =	25	Transit time (tw) hrs. =	25.8
Transit time (tp) hrs. =	1	Transit time (tb) hrs. =	131400

	Isotope	Bone	Liver	T. Body	Thyroid	Kidney	Lung	GI-LLI	Skin
1	H-3	0.00E+00	3.59E-05	3.59E-05	3.59E-05	3.59E-05	3.59E-05	3.59E-05	0.00E+00
2	C-14	1.70E+00	3.41E-01	3.41E-01	3.41E-01	3.41E-01	3.41E-01	3.41E-01	0.00E+00
3	Na-24	7.09E-03	7.09E-03	7.12E-03	7.09E-03	7.09E-03	7.09E-03	7.09E-03	2.58E-05
4	P-32	7.18E+01	4.46E+00	2.77E+00	0.00E+00	0.00E+00	0.00E+00	8.07E+00	0.00E+00
5	Cr-51	0.00E+00	0.00E+00	7.72E-05	4.07E-05	1.50E-05	9.04E-05	1.71E-02	1.07E-05
6	Mn-54	0.00E+00	2.39E-01	4.82E-02	0.00E+00	7.10E-02	0.00E+00	7.31E-01	3.17E-03
7	Mn-56	0.00E+00	7.25E-06	2.63E-06	0.00E+00	9.21E-06	0.00E+00	2.31E-04	1.59E-06
8	Fe-55	3.64E-02	2.52E-02	5.87E-03	0.00E+00	0.00E+00	1.40E-02	1.44E-02	0.00E+00
9	Fe-59	5.66E-02	1.33E-01	5.15E-02	0.00E+00	0.00E+00	3.72E-02	4.43E-01	6.24E-04
10	Co-58	0.00E+00	4.97E-03	1.19E-02	0.00E+00	0.00E+00	0.00E+00	1.01E-01	8.64E-04
11	Co-60	0.00E+00	1.44E-02	7.37E-02	0.00E+00	0.00E+00	0.00E+00	2.71E-01	4.93E-02
12	Ni-63	1.72E+00	1.19E-01	5.78E-02	0.00E+00	0.00E+00	0.00E+00	2.49E-02	0.00E+00
13	Ni-65	7.20E-06	9.35E-07	8.66E-07	0.00E+00	0.00E+00	0.00E+00	2.37E-05	5.11E-07
14	Cu-64	0.00E+00	1.43E-04	6.84E-05	0.00E+00	3.61E-04	0.00E+00	1.22E-02	1.27E-06
15	Zn-65	1.26E+00	4.00E+00	1.81E+00	0.00E+00	2.68E+00	0.00E+00	2.52E+00	1.67E-03
16	Zn-69	2.11E-11	4.03E-11	2.80E-12	0.00E+00	2.62E-11	0.00E+00	6.06E-12	0.00E+00
17	Br-83	0.00E+00	0.00E+00	1.57E-06	0.00E+00	0.00E+00	0.00E+00	2.26E-06	1.03E-08
18	Br-84	0.00E+00	0.00E+00	1.07E-07	0.00E+00	0.00E+00	0.00E+00	1.51E-22	1.25E-07
19	Br-85	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
20	Rb-86	0.00E+00	5.29E+00	2.47E+00	0.00E+00	0.00E+00	0.00E+00	1.04E+00	2.00E-05
21	Rb-88	0.00E+00	0.00E+00	6.27E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.17E-09
22	Rb-89	0.00E+00	0.00E+00	1.63E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.96E-08
23	Sr-89	1.25E+00	0.00E+00	3.60E-02	0.00E+00	0.00E+00	0.00E+00	2.01E-01	4.89E-08
24	Sr-90	3.13E+01	0.00E+00	7.69E+00	0.00E+00	0.00E+00	0.00E+00	9.05E-01	0.00E+00
25	Sr-91	3.77E-03	0.00E+00	1.56E-04	0.00E+00	0.00E+00	0.00E+00	1.80E-02	4.55E-06
26	Sr-92	1.47E-05	0.00E+00	1.81E-06	0.00E+00	0.00E+00	0.00E+00	2.91E-04	1.30E-06
27	Y-90	2.55E-05	0.00E+00	6.94E-07	0.00E+00	0.00E+00	0.00E+00	2.71E-01	1.02E-08
28	Y-91m	2.64E-16	0.00E+00	8.49E-08	0.00E+00	0.00E+00	0.00E+00	7.74E-16	9.83E-08
29	Y-91	4.85E-04	0.00E+00	1.51E-05	0.00E+00	0.00E+00	0.00E+00	2.67E-01	2.35E-06
30	Y-92	2.18E-08	0.00E+00	2.90E-07	0.00E+00	0.00E+00	0.00E+00	3.82E-04	3.43E-07
31	Y-93	1.67E-06	0.00E+00	3.80E-07	0.00E+00	0.00E+00	0.00E+00	5.30E-02	4.56E-07
32	Zr-95	1.97E-05	6.31E-06	4.81E-04	0.00E+00	9.90E-06	0.00E+00	2.00E-02	5.53E-04
33	Zr-97	3.90E-07	7.87E-08	5.57E-06	0.00E+00	1.19E-07	0.00E+00	2.44E-02	6.44E-06
34	Nb-95	2.38E-02	1.33E-02	7.39E-03	0.00E+00	1.31E-02	0.00E+00	8.04E+01	3.13E-04

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MAXIMUM HYPOTHETICAL COMPOSITE DOSE FACTORS

Composite Dose Factors: Maximum Hypothetical Adult (Page 2 of 2)
Dose Factor Units: mrem/Ci Released
Location: Danville (Water Ing.)/Outfall (Fish and Shoreline)/FIXED DILUTION

	Isotope	Bone	Liver	T. Body	Thyroid	Kidney	Lung	GI-LLI	SKIN
35	Mo-99	0.00E+00	5.06E-03	9.70E-04	0.00E+00	1.15E-02	0.00E+00	1.17E-02	8.92E-06
36	Tc-99m	3.00E-08	8.47E-08	1.40E-06	0.00E+00	1.29E-06	4.15E-08	5.01E-05	3.66E-07
37	Tc-101	0.00E+00	0.00E+00	2.14E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.37E-09
38	Ru-103	2.77E-04	0.00E+00	3.30E-04	0.00E+00	1.06E-03	0.00E+00	3.24E-02	2.46E-04
39	Ru-105	4.67E-07	0.00E+00	1.24E-06	0.00E+00	6.03E-06	0.00E+00	2.85E-04	1.20E-06
40	Ru-106	4.19E-03	0.00E+00	1.35E-03	0.00E+00	8.09E-03	0.00E+00	2.71E-01	9.87E-04
41	Ag-110m	8.36E-05	7.73E-05	6.74E-03	0.00E+00	1.52E-04	0.00E+00	3.16E-02	7.81E-03
42	Te-125m	1.39E-01	5.02E-02	1.86E-02	4.17E-02	5.63E-01	0.00E+00	5.53E-01	4.14E-06
43	Te-127m	3.52E-01	1.26E-01	4.29E-02	9.00E-02	1.43E+00	0.00E+00	1.18E+00	2.11E-07
44	Te-127	9.02E-04	3.24E-04	1.95E-04	6.68E-04	3.67E-03	0.00E+00	7.12E-02	5.93E-09
45	Te-129m	5.89E-01	2.20E-01	9.33E-02	2.02E-01	2.46E+00	0.00E+00	2.97E+00	4.50E-05
46	Te-129	1.61E-03	6.05E-04	4.27E-04	1.23E-03	6.76E-03	0.00E+00	1.21E-03	4.20E-05
47	Te-131m	5.08E-02	2.49E-02	2.07E-02	3.94E-02	2.52E-01	0.00E+00	2.47E+00	1.80E-05
48	Te-131	9.69E-22	4.05E-22	1.08E-08	7.97E-22	4.24E-21	0.00E+00	1.37E-22	1.28E-05
49	Te-132	1.06E-01	6.84E-02	6.42E-02	7.55E-02	6.58E-01	0.00E+00	3.23E+00	9.62E-06
50	I-130	4.04E-04	1.19E-03	4.80E-04	1.01E-01	1.86E-03	0.00E+00	1.02E-03	1.23E-05
51	I-131	8.28E-03	1.18E-02	6.82E-03	3.88E+00	2.03E-02	0.00E+00	3.13E-03	4.06E-05
52	I-132	2.31E-07	6.18E-07	2.01E-06	2.16E-05	9.85E-07	0.00E+00	1.16E-07	2.11E-06
53	I-133	1.34E-03	2.33E-03	7.16E-04	3.43E-01	4.07E-03	0.00E+00	2.10E-03	5.62E-06
54	I-134	5.95E-13	1.62E-12	3.96E-07	2.80E-11	2.57E-12	0.00E+00	1.41E-15	4.70E-07
55	I-135	6.96E-05	1.82E-04	7.17E-05	1.20E-02	2.92E-04	0.00E+00	2.06E-04	5.17E-06
56	Cs-134	1.62E+01	3.86E+01	3.15E+01	0.00E+00	1.25E+01	4.14E+00	6.75E-01	1.56E-02
57	Cs-136	1.61E+00	6.35E+00	4.57E+00	0.00E+00	3.53E+00	4.84E-01	7.21E-01	3.32E-04
58	Cs-137	2.08E+01	2.84E+01	1.86E+01	0.00E+00	9.65E+00	3.21E+00	5.50E-01	2.34E-02
59	Cs-138	1.46E-16	2.87E-16	1.93E-07	0.00E+00	2.11E-16	2.09E-17	1.23E-21	2.21E-07
60	Ba-139	2.46E-10	1.75E-13	1.25E-07	0.00E+00	1.64E-13	9.94E-14	4.36E-10	1.41E-07
61	Ba-140	1.43E-02	1.80E-05	9.77E-04	0.00E+00	6.11E-06	1.03E-05	2.94E-02	4.56E-05
62	Ba-141	0.00E+00	0.00E+00	8.39E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.57E-09
63	Ba-142	0.00E+00	0.00E+00	1.81E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.06E-09
64	La-140	5.65E-06	2.85E-06	3.75E-05	0.00E+00	0.00E+00	0.00E+00	2.09E-01	4.17E-05
65	La-142	8.26E-12	3.76E-12	9.60E-07	0.00E+00	0.00E+00	0.00E+00	2.74E-08	1.15E-06
66	Ce-141	3.25E-06	2.19E-06	2.68E-05	0.00E+00	1.02E-06	0.00E+00	8.39E-03	3.00E-05
67	Ce-143	3.42E-07	2.53E-04	4.44E-06	0.00E+00	1.11E-07	0.00E+00	9.46E-03	5.01E-06
68	Ce-144	1.73E-04	7.22E-05	1.45E-04	0.00E+00	4.28E-05	0.00E+00	5.84E-02	1.57E-04
69	Pr-143	3.04E-05	1.22E-05	1.51E-06	0.00E+00	7.03E-06	0.00E+00	1.33E-01	0.00E+00
70	Pr-144	0.00E+00	0.00E+00	3.24E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.73E-10
71	Nd-147	2.05E-05	2.37E-05	1.77E-05	0.00E+00	1.39E-05	0.00E+00	1.14E-01	1.96E-05
72	W-187	7.79E-03	6.52E-03	2.28E-03	0.00E+00	0.00E+00	0.00E+00	2.13E+00	5.17E-06
73	Np-239	1.34E-06	1.31E-07	3.36E-06	0.00E+00	4.10E-07	0.00E+00	2.69E-02	3.81E-06

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MAXIMUM HYPOTHETICAL COMPOSITE DOSE FACTORS

Composite Dose Factors: Maximum Hypothetical Teen (Page 1 of 2)
Dose Factor Units: mrem/Ci Released
Location: Danville (Water Ing.)/Outfall (Fish and Shoreline)/FIXED DILUTION

Usage (Uap) (kg/yr: FISH) =	16	Usage (Uap) (kg/yr: WATER) =	510
Usage (Uap) (hr/yr: SHORE) =	67	Dilution (1/Mp:SHORE) =	15.9
Dilution (1/Mp:FISH) =	15.9	Dilution (1/Mp:WATER) =	321
Transit time (tf) hrs. =	25	Transit time (tw) hrs. =	25.8
Transit time (tp) hrs. =	1	Transit time (tb) hrs. =	131400

	Isotope	Bone	Liver	T. Body	Thyroid	Kidney	Lung	GI-LLI	Skin
1	H-3	0.00E+00	2.61E-05	2.61E-05	2.61E-05	2.61E-05	2.61E-05	2.61E-05	0.00E+00
2	C-14	1.85E+00	3.71E-01	3.71E-01	3.71E-01	3.71E-01	3.71E-01	3.71E-01	0.00E+00
3	Na-24	7.30E-03	7.30E-03	7.43E-03	7.30E-03	7.30E-03	7.30E-03	7.30E-03	1.44E-04
4	P-32	7.82E+01	4.84E+00	3.03E+00	0.00E+00	0.00E+00	0.00E+00	6.57E+00	0.00E+00
5	Cr-51	0.00E+00	0.00E+00	1.21E-04	3.90E-05	1.54E-05	1.00E-04	1.18E-02	5.98E-05
6	Mn-54	0.00E+00	2.35E-01	6.16E-02	0.00E+00	7.00E-02	0.00E+00	4.81E-01	1.77E-02
7	Mn-56	0.00E+00	7.59E-06	8.86E-06	0.00E+00	9.61E-06	0.00E+00	5.00E-04	8.88E-06
8	Fe-55	3.81E-02	2.70E-02	6.30E-03	0.00E+00	0.00E+00	1.71E-02	1.17E-02	0.00E+00
9	Fe-59	5.82E-02	1.36E-01	5.55E-02	0.00E+00	0.00E+00	4.29E-02	3.21E-01	3.49E-03
10	Co-58	0.00E+00	4.93E-03	1.55E-02	0.00E+00	0.00E+00	0.00E+00	6.79E-02	4.82E-03
11	Co-60	0.00E+00	1.44E-02	2.67E-01	0.00E+00	0.00E+00	0.00E+00	1.87E-01	2.75E-01
12	Ni-63	1.78E+00	1.26E-01	6.05E-02	0.00E+00	0.00E+00	0.00E+00	2.01E-02	0.00E+00
13	Ni-65	7.77E-06	9.93E-07	2.91E-06	0.00E+00	0.00E+00	0.00E+00	5.38E-05	2.85E-06
14	Cu-64	0.00E+00	1.50E-04	7.69E-05	0.00E+00	3.80E-04	0.00E+00	1.17E-02	7.08E-06
15	Zn-65	1.14E+00	3.96E+00	1.86E+00	0.00E+00	2.54E+00	0.00E+00	1.68E+00	9.35E-03
16	Zn-69	2.29E-11	4.37E-11	3.06E-12	0.00E+00	2.85E-11	0.00E+00	8.05E-11	0.00E+00
17	Br-83	0.00E+00	0.00E+00	1.74E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.76E-08
18	Br-84	0.00E+00	0.00E+00	5.99E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.98E-07
19	Br-85	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
20	Rb-86	0.00E+00	5.70E+00	2.68E+00	0.00E+00	0.00E+00	0.00E+00	8.43E-01	1.12E-04
21	Rb-88	0.00E+00	0.00E+00	3.50E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.00E-08
22	Rb-89	0.00E+00	0.00E+00	9.11E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.09E-07
23	Sr-89	1.36E+00	0.00E+00	3.89E-02	0.00E+00	0.00E+00	0.00E+00	1.62E-01	2.73E-07
24	Sr-90	2.60E+01	0.00E+00	6.43E+00	0.00E+00	0.00E+00	0.00E+00	7.30E-01	0.00E+00
25	Sr-91	4.07E-03	0.00E+00	1.84E-04	0.00E+00	0.00E+00	0.00E+00	1.85E-02	2.54E-05
26	Sr-92	1.58E-05	0.00E+00	7.22E-06	0.00E+00	0.00E+00	0.00E+00	4.03E-04	7.27E-06
27	Y-90	2.76E-05	0.00E+00	7.91E-07	0.00E+00	0.00E+00	0.00E+00	2.27E-01	5.71E-08
28	Y-91m	2.84E-16	0.00E+00	4.74E-07	0.00E+00	0.00E+00	0.00E+00	1.34E-14	5.49E-07
29	Y-91	5.24E-04	0.00E+00	2.57E-05	0.00E+00	0.00E+00	0.00E+00	2.15E-01	1.31E-05
30	Y-92	2.37E-08	0.00E+00	1.61E-06	0.00E+00	0.00E+00	0.00E+00	6.50E-04	1.92E-06
31	Y-93	1.81E-06	0.00E+00	1.91E-06	0.00E+00	0.00E+00	0.00E+00	5.53E-02	2.55E-06
32	Zr-95	1.97E-05	6.23E-06	2.66E-03	0.00E+00	9.15E-06	0.00E+00	1.44E-02	3.09E-03
33	Zr-97	4.07E-07	8.06E-08	3.09E-05	0.00E+00	1.22E-07	0.00E+00	2.18E-02	3.60E-05
34	Nb-95	2.40E-02	1.33E-02	8.81E-03	0.00E+00	1.29E-02	0.00E+00	5.69E+01	1.75E-03

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MAXIMUM HYPOTHETICAL COMPOSITE DOSE FACTORS

Composite Dose Factors: Maximum Hypothetical Teen (Page 2 of 2)
Dose Factor Units: mrem/Ci Released
Location: Danville (Water Ing.)/Outfall (Fish and Shoreline)/FIXED DILUTION

	Isotope	Bone	Liver	T. Body	Thyroid	Kidney	Lung	GI-LLI	SKIN
35	Mo-99	0.00E+00	5.33E-03	1.06E-03	0.00E+00	1.22E-02	0.00E+00	9.54E-03	4.98E-05
36	Tc-99m	3.05E-08	8.50E-08	2.89E-06	0.00E+00	1.27E-06	4.72E-08	5.58E-05	2.04E-06
37	Tc-101	0.00E+00	0.00E+00	1.19E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.33E-08
38	Ru-103	2.88E-04	0.00E+00	1.30E-03	0.00E+00	1.01E-03	0.00E+00	2.40E-02	1.37E-03
39	Ru-105	4.98E-07	0.00E+00	6.11E-06	0.00E+00	6.28E-06	0.00E+00	4.02E-04	6.71E-06
40	Ru-106	4.50E-03	0.00E+00	5.16E-03	0.00E+00	8.67E-03	0.00E+00	2.16E-01	5.51E-03
41	Ag-110m	7.87E-05	7.45E-05	3.74E-02	0.00E+00	1.42E-04	0.00E+00	2.09E-02	4.36E-02
42	Te-125m	1.51E-01	5.43E-02	2.02E-02	4.21E-02	0.00E+00	0.00E+00	4.45E-01	2.31E-05
43	Te-127m	3.83E-01	1.36E-01	4.55E-02	9.11E-02	1.55E+00	0.00E+00	9.54E-01	1.18E-06
44	Te-127	9.87E-04	3.50E-04	2.12E-04	6.81E-04	4.00E-03	0.00E+00	7.62E-02	3.31E-08
45	Te-129m	6.36E-01	2.36E-01	1.01E-01	2.05E-01	2.66E+00	0.00E+00	2.39E+00	2.51E-04
46	Te-129	1.75E-03	6.52E-04	6.23E-04	1.25E-03	7.34E-03	0.00E+00	9.56E-03	2.34E-04
47	Te-131m	5.46E-02	2.62E-02	2.19E-02	3.94E-02	2.73E-01	0.00E+00	2.10E+00	1.01E-04
48	Te-131	1.05E-21	4.31E-22	6.05E-08	8.05E-22	4.57E-21	0.00E+00	8.58E-23	7.15E-05
49	Te-132	1.11E-01	7.06E-02	6.65E-02	7.44E-02	6.77E-01	0.00E+00	2.24E+00	5.37E-05
50	I-130	4.15E-04	1.20E-03	5.37E-04	9.80E-02	1.85E-03	0.00E+00	9.24E-04	6.88E-05
51	I-131	8.80E-03	1.23E-02	6.80E-03	3.59E+00	2.12E-02	0.00E+00	2.44E-03	2.26E-04
52	I-132	2.40E-07	6.29E-07	1.02E-05	2.12E-05	9.91E-07	0.00E+00	2.74E-07	1.18E-05
53	I-133	1.43E-03	2.43E-03	7.68E-04	3.40E-01	4.27E-03	0.00E+00	1.84E-03	3.14E-05
54	I-134	6.22E-13	1.65E-12	2.21E-06	2.75E-11	2.60E-12	0.00E+00	2.17E-14	2.63E-06
55	I-135	7.24E-05	1.86E-04	9.38E-05	1.20E-02	2.94E-04	0.00E+00	2.07E-04	2.89E-05
56	Cs-134	1.66E+01	3.91E+01	1.82E+01	0.00E+00	1.24E+01	4.74E+00	4.86E-01	8.70E-02
57	Cs-136	1.62E+00	6.36E+00	4.27E+00	0.00E+00	3.46E+00	5.45E-01	5.12E-01	1.86E-03
58	Cs-137	2.23E+01	2.96E+01	1.04E+01	0.00E+00	1.01E+01	3.91E+00	4.21E-01	1.31E-01
59	Cs-138	1.56E-16	2.99E-16	1.08E-06	0.00E+00	2.21E-16	2.57E-17	1.36E-19	1.23E-06
60	Ba-139	2.64E-10	1.85E-13	7.00E-07	0.00E+00	1.75E-13	1.28E-13	2.35E-09	7.88E-07
61	Ba-140	1.49E-02	1.82E-05	1.18E-03	0.00E+00	6.17E-06	1.22E-05	2.29E-02	2.55E-04
62	Ba-141	0.00E+00	0.00E+00	4.69E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.34E-08
63	Ba-142	0.00E+00	0.00E+00	1.01E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.15E-08
64	La-140	5.96E-06	2.93E-06	2.06E-04	0.00E+00	0.00E+00	0.00E+00	1.68E-01	2.33E-04
65	La-142	8.77E-12	3.89E-12	5.36E-06	0.00E+00	0.00E+00	0.00E+00	1.19E-07	6.43E-06
66	Ce-141	3.33E-06	2.22E-06	1.49E-04	0.00E+00	1.05E-06	0.00E+00	6.36E-03	1.67E-04
67	Ce-143	3.52E-07	2.56E-04	2.47E-05	0.00E+00	1.15E-07	0.00E+00	7.70E-03	2.80E-05
68	Ce-144	1.78E-04	7.35E-05	7.66E-04	0.00E+00	4.39E-05	0.00E+00	4.47E-02	8.74E-04
69	Pr-143	3.28E-05	1.31E-05	1.63E-06	0.00E+00	7.60E-06	0.00E+00	1.08E-01	0.00E+00
70	Pr-144	0.00E+00	0.00E+00	1.81E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.08E-09
71	Nd-147	2.32E-05	2.52E-05	9.26E-05	0.00E+00	1.48E-05	0.00E+00	9.09E-02	1.09E-04
72	W-187	8.42E-03	6.86E-03	2.43E-03	0.00E+00	0.00E+00	0.00E+00	1.86E+00	2.89E-05
73	Np-239	1.49E-06	1.40E-07	1.85E-05	0.00E+00	4.40E-07	0.00E+00	2.26E-02	2.13E-05

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MAXIMUM HYPOTHETICAL COMPOSITE DOSE FACTORS

Composite Dose Factors: Maximum Hypothetical Child (Page 1 of 2)
Dose Factor Units: mrem/Ci Released
Location: Danville (Water Ing.)/Outfall (Fish and Shoreline)/FIXED DILUTION

Usage (Uap) (kg/yr: FISH) =	6.9	Usage (Uap) (kg/yr: WATER) =	510
Usage (Uap) (hr/yr: SHORE) =	14	Dilution (1/Mp:SHORE) =	15.9
Dilution (1/Mp:FISH) =	15.9	Dilution (1/Mp:WATER) =	321
Transit time (tf) hrs. =	25	Transit time (tw) hrs. =	25.8
Transit time (tp) hrs. =	1	Transit time (tb) hrs. =	131400

	Isotope	Bone	Liver	T. Body	Thyroid	Kidney	Lung	GI-LLI	Skin
1	H-3	0.00E+00	3.96E-05	3.96E-05	3.96E-05	3.96E-05	3.96E-05	3.96E-05	0.00E+00
2	C-14	2.38E+00	4.77E-01	4.77E-01	4.77E-01	4.77E-01	4.77E-01	4.77E-01	0.00E+00
3	Na-24	8.10E-03	8.10E-03	8.12E-03	8.10E-03	8.10E-03	8.10E-03	8.10E-03	3.01E-05
4	P-32	1.01E+02	4.72E+00	3.89E+00	0.00E+00	0.00E+00	0.00E+00	2.79E+00	0.00E+00
5	Cr-51	0.00E+00	0.00E+00	8.62E-05	4.20E-05	1.15E-05	7.66E-05	4.01E-03	1.25E-05
6	Mn-54	0.00E+00	1.84E-01	5.23E-02	0.00E+00	5.17E-02	0.00E+00	1.55E-01	3.69E-03
7	Mn-56	0.00E+00	6.95E-06	3.14E-06	0.00E+00	8.41E-06	0.00E+00	1.01E-03	1.85E-06
8	Fe-55	5.10E-02	2.71E-02	8.38E-03	0.00E+00	0.00E+00	1.53E-02	5.01E-03	0.00E+00
9	Fe-59	7.21E-02	1.17E-01	5.87E-02	0.00E+00	0.00E+00	3.38E-02	1.21E-01	7.28E-04
10	Co-58	0.00E+00	4.09E-03	1.34E-02	0.00E+00	0.00E+00	0.00E+00	2.39E-02	1.01E-03
11	Co-60	0.00E+00	1.21E-02	8.47E-02	0.00E+00	0.00E+00	0.00E+00	6.73E-02	5.75E-02
12	Ni-63	2.39E+00	1.28E-01	8.12E-02	0.00E+00	0.00E+00	0.00E+00	8.61E-03	0.00E+00
13	Ni-65	1.01E-05	9.50E-07	1.07E-06	0.00E+00	0.00E+00	0.00E+00	1.16E-04	5.96E-07
14	Cu-64	0.00E+00	1.43E-04	8.79E-05	0.00E+00	3.47E-04	0.00E+00	6.73E-03	1.48E-06
15	Zn-65	1.17E+00	3.12E+00	1.94E+00	0.00E+00	1.97E+00	0.00E+00	5.48E-01	1.95E-03
16	Zn-69	2.95E-11	4.26E-11	3.94E-12	0.00E+00	2.58E-11	0.00E+00	2.68E-09	0.00E+00
17	Br-83	0.00E+00	0.00E+00	2.21E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.20E-08
18	Br-84	0.00E+00	0.00E+00	1.25E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.46E-07
19	Br-85	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
20	Rb-86	0.00E+00	5.53E+00	3.40E+00	0.00E+00	0.00E+00	0.00E+00	3.56E-01	2.33E-05
21	Rb-88	0.00E+00	0.00E+00	7.31E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.36E-09
22	Rb-89	0.00E+00	0.00E+00	1.90E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.28E-08
23	Sr-89	1.88E+00	0.00E+00	5.36E-02	0.00E+00	0.00E+00	0.00E+00	7.26E-02	5.71E-08
24	Sr-90	2.45E+01	0.00E+00	6.21E+00	0.00E+00	0.00E+00	0.00E+00	3.30E-01	0.00E+00
25	Sr-91	5.55E-03	0.00E+00	2.14E-04	0.00E+00	0.00E+00	0.00E+00	1.22E-02	5.31E-06
26	Sr-92	2.13E-05	0.00E+00	2.22E-06	0.00E+00	0.00E+00	0.00E+00	4.03E-04	1.52E-06
27	Y-90	3.84E-05	0.00E+00	1.04E-06	0.00E+00	0.00E+00	0.00E+00	1.09E-01	1.19E-08
28	Y-91m	3.78E-16	0.00E+00	9.91E-08	0.00E+00	0.00E+00	0.00E+00	7.40E-13	1.15E-07
29	Y-91	7.30E-04	0.00E+00	2.20E-05	0.00E+00	0.00E+00	0.00E+00	9.72E-02	2.74E-06
30	Y-92	3.24E-08	0.00E+00	3.38E-07	0.00E+00	0.00E+00	0.00E+00	9.37E-04	4.00E-07
31	Y-93	2.50E-06	0.00E+00	4.58E-07	0.00E+00	0.00E+00	0.00E+00	3.73E-02	5.32E-07
32	Zr-95	3.42E-05	7.51E-06	5.63E-04	0.00E+00	1.08E-05	0.00E+00	7.84E-03	6.45E-04
33	Zr-97	7.34E-07	1.06E-07	6.52E-06	0.00E+00	1.52E-07	0.00E+00	1.61E-02	7.51E-06
34	Nb-95	2.83E-02	1.10E-02	8.19E-03	0.00E+00	1.04E-02	0.00E+00	2.04E+01	3.65E-04

Approval MWS
Date see page 1

MAXIMUM HYPOTHETICAL COMPOSITE DOSE FACTORS

Composite Dose Factors: Maximum Hypothetical Child (Page 2 of 2)
Dose Factor Units: mrem/Ci Released
Location: Danville (Water Ing.)/Outfall (Fish and Shoreline)/FIXED DILUTION

	Isotope	Bone	Liver	T. Body	Thyroid	Kidney	Lung	GI-LLI	SKIN
35	Mo-99	0.00E+00	5.97E-03	1.49E-03	0.00E+00	1.27E-02	0.00E+00	4.94E-03	1.04E-05
36	Tc-99m	4.07E-08	7.99E-08	1.70E-06	0.00E+00	1.16E-06	4.06E-08	4.55E-05	4.27E-07
37	Tc-101	0.00E+00	0.00E+00	2.49E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.77E-09
38	Ru-103	4.20E-04	0.00E+00	4.07E-04	0.00E+00	1.06E-03	0.00E+00	1.09E-02	2.87E-04
39	Ru-105	7.37E-07	0.00E+00	1.50E-06	0.00E+00	6.48E-06	0.00E+00	4.81E-04	1.40E-06
40	Ru-106	6.83E-03	0.00E+00	1.81E-03	0.00E+00	9.22E-03	0.00E+00	1.06E-01	1.15E-03
41	Ag-110m	1.37E-04	9.26E-05	7.89E-03	0.00E+00	1.73E-04	0.00E+00	1.10E-02	9.11E-03
42	Te-125m	1.95E-01	5.27E-02	2.59E-02	5.46E-02	0.00E+00	0.00E+00	1.88E-01	4.83E-06
43	Te-127m	4.96E-01	1.34E-01	5.89E-02	1.19E-01	1.41E+00	0.00E+00	4.02E-01	2.46E-07
44	Te-127	1.27E-03	3.44E-04	2.73E-04	8.82E-04	3.63E-03	0.00E+00	4.98E-02	6.91E-09
45	Te-129m	8.24E-01	2.30E-01	1.28E-01	2.66E-01	2.42E+00	0.00E+00	1.00E+00	5.25E-05
46	Te-129	2.27E-03	6.33E-04	5.79E-04	1.62E-03	6.63E-03	0.00E+00	1.41E-01	4.90E-05
47	Te-131m	6.98E-02	2.41E-02	2.57E-02	4.97E-02	2.34E-01	0.00E+00	9.79E-01	2.10E-05
48	Te-131	1.34E-21	4.09E-22	1.26E-08	1.03E-21	4.06E-21	0.00E+00	7.05E-21	1.49E-05
49	Te-132	1.40E-01	6.19E-02	7.48E-02	9.01E-02	5.75E-01	0.00E+00	6.23E-01	1.12E-05
50	I-130	5.69E-04	1.15E-03	6.04E-04	1.27E-01	1.72E-03	0.00E+00	5.38E-04	1.44E-05
51	I-131	1.26E-02	1.26E-02	7.21E-03	4.18E+00	2.07E-02	0.00E+00	1.12E-03	4.73E-05
52	I-132	3.27E-07	6.01E-07	2.37E-06	2.79E-05	9.20E-07	0.00E+00	7.08E-07	2.46E-06
53	I-133	2.05E-03	2.53E-03	9.62E-04	4.70E-01	4.22E-03	0.00E+00	1.02E-03	6.55E-06
54	I-134	8.23E-13	1.53E-12	4.62E-07	3.52E-11	2.34E-12	0.00E+00	1.01E-12	5.49E-07
55	I-135	1.00E-04	1.80E-04	9.03E-05	1.59E-02	2.76E-04	0.00E+00	1.37E-04	6.03E-06
56	Cs-134	2.01E+01	3.29E+01	6.96E+00	0.00E+00	1.02E+01	3.66E+00	1.77E-01	1.82E-02
57	Cs-136	1.91E+00	5.25E+00	3.39E+00	0.00E+00	2.79E+00	4.17E-01	1.84E-01	3.88E-04
58	Cs-137	2.80E+01	2.68E+01	3.99E+00	0.00E+00	8.75E+00	3.15E+00	1.68E-01	2.73E-02
59	Cs-138	1.98E-16	2.75E-16	2.25E-07	0.00E+00	1.93E-16	2.08E-17	1.26E-16	2.57E-07
60	Ba-139	4.32E-10	2.31E-13	1.46E-07	0.00E+00	2.01E-13	1.36E-13	2.49E-08	1.65E-07
61	Ba-140	2.57E-02	2.25E-05	1.55E-03	0.00E+00	7.34E-06	1.34E-05	1.30E-02	5.32E-05
62	Ba-141	0.00E+00	0.00E+00	9.79E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.12E-08
63	Ba-142	0.00E+00	0.00E+00	2.11E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.41E-09
64	La-140	8.04E-06	2.81E-06	4.39E-05	0.00E+00	0.00E+00	0.00E+00	7.83E-02	4.86E-05
65	La-142	1.17E-11	3.73E-12	1.12E-06	0.00E+00	0.00E+00	0.00E+00	7.38E-07	1.34E-06
66	Ce-141	7.74E-06	3.86E-06	3.16E-05	0.00E+00	1.69E-06	0.00E+00	4.82E-03	3.50E-05
67	Ce-143	8.14E-07	4.41E-04	5.21E-06	0.00E+00	1.85E-07	0.00E+00	6.47E-03	5.85E-06
68	Ce-144	4.14E-04	1.30E-04	1.80E-04	0.00E+00	7.19E-05	0.00E+00	3.38E-02	1.83E-04
69	Pr-143	4.57E-05	1.37E-05	2.27E-06	0.00E+00	7.43E-06	0.00E+00	4.93E-02	0.00E+00
70	Pr-144	0.00E+00	0.00E+00	3.78E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.35E-10
71	Nd-147	3.20E-05	2.60E-05	2.10E-05	0.00E+00	1.42E-05	0.00E+00	4.11E-02	2.28E-05
72	W-187	1.07E-02	6.33E-03	2.84E-03	0.00E+00	0.00E+00	0.00E+00	8.89E-01	6.03E-06
73	Np-239	2.25E-06	1.62E-07	3.95E-06	0.00E+00	4.68E-07	0.00E+00	1.20E-02	4.45E-06

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MAXIMUM HYPOTHETICAL WATER INGESTION
DOSE FACTORS - INFANT

Water Ingestion Dose Factors: Maximum Hypothetical Infant (Page 1 of 2)
Dose Factor Units: mrem/Ci Released
Location: Danville Receiver/FIXED DILUTION

Usage (Uap) (kg/yr: WATER) = 330
Transit time (WATER) hrs. = 25.8
Dilution (1/Mp:WATER) = 321

	Isotope	Bone	Liver	T. Body	Thyroid	Kidney	Lung	GI-LLI
1	H-3	0.00E+00	3.12E-05	3.12E-05	3.12E-05	3.12E-05	3.12E-05	3.12E-05
2	C-14	2.40E-03	5.13E-04	5.13E-04	5.13E-04	5.13E-04	5.13E-04	5.13E-04
3	Na-24	3.11E-04	3.11E-04	3.11E-04	3.11E-04	3.11E-04	3.11E-04	3.11E-04
4	P-32	1.64E-01	9.63E-03	6.34E-03	0.00E+00	0.00E+00	0.00E+00	2.21E-03
5	Cr-51	0.00E+00	0.00E+00	1.39E-06	9.08E-07	1.98E-07	1.77E-06	4.06E-05
6	Mn-54	0.00E+00	2.01E-03	4.56E-04	0.00E+00	4.46E-04	0.00E+00	7.40E-04
7	Mn-56	0.00E+00	8.07E-08	1.39E-08	0.00E+00	6.93E-08	0.00E+00	7.33E-06
8	Fe-55	1.41E-03	9.10E-04	2.43E-04	0.00E+00	0.00E+00	4.45E-04	1.16E-04
9	Fe-59	3.07E-03	5.37E-03	2.11E-03	0.00E+00	0.00E+00	1.59E-03	2.56E-03
10	Co-58	0.00E+00	3.61E-04	9.01E-04	0.00E+00	0.00E+00	0.00E+00	9.00E-04
11	Co-60	0.00E+00	1.09E-03	2.59E-03	0.00E+00	0.00E+00	0.00E+00	2.61E-03
12	Ni-63	6.43E-02	3.98E-03	2.23E-03	0.00E+00	0.00E+00	0.00E+00	1.98E-04
13	Ni-65	3.95E-07	4.47E-08	2.03E-08	0.00E+00	0.00E+00	0.00E+00	3.40E-06
14	Cu-64	0.00E+00	1.51E-05	7.00E-06	0.00E+00	2.56E-05	0.00E+00	3.10E-04
15	Zn-65	1.86E-03	6.38E-03	2.94E-03	0.00E+00	3.09E-03	0.00E+00	5.39E-03
16	Zn-69	4.09E-14	7.36E-14	5.48E-15	0.00E+00	3.06E-14	0.00E+00	6.00E-12
17	Br-83	0.00E+00	0.00E+00	2.07E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
18	Br-84	0.00E+00	0.00E+00	9.19E-20	0.00E+00	0.00E+00	0.00E+00	0.00E+00
19	Br-85	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
20	Rb-86	0.00E+00	1.66E-02	8.19E-03	0.00E+00	0.00E+00	0.00E+00	4.24E-04
21	Rb-88	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
22	Rb-89	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
23	Sr-89	2.51E-01	0.00E+00	7.20E-03	0.00E+00	0.00E+00	0.00E+00	5.16E-03
24	Sr-90	1.88E+00	0.00E+00	4.78E-01	0.00E+00	0.00E+00	0.00E+00	2.34E-02
25	Sr-91	7.72E-04	0.00E+00	2.79E-05	0.00E+00	0.00E+00	0.00E+00	9.14E-04
26	Sr-92	2.65E-06	0.00E+00	9.85E-08	0.00E+00	0.00E+00	0.00E+00	2.86E-05
27	Y-90	6.67E-06	0.00E+00	1.79E-07	0.00E+00	0.00E+00	0.00E+00	9.21E-03
28	Y-91m	3.62E-17	0.00E+00	1.23E-18	0.00E+00	0.00E+00	0.00E+00	1.21E-13
29	Y-91	1.13E-04	0.00E+00	3.01E-06	0.00E+00	0.00E+00	0.00E+00	8.11E-03
30	Y-92	4.96E-09	0.00E+00	1.40E-10	0.00E+00	0.00E+00	0.00E+00	9.47E-05
31	Y-93	4.20E-07	0.00E+00	1.14E-08	0.00E+00	0.00E+00	0.00E+00	3.31E-03
32	Zr-95	2.07E-05	5.03E-06	3.57E-06	0.00E+00	5.42E-06	0.00E+00	2.51E-03
33	Zr-97	5.21E-07	8.94E-08	4.08E-08	0.00E+00	9.01E-08	0.00E+00	5.70E-03
34	Nb-95	4.17E-06	1.72E-06	9.93E-07	0.00E+00	1.23E-06	0.00E+00	1.45E-03
35	Mo-99	0.00E+00	2.63E-03	5.13E-04	0.00E+00	3.93E-03	0.00E+00	8.66E-04

Approval	MWS
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MAXIMUM HYPOTHETICAL WATER INGESTION
DOSE FACTORS - INFANT

Water Ingestion Dose Factors: Maximum Hypothetical Infant (Page 2 of 2)
Dose Factor Units: mrem/Ci Released
Location: Danville Receiver/FIXED DILUTION

	Isotope	Bone	Liver	T. Body	Thyroid	Kidney	Lung	GI-LLI
36	Tc-99m	9.98E-09	2.06E-08	2.65E-07	0.00E+00	2.22E-07	1.08E-08	5.98E-06
37	Tc-101	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
38	Ru-103	1.47E-04	0.00E+00	4.93E-05	0.00E+00	3.07E-04	0.00E+00	1.79E-03
39	Ru-105	2.46E-07	0.00E+00	8.27E-08	0.00E+00	1.81E-06	0.00E+00	9.77E-05
40	Ru-106	2.44E-03	0.00E+00	3.05E-04	0.00E+00	2.88E-03	0.00E+00	1.85E-02
41	Ag-110m	1.01E-04	7.35E-05	4.86E-05	0.00E+00	1.05E-04	0.00E+00	3.81E-03
42	Te-125m	2.33E-03	7.80E-04	3.15E-04	7.85E-04	0.00E+00	0.00E+00	1.11E-03
43	Te-127m	5.89E-03	1.95E-03	7.13E-04	1.70E-03	1.45E-02	0.00E+00	2.38E-03
44	Te-127	1.50E-05	5.02E-06	3.22E-06	1.22E-05	3.65E-05	0.00E+00	3.15E-04
45	Te-129m	9.92E-03	3.40E-03	1.53E-03	3.81E-03	2.48E-02	0.00E+00	5.92E-03
46	Te-129	2.82E-05	9.71E-06	6.58E-06	2.36E-05	7.01E-05	0.00E+00	2.25E-03
47	Te-131m	8.49E-04	3.42E-04	2.82E-04	6.93E-04	2.35E-03	0.00E+00	5.76E-03
48	Te-131	4.46E-24	1.65E-24	1.25E-24	3.98E-24	1.14E-23	0.00E+00	1.80E-22
49	Te-132	1.68E-03	8.31E-04	7.75E-04	1.23E-03	5.20E-03	0.00E+00	3.07E-03
50	I-130	1.43E-04	3.15E-04	1.26E-04	3.53E-02	3.46E-04	0.00E+00	6.75E-05
51	I-131	3.32E-03	3.91E-03	1.72E-03	1.28E+00	4.57E-03	0.00E+00	1.40E-04
52	I-132	7.07E-08	1.44E-07	5.11E-08	6.73E-06	1.60E-07	0.00E+00	1.16E-07
53	I-133	5.37E-04	7.81E-04	2.29E-04	1.42E-01	9.19E-04	0.00E+00	1.32E-04
54	I-134	1.27E-13	2.60E-13	9.25E-14	6.06E-12	2.91E-13	0.00E+00	2.69E-13
55	I-135	2.47E-05	4.91E-05	1.79E-05	4.40E-03	5.47E-05	0.00E+00	1.78E-05
56	Cs-134	3.82E-02	7.12E-02	7.19E-03	0.00E+00	1.83E-02	7.52E-03	1.94E-04
57	Cs-136	4.40E-03	1.29E-02	4.83E-03	0.00E+00	5.16E-03	1.05E-03	1.96E-04
58	Cs-137	5.29E-02	6.20E-02	4.39E-03	0.00E+00	1.66E-02	6.73E-03	1.94E-04
59	Cs-138	1.76E-19	2.86E-19	1.39E-19	0.00E+00	1.43E-19	2.23E-20	4.57E-19
60	Ba-139	2.26E-10	1.50E-13	6.55E-12	0.00E+00	9.02E-14	9.09E-14	1.43E-08
61	Ba-140	1.64E-02	1.64E-05	8.43E-04	0.00E+00	3.88E-06	1.00E-05	4.02E-03
62	Ba-141	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
63	Ba-142	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
64	La-140	1.37E-06	5.41E-07	1.39E-07	0.00E+00	0.00E+00	0.00E+00	6.35E-03
65	La-142	1.49E-12	5.47E-13	1.31E-13	0.00E+00	0.00E+00	0.00E+00	9.28E-08
66	Ce-141	7.80E-06	4.76E-06	5.60E-07	0.00E+00	1.47E-06	0.00E+00	2.46E-03
67	Ce-143	8.73E-07	5.79E-04	6.61E-08	0.00E+00	1.69E-07	0.00E+00	3.38E-03
68	Ce-144	3.01E-04	1.23E-04	1.69E-05	0.00E+00	4.99E-05	0.00E+00	1.73E-02
69	Pr-143	7.80E-06	2.92E-06	3.87E-07	0.00E+00	1.08E-06	0.00E+00	4.12E-03
70	Pr-144	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
71	Nd-147	5.24E-06	5.38E-06	3.30E-07	0.00E+00	2.08E-06	0.00E+00	3.41E-03
72	W-187	4.32E-05	3.01E-05	1.04E-05	0.00E+00	0.00E+00	0.00E+00	1.77E-03
73	Np-239	8.20E-07	7.34E-08	4.15E-08	0.00E+00	1.46E-07	0.00E+00	2.12E-03

Approval	MWS
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SITE SPECIFIC INFORMATION USED BY LADTAP II CODE

1. Total discharge per unit: 11 cubic feet per second or specific to release period.
2. Total Annual Blowdown Volume: 6.94E8 cubic feet or specific to release period.
3. Dose to Maximum Hypothetical Individual

Shorewidth Factor: 0.2
Sediment exposure time: 131,400 hour

USAGE FACTORS

PATHWAY	INFANT	CHILD	TEEN	ADULT
Fish (kg/yr)	0	6.9	16	21
Potable Water (liter/yr)	330	510	510	730
Shoreline (hr/yr)	0	14	67	12

DILUTION FACTORS (DF)

PATHWAY	LOCATION	DF
Fish	Outfall	15.9
Potable Water	Danville	321*
Shoreline	Outfall	15.9

*For estimating purposes. Actual dilution factors at Danville, Pa., for various river levels located in Attachment D.

TRANSIT TIMES (Tp)

PATHWAY	LOCATION	Tp (hr)
Fish	Outfall	25 **
Potable Water	Danville	25.8 *
Shoreline	Outfall	1

*For estimating purposes. Actual river transit times at Danville, Pa., for various river levels located in Attachment D.

**Includes one hour transit from outfall plus 24 hours to consumption.

Approval	MWS
Date	see page 1

PROCEDURE COVER SHEET

SUSQUEHANNA STEAM ELECTRIC STATION PP&L	NUCLEAR DEPARTMENT PROCEDURE TOTAL DOSE CALCULATIONS	ODCM-QA-006 Revision 0 Page 1 of 6

QUALITY CLASSIFICATION:	APPROVAL CLASSIFICATION:
☒ QA Program ☐ Non-QA Program	☒ Plant ☐ Non-Plant ☐ Instruction

EFFECTIVE DATE: 8-14-98

PERIODIC REVIEW FREQUENCY: N/A

PERIODIC REVIEW DUE DATE: N/A

RECOMMENDED REVIEWS:

Procedure Owner: R. K. Barclay

Responsible Supervisor: Supervisor - Operations Technology

Responsible FUM: Manager - Nuclear Technology

Responsible Approver: General Manager - SSES

PROCEDURE REVISION SUMMARY

TITLE: **TOTAL DOSE CALCULATIONS**

EVALUATION OF THE IMPACT OF REV. 0 TO ODCM-QA-006 ON THE LEVEL OF EFFLUENT CONTROL AND THE OVERALL ACCURACY AND RELIABILITY OF CALCULATIONS

Revision 0 to the ODCM in procedure format is being made as part of the conversion from Current Technical Specifications (CTS) to Improved Technical Specifications (ITS). In addition, 10CFR20.1001 to .2402 are being incorporated as applicable.

The revision moves elements of the Radioactive Effluent Control Program (RECP) (formerly called the Radioactive Effluent Technical Specifications) and the Radiological Environmental Monitoring Program (REMP) from Technical Specifications to the Technical Requirements Manual. In addition, administrative and reporting requirements formerly contained in Technical Specifications were moved to the appropriate sections of the ODCM procedures which implement them. Requirements formerly contained in the ODCM (e.g., dose calculation formulae, dose conversion factors and setpoint calculation formulae) were maintained in this revision of the ODCM.

The revisions described below are editorial in nature, changing only the format of the ODCM and/or location of the required elements of the RECP and the REMP without any change in the actual limits. Thus, Revision 0 of ODCM-QA-006 maintains the level of radioactive effluent control required pursuant to 10CFR20.1302, 40CFR190, 10CFR50.36a and Appendix I to 10CFR50 and does not impact the accuracy or reliability of effluent, dose, or setpoint calculations.

1. Initial issue in procedure format.
2. Section 7 of ODCM Revision 7 is reorganized in the format established by NDAP-QA-0002. No revision bars are used since the change was to the entire section.
3. Cover sheet, Revision Summary, and Table of Contents are added.
4. Document titles and references were revised to agree with ITS/TRM.
5. Added (Section 6.3) the required actions for dose calculations which exceed twice the quarterly or annual limits.

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1.0 PURPOSE

The purpose of this procedure is to provide the methodology and parameters to determine the total dose to a member of the public from the fuel cycle in the vicinity of the SSES site as required by 40CFR190.

It also ensures that radioactive effluents which result in calculated doses exceeding twice the objectives of 10CFR50, Appendix I, are identified, evaluated and reported.

This procedure constitutes part of the SSES Offsite Dose Calculation Manual (ODCM), which is a licensing basis document.

2.0 POLICY/DISCUSSION

2.1 The cumulative dose to any member of the public due to radioactive releases from the SSES site is determined by summing the calculated doses to critical organs from airborne and liquid effluent sources.

2.2 For all dose calculations from airborne effluents, the deposition rate used in the analysis should be at the receiver location of the individual being evaluated, not the highest calculated annual average relative concentration or relative deposition rate for any area at or beyond the site boundary as given in Attachment B of ODCM-QA-004.

2.3 The direct radiation to any member of the public due to operations at SSES should be determined from the environmental monitoring program results.

2.4 The total dose to members of the public shall include any dose received from activities occurring within the site boundary. Use of realistic occupancy factors for determination of this dose is allowed.

3.0 REFERENCES

3.1 TS 3.11.4, [Radioactive Effluents] Total Dose.

3.1 TR 3.11.3, Total Dose

3.2 10CFR50 Appendix I, Numerical Guides for Design Objectives and Limiting Conditions for Operation to Meet the Criterion "As Low as is Reasonably Achievable" for Radioactive Material in Light-water Cooled Nuclear Power Reactor Effluents.

3.3 40CFR190, Environmental radiation protection standards for nuclear power operations.

3.4 ODCM-QA-004, Airborne Effluent Dose Calculations.

3.5 ODCM-QA-005, Waterborne Effluent Dose Calculations.

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3.6 Regulatory Guide 1.109, Rev. 1, October, 1977, Calculation of Annual Doses to Man from Routine Releases of Reactor Effluents for the Purposes of Evaluating Compliance with 10 CFR 50, Appendix I.

4.0 RESPONSIBILITIES

4.1 Supervisor - Operations Technology

4.1.1 Ensures adequacy and correctness of methodology to be used to determine the total dose to a member of the public from the fuel cycle.

4.2 Environmental Services - Health Physicist (Effluent)

4.2.1 Performs dose calculations necessary for fulfillment of SSES Technical Specification Surveillance Requirements.

4.2.1 Performs dose calculations necessary for fulfillment of SSES Technical Requirements Surveillances.

4.2.2 Develops methodology and parameters to be used to determine the total dose to a member of the public from the fuel cycle.

5.0 DEFINITIONS

5.1 MEMBER(S) OF THE PUBLIC - Shall include all persons who are not occupationally associated with the plant. This category does not include employees of the utility, its contractors, or vendors. Also excluded from this category are persons who enter the site to service equipment or to make deliveries. This category does include persons who use portions of the site for recreational, occupational, or other purposes not associated with the plant.

6.0 PROCEDURE

6.1 Waterborne Effluent

The Environmental Services Health Physicist shall determine the annual dose to critical organs of a maximally exposed individual for the liquid effluents by using Equations 1, 2, and 3 of ODCM-QA-005 or by using the LADTAP II computer program as described in ODCM-QA-005.

6.2 Airborne Effluent

6.2.1 The Environmental Services Health Physicist shall determine the annual dose to critical organs of a real individual for the noble gases released in the gaseous effluents by using Equation 3 of ODCM-QA-004 modified by replacing M_i with K_i for the whole-body dose and using Equation 4 modified by replacing N_i by $[L_i + ((1.11\ M_i)(S_F))]$ for the skin dose.

Values of K_i, L_i, and M_i are obtained from Attachment A of ODCM-QA-004.

$$D_g = 3.17 \times 10^{-8} K_i (X/Q)_v (Q_{iv})(S_F) \quad \text{(Eq. 1)}$$

$$D_b = 3.17 \times 10^{-8} [L_i + ((1.11 M_i)(S_F))](X/Q)_v (Q_{iv}) \quad \text{(Eq. 2)}$$

6.2.2 The Environmental Services Health Physicist shall determine the annual dose to critical organs of a real individual for the radionuclides other than noble gases released in the gaseous effluents by using Equation 6 of ODCM-QA-004.

6.2.3 Alternatively, the Environmental Services Health Physicist may determine the dose resulting from airborne effluent using the GASPAR computer program as described in ODCM-QA-004.

6.3 Total Dose

6.3.1 The Environmental Services Health Physicist shall determine the total dose to a member of the public by summing the direct dose determined by the environmental monitoring program, the airborne dose contribution at the point of interest determined per §6.2, and the total dose from liquid effluent determined per §6.1.

6.3.2 If the results of the calculated doses exceed twice the objectives of 10CFR50, Appendix I, the Environmental Services Health Physicist shall determine whether the limits of 40CFR90 have been exceeded. If the 40CFR190 limits have been exceeded, a special report shall be prepared and submitted to the NRC within 30 days addressing the actions of TR 3.11.3.

7.0 RECORDS

None.

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PROCEDURE COVER SHEET

	NUCLEAR DEPARTMENT PROCEDURE	
	RADIOACTIVE WASTE TREATMENT SYSTEMS	ODCM-QA-007 Revision 0 Page 1 of 15

QUALITY CLASSIFICATION:	APPROVAL CLASSIFICATION:
☒ QA Program ☐ Non-QA Program	☒ Plant ☐ Non-Plant ☐ Instruction

EFFECTIVE DATE: 8-14-98

PERIODIC REVIEW FREQUENCY: N/A

PERIODIC REVIEW DUE DATE: N/A

RECOMMENDED REVIEWS:

Procedure Owner: R. K. Barclay

Responsible Supervisor: Supervisor - Operations Technology

Responsible FUM: Manager - Nuclear Technology

Responsible Approver: General Manager - SSES

PROCEDURE REVISION SUMMARY

TITLE: RADIOACTIVE WASTE TREATMENT SYSTEMS

EVALUATION OF THE IMPACT OF REV. 0 TO ODCM-QA-007 ON THE LEVEL OF EFFLUENT CONTROL AND THE OVERALL ACCURACY AND RELIABILITY OF CALCULATIONS

Revision 0 to the ODCM in procedure format is being made as part of the conversion from Current Technical Specifications (CTS) to Improved Technical Specifications (ITS). In addition, 10CFR20.1001 to .2402 are being incorporated as applicable.

The revision moves elements of the Radioactive Effluent Control Program (RECP) (formerly called the Radioactive Effluent Technical Specifications) and the Radiological Environmental Monitoring Program (REMP) from Technical Specifications to the Technical Requirements Manual. In addition, administrative and reporting requirements formerly contained in Technical Specifications were moved to the appropriate sections of the ODCM procedures which implement them. Requirements formerly contained in the ODCM (e.g., dose calculation formulae, dose conversion factors and setpoint calculation formulae) were maintained in this revision of the ODCM.

The revisions described below are editorial in nature, changing only the format of the ODCM and/or location of the required elements of the RECP and the REMP without any change in the actual limits. Thus, Revision 0 of ODCM-QA-007 maintains the level of radioactive effluent control required pursuant to 10CFR20.1302, 40CFR190, 10CFR50.36a and Appendix I to 10CFR50 and does not impact the accuracy or reliability of effluent, dose, or setpoint calculations.

1. Initial issue in procedure format.

2. Section 8 of ODCM Revision 7 is reorganized in the format established by NDAP-QA-0002. No revision bars are used since the change was to the entire section.

3. Cover sheet, Revision Summary, and Table of Contents are added.

4. Policy statements provided in Section 10.4 of ODCM Revision 7 are relocated to Section 2 of this procedure.

5. Policy statements provided in Section 10.6 of ODCM Revision 7 pertaining to liquid waste treatment are relocated to §2 of this procedure. Reference to the

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atmospheric demineralizer is changed to Mobile Liquid Processing System. LRW flow rates are corrected.

6. Figure 1 of ODCM Revision 7 is replaced by reference to FSAR Figure 11.2-8, Liquid Radwaste System Flow Diagram.

7. Figure 2 of ODCM Revision 7 is replaced by reference to FSAR Figure 11.3-1, Offgas System Process Flow Diagram.

8. Description of Solid Radwaste System is replaced with reference to PCP. Figures 3 and 4 of ODCM Revision 7 are deleted.

9. Table 12 of ODCM Revision 7 is incorporated as Attachment A.

10. Added Manager - Nuclear Modifications responsibilities in accordance with NDAP-00-1203.

11. Section 2.3.4 - reference to downstream HEPA filters in Turbine Building Filtered Exhaust System is deleted (they were removed per DCP 96-3005C).

12. Document titles and section references were revised to agree with ITS/TRM.

13. Added (Section 6.3) the requirement to evaluate and report changes to radwaste treatment systems.

14. Added (Section 2) required actions for discharging waste without treatment and exceeding the time limits for repair of monitoring instrumentation.

15. Added TRM requirements for containment vent and purge to Section 2.4 gaseous waste treatment.

16. Added (Section 4) responsibilities formerly contained in NEPM-QA-1010.

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1.0 PURPOSE

The purpose of this procedure is to define the operability requirements of the radioactive waste treatment systems to keep effluent releases as low as is reasonably achievable.

The purpose of this procedure is to define the operability requirements of the radioactive waste treatment and monitoring systems to keep effluent releases as low as is reasonably achievable. It also includes reporting requirements when changes are made to systems or when operability is not maintained in accordance with the Technical Requirements Manual (TRM).

This procedure constitutes part of the SSES Offsite Dose Calculation Manual (ODCM) which is a licensing basis document.

2.0 POLICY/DISCUSSION

2.1 Liquid Waste Treatment

2.1.1 The SSES Liquid Waste Management System consists of three processing sub-systems, liquid, chemical and laundry. Redundant and backup equipment, alternate process routes, interconnections and spare volumes are designed into the system to provide for operational and unanticipated surge waste volumes due to refueling, abnormal leakage rates, decontamination activities and equipment downtime, maintenance and repair. The system has piping connections to allow the installation of vendor-supplied equipment to provide specific treatment of off-normal wastes or to enhance the normal treatment capabilities as necessary. Appropriate vendor-supplied equipment may also be used in place of installed equipment to allow for repair or replacement of components.

2.1.2 Low conductivity liquid wastes are processed in the Liquid Radwaste Treatment Sub-system (LRW). Liquid is collected in three pairs of LRW Collection tanks. Each pair of tanks has an approximate capacity of 28,000 gallons. Surge capacity is maintained with two pairs of LRW Surge Tanks also with a 28,000 gallon/pair capacity.

Liquids from these tanks are normally processed through two vertical centrifugal discharge precoat filters with 300 ft^2 filter area at a 100 gpm normal flow rate. Liquid from the filters is then sent to a mixed bed demineralizer with a volume of 140 ft^3 and normal flow rate of 100 gpm. The demineralizer effluent is collected in three pairs of LRW Sample Tanks. Each pair of tanks has an approximate capacity of 28,100 gallons. The water is isolated in these tanks for analysis prior to recycle, reuse in the plant, or discharge to the Susquehanna River. Off-

specification liquids can be recycled back to the Liquid Waste Management System for additional processing.

2.1.3 High conductivity wastes are collected in the Chemical Drain Tank and in specific sumps located in the Turbine and Radwaste Buildings. Liquid from these sources is collected in a Chemical Waste Tank of approximately 12,000 gallons capacity. This liquid can then be sent to any one of two pairs of Chemical Waste Neutralizing Tanks. Each pair has a capacity of 31,000 gallons. The liquid is then sent to a vendor-supplied Chemical Waste Processing Sub-system for radionuclide removal. The effluent from the Chemical Waste Processing Sub-system is routed to the Evaporator Distillate Sample Tank where it can be isolated for analysis prior to discharge. The capability exists to recycle the liquid for additional processing if necessary.

2.1.4 The Laundry Waste Sub-system collects water from washdown, laundry and decontamination facilities in one of two Laundry Drain Tanks. Each tank has a capacity of approximately 820 gallons and has an independent mechanical filter system. One tank is normally valved to receive waste while the other is valved for processing. Effluent from these tanks is routed to the Laundry Drain Sample Tank where it can be isolated for analysis prior to discharge. Off-specification liquid can be returned to the Chemical Waste Processing Sub-system.

2.1.5 A flow diagram of the Liquid Waste Management System is shown in FSAR Figure 11.2-8.

2.2 Definition of "Appropriate Treatment" for Liquid Wastes

2.2.1 TS 3.11.1.3 requires that the appropriate portions of the liquid waste treatment system be operable and be used to reduce radioactivity in liquid wastes prior to their release when projected doses from each reactor unit to unrestricted areas would exceed 0.06 mrem to the total body or 0.2 mrem to any organ in a 31-day period.

2.2.1 TR 3.11.1.3 requires that the appropriate portions of the liquid waste treatment system be operable and be used to reduce radioactivity in liquid wastes prior to their release when projected doses from each reactor unit to unrestricted areas would exceed 0.06 mrem to the total body or 0.2 mrem to any organ in a 31-day period.

2.2.2 Normal treatment, which is considered appropriate for each subsystem, is as follows:

a. Filtration is considered appropriate treatment for the Liquid Radwaste Laundry Processing Subsystem, which consists of high conductivity liquid wastes, such as those from equipment washdown and personnel decontamination facilities, or laundry.

b. The Mobile Liquid Processing System (a vendor-supplied system which is directed to the Distillate Sample Tank) comprises the Liquid Radwaste Chemical Processing Subsystem. Appropriate treatment options provided by this system consist of filtration and demineralization.

c. Demineralization and filtration are considered appropriate treatment for low conductivity/low organic contaminant liquid wastes entering the Liquid Radwaste Processing Subsystem (LRW collection tanks).

d. Release with filtration alone is considered appropriate treatment for low conductivity/low organic contaminant liquid waste for batches which yield projected doses prior to treatment of less than or equal to 6.45E-04 mrem to the total body and 2.15E-03 mrem to any organ.

e. For batches of liquid radwaste which have no identified gamma activity above the TS Liquid Effluent LLD level (TS Table 4.11.1.1.1-1), release without treatment is considered appropriate.

e. For batches of liquid radwaste which have no identified gamma activity above the Technical Requirements Manual Liquid Effluent LLD level (TR 3.11.4.1 Table 3.11.4.1-3), release without treatment is considered appropriate.

f. The projected dose threshold values used are derived by dividing the site-total maximum projected doses without treatment (0.12 and 0.4 mrem) by 31 days and by 6, the maximum possible number of batches released per day, to yield per batch dose action levels. The two levels of "appropriate" treatment are in place so as not to require application of demineralization for treating low activity, high conductivity water (e.g., from Circulating or Service Water leakage). This would increase the overall efficiency of the solid radwaste program while ensuring calculated doses remain at a suitable fraction of 10 CFR 50 Appendix I design objectives and TS 3.11.1.2 limit (PLI-70360 and PLI-70612).

f. The projected dose threshold values used are derived by dividing the site-total maximum projected doses without treatment (0.12 and 0.4 mrem) by 31 days and by 6, the maximum possible number of

batches released per day, to yield per batch dose action levels. The two levels of "appropriate" treatment are in place so as not to require application of demineralization for treating low activity, high conductivity water (e.g., from Circulating or Service Water leakage). This would increase the overall efficiency of the solid radwaste program while ensuring calculated doses remain at a suitable fraction of 10CFR50 Appendix I design objectives and TR 3.11.1.2 limit (PLI-70360 and PLI-70612).

g. If liquid waste was discharged without treatment at levels exceeding TR 3.11.1.3, a special report shall be prepared and submitted to the NRC within 30 days which addresses the actions of TR 3.11.1.3.

2.3 Liquid Effluent Monitoring Instrumentation

2.3.1 Liquid radwaste monitoring instrumentation shall be maintained as specified in TR 3.11.1.4 and liquid process monitoring instrumentation shall be maintained as specified in TR 3.11.1.5. When monitoring instrumentation is not operable in accordance with the TRM, the required action of the TRM shall be implemented as stated. If the inoperable condition was not corrected within the specified time frame, a report of the uncorrected condition shall be made in the Annual Effluent and Waste Disposal Report.

2.4 Gaseous Waste Treatment

2.4.1 The SSES Off Gas Treatment System operates with four steam jet air ejectors maintaining condenser vacuum. Noncondensible gases are passed through one of three recombiners (one for each reactor unit plus a common recombiner), reducing the amount of gases to be filtered and released. Gases pass through a two to nine minute holdup pipe before entering the Off Gas Treatment System, which consists of one 100 percent capacity system per reactor unit. Each system consists of precoolers, chillers, reheaters, guard beds, and five charcoal absorbers and an outlet HEPA filter. Filtered air then exits to the Turbine Building vent.

2.4.2 The gaseous radwaste treatment system must be in operation whenever the main condenser air ejector system is in operation. This is the appropriate level of gaseous waste treatment.

2.4.3 A process flow diagram of the Offgas And Recombiner System is shown in FSAR Figure 11.3-1.

2.4.4 Filtered exhaust systems serve selected areas of Zone I, II, and III of the SSES Reactor Building. The Zone I and Zone II equipment compartment and Zone III filtered exhaust systems each consist of two 100% capacity redundant fans and two 55% capacity filter trains. Each filter train has, in the direction of air flow, roughing filters, upstream HEPA filters, a charcoal filter bed, and downstream HEPA filters. Exhaust fan discharge is then routed to the atmosphere via the Reactor Building vents, where effluents are continuously sampled and monitored.

2.4.5 The containment drywell is vented and purged via the Standby Gas Treatment System (SGTS) to ensure releases from the drywell are maintained as low as is reasonably achievable. This provides the appropriate level of treatment.

2.4.6 The Turbine Building Filtered Exhaust System draws air from those areas of the building that are most likely to become contaminated. Two 100% capacity fans serve each system, which contains two 50% capacity filter housings made up of a particulate prefilter, an upstream HEPA filter and a charcoal filter. Discharged air is released via the Turbine Building vents, which are continuously sampled and monitored.

2.4.7 The Radwaste Building Filtered Exhaust System draws potentially contaminated air from selected areas of the Radwaste Building. The system contains two 100% capacity fans and two 50% capacity filter housings, each containing a particulate filter bank and a HEPA filter. Filtered air is discharged via the Unit 1 Turbine Building vent.

2.4.8 Ventilation exhaust systems must be drawing air through the HEPA and charcoal filters (where available) as the appropriate level of waste treatment.

2.4.9 In order to minimize the quantities of radioactivity in airborne effluents from the station, the ventilation exhaust treatment (filtered exhaust) systems are normally kept in service at SSES.

2.4.10 As the need arises, these systems are periodically rendered inoperable for maintenance or testing activities. If any of the ventilation exhaust treatment systems in Attachment A are bypassed, degraded, or otherwise rendered inoperable, vent evaluations shall be performed in accordance with plant procedures. If the most recent 31-day dose projection indicates that dose may exceed 0.3 mrem to any organ when averaged over the projected 31-day period, treatment systems rendered inoperable will be restored to operable status as quickly as is practicable.

2.4.11 When the Standby Gas Treatment System (SGTS) is not being used, a small amount of flow from the SGTS vent remains. This residual flow originates in the battery rooms in the control structure. Because there are no identifiable sources of radioactivity in these rooms, auxiliary particulate and iodine sample and noble gas grab sample at 4-hour intervals are not required from the SGTS vent when the SGTS continuous vent monitor is out of service, provided that

a. the Standby Gas Treatment System is not being used,

b. there are proper administrative controls in place to ensure that the required sampling will begin within 4 hours if the treatment system is operated.

2.4.12 If inoperable gaseous radwaste treatment systems are not returned to operation as required by TR 3.11.2.4.A, then a special report shall be prepared and submitted to the NRC within 30 days.

2.4.13 If gaseous effluents are discharged in excess of the limits of TR 3.11.2.5.A without treatment, then a special report shall be prepared and submitted to the NRC within 30 days.

2.5 Gaseous Effluent Monitoring Instrumentation

Gaseous effluents shall be monitored as specified in TR 3.11.2.6. When monitoring instrumentation is not operable in accordance with the TRM, the required action of the TRM shall be implemented as stated. If the inoperable condition is not corrected in the specified time frame, a report of the uncorrected condition shall be made in the Annual Effluent and Waste Disposal Report.

2.6 Solid Waste Treatment Including the Process Control Program (PCP)

2.6.1 The SSES Solid Radwaste System collects all wet wastes produced from the operation of other plant systems. A vendor-supplied system processes and packages the wastes into a waste form that meets all applicable federal, state, and local requirements for transportation, storage, and disposal. The Solid Radwaste Process Control Program (NDAP-QA-0646) contains the administrative controls for waste sampling, waste analysis, formulation for solidification or dewatering instructions, verification of solidification or dewatering, and reporting of process failures to ensure liquid waste is properly processed for disposal. In addition, the Process Control Program provides requirements for classifying waste in accordance with 10CFR61.

2.6.2 Changes in radioactive solid waste processing and operational changes shall be controlled, reviewed, and approved in accordance with NDAP-QA-0646.

2.6.3 Any changes to the Solid Radioactive Waste Process Control Program shall be provided in the Annual Radioactive Effluent and Waste Disposal Report.

3.0 REFERENCES

3.1 TS 3.11.2.8, [Radioactive Effluents] Venting or Purging

3.1 TR 3.6.1, Containment Venting or Purging

3.2 TS 3.11.1.3, [Radioactive Effluents] Liquid Waste Treatment System

3.2 TR 3.11.1.3, [Radioactive Effluents] Liquid Waste Treatment System

3.3 TR 3.11.1.2, [Radioactive Effluents] Dose

3.4 TR 3.11.4.1, Table 3.11.4.1-3, Detection Capabilities for Environmental Sample Analysis Lower Limit of Detection (LLD)

3.5 TR 3.11.1.4, Liquid Radwaste Effluent Monitoring Instrumentation

3.6 TR 3.11.1.5, Radioactive Liquid Process Monitoring Instrumentation

3.7 TS 3.11.2.4, [Radioactive Effluents] Gaseous Radwaste Treatment System

3.7 TR 3.11.2.4, Gaseous Radwaste Treatment Systems

3.8 TS 3.11.2.5, [Radioactive Effluents] Ventilation Exhaust Treatment System

3.8 TR 3.11.2.5, Ventilation Exhaust Treatment Systems

3.9 TR 3.11.2.6, Radioactive Gaseous Effluent Monitoring Instrumentation

3.10 10CFR50.59, Changes, Tests and Experiments

3.11 10CFR20, Standards for Protection Against Radiation

3.12 FSAR Figure 11.2-8, Liquid Radwaste System Flow Diagram

3.13 FSAR Figure 11.3-1, Offgas System Process Flow Diagram

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3.14 NDAP-QA-0646, Solid Radioactive Waste Process Control Program

3.15 NDAP-00-1203, Modification Identification and Scoping Process

3.16 ODCM-QA-005, Waterborne Effluent Dose Calculations

3.17 ODCM-QA-009, Dose Assessment Policy Statements

3.18 PLI-70360, Memo from R. K. Barclay to R. A. Breslin, Calculation of Liquid Isotope Sampling Limits: Use of Atmospheric Demineralizer System, February 4, 1992

3.19 PLI-70612, Memo from R. K. Barclay to R. A. Breslin, Atmospheric Demineralizer Effluent Results, March 4, 1992

4.0 RESPONSIBILITIES

4.1 General Manager - SSES

4.1.1 Ensures that radioactive waste treatment systems are operated in compliance with the limiting conditions of operations stated in the Technical Specifications and in accordance with this procedure.

4.1.1 Ensures that radioactive waste treatment systems are operated in compliance with the TROs stated in the Technical Requirements Manual and in accordance with this procedure.

4.2 Manager- Nuclear Modifications

4.2.1 Provides modification engineering and support in accordance with NDAP-00-1203 for equipment and systems involved with the treatment or monitoring of radioactive effluent.

4.3 Supervisor - Operations Technology

4.3.1 Ensures adequacy and correctness of operability requirements of the radioactive waste treatment systems presented in this procedure.

4.4 Supervisor - Chemistry

4.4.1 Ensures adequacy and correctness of pre-release liquid effluent dose assessments.

5.0 DEFINITIONS

5.1 LRW- Liquid Radwaste

5.2 RCA - Radiologically Controlled Area

6.0 PROCEDURE

6.1 Liquid Waste Treatment

6.1.1 Chemistry shall perform a dose assessment using LADTAP II or the methodology of ODCM-QA-005 prior to release in cases when a batch of liquid waste must be released with treatment less than that specified in Section 2.2, to ensure that the limits of TS 3.11.1.3 are not exceeded.

6.1.1 Chemistry shall perform a dose assessment using LADTAP II or the methodology of ODCM-QA-005 prior to release in cases when a batch of liquid waste must be released with treatment less than that specified in Section 2.2, to ensure that the limits of TR 3.11.1.2 are not exceeded.

6.2 Gaseous Waste Treatment

6.2.1 Environmental Services shall perform dose projections at least once per 31 days based on the most recently available effluent data. If it is known prior to performing the dose projection that a treatment system will be out of service, and if data exists which indicates how the lack of treatment will impact effluents, these factors will be considered when performing the dose projection.

6.3 Evaluating the Dose Impact of Changes to Waste Treatment Systems

6.3.1 Environmental Services shall include in the Annual Effluent and Waste Disposal Report a discussion of any major changes to radwaste systems (liquid, gaseous and solid). Such discussion shall include the following:

a. asummary of the evaluation that led to the determination that the change could be made in accordance with 10CFR50.59,

b. sufficiently detailed information to fully support the change without supplemental information,

c. detailed descriptions of the equipment, components and processes involved and interfaces with other plant systems,

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d. an evaluation which shows how the predicted releases of radioactive materials in liquid and gaseous effluents and/or quantity of solid waste differ from those previously predicted in the license application or subsequent amendments,

e. an evaluation of the change which shows the expected maximum exposures to an individual in the unrestricted area and to the general population that differ from those previously estimated in the license application or subsequent amendments,

f. a comparison of predicted releases of radioactive materials in liquid and gaseous effluents and in solid waste to the actual releases for the period prior to when the changes are to be made,

g. an estimate of exposure to plant operating personnel as a result of the change, and documentation that the change was reviewed and approved by PORC.

6.3.2 If a modification to the liquid waste system results in positioning a radioactive liquid storage tank outside which is not surrounded by a liner, dike, or a wall capable of holding the contents of the tank and the tank does not have an overflow or surrounding area drains connected to the Liquid Radwaste Treatment System, then the tank contents shall be limited to less than 10 curies (not including tritium and dissolved gas). Chemistry will sample the tank per the TRM to ensure the contents are limited to 10 Curies. This is to ensure that a tank failure will not result in radioactivity in the nearest drinking water source in concentrations which exceed 10CFR20, Appendix B, Table 2, Col. 2.

7.0 RECORDS

None.

Approval	MWS
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VENTILATION EXHAUST TREATMENT SYSTEMS WHICH REQUIRE OFFSITE VENT EVALUATIONS WHEN BYPASSED, DEGRADED, OR OTHERWISE RENDERED INOPERABLE

FILTER SYSTEM LOCATION	UPSTREAM HEPA DESIGNATION	CHARCOAL	DOWNSTREAM HEPA DESIGNATION
Unit 1 Turbine Building	1F157A/B	1F158A/B	N/A
Unit 2 Turbine Building	2F157A/B	2F158A/B	N/A
Unit 1 Zone 1 Reactor Building	1F255A/B	1F257A/B	1F258A/B
Unit 1 Zone 3 Reactor Building	1F216A/B	1F217A/B	1F218A/B
Unit 2 Zone 2 Reactor Building	2F255A/B	2F257A/B	2F258A/B
Unit 2 Zone 3 Reactor Building	2F216A/B	2F217A/B	2F218A/B
Radwaste Building Exhaust	0F355A/B	N/A	N/A
Radwaste Tank Vent	0F358	0F359	N/A
Radwaste Degasifier	0F372	0F373	0F374
Control Structure Sample Room	0F134	0F135	N/A
Control Structure Rad Chem Lab	0F137	0F138	N/A
Control Structure Rad Chem Lab	0F140	0F141	N/A
Control Structure Decon Area	0F143	0F144	N/A
S&A Building	0F716	N/A	N/A

Approval	MWS
Date	see page 1

PROCEDURE COVER SHEET

	NUCLEAR DEPARTMENT PROCEDURE	
	RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM	ODCM-QA-008 Revision 1 Page 1 of 74

QUALITY CLASSIFICATION:
☒ QA Program ☐ Non-QA Program

APPROVAL CLASSIFICATION:
☒ Plant ☐ Non-Plant
☐ Instruction

EFFECTIVE DATE: 10-13-99

PERIODIC REVIEW FREQUENCY: N/A

PERIODIC REVIEW DUE DATE: N/A

RECOMMENDED REVIEWS:

Procedure Owner: R. K. Barclay

Responsible Supervisor: Supervisor - Operations Technology

Responsible FUM: Manager - Nuclear Technology

Responsible Approver: General Manager - SSES

PROCEDURE REVISION SUMMARY

TITLE: RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM

The former REMP milk monitoring location 12B3 has been deleted from Page 1 of 1 of Attachment B. The current REMP milk monitoring location 7C1 has been added to page 1 of 1 of Attachment B. Attachment B is the map of environmental monitoring locations greater than one mile from the SSES.

The description of the former milk monitoring location 12B3 has been replaced by the description of the current milk monitoring location 7C1 on page 3 of 3 of Attachment C.

Approval	MWS
Date	see page 1

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1.0 PURPOSE

The purpose of this procedure is to provide the methodology and parameters used to determine doses to the public resulting from inhalation, ingestion, and direct shine from radiologically contaminated environmental sampling media based on measured activity concentrations in those media. This procedure also describes the Radiological Environmental Monitoring Program (REMP), which includes the annual land use census survey and interlaboratory comparison program.

This procedure constitutes part of the SSES Offsite Dose Calculation Manual (ODCM), which is a licensing basis document.

2.0 POLICY/DISCUSSION

2.1 Monitoring Program

2.1.1 The results of the Radiological Environmental Monitoring Program are intended to supplement the results of the radiological effluent monitoring by verifying that the measurable concentrations of radioactive materials and levels of radiation are not higher than expected on the basis of the effluent measurements and modeling of the environmental exposure pathways. Thus, the specified environmental monitoring program provides measurements of radiation and of radioactive materials in those exposure pathways and for those radionuclides which lead to the highest potential radiation exposures of individuals resulting from station operation.

2.1.2 Environmental samples shall be collected and analyzed (as a minimum) according to Attachment C at locations shown in Attachments A and B in order to meet the requirements of TR Table 3.11.4.1-1. Comparisons to the Reporting Levels of TR Table 3.11.4.1-2 are conducted in accordance with procedure ST-099-003. Analytical techniques used shall ensure that the detection capabilities in TR Table 3.11.4.1-3 are achieved.

2.1.3 Sampling and analyses specified in Attachment C shall be performed with a maximum allowable extension not to exceed 25 percent of the specified interval. More restrictive tolerances may be imposed by implementing procedures.

2.1.4 Program changes may be proposed based on operational experience. Deviations are permitted from the required sampling schedule if specimens are unobtainable due to hazardous conditions, seasonal unavailability, malfunction of automatic sampling equipment, and other legitimate reasons. If specimens are unobtainable due to sampling equipment malfunction, an effort shall be made to complete corrective action prior to the end of the next sampling period. All program changes

and deviations from the sampling schedule shall be documented in the next Annual Radiological Environmental Operating Report.

2.1.5 An Annual Radiological Environmental Operating Report shall be prepared and submitted to the NRC prior to May 15 of each year in accordance with Technical Specification 5.6.2. The report shall include summaries, interpretations and analyses of trends of the results of the Radiological Environmental Monitoring Program (including any monitoring not conducted in accordance with TR Table 3.11.4.1-1) for the reporting period. A comparison, as appropriate, of sample analysis results with pre-operational studies, operational controls and results reported in previous reports shall be included. An assessment of environmental impacts of plant operation shall be made. The material provided shall be consistent with the objectives contained in the ODCM and 10CFR50, Appendix I, Sections IV.B.2, IV.B.3 and IV.C.

The Annual Radiological Environmental Operating Report shall include the results of analyses of all radiological environmental samples and of all environmental radiation measurements taken during the period at the locations specified in the ODCM as well as the summary and tabulation of results presented in the format of the table in the Radiological Assessment Branch Technical Position, Rev. 1, November 1979. The results of the Land Use Census and the Interlaboratory Comparison Program are included as well as corrective actions for analyses with results which are outside the control limits specified in the Interlaboratory Comparison Program. Detected radionuclides which are not the result of plant effluents must be included in the report.

At least two maps, including one near the Site Boundary, showing monitoring/sampling locations that are keyed to table(s) providing distances and directions from the plant centerline shall also be included.

In the event that some individual results are not available for inclusion with the report, the report shall note and explain the reasons for the missing results. The missing data shall be submitted in a supplementary report as soon as possible.

2.1.6 Special Reports shall be prepared and submitted to the NRC in accordance with the TROs of the specific sections of the Technical Requirements Manual.

2.2 Census Program

2.2.1 Broad leaf vegetation sampling of at least three different kinds of vegetation may be performed at the site boundary in each of two direction sectors with the highest predicted D/Q's in lieu of the garden census. Specifications for broad leaf vegetation sampling in TR

Table 3.11.4.1-1, Item 4C shall be followed, including analysis of control samples.

2.2.2 If a land use census identifies a location(s) with a higher average annual deposition rate (D/Q) than a current indicator location, the following shall apply:

a. If the D/Q is at least 20 percent greater than a previously high D/Q, the new location shall be added to the program within 30 days of documented identification of sampling feasibility. The indicator location having the lowest D/Q may be dropped from the program after October 31 of the year in which the land use census was conducted.

b. If the D/Q is not 20 percent greater than the previously highest D/Q, direction, distance, and D/Q will be considered in deciding whether to replace one of the existing sample locations. If applicable, replacement shall be within 30 days of documented decision making.

2.2.3 Any evaluations of possible location replacement should include the past history of the location, availability of sample, milk production history, and other applicable environmental conditions. New locations for dose calculations or environmental monitoring shall be reported in the Annual Effluent and Waste Disposal Report.

2.2.4 A land use census will be conducted at least once per calendar year by a door-to-door or aerial survey, by consulting local agricultural authorities, or by any combination of these methods.

2.3 Interlaboratory Comparison Program

2.3.1 The laboratories providing radioanalytical services for the station's Radiological Environmental Monitoring Program (REMP) shall participate in an Interlaboratory Comparison Program (ICP).

2.3.2 Analysis results which are obtained as part of an ICP that are not within acceptance limits established by the ICP shall be investigated by the laboratory responsible for the analysis. Corrective action appropriate for the findings of the investigation shall be taken. Investigation findings and corrective actions taken shall be described in the Annual Radiological Environmental Operating Report.

2.4 Dose Computations

2.4.1 When doses to members of the public are to be determined from REMP sample analysis results reported above LLD, doses should be added across sampling media for the same exposure pathways (airborne or

waterborne), if available, to maximize the result for a particular age group and organ.

3.0 REFERENCES

3.1 TR Table 3.11.4.1-1, Radiological Environmental Monitoring Program.

3.2 TR Table 3.11.4.1-2, Reporting Levels for Radioactivity Concentrations in Environmental Samples.

3.3 TR Table 3.11.4.1-3, Detection Capabilities for Environmental Sample Analysis

3.4 TS 5.6.2, Annual Radiological Environmental Operating Report.

3.5 10CFR50, Appendix I, Numerical Guides for Design Objectives and Limiting Conditions for Operation to Meet the Criterion "As Low as is Reasonably Achievable" for Radioactive Material in Light-Water-Cooled Nuclear Power Reactor Effluents.

3.6 40CFR141, National Primary Drinking Water Regulations.

3.7 Regulatory Guide 4.8, December 1975- Environmental Technical Specifications for Nuclear Power Plants.

3.8 Branch Technical Position to NRC Reg. Guide 4.8, Rev. 1, November 1979.

3.9 ORP/SID 72-2 Environmental Radioactivity Surveillance Guide

3.10 NEPM-QA-1014, Radiological Environmental Monitoring Program.

3.11 ST-099-003, Performance of REMP Quarterly Surveillance

3.12 PP&L Calculation EC-ENVR-1027, SSES REMP Dose Factor Calculations: C. R. 96-1310.

4.0 RESPONSIBILITIES

4.1 Supervisor- Operations Technology

4.1.1 Is responsible for appointing and supervising the Environmental Services- Health Physicist (REMP).

4.2 Environmental Services- Health Physicist (REMP)

4.2.1 Has the primary responsibility for developing the REMP and ensuring proper conduct of the REMP.

5.0 DEFINITIONS

5.1 LLD - Lower Limit of Detection, the smallest concentration of radioactive material in a sample that will yield a net count (above system background) that will be detected with 95 percent probability with only a 5 percent probability of falsely concluding that a blank observation represents a "real" signal.

5.2 REMP - Radiological Environmental Monitoring Program.

5.3 MEMBER(S) OF THE PUBLIC - Shall include all persons who are not occupationally associated with the plant. This category does not include employees of the utility, its contractors, or vendors. Also excluded from this category are persons who enter the site to service equipment or to make deliveries. This category does include persons who use portions of the site for recreational, occupational, or other purposes not associated with the plant.

6.0 PROCEDURE

6.1 Dose Computations

6.1.1 The Environmental Services Health Physicist shall determine annual doses to members of the public from ingestion of radioactive material for various pathways, age groups and organs according to the methodology developed in EC-ENVR-1027:

$$D_{REMP/ING} = DF_{CALC/ING} * RES_{REMP} * F_{SAMP} \quad \text{(Eq. 1)}$$

where:

$D_{REMP/ING}$ = Annual dose from ingestion, as determined from REMP sample result (mrem/year).

$DF_{CALC/ING}$ = Dose rate factor for ingestion pathway; mrem-liter/pCi-yr for liquid samples; mrem-kg/pCi-yr for solid samples (Attachments D through G).

RES_{REMP} = REMP sample result: pCi/liter for water or milk samples; pCi/kg for vegetable, fruit, meat or fish samples.

F_{SAMP} = Correction factor for the fraction of year represented by the sampling period (for cases where only periodic or seasonal sampling is conducted).

6.1.2 The Environmental Services Health Physicist shall determine annual doses to members of the public from inhalation of radioactive material for

various pathways, age groups and organs according to the methodology developed in EC-ENVR-1027:

$$D_{REMP/INH} = DF_{CALC/INH} * RES_{REMP} * F_{SAMP} \quad \text{(Eq. 2)}$$

where:

$D_{REMP/INH}$ = Annual dose to organs or total body from inhalation, as determined from REMP sample result (mrem/yr).

$DF_{CALC/INH}$ = Dose rate factor for inhalation pathway (mrem-m^3/pCi-yr) (Attachments D through G).

RES_{REMP} = REMP sample result: pCi/m^3 for air samples corrected for absorption efficiency of filter media.

6.1.3 The Environmental Services Health Physicist shall determine annual doses to members of the public from exposure to contaminated sediment for total body and skin dose, for various age groups according to the methodology developed in EC-ENVR-1027:

$$D_{REMP/TB} = DF_{CALC/TB} * RES_{REMP} * F_{SAMP} \quad \text{(Eq. 3)}$$

$$D_{REMP/SKIN} = DF_{CALC/SKIN} * RES_{REMP} * F_{SAMP} \quad \text{(Eq. 4)}$$

where:

$D_{REMP/TB}$ = Annual total body dose, as determined from REMP sample result (mrem/yr).

$D_{REMP/SKIN}$ = Annual skin dose, as determined from REMP sample result (mrem/yr).

RES_{REMP} = REMP sample result: pCi/kg sediment.

$DF_{CALC/TB}$ = Total body dose rate factor from sediment (mrem-kg/pCi-yr) (Attachment H).

$DF_{CALC/SKIN}$ = Skin dose rate factor from sediment (mrem-kg/pCi-yr) (Attachment H).

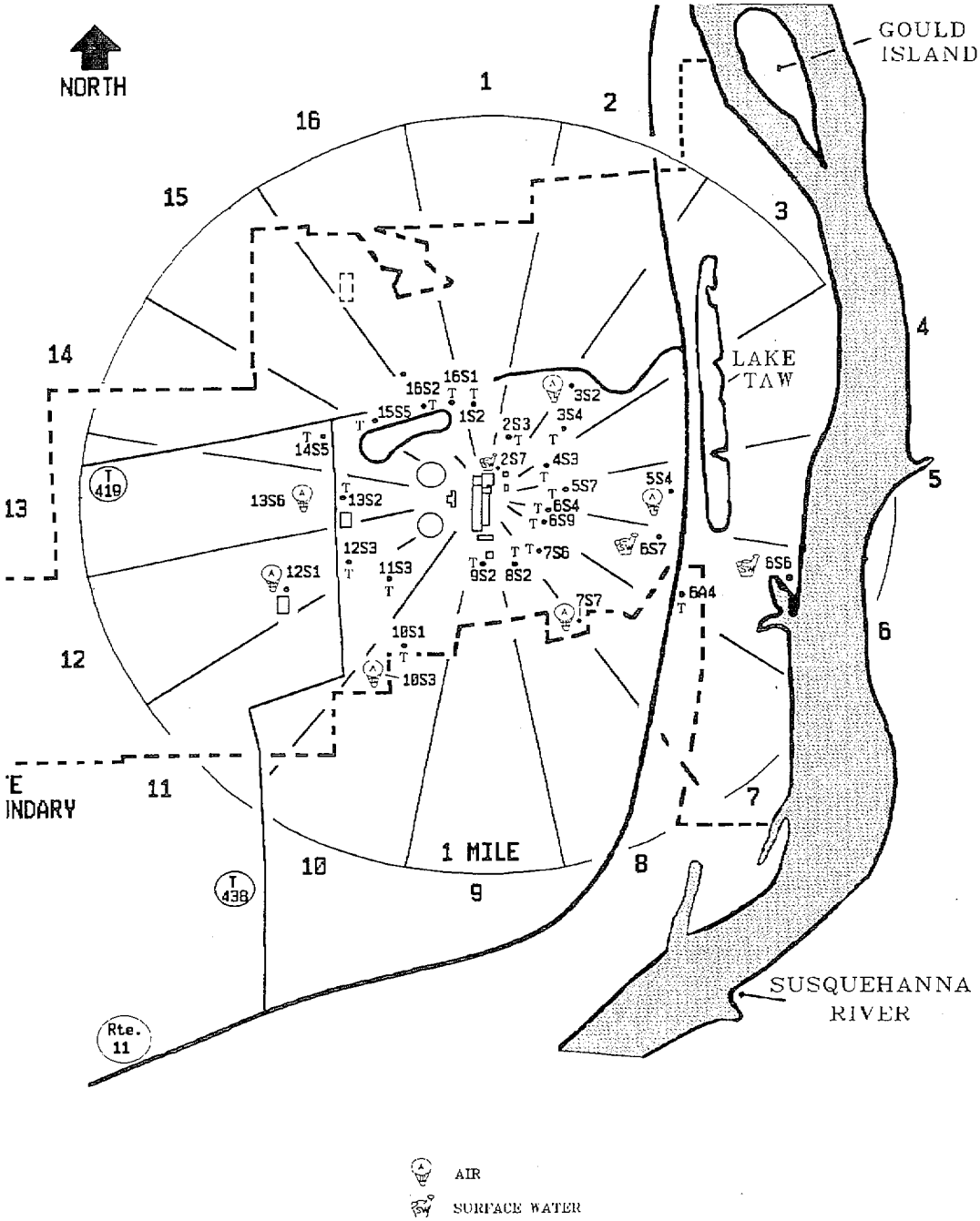
F_{SAMP} = Correction factor for the fraction of year represented by the sampling period (for cases where only periodic or seasonal sampling is conducted).

7.0 RECORDS

None.

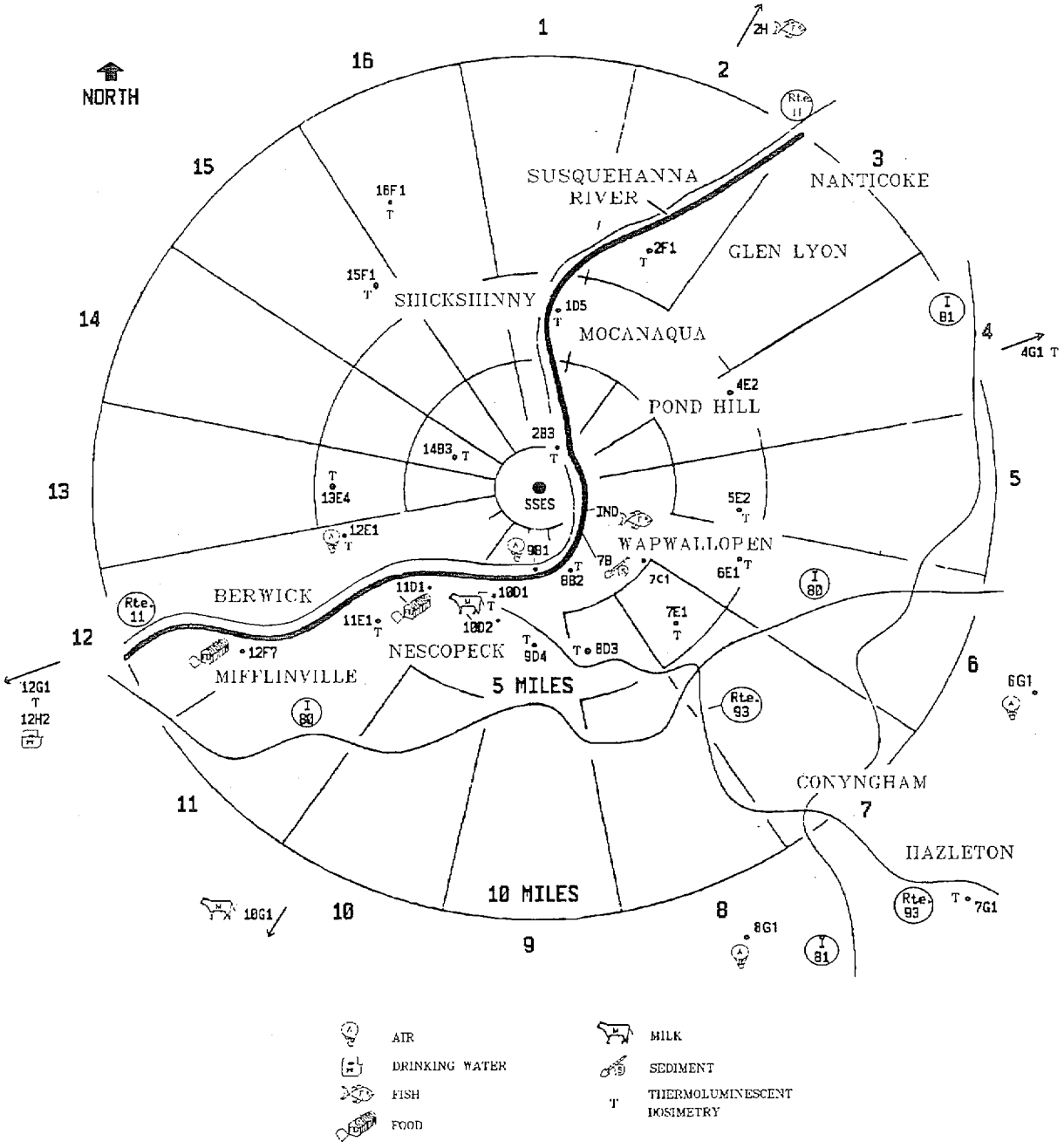
odcm-qa-008(26)

ENVIRONMENTAL MONITORING LOCATIONS WITHIN ONE MILE OF SSES



Approval	MWS
Date	see page 1

ENVIRONMENTAL MONITORING LOCATIONS
GREATER THAN ONE MILE FROM SSES



AIR
DRINKING WATER
FISH
FOOD
MILK
SEDIMENT
T THERMOLUMINESCENT DOSIMETRY

Approval	MWS
Date	see page 1

OPERATIONAL RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM

Exposure Pathways and/or Sample	Number of Samples and Locations*				Sampling and Collection Frequency	Type and Frequency of Analysis
Airborne						
Radioiodine and Particulates*	12S1	0.4 mi	WSW	West Building	Continual sampler operation with sample collection weekly.	Radioiodine Canister: analyze weekly for I-131.[a]
	9B1	1.3 mi	S	Transmission Line		
	5S4	0.8 mi	E	Environmental Laboratory		
	12E1	4.7 mi	WSW	Berwick Hospital		
	3S2	0.5 mi	NE	SSES Backup Met. Tower		Particulate Sample: Analyze for gross beta radioactivity following filter change. Perform isotopic analysis on composite sample (by location) quarterly.[b]
	7S7	0.4 mi	SE	End of Kline's Road		
	10S3	0.6 mi	SSW	East of Confer's Lane, South of Towers Club		
	13S6	0.4 mi	W	Former Laydown Area, West of Confer's Lane		
	6G1	13.5 mi	ESE	Freeland Substation[c]		
	8G1	12.2 mi.	SSE	PP&L System Facilities[c] Center, Humbolt Industrial Park		
Direct Radiation						
	1S2	0.2 mi	N	Perimeter Fence	Quarterly	Gamma Dose: Quarterly.
	1D5	4.0 mi	N	Mocanaqua Sewage Treatment Plant		
	2S3	0.2 mi	NNE	Perimeter Fence		
	2B3	1.3 mi	NNE	Durabond Corporation		
	2F1	5.9 mi	NNE	St. Adalberts Cemetery		
	3S4	0.3 mi	NE	Perimeter Fence		
	3E1	4.7 mi	NE	Webb Residence- Lilly Lake		
	4S3	0.2 mi	ENE	West of SSES APF		
	4E2	4.7 mi	ENE	Ruckles Hill & Pond Hill Roads Intersection		
	4G1	14 mi	ENE	Crestwood Industrial Park[c]		
	5S7	0.3 mi	E	Perimeter Fence		
	5E2	4.5 mi	E	Bloss Farm		
	6S4	0.2 mi	ESE	Perimeter Fence		
	6A4	0.6 mi	ESE	Restaurant		
	6E1	4.7 mi	ESE	St. James Church		

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OPERATIONAL RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM

Exposure Pathways and/or Sample	Number of Samples and Locations*				Sampling and Collection Frequency	Type and Frequency of Analysis
	6S9	0.2 mi	ESE	Perimeter Fence	Quarterly	Gamma Dose: Quarterly.
	7S6	0.2 mi	SE	Perimeter Fence		
	7E1	4.2 mi	SE	Harwood Transmission Line Pole #2		
	7G1	14 mi	SE	PP&L Hazleton Complex[c]		
	8S2	0.2 mi	SSE	Perimeter Fence		
	8B2	1.4 mi	SSE	LaWall Residence		
	8D3	4.0 mi	SSE	Mowry Residence		
	9S2	0.2 mi	S	Security Fence		
	9D4	3.6 mi	S	Country Folk Store		
	10S1	0.4 mi	SSW	Post South of Switching Station		
	10D1	3.0 mi	SSW	Ross Ryman Farm		
	11S3	0.3 mi	SW	Security Fence		
	11E1	4.7 mi	SW	Thomas Residence		
	12S3	0.4 mi	WSW	Perimeter Fence		
	12E1	4.7 mi	WSW	Berwick Hospital		
	12G1	15 mi	WSW	PP&L Bloomsburg Service Center[c]		
	13S2	0.4 mi	W	Perimeter Fence		
	13E4	4.1 mi	W	Kessler Farm		
	14S5	0.5 mi	WNW	Beach Grove Rd. & Confer's Lane Intersection		
	14B3	1.3 mi	WNW	Moskaluk Residence		
	15F1	5.4 mi	NW	Zawatski Farm		
	15S5	0.4 mi	NW	Perimeter Fence		
	16S1	0.3 mi	NNW	Perimeter Fence		
	16S2	0.3 mi	NNW	Perimeter Fence		
	16F1	7.8	NNW	Hidlay Residence		
Waterborne						
Surface	2S7	Cooling Tower Blowdown discharge line (restricted area)[f]			Monthly composite	Gamma isotopic analysis. Composite tritium analysis at least quarterly.
	6S6	river water intake line[c]				
	6S7	Cooling Tower Blowdown discharge line (STP)[f]				
Drinking	12H2	Danville Water Company (Approximately 30 miles downstream)			Monthly composite[c]	Gross beta and gamma isotopic analyses monthly. Composite for tritium analysis at least quarterly.

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OPERATIONAL RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM

Exposure Pathways and/or Sample	Number of Samples and Locations*				Sampling and Collection Frequency	Type and Frequency of Analysis
Sediment from Shoreline	7B	1.2 mi	SE	Bell Bend	Semi-annually	Gamma isotopic analysis semi-annually.
Milk**	7C1	2.6 mi	SE	Zajac Farm	Semi-monthly when animals are on pasture, monthly otherwise	Gamma isotopic and I-131 analysis of each sample.
	10G1	14.0 mi.	SSW	Davis Farm[c]		
	10D2	3.5 mi.	SSW	Ray Ryman Farm		
	10D1	3.0 mi.	SSW	R&C Ryman Farm		
Fish and Invertebrates	2H	Outfall area Falls, Pa[c] (Approximately 30 mi NNE)			Semi-annually. One sample[e] from each of two recreationally important species from any of the following families: bullhead catfish, sunfish, pikes, or perches.	Gamma isotopic on edible portions.
Food Products	11D1	3.3 mi	SW	Zehner Farm (vegetable)	At time of harvest	Gamma isotopic on edible portions.
	12F7	8.3 mi	WSW	Lupini Farm (vegetable)		

* The location of samples and equipment were designed using the guidance in the Branch Technical Position to NRC Reg. Guide 4.8, Rev. 1, Nov. 1979, Reg. Guide 48.1975 and ORP/SID 72-2 Environmental Radioactivity Surveillance Guide. Therefore, the airborne sampler locations were based upon X/Q and/or D/Q.

** If a milk sample is unavailable for more than two sampling periods from one or more of the locations, a vegetation sample shall be substituted until a suitable milk location is evaluated. Such an occurrence will be documented in the REMP annual report.

[a] The charcoal sampler cartridges used in the airborne radioiodine sampling program are designed and tested by the manufacturer to assure a high quality of radioiodine capture. A certificate from the manufacturer is supplied and retained with each batch of cartridges certifying the percent reduction of radioiodine versus air flow rate through the cartridge.

[b] Gross beta activity calculations will be performed in accordance with the procedures of the designated REMP analysis laboratory.

[c] Control sample location.

[d] Two-week composite if calculated doses due to consumption of water exceed one millirem per year. In these cases, I-131 analyses will be performed.

[e] The sample collector will determine the species based upon availability, which may vary seasonally and yearly.

[f] A sample from either or both locations 2S7 and 6S7 will be collected and analyzed according to the required frequencies.

Approval	MWS
Date	see page 1

REMP DOSE FACTORS FOR ADULT AGE GROUP: MILK SAMPLE (Page 1 of 2)
mrem-liter/pCi-yr

NUCLIDE	BONE	LIVER	T.BODY	THYROID	KIDNEY	LUNG	GI-LLI
H-3	0.00E+00	3.25E-05	3.25E-05	3.25E-05	3.25E-05	3.25E-05	3.25E-05
C-14	8.80E-04	1.76E-04	1.76E-04	1.76E-04	1.76E-04	1.76E-04	1.76E-04
Na-24	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
P-32	5.43E-02	3.38E-03	2.10E-03	0.00E+00	0.00E+00	0.00E+00	6.11E-03
Cr-51	0.00E+00	0.00E+00	7.84E-07	4.69E-07	1.73E-07	1.04E-06	1.97E-04
Mn-54	0.00E+00	1.41E-03	2.69E-04	0.00E+00	4.20E-04	0.00E+00	4.32E-03
Mn-56	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Fe-55	8.51E-04	5.88E-04	1.37E-04	0.00E+00	0.00E+00	3.28E-04	3.37E-04
Fe-59	1.30E-03	3.07E-03	1.18E-03	0.00E+00	0.00E+00	8.56E-04	1.02E-02
Co-58	0.00E+00	2.26E-04	5.08E-04	0.00E+00	0.00E+00	0.00E+00	4.59E-03
Co-60	0.00E+00	6.63E-04	1.46E-03	0.00E+00	0.00E+00	0.00E+00	1.25E-02
Ni-63	4.03E-02	2.79E-03	1.35E-03	0.00E+00	0.00E+00	0.00E+00	5.83E-04
Ni-65	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cu-64	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Zn-65	1.49E-03	4.75E-03	2.15E-03	0.00E+00	3.17E-03	0.00E+00	2.99E-03
Zn-69	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Br-83	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Br-84	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Br-85	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Rb-86	0.00E+00	6.07E-03	2.83E-03	0.00E+00	0.00E+00	0.00E+00	1.20E-03
Rb-88	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Rb-89	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Sr-89	9.29E-02	0.00E+00	2.67E-03	0.00E+00	0.00E+00	0.00E+00	1.49E-02
Sr-90	2.35E+00	0.00E+00	5.77E-01	0.00E+00	0.00E+00	0.00E+00	6.79E-02
Sr-91	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Sr-92	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Y-90	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Y-91m	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Y-91	4.27E-05	0.00E+00	1.14E-06	0.00E+00	0.00E+00	0.00E+00	2.35E-02
Y-92	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Y-93	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Zr-95	9.22E-06	2.96E-06	2.00E-06	0.00E+00	4.64E-06	0.00E+00	9.37E-03
Zr-97	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Nb-95	1.85E-06	1.03E-06	5.54E-07	0.00E+00	1.02E-06	0.00E+00	6.26E-03
Mo-99	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Tc-99m	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

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REMP DOSE FACTORS FOR ADULT AGE GROUP: MILK SAMPLE (Page 2 of 2)
mrem-liter/pCi-yr

NUCLIDE	BONE	LIVER	T.BODY	THYROID	KIDNEY	LUNG	GI-LLI
Tc-101	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ru-103	5.54E-05	0.00E+00	2.39E-05	0.00E+00	2.11E-04	0.00E+00	6.46E-03
Ru-105	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ru-106	8.49E-04	0.00E+00	1.07E-04	0.00E+00	1.64E-03	0.00E+00	5.50E-02
Ag-110m	4.93E-05	4.56E-05	2.71E-05	0.00E+00	8.97E-05	0.00E+00	1.86E-02
Te-125m	8.11E-04	2.94E-04	1.09E-04	2.44E-04	3.30E-03	0.00E+00	3.24E-03
Te-127m	2.07E-03	7.41E-04	2.53E-04	5.30E-04	8.42E-03	0.00E+00	6.95E-03
Te-127	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Te-129m	3.42E-03	1.28E-03	5.41E-04	1.18E-03	1.43E-02	0.00E+00	1.72E-02
Te-129	9.34E-06	3.51E-06	2.28E-06	7.17E-06	3.93E-05	0.00E+00	7.05E-06
Te-131m	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Te-131	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Te-132	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-130	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-131	1.09E-03	1.55E-03	8.90E-04	5.09E-01	2.66E-03	0.00E+00	4.10E-04
I-132	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-133	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-134	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-135	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cs-134	1.92E-02	4.58E-02	3.74E-02	0.00E+00	1.48E-02	4.92E-03	8.01E-04
Cs-136	1.82E-03	7.17E-03	5.16E-03	0.00E+00	3.99E-03	5.47E-04	8.15E-04
Cs-137	2.47E-02	3.38E-02	2.21E-02	0.00E+00	1.15E-02	3.81E-03	6.54E-04
Cs-138	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ba-139	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ba-140	5.65E-03	7.09E-06	3.70E-04	0.00E+00	2.41E-06	4.06E-06	1.16E-02
Ba-141	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ba-142	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
La-140	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
La-142	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ce-141	2.78E-06	1.88E-06	2.13E-07	0.00E+00	8.73E-07	0.00E+00	7.19E-03
Ce-143	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ce-144	1.51E-04	6.29E-05	8.08E-06	0.00E+00	3.73E-05	0.00E+00	5.09E-02
Pr-143	2.57E-06	1.03E-06	1.28E-07	0.00E+00	5.96E-07	0.00E+00	1.13E-02
Pr-144	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Nd-147	1.72E-06	1.99E-06	1.19E-07	0.00E+00	1.16E-06	0.00E+00	9.54E-03
W-187	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Np-239	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

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REMP DOSE FACTORS FOR ADULT AGE GROUP: LEAFY VEG. SAMPLE (Page 1 of 2)
mrem-kg/pCi-yr

NUCLIDE	BONE	LIVER	T.BODY	THYROID	KIDNEY	LUNG	GI-LLI
H-3	0.00E+00	6.72E-06	6.72E-06	6.72E-06	6.72E-06	6.72E-06	6.72E-06
C-14	1.82E-04	3.64E-05	3.64E-05	3.64E-05	3.64E-05	3.64E-05	3.64E-05
Na-24	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
P-32	1.18E-02	7.32E-04	4.55E-04	0.00E+00	0.00E+00	0.00E+00	1.32E-03
Cr-51	0.00E+00	0.00E+00	1.66E-07	9.92E-08	3.66E-08	2.20E-07	4.18E-05
Mn-54	0.00E+00	2.92E-04	5.57E-05	0.00E+00	8.68E-05	0.00E+00	8.94E-04
Mn-56	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Fe-55	1.76E-04	1.22E-04	2.83E-05	0.00E+00	0.00E+00	6.78E-05	6.97E-05
Fe-59	2.73E-04	6.43E-04	2.46E-04	0.00E+00	0.00E+00	1.80E-04	2.14E-03
Co-58	0.00E+00	4.72E-05	1.06E-04	0.00E+00	0.00E+00	0.00E+00	9.57E-04
Co-60	0.00E+00	1.37E-04	3.02E-04	0.00E+00	0.00E+00	0.00E+00	2.57E-03
Ni-63	8.32E-03	5.77E-04	2.79E-04	0.00E+00	0.00E+00	0.00E+00	1.20E-04
Ni-65	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cu-64	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Zn-65	3.09E-04	9.83E-04	4.44E-04	0.00E+00	6.57E-04	0.00E+00	6.19E-04
Zn-69	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Br-83	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Br-84	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Br-85	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Rb-86	0.00E+00	1.30E-03	6.06E-04	0.00E+00	0.00E+00	0.00E+00	2.57E-04
Rb-88	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Rb-89	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Sr-89	1.94E-02	0.00E+00	5.58E-04	0.00E+00	0.00E+00	0.00E+00	3.12E-03
Sr-90	4.85E-01	0.00E+00	1.19E-01	0.00E+00	0.00E+00	0.00E+00	1.40E-02
Sr-91	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Sr-92	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Y-90	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Y-91m	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Y-91	8.92E-06	0.00E+00	2.38E-07	0.00E+00	0.00E+00	0.00E+00	4.91E-03
Y-92	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Y-93	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Zr-95	1.92E-06	6.17E-07	4.18E-07	0.00E+00	9.69E-07	0.00E+00	1.96E-03
Zr-97	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Nb-95	3.90E-07	2.17E-07	1.17E-07	0.00E+00	2.15E-07	0.00E+00	1.32E-03
Mo-99	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Tc-99m	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

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REMP DOSE FACTORS FOR ADULT AGE GROUP: LEAFY VEG. SAMPLE (Page 2 of 2)
mrem-kg/pCi-yr

NUCLIDE	BONE	LIVER	T.BODY	THYROID	KIDNEY	LUNG	GI-LLI
Tc-101	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ru-103	1.16E-05	0.00E+00	5.01E-06	0.00E+00	4.44E-05	0.00E+00	1.36E-03
Ru-105	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ru-106	1.76E-04	0.00E+00	2.22E-05	0.00E+00	3.39E-04	0.00E+00	1.14E-02
Ag-110m	1.02E-05	9.45E-06	5.61E-06	0.00E+00	1.86E-05	0.00E+00	3.85E-03
Te-125m	1.69E-04	6.14E-05	2.27E-05	5.10E-05	6.89E-04	0.00E+00	6.77E-04
Te-127m	4.31E-04	1.54E-04	5.25E-05	1.10E-04	1.75E-03	0.00E+00	1.44E-03
Te-127	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Te-129m	7.21E-04	2.69E-04	1.14E-04	2.48E-04	3.01E-03	0.00E+00	3.63E-03
Te-129	1.97E-06	7.40E-07	4.80E-07	1.51E-06	8.28E-06	0.00E+00	1.49E-06
Te-131m	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Te-131	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Te-132	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-130	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-131	2.44E-04	3.49E-04	2.00E-04	1.14E-01	5.99E-04	0.00E+00	9.22E-05
I-132	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-133	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-134	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-135	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cs-134	3.98E-03	9.46E-03	7.74E-03	0.00E+00	3.06E-03	1.02E-03	1.66E-04
Cs-136	3.95E-04	1.56E-03	1.12E-03	0.00E+00	8.68E-04	1.19E-04	1.77E-04
Cs-137	5.10E-03	6.98E-03	4.57E-03	0.00E+00	2.37E-03	7.87E-04	1.35E-04
Cs-138	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ba-139	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ba-140	1.23E-03	1.55E-06	8.06E-05	0.00E+00	5.26E-07	8.85E-07	2.53E-03
Ba-141	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ba-142	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
La-140	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
La-142	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ce-141	5.86E-07	3.97E-07	4.50E-08	0.00E+00	1.84E-07	0.00E+00	1.52E-03
Ce-143	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ce-144	3.12E-05	1.30E-05	1.67E-06	0.00E+00	7.73E-06	0.00E+00	1.05E-02
Pr-143	5.59E-07	2.24E-07	2.77E-08	0.00E+00	1.30E-07	0.00E+00	2.45E-03
Pr-144	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Nd-147	3.78E-07	4.37E-07	2.61E-08	0.00E+00	2.55E-07	0.00E+00	2.10E-03
W-187	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Np-239	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

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REMP DOSE FACTORS FOR ADULT AGE GROUP: FRUIT SAMPLE (Page 1 of 2)

mrem-kg/pCi-yr

NUCLIDE	BONE	LIVER	T.BODY	THYROID	KIDNEY	LUNG	GI-LLI
H-3	0.00E+00	5.41E-05	5.41E-05	5.41E-05	5.41E-05	5.41E-05	5.41E-05
C-14	1.48E-03	2.95E-04	2.95E-04	2.95E-04	2.95E-04	2.95E-04	2.95E-04
Na-24	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
P-32	5.47E-03	3.40E-04	2.11E-04	0.00E+00	0.00E+00	0.00E+00	6.14E-04
Cr-51	0.00E+00	0.00E+00	3.08E-07	1.84E-07	6.79E-08	4.09E-07	7.75E-05
Mn-54	0.00E+00	2.08E-03	3.97E-04	0.00E+00	6.19E-04	0.00E+00	6.37E-03
Mn-56	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Fe-55	1.37E-03	9.47E-04	2.21E-04	0.00E+00	0.00E+00	5.28E-04	5.43E-04
Fe-59	8.89E-04	2.09E-03	8.01E-04	0.00E+00	0.00E+00	5.84E-04	6.96E-03
Co-58	0.00E+00	2.15E-04	4.83E-04	0.00E+00	0.00E+00	0.00E+00	4.36E-03
Co-60	0.00E+00	1.09E-03	2.40E-03	0.00E+00	0.00E+00	0.00E+00	2.05E-02
Ni-63	6.75E-02	4.68E-03	2.26E-03	0.00E+00	0.00E+00	0.00E+00	9.76E-04
Ni-65	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cu-64	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Zn-65	2.12E-03	6.75E-03	3.05E-03	0.00E+00	4.52E-03	0.00E+00	4.25E-03
Zn-69	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Br-83	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Br-84	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Br-85	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Rb-86	0.00E+00	1.18E-03	5.50E-04	0.00E+00	0.00E+00	0.00E+00	2.33E-04
Rb-88	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Rb-89	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Sr-89	7.03E-02	0.00E+00	2.02E-03	0.00E+00	0.00E+00	0.00E+00	1.13E-02
Sr-90	3.93E+00	0.00E+00	9.63E-01	0.00E+00	0.00E+00	0.00E+00	1.13E-01
Sr-91	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Sr-92	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Y-90	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Y-91m	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Y-91	3.60E-05	0.00E+00	9.63E-07	0.00E+00	0.00E+00	0.00E+00	1.98E-02
Y-92	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Y-93	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Zr-95	8.26E-06	2.65E-06	1.79E-06	0.00E+00	4.15E-06	0.00E+00	8.39E-03
Zr-97	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Nb-95	9.88E-07	5.49E-07	2.95E-07	0.00E+00	5.43E-07	0.00E+00	3.33E-03
Mo-99	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Tc-99m	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

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REMP DOSE FACTORS FOR ADULT AGE GROUP: FRUIT SAMPLE (Page 2 of 2)

mrem-kg/pCi-yr

NUCLIDE	BONE	LIVER	T.BODY	THYROID	KIDNEY	LUNG	GI-LLI
Tc-101	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ru-103	3.34E-05	0.00E+00	1.44E-05	0.00E+00	1.28E-04	0.00E+00	3.90E-03
Ru-105	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ru-106	1.28E-03	0.00E+00	1.62E-04	0.00E+00	2.47E-03	0.00E+00	8.27E-02
Ag-110m	7.04E-05	6.52E-05	3.87E-05	0.00E+00	1.28E-04	0.00E+00	2.66E-02
Te-125m	6.80E-04	2.46E-04	9.11E-05	2.05E-04	2.77E-03	0.00E+00	2.72E-03
Te-127m	2.40E-03	8.59E-04	2.93E-04	6.14E-04	9.76E-03	0.00E+00	8.06E-03
Te-127	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Te-129m	1.73E-03	6.47E-04	2.74E-04	5.96E-04	7.24E-03	0.00E+00	8.73E-03
Te-129	4.74E-06	1.78E-06	1.15E-06	3.63E-06	1.99E-05	0.00E+00	3.57E-06
Te-131m	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Te-131	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Te-132	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-130	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-131	1.23E-05	1.75E-05	1.01E-05	5.75E-03	3.01E-05	0.00E+00	4.63E-06
I-132	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-133	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-134	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-135	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cs-134	3.06E-02	7.28E-02	5.95E-02	0.00E+00	2.36E-02	7.82E-03	1.27E-03
Cs-136	1.44E-04	5.67E-04	4.08E-04	0.00E+00	3.15E-04	4.32E-05	6.44E-05
Cs-137	4.13E-02	5.65E-02	3.70E-02	0.00E+00	1.92E-02	6.37E-03	1.09E-03
Cs-138	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ba-139	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ba-140	4.09E-04	5.13E-07	2.68E-05	0.00E+00	1.74E-07	2.94E-07	8.41E-04
Ba-141	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ba-142	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
La-140	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
La-142	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ce-141	1.35E-06	9.16E-07	1.04E-07	0.00E+00	4.25E-07	0.00E+00	3.50E-03
Ce-143	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ce-144	2.19E-04	9.16E-05	1.18E-05	0.00E+00	5.44E-05	0.00E+00	7.41E-02
Pr-143	2.23E-07	8.93E-08	1.10E-08	0.00E+00	5.16E-08	0.00E+00	9.76E-04
Pr-144	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Nd-147	7.41E-08	8.56E-08	5.12E-09	0.00E+00	5.01E-08	0.00E+00	4.11E-04
W-187	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Np-239	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

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REMP DOSE FACTORS FOR ADULT AGE GROUP: MEAT SAMPLE (Page 1 of 2)

mrem-kg/pCi-yr

NUCLIDE	BONE	LIVER	T.BODY	THYROID	KIDNEY	LUNG	GI-LLI
H-3	0.00E+00	1.15E-05	1.15E-05	1.15E-05	1.15E-05	1.15E-05	1.15E-05
C-14	3.12E-04	6.25E-05	6.25E-05	6.25E-05	6.25E-05	6.25E-05	6.25E-05
Na-24	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
P-32	8.05E-03	5.00E-04	3.11E-04	0.00E+00	0.00E+00	0.00E+00	9.05E-04
Cr-51	0.00E+00	0.00E+00	1.77E-07	1.06E-07	3.91E-08	2.35E-07	4.46E-05
Mn-54	0.00E+00	4.81E-04	9.18E-05	0.00E+00	1.43E-04	0.00E+00	1.47E-03
Mn-56	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Fe-55	2.98E-04	2.06E-04	4.80E-05	0.00E+00	0.00E+00	1.15E-04	1.18E-04
Fe-59	3.50E-04	8.22E-04	3.15E-04	0.00E+00	0.00E+00	2.30E-04	2.74E-03
Co-58	0.00E+00	6.74E-05	1.51E-04	0.00E+00	0.00E+00	0.00E+00	1.37E-03
Co-60	0.00E+00	2.34E-04	5.15E-04	0.00E+00	0.00E+00	0.00E+00	4.39E-03
Ni-63	1.43E-02	9.91E-04	4.79E-04	0.00E+00	0.00E+00	0.00E+00	2.07E-04
Ni-65	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cu-64	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Zn-65	5.03E-04	1.60E-03	7.23E-04	0.00E+00	1.07E-03	0.00E+00	1.01E-03
Zn-69	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Br-83	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Br-84	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Br-85	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Rb-86	0.00E+00	1.10E-03	5.14E-04	0.00E+00	0.00E+00	0.00E+00	2.18E-04
Rb-88	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Rb-89	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Sr-89	2.58E-02	0.00E+00	7.39E-04	0.00E+00	0.00E+00	0.00E+00	4.13E-03
Sr-90	8.33E-01	0.00E+00	2.04E-01	0.00E+00	0.00E+00	0.00E+00	2.41E-02
Sr-91	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Sr-92	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Y-90	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Y-91m	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Y-91	1.22E-05	0.00E+00	3.27E-07	0.00E+00	0.00E+00	0.00E+00	6.74E-03
Y-92	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Y-93	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Zr-95	2.69E-06	8.64E-07	5.85E-07	0.00E+00	1.36E-06	0.00E+00	2.74E-03
Zr-97	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Nb-95	4.61E-07	2.56E-07	1.38E-07	0.00E+00	2.53E-07	0.00E+00	1.56E-03
Mo-99	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Tc-99m	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

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REMP DOSE FACTORS FOR ADULT AGE GROUP: MEAT SAMPLE (Page 2 of 2)

mrem-kg/pCi-yr

NUCLIDE	BONE	LIVER	T.BODY	THYROID	KIDNEY	LUNG	GI-LLI
Tc-101	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ru-103	1.43E-05	0.00E+00	6.16E-06	0.00E+00	5.46E-05	0.00E+00	1.67E-03
Ru-105	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ru-106	2.91E-04	0.00E+00	3.69E-05	0.00E+00	5.63E-04	0.00E+00	1.89E-02
Ag-110m	1.67E-05	1.54E-05	9.15E-06	0.00E+00	3.03E-05	0.00E+00	6.29E-03
Te-125m	2.32E-04	8.41E-05	3.11E-05	6.98E-05	9.44E-04	0.00E+00	9.27E-04
Te-127m	6.56E-04	2.34E-04	7.99E-05	1.68E-04	2.66E-03	0.00E+00	2.20E-03
Te-127	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Te-129m	8.37E-04	3.12E-04	1.33E-04	2.88E-04	3.50E-03	0.00E+00	4.22E-03
Te-129	2.29E-06	8.59E-07	5.57E-07	1.75E-06	9.61E-06	0.00E+00	1.73E-06
Te-131m	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Te-131	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Te-132	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-130	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-131	8.16E-05	1.17E-04	6.69E-05	3.82E-02	2.00E-04	0.00E+00	3.08E-05
I-132	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-133	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-134	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-135	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cs-134	6.72E-03	1.60E-02	1.31E-02	0.00E+00	5.17E-03	1.72E-03	2.80E-04
Cs-136	2.50E-04	9.86E-04	7.10E-04	0.00E+00	5.49E-04	7.52E-05	1.12E-04
Cs-137	8.76E-03	1.20E-02	7.84E-03	0.00E+00	4.06E-03	1.35E-03	2.32E-04
Cs-138	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ba-139	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ba-140	7.55E-04	9.49E-07	4.95E-05	0.00E+00	3.23E-07	5.43E-07	1.56E-03
Ba-141	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ba-142	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
La-140	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
La-142	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ce-141	6.72E-07	4.55E-07	5.16E-08	0.00E+00	2.11E-07	0.00E+00	1.74E-03
Ce-143	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ce-144	5.11E-05	2.14E-05	2.74E-06	0.00E+00	1.27E-05	0.00E+00	1.73E-02
Pr-143	3.64E-07	1.46E-07	1.80E-08	0.00E+00	8.43E-08	0.00E+00	1.59E-03
Pr-144	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Nd-147	1.96E-07	2.26E-07	1.35E-08	0.00E+00	1.32E-07	0.00E+00	1.09E-03
W-187	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Np-239	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

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REMP DOSE FACTORS FOR ADULT AGE GROUP: FISH SAMPLE (Page 1 of 2)

mrem-kg/pCi-yr

NUCLIDE	BONE	LIVER	T.BODY	THYROID	KIDNEY	LUNG	GI-LLI
H-3	0.00E+00	2.20E-06	2.20E-06	2.20E-06	2.20E-06	2.20E-06	2.20E-06
C-14	5.96E-05	1.19E-05	1.19E-05	1.19E-05	1.19E-05	1.19E-05	1.19E-05
Na-24	1.18E-05	1.18E-05	1.18E-05	1.18E-05	1.18E-05	1.18E-05	1.18E-05
P-32	3.86E-03	2.40E-04	1.49E-04	0.00E+00	0.00E+00	0.00E+00	4.34E-04
Cr-51	0.00E+00	0.00E+00	5.45E-08	3.26E-08	1.20E-08	7.23E-08	1.37E-05
Mn-54	0.00E+00	9.58E-05	1.83E-05	0.00E+00	2.85E-05	0.00E+00	2.93E-04
Mn-56	0.00E+00	3.81E-09	6.76E-10	0.00E+00	4.84E-09	0.00E+00	1.22E-07
Fe-55	5.77E-05	3.99E-05	9.30E-06	0.00E+00	0.00E+00	2.22E-05	2.29E-05
Fe-59	8.97E-05	2.11E-04	8.08E-05	0.00E+00	0.00E+00	5.89E-05	7.03E-04
Co-58	0.00E+00	1.55E-05	3.47E-05	0.00E+00	0.00E+00	0.00E+00	3.14E-04
Co-60	0.00E+00	4.49E-05	9.91E-05	0.00E+00	0.00E+00	0.00E+00	8.44E-04
Ni-63	2.73E-03	1.89E-04	9.16E-05	0.00E+00	0.00E+00	0.00E+00	3.95E-05
Ni-65	1.51E-08	1.96E-09	8.93E-10	0.00E+00	0.00E+00	0.00E+00	4.96E-08
Cu-64	0.00E+00	4.72E-07	2.22E-07	0.00E+00	1.19E-06	0.00E+00	4.02E-05
Zn-65	1.01E-04	3.22E-04	1.46E-04	0.00E+00	2.16E-04	0.00E+00	2.03E-04
Zn-69	3.58E-15	6.85E-15	4.76E-16	0.00E+00	4.45E-15	0.00E+00	1.03E-15
Br-83	0.00E+00	0.00E+00	8.01E-10	0.00E+00	0.00E+00	0.00E+00	1.15E-09
Br-84	0.00E+00	0.00E+00	2.72E-20	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Br-85	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Rb-86	0.00E+00	4.27E-04	1.99E-04	0.00E+00	0.00E+00	0.00E+00	8.42E-05
Rb-88	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Rb-89	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Sr-89	6.38E-03	0.00E+00	1.83E-04	0.00E+00	0.00E+00	0.00E+00	1.02E-03
Sr-90	1.59E-01	0.00E+00	3.91E-02	0.00E+00	0.00E+00	0.00E+00	4.60E-03
Sr-91	2.07E-05	0.00E+00	8.35E-07	0.00E+00	0.00E+00	0.00E+00	9.84E-05
Sr-92	9.74E-08	0.00E+00	4.21E-09	0.00E+00	0.00E+00	0.00E+00	1.93E-06
Y-90	1.56E-07	0.00E+00	4.18E-09	0.00E+00	0.00E+00	0.00E+00	1.65E-03
Y-91m	3.78E-18	0.00E+00	1.47E-19	0.00E+00	0.00E+00	0.00E+00	1.11E-17
Y-91	2.93E-06	0.00E+00	7.82E-08	0.00E+00	0.00E+00	0.00E+00	1.61E-03
Y-92	1.62E-10	0.00E+00	4.72E-12	0.00E+00	0.00E+00	0.00E+00	2.83E-06
Y-93	1.08E-08	0.00E+00	2.99E-10	0.00E+00	0.00E+00	0.00E+00	3.44E-04
Zr-95	6.32E-07	2.03E-07	1.37E-07	0.00E+00	3.18E-07	0.00E+00	6.42E-04
Zr-97	1.32E-08	2.66E-09	1.22E-09	0.00E+00	4.02E-09	0.00E+00	8.24E-04
Nb-95	1.28E-07	7.12E-08	3.83E-08	0.00E+00	7.04E-08	0.00E+00	4.32E-04
Mo-99	0.00E+00	7.04E-05	1.34E-05	0.00E+00	1.59E-04	0.00E+00	1.63E-04
Tc-99m	3.27E-10	9.25E-10	1.18E-08	0.00E+00	1.40E-08	4.53E-10	5.47E-07

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REMP DOSE FACTORS FOR ADULT AGE GROUP: FISH SAMPLE (Page 2 of 2)

mrem-kg/pCi-yr

NUCLIDE	BONE	LIVER	T.BODY	THYROID	KIDNEY	LUNG	GI-LLI
Tc-101	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ru-103	3.82E-06	0.00E+00	1.64E-06	0.00E+00	1.46E-05	0.00E+00	4.46E-04
Ru-105	7.63E-09	0.00E+00	3.01E-09	0.00E+00	9.86E-08	0.00E+00	4.67E-06
Ru-106	5.76E-05	0.00E+00	7.29E-06	0.00E+00	1.11E-04	0.00E+00	3.73E-03
Ag-110m	3.35E-06	3.10E-06	1.84E-06	0.00E+00	6.09E-06	0.00E+00	1.26E-03
Te-125m	5.56E-05	2.01E-05	7.45E-06	1.67E-05	2.26E-04	0.00E+00	2.22E-04
Te-127m	1.41E-04	5.05E-05	1.72E-05	3.61E-05	5.74E-04	0.00E+00	4.74E-04
Te-127	3.90E-07	1.40E-07	8.44E-08	2.89E-07	1.59E-06	0.00E+00	3.08E-05
Te-129m	2.37E-04	8.83E-05	3.74E-05	8.13E-05	9.87E-04	0.00E+00	1.19E-03
Te-129	6.46E-07	2.43E-07	1.57E-07	4.96E-07	2.72E-06	0.00E+00	4.88E-07
Te-131m	2.09E-05	1.02E-05	8.50E-06	1.62E-05	1.03E-04	0.00E+00	1.01E-03
Te-131	2.05E-24	0.00E+00	0.00E+00	1.69E-24	8.98E-24	0.00E+00	0.00E+00
Te-132	4.28E-05	2.77E-05	2.60E-05	3.06E-05	2.67E-04	0.00E+00	1.31E-03
I-130	4.13E-06	1.22E-05	4.81E-06	1.03E-03	1.90E-05	0.00E+00	1.05E-05
I-131	8.01E-05	1.15E-04	6.57E-05	3.76E-02	1.97E-04	0.00E+00	3.02E-05
I-132	3.08E-09	8.24E-09	2.88E-09	2.88E-07	1.31E-08	0.00E+00	1.55E-09
I-133	1.34E-05	2.33E-05	7.11E-06	3.43E-03	4.07E-05	0.00E+00	2.10E-05
I-134	1.33E-14	3.61E-14	1.29E-14	6.25E-13	5.73E-14	0.00E+00	3.14E-17
I-135	7.51E-07	1.97E-06	7.26E-07	1.30E-04	3.15E-06	0.00E+00	2.22E-06
Cs-134	1.30E-03	3.11E-03	2.54E-03	0.00E+00	1.00E-03	3.34E-04	5.43E-05
Cs-136	1.30E-04	5.12E-04	3.69E-04	0.00E+00	2.85E-04	3.90E-05	5.82E-05
Cs-137	1.67E-03	2.29E-03	1.50E-03	0.00E+00	7.77E-04	2.58E-04	4.43E-05
Cs-138	4.25E-20	8.40E-20	4.16E-20	0.00E+00	6.17E-20	6.10E-21	0.00E+00
Ba-139	1.27E-11	9.03E-15	3.71E-13	0.00E+00	8.44E-15	5.12E-15	2.25E-11
Ba-140	4.04E-04	5.07E-07	2.65E-05	0.00E+00	1.72E-07	2.90E-07	8.31E-04
Ba-141	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ba-142	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
La-140	3.47E-08	1.75E-08	4.62E-09	0.00E+00	0.00E+00	0.00E+00	1.28E-03
La-142	7.85E-14	3.57E-14	8.89E-15	0.00E+00	0.00E+00	0.00E+00	2.61E-10
Ce-141	1.92E-07	1.30E-07	1.48E-08	0.00E+00	6.04E-08	0.00E+00	4.97E-04
Ce-143	2.09E-08	1.55E-05	1.71E-09	0.00E+00	6.81E-09	0.00E+00	5.78E-04
Ce-144	1.02E-05	4.27E-06	5.49E-07	0.00E+00	2.53E-06	0.00E+00	3.46E-03
Pr-143	1.84E-07	7.36E-08	9.10E-09	0.00E+00	4.25E-08	0.00E+00	8.04E-04
Pr-144	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Nd-147	1.24E-07	1.43E-07	8.58E-09	0.00E+00	8.38E-08	0.00E+00	6.88E-04
W-187	1.08E-06	9.00E-07	3.14E-07	0.00E+00	0.00E+00	0.00E+00	2.95E-04
Np-239	1.86E-08	1.83E-09	1.01E-09	0.00E+00	5.71E-09	0.00E+00	3.75E-04

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REMP DOSE FACTORS FOR ADULT AGE GROUP: DRINKING WATER (Page 1 of 2)

mrem-liter/pCi-yr

NUCLIDE	BONE	LIVER	T.BODY	THYROID	KIDNEY	LUNG	GI-LLI
H-3	0.00E+00	7.66E-05	7.66E-05	7.66E-05	7.66E-05	7.66E-05	7.66E-05
C-14	2.07E-03	4.15E-04	4.15E-04	4.15E-04	4.15E-04	4.15E-04	4.15E-04
Na-24	7.13E-04	7.13E-04	7.13E-04	7.13E-04	7.13E-04	7.13E-04	7.13E-04
P-32	1.38E-01	8.55E-03	5.32E-03	0.00E+00	0.00E+00	0.00E+00	1.55E-02
Cr-51	0.00E+00	0.00E+00	1.92E-06	1.15E-06	4.22E-07	2.54E-06	4.82E-04
Mn-54	0.00E+00	3.33E-03	6.36E-04	0.00E+00	9.92E-04	0.00E+00	1.02E-02
Mn-56	0.00E+00	3.33E-06	5.92E-07	0.00E+00	4.23E-06	0.00E+00	1.06E-04
Fe-55	2.01E-03	1.39E-03	3.23E-04	0.00E+00	0.00E+00	7.74E-04	7.95E-04
Fe-59	3.14E-03	7.39E-03	2.83E-03	0.00E+00	0.00E+00	2.06E-03	2.46E-02
Co-58	0.00E+00	5.41E-04	1.21E-03	0.00E+00	0.00E+00	0.00E+00	1.10E-02
Co-60	0.00E+00	1.56E-03	3.44E-03	0.00E+00	0.00E+00	0.00E+00	2.93E-02
Ni-63	9.49E-02	6.58E-03	3.18E-03	0.00E+00	0.00E+00	0.00E+00	1.37E-03
Ni-65	1.42E-05	1.85E-06	8.42E-07	0.00E+00	0.00E+00	0.00E+00	4.68E-05
Cu-64	0.00E+00	3.16E-05	1.48E-05	0.00E+00	7.96E-05	0.00E+00	2.69E-03
Zn-65	3.53E-03	1.12E-02	5.07E-03	0.00E+00	7.51E-03	0.00E+00	7.07E-03
Zn-69	9.68E-10	1.85E-09	1.29E-10	0.00E+00	1.20E-09	0.00E+00	2.78E-10
Br-83	0.00E+00	0.00E+00	9.04E-07	0.00E+00	0.00E+00	0.00E+00	1.30E-06
Br-84	0.00E+00	0.00E+00	6.00E-12	0.00E+00	0.00E+00	0.00E+00	4.71E-17
Br-85	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Rb-86	0.00E+00	1.51E-02	7.04E-03	0.00E+00	0.00E+00	0.00E+00	2.98E-03
Rb-88	0.00E+00	3.11E-17	1.65E-17	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Rb-89	0.00E+00	2.86E-19	2.01E-19	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Sr-89	2.23E-01	0.00E+00	6.41E-03	0.00E+00	0.00E+00	0.00E+00	3.58E-02
Sr-90	5.53E+00	0.00E+00	1.36E+00	0.00E+00	0.00E+00	0.00E+00	1.60E-01
Sr-91	1.72E-03	0.00E+00	6.96E-05	0.00E+00	0.00E+00	0.00E+00	8.21E-03
Sr-92	7.29E-05	0.00E+00	3.15E-06	0.00E+00	0.00E+00	0.00E+00	1.44E-03
Y-90	6.17E-06	0.00E+00	1.65E-07	0.00E+00	0.00E+00	0.00E+00	6.54E-02
Y-91m	2.95E-12	0.00E+00	1.14E-13	0.00E+00	0.00E+00	0.00E+00	8.68E-12
Y-91	1.02E-04	0.00E+00	2.74E-06	0.00E+00	0.00E+00	0.00E+00	5.63E-02
Y-92	5.88E-08	0.00E+00	1.72E-09	0.00E+00	0.00E+00	0.00E+00	1.03E-03
Y-93	8.59E-07	0.00E+00	2.37E-08	0.00E+00	0.00E+00	0.00E+00	2.72E-02
Zr-95	2.21E-05	7.08E-06	4.79E-06	0.00E+00	1.11E-05	0.00E+00	2.24E-02
Zr-97	7.50E-07	1.51E-07	6.92E-08	0.00E+00	2.28E-07	0.00E+00	4.69E-02
Nb-95	4.50E-06	2.50E-06	1.34E-06	0.00E+00	2.47E-06	0.00E+00	1.52E-02
Mo-99	0.00E+00	2.77E-03	5.28E-04	0.00E+00	6.28E-03	0.00E+00	6.43E-03
Tc-99m	4.53E-08	1.28E-07	1.63E-06	0.00E+00	1.94E-06	6.27E-08	7.57E-05

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REMP DOSE FACTORS FOR ADULT AGE GROUP: DRINKING WATER (Page 2 of 2)

mrem-liter/pCi-yr

NUCLIDE	BONE	LIVER	T.BODY	THYROID	KIDNEY	LUNG	GI-LLI
Tc-101	1.08E-22	1.56E-22	1.53E-21	0.00E+00	2.81E-21	7.98E-23	0.00E+00
Ru-103	1.34E-04	0.00E+00	5.77E-05	0.00E+00	5.11E-04	0.00E+00	1.56E-02
Ru-105	1.73E-06	0.00E+00	6.82E-07	0.00E+00	2.23E-05	0.00E+00	1.06E-03
Ru-106	2.01E-03	0.00E+00	2.54E-04	0.00E+00	3.87E-03	0.00E+00	1.30E-01
Ag-110m	1.17E-04	1.08E-04	6.41E-05	0.00E+00	2.12E-04	0.00E+00	4.40E-02
Te-125m	1.94E-03	7.05E-04	2.61E-04	5.85E-04	7.91E-03	0.00E+00	7.76E-03
Te-127m	4.93E-03	1.76E-03	6.00E-04	1.26E-03	2.00E-02	0.00E+00	1.65E-02
Te-127	3.30E-05	1.18E-05	7.14E-06	2.44E-05	1.34E-04	0.00E+00	2.60E-03
Te-129m	8.31E-03	3.10E-03	1.31E-03	2.85E-03	3.47E-02	0.00E+00	4.18E-02
Te-129	2.27E-05	8.53E-06	5.53E-06	1.74E-05	9.54E-05	0.00E+00	1.71E-05
Te-131m	9.57E-04	4.68E-04	3.90E-04	7.41E-04	4.74E-03	0.00E+00	4.65E-02
Te-131	3.20E-14	1.34E-14	1.01E-14	2.63E-14	1.40E-13	0.00E+00	4.53E-15
Te-132	1.65E-03	1.07E-03	1.00E-03	1.18E-03	1.03E-02	0.00E+00	5.06E-02
I-130	2.82E-04	8.31E-04	3.28E-04	7.04E-02	1.30E-03	0.00E+00	7.15E-04
I-131	2.91E-03	4.16E-03	2.38E-03	1.36E+00	7.13E-03	0.00E+00	1.10E-03
I-132	3.98E-06	1.07E-05	3.73E-06	3.73E-04	1.70E-05	0.00E+00	2.00E-06
I-133	6.95E-04	1.21E-03	3.69E-04	1.78E-01	2.11E-03	0.00E+00	1.09E-03
I-134	5.97E-09	1.62E-08	5.81E-09	2.81E-07	2.58E-08	0.00E+00	1.41E-11
I-135	9.19E-05	2.41E-04	8.88E-05	1.59E-02	3.86E-04	0.00E+00	2.72E-04
Cs-134	4.54E-02	1.08E-01	8.83E-02	0.00E+00	3.50E-02	1.16E-02	1.89E-03
Cs-136	4.63E-03	1.83E-02	1.32E-02	0.00E+00	1.02E-02	1.39E-03	2.08E-03
Cs-137	5.82E-02	7.96E-02	5.21E-02	0.00E+00	2.70E-02	8.98E-03	1.54E-03
Cs-138	7.72E-12	1.52E-11	7.55E-12	0.00E+00	1.12E-11	1.11E-12	6.50E-17
Ba-139	1.77E-07	1.26E-10	5.17E-09	0.00E+00	1.18E-10	7.14E-11	3.13E-07
Ba-140	1.44E-02	1.81E-05	9.45E-04	0.00E+00	6.16E-06	1.04E-05	2.97E-02
Ba-141	4.97E-17	3.76E-20	1.68E-18	0.00E+00	3.50E-20	2.13E-20	0.00E+00
Ba-142	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
La-140	1.48E-06	7.48E-07	1.98E-07	0.00E+00	0.00E+00	0.00E+00	5.49E-02
La-142	5.05E-10	2.30E-10	5.72E-11	0.00E+00	0.00E+00	0.00E+00	1.68E-06
Ce-141	6.76E-06	4.57E-06	5.19E-07	0.00E+00	2.12E-06	0.00E+00	1.75E-02
Ce-143	9.36E-07	6.92E-04	7.66E-08	0.00E+00	3.05E-07	0.00E+00	2.59E-02
Ce-144	3.56E-04	1.49E-04	1.91E-05	0.00E+00	8.82E-05	0.00E+00	1.20E-01
Pr-143	6.55E-06	2.63E-06	3.24E-07	0.00E+00	1.52E-06	0.00E+00	2.87E-02
Pr-144	6.67E-21	2.77E-21	3.39E-22	0.00E+00	1.56E-21	0.00E+00	0.00E+00
Nd-147	4.45E-06	5.14E-06	3.08E-07	0.00E+00	3.01E-06	0.00E+00	2.47E-02
W-187	5.30E-05	4.43E-05	1.55E-05	0.00E+00	0.00E+00	0.00E+00	1.45E-02
Np-239	7.50E-07	7.37E-08	4.06E-08	0.00E+00	2.30E-07	0.00E+00	1.51E-02

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REMP DOSE FACTORS FOR ADULT AGE GROUP: INHALATION - QUARTERLY SAMPLING (Page 1 of 2)

mrem-m^3/pCi-yr

NUCLIDE	BONE	LIVER	T.BODY	THYROID	KIDNEY	LUNG	GI-LLI
H-3	0.00E+00	1.27E-03	1.27E-03	1.27E-03	1.27E-03	1.27E-03	1.27E-03
C-14	1.82E-02	3.41E-03	3.41E-03	3.41E-03	3.41E-03	3.41E-03	3.41E-03
Na-24	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
P-32	1.21E+01	7.05E-01	4.58E-01	0.00E+00	0.00E+00	0.00E+00	7.90E-01
Cr-51	0.00E+00	0.00E+00	3.13E-04	1.86E-04	7.14E-05	4.51E-02	1.04E-02
Mn-54	0.00E+00	4.38E-02	6.97E-03	0.00E+00	1.09E-02	1.55E+00	8.56E-02
Mn-56	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Fe-55	2.54E-02	1.75E-02	4.07E-03	0.00E+00	0.00E+00	7.44E-02	6.23E-03
Fe-59	2.39E-02	5.64E-02	2.14E-02	0.00E+00	0.00E+00	2.06E+00	3.82E-01
Co-58	0.00E+00	2.48E-03	3.24E-03	0.00E+00	0.00E+00	1.45E+00	1.66E-01
Co-60	0.00E+00	1.17E-02	1.50E-02	0.00E+00	0.00E+00	6.07E+00	2.90E-01
Ni-63	4.32E-01	3.15E-02	1.45E-02	0.00E+00	0.00E+00	1.79E-01	1.34E-02
Ni-65	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cu-64	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Zn-65	3.69E-02	1.17E-01	5.30E-02	0.00E+00	7.85E-02	9.83E-01	6.08E-02
Zn-69	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Br-83	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Br-84	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Br-85	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Rb-86	0.00E+00	7.36E-01	3.21E-01	0.00E+00	0.00E+00	0.00E+00	9.06E-02
Rb-88	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Rb-89	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Sr-89	5.68E-01	0.00E+00	1.63E-02	0.00E+00	0.00E+00	2.62E+00	6.54E-01
Sr-90	9.95E+01	0.00E+00	6.11E+00	0.00E+00	0.00E+00	9.63E+00	7.24E-01
Sr-91	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Sr-92	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Y-90	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Y-91m	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Y-91	7.94E-01	0.00E+00	2.13E-02	0.00E+00	0.00E+00	2.93E+00	6.61E-01
Y-92	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Y-93	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Zr-95	1.76E-01	5.64E-02	3.82E-02	0.00E+00	8.88E-02	2.90E+00	2.46E-01
Zr-97	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Nb-95	3.47E-02	1.93E-02	1.04E-02	0.00E+00	1.91E-02	1.24E+00	2.56E-01
Mo-99	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Tc-99m	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

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REMP DOSE FACTORS FOR ADULT AGE GROUP: INHALATION - QUARTERLY SAMPLING (Page 2 of 2)

mrem-m^3/pCi-yr

NUCLIDE	BONE	LIVER	T.BODY	THYROID	KIDNEY	LUNG	GI-LLI
Tc-101	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ru-103	3.41E-03	0.00E+00	1.47E-03	0.00E+00	1.30E-02	1.13E+00	2.47E-01
Ru-105	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ru-106	7.53E-02	0.00E+00	9.50E-03	0.00E+00	1.46E-01	1.02E+01	9.94E-01
Ag-110m	1.23E-02	1.13E-02	6.75E-03	0.00E+00	2.23E-02	5.26E+00	3.43E-01
Te-125m	5.89E-03	2.73E-03	8.06E-04	1.81E-03	2.14E-02	5.41E-01	1.22E-01
Te-127m	1.69E-02	7.71E-03	2.10E-03	4.39E-03	6.12E-02	1.28E+00	2.00E-01
Te-127	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Te-129m	2.50E-02	1.20E-02	4.06E-03	8.82E-03	9.37E-02	2.97E+00	9.82E-01
Te-129	1.28E-07	6.13E-08	3.18E-08	9.99E-08	4.80E-07	4.96E-03	4.02E-04
Te-131m	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Te-131	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Te-132	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-130	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-131	1.29E+00	1.83E+00	1.05E+00	6.09E+02	3.13E+00	0.00E+00	3.21E-01
I-132	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-133	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-134	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-135	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cs-134	3.89E-01	8.84E-01	7.59E-01	0.00E+00	3.00E-01	1.02E-01	1.08E-02
Cs-136	4.32E-01	1.62E+00	1.22E+00	0.00E+00	9.47E-01	1.33E-01	1.29E-01
Cs-137	4.80E-01	6.23E-01	4.29E-01	0.00E+00	2.23E-01	7.54E-02	8.42E-03
Cs-138	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ba-139	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ba-140	4.63E-01	5.81E-04	3.04E-02	0.00E+00	1.98E-04	1.51E+01	2.59E+00
Ba-141	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ba-142	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
La-140	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
La-142	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ce-141	5.27E-02	3.58E-02	4.04E-03	0.00E+00	1.66E-02	9.57E-01	3.18E-01
Ce-143	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ce-144	3.84E+00	1.60E+00	2.06E-01	0.00E+00	9.48E-01	8.69E+00	9.12E-01
Pr-143	9.64E-02	3.86E-02	4.78E-03	0.00E+00	2.22E-02	2.89E+00	2.06E+00
Pr-144	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Nd-147	9.39E-02	1.09E-01	6.50E-03	0.00E+00	6.34E-02	3.93E+00	3.08E+00
W-187	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Np-239	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

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REMP DOSE FACTORS FOR ADULT AGE GROUP: INHALATION - WEEKLY SAMPLING (Page 1 of 2)

mrem-m^3/pCi-yr

NUCLIDE	BONE	LIVER	T.BODY	THYROID	KIDNEY	LUNG	GI-LLI
H-3	0.00E+00	1.26E-03	1.26E-03	1.26E-03	1.26E-03	1.26E-03	1.26E-03
C-14	1.82E-02	3.41E-03	3.41E-03	3.41E-03	3.41E-03	3.41E-03	3.41E-03
Na-24	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
P-32	1.56E+00	9.14E-02	5.93E-02	0.00E+00	0.00E+00	0.00E+00	1.02E-01
Cr-51	0.00E+00	0.00E+00	1.09E-04	6.50E-05	2.49E-05	1.57E-02	3.62E-03
Mn-54	0.00E+00	3.99E-02	6.35E-03	0.00E+00	9.92E-03	1.41E+00	7.80E-02
Mn-56	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Fe-55	2.46E-02	1.70E-02	3.95E-03	0.00E+00	0.00E+00	7.23E-02	6.05E-03
Fe-59	1.24E-02	2.93E-02	1.11E-02	0.00E+00	0.00E+00	1.07E+00	1.99E-01
Co-58	0.00E+00	1.64E-03	2.14E-03	0.00E+00	0.00E+00	9.60E-01	1.10E-01
Co-60	0.00E+00	1.15E-02	1.48E-02	0.00E+00	0.00E+00	5.98E+00	2.85E-01
Ni-63	4.32E-01	3.14E-02	1.45E-02	0.00E+00	0.00E+00	1.78E-01	1.34E-02
Ni-65	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cu-64	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Zn-65	3.27E-02	1.04E-01	4.70E-02	0.00E+00	6.96E-02	8.73E-01	5.40E-02
Zn-69	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Br-83	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Br-84	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Br-85	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Rb-86	0.00E+00	1.54E-01	6.71E-02	0.00E+00	0.00E+00	0.00E+00	1.90E-02
Rb-88	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Rb-89	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Sr-89	3.19E-01	0.00E+00	9.15E-03	0.00E+00	0.00E+00	1.47E+00	3.67E-01
Sr-90	9.92E+01	0.00E+00	6.10E+00	0.00E+00	0.00E+00	9.60E+00	7.22E-01
Sr-91	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Sr-92	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Y-90	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Y-91m	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Y-91	4.82E-01	0.00E+00	1.29E-02	0.00E+00	0.00E+00	1.78E+00	4.01E-01
Y-92	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Y-93	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Zr-95	1.11E-01	3.57E-02	2.42E-02	0.00E+00	5.63E-02	1.84E+00	1.56E-01
Zr-97	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Nb-95	1.51E-02	8.38E-03	4.51E-03	0.00E+00	8.29E-03	5.41E-01	1.11E-01
Mo-99	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Tc-99m	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

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REMP DOSE FACTORS FOR ADULT AGE GROUP: INHALATION - WEEKLY SAMPLING (Page 2 of 2)

mrem-m^3/pCi-yr

NUCLIDE	BONE	LIVER	T.BODY	THYROID	KIDNEY	LUNG	GI-LLI
Tc-101	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ru-103	1.63E-03	0.00E+00	7.00E-04	0.00E+00	6.20E-03	5.37E-01	1.17E-01
Ru-105	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ru-106	6.96E-02	0.00E+00	8.78E-03	0.00E+00	1.34E-01	9.42E+00	9.18E-01
Ag-110m	1.09E-02	1.01E-02	6.00E-03	0.00E+00	1.99E-02	4.68E+00	3.05E-01
Te-125m	3.56E-03	1.65E-03	4.87E-04	1.09E-03	1.29E-02	3.27E-01	7.37E-02
Te-127m	1.29E-02	5.90E-03	1.60E-03	3.36E-03	4.68E-02	9.82E-01	1.53E-01
Te-127	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Te-129m	1.05E-02	5.02E-03	1.70E-03	3.70E-03	3.93E-02	1.25E+00	4.12E-01
Te-129	5.35E-08	2.57E-08	1.33E-08	4.19E-08	2.01E-07	2.08E-03	1.69E-04
Te-131m	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Te-131	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Te-132	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-130	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-131	2.52E-02	3.58E-02	2.05E-02	1.19E+01	6.13E-02	0.00E+00	6.28E-03
I-132	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-133	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-134	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-135	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cs-134	3.74E-01	8.51E-01	7.30E-01	0.00E+00	2.88E-01	9.79E-02	1.04E-02
Cs-136	4.69E-02	1.76E-01	1.33E-01	0.00E+00	1.03E-01	1.44E-02	1.40E-02
Cs-137	4.79E-01	6.21E-01	4.28E-01	0.00E+00	2.22E-01	7.52E-02	8.40E-03
Cs-138	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ba-139	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ba-140	4.72E-02	5.93E-05	3.10E-03	0.00E+00	2.02E-05	1.54E+00	2.64E-01
Ba-141	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ba-142	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
La-140	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
La-142	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ce-141	2.15E-02	1.46E-02	1.65E-03	0.00E+00	6.75E-03	3.90E-01	1.29E-01
Ce-143	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ce-144	3.46E+00	1.44E+00	1.86E-01	0.00E+00	8.55E-01	7.84E+00	8.23E-01
Pr-143	1.12E-02	4.49E-03	5.55E-04	0.00E+00	2.58E-03	3.36E-01	2.39E-01
Pr-144	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Nd-147	6.58E-03	7.60E-03	4.55E-04	0.00E+00	4.44E-03	2.75E-01	2.16E-01
W-187	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Np-239	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

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REMP DOSE FACTORS FOR TEEN AGE GROUP: MILK (Page 1 of 2)

mrem-liter/pCi-yr

NUCLIDE	BONE	LIVER	T.BODY	THYROID	KIDNEY	LUNG	GI-LLI
H-3	0.00E+00	4.24E-05	4.24E-05	4.24E-05	4.24E-05	4.24E-05	4.24E-05
C-14	1.62E-03	3.25E-04	3.25E-04	3.25E-04	3.25E-04	3.25E-04	3.25E-04
Na-24	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
P-32	1.00E-01	6.21E-03	3.88E-03	0.00E+00	0.00E+00	0.00E+00	8.42E-03
Cr-51	0.00E+00	0.00E+00	1.37E-06	7.61E-07	3.00E-07	1.96E-06	2.30E-04
Mn-54	0.00E+00	2.35E-03	4.66E-04	0.00E+00	7.01E-04	0.00E+00	4.82E-03
Mn-56	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Fe-55	1.51E-03	1.07E-03	2.50E-04	0.00E+00	0.00E+00	6.79E-04	4.63E-04
Fe-59	2.28E-03	5.31E-03	2.05E-03	0.00E+00	0.00E+00	1.68E-03	1.26E-02
Co-58	0.00E+00	3.81E-04	8.79E-04	0.00E+00	0.00E+00	0.00E+00	5.26E-03
Co-60	0.00E+00	1.12E-03	2.53E-03	0.00E+00	0.00E+00	0.00E+00	1.46E-02
Ni-63	7.08E-02	5.00E-03	2.40E-03	0.00E+00	0.00E+00	0.00E+00	7.96E-04
Ni-65	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cu-64	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Zn-65	2.29E-03	7.95E-03	3.71E-03	0.00E+00	5.09E-03	0.00E+00	3.37E-03
Zn-69	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Br-83	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Br-84	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Br-85	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Rb-86	0.00E+00	1.11E-02	5.20E-03	0.00E+00	0.00E+00	0.00E+00	1.64E-03
Rb-88	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Rb-89	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Sr-89	1.71E-01	0.00E+00	4.90E-03	0.00E+00	0.00E+00	0.00E+00	2.04E-02
Sr-90	3.32E+00	0.00E+00	8.20E-01	0.00E+00	0.00E+00	0.00E+00	9.32E-02
Sr-91	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Sr-92	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Y-90	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Y-91m	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Y-91	7.85E-05	0.00E+00	2.11E-06	0.00E+00	0.00E+00	0.00E+00	3.22E-02
Y-92	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Y-93	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Zr-95	1.61E-05	5.09E-06	3.50E-06	0.00E+00	7.48E-06	0.00E+00	1.17E-02
Zr-97	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Nb-95	3.16E-06	1.75E-06	9.65E-07	0.00E+00	1.70E-06	0.00E+00	7.50E-03
Mo-99	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Tc-99m	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

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REMP DOSE FACTORS FOR TEEN AGE GROUP: MILK (Page 2 of 2)

mrem-liter/pCi-yr

NUCLIDE	BONE	LIVER	T.BODY	THYROID	KIDNEY	LUNG	GI-LLI
Tc-101	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ru-103	9.85E-05	0.00E+00	4.21E-05	0.00E+00	3.47E-04	0.00E+00	8.23E-03
Ru-105	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ru-106	1.56E-03	0.00E+00	1.97E-04	0.00E+00	3.01E-03	0.00E+00	7.49E-02
Ag-110m	8.15E-05	7.72E-05	4.69E-05	0.00E+00	1.47E-04	0.00E+00	2.17E-02
Te-125m	1.50E-03	5.39E-04	2.00E-04	4.18E-04	0.00E+00	0.00E+00	4.41E-03
Te-127m	3.82E-03	1.35E-03	4.54E-04	9.08E-04	1.55E-02	0.00E+00	9.52E-03
Te-127	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Te-129m	6.26E-03	2.32E-03	9.90E-04	2.02E-03	2.62E-02	0.00E+00	2.35E-02
Te-129	1.72E-05	6.41E-06	4.18E-06	1.23E-05	7.22E-05	0.00E+00	9.40E-05
Te-131m	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Te-131	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Te-132	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-130	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-131	1.97E-03	2.76E-03	1.48E-03	8.05E-01	4.75E-03	0.00E+00	5.45E-04
I-132	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-133	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-134	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-135	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cs-134	3.34E-02	7.87E-02	3.65E-02	0.00E+00	2.50E-02	9.54E-03	9.78E-04
Cs-136	3.09E-03	1.22E-02	8.17E-03	0.00E+00	6.62E-03	1.04E-03	9.79E-04
Cs-137	4.48E-02	5.96E-02	2.08E-02	0.00E+00	2.03E-02	7.88E-03	8.48E-04
Cs-138	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ba-139	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ba-140	1.02E-02	1.25E-06	6.57E-04	0.00E+00	4.24E-06	8.40E-06	1.57E-02
Ba-141	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ba-142	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
La-140	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
La-142	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ce-141	5.10E-06	3.40E-06	3.91E-07	0.00E+00	1.60E-06	0.00E+00	9.74E-03
Ce-143	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ce-144	2.77E-04	1.15E-04	1.49E-05	0.00E+00	6.85E-05	0.00E+00	6.97E-02
Pr-143	4.73E-06	1.89E-06	2.35E-07	0.00E+00	1.10E-06	0.00E+00	1.56E-02
Pr-144	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Nd-147	3.31E-06	3.60E-06	2.15E-07	0.00E+00	2.11E-06	0.00E+00	1.30E-02
W-187	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Np-239	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

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REMP DOSE FACTORS FOR TEEN AGE GROUP: LEAFY VEG. SAMPLES (Page 1 of 2)

mrem-kg/pCi-yr

NUCLIDE	BONE	LIVER	T.BODY	THYROID	KIDNEY	LUNG	GI-LLI
H-3	0.00E+00	4.45E-06	4.45E-06	4.45E-06	4.45E-06	4.45E-06	4.45E-06
C-14	1.71E-04	3.41E-05	3.41E-05	3.41E-05	3.41E-05	3.41E-05	3.41E-05
Na-24	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
P-32	1.10E-02	6.84E-04	4.28E-04	0.00E+00	0.00E+00	0.00E+00	9.28E-04
Cr-51	0.00E+00	0.00E+00	1.47E-07	8.19E-08	3.23E-08	2.11E-07	2.48E-05
Mn-54	0.00E+00	2.47E-04	4.90E-05	0.00E+00	7.38E-05	0.00E+00	5.07E-04
Mn-56	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Fe-55	1.59E-04	1.12E-04	2.62E-05	0.00E+00	0.00E+00	7.13E-05	4.87E-05
Fe-59	2.43E-04	5.67E-04	2.19E-04	0.00E+00	0.00E+00	1.79E-04	1.34E-03
Co-58	0.00E+00	4.04E-05	9.32E-05	0.00E+00	0.00E+00	0.00E+00	5.57E-04
Co-60	0.00E+00	1.18E-04	2.66E-04	0.00E+00	0.00E+00	0.00E+00	1.54E-03
Ni-63	7.43E-03	5.25E-04	2.52E-04	0.00E+00	0.00E+00	0.00E+00	8.36E-05
Ni-65	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cu-64	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Zn-65	2.41E-04	8.38E-04	3.91E-04	0.00E+00	5.36E-04	0.00E+00	3.55E-04
Zn-69	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Br-83	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Br-84	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Br-85	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Rb-86	0.00E+00	1.21E-03	5.67E-04	0.00E+00	0.00E+00	0.00E+00	1.78E-04
Rb-88	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Rb-89	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Sr-89	1.82E-02	0.00E+00	5.22E-04	0.00E+00	0.00E+00	0.00E+00	2.17E-03
Sr-90	3.49E-01	0.00E+00	8.61E-02	0.00E+00	0.00E+00	0.00E+00	9.79E-03
Sr-91	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Sr-92	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Y-90	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Y-91m	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Y-91	8.34E-06	0.00E+00	2.24E-07	0.00E+00	0.00E+00	0.00E+00	3.42E-03
Y-92	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Y-93	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Zr-95	1.71E-06	5.40E-07	3.71E-07	0.00E+00	7.94E-07	0.00E+00	1.25E-03
Zr-97	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Nb-95	3.38E-07	1.88E-07	1.03E-07	0.00E+00	1.82E-07	0.00E+00	8.03E-04
Mo-99	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Tc-99m	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

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REMP DOSE FACTORS FOR TEEN AGE GROUP: LEAFY VEG. SAMPLES (Page 2 of 2)

mrem-kg/pCi-yr

NUCLIDE	BONE	LIVER	T.BODY	THYROID	KIDNEY	LUNG	GI-LLI
Tc-101	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ru-103	1.05E-05	0.00E+00	4.50E-06	0.00E+00	3.71E-05	0.00E+00	8.79E-04
Ru-105	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ru-106	1.64E-04	0.00E+00	2.07E-05	0.00E+00	3.17E-04	0.00E+00	7.88E-03
Ag-110m	8.59E-06	8.13E-06	4.94E-06	0.00E+00	1.55E-05	0.00E+00	2.28E-03
Te-125m	1.59E-04	5.73E-05	2.12E-05	4.44E-05	0.00E+00	0.00E+00	4.69E-04
Te-127m	4.04E-04	1.43E-04	4.80E-05	9.60E-05	1.64E-03	0.00E+00	1.01E-03
Te-127	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Te-129m	6.71E-04	2.49E-04	1.06E-04	2.16E-04	2.81E-03	0.00E+00	2.52E-03
Te-129	1.84E-06	6.87E-07	4.48E-07	1.32E-06	7.73E-06	0.00E+00	1.01E-05
Te-131m	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Te-131	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Te-132	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-130	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-131	2.25E-04	3.16E-04	1.70E-04	9.21E-02	5.43E-04	0.00E+00	6.24E-05
I-132	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-133	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-134	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-135	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cs-134	3.51E-03	8.27E-03	3.84E-03	0.00E+00	2.63E-03	1.00E-03	1.03E-04
Cs-136	3.42E-04	1.35E-03	9.04E-04	0.00E+00	7.33E-04	1.16E-04	1.08E-04
Cs-137	4.70E-03	6.26E-03	2.18E-03	0.00E+00	2.13E-03	8.27E-04	8.90E-05
Cs-138	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ba-139	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ba-140	1.13E-03	1.38E-07	7.28E-05	0.00E+00	4.69E-07	9.31E-07	1.74E-03
Ba-141	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ba-142	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
La-140	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
La-142	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ce-141	5.47E-07	3.65E-07	4.19E-08	0.00E+00	1.72E-07	0.00E+00	1.04E-03
Ce-143	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ce-144	2.92E-05	1.21E-05	1.57E-06	0.00E+00	7.21E-06	0.00E+00	7.33E-03
Pr-143	5.23E-07	2.09E-07	2.60E-08	0.00E+00	1.21E-07	0.00E+00	1.72E-03
Pr-144	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Nd-147	3.70E-07	4.02E-07	2.41E-08	0.00E+00	2.36E-07	0.00E+00	1.45E-03
W-187	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Np-239	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

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REMP DOSE FACTORS FOR TEEN AGE GROUP: FRUIT SAMPLES (Page 1 of 2)

mrem-kg/pCi-yr

NUCLIDE	BONE	LIVER	T.BODY	THYROID	KIDNEY	LUNG	GI-LLI
H-3	0.00E+00	6.62E-05	6.62E-05	6.62E-05	6.62E-05	6.62E-05	6.62E-05
C-14	2.56E-03	5.12E-04	5.12E-04	5.12E-04	5.12E-04	5.12E-04	5.12E-04
Na-24	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
P-32	9.47E-03	5.87E-04	3.67E-04	0.00E+00	0.00E+00	0.00E+00	7.96E-04
Cr-51	0.00E+00	0.00E+00	5.05E-07	2.81E-07	1.11E-07	7.22E-07	8.49E-05
Mn-54	0.00E+00	3.25E-03	6.45E-04	0.00E+00	9.71E-04	0.00E+00	6.67E-03
Mn-56	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Fe-55	2.28E-03	1.62E-03	3.77E-04	0.00E+00	0.00E+00	1.03E-03	7.01E-04
Fe-59	1.46E-03	3.40E-03	1.31E-03	0.00E+00	0.00E+00	1.07E-03	8.04E-03
Co-58	0.00E+00	3.40E-04	7.84E-04	0.00E+00	0.00E+00	0.00E+00	4.69E-03
Co-60	0.00E+00	1.73E-03	3.90E-03	0.00E+00	0.00E+00	0.00E+00	2.26E-02
Ni-63	1.11E-01	7.87E-03	3.78E-03	0.00E+00	0.00E+00	0.00E+00	1.25E-03
Ni-65	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cu-64	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Zn-65	3.06E-03	1.06E-02	4.96E-03	0.00E+00	6.80E-03	0.00E+00	4.50E-03
Zn-69	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Br-83	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Br-84	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Br-85	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Rb-86	0.00E+00	2.02E-03	9.50E-04	0.00E+00	0.00E+00	0.00E+00	2.99E-04
Rb-88	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Rb-89	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Sr-89	1.22E-01	0.00E+00	3.49E-03	0.00E+00	0.00E+00	0.00E+00	1.45E-02
Sr-90	5.21E+00	0.00E+00	1.29E+00	0.00E+00	0.00E+00	0.00E+00	1.46E-01
Sr-91	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Sr-92	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Y-90	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Y-91m	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Y-91	6.22E-05	0.00E+00	1.67E-06	0.00E+00	0.00E+00	0.00E+00	2.55E-02
Y-92	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Y-93	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Zr-95	1.36E-05	4.28E-06	2.94E-06	0.00E+00	6.28E-06	0.00E+00	9.87E-03
Zr-97	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Nb-95	1.58E-06	8.77E-07	4.83E-07	0.00E+00	8.50E-07	0.00E+00	3.75E-03
Mo-99	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Tc-99m	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

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REMP DOSE FACTORS FOR TEEN AGE GROUP: FRUIT SAMPLES (Page 2 of 2)

mrem-kg/pCi-yr

NUCLIDE	BONE	LIVER	T.BODY	THYROID	KIDNEY	LUNG	GI-LLI
Tc-101	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ru-103	5.58E-05	0.00E+00	2.39E-05	0.00E+00	1.97E-04	0.00E+00	4.66E-03
Ru-105	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ru-106	2.21E-03	0.00E+00	2.78E-04	0.00E+00	4.25E-03	0.00E+00	1.06E-01
Ag-110m	1.09E-04	1.03E-04	6.29E-05	0.00E+00	1.97E-04	0.00E+00	2.91E-02
Te-125m	1.18E-03	4.24E-04	1.57E-04	3.29E-04	0.00E+00	0.00E+00	3.48E-03
Te-127m	4.16E-03	1.48E-03	4.95E-04	9.89E-04	1.69E-02	0.00E+00	1.04E-02
Te-127	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Te-129m	2.98E-03	1.11E-03	4.71E-04	9.61E-04	1.25E-02	0.00E+00	1.12E-02
Te-129	8.19E-06	3.05E-06	1.99E-06	5.85E-06	3.44E-05	0.00E+00	4.48E-05
Te-131m	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Te-131	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Te-132	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-130	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-131	2.09E-05	2.93E-05	1.57E-05	8.54E-03	5.04E-05	0.00E+00	5.79E-06
I-132	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-133	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-134	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-135	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cs-134	4.99E-02	1.17E-01	5.45E-02	0.00E+00	3.73E-02	1.42E-02	1.46E-03
Cs-136	2.30E-04	9.03E-04	6.07E-04	0.00E+00	4.92E-04	7.75E-05	7.27E-05
Cs-137	7.03E-02	9.35E-02	3.26E-02	0.00E+00	3.18E-02	1.24E-02	1.33E-03
Cs-138	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ba-139	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ba-140	6.92E-04	8.48E-08	4.46E-05	0.00E+00	2.88E-07	5.71E-07	1.07E-03
Ba-141	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ba-142	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
La-140	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
La-142	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ce-141	2.33E-06	1.56E-06	1.79E-07	0.00E+00	7.32E-07	0.00E+00	4.45E-03
Ce-143	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ce-144	3.79E-04	1.57E-04	2.04E-05	0.00E+00	9.36E-05	0.00E+00	9.52E-02
Pr-143	3.84E-07	1.53E-07	1.91E-08	0.00E+00	8.92E-08	0.00E+00	1.26E-03
Pr-144	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Nd-147	1.34E-07	1.46E-07	8.72E-09	0.00E+00	8.55E-08	0.00E+00	5.25E-04
W-187	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Np-239	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

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REMP DOSE FACTORS FOR TEEN AGE GROUP: MEAT SAMPLES (Page 1 of 2)

mrem-kg/pCi-yr

NUCLIDE	BONE	LIVER	T.BODY	THYROID	KIDNEY	LUNG	GI-LLI
H-3	0.00E+00	6.87E-06	6.87E-06	6.87E-06	6.87E-06	6.87E-06	6.87E-06
C-14	2.64E-04	5.28E-05	5.28E-05	5.28E-05	5.28E-05	5.28E-05	5.28E-05
Na-24	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
P-32	6.80E-03	4.21E-04	2.64E-04	0.00E+00	0.00E+00	0.00E+00	5.72E-04
Cr-51	0.00E+00	0.00E+00	1.42E-07	7.88E-08	3.11E-08	2.03E-07	2.38E-05
Mn-54	0.00E+00	3.67E-04	7.28E-05	0.00E+00	1.09E-04	0.00E+00	7.52E-04
Mn-56	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Fe-55	2.42E-04	1.72E-04	4.01E-05	0.00E+00	0.00E+00	1.09E-04	7.43E-05
Fe-59	2.80E-04	6.53E-04	2.52E-04	0.00E+00	0.00E+00	2.06E-04	1.54E-03
Co-58	0.00E+00	5.19E-05	1.20E-04	0.00E+00	0.00E+00	0.00E+00	7.16E-04
Co-60	0.00E+00	1.81E-04	4.08E-04	0.00E+00	0.00E+00	0.00E+00	2.36E-03
Ni-63	1.15E-02	8.12E-04	3.90E-04	0.00E+00	0.00E+00	0.00E+00	1.29E-04
Ni-65	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cu-64	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Zn-65	3.54E-04	1.23E-03	5.73E-04	0.00E+00	7.86E-04	0.00E+00	5.20E-04
Zn-69	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Br-83	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Br-84	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Br-85	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Rb-86	0.00E+00	9.21E-04	4.33E-04	0.00E+00	0.00E+00	0.00E+00	1.36E-04
Rb-88	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Rb-89	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Sr-89	2.17E-02	0.00E+00	6.23E-04	0.00E+00	0.00E+00	0.00E+00	2.59E-03
Sr-90	5.39E-01	0.00E+00	1.33E-01	0.00E+00	0.00E+00	0.00E+00	1.51E-02
Sr-91	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Sr-92	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Y-90	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Y-91m	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Y-91	1.03E-05	0.00E+00	2.76E-07	0.00E+00	0.00E+00	0.00E+00	4.23E-03
Y-92	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Y-93	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Zr-95	2.16E-06	6.80E-07	4.68E-07	0.00E+00	1.00E-06	0.00E+00	1.57E-03
Zr-97	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Nb-95	3.60E-07	2.00E-07	1.10E-07	0.00E+00	1.93E-07	0.00E+00	8.54E-04
Mo-99	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Tc-99m	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

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REMP DOSE FACTORS FOR TEEN AGE GROUP: MEAT SAMPLES (Page 2 of 2)

mrem-kg/pCi-yr

NUCLIDE	BONE	LIVER	T.BODY	THYROID	KIDNEY	LUNG	GI-LLI
Tc-101	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ru-103	1.17E-05	0.00E+00	4.98E-06	0.00E+00	4.11E-05	0.00E+00	9.73E-04
Ru-105	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ru-106	2.45E-04	0.00E+00	3.09E-05	0.00E+00	4.73E-04	0.00E+00	1.18E-02
Ag-110m	1.26E-05	1.19E-05	7.26E-06	0.00E+00	2.28E-05	0.00E+00	3.35E-03
Te-125m	1.96E-04	7.06E-05	2.62E-05	5.48E-05	0.00E+00	0.00E+00	5.78E-04
Te-127m	5.53E-04	1.96E-04	6.58E-05	1.32E-04	2.24E-03	0.00E+00	1.38E-03
Te-127	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Te-129m	7.01E-04	2.60E-04	1.11E-04	2.26E-04	2.93E-03	0.00E+00	2.63E-03
Te-129	1.93E-06	7.19E-07	4.69E-07	1.38E-06	8.09E-06	0.00E+00	1.05E-05
Te-131m	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Te-131	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Te-132	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-130	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-131	6.78E-05	9.49E-05	5.10E-05	2.77E-02	1.63E-04	0.00E+00	1.88E-05
I-132	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-133	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-134	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-135	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cs-134	5.34E-03	1.26E-02	5.83E-03	0.00E+00	3.99E-03	1.53E-03	1.56E-04
Cs-136	1.95E-04	7.66E-04	5.15E-04	0.00E+00	4.17E-04	6.57E-05	6.17E-05
Cs-137	7.27E-03	9.67E-03	3.37E-03	0.00E+00	3.29E-03	1.28E-03	1.38E-04
Cs-138	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ba-139	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ba-140	6.24E-04	7.65E-08	4.02E-05	0.00E+00	2.59E-07	5.14E-07	9.63E-04
Ba-141	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ba-142	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
La-140	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
La-142	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ce-141	5.64E-07	3.77E-07	4.33E-08	0.00E+00	1.77E-07	0.00E+00	1.08E-03
Ce-143	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ce-144	4.31E-05	1.78E-05	2.32E-06	0.00E+00	1.06E-05	0.00E+00	1.08E-02
Pr-143	3.06E-07	1.22E-07	1.52E-08	0.00E+00	7.11E-08	0.00E+00	1.01E-03
Pr-144	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Nd-147	1.73E-07	1.88E-07	1.12E-08	0.00E+00	1.10E-07	0.00E+00	6.77E-04
W-187	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Np-239	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

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REMP DOSE FACTORS FOR TEEN AGE GROUP: FISH SAMPLES (Page 1 of 2)

mrem-kg/pCi-yr

NUCLIDE	BONE	LIVER	T.BODY	THYROID	KIDNEY	LUNG	GI-LLI
H-3	0.00E+00	1.70E-06	1.70E-06	1.70E-06	1.70E-06	1.70E-06	1.70E-06
C-14	6.50E-05	1.30E-05	1.30E-05	1.30E-05	1.30E-05	1.30E-05	1.30E-05
Na-24	1.21E-05	1.21E-05	1.21E-05	1.21E-05	1.21E-05	1.21E-05	1.21E-05
P-32	4.21E-03	2.61E-04	1.63E-04	0.00E+00	0.00E+00	0.00E+00	3.54E-04
Cr-51	0.00E+00	0.00E+00	5.62E-08	3.12E-08	1.23E-08	8.02E-08	9.44E-06
Mn-54	0.00E+00	9.42E-05	1.87E-05	0.00E+00	2.81E-05	0.00E+00	1.93E-04
Mn-56	0.00E+00	3.99E-09	7.09E-10	0.00E+00	5.05E-09	0.00E+00	2.63E-07
Fe-55	6.04E-05	4.28E-05	9.99E-06	0.00E+00	0.00E+00	2.72E-05	1.85E-05
Fe-59	9.25E-05	2.16E-04	8.33E-05	0.00E+00	0.00E+00	6.81E-05	5.10E-04
Co-58	0.00E+00	1.54E-05	3.55E-05	0.00E+00	0.00E+00	0.00E+00	2.12E-04
Co-60	0.00E+00	4.49E-05	1.01E-04	0.00E+00	0.00E+00	0.00E+00	5.85E-04
Ni-63	2.83E-03	2.00E-04	9.60E-05	0.00E+00	0.00E+00	0.00E+00	3.18E-05
Ni-65	1.63E-08	2.08E-09	9.48E-10	0.00E+00	0.00E+00	0.00E+00	1.13E-07
Cu-64	0.00E+00	4.97E-07	2.34E-07	0.00E+00	1.26E-06	0.00E+00	3.85E-05
Zn-65	9.19E-05	3.19E-04	1.49E-04	0.00E+00	2.04E-04	0.00E+00	1.35E-04
Zn-69	3.90E-15	7.42E-15	5.19E-16	0.00E+00	4.85E-15	0.00E+00	1.37E-14
Br-83	0.00E+00	0.00E+00	8.71E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Br-84	0.00E+00	0.00E+00	2.87E-20	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Br-85	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Rb-86	0.00E+00	4.59E-04	2.16E-04	0.00E+00	0.00E+00	0.00E+00	6.80E-05
Rb-88	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Rb-89	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Sr-89	6.94E-03	0.00E+00	1.99E-04	0.00E+00	0.00E+00	0.00E+00	8.27E-04
Sr-90	1.33E-01	0.00E+00	3.28E-02	0.00E+00	0.00E+00	0.00E+00	3.73E-03
Sr-91	2.24E-05	0.00E+00	8.92E-07	0.00E+00	0.00E+00	0.00E+00	1.02E-04
Sr-92	1.05E-07	0.00E+00	4.49E-09	0.00E+00	0.00E+00	0.00E+00	2.68E+04
Y-90	1.69E-07	0.00E+00	4.55E-09	0.00E+00	0.00E+00	0.00E+00	1.39E-03
Y-91m	4.09E-18	0.00E+00	1.56E-19	0.00E+00	0.00E+00	0.00E+00	1.93E-16
Y-91	3.18E-06	0.00E+00	8.52E-08	0.00E+00	0.00E+00	0.00E+00	1.30E-03
Y-92	1.76E-10	0.00E+00	5.10E-12	0.00E+00	0.00E+00	0.00E+00	4.83E-06
Y-93	1.18E-08	0.00E+00	3.24E-10	0.00E+00	0.00E+00	0.00E+00	3.61E-04
Zr-95	6.52E-07	2.06E-07	1.41E-07	0.00E+00	3.02E-07	0.00E+00	4.75E-04
Zr-97	1.42E-08	2.80E-09	1.29E-09	0.00E+00	4.25E-09	0.00E+00	7.59E-04
Nb-95	1.29E-07	7.15E-08	3.94E-08	0.00E+00	6.93E-08	0.00E+00	3.06E-04
Mo-99	0.00E+00	7.50E-05	1.43E-05	0.00E+00	1.72E-04	0.00E+00	1.34E-04
Tc-99m	3.35E-10	9.35E-10	1.21E-08	0.00E+00	1.39E-08	5.19E-10	6.14E-07

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REMP DOSE FACTORS FOR TEEN AGE GROUP: FISH SAMPLES (Page 2 of 2)

mrem-kg/pCi-yr

NUCLIDE	BONE	LIVER	T.BODY	THYROID	KIDNEY	LUNG	GI-LLI
Tc-101	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ru-103	4.01E-06	0.00E+00	1.71E-06	0.00E+00	1.41E-05	0.00E+00	3.35E-04
Ru-105	8.23E-09	0.00E+00	3.19E-09	0.00E+00	1.04E-07	0.00E+00	6.64E-06
Ru-106	6.26E-05	0.00E+00	7.89E-06	0.00E+00	1.21E-04	0.00E+00	3.00E-03
Ag-110m	3.27E-06	3.10E-06	1.88E-06	0.00E+00	5.90E-06	0.00E+00	8.70E-04
Te-125m	6.06E-05	2.18E-05	8.09E-06	1.69E-05	0.00E+00	0.00E+00	1.79E-04
Te-127m	1.54E-04	5.45E-05	1.83E-05	3.66E-05	6.23E-04	0.00E+00	3.83E-04
Te-127	4.27E-07	1.51E-07	9.18E-08	2.94E-07	1.73E-06	0.00E+00	3.29E-05
Te-129m	2.55E-04	9.48E-05	4.04E-05	8.24E-05	1.07E-03	0.00E+00	9.59E-04
Te-129	7.02E-07	2.62E-07	1.71E-07	5.02E-07	2.95E-06	0.00E+00	3.84E-06
Te-131m	2.24E-05	1.08E-05	8.97E-06	1.62E-05	1.12E-04	0.00E+00	8.63E-04
Te-131	2.21E-24	0.00E+00	0.00E+00	1.71E-24	9.68E-24	0.00E+00	0.00E+00
Te-132	4.51E-05	2.86E-05	2.69E-05	3.01E-05	2.74E-04	0.00E+00	9.05E-04
I-130	4.29E-06	1.24E-05	4.96E-06	1.01E-03	1.91E-05	0.00E+00	9.54E-06
I-131	8.59E-05	1.20E-04	6.46E-05	3.51E-02	2.07E-04	0.00E+00	2.38E-05
I-132	3.23E-09	8.44E-09	3.03E-09	2.84E-07	1.33E-08	0.00E+00	3.68E-09
I-133	1.45E-05	2.45E-05	7.48E-06	3.42E-03	4.30E-05	0.00E+00	1.86E-05
I-134	1.39E-14	3.69E-14	1.33E-14	6.15E-13	5.82E-14	0.00E+00	4.86E-16
I-135	7.88E-07	2.03E-06	7.52E-07	1.30E-04	3.20E-06	0.00E+00	2.25E-06
Cs-134	1.34E-03	3.15E-03	1.46E-03	0.00E+00	1.00E-03	3.82E-04	3.92E-05
Cs-136	1.30E-04	5.13E-04	3.45E-04	0.00E+00	2.79E-04	4.40E-05	4.13E-05
Cs-137	1.79E-03	2.38E-03	8.30E-04	0.00E+00	8.11E-04	3.15E-04	3.39E-05
Cs-138	4.56E-20	8.75E-20	4.37E-20	0.00E+00	6.46E-20	7.52E-21	3.97E-23
Ba-139	1.38E-11	9.74E-15	4.03E-13	0.00E+00	9.18E-15	6.71E-15	1.23E-10
Ba-140	4.30E-04	5.27E-08	2.77E-05	0.00E+00	1.79E-07	3.55E-07	6.64E-04
Ba-141	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ba-142	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
La-140	3.68E-08	1.81E-08	4.81E-09	0.00E+00	0.00E+00	0.00E+00	1.04E-03
La-142	8.36E-14	3.71E-14	9.25E-15	0.00E+00	0.00E+00	0.00E+00	1.13E-09
Ce-141	2.08E-07	1.39E-07	1.60E-08	0.00E+00	6.55E-08	0.00E+00	3.98E-04

REMP DOSE FACTORS FOR TEEN AGE GROUP: DRINKING WATER (Page 1 of 2)

mrem-liter/pCi-yr

NUCLIDE	BONE	LIVER	T.BODY	THYROID	KIDNEY	LUNG	GI-LLI
H-3	0.00E+00	5.41E-05	5.41E-05	5.41E-05	5.41E-05	5.41E-05	5.41E-05
C-14	2.07E-03	4.14E-04	4.14E-04	4.14E-04	4.14E-04	4.14E-04	4.14E-04
Na-24	6.74E-04	6.74E-04	6.74E-04	6.74E-04	6.74E-04	6.74E-04	6.74E-04
P-32	1.37E-01	8.51E-03	5.33E-03	0.00E+00	0.00E+00	0.00E+00	1.15E-02
Cr-51	0.00E+00	0.00E+00	1.81E-06	1.01E-06	3.97E-07	2.59E-06	3.05E-04
Mn-54	0.00E+00	3.01E-03	5.96E-04	0.00E+00	8.97E-04	0.00E+00	6.16E-03
Mn-56	0.00E+00	3.20E-06	5.69E-07	0.00E+00	4.05E-06	0.00E+00	2.11E-04
Fe-55	1.93E-03	1.37E-03	3.19E-04	0.00E+00	0.00E+00	8.67E-04	5.91E-04
Fe-59	2.97E-03	6.93E-03	2.68E-03	0.00E+00	0.00E+00	2.19E-03	1.64E-02
Co-58	0.00E+00	4.93E-04	1.14E-03	0.00E+00	0.00E+00	0.00E+00	6.80E-03
Co-60	0.00E+00	1.43E-03	3.23E-03	0.00E+00	0.00E+00	0.00E+00	1.87E-02
Ni-63	9.03E-02	6.37E-03	3.06E-03	0.00E+00	0.00E+00	0.00E+00	1.01E-03
Ni-65	1.41E-05	1.80E-06	8.20E-07	0.00E+00	0.00E+00	0.00E+00	9.76E-05
Cu-64	0.00E+00	3.05E-05	1.43E-05	0.00E+00	7.71E-05	0.00E+00	2.36E-03
Zn-65	2.93E-03	1.02E-02	4.75E-03	0.00E+00	6.52E-03	0.00E+00	4.31E-03
Zn-69	9.65E-10	1.84E-09	1.29E-10	0.00E+00	1.20E-09	0.00E+00	3.39E-09
Br-83	0.00E+00	0.00E+00	9.02E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Br-84	0.00E+00	0.00E+00	5.81E-12	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Br-85	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Rb-86	0.00E+00	1.49E-02	7.01E-03	0.00E+00	0.00E+00	0.00E+00	2.21E-03
Rb-88	0.00E+00	3.06E-17	1.63E-17	0.00E+00	0.00E+00	0.00E+00	2.62E-24
Rb-89	0.00E+00	2.74E-19	1.94E-19	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Sr-89	2.23E-01	0.00E+00	6.38E-03	0.00E+00	0.00E+00	0.00E+00	2.65E-02
Sr-90	4.23E+00	0.00E+00	1.05E+00	0.00E+00	0.00E+00	0.00E+00	1.19E-01
Sr-91	1.71E-03	0.00E+00	6.82E-05	0.00E+00	0.00E+00	0.00E+00	7.78E-03
Sr-92	7.23E-05	0.00E+00	3.08E-06	0.00E+00	0.00E+00	0.00E+00	1.84E-03
Y-90	6.14E-06	0.00E+00	1.65E-07	0.00E+00	0.00E+00	0.00E+00	5.06E-02
Y-91m	2.93E-12	0.00E+00	1.12E-13	0.00E+00	0.00E+00	0.00E+00	1.38E-10
Y-91	1.02E-04	0.00E+00	2.73E-06	0.00E+00	0.00E+00	0.00E+00	4.18E-02
Y-92	5.89E-08	0.00E+00	1.70E-09	0.00E+00	0.00E+00	0.00E+00	1.62E-03
Y-93	8.57E-07	0.00E+00	2.35E-08	0.00E+00	0.00E+00	0.00E+00	2.62E-02
Zr-95	2.09E-05	6.59E-06	4.53E-06	0.00E+00	9.69E-06	0.00E+00	1.52E-02
Zr-97	7.39E-07	1.46E-07	6.73E-08	0.00E+00	2.22E-07	0.00E+00	3.96E-02
Nb-95	4.15E-06	2.30E-06	1.27E-06	0.00E+00	2.23E-06	0.00E+00	9.85E-03
Mo-99	0.00E+00	2.71E-03	5.17E-04	0.00E+00	6.20E-03	0.00E+00	4.86E-03
Tc-99m	4.25E-08	1.19E-07	1.54E-06	0.00E+00	1.77E-06	6.58E-08	7.79E-05

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REMP DOSE FACTORS FOR TEEN AGE GROUP: DRINKING WATER (Page 2 of 2)

mrem-liter/pCi-yr

NUCLIDE	BONE	LIVER	T.BODY	THYROID	KIDNEY	LUNG	GI-LLI
Tc-101	1.07E-22	1.53E-22	1.50E-21	0.00E+00	2.76E-21	9.30E-23	0.00E+00
Ru-103	1.29E-04	0.00E+00	5.51E-05	0.00E+00	4.54E-04	0.00E+00	1.08E-02
Ru-105	1.71E-06	0.00E+00	6.63E-07	0.00E+00	2.15E-05	0.00E+00	1.38E-03
Ru-106	2.00E-03	0.00E+00	2.52E-04	0.00E+00	3.85E-03	0.00E+00	9.58E-02
Ag-110m	1.04E-04	9.88E-05	6.01E-05	0.00E+00	1.88E-04	0.00E+00	2.78E-02
Te-125m	1.94E-03	7.00E-04	2.60E-04	5.42E-04	0.00E+00	0.00E+00	5.73E-03
Te-127m	4.92E-03	1.74E-03	5.85E-04	1.17E-03	1.99E-02	0.00E+00	1.23E-02
Te-127	3.31E-05	1.17E-05	7.12E-06	2.28E-05	1.34E-04	0.00E+00	2.56E-03
Te-129m	8.23E-03	3.05E-03	1.30E-03	2.66E-03	3.44E-02	0.00E+00	3.09E-02
Te-129	2.26E-05	8.43E-06	5.50E-06	1.62E-05	9.49E-05	0.00E+00	1.24E-04
Te-131m	9.43E-04	4.52E-04	3.77E-04	6.80E-04	4.72E-03	0.00E+00	3.63E-02
Te-131	3.17E-14	1.31E-14	9.90E-15	2.44E-14	1.39E-13	0.00E+00	2.60E-15
Te-132	1.60E-03	1.01E-03	9.54E-04	1.07E-03	9.72E-03	0.00E+00	3.21E-02
I-130	2.68E-04	7.75E-04	3.10E-04	6.32E-02	1.19E-03	0.00E+00	5.96E-04
I-131	2.86E-03	4.00E-03	2.15E-03	1.17E+00	6.89E-03	0.00E+00	7.91E-04
I-132	3.82E-06	1.00E-05	3.59E-06	3.37E-04	1.58E-05	0.00E+00	4.36E-06
I-133	6.87E-04	1.17E-03	3.56E-04	1.63E-01	2.04E-03	0.00E+00	8.82E-04
I-134	5.75E-09	1.52E-08	5.47E-09	2.54E-07	2.40E-08	0.00E+00	2.01E-10
I-135	8.84E-05	2.27E-04	8.43E-05	1.46E-02	3.59E-04	0.00E+00	2.52E-04
Cs-134	4.27E-02	1.00E-01	4.66E-02	0.00E+00	3.19E-02	1.22E-02	1.25E-03
Cs-136	4.27E-03	1.68E-02	1.13E-02	0.00E+00	9.14E-03	1.44E-03	1.35E-03
Cs-137	5.71E-02	7.60E-02	2.65E-02	0.00E+00	2.59E-02	1.00E-02	1.08E-03
Cs-138	7.58E-12	1.46E-11	7.28E-12	0.00E+00	1.07E-11	1.25E-12	6.60E-15
Ba-139	1.77E-07	1.24E-10	5.15E-09	0.00E+00	1.17E-10	8.57E-11	1.58E-06
Ba-140	1.41E-02	1.73E-06	9.08E-04	0.00E+00	5.86E-06	1.16E-05	2.17E-02
Ba-141	4.95E-17	3.70E-20	1.65E-18	0.00E+00	3.43E-20	2.53E-20	1.06E-22
Ba-142	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
La-140	1.44E-06	7.09E-07	1.89E-07	0.00E+00	0.00E+00	0.00E+00	4.07E-02
La-142	4.93E-10	2.19E-10	5.46E-11	0.00E+00	0.00E+00	0.00E+00	6.67E-06
Ce-141	6.71E-06	4.48E-06	5.15E-07	0.00E+00	2.11E-06	0.00E+00	1.28E-02
Ce-143	9.31E-07	6.78E-04	7.57E-08	0.00E+00	3.04E-07	0.00E+00	2.04E-02
Ce-144	3.55E-04	1.47E-04	1.91E-05	0.00E+00	8.76E-05	0.00E+00	8.91E-02
Pr-143	6.51E-06	2.60E-06	3.24E-07	0.00E+00	1.51E-06	0.00E+00	2.14E-02
Pr-144	6.66E-21	2.72E-21	3.37E-22	0.00E+00	1.56E-21	0.00E+00	7.34E-24
Nd-147	4.64E-06	5.04E-06	3.02E-07	0.00E+00	2.96E-06	0.00E+00	1.82E-02
W-187	5.25E-05	4.28E-05	1.50E-05	0.00E+00	0.00E+00	0.00E+00	1.16E-02
Np-239	7.75E-07	7.31E-08	4.06E-08	0.00E+00	2.29E-07	0.00E+00	1.18E-02

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REMP DOSE FACTORS FOR TEEN AGE GROUP: INHALATION - QUARTERLY SAMPLING (Page 1 of 2)

mrem-m^3/pCi-yr

NUCLIDE	BONE	LIVER	T.BODY	THYROID	KIDNEY	LUNG	GI-LLI
H-3	0.00E+00	1.28E-03	1.28E-03	1.28E-03	1.28E-03	1.28E-03	1.28E-03
C-14	2.60E-02	4.87E-03	4.87E-03	4.87E-03	4.87E-03	4.87E-03	4.87E-03
Na-24	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
P-32	1.73E+01	1.00E+00	6.55E-01	0.00E+00	0.00E+00	0.00E+00	8.49E-01
Cr-51	0.00E+00	0.00E+00	4.23E-04	2.35E-04	9.62E-05	6.56E-02	9.39E-03
Mn-54	0.00E+00	5.66E-02	9.29E-03	0.00E+00	1.41E-02	2.20E+00	7.39E-02
Mn-56	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Fe-55	3.45E-02	2.46E-02	5.72E-03	0.00E+00	0.00E+00	1.28E-01	6.60E-03
Fe-59	3.23E-02	7.51E-02	2.91E-02	0.00E+00	0.00E+00	3.10E+00	3.62E-01
Co-58	0.00E+00	3.24E-03	4.34E-03	0.00E+00	0.00E+00	2.10E+00	1.49E-01
Co-60	0.00E+00	1.54E-02	2.02E-02	0.00E+00	0.00E+00	8.86E+00	2.63E-01
Ni-63	5.81E-01	4.35E-02	1.98E-02	0.00E+00	0.00E+00	3.07E-01	1.42E-02
Ni-65	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cu-64	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Zn-65	4.39E-02	1.52E-01	7.10E-02	0.00E+00	9.83E-02	1.41E+00	5.31E-02
Zn-69	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Br-83	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Br-84	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Br-85	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Rb-86	0.00E+00	1.04E+00	4.57E-01	0.00E+00	0.00E+00	0.00E+00	9.63E-02
Rb-88	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Rb-89	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Sr-89	8.12E-01	0.00E+00	2.33E-02	0.00E+00	0.00E+00	4.52E+00	6.94E-01
Sr-90	1.08E+02	0.00E+00	6.70E+00	0.00E+00	0.00E+00	1.65E+01	7.67E-01
Sr-91	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Sr-92	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Y-90	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Y-91m	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Y-91	1.13E+00	0.00E+00	3.04E-02	0.00E+00	0.00E+00	5.04E+00	7.02E-01
Y-92	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Y-93	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Zr-95	2.39E-01	7.51E-02	5.17E-02	0.00E+00	1.10E-01	4.41E+00	2.44E-01
Zr-97	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Nb-95	4.57E-02	2.54E-02	1.40E-02	0.00E+00	2.46E-02	1.85E+00	2.39E-01
Mo-99	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Tc-99m	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

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REMP DOSE FACTORS FOR TEEN AGE GROUP: INHALATION - QUARTERLY SAMPLING (Page 2 of 2)

mrem-m^3/pCi-yr

NUCLIDE	BONE	LIVER	T.BODY	THYROID	KIDNEY	LUNG	GI-LLI
Tc-101	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ru-103	4.70E-03	0.00E+00	2.00E-03	0.00E+00	1.66E-02	1.75E+00	2.43E-01
Ru-105	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ru-106	1.07E-01	0.00E+00	1.35E-02	0.00E+00	2.07E-01	1.75E+01	1.05E+00
Ag-110m	1.57E-02	1.49E-02	9.07E-03	0.00E+00	2.84E-02	7.66E+00	3.10E-01
Te-125m	8.42E-03	3.86E-03	1.15E-03	2.42E-03	0.00E+00	9.25E-01	1.29E-01
Te-127m	2.41E-02	1.09E-02	2.92E-03	5.86E-03	8.74E-02	2.21E+00	2.13E-01
Te-127	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Te-129m	3.57E-02	1.69E-02	5.76E-03	1.17E-02	1.33E-01	5.06E+00	1.04E+00
Te-129	1.82E-07	8.65E-08	4.51E-08	1.33E-07	6.81E-07	8.45E-03	4.14E-03
Te-131m	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Te-131	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Te-132	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-130	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-131	1.81E+00	2.51E+00	1.35E+00	7.48E+02	4.29E+00	0.00E+00	3.31E-01
I-132	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-133	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-134	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-135	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cs-134	5.24E-01	1.18E+00	5.72E-01	0.00E+00	3.91E-01	1.53E-01	1.02E-02
Cs-136	5.70E-01	2.14E+00	1.51E+00	0.00E+00	1.22E+00	1.96E-01	1.20E-01
Cs-137	6.72E-01	8.50E-01	3.12E-01	0.00E+00	3.05E-01	1.21E-01	8.50E-03
Cs-138	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ba-139	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ba-140	6.49E-01	7.95E-04	4.17E-02	0.00E+00	2.70E-04	2.41E+01	2.71E+00
Ba-141	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ba-142	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
La-140	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
La-142	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ce-141	7.51E-02	5.02E-02	5.74E-03	0.00E+00	2.35E-02	1.62E+00	3.34E-01
Ce-143	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ce-144	5.46E+00	2.26E+00	2.93E-01	0.00E+00	1.35E+00	1.49E+01	9.66E-01
Pr-143	1.38E-01	5.47E-02	6.82E-03	0.00E+00	3.18E-02	4.98E+00	2.20E+00
Pr-144	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Nd-147	1.40E-01	1.53E-01	9.14E-03	0.00E+00	8.95E-02	6.63E+00	3.25E+00
W-187	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Np-239	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

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REMP DOSE FACTORS FOR TEEN AGE GROUP: INHALATION - WEEKLY SAMPLING (Page 1 of 2)

mrem-m^3/pCi-yr

NUCLIDE	BONE	LIVER	T.BODY	THYROID	KIDNEY	LUNG	GI-LLI
H-3	0.00E+00	1.27E-03	1.27E-03	1.27E-03	1.27E-03	1.27E-03	1.27E-03
C-14	2.60E-02	4.87E-03	4.87E-03	4.87E-03	4.87E-03	4.87E-03	4.87E-03
Na-24	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
P-32	2.24E+00	1.30E-01	8.48E-02	0.00E+00	0.00E+00	0.00E+00	1.10E-01
Cr-51	0.00E+00	0.00E+00	1.48E-04	8.18E-05	3.35E-05	2.29E-02	3.27E-03
Mn-54	0.00E+00	5.15E-02	8.47E-03	0.00E+00	1.28E-02	2.00E+00	6.73E-02
Mn-56	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Fe-55	3.35E-02	2.39E-02	5.56E-03	0.00E+00	0.00E+00	1.24E-01	6.41E-03
Fe-59	1.68E-02	3.90E-02	1.51E-02	0.00E+00	0.00E+00	1.61E+00	1.88E-01
Co-58	0.00E+00	2.14E-03	2.87E-03	0.00E+00	0.00E+00	1.39E+00	9.85E-02
Co-60	0.00E+00	1.51E-02	1.99E-02	0.00E+00	0.00E+00	8.73E+00	2.60E-01
Ni-63	5.80E-01	4.34E-02	1.98E-02	0.00E+00	0.00E+00	3.07E-01	1.42E-02
Ni-65	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cu-64	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Zn-65	3.89E-02	1.35E-01	6.30E-02	0.00E+00	8.73E-02	1.25E+00	4.71E-02
Zn-69	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Br-83	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Br-84	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Br-85	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Rb-86	0.00E+00	2.17E-01	9.57E-02	0.00E+00	0.00E+00	0.00E+00	2.01E-02
Rb-88	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Rb-89	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Sr-89	4.56E-01	0.00E+00	1.31E-02	0.00E+00	0.00E+00	2.53E+00	3.89E-01
Sr-90	1.08E+02	0.00E+00	6.68E+00	0.00E+00	0.00E+00	1.65E+01	7.65E-01
Sr-91	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Sr-92	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Y-90	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Y-91m	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Y-91	6.89E-01	0.00E+00	1.84E-02	0.00E+00	0.00E+00	3.06E+00	4.26E-01
Y-92	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Y-93	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Zr-95	1.51E-01	4.76E-02	3.27E-02	0.00E+00	7.00E-02	2.79E+00	1.55E-01
Zr-97	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Nb-95	1.99E-02	1.11E-02	6.07E-03	0.00E+00	1.07E-02	8.05E-01	1.04E-01
Mo-99	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Tc-99m	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

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REMP DOSE FACTORS FOR TEEN AGE GROUP:INHALATION - WEEKLY SAMPLING (Page 2 of 2)

mrem-m^3/pCi-yr

NUCLIDE	BONE	LIVER	T.BODY	THYROID	KIDNEY	LUNG	GI-LLI
Tc-101	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ru-103	2.24E-03	0.00E+00	9.53E-04	0.00E+00	7.90E-03	8.33E-01	1.16E-01
Ru-105	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ru-106	9.91E-02	0.00E+00	1.25E-02	0.00E+00	1.92E-01	1.62E+01	9.66E-01
Ag-110m	1.40E-02	1.32E-02	8.07E-03	0.00E+00	2.53E-02	6.82E+00	2.75E-01
Te-125m	5.09E-03	2.34E-03	6.96E-04	1.46E-03	0.00E+00	5.59E-01	7.82E-02
Te-127m	1.84E-02	8.34E-03	2.23E-03	4.48E-03	6.68E-02	1.69E+00	1.63E-01
Te-127	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Te-129m	1.50E-02	7.08E-03	2.42E-03	4.92E-03	5.58E-02	2.12E+00	4.35E-01
Te-129	7.63E-08	3.63E-08	1.89E-08	5.57E-08	2.85E-07	3.54E-03	1.74E-03
Te-131m	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Te-131	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Te-132	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-130	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-131	3.54E-02	4.91E-02	2.64E-02	1.46E+01	8.40E-02	0.00E+00	6.49E-03
I-132	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-133	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-134	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-135	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cs-134	5.04E-01	1.13E+00	5.51E-01	0.00E+00	3.76E-01	1.47E-01	9.79E-03
Cs-136	6.19E-02	2.33E-01	1.64E-01	0.00E+00	1.33E-01	2.14E-02	1.31E-02
Cs-137	6.71E-01	8.48E-01	3.11E-01	0.00E+00	3.04E-01	1.21E-01	8.48E-03
Cs-138	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ba-139	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ba-140	6.61E-02	8.10E-05	4.26E-03	0.00E+00	2.76E-05	2.46E+00	2.77E-01
Ba-141	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ba-142	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
La-140	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
La-142	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ce-141	3.06E-02	2.04E-02	2.34E-03	0.00E+00	9.57E-03	6.61E-01	1.36E-01
Ce-143	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ce-144	4.93E+00	2.04E+00	2.65E-01	0.00E+00	1.22E+00	1.35E+01	8.71E-01
Pr-143	1.60E-02	6.35E-03	7.92E-04	0.00E+00	3.69E-03	5.78E-01	2.55E-01
Pr-144	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Nd-147	9.81E-03	1.07E-02	6.40E-04	0.00E+00	6.27E-03	4.64E-01	2.28E-01
W-187	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Np-239	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

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REMP DOSE FACTORS FOR CHILD AGE GROUP: MILK (Page 1 of 2)

mrem-liter/pCi-yr

NUCLIDE	BONE	LIVER	T.BODY	THYROID	KIDNEY	LUNG	GI-LLI
H-3	0.00E+00	6.70E-05	6.70E-05	6.70E-05	6.70E-05	6.70E-05	6.70E-05
C-14	3.99E-03	7.99E-04	7.99E-04	7.99E-04	7.99E-04	7.99E-04	7.99E-04
Na-24	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
P-32	2.47E-01	1.16E-02	9.52E-03	0.00E+00	0.00E+00	0.00E+00	6.83E-03
Cr-51	0.00E+00	0.00E+00	2.79E-06	1.55E-06	4.24E-07	2.83E-06	1.48E-04
Mn-54	0.00E+00	3.52E-03	9.36E-04	0.00E+00	9.86E-04	0.00E+00	2.95E-03
Mn-56	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Fe-55	3.79E-03	2.01E-03	6.23E-04	0.00E+00	0.00E+00	1.14E-03	3.72E-04
Fe-59	5.28E-03	8.54E-03	4.25E-03	0.00E+00	0.00E+00	2.48E-03	8.89E-03
Co-58	0.00E+00	5.82E-04	1.78E-03	0.00E+00	0.00E+00	0.00E+00	3.40E-03
Co-60	0.00E+00	1.74E-03	5.14E-03	0.00E+00	0.00E+00	0.00E+00	9.66E-03
Ni-63	1.78E-01	9.50E-03	6.04E-03	0.00E+00	0.00E+00	0.00E+00	6.40E-04
Ni-65	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cu-64	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Zn-65	4.50E-03	1.20E-02	7.45E-03	0.00E+00	7.55E-03	0.00E+00	2.10E-03
Zn-69	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Br-83	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Br-84	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Br-85	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Rb-86	0.00E+00	2.05E-02	1.26E-02	0.00E+00	0.00E+00	0.00E+00	1.32E-03
Rb-88	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Rb-89	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Sr-89	4.24E-01	0.00E+00	1.21E-02	0.00E+00	0.00E+00	0.00E+00	1.64E-02
Sr-90	5.61E+00	0.00E+00	1.42E+00	0.00E+00	0.00E+00	0.00E+00	7.56E-02
Sr-91	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Sr-92	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Y-90	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Y-91m	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Y-91	1.94E-04	0.00E+00	5.19E-06	0.00E+00	0.00E+00	0.00E+00	2.58E-02
Y-92	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Y-93	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Zr-95	3.75E-05	8.23E-06	7.33E-06	0.00E+00	1.18E-05	0.00E+00	8.59E-03
Zr-97	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Nb-95	7.14E-06	2.78E-06	1.99E-06	0.00E+00	2.61E-06	0.00E+00	5.14E-03
Mo-99	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Tc-99m	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

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mrem-liter/pCi-yr

NUCLIDE	BONE	LIVER	T.BODY	THYROID	KIDNEY	LUNG	GI-LLI
Tc-101	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ru-103	2.33E-04	0.00E+00	8.95E-05	0.00E+00	5.86E-04	0.00E+00	6.02E-03
Ru-105	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ru-106	3.85E-03	0.00E+00	4.80E-04	0.00E+00	5.19E-03	0.00E+00	5.98E-02
Ag-110m	1.77E-04	1.19E-04	9.55E-05	0.00E+00	2.23E-04	0.00E+00	1.42E-02
Te-125m	3.67E-03	9.96E-04	4.90E-04	1.03E-03	0.00E+00	0.00E+00	3.54E-03
Te-127m	9.42E-03	2.53E-03	1.12E-03	2.25E-03	2.68E-02	0.00E+00	7.62E-03
Te-127	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Te-129m	1.54E-02	4.31E-03	2.39E-03	4.97E-03	4.53E-02	0.00E+00	1.88E-02
Te-129	4.24E-05	1.18E-05	1.01E-05	3.03E-05	1.24E-04	0.00E+00	2.64E-03
Te-131m	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Te-131	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Te-132	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-130	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-131	4.78E-03	4.80E-03	2.73E-03	1.59E+00	7.89E-03	0.00E+00	4.28E-04
I-132	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-133	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-134	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-135	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cs-134	7.71E-02	1.26E-01	2.67E-02	0.00E+00	3.92E-02	1.41E-02	6.82E-04
Cs-136	6.98E-03	1.92E-02	1.24E-02	0.00E+00	1.02E-02	1.52E-03	6.74E-04
Cs-137	1.08E-01	1.03E-01	1.52E-02	0.00E+00	3.37E-02	1.21E-02	6.47E-04
Cs-138	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ba-139	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ba-140	2.46E-02	2.16E-05	1.44E-03	0.00E+00	7.02E-06	1.29E-05	1.25E-02
Ba-141	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ba-142	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
La-140	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
La-142	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ce-141	1.26E-05	6.26E-06	9.30E-07	0.00E+00	2.74E-06	0.00E+00	7.81E-03
Ce-143	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ce-144	6.83E-04	2.14E-04	3.65E-05	0.00E+00	1.19E-04	0.00E+00	5.58E-02
Pr-143	1.17E-05	3.52E-06	5.81E-07	0.00E+00	1.90E-06	0.00E+00	1.26E-02
Pr-144	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Nd-147	8.11E-06	6.57E-06	5.09E-07	0.00E+00	3.61E-06	0.00E+00	1.04E-02
W-187	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Np-239	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

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mrem-kg/pCi-yr

NUCLIDE	BONE	LIVER	T.BODY	THYROID	KIDNEY	LUNG	GI-LLI
H-3	0.00E+00	5.28E-06	5.28E-06	5.28E-06	5.28E-06	5.28E-06	5.28E-06
C-14	3.15E-04	6.29E-05	6.29E-05	6.29E-05	6.29E-05	6.29E-05	6.29E-05
Na-24	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
P-32	2.04E-02	9.56E-04	7.88E-04	0.00E+00	0.00E+00	0.00E+00	5.65E-04
Cr-51	0.00E+00	0.00E+00	2.26E-07	1.25E-07	3.42E-08	2.29E-07	1.20E-05
Mn-54	0.00E+00	2.78E-04	7.39E-05	0.00E+00	7.78E-05	0.00E+00	2.33E-04
Mn-56	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Fe-55	2.99E-04	1.58E-04	4.91E-05	0.00E+00	0.00E+00	8.96E-05	2.94E-05
Fe-59	4.22E-04	6.84E-04	3.40E-04	0.00E+00	0.00E+00	1.98E-04	7.12E-04
Co-58	0.00E+00	4.63E-05	1.42E-04	0.00E+00	0.00E+00	0.00E+00	2.70E-04
Co-60	0.00E+00	1.37E-04	4.05E-04	0.00E+00	0.00E+00	0.00E+00	7.62E-04
Ni-63	1.40E-02	7.49E-04	4.76E-04	0.00E+00	0.00E+00	0.00E+00	5.04E-05
Ni-65	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cu-64	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Zn-65	3.55E-04	9.46E-04	5.89E-04	0.00E+00	5.96E-04	0.00E+00	1.66E-04
Zn-69	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Br-83	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Br-84	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Br-85	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Rb-86	0.00E+00	1.68E-03	1.03E-03	0.00E+00	0.00E+00	0.00E+00	1.08E-04
Rb-88	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Rb-89	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Sr-89	3.39E-02	0.00E+00	9.67E-04	0.00E+00	0.00E+00	0.00E+00	1.31E-03
Sr-90	4.42E-01	0.00E+00	1.12E-01	0.00E+00	0.00E+00	0.00E+00	5.95E-03
Sr-91	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Sr-92	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Y-90	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Y-91m	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Y-91	1.55E-05	0.00E+00	4.14E-07	0.00E+00	0.00E+00	0.00E+00	2.06E-03
Y-92	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Y-93	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Zr-95	2.98E-06	6.56E-07	5.84E-07	0.00E+00	9.39E-07	0.00E+00	6.84E-04
Zr-97	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Nb-95	5.74E-07	2.23E-07	1.60E-07	0.00E+00	2.10E-07	0.00E+00	4.13E-04
Mo-99	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Tc-99m	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

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mrem-kg/pCi-yr

NUCLIDE	BONE	LIVER	T.BODY	THYROID	KIDNEY	LUNG	GI-LLI
Tc-101	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ru-103	1.87E-05	0.00E+00	7.18E-06	0.00E+00	4.70E-05	0.00E+00	4.83E-04
Ru-105	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ru-106	3.04E-04	0.00E+00	3.79E-05	0.00E+00	4.10E-04	0.00E+00	4.72E-03
Ag-110m	1.40E-05	9.44E-06	7.55E-06	0.00E+00	1.76E-05	0.00E+00	1.12E-03
Te-125m	2.93E-04	7.94E-05	3.91E-05	8.22E-05	0.00E+00	0.00E+00	2.83E-04
Te-127m	7.47E-04	2.01E-04	8.86E-05	1.79E-04	2.13E-03	0.00E+00	6.05E-04
Te-127	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Te-129m	1.24E-03	3.46E-04	1.93E-04	4.00E-04	3.64E-03	0.00E+00	1.51E-03
Te-129	3.41E-06	9.53E-07	8.10E-07	2.43E-06	9.98E-06	0.00E+00	2.12E-04
Te-131m	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Te-131	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Te-132	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-130	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-131	4.10E-04	4.13E-04	2.34E-04	1.36E-01	6.77E-04	0.00E+00	3.67E-05
I-132	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-133	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-134	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-135	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cs-134	6.08E-03	9.97E-03	2.10E-03	0.00E+00	3.09E-03	1.11E-03	5.38E-05
Cs-136	5.80E-04	1.59E-03	1.03E-03	0.00E+00	8.49E-04	1.27E-04	5.60E-05
Cs-137	8.50E-03	8.14E-03	1.20E-03	0.00E+00	2.65E-03	9.54E-04	5.10E-05
Cs-138	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ba-139	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ba-140	2.05E-03	1.79E-06	1.19E-04	0.00E+00	5.84E-07	1.07E-06	1.04E-03
Ba-141	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ba-142	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
La-140	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
La-142	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ce-141	1.01E-06	5.04E-07	7.48E-08	0.00E+00	2.21E-07	0.00E+00	6.29E-04
Ce-143	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ce-144	5.39E-05	1.69E-05	2.88E-06	0.00E+00	9.36E-06	0.00E+00	4.41E-03
Pr-143	9.71E-07	2.92E-07	4.82E-08	0.00E+00	1.58E-07	0.00E+00	1.05E-03
Pr-144	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Nd-147	6.81E-07	5.52E-07	4.27E-08	0.00E+00	3.03E-07	0.00E+00	8.74E-04
W-187	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Np-239	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

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REMP DOSE FACTORS FOR CHILD AGE GROUP: FRUIT (Page 1 of 2)

mrem-kg/pCi-yr

NUCLIDE	BONE	LIVER	T.BODY	THYROID	KIDNEY	LUNG	GI-LLI
H-3	0.00E+00	1.05E-04	1.05E-04	1.05E-04	1.05E-04	1.05E-04	1.05E-04
C-14	6.29E-03	1.26E-03	1.26E-03	1.26E-03	1.26E-03	1.26E-03	1.26E-03
Na-24	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
P-32	2.34E-02	1.09E-03	9.00E-04	0.00E+00	0.00E+00	0.00E+00	6.46E-04
Cr-51	0.00E+00	0.00E+00	1.03E-06	5.72E-07	1.56E-07	1.05E-06	5.47E-05
Mn-54	0.00E+00	4.87E-03	1.30E-03	0.00E+00	1.37E-03	0.00E+00	4.09E-03
Mn-56	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Fe-55	5.73E-03	3.04E-03	9.42E-04	0.00E+00	0.00E+00	1.72E-03	5.63E-04
Fe-59	3.38E-03	5.47E-03	2.72E-03	0.00E+00	0.00E+00	1.59E-03	5.69E-03
Co-58	0.00E+00	5.20E-04	1.59E-03	0.00E+00	0.00E+00	0.00E+00	3.03E-03
Co-60	0.00E+00	2.69E-03	7.94E-03	0.00E+00	0.00E+00	0.00E+00	1.49E-02
Ni-63	2.79E-01	1.50E-02	9.51E-03	0.00E+00	0.00E+00	0.00E+00	1.01E-03
Ni-65	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cu-64	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Zn-65	6.01E-03	1.60E-02	9.96E-03	0.00E+00	1.01E-02	0.00E+00	2.81E-03
Zn-69	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Br-83	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Br-84	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Br-85	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Rb-86	0.00E+00	3.75E-03	2.31E-03	0.00E+00	0.00E+00	0.00E+00	2.41E-04
Rb-88	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Rb-89	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Sr-89	3.01E-01	0.00E+00	8.61E-03	0.00E+00	0.00E+00	0.00E+00	1.17E-02
Sr-90	8.80E+00	0.00E+00	2.23E+00	0.00E+00	0.00E+00	0.00E+00	1.19E-01
Sr-91	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Sr-92	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Y-90	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Y-91m	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Y-91	1.54E-04	0.00E+00	4.11E-06	0.00E+00	0.00E+00	0.00E+00	2.05E-02
Y-92	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Y-93	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Zr-95	3.15E-05	6.92E-06	6.16E-06	0.00E+00	9.91E-06	0.00E+00	7.22E-03
Zr-97	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Nb-95	3.57E-06	1.39E-06	9.94E-07	0.00E+00	1.31E-06	0.00E+00	2.57E-03
Mo-99	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Tc-99m	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

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mrem-kg/pCi-yr

NUCLIDE	BONE	LIVER	T.BODY	THYROID	KIDNEY	LUNG	GI-LLI
Tc-101	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ru-103	1.32E-04	0.00E+00	5.08E-05	0.00E+00	3.33E-04	0.00E+00	3.42E-03
Ru-105	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ru-106	5.43E-03	0.00E+00	6.78E-04	0.00E+00	7.34E-03	0.00E+00	8.45E-02
Ag-110m	2.37E-04	1.60E-04	1.28E-04	0.00E+00	2.98E-04	0.00E+00	1.91E-02
Te-125m	2.89E-03	7.84E-04	3.86E-04	8.12E-04	0.00E+00	0.00E+00	2.79E-03
Te-127m	1.03E-02	2.76E-03	1.22E-03	2.45E-03	2.93E-02	0.00E+00	8.31E-03
Te-127	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Te-129m	7.34E-03	2.05E-03	1.14E-03	2.37E-03	2.16E-02	0.00E+00	8.96E-03
Te-129	2.02E-05	5.64E-06	4.80E-06	1.44E-05	5.91E-05	0.00E+00	1.26E-03
Te-131m	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Te-131	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Te-132	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-130	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-131	5.07E-05	5.10E-05	2.90E-05	1.69E-02	8.37E-05	0.00E+00	4.54E-06
I-132	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-133	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-134	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-135	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cs-134	1.15E-01	1.89E-01	3.99E-02	0.00E+00	5.86E-02	2.10E-02	1.02E-03
Cs-136	5.18E-04	1.42E-03	9.22E-04	0.00E+00	7.59E-04	1.13E-04	5.01E-05
Cs-137	1.69E-01	1.62E-01	2.39E-02	0.00E+00	5.28E-02	1.90E-02	1.02E-03
Cs-138	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ba-139	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ba-140	1.67E-03	1.47E-06	9.76E-05	0.00E+00	4.77E-07	8.73E-07	8.47E-04
Ba-141	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ba-142	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
La-140	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
La-142	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ce-141	5.74E-06	2.86E-06	4.25E-07	0.00E+00	1.26E-06	0.00E+00	3.57E-03
Ce-143	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ce-144	9.34E-04	2.93E-04	4.99E-05	0.00E+00	1.62E-04	0.00E+00	7.64E-02
Pr-143	9.51E-07	2.86E-07	4.72E-08	0.00E+00	1.55E-07	0.00E+00	1.03E-03
Pr-144	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Nd-147	3.29E-07	2.66E-07	2.06E-08	0.00E+00	1.46E-07	0.00E+00	4.22E-04
W-187	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Np-239	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

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mrem-kg/pCi-yr

NUCLIDE	BONE	LIVER	T.BODY	THYROID	KIDNEY	LUNG	GI-LLI
H-3	0.00E+00	8.30E-06	8.30E-06	8.30E-06	8.30E-06	8.30E-06	8.30E-06
C-14	4.96E-04	9.92E-05	9.92E-05	9.92E-05	9.92E-05	9.92E-05	9.92E-05
Na-24	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
P-32	1.28E-02	6.00E-04	4.94E-04	0.00E+00	0.00E+00	0.00E+00	3.54E-04
Cr-51	0.00E+00	0.00E+00	2.21E-07	1.23E-07	3.36E-08	2.24E-07	1.17E-05
Mn-54	0.00E+00	4.20E-04	1.12E-04	0.00E+00	1.18E-04	0.00E+00	3.52E-04
Mn-56	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Fe-55	4.65E-04	2.47E-04	7.64E-05	0.00E+00	0.00E+00	1.39E-04	4.57E-05
Fe-59	4.96E-04	8.02E-04	4.00E-04	0.00E+00	0.00E+00	2.33E-04	8.35E-04
Co-58	0.00E+00	6.07E-05	1.86E-04	0.00E+00	0.00E+00	0.00E+00	3.54E-04
Co-60	0.00E+00	2.15E-04	6.35E-04	0.00E+00	0.00E+00	0.00E+00	1.19E-03
Ni-63	2.20E-02	1.18E-03	7.50E-04	0.00E+00	0.00E+00	0.00E+00	7.95E-05
Ni-65	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cu-64	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Zn-65	5.31E-04	1.41E-03	8.79E-04	0.00E+00	8.91E-04	0.00E+00	2.48E-04
Zn-69	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Br-83	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Br-84	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Br-85	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Rb-86	0.00E+00	1.31E-03	8.04E-04	0.00E+00	0.00E+00	0.00E+00	8.41E-05
Rb-88	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Rb-89	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Sr-89	4.11E-02	0.00E+00	1.17E-03	0.00E+00	0.00E+00	0.00E+00	1.59E-03
Sr-90	6.96E-01	0.00E+00	1.76E-01	0.00E+00	0.00E+00	0.00E+00	9.38E-03
Sr-91	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Sr-92	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Y-90	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Y-91m	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Y-91	1.95E-05	0.00E+00	5.21E-07	0.00E+00	0.00E+00	0.00E+00	2.59E-03
Y-92	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Y-93	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Zr-95	3.83E-06	8.42E-07	7.49E-07	0.00E+00	1.21E-06	0.00E+00	8.78E-04
Zr-97	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Nb-95	6.21E-07	2.42E-07	1.73E-07	0.00E+00	2.27E-07	0.00E+00	4.47E-04
Mo-99	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Tc-99m	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

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REMP DOSE FACTORS FOR CHILD AGE GROUP: MEAT (Page 2 of 2)

mrem-kg/pCi-yr

NUCLIDE	BONE	LIVER	T.BODY	THYROID	KIDNEY	LUNG	GI-LLI
Tc-101	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ru-103	2.11E-05	0.00E+00	8.10E-06	0.00E+00	5.30E-05	0.00E+00	5.45E-04
Ru-105	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ru-106	4.62E-04	0.00E+00	5.76E-05	0.00E+00	6.24E-04	0.00E+00	7.19E-03
Ag-110m	2.09E-05	1.41E-05	1.13E-05	0.00E+00	2.63E-05	0.00E+00	1.68E-03
Te-125m	3.68E-04	9.98E-05	4.91E-05	1.03E-04	0.00E+00	0.00E+00	3.55E-04
Te-127m	1.04E-03	2.81E-04	1.24E-04	2.49E-04	2.97E-03	0.00E+00	8.45E-04
Te-127	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Te-129m	1.32E-03	3.69E-04	2.05E-04	4.26E-04	3.88E-03	0.00E+00	1.61E-03
Te-129	3.64E-06	1.02E-06	8.63E-07	2.59E-06	1.06E-05	0.00E+00	2.26E-04
Te-131m	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Te-131	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Te-132	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-130	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-131	1.26E-04	1.26E-04	7.19E-05	4.18E-02	2.08E-04	0.00E+00	1.13E-05
I-132	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-133	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-134	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-135	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cs-134	9.42E-03	1.55E-02	3.26E-03	0.00E+00	4.79E-03	1.72E-03	8.33E-05
Cs-136	3.36E-04	9.24E-04	5.98E-04	0.00E+00	4.92E-04	7.34E-05	3.25E-05
Cs-137	1.34E-02	1.28E-02	1.89E-03	0.00E+00	4.18E-03	1.50E-03	8.03E-05
Cs-138	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ba-139	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ba-140	1.15E-03	1.01E-06	6.73E-05	0.00E+00	3.29E-07	6.02E-07	5.84E-04
Ba-141	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ba-142	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
La-140	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
La-142	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ce-141	1.06E-06	5.30E-07	7.87E-08	0.00E+00	2.32E-07	0.00E+00	6.61E-04
Ce-143	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ce-144	8.12E-05	2.55E-05	4.33E-06	0.00E+00	1.41E-05	0.00E+00	6.64E-03
Pr-143	5.80E-07	1.74E-07	2.88E-08	0.00E+00	9.43E-08	0.00E+00	6.25E-04
Pr-144	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Nd-147	3.24E-07	2.62E-07	2.03E-08	0.00E+00	1.44E-07	0.00E+00	4.15E-04
W-187	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Np-239	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

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REMP DOSE FACTORS FOR CHILD AGE GROUP: FISH (Page 1 of 2)

mrem-kg/pCi-yr

NUCLIDE	BONE	LIVER	T.BODY	THYROID	KIDNEY	LUNG	GI-LLI
H-3	0.00E+00	1.40E-06	1.40E-06	1.40E-06	1.40E-06	1.40E-06	1.40E-06
C-14	8.35E-05	1.67E-05	1.67E-05	1.67E-05	1.67E-05	1.67E-05	1.67E-05
Na-24	1.32E-05	1.32E-05	1.32E-05	1.32E-05	1.32E-05	1.32E-05	1.32E-05
P-32	5.42E-03	2.54E-04	2.09E-04	0.00E+00	0.00E+00	0.00E+00	1.50E-04
Cr-51	0.00E+00	0.00E+00	5.99E-08	3.32E-08	9.08E-09	6.07E-08	3.18E-06
Mn-54	0.00E+00	7.37E-05	1.96E-05	0.00E+00	2.07E-05	0.00E+00	6.18E-05
Mn-56	0.00E+00	3.64E-09	8.21E-10	0.00E+00	4.40E-09	0.00E+00	5.27E-07
Fe-55	7.93E-05	4.21E-05	1.30E-05	0.00E+00	0.00E+00	2.38E-05	7.79E-06
Fe-59	1.12E-04	1.81E-04	9.04E-05	0.00E+00	0.00E+00	5.26E-05	1.89E-04
Co-58	0.00E+00	1.23E-05	3.76E-05	0.00E+00	0.00E+00	0.00E+00	7.17E-05
Co-60	0.00E+00	3.65E-05	1.08E-04	0.00E+00	0.00E+00	0.00E+00	2.02E-04
Ni-63	3.71E-03	1.99E-04	1.26E-04	0.00E+00	0.00E+00	0.00E+00	1.34E-05
Ni-65	2.08E-08	1.96E-09	1.14E-09	0.00E+00	0.00E+00	0.00E+00	2.40E-07
Cu-64	0.00E+00	4.56E-07	2.76E-07	0.00E+00	1.10E-06	0.00E+00	2.14E-05
Zn-65	9.43E-05	2.51E-04	1.56E-04	0.00E+00	1.58E-04	0.00E+00	4.41E-05
Zn-69	5.01E-15	7.23E-15	6.69E-16	0.00E+00	4.39E-15	0.00E+00	4.56E-13
Br-83	0.00E+00	0.00E+00	1.12E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Br-84	0.00E+00	0.00E+00	3.40E-20	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Br-85	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Rb-86	0.00E+00	4.45E-04	2.74E-04	0.00E+00	0.00E+00	0.00E+00	2.87E-05
Rb-88	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Rb-89	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Sr-89	8.98E-03	0.00E+00	2.57E-04	0.00E+00	0.00E+00	0.00E+00	3.48E-04
Sr-90	1.17E-01	0.00E+00	2.97E-02	0.00E+00	0.00E+00	0.00E+00	1.58E-03
Sr-91	2.87E-05	0.00E+00	1.09E-06	0.00E+00	0.00E+00	0.00E+00	6.35E-05
Sr-92	1.34E-07	0.00E+00	5.39E-09	0.00E+00	0.00E+00	0.00E+00	2.55E-06
Y-90	2.19E-07	0.00E+00	5.86E-09	0.00E+00	0.00E+00	0.00E+00	6.23E-04
Y-91m	5.22E-18	0.00E+00	1.90E-19	0.00E+00	0.00E+00	0.00E+00	1.02E-14
Y-91	4.10E-06	0.00E+00	1.10E-07	0.00E+00	0.00E+00	0.00E+00	5.47E-04
Y-92	2.26E-10	0.00E+00	6.47E-12	0.00E+00	0.00E+00	0.00E+00	6.53E-06
Y-93	1.52E-08	0.00E+00	4.16E-10	0.00E+00	0.00E+00	0.00E+00	2.26E-04
Zr-95	7.92E-07	1.74E-07	1.55E-07	0.00E+00	2.49E-07	0.00E+00	1.82E-04
Zr-97	1.80E-08	2.60E-09	1.54E-09	0.00E+00	3.74E-09	0.00E+00	3.94E-04
Nb-95	1.52E-07	5.93E-08	4.23E-08	0.00E+00	5.57E-08	0.00E+00	1.10E-04
Mo-99	0.00E+00	7.13E-05	1.76E-05	0.00E+00	1.52E-04	0.00E+00	5.90E-05
Tc-99m	4.02E-10	7.88E-10	1.31E-08	0.00E+00	1.14E-08	4.00E-10	4.48E-07

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REMP DOSE FACTORS FOR CHILD AGE GROUP: FISH (Page 2 of 2)

mrem-kg/pCi-yr

NUCLIDE	BONE	LIVER	T.BODY	THYROID	KIDNEY	LUNG	GI-LLI
Tc-101	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ru-103	4.96E-06	0.00E+00	1.91E-06	0.00E+00	1.25E-05	0.00E+00	1.28E-04
Ru-105	1.05E-08	0.00E+00	3.81E-09	0.00E+00	9.23E-08	0.00E+00	6.85E-06
Ru-106	8.06E-05	0.00E+00	1.01E-05	0.00E+00	1.09E-04	0.00E+00	1.25E-03
Ag-110m	3.71E-06	2.50E-06	2.00E-06	0.00E+00	4.67E-06	0.00E+00	2.98E-04
Te-125m	7.77E-05	2.11E-05	1.04E-05	2.18E-05	0.00E+00	0.00E+00	7.50E-05
Te-127m	1.98E-04	5.33E-05	2.35E-05	4.74E-05	5.65E-04	0.00E+00	1.60E-04
Te-127	5.48E-07	1.48E-07	1.18E-07	3.80E-07	1.56E-06	0.00E+00	2.14E-05
Te-129m	3.29E-04	9.19E-05	5.11E-05	1.06E-04	9.67E-04	0.00E+00	4.01E-04
Te-129	9.06E-07	2.53E-07	2.15E-07	6.46E-07	2.65E-06	0.00E+00	5.64E-05
Te-131m	2.85E-05	9.87E-06	1.05E-05	2.03E-05	9.55E-05	0.00E+00	4.00E-04
Te-131	2.84E-24	0.00E+00	0.00E+00	2.17E-24	8.59E-24	0.00E+00	1.49E-23
Te-132	5.63E-05	2.49E-05	3.01E-05	3.63E-05	2.31E-04	0.00E+00	2.51E-04
I-130	5.24E-06	1.06E-05	5.46E-06	1.17E-03	1.58E-05	0.00E+00	4.96E-06
I-131	1.09E-04	1.10E-04	6.22E-05	3.62E-02	1.80E-04	0.00E+00	9.75E-06
I-132	3.99E-09	7.33E-09	3.37E-09	3.40E-07	1.12E-08	0.00E+00	8.62E-09
I-133	1.84E-05	2.27E-05	8.59E-06	4.22E-03	3.78E-05	0.00E+00	9.15E-06
I-134	1.72E-14	3.20E-14	1.47E-14	7.36E-13	4.89E-14	0.00E+00	2.12E-14
I-135	9.75E-07	1.75E-06	8.30E-07	1.55E-04	2.69E-06	0.00E+00	1.34E-06
Cs-134	1.61E-03	2.65E-03	5.58E-04	0.00E+00	8.20E-04	2.94E-04	1.43E-05
Cs-136	1.54E-04	4.23E-04	2.74E-04	0.00E+00	2.25E-04	3.36E-05	1.49E-05
Cs-137	2.26E-03	2.16E-03	3.19E-04	0.00E+00	7.04E-04	2.53E-04	1.35E-05
Cs-138	5.77E-20	8.03E-20	5.09E-20	0.00E+00	5.65E-20	6.08E-21	3.70E-20
Ba-139	1.78E-11	9.49E-15	5.15E-13	0.00E+00	8.29E-15	5.58E-15	1.03E-09
Ba-140	5.43E-04	4.76E-07	3.17E-05	0.00E+00	1.55E-07	2.84E-07	2.75E-04
Ba-141	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ba-142	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
La-140	4.61E-08	1.61E-08	5.43E-09	0.00E+00	0.00E+00	0.00E+00	4.49E-04
La-142	1.06E-13	3.36E-14	1.05E-14	0.00E+00	0.00E+00	0.00E+00	6.67E-09
Ce-141	2.68E-07	1.34E-07	1.99E-08	0.00E+00	5.86E-08	0.00E+00	1.67E-04
Ce-143	2.91E-08	1.58E-05	2.29E-09	0.00E+00	6.63E-09	0.00E+00	2.31E-04
Ce-144	1.43E-05	4.49E-06	7.64E-07	0.00E+00	2.48E-06	0.00E+00	1.17E-03
Pr-143	2.58E-07	7.74E-08	1.28E-08	0.00E+00	4.19E-08	0.00E+00	2.78E-04
Pr-144	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Nd-147	1.81E-07	1.46E-07	1.13E-08	0.00E+00	8.03E-08	0.00E+00	2.32E-04
W-187	1.47E-06	8.72E-07	3.91E-07	0.00E+00	0.00E+00	0.00E+00	1.23E-04
Np-239	2.70E-08	1.94E-09	1.36E-09	0.00E+00	5.60E-09	0.00E+00	1.43E-04

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REMP DOSE FACTORS FOR CHILD AGE GROUP: DRINKING WATER (Page 1 of 2)

mrem-liter/pCi-yr

NUCLIDE	BONE	LIVER	T.BODY	THYROID	KIDNEY	LUNG	GI-LLI
H-3	0.00E+00	1.04E-04	1.04E-04	1.04E-04	1.04E-04	1.04E-04	1.04E-04
C-14	6.17E-03	1.23E-03	1.23E-03	1.23E-03	1.23E-03	1.23E-03	1.23E-03
Na-24	1.70E-03	1.70E-03	1.70E-03	1.70E-03	1.70E-03	1.70E-03	1.70E-03
P-32	4.11E-01	1.92E-02	1.58E-02	0.00E+00	0.00E+00	0.00E+00	1.13E-02
Cr-51	0.00E+00	0.00E+00	4.48E-06	2.49E-06	6.80E-07	4.54E-06	2.38E-04
Mn-54	0.00E+00	5.45E-03	1.45E-03	0.00E+00	1.53E-03	0.00E+00	4.57E-03
Mn-56	0.00E+00	6.77E-06	1.53E-06	0.00E+00	8.18E-06	0.00E+00	9.81E-04
Fe-55	5.86E-03	3.11E-03	9.64E-04	0.00E+00	0.00E+00	1.76E-03	5.76E-04
Fe-59	8.35E-03	1.35E-02	6.73E-03	0.00E+00	0.00E+00	3.92E-03	1.41E-02
Co-58	0.00E+00	9.14E-04	2.80E-03	0.00E+00	0.00E+00	0.00E+00	5.33E-03
Co-60	0.00E+00	2.70E-03	7.95E-03	0.00E+00	0.00E+00	0.00E+00	1.49E-02
Ni-63	2.74E-01	1.47E-02	9.33E-03	0.00E+00	0.00E+00	0.00E+00	9.89E-04
Ni-65	4.17E-05	3.93E-06	2.29E-06	0.00E+00	0.00E+00	0.00E+00	4.81E-04
Cu-64	0.00E+00	6.49E-05	3.92E-05	0.00E+00	1.57E-04	0.00E+00	3.05E-03
Zn-65	6.98E-03	1.86E-02	1.16E-02	0.00E+00	1.17E-02	0.00E+00	3.26E-03
Zn-69	2.87E-09	4.15E-09	3.84E-10	0.00E+00	2.52E-09	0.00E+00	2.62E-07
Br-83	0.00E+00	0.00E+00	2.69E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Br-84	0.00E+00	0.00E+00	1.59E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Br-85	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Rb-86	0.00E+00	3.35E-02	2.06E-02	0.00E+00	0.00E+00	0.00E+00	2.16E-03
Rb-88	0.00E+00	6.83E-17	4.74E-17	0.00E+00	0.00E+00	0.00E+00	3.35E-18
Rb-89	0.00E+00	5.84E-19	5.19E-19	0.00E+00	0.00E+00	0.00E+00	5.09E-21
Sr-89	6.69E-01	0.00E+00	1.91E-02	0.00E+00	0.00E+00	0.00E+00	2.59E-02
Sr-90	8.67E+00	0.00E+00	2.20E+00	0.00E+00	0.00E+00	0.00E+00	1.17E-01
Sr-91	5.10E-03	0.00E+00	1.93E-04	0.00E+00	0.00E+00	0.00E+00	1.13E-02
Sr-92	2.14E-04	0.00E+00	8.58E-06	0.00E+00	0.00E+00	0.00E+00	4.05E-03
Y-90	1.84E-05	0.00E+00	4.93E-07	0.00E+00	0.00E+00	0.00E+00	5.24E-02
Y-91m	8.67E-12	0.00E+00	3.16E-13	0.00E+00	0.00E+00	0.00E+00	1.70E-08
Y-91	3.05E-04	0.00E+00	8.16E-06	0.00E+00	0.00E+00	0.00E+00	4.07E-02
Y-92	1.75E-07	0.00E+00	5.01E-09	0.00E+00	0.00E+00	0.00E+00	5.06E-03
Y-93	2.55E-06	0.00E+00	7.01E-08	0.00E+00	0.00E+00	0.00E+00	3.81E-02
Zr-95	5.88E-05	1.29E-05	1.15E-05	0.00E+00	1.85E-05	0.00E+00	1.35E-02
Zr-97	2.18E-06	3.15E-07	1.86E-07	0.00E+00	4.52E-07	0.00E+00	4.77E-02
Nb-95	1.14E-05	4.42E-06	3.16E-06	0.00E+00	4.16E-06	0.00E+00	8.18E-03
Mo-99	0.00E+00	5.98E-03	1.48E-03	0.00E+00	1.28E-02	0.00E+00	4.95E-03
Tc-99m	1.18E-07	2.32E-07	3.84E-06	0.00E+00	3.37E-06	1.18E-07	1.32E-04

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REMP DOSE FACTORS FOR CHILD AGE GROUP: DRINKING WATER (Page 2 of 2)

mrem-liter/pCi-yr

NUCLIDE	BONE	LIVER	T.BODY	THYROID	KIDNEY	LUNG	GI-LLI
Tc-101	3.19E-22	3.34E-22	4.23E-21	0.00E+00	5.70E-21	1.77E-22	1.06E-21
Ru-103	3.70E-04	0.00E+00	1.42E-04	0.00E+00	9.30E-04	0.00E+00	9.55E-03
Ru-105	5.05E-06	0.00E+00	1.83E-06	0.00E+00	4.44E-05	0.00E+00	3.30E-03
Ru-106	5.96E-03	0.00E+00	7.44E-04	0.00E+00	8.05E-03	0.00E+00	9.27E-02
Ag-110m	2.75E-04	1.85E-04	1.48E-04	0.00E+00	3.45E-04	0.00E+00	2.21E-02
Te-125m	5.78E-03	1.57E-03	7.71E-04	1.62E-03	0.00E+00	0.00E+00	5.58E-03
Te-127m	1.47E-02	3.96E-03	1.74E-03	3.51E-03	4.19E-02	0.00E+00	1.19E-02
Te-127	9.87E-05	2.66E-05	2.12E-05	6.83E-05	2.81E-04	0.00E+00	3.86E-03
Te-129m	2.46E-02	6.86E-03	3.82E-03	7.92E-03	7.22E-02	0.00E+00	3.00E-02
Te-129	6.76E-05	1.89E-05	1.61E-05	4.83E-05	1.98E-04	0.00E+00	4.21E-03
Te-131m	2.78E-03	9.62E-04	1.02E-03	1.98E-03	9.31E-03	0.00E+00	3.90E-02
Te-131	9.43E-14	2.87E-14	2.80E-14	7.21E-14	2.85E-13	0.00E+00	4.95E-13
Te-132	4.63E-03	2.05E-03	2.48E-03	2.99E-03	1.90E-02	0.00E+00	2.06E-02
I-130	7.60E-04	1.54E-03	7.91E-04	1.69E-01	2.29E-03	0.00E+00	7.18E-04
I-131	8.40E-03	8.45E-03	4.80E-03	2.79E+00	1.39E-02	0.00E+00	7.52E-04
I-132	1.10E-05	2.02E-05	9.27E-06	9.35E-04	3.08E-05	0.00E+00	2.37E-05
I-133	2.02E-03	2.50E-03	9.47E-04	4.65E-01	4.17E-03	0.00E+00	1.01E-03
I-134	1.65E-08	3.06E-08	1.41E-08	7.05E-07	4.69E-08	0.00E+00	2.03E-08
I-135	2.54E-04	4.56E-04	2.16E-04	4.04E-02	7.00E-04	0.00E+00	3.48E-04
Cs-134	1.19E-01	1.96E-01	4.13E-02	0.00E+00	6.07E-02	2.18E-02	1.06E-03
Cs-136	1.17E-02	3.21E-02	2.08E-02	0.00E+00	1.71E-02	2.55E-03	1.13E-03
Cs-137	1.67E-01	1.60E-01	2.36E-02	0.00E+00	5.20E-02	1.87E-02	1.00E-03
Cs-138	2.23E-11	3.10E-11	1.96E-11	0.00E+00	2.18E-11	2.34E-12	1.43E-11
Ba-139	5.27E-07	2.81E-10	1.53E-08	0.00E+00	2.46E-10	1.65E-10	3.04E-05
Ba-140	4.12E-02	3.61E-05	2.41E-03	0.00E+00	1.18E-05	2.15E-05	2.09E-02
Ba-141	1.48E-16	8.26E-20	4.80E-18	0.00E+00	7.15E-20	4.86E-19	8.41E-17
Ba-142	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
La-140	4.19E-06	1.46E-06	4.94E-07	0.00E+00	0.00E+00	0.00E+00	4.08E-02
La-142	1.44E-09	4.60E-10	1.44E-10	0.00E+00	0.00E+00	0.00E+00	9.12E-05
Ce-141	2.00E-05	9.99E-06	1.48E-06	0.00E+00	4.38E-06	0.00E+00	1.25E-02
Ce-143	2.77E-06	1.50E-03	2.18E-07	0.00E+00	6.30E-07	0.00E+00	2.20E-02
Ce-144	1.06E-03	3.32E-04	5.65E-05	0.00E+00	1.84E-04	0.00E+00	8.66E-02
Pr-143	1.95E-05	5.87E-06	9.69E-07	0.00E+00	3.18E-06	0.00E+00	2.11E-02
Pr-144	2.00E-20	6.18E-21	1.00E-21	0.00E+00	3.27E-21	0.00E+00	1.33E-17
Nd-147	1.38E-05	1.12E-05	8.65E-07	0.00E+00	6.13E-06	0.00E+00	1.77E-02
W-187	1.54E-04	9.14E-05	4.10E-05	0.00E+00	0.00E+00	0.00E+00	1.28E-02
Np-239	2.31E-06	1.66E-07	1.17E-07	0.00E+00	4.80E-07	0.00E+00	1.23E-02

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mrem-m^3/pCi-yr

NUCLIDE	BONE	LIVER	T.BODY	THYROID	KIDNEY	LUNG	GI-LLI
H-3	0.00E+00	1.13E-03	1.13E-03	1.13E-03	1.13E-03	1.13E-03	1.13E-03
C-14	3.59E-02	6.73E-03	6.73E-03	6.73E-03	6.73E-03	6.73E-03	6.73E-03
Na-24	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
P-32	2.38E+01	1.05E+00	9.03E-01	0.00E+00	0.00E+00	0.00E+00	3.86E-01
Cr-51	0.00E+00	0.00E+00	4.83E-04	2.68E-04	7.61E-05	5.32E-02	3.39E-03
Mn-54	0.00E+00	4.75E-02	1.05E-02	0.00E+00	1.11E-02	1.74E-02	2.53E-02
Mn-56	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Fe-55	4.89E-02	2.60E-02	8.02E-03	0.00E+00	0.00E+00	1.15E-01	2.96E-03
Fe-59	4.20E-02	6.79E-02	3.39E-02	0.00E+00	0.00E+00	2.58E+00	1.44E-01
Co-58	0.00E+00	2.77E-03	4.94E-03	0.00E+00	0.00E+00	1.73E+00	5.37E-02
Co-60	0.00E+00	1.34E-02	2.30E-02	0.00E+00	0.00E+00	7.18E+00	9.78E-02
Ni-63	8.22E-01	4.63E-02	2.80E-02	0.00E+00	0.00E+00	2.75E-01	6.33E-03
Ni-65	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cu-64	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Zn-65	4.84E-02	1.29E-01	8.00E-02	0.00E+00	8.13E-02	1.13E+00	1.86E-02
Zn-69	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Br-83	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Br-84	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Br-85	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Rb-86	0.00E+00	1.08E+00	6.23E-01	0.00E+00	0.00E+00	0.00E+00	4.35E-02
Rb-88	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Rb-89	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Sr-89	1.12E+00	0.00E+00	3.22E-02	0.00E+00	0.00E+00	4.03E+00	3.13E-01
Sr-90	1.01E+02	0.00E+00	6.46E+00	0.00E+00	0.00E+00	1.48E+01	3.44E-01
Sr-91	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Sr-92	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Y-90	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Y-91m	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Y-91	1.57E+00	0.00E+00	4.19E-02	0.00E+00	0.00E+00	4.51E+00	3.16E-01
Y-92	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Y-93	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Zr-95	3.11E-01	6.85E-02	6.06E-02	0.00E+00	9.76E-02	3.66E+00	1.00E-01
Zr-97	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Nb-95	5.79E-02	2.26E-02	1.61E-02	0.00E+00	2.12E-02	1.51E+00	9.12E-02
Mo-99	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Tc-99m	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

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mrem-m^3/pCi-yr

NUCLIDE	BONE	LIVER	T.BODY	THYROID	KIDNEY	LUNG	GI-LLI
Tc-101	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ru-103	6.24E-03	0.00E+00	2.40E-03	0.00E+00	1.57E-02	1.48E+00	1.00E-01
Ru-105	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ru-106	1.48E-01	0.00E+00	1.84E-02	0.00E+00	2.00E-01	1.56E+01	4.68E-01
Ag-110m	1.91E-02	1.29E-02	1.04E-02	0.00E+00	2.41E-02	6.21E+00	1.14E-01
Te-125m	1.16E-02	4.01E-03	1.58E-03	3.32E-03	0.00E+00	8.23E-01	5.83E-02
Te-127m	3.32E-02	1.14E-02	4.04E-03	8.11E-03	8.51E-02	1.98E+00	9.54E-02
Te-127	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Te-129m	4.92E-02	1.75E-02	7.80E-03	1.62E-02	1.29E-01	4.51E+00	4.66E-01
Te-129	2.50E-07	8.96E-08	6.11E-08	1.83E-07	6.58E-07	7.52E-03	6.53E-02
Te-131m	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Te-131	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Te-132	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-130	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-131	2.46E+00	2.46E+00	1.39E+00	8.30E+02	4.03E+00	0.00E+00	1.45E-01
I-132	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-133	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-134	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-135	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cs-134	6.79E-01	1.06E+00	2.34E-01	0.00E+00	3.45E-01	1.26E-01	4.01E-03
Cs-136	7.20E-01	1.89E+00	1.28E+00	0.00E+00	1.06E+00	1.61E-01	4.62E-02
Cs-137	9.09E-01	8.27E-01	1.29E-01	0.00E+00	2.83E-01	1.04E-01	3.63E-03
Cs-138	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ba-139	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ba-140	8.77E-01	7.68E-04	5.13E-02	0.00E+00	2.50E-04	2.07E+01	1.21E+00
Ba-141	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ba-142	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
La-140	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
La-142	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ce-141	1.04E-01	5.17E-02	7.67E-03	0.00E+00	2.26E-02	1.44E+00	1.50E-01
Ce-143	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ce-144	7.57E+00	2.37E+00	4.04E-01	0.00E+00	1.31E+00	1.34E+01	4.34E-01
Pr-143	1.90E-01	5.72E-02	9.41E-03	0.00E+00	3.09E-02	4.46E+00	1.00E+00
Pr-144	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Nd-147	1.93E-01	1.56E-01	1.21E-02	0.00E+00	8.57E-02	5.85E+00	1.46E+00
W-187	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Np-239	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

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mrem-m^3/pCi-yr

NUCLIDE	BONE	LIVER	T.BODY	THYROID	KIDNEY	LUNG	GI-LLI
H-3	0.00E+00	1.13E-03	1.13E-03	1.13E-03	1.13E-03	1.13E-03	1.13E-03
C-14	3.59E-02	6.73E-03	6.73E-03	6.73E-03	6.73E-03	6.73E-03	6.73E-03
Na-24	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
P-32	3.09E+00	1.35E-01	1.17E-01	0.00E+00	0.00E+00	0.00E+00	5.00E-02
Cr-51	0.00E+00	0.00E+00	1.68E-04	9.33E-05	2.65E-05	1.85E-02	1.18E-03
Mn-54	0.00E+00	4.33E-02	9.58E-03	0.00E+00	1.01E-02	1.59E-02	2.31E-02
Mn-56	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Fe-55	4.75E-02	2.52E-02	7.79E-03	0.00E+00	0.00E+00	1.11E-01	2.87E-03
Fe-59	2.18E-02	3.53E-02	1.76E-02	0.00E+00	0.00E+00	1.34E+00	7.46E-02
Co-58	0.00E+00	1.83E-03	3.27E-03	0.00E+00	0.00E+00	1.14E+00	3.56E-02
Co-60	0.00E+00	1.32E-02	2.27E-02	0.00E+00	0.00E+00	7.08E+00	9.63E-02
Ni-63	8.21E-01	4.63E-02	2.80E-02	0.00E+00	0.00E+00	2.75E-01	6.33E-03
Ni-65	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cu-64	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Zn-65	4.30E-02	1.14E-01	7.10E-02	0.00E+00	7.21E-02	1.01E+00	1.65E-02
Zn-69	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Br-83	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Br-84	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Br-85	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Rb-86	0.00E+00	2.26E-01	1.30E-01	0.00E+00	0.00E+00	0.00E+00	9.10E-03
Rb-88	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Rb-89	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Sr-89	6.29E-01	0.00E+00	1.81E-02	0.00E+00	0.00E+00	2.26E+00	1.75E-01
Sr-90	1.01E+02	0.00E+00	6.44E+00	0.00E+00	0.00E+00	1.48E+01	3.43E-01
Sr-91	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Sr-92	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Y-90	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Y-91m	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Y-91	9.53E-01	0.00E+00	2.54E-02	0.00E+00	0.00E+00	2.74E+00	1.92E-01
Y-92	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Y-93	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Zr-95	1.97E-01	4.34E-02	3.84E-02	0.00E+00	6.19E-02	2.32E+00	6.34E-02
Zr-97	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Nb-95	2.52E-02	9.83E-03	7.02E-03	0.00E+00	9.24E-03	6.58E-01	3.97E-02
Mo-99	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Tc-99m	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

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mrem-m^3/pCi-yr

NUCLIDE	BONE	LIVER	T.BODY	THYROID	KIDNEY	LUNG	GI-LLI
Tc-101	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ru-103	2.97E-03	0.00E+00	1.14E-03	0.00E+00	7.48E-03	7.04E-01	4.76E-02
Ru-105	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ru-106	1.37E-01	0.00E+00	1.70E-02	0.00E+00	1.85E-01	1.44E+01	4.32E-01
Ag-110m	1.70E-02	1.15E-02	9.23E-03	0.00E+00	2.14E-02	5.53E+00	1.01E-01
Te-125m	7.02E-03	2.43E-03	9.53E-04	2.01E-03	0.00E+00	4.98E-01	3.52E-02
Te-127m	2.54E-02	8.74E-03	3.09E-03	6.20E-03	6.51E-02	1.51E+00	7.30E-02
Te-127	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Te-129m	2.06E-02	7.36E-03	3.27E-03	6.80E-03	5.41E-02	1.89E+00	1.95E-01
Te-129	1.05E-07	3.76E-08	2.56E-08	7.68E-08	2.76E-07	3.15E-03	2.74E-02
Te-131m	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Te-131	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Te-132	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-130	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-131	4.81E-02	4.81E-02	2.73E-02	1.62E+01	7.88E-02	0.00E+00	2.84E-03
I-132	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-133	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-134	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-135	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cs-134	6.53E-01	1.02E+00	2.25E-01	0.00E+00	3.31E-01	1.21E-01	3.86E-03
Cs-136	7.83E-02	2.06E-01	1.40E-01	0.00E+00	1.15E-01	1.75E-02	5.03E-03
Cs-137	9.07E-01	8.25E-01	1.28E-01	0.00E+00	2.82E-01	1.04E-01	3.62E-03
Cs-138	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ba-139	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ba-140	8.95E-02	7.83E-05	5.23E-03	0.00E+00	2.55E-05	2.11E+00	1.23E-01
Ba-141	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ba-142	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
La-140	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
La-142	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ce-141	4.23E-02	2.11E-02	3.12E-03	0.00E+00	9.21E-03	5.86E-01	6.10E-02
Ce-143	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ce-144	6.83E+00	2.13E+00	3.65E-01	0.00E+00	1.18E+00	1.21E+01	3.92E-01
Pr-143	2.21E-02	6.64E-03	1.09E-03	0.00E+00	3.59E-03	5.18E-01	1.16E-01
Pr-144	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Nd-147	1.35E-02	1.09E-02	8.49E-04	0.00E+00	6.00E-03	4.09E-01	1.02E-01
W-187	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Np-239	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

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REMP DOSE FACTORS FOR INFANT AGE GROUP: MILK (Page 1 of 2)

mrem-liter/pCi-yr

NUCLIDE	BONE	LIVER	T.BODY	THYROID	KIDNEY	LUNG	GI-LLI
H-3	0.00E+00	1.02E-04	1.02E-04	1.02E-04	1.02E-04	1.02E-04	1.02E-04
C-14	7.82E-03	1.67E-03	1.67E-03	1.67E-03	1.67E-03	1.67E-03	1.67E-03
Na-24	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
P-32	5.09E-01	2.99E-02	1.97E-02	0.00E+00	0.00E+00	0.00E+00	6.89E-03
Cr-51	0.00E+00	0.00E+00	4.43E-06	2.89E-06	6.31E-07	5.62E-06	1.29E-04
Mn-54	0.00E+00	6.54E-03	1.48E-03	0.00E+00	1.45E-03	0.00E+00	2.40E-03
Mn-56	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Fe-55	4.58E-03	2.96E-03	7.91E-04	0.00E+00	0.00E+00	1.45E-03	3.76E-04
Fe-59	9.85E-03	1.72E-02	6.78E-03	0.00E+00	0.00E+00	5.09E-03	8.22E-03
Co-58	0.00E+00	1.16E-03	2.91E-03	0.00E+00	0.00E+00	0.00E+00	2.90E-03
Co-60	0.00E+00	3.56E-03	8.41E-03	0.00E+00	0.00E+00	0.00E+00	8.47E-03
Ni-63	2.09E-01	1.29E-02	7.26E-03	0.00E+00	0.00E+00	0.00E+00	6.43E-04
Ni-65	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cu-64	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Zn-65	6.04E-03	2.07E-02	9.55E-03	0.00E+00	1.00E-02	0.00E+00	1.75E-02
Zn-69	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Br-83	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Br-84	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Br-85	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Rb-86	0.00E+00	5.21E-02	2.57E-02	0.00E+00	0.00E+00	0.00E+00	1.33E-03
Rb-88	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Rb-89	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Sr-89	8.06E-01	0.00E+00	2.31E-02	0.00E+00	0.00E+00	0.00E+00	1.66E-02
Sr-90	6.10E+00	0.00E+00	1.55E+00	0.00E+00	0.00E+00	0.00E+00	7.62E-02
Sr-91	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Sr-92	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Y-90	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Y-91m	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Y-91	3.64E-04	0.00E+00	9.70E-06	0.00E+00	0.00E+00	0.00E+00	2.61E-02
Y-92	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Y-93	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Zr-95	6.65E-05	1.62E-05	1.15E-05	0.00E+00	1.75E-05	0.00E+00	8.07E-03
Zr-97	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Nb-95	1.33E-05	5.49E-06	3.17E-06	0.00E+00	3.93E-06	0.00E+00	4.63E-03
Mo-99	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Tc-99m	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

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REMP DOSE FACTORS FOR INFANT AGE GROUP: MILK (Page 2 of 2)

mrem-liter/pCi-yr

NUCLIDE	BONE	LIVER	T.BODY	THYROID	KIDNEY	LUNG	GI-LLI
Tc-101	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ru-103	4.71E-04	0.00E+00	1.58E-04	0.00E+00	9.81E-04	0.00E+00	5.73E-03
Ru-105	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ru-106	7.92E-03	0.00E+00	9.90E-04	0.00E+00	9.37E-03	0.00E+00	6.02E-02
Ag-110m	3.27E-04	2.39E-04	1.58E-04	0.00E+00	3.41E-04	0.00E+00	1.24E-02
Te-125m	7.51E-03	2.51E-03	1.01E-03	2.53E-03	0.00E+00	0.00E+00	3.58E-03
Te-127m	1.91E-02	6.32E-03	2.31E-03	5.51E-03	4.69E-02	0.00E+00	7.69E-03
Te-127	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Te-129m	3.17E-02	1.09E-02	4.88E-03	1.22E-02	7.92E-02	0.00E+00	1.89E-02
Te-129	8.99E-05	3.10E-05	2.10E-05	7.54E-05	2.24E-04	0.00E+00	7.19E-03
Te-131m	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Te-131	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Te-132	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-130	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-131	9.97E-03	1.17E-02	5.17E-03	3.86E+00	1.37E-02	0.00E+00	4.19E-04
I-132	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-133	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-134	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-135	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cs-134	1.24E-01	2.32E-01	2.34E-02	0.00E+00	5.96E-02	2.44E-02	6.29E-04
Cs-136	1.36E-02	4.01E-02	1.50E-02	0.00E+00	1.60E-02	3.27E-03	6.09E-04
Cs-137	1.72E-01	2.02E-01	1.43E-02	0.00E+00	5.41E-02	2.19E-02	6.30E-04
Cs-138	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ba-139	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ba-140	5.06E-02	5.06E-05	2.61E-03	0.00E+00	1.20E-05	3.11E-05	1.24E-02
Ba-141	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ba-142	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
La-140	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
La-142	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ce-141	2.49E-05	1.52E-05	1.79E-06	0.00E+00	4.68E-06	0.00E+00	7.84E-03
Ce-143	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ce-144	9.79E-04	4.01E-04	5.48E-05	0.00E+00	1.62E-04	0.00E+00	5.62E-02
Pr-143	2.42E-05	9.06E-06	1.20E-06	0.00E+00	3.37E-06	0.00E+00	1.28E-02
Pr-144	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Nd-147	1.61E-05	1.65E-05	1.01E-06	0.00E+00	6.37E-06	0.00E+00	1.05E-02
W-187	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Np-239	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

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mrem-liter/pCi-yr

NUCLIDE	BONE	LIVER	T.BODY	THYROID	KIDNEY	LUNG	GI-LLI
H-3	0.00E+00	1.02E-04	1.02E-04	1.02E-04	1.02E-04	1.02E-04	1.02E-04
C-14	7.82E-03	1.67E-03	1.67E-03	1.67E-03	1.67E-03	1.67E-03	1.67E-03
Na-24	1.91E-03	1.91E-03	1.91E-03	1.91E-03	1.91E-03	1.91E-03	1.91E-03
P-32	5.48E-01	3.22E-02	2.12E-02	0.00E+00	0.00E+00	0.00E+00	7.41E-03
Cr-51	0.00E+00	0.00E+00	4.60E-06	3.00E-06	6.55E-07	5.83E-06	1.34E-04
Mn-54	0.00E+00	6.56E-03	1.49E-03	0.00E+00	1.45E-03	0.00E+00	2.41E-03
Mn-56	0.00E+00	1.07E-05	1.85E-06	0.00E+00	9.22E-06	0.00E+00	9.74E-04
Fe-55	4.59E-03	2.96E-03	7.92E-04	0.00E+00	0.00E+00	1.45E-03	3.76E-04
Fe-59	1.01E-02	1.76E-02	6.94E-03	0.00E+00	0.00E+00	5.21E-03	8.42E-03
Co-58	0.00E+00	1.18E-03	2.95E-03	0.00E+00	0.00E+00	0.00E+00	2.95E-03
Co-60	0.00E+00	3.56E-03	8.41E-03	0.00E+00	0.00E+00	0.00E+00	8.48E-03
Ni-63	2.09E-01	1.29E-02	7.26E-03	0.00E+00	0.00E+00	0.00E+00	6.43E-04
Ni-65	5.72E-05	6.47E-06	2.94E-06	0.00E+00	0.00E+00	0.00E+00	4.93E-04
Cu-64	0.00E+00	1.04E-04	4.83E-05	0.00E+00	1.77E-04	0.00E+00	2.14E-03
Zn-65	6.06E-03	2.08E-02	9.59E-03	0.00E+00	1.01E-02	0.00E+00	1.76E-02
Zn-69	3.96E-09	7.13E-09	5.31E-10	0.00E+00	2.96E-09	0.00E+00	5.82E-07
Br-83	0.00E+00	0.00E+00	3.69E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Br-84	0.00E+00	0.00E+00	1.99E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Br-85	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Rb-86	0.00E+00	5.51E-02	2.72E-02	0.00E+00	0.00E+00	0.00E+00	1.41E-03
Rb-88	0.00E+00	1.16E-16	6.35E-17	0.00E+00	0.00E+00	0.00E+00	1.13E-16
Rb-89	0.00E+00	9.23E-19	6.36E-19	0.00E+00	0.00E+00	0.00E+00	3.14E-19
Sr-89	8.23E-01	0.00E+00	2.36E-02	0.00E+00	0.00E+00	0.00E+00	1.69E-02
Sr-90	6.10E+00	0.00E+00	1.55E+00	0.00E+00	0.00E+00	0.00E+00	7.62E-02
Sr-91	6.87E-03	0.00E+00	2.49E-04	0.00E+00	0.00E+00	0.00E+00	8.14E-03
Sr-92	2.94E-04	0.00E+00	1.09E-05	0.00E+00	0.00E+00	0.00E+00	3.17E-03
Y-90	2.52E-05	0.00E+00	6.75E-07	0.00E+00	0.00E+00	0.00E+00	3.48E-02
Y-91m	1.19E-11	0.00E+00	4.06E-13	0.00E+00	0.00E+00	0.00E+00	3.97E-08
Y-91	3.71E-04	0.00E+00	9.87E-06	0.00E+00	0.00E+00	0.00E+00	2.66E-02
Y-92	2.41E-07	0.00E+00	6.77E-09	0.00E+00	0.00E+00	0.00E+00	4.60E-03
Y-93	3.52E-06	0.00E+00	9.59E-08	0.00E+00	0.00E+00	0.00E+00	2.78E-02
Zr-95	6.76E-05	1.65E-05	1.17E-05	0.00E+00	1.78E-05	0.00E+00	8.21E-03
Zr-97	2.99E-06	5.12E-07	2.34E-07	0.00E+00	5.16E-07	0.00E+00	3.27E-02
Nb-95	1.37E-05	5.65E-06	3.27E-06	0.00E+00	4.05E-06	0.00E+00	4.77E-03
Mo-99	0.00E+00	9.89E-03	1.93E-03	0.00E+00	1.48E-02	0.00E+00	3.26E-03
Tc-99m	1.59E-07	3.28E-07	4.23E-06	0.00E+00	3.53E-06	1.72E-07	9.53E-05

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mrem-liter/pCi-yr

NUCLIDE	BONE	LIVER	T.BODY	THYROID	KIDNEY	LUNG	GI-LLI
Tc-101	4.38E-22	5.52E-22	5.46E-21	0.00E+00	6.56E-21	3.01E-22	9.38E-20
Ru-103	4.84E-04	0.00E+00	1.62E-04	0.00E+00	1.01E-03	0.00E+00	5.89E-03
Ru-105	6.89E-06	0.00E+00	2.32E-06	0.00E+00	5.07E-05	0.00E+00	2.74E-03
Ru-106	7.95E-03	0.00E+00	9.92E-04	0.00E+00	9.40E-03	0.00E+00	6.03E-02
Ag-110m	3.28E-04	2.40E-04	1.59E-04	0.00E+00	3.43E-04	0.00E+00	1.24E-02
Te-125m	7.64E-03	2.56E-03	1.03E-03	2.57E-03	0.00E+00	0.00E+00	3.64E-03
Te-127m	1.92E-02	6.38E-03	2.33E-03	5.56E-03	4.74E-02	0.00E+00	7.76E-03
Te-127	1.36E-04	4.54E-05	2.91E-05	1.10E-04	3.31E-04	0.00E+00	2.85E-03
Te-129m	3.27E-02	1.12E-02	5.03E-03	1.25E-02	8.17E-02	0.00E+00	1.95E-02
Te-129	9.28E-05	3.20E-05	2.17E-05	7.77E-05	2.31E-04	0.00E+00	7.41E-03
Te-131m	3.80E-03	1.53E-03	1.26E-03	3.10E-03	1.05E-02	0.00E+00	2.58E-02
Te-131	1.29E-13	4.78E-14	3.63E-14	1.15E-13	3.31E-13	0.00E+00	5.22E-12
Te-132	6.17E-03	3.06E-03	2.85E-03	4.51E-03	1.91E-02	0.00E+00	1.13E-02
I-130	1.01E-03	2.22E-03	8.92E-04	2.49E-01	2.44E-03	0.00E+00	4.76E-04
I-131	1.13E-02	1.34E-02	5.88E-03	4.39E+00	1.56E-02	0.00E+00	4.77E-04
I-132	1.47E-05	2.99E-05	1.06E-05	1.40E-03	3.34E-05	0.00E+00	2.42E-05
I-133	2.77E-03	4.03E-03	1.18E-03	7.32E-01	4.73E-03	0.00E+00	6.81E-04
I-134	2.21E-08	4.54E-08	1.61E-08	1.06E-06	5.07E-08	0.00E+00	4.69E-08
I-135	3.41E-04	6.79E-04	2.48E-04	6.08E-02	7.57E-04	0.00E+00	2.46E-04
Cs-134	1.24E-01	2.32E-01	2.34E-02	0.00E+00	5.97E-02	2.45E-02	6.30E-04
Cs-136	1.48E-02	4.34E-02	1.62E-02	0.00E+00	1.73E-02	3.54E-03	6.59E-04
Cs-137	1.72E-01	2.02E-01	1.43E-02	0.00E+00	5.41E-02	2.19E-02	6.30E-04
Cs-138	3.04E-11	4.94E-11	2.40E-11	0.00E+00	2.47E-11	3.85E-12	7.90E-11
Ba-139	7.25E-07	4.81E-10	2.10E-08	0.00E+00	2.89E-10	2.91E-10	4.59E-05
Ba-140	5.49E-02	5.49E-05	2.83E-03	0.00E+00	1.30E-05	3.37E-05	1.35E-02
Ba-141	2.03E-16	1.39E-19	6.40E-18	0.00E+00	8.36E-20	8.45E-20	2.48E-15
Ba-142	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.52E-24
La-140	5.66E-06	2.23E-06	5.74E-07	0.00E+00	0.00E+00	0.00E+00	2.62E-02
La-142	1.96E-09	7.20E-10	1.72E-10	0.00E+00	0.00E+00	0.00E+00	1.22E-04
Ce-141	2.57E-05	1.57E-05	1.84E-06	0.00E+00	4.83E-06	0.00E+00	8.10E-03
Ce-143	3.80E-06	2.52E-03	2.87E-07	0.00E+00	7.34E-07	0.00E+00	1.47E-02
Ce-144	9.82E-04	4.02E-04	5.50E-05	0.00E+00	1.62E-04	0.00E+00	5.64E-02
Pr-143	2.62E-05	9.78E-06	1.30E-06	0.00E+00	3.63E-06	0.00E+00	1.38E-02
Pr-144	2.74E-20	1.06E-20	1.38E-21	0.00E+00	3.85E-21	0.00E+00	4.94E-16
Nd-147	1.77E-05	1.82E-05	1.11E-06	0.00E+00	7.00E-06	0.00E+00	1.15E-02
W-187	2.10E-04	1.46E-04	5.05E-05	0.00E+00	0.00E+00	0.00E+00	8.59E-03
Np-239	3.16E-06	2.83E-07	1.60E-07	0.00E+00	5.64E-07	0.00E+00	8.17E-03

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mrem-m^3/pCi-yr

NUCLIDE	BONE	LIVER	T.BODY	THYROID	KIDNEY	LUNG	GI-LLI
H-3	0.00E+00	6.51E-04	6.51E-04	6.51E-04	6.51E-04	6.51E-04	6.51E-04
C-14	2.65E-02	5.31E-03	5.31E-03	5.31E-03	5.31E-03	5.31E-03	5.31E-03
Na-24	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
P-32	1.86E+01	1.03E+00	7.08E-01	0.00E+00	0.00E+00	0.00E+00	1.47E-01
Cr-51	0.00E+00	0.00E+00	2.80E-04	1.80E-04	4.14E-05	4.02E-02	1.12E-03
Mn-54	0.00E+00	2.80E-02	5.51E-03	0.00E+00	5.51E-03	1.11E+00	7.81E-03
Mn-56	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Fe-55	2.04E-02	1.21E-02	3.44E-03	0.00E+00	0.00E+00	8.98E-02	1.13E-03
Fe-59	2.76E-02	4.78E-02	1.93E-02	0.00E+00	0.00E+00	2.06E+00	5.03E-02
Co-58	0.00E+00	1.91E-03	2.84E-03	0.00E+00	0.00E+00	1.21E+00	1.74E-02
Co-60	0.00E+00	8.15E-03	1.20E-02	0.00E+00	0.00E+00	4.58E+00	3.24E-02
Ni-63	3.39E-01	2.05E-02	1.16E-02	0.00E+00	0.00E+00	2.09E-01	2.42E-03
Ni-65	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cu-64	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Zn-65	2.20E-02	7.12E-02	3.54E-02	0.00E+00	3.70E-02	7.36E-01	5.85E-02
Zn-69	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Br-83	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Br-84	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Br-85	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Rb-86	0.00E+00	1.04E+00	4.80E-01	0.00E+00	0.00E+00	0.00E+00	1.65E-02
Rb-88	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Rb-89	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Sr-89	7.43E-01	0.00E+00	2.13E-02	0.00E+00	0.00E+00	3.79E+00	1.20E-01
Sr-90	4.10E+01	0.00E+00	2.60E+00	0.00E+00	0.00E+00	1.13E+01	1.31E-01
Sr-91	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Sr-92	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Y-90	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Y-91m	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Y-91	1.01E+00	0.00E+00	2.69E-02	0.00E+00	0.00E+00	4.21E+00	1.21E-01
Y-92	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Y-93	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Zr-95	1.89E-01	4.57E-02	3.33E-02	0.00E+00	5.09E-02	2.87E+00	3.56E-02
Zr-97	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Nb-95	3.86E-02	1.58E-02	9.32E-03	0.00E+00	1.16E-02	1.18E+00	3.12E-02
Mo-99	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Tc-99m	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

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mrem-m^3/pCi-yr

NUCLIDE	BONE	LIVER	T.BODY	THYROID	KIDNEY	LUNG	GI-LLI
Tc-101	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ru-103	4.50E-03	0.00E+00	1.52E-03	0.00E+00	9.48E-03	1.23E+00	3.60E-02
Ru-105	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ru-106	9.46E-02	0.00E+00	1.19E-02	0.00E+00	1.16E-01	1.26E+01	1.78E-01
Ag-110m	1.13E-02	8.20E-03	5.67E-03	0.00E+00	1.24E-02	4.16E+00	3.75E-02
Te-125m	8.21E-03	3.43E-03	1.14E-03	2.80E-03	0.00E+00	7.70E-01	2.23E-02
Te-127m	2.23E-02	9.23E-03	2.77E-03	6.51E-03	5.01E-02	1.75E+00	3.65E-02
Te-127	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Te-129m	3.62E-02	1.56E-02	5.71E-03	1.40E-02	8.15E-02	4.31E+00	1.77E-01
Te-129	2.02E-07	8.90E-08	4.81E-08	1.73E-07	4.49E-07	7.68E-03	6.75E-02
Te-131m	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Te-131	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Te-132	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-130	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-131	3.79E-02	4.44E-02	1.96E-02	1.48E+01	5.18E-02	0.00E+00	1.06E-03
I-132	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-133	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-134	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-135	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cs-134	4.13E-01	7.33E-01	7.77E-02	0.00E+00	1.99E-01	8.31E-02	1.39E-03
Cs-136	5.34E-01	1.49E+00	5.85E-01	0.00E+00	6.24E-01	1.30E-01	1.58E-02
Cs-137	5.50E-01	6.14E-01	4.56E-02	0.00E+00	1.73E-01	7.15E-02	1.34E-03
Cs-138	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ba-139	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ba-140	6.64E-01	6.64E-04	3.44E-02	0.00E+00	1.59E-04	1.89E+01	4.55E-01
Ba-141	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ba-142	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
La-140	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
La-142	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ce-141	7.33E-02	4.41E-02	5.26E-03	0.00E+00	1.39E-02	1.37E+00	5.70E-02
Ce-143	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ce-144	3.57E+00	1.35E+00	1.97E-01	0.00E+00	6.01E-01	1.10E+01	1.66E-01
Pr-143	1.44E-01	5.39E-02	7.20E-03	0.00E+00	2.03E-02	4.46E+00	3.84E-01
Pr-144	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Nd-147	1.41E-01	1.45E-01	8.91E-03	0.00E+00	5.61E-02	5.74E+00	5.56E-01
W-187	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Np-239	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

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mrem-m^3/pCi-yr

NUCLIDE	BONE	LIVER	T.BODY	THYROID	KIDNEY	LUNG	GI-LLI
H-3	0.00E+00	6.47E-04	6.47E-04	6.47E-04	6.47E-04	6.47E-04	6.47E-04
C-14	2.65E-02	5.31E-03	5.31E-03	5.31E-03	5.31E-03	5.31E-03	5.31E-03
Na-24	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
P-32	2.41E+00	1.33E-01	9.17E-02	0.00E+00	0.00E+00	0.00E+00	1.91E-02
Cr-51	0.00E+00	0.00E+00	9.76E-05	6.28E-05	1.44E-05	1.40E-02	3.90E-04
Mn-54	0.00E+00	2.55E-02	5.02E-03	0.00E+00	5.02E-03	1.01E+00	7.11E-03
Mn-56	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Fe-55	1.98E-02	1.18E-02	3.34E-03	0.00E+00	0.00E+00	8.72E-02	1.10E-03
Fe-59	1.43E-02	2.48E-02	1.00E-02	0.00E+00	0.00E+00	1.07E+00	2.62E-02
Co-58	0.00E+00	1.26E-03	1.88E-03	0.00E+00	0.00E+00	8.04E-01	1.15E-02
Co-60	0.00E+00	8.03E-03	1.18E-02	0.00E+00	0.00E+00	4.51E+00	3.20E-02
Ni-63	3.39E-01	2.04E-02	1.16E-02	0.00E+00	0.00E+00	2.09E-01	2.42E-03
Ni-65	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cu-64	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Zn-65	1.95E-02	6.32E-02	3.14E-02	0.00E+00	3.28E-02	6.53E-01	5.19E-02
Zn-69	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Br-83	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Br-84	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Br-85	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Rb-86	0.00E+00	2.17E-01	1.00E-01	0.00E+00	0.00E+00	0.00E+00	3.46E-03
Rb-88	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Rb-89	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Sr-89	4.17E-01	0.00E+00	1.20E-02	0.00E+00	0.00E+00	2.13E+00	6.71E-02
Sr-90	4.09E+01	0.00E+00	2.59E+00	0.00E+00	0.00E+00	1.12E+01	1.31E-01
Sr-91	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Sr-92	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Y-90	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Y-91m	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Y-91	6.13E-01	0.00E+00	1.63E-02	0.00E+00	0.00E+00	2.55E+00	7.33E-02
Y-92	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Y-93	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Zr-95	1.20E-01	2.89E-02	2.11E-02	0.00E+00	3.23E-02	1.82E+00	2.25E-02
Zr-97	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Nb-95	1.68E-02	6.89E-03	4.05E-03	0.00E+00	5.06E-03	5.13E-01	1.36E-02
Mo-99	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Tc-99m	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

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mrem-m^3/pCi-yr

NUCLIDE	BONE	LIVER	T.BODY	THYROID	KIDNEY	LUNG	GI-LLI
Tc-101	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ru-103	2.14E-03	0.00E+00	7.22E-04	0.00E+00	4.51E-03	5.87E-01	1.71E-02
Ru-105	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ru-106	8.74E-02	0.00E+00	1.09E-02	0.00E+00	1.07E-01	1.16E+01	1.65E-01
Ag-110m	1.01E-02	7.29E-03	5.05E-03	0.00E+00	1.10E-02	3.70E+00	3.34E-02
Te-125m	4.96E-03	2.07E-03	6.86E-04	1.69E-03	0.00E+00	4.66E-01	1.35E-02
Te-127m	1.70E-02	7.06E-03	2.12E-03	4.98E-03	3.84E-02	1.34E+00	2.79E-02
Te-127	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Te-129m	1.52E-02	6.55E-03	2.39E-03	5.88E-03	3.42E-02	1.81E+00	7.42E-02
Te-129	8.47E-08	3.73E-08	2.02E-08	7.25E-08	1.88E-07	3.22E-03	2.83E-02
Te-131m	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Te-131	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Te-132	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-130	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-131	3.79E-02	4.44E-02	1.96E-02	1.48E+01	5.18E-02	0.00E+00	1.06E-03
I-132	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-133	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-134	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-135	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cs-134	3.97E-01	7.05E-01	7.47E-02	0.00E+00	1.91E-01	7.99E-02	1.34E-03
Cs-136	5.81E-02	1.62E-01	6.36E-02	0.00E+00	6.78E-02	1.41E-02	1.72E-03
Cs-137	5.49E-01	6.12E-01	4.55E-02	0.00E+00	1.72E-01	7.13E-02	1.33E-03
Cs-138	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ba-139	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ba-140	6.77E-02	6.77E-05	3.50E-03	0.00E+00	1.62E-05	1.93E+00	4.64E-02
Ba-141	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ba-142	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
La-140	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
La-142	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ce-141	2.99E-02	1.80E-02	2.14E-03	0.00E+00	5.66E-03	5.57E-01	2.32E-02
Ce-143	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ce-144	3.22E+00	1.22E+00	1.78E-01	0.00E+00	5.42E-01	9.93E+00	1.50E-01
Pr-143	1.67E-02	6.26E-03	8.35E-04	0.00E+00	2.36E-03	5.17E-01	4.45E-02
Pr-144	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Nd-147	9.90E-03	1.01E-02	6.23E-04	0.00E+00	3.93E-03	4.02E-01	3.89E-02
W-187	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Np-239	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Approval	MWS
Date	see page 1

REMP DOSE FACTORS FOR ADULT AGE GROUP: SHORELINE/SEDIMENT TOTAL BODY AND SKIN DOSE

mrem-kg/pCi-yr

NUCLIDE	T.BODY	SKIN	NUCLIDE	T.BODY	SKIN
H-3	0.00E+00	0.00E+00	Ru-103	6.91E-07	8.06E-07
C-14	0.00E+00	0.00E+00	Ru-105	8.64E-07	9.79E-07
Na-24	4.80E-06	5.57E-06	Ru-106	2.88E-07	3.46E-07
P-32	0.00E+00	0.00E+00	Ag-110m	3.46E-06	4.03E-06
Cr-51	4.22E-08	4.99E-08	Te-125m	6.72E-09	9.22E-09
Mn-54	1.11E-06	1.31E-06	Te-127m	2.11E-10	2.50E-10
Mn-56	2.11E-06	2.50E-06	Te-127	1.92E-09	2.11E-09
Fe-55	0.00E+00	0.00E+00	Te-129m	1.48E-07	1.73E-07
Fe-59	1.54E-06	1.80E-06	Te-129	1.36E-07	1.61E-07
Co-58	1.34E-06	1.57E-06	Te-131m	1.61E-06	1.90E-06
Co-60	3.26E-06	3.84E-06	Te-131	4.22E-07	4.99E-04
Ni-63	0.00E+00	0.00E+00	Te-132	3.26E-07	3.84E-07
Ni-65	7.10E-07	8.26E-07	I-130	2.69E-06	3.26E-06
Cu-64	3.05E-07	3.26E-07	I-131	5.38E-07	6.53E-07
Zn-65	7.68E-07	8.83E-07	I-132	3.26E-06	3.84E-06
Zn-69	0.00E+00	0.00E+00	I-133	7.10E-07	8.64E-07
Br-83	1.23E-08	1.79E-08	I-134	3.07E-06	3.65E-06
Br-84	2.30E-06	2.69E-06	I-135	2.30E-06	2.69E-06
Br-85	0.00E+00	0.00E+00	Cs-134	2.30E-06	2.69E-06
Rb-86	1.21E-07	1.38E-07	Cs-136	2.88E-06	3.26E-06
Rb-88	6.72E-07	7.68E-07	Cs-137	8.06E-07	9.41E-07
Rb-89	2.88E-06	3.46E-06	Cs-138	4.03E-06	4.61E-06
Sr-89	1.08E-10	1.25E-10	Ba-139	4.61E-07	5.18E-07
Sr-90	0.00E+00	0.00E+00	Ba-140	4.03E-07	4.61E-07
Sr-91	1.36E-06	1.59E-06	Ba-141	8.26E-07	9.41E-07
Sr-92	1.73E-06	1.92E-06	Ba-142	1.52E-06	1.73E-06
Y-90	4.22E-10	4.99E-10	La-140	2.88E-06	3.26E-06
Y-91m	7.30E-07	8.45E-07	La-142	2.88E-06	3.46E-06
Y-91	4.61E-09	5.18E-09	Ce-141	1.06E-07	1.19E-07
Y-92	3.07E-07	3.65E-07	Ce-143	4.22E-07	4.80E-07
Y-93	1.09E-07	1.50E-07	Ce-144	6.14E-08	7.10E-08
Zr-95	9.60E-07	1.11E-06	Pr-143	0.00E+00	0.00E+00
Zr-97	1.06E-06	1.23E-06	Pr-144	3.84E-08	4.42E-08
Nb-95	9.79E-07	1.15E-06	Nd-147	1.92E-07	2.30E-07
Mo-99	3.65E-07	4.22E-07	W-187	5.95E-07	6.91E-07
Tc-99m	1.84E-07	2.11E-07	Np-239	1.82E-07	2.11E-07
Tc-101	5.18E-07	5.76E-07			

Approval	MWS
Date	see page 1

REMP DOSE FACTORS FOR TEEN AGE GROUP:SHORELINE/SEDIMENT TOTAL BODY AND SKIN DOSE

mrem-kg/pCi-yr

NUCLIDE	T.BODY	SKIN	NUCLIDE	T.BODY	SKIN
H-3	0.00E+00	0.00E+00	Ru-103	3.86E-06	4.50E-06
C-14	0.00E+00	0.00E+00	Ru-105	4.82E-06	5.47E-06
Na-24	2.68E-05	3.11E-05	Ru-106	1.61E-06	1.93E-06
P-32	0.00E+00	0.00E+00	Ag-110m	1.93E-05	2.25E-05
Cr-51	2.36E-07	2.79E-07	Te-125m	3.75E-08	5.15E-08
Mn-54	6.22E-06	7.29E-06	Te-127m	1.18E-09	1.39E-09
Mn-56	1.18E-05	1.39E-05	Te-127	1.07E-08	1.18E-08
Fe-55	0.00E+00	0.00E+00	Te-129m	8.25E-07	9.65E-07
Fe-59	8.58E-06	1.01E-05	Te-129	7.61E-07	9.00E-07
Co-58	7.50E-06	8.79E-06	Te-131m	9.00E-06	1.06E-05
Co-60	1.82E-05	2.14E-05	Te-131	2.36E-06	2.79E-03
Ni-63	0.00E+00	0.00E+00	Te-132	1.82E-06	2.14E-06
Ni-65	3.97E-06	4.61E-06	I-130	1.50E-05	1.82E-05
Cu-64	1.70E-06	1.82E-06	I-131	3.00E-06	3.64E-06
Zn-65	4.29E-06	4.93E-06	I-132	1.82E-05	2.14E-05
Zn-69	0.00E+00	0.00E+00	I-133	3.97E-06	4.82E-06
Br-83	6.86E-08	9.97E-08	I-134	1.72E-05	2.04E-05
Br-84	1.29E-05	1.50E-05	I-135	1.29E-05	1.50E-05
Br-85	0.00E+00	0.00E+00	Cs-134	1.29E-05	1.50E-05
Rb-86	6.75E-07	7.72E-07	Cs-136	1.61E-05	1.82E-05
Rb-88	3.75E-06	4.29E-06	Cs-137	4.50E-06	5.25E-06
Rb-89	1.61E-05	1.93E-05	Cs-138	2.25E-05	2.57E-05
Sr-89	6.00E-10	6.97E-10	Ba-139	2.57E-06	2.89E-06
Sr-90	0.00E+00	0.00E+00	Ba-140	2.25E-06	2.57E-06
Sr-91	7.61E-06	8.90E-06	Ba-141	4.61E-06	5.25E-06
Sr-92	9.65E-06	1.07E-05	Ba-142	8.47E-06	9.65E-06
Y-90	2.36E-09	2.79E-09	La-140	1.61E-05	1.82E-05
Y-91m	4.07E-06	4.72E-06	La-142	1.61E-05	1.93E-05
Y-91	2.57E-08	2.89E-08	Ce-141	5.90E-07	6.65E-07
Y-92	1.72E-06	2.04E-06	Ce-143	2.36E-06	2.68E-06
Y-93	6.11E-07	8.36E-07	Ce-144	3.43E-07	3.97E-07
Zr-95	5.36E-06	6.22E-06	Pr-143	0.00E+00	0.00E+00
Zr-97	5.90E-06	6.86E-06	Pr-144	2.14E-07	2.47E-07
Nb-95	5.47E-06	6.43E-06	Nd-147	1.07E-06	1.29E-06
Mo-99	2.04E-06	2.36E-06	W-187	3.32E-06	3.86E-06
Tc-99m	1.03E-06	1.18E-06	Np-239	1.02E-06	1.18E-06
Tc-101	2.89E-06	3.22E-06			

Approval	MWS
Date	see page 1

REMP DOSE FACTORS FOR CHILD AGE GROUP: SHORELINE/SEDIMENT TOTAL BODY AND SKIN DOSE

mrem-kg/pCi-yr

NUCLIDE	T.BODY	SKIN	NUCLIDE	T.BODY	SKIN
H-3	0.00E+00	0.00E+00	Ru-103	8.06E-07	9.41E-07
C-14	0.00E+00	0.00E+00	Ru-105	1.01E-06	1.14E-06
Na-24	5.60E-06	6.50E-06	Ru-106	3.36E-07	4.03E-07
P-32	0.00E+00	0.00E+00	Ag-110m	4.03E-06	4.70E-06
Cr-51	4.93E-08	5.82E-08	Te-125m	7.84E-09	1.08E-08
Mn-54	1.30E-06	1.52E-06	Te-127m	2.46E-10	2.91E-10
Mn-56	2.46E-06	2.91E-06	Te-127	2.24E-09	2.46E-09
Fe-55	0.00E+00	0.00E+00	Te-129m	1.72E-07	2.02E-07
Fe-59	1.79E-06	2.11E-06	Te-129	1.59E-07	1.88E-07
Co-58	1.57E-06	1.84E-06	Te-131m	1.88E-06	2.22E-06
Co-60	3.81E-06	4.48E-06	Te-131	4.93E-07	5.82E-04
Ni-63	0.00E+00	0.00E+00	Te-132	3.81E-07	4.48E-07
Ni-65	8.29E-07	9.63E-07	I-130	3.14E-06	3.81E-06
Cu-64	3.56E-07	3.81E-07	I-131	6.27E-07	7.62E-07
Zn-65	8.96E-07	1.03E-06	I-132	3.81E-06	4.48E-06
Zn-69	0.00E+00	0.00E+00	I-133	8.29E-07	1.01E-06
Br-83	1.43E-08	2.08E-08	I-134	3.58E-06	4.26E-06
Br-84	2.69E-06	3.14E-06	I-135	2.69E-06	3.14E-06
Br-85	0.00E+00	0.00E+00	Cs-134	2.69E-06	3.14E-06
Rb-86	1.41E-07	1.61E-07	Cs-136	3.36E-06	3.81E-06
Rb-88	7.84E-07	8.96E-07	Cs-137	9.41E-07	1.10E-06
Rb-89	3.36E-06	4.03E-06	Cs-138	4.70E-06	5.38E-06
Sr-89	1.25E-10	1.46E-10	Ba-139	5.38E-07	6.05E-07
Sr-90	0.00E+00	0.00E+00	Ba-140	4.70E-07	5.38E-07
Sr-91	1.59E-06	1.86E-06	Ba-141	9.63E-07	1.10E-06
Sr-92	2.02E-06	2.24E-06	Ba-142	1.77E-06	2.02E-06
Y-90	4.93E-10	5.82E-10	La-140	3.36E-06	3.81E-06
Y-91m	8.51E-07	9.86E-07	La-142	3.36E-06	4.03E-06
Y-91	5.38E-09	6.05E-09	Ce-141	1.23E-07	1.39E-07
Y-92	3.58E-07	4.26E-07	Ce-143	4.93E-07	5.60E-07
Y-93	1.28E-07	1.75E-07	Ce-144	7.17E-08	8.29E-08
Zr-95	1.12E-06	1.30E-06	Pr-143	0.00E+00	0.00E+00
Zr-97	1.23E-06	1.43E-06	Pr-144	4.48E-08	5.15E-08
Nb-95	1.14E-06	1.34E-06	Nd-147	2.24E-07	2.69E-07
Mo-99	4.26E-07	4.93E-07	W-187	6.94E-07	8.06E-07
Tc-99m	2.15E-07	2.46E-07	Np-239	2.13E-07	2.46E-07
Tc-101	6.05E-07	6.72E-07			

Approval	MWS
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APPENDIX A

Revisions to SSES ODCM

AE&WD Report 1999

PP&L, Inc.
Two North Ninth Street
Allentown, Pennsylvania 18101-1179

APRIL 2000

APPENDIX A

Revisions to SSES ODCM

AE&WD Report 1999

PP&L, Inc.
Two North Ninth Street
Allentown, Pennsylvania 18101-1179

APRIL 2000

PROCEDURE COVER SHEET

	NUCLEAR DEPARTMENT PROCEDURE	
	DOSE ASSESSMENT POLICY STATEMENTS	ODCM-QA-009 Revision 0 Page 1 of 15

QUALITY CLASSIFICATION: ☒ QA Program ☐ Non-QA Program	APPROVAL CLASSIFICATION: ☒ Plant ☐ Non-Plant ☐ Instruction

EFFECTIVE DATE: 8-14-98

PERIODIC REVIEW FREQUENCY: N/A

PERIODIC REVIEW DUE DATE: N/A

RECOMMENDED REVIEWS:

Procedure Owner: R. K. Barclay

Responsible Supervisor: Supervisor - Operations Technology

Responsible FUM: Manager - Nuclear Technology

Responsible Approver: General Manager - SSES

PROCEDURE REVISION SUMMARY

TITLE: DOSE ASSESSMENT POLICY STATEMENTS

EVALUATION OF THE IMPACT OF REV. 0 TO ODCM-QA-009 ON THE LEVEL OF EFFLUENT CONTROL AND THE OVERALL ACCURACY AND RELIABILITY OF CALCULATIONS

Revision 0 to the ODCM in procedure format is being made as part of the conversion from Current Technical Specifications (CTS) to Improved Technical Specifications (ITS). In addition, 10CFR20.1001 to .2402 are being incorporated as applicable.

The revision moves elements of the Radioactive Effluent Control Program (RECP) (formerly called the Radioactive Effluent Technical Specifications) and the Radiological Environmental Monitoring Program (REMP) from Technical Specifications to the Technical Requirements Manual. In addition, administrative and reporting requirements formerly contained in Technical Specifications were moved to the appropriate sections of the ODCM procedures which implement them. Requirements formerly contained in the ODCM (e.g., dose calculation formulae, dose conversion factors and setpoint calculation formulae) were maintained in this revision of the ODCM.

The revisions described below are editorial in nature, changing only the format of the ODCM and/or location of the required elements of the RECP and the REMP without any change in the actual limits. Thus, Revision 0 of ODCM-QA-009 maintains the level of radioactive effluent control required pursuant to 10CFR20.1302, 40CFR190, 10CFR50.36a and Appendix I to 10CFR50 and does not impact the accuracy or reliability of effluent, dose, or setpoint calculations.

1. Initial issue in procedure format.

2. Section 10 of ODCM Revision 7 is reorganized in the format established by NDAP-QA-0002. No revision bars are used since the change was to the entire section.

3. Cover sheet, Revision Summary, and Table of Contents are added.

4. Tables 8 through 11 of ODCM Revision 7 are incorporated as Attachments A through D, respectively. System numbers have been added. Tables sorted by system number. System descriptions have been changed to those in NEPM-QA-0221, Attachment C.

5. Attachment A - Cement Silo, Radwaste Evaporator, and MSIV Leakage Control System have been deleted because they are no longer in use.

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6. Attachment B- Condensate Storage Tank Berm has been deleted from listing of insignificant pathways in accordance with EC-ENVR-1008, Revision 2.

7. Policy statement provided in Section 10.1 of ODCM Revision 7 is relocated to ODCM-QA-004 and ODCM-QA-005.

8. Policy statements provided in Section 10.2 of ODCM Revision 7 pertaining to airborne and waterborne effluents are relocated to ODCM-QA-004 and ODCM-QA-005, respectively.

9. Policy statements provided in Sections 10.5, 10.7, and 10.8 of ODCM Revision 7 pertaining to setpoints are relocated to ODCM-QA-003.

10. Policy statements provided in Section 10.4 and 10.6 and Table 12 of ODCM Revision 7 are relocated to ODCM-QA-007.

11. Document titles and section references were revised to agree with ITS/TRM.

12. MCPs were changed to ECLs to agree with the new 10CFR20 terminology.

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ATTACHMENT		PAGE
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Date	see page 1

1.0 PURPOSE

The purpose of this procedure is to state dose and effluent policy statements that are not directly associated with any other section of the ODCM.

This procedure constitutes part of the SSES Offsite Dose Calculation Manual (ODCM) which is a licensing basis document.

2.0 POLICY/DISCUSSION

2.1 Evaluation and Monitoring Criteria for Effluent Pathways

2.1.1 Potential effluent pathways will be evaluated on a case-by-case basis. The evaluation will include identification of systems which are normally non-radioactive (as described in the FSAR) but could possibly become radioactive through interfaces with radioactive systems (Reference: NRC IE Bulletin No. 80-10). The evaluation will determine the significance of any potential effluents pathways and extent of sampling and/or monitoring required. The frequency of sampling or monitoring will be determined based on the potential for contamination, the potential for inadvertent releases, the potential levels of contamination and releases, and the potential impact on station offsite doses.

2.1.2 Results of sampling and/or evaluation will be used to classify potential effluent pathways into one of the following categories:

a. Not an Effluent Pathway

b. Insignificant Effluent Pathway

c. Significant Effluent Pathway

Listings of systems by category are provided in Attachments A, B, and C.

2.1.3 Certain systems, including structures, tanks or other enclosures, within the Site Boundary of the SSES are not normally considered to be effluent pathways because their contents are designed or expected to be non-radioactive (not containing radioactive materials of SSES origin). Some of these systems, though normally isolated from radioactively contaminated systems, are physically connected to those systems so that the failure of an isolating mechanism, such as a valve, could allow them to become contaminated. These normally non-radioactive systems are considered 80-10 systems in accordance with NRC IE Bulletin 80-10 if they have both a potential for radioactive contamination and a release pathway to the environment. Certain holding tanks for liquids and/or sludges that are not physically connected to radioactively contaminated systems also could become radioactively contaminated if they were to receive and concentrate radioactive materials from undetectable to

detectable levels. All such tanks/vessels that receive/collect materials that have been in the station's Radiologically Controlled Areas, that allow these materials to contact liquids, and from which the liquid contents of the tanks could be released to the environment should be considered as 80-10 systems. Identified 80-10 systems are listed in Attachment D.

All 80-10 systems shall be sampled and analyzed for radioactivity periodically in accordance with station procedures. Those 80-10 systems in which radioactivity is detected shall be restricted from use until the cause of the contamination has been corrected and the system is determined to be non-radioactive again. Continued use of an 80-10 system while contaminated shall only be permitted in accordance with a 10CFR50.59 Safety Evaluation of the operation of the system as a radioactive system by the system operator/engineer.

2.1.4 Positively detected radioactive material in samples collected from all airborne and waterborne offsite release pathways will be reported in the Annual Effluent and Waste Disposal Report.

2.2 Low-Level Radioactivity in the Sewage Treatment Plant

2.2.1 Sewage processing facilities, such as the SSES sewage treatment plant, can under certain conditions receive low levels of radioactive materials. The most notable scenario is when individuals who work on-site have been subjected to the medical administration of radiopharmaceuticals for diagnostic or therapeutic purposes. In these cases, normal biological elimination processes can easily result in levels of radioactivity in sewage treatment plant solutions and suspensions which are within the detection capabilities of the associated sampling and analysis program.

2.2.2 Because disposal of sewage treatment plant sludge by controlled dispersal on specified tracts of land is a common practice, the following guidelines have been established:

a. All sludge collected in the sludge holding tank should be sampled and analyzed prior to land disposal to quantify any radioactivity present above natural background levels.

b. Sludge containing nuclides with short half-lives, for example I-131, should be contained on-site to permit decay to less than detectable levels.

c. When sludge is contaminated with nuclides which have half-lives sufficiently long to make hold-up for decay impractical, the following options should be considered:

(1) Dispose of the sludge as low level radioactive waste.

(2) Obtain a special permit pursuant to the requirements of 10 CFR 20.2002.

d. The sewage treatment plant liquid effluent should be sampled monthly for radioactivity. This can be accomplished by drawing a sample from the chlorine contact chamber.

3.0 REFERENCES

3.1 10CFR20.2002, Method for Obtaining Approval of Proposed Disposal Procedures.

3.2 10 CFR 20 Appendix B, Concentrations in Air and Water Above Natural Background.

3.2 10CFR20 Appendix B, Annual Limits on Intake (ALIs) and Derived Concentrations (DACs) of Radionuclides for Occupational Exposure; Effluent Concentrations; Concentrations for Release to Sewerage.

3.3 10CFR50 Appendix I, Numerical Guides for Design Objectives and Limiting Conditions for Operation to Meet the Criterion "As Low as is Reasonably Achievable" for Radioactive Material in Light-water Cooled Nuclear Power Reactor Effluents.

3.4 10CFR50.59, Changes, Tests, and Experiments.

3.5 NRC IE Bulletin No. 80-10, Contamination of Nonradioactive System and Resulting Potential for Unmonitored, Uncontrolled Release of Radioactivity to Environment.

3.6 FSAR Section 11.2, Liquid Waste Management Systems.

3.7 FSAR Section 11.3, Gaseous Waste Management Systems.

3.8 ODCM-QA-003, Effluent Monitor Setpoints.

3.9 PP&L Calculation EC-ENVR-1008, Unmonitored Release Analysis: Systems Identified in PLI-77,223.

3.10 Safety Evaluation NL-89-002: Dry Active Waste Volume Reduction System.

3.11 Safety Evaluation NL-90-029, Temporary Laundry Facility.

3.12 Safety Evaluation NL-92-007, Operation of LLRWHF at SSES.

3.13 Safety Evaluation NL-95-001, Refueling Outage Decay Heat Removal and Tie-In of the SDHR Temporary Cooling Equipment.

Approval	MWS
Date	see page 1

3.14 Safety Evaluation NL-95-015, Operation of the Sewage Treatment Plant with Sludge Activity Above Environmental LLDs.

4.0 RESPONSIBILITIES

4.1 Supervisor- OperationsTechnology

4.1.1 Ensures adequacy and correctness of dose and effluent policy statements.

4.1.2 Ensures effluent pathways are properly evaluated based on calculations or other appropriate methods.

5.0 DEFINITIONS

5.1 Insignificant Effluent Pathway - Evaluation and/or periodic sampling demonstrate that the pathway may contain radioactive effluents, however, these effluents may not be reasonably expected to exceed 10 percent of the appropriate unrestricted area MPC value (fractional MPCs summed when appropriate) listed in Table II of Appendix B to 10 CFR 20. A release pathway which falls in this category will be sampled periodically.

5.1 Insignificant Effluent Pathway - Evaluation and/or periodic sampling demonstrate that the pathway may contain radioactive effluents, however, these effluents may not be reasonably expected to exceed the appropriate unrestricted area ECL value (fractional ECLs summed when appropriate) listed in Table 2 of Appendix B to 10 CFR 20. A release pathway which falls in this category will be sampled periodically.

5.2 MPC- Maximum Permissible Concentration as defined in 10CFR20, Appendix B.

5.2 ECL - Effluent Concentration Limit as defined in 10CFR20, Appendix B.

5.3 Not An Effluent Pathway - Realistic evaluation (e.g., engineering design, system operation, radionuclide inventory) demonstrates that the pathway has no potential for release of radioactive material. Although not required, periodic sampling may at times be performed to confirm the result of the evaluation.

5.4 Significant Effluent Pathway - Evaluation and/or periodic sampling demonstrate that the pathway may contain radioactive effluents, and these effluents may be reasonably expected to exceed 10 percent of the appropriate unrestricted area MPC value (fractional MPCs summed when appropriate) listed in Table 2 of Appendix B to 10 CFR 20. A release pathway which falls in this category will be sampled continuously.

5.4 Significant Effluent Pathway - Evaluation and/or periodic sampling demonstrate that the pathway may contain radioactive effluents, and these effluents may be reasonably expected to exceed the appropriate unrestricted area ECL value

(fractional ECLs summed when appropriate) listed in Table 2 of Appendix B to 10 CFR 20. A release pathway which falls in this category will be sampled continuously.

6.0 PROCEDURE

6.1 Environmental Services will perform dose calculations as required to support classification of effluent pathways. Use may be made of incoming requests for revision of the ODCM, or other relevant information that may be received from Nuclear Systems Engineering or other Nuclear Department work groups.

7.0 RECORDS

None.

odcm-qa-009(26)

SYSTEMS CLASSIFIED AS NOT AN EFFLUENT PATHWAY

SYSTEM NO.	DESCRIPTION	REFERENCE
008	Domestic Water	1
09B, C	River Water Makeup	1
09E	Intake Compressed Air	1
010	Screens and Screenwash	1
013A, B, F, G	Fire Protection Water	1
013C	Fire Protection CO_2	1
013D	Fire Protection Halon	1
015	Turbine Building Closed Cooling Water	1
020	Building Drains: NON RAD	1
021	Water Pretreatment	1
022	Makeup Demineralizers	1
023	Fuel Oil	1
025	Containment Instrument Gas	1
027	Station Auxiliary Boiler	1
030	Control Structure Chilled Water	1
033N	Turbine Bldg. Chilled Water	1
034K	Reactor Bldg. Chilled Water	1
035	Fuel Pool Cooling	1
035A	Fuel Pool Demineralizers	1
036	Fuel Pools	1
037B, D	Condensate and Refuel Water Transfer	1
038	Low Pressure Air	1
039	Condensate Demineralizer	1
040	Lube Oil Transfer/Purification	1
041C, E	Cooling Tower Acid/Chlorination	1
042	Circulating Water	1

Notes:

1. PP&L Calculation EC-ENVR-1008

Approval	MWS
Date	see page 1

SYSTEMS CLASSIFIED AS NOT AN EFFLUENT PATHWAY

SYSTEM NO.	DESCRIPTION	REFERENCE
043E	Condenser Tube Cleaning	1
045	Feedwater	1
046	Extraction Steam	1
047	Feedwater Heaters	1
049	Residual Heat Removal	1
050	Reactor Core Isolation Cooling	1
051	Core Spray	1
052	High Pressure Coolant Injection	1
053	Standby Liquid Control	1
055	Control Rod Drives	1
059A	Suppression Pool	1
059C	Primary Containment Vacuum Breakers	1
059E	Suppression Pool Cleanup	1
061	Reactor Water Cleanup	1
062	Reactor Pressure Vessel	1
064A, B	Reactor Recirculation System	1
065G	Radwaste Chilled Water	1
069A	LRW Collection (TB and Cond. Outer Area Sumps)	1
071	Gaseous Radwaste Recombiner Closed Cooling Water	1
074A	Nitrogen Storage	1
074B	Hydrogen Storage	1
076	Sampling Stations	1
076F	Post Accident Sampling System	1
082	Bypass Steam	1
083	Main Steam Isolation Valves/ Nuclear Steam Supply System Shutoff	1

Notes:

1. PP&L Calculation EC-ENVR-1008

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SYSTEMS CLASSIFIED AS NOT AN EFFLUENT PATHWAY

SYSTEM NO.	DESCRIPTION	REFERENCE
083D, E	Automatic Depressurization System	1
084	Moisture Separators	1
092	Turbine Steam Seals	1
093E	Electrohydraulic Control	1
097	Stator Cooling	1
098	Main Generator	1
099C	Storm Drains	1
	Temporary SDHR System	2
	Temporary Laundry Facility	3

Notes:

1. PP&L Calculation EC-ENVR-1008

2. Safety Evaluation NL-95-001: Refueling Outage Decay Heat Removal and Tie-In of the SDHR Temporary Cooling Equipment

3. Safety Evaluation NL-90-029: Temporary Laundry Facility

Approval	MWS
Date	see page 1

SYSTEMS CLASSIFIED AS INSIGNIFICANT EFFLUENT PATHWAY

SYSTEM NO.	DESCRIPTION	REFERENCE
037B	Condensate Storage and Transfer	1
037D	Refueling Water Storage and Transfer	1
086	Low Level Radwaste Handling Facility	3
095	H_2 Seal Oil	1
093	Main Turbine/RFPT Lube Oil	1, 4
099	Second Sort (DAW Volume Reduction) Facility	2
099D	Sewage Treatment Plant	5

Notes:

1. PP&L Calculation EC-ENVR-1008

2. Safety Evaluation NL-89-002: Dry Active Waste Volume Reduction System

3. Safety Evaluation NL-92-007: Operation of LLRWHF at SSES

4. Main Tb/RFPT Lube Oil are designed to be operated as non-radioactive systems. They are classified as Insignificant Effluent Pathways based on source terms and offsite dose rate results for consideration of a contaminated source term.

5. Sewage treatment plant is designed to be operated as a non-radioactive system. Classification as an Insignificant Effluent Pathway is in accordance with Safety Evaluation NL-95-015.

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Date	see page 1

SYSTEMS CLASSIFIED AS SIGNIFICANT EFFLUENT PATHWAY

SYSTEM NO.	DESCRIPTION	REFERENCE
069	Liquid Waste Management Systems	1
072	Gaseous Waste Management Systems	2

Notes:

1. SSES FSAR Chapter 11.2
2. SSES FSAR Chapter 11.3

Approval	MWS
Date	see page 1

SYSTEMS WITH NRC I/E BULLETIN 80-10 APPLICABILITY

SYSTEM NO.	DESCRIPTION
011	Service Water (F/P HTX Discharge)
016	RHR Service Water
018	Instrument Air
019	Service Air
027	Station Auxiliary Boiler/ Auxiliary Steam
035	Shutdown Decay Heat Removal Service Water
040	Batch Lube Oil Tank
048	Feedwater Pump Turbine (Lube Oil)
054	Emergency Service Water
093	Main Turbine (Lube Oil)
095	H_2 Seal Oil (Separator Tank)
099D	Sewage Treatment Plant
	Condensate Storage Tank Berm

Approval	MWS
Date	see page 1