PROCEDURE COVER SHEET

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

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

FORM NDAP-QA-0002-1, Rev. 2, Page 1 of 1

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

TABLE OF CONTENTS

ATTACHMENTS

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).

1

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.

Approval	MWS
Date	see page 1

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

Approval	MWS
Date	see page 1

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

Approval	MWS
Date	see page 1

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

Approval	MWS
Date	see page 1

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
Date	see page 1

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

Approval	MWS
Date	see page 1

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

Approval	MWS
Date	see page 1

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

Approval MWS
Date see page 1

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

Approval	MWS
Date	see page 1

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

Approval	MWS
Date	see page 1

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

Approval	MWS
Date	see page 1

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

Approval	MWS
Date	see page 1

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

Approval	MWS
Date	see page 1

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

Approval	MWS
Date	see page 1

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					

Approval	MWS
Date	see page 1

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

Approval	MWS
Date	see page 1

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

Approval	MWS
Date	see page 1

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

Approval	MWS
Date	see page 1

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

Approval	MWS
Date	see page 1

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

Approval	MWS
Date	see page 1

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

Approval	MWS
Date	see page 1

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

Approval	MWS
Date	see page 1

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

Approval	MWS
Date	see page 1

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

Approval	MWS
Date	see page 1

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
Date	see page 1

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
Date	see page 1

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

	NUCLEAR DEPARTMENT PROCEDURE	
	TOTAL DOSE CALCULATIONS	ODCM-QA-006 Revision 0 Page 1 of 6

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: 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 incorpcrated 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.

Approval	MWS
Date	see page 1

TABLE OF CONTENTS

Approval	MWS
Date	see page 1

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.

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.

odcm-qa-006(26)

Approval	MWS
Date	see page 1

PROCEDURE COVER SHEET

	NUCLEAR DEPARTMENT PROCEDURE	
	RADIOACTIVE WASTE TREATMENT SYSTEMS	ODCM-QA-007 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: 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

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.**

Approval	MWS
Date	see page 1

TABLE OF CONTENTS

ATTACHMENTS

Approval	MWS
Date	see page 1

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

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,

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.

odcm-qa-007(26)

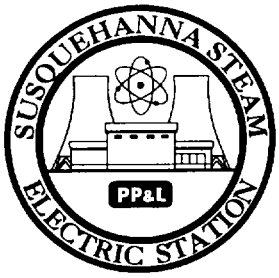
Approval	MWS
Date	see page 1

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 2 Page 1 of 74

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

EFFECTIVE DATE: 2/28/00

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 words "and analyses" are being deleted from section 2.1.3 to conform with the discussion of TR B 3.11.4.1 concerning verification of compliance with TRS 3.11.4.1.2 for REMP sampling analyses. According to TR B 3.11.4.1, the only requirements that must be met for compliance with TRS 3.11.4.1.2 are that the proper analyses are performed on samples and sample composites as required by TR Table 3.11.4.1-1 and that the analysis sensitivities corresponding to the LLDs of TR Table 3.11.4.1-3 are achieved.

Approval	MWS
Date	see page 1

TABLE OF CONTENTS

ATTACHMENTS

Approval	MWS
Date	see page 1

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 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).

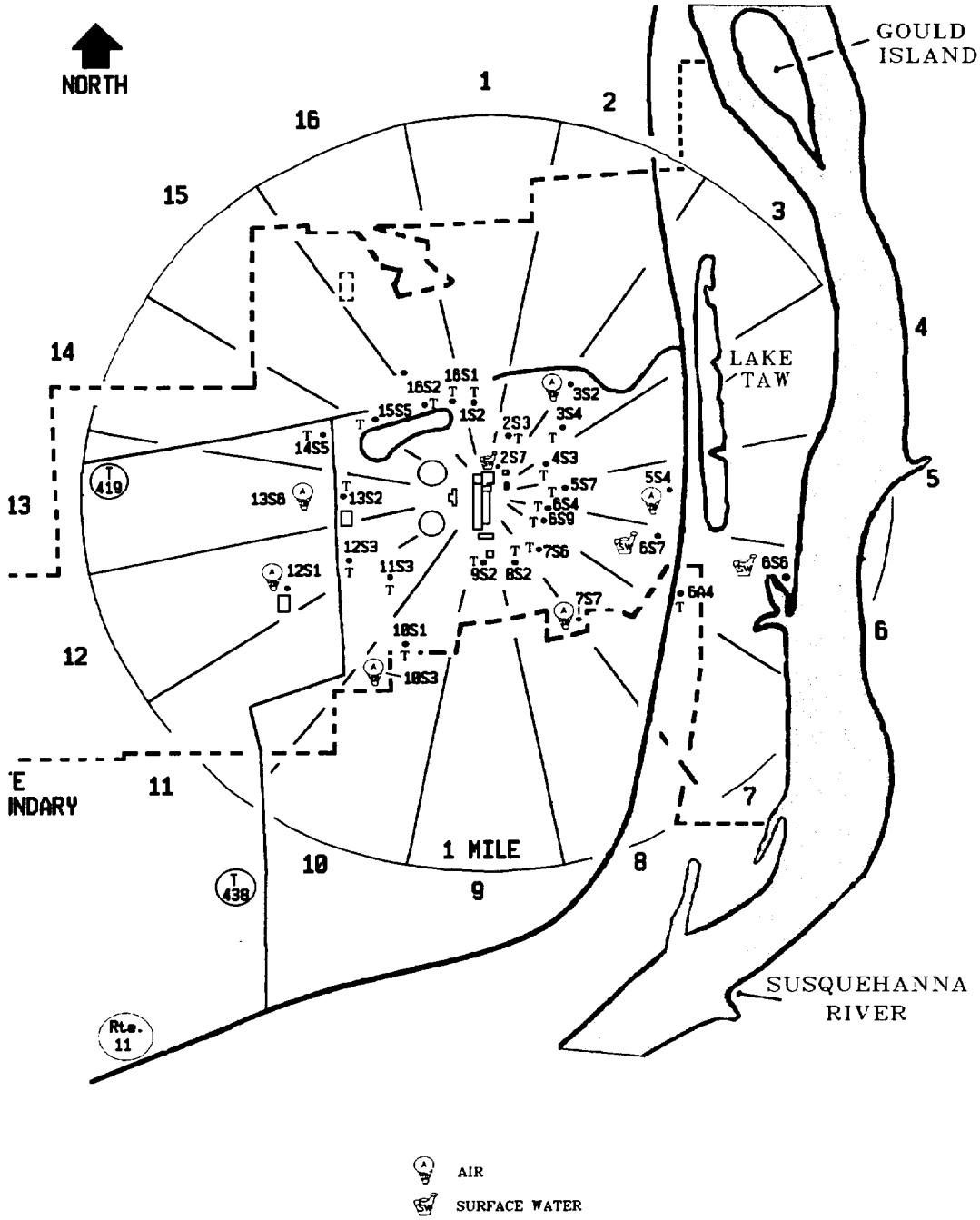
7.0 RECORDS

None.

odcm-qa-008(26)

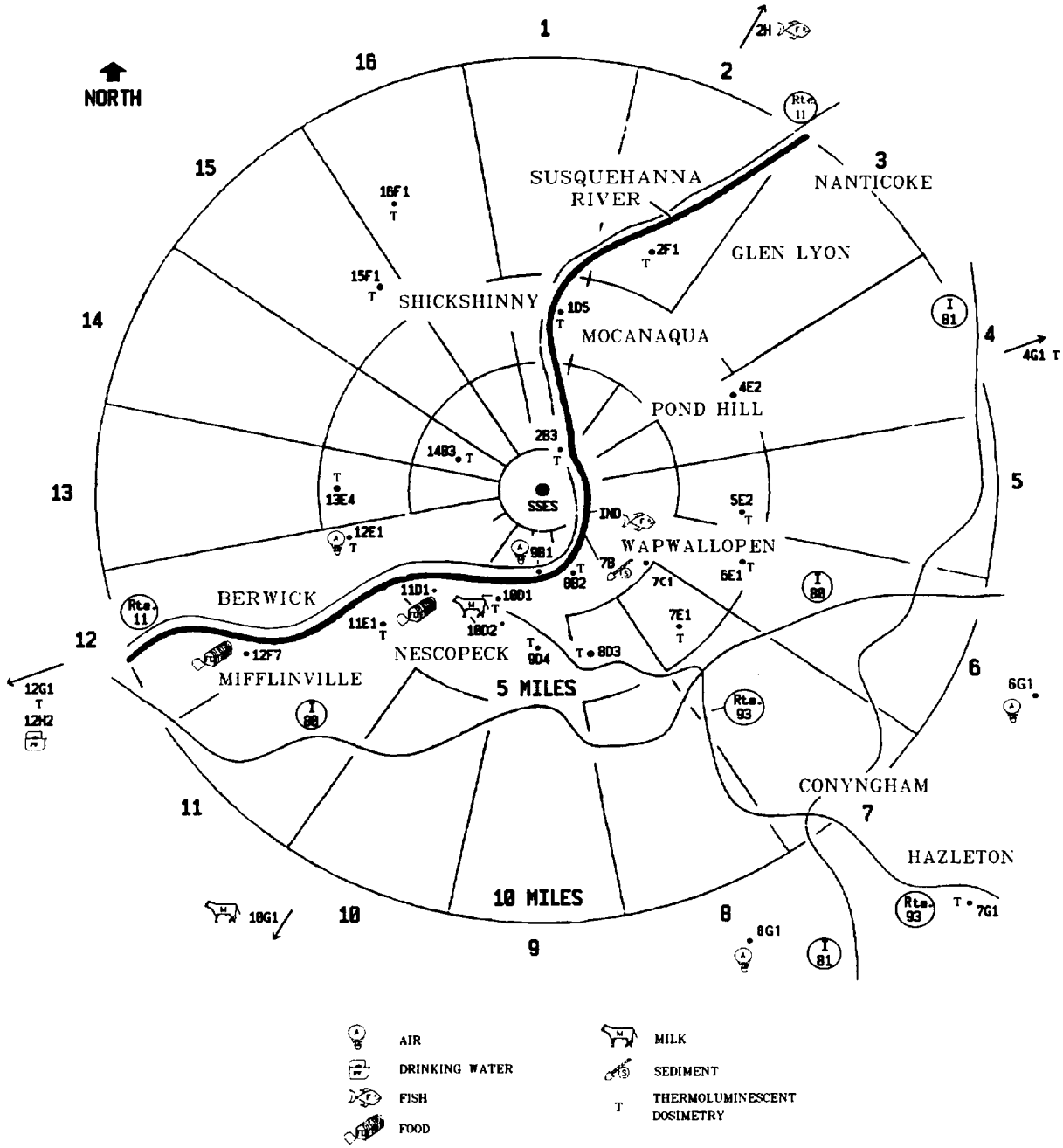
Approval	MWS
Date	see page 1

ENVIRONMENTAL MONITORING LOCATIONS WITHIN ONE MILE OF SSES



Approval	MWS
Date	see page 1

ENVIRONMENTAL MONITORING LOCATIONS
GREATER THAN ONE MILE FROM SSES



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		

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
	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.

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
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

Approval	MWS
Date	see page 1

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

Approval	MWS
Date	see page 1

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

Approval	MWS
Date	see page 1

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

Approval	MWS
Date	see page 1

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

Approval	MWS
Date	see page 1

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

Approval	MWS
Date	see page 1

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

Approval	MWS
Date	see page 1

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

Approval	MWS
Date	see page 1

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

Approval	MWS
Date	see page 1

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

Approval	MWS
Date	see page 1

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

Approval	MWS
Date	see page 1

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

Approval	MWS
Date	see page 1

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

Approval	MWS
Date	see page 1

REMP DOSE FACTORS FOR ADULT AGE GROUP: INHALATION - QUARTERLY SAMPLING (Page 2 of 2)

mrem-m³/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

Approval	MWS
Date	see page 1

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

Approval	MWS
Date	see page 1

REMP DOSE FACTORS FOR ADULT AGE GROUP: INHALATION - WEEKLY SAMPLING (Page 2 of 2)

mrem-m³/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

Approval	MWS
Date	see page 1

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

Approval	MWS
Date	see page 1

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

Approval	MWS
Date	see page 1

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

Approval	MWS
Date	see page 1

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

Approval	MWS
Date	see page 1

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

Approval	MWS
Date	see page 1

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

Approval	MWS
Date	see page 1

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

Approval	MWS
Date	see page 1

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

Approval	MWS
Date	see page 1

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

Approval	MWS
Date	see page 1

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
Ce-143	2.27E-08	1.65E-05	1.85E-09	0.00E+00	7.41E-09	0.00E+00	4.97E-04
Ce-144	1.11E-05	4.60E-06	5.97E-07	0.00E+00	2.75E-06	0.00E+00	2.79E-03
Pr-143	1.99E-07	7.95E-08	9.91E-09	0.00E+00	4.62E-08	0.00E+00	6.55E-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	1.41E-07	1.53E-07	9.18E-09	0.00E+00	9.00E-08	0.00E+00	5.53E-04
W-187	1.16E-06	9.47E-07	3.32E-07	0.00E+00	0.00E+00	0.00E+00	2.56E-04
Np-239	2.10E-08	1.98E-09	1.10E-09	0.00E+00	6.21E-09	0.00E+00	3.18E-04

Approval	MWS
Date	see page 1

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

Approval	MWS
Date	see page 1

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

Approval	MWS
Date	see page 1

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

Approval	MWS
Date	see page 1

REMP DOSE FACTORS FOR TEEN AGE GROUP: INHALATION - QUARTERLY SAMPLING (Page 2 of 2)

mrem-m³/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

Approval	MWS
Date	see page 1

REMP DOSE FACTORS FOR TEEN AGE GROUP: INHALATION - WEEKLY SAMPLING (Page 1 of 2)

mrem-m³/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

Approval	MWS
Date	see page 1

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

Approval	MWS
Date	see page 1

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

Approval	MWS
Date	see page 1

REMP DOSE FACTORS FOR CHILD 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	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

Approval	MWS
Date	see page 1

REMP DOSE FACTORS FOR CHILD AGE GROUP: LEAFY VEG. (Page 1 of 2)

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

Approval	MWS
Date	see page 1

REMP DOSE FACTORS FOR CHILD AGE GROUP: LEAFY VEG. (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	1.87E-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

Approval	MWS
Date	see page 1

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

Approval	MWS
Date	see page 1

REMP DOSE FACTORS FOR CHILD AGE GROUP: FRUIT (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	1.32E-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

Approval	MWS
Date	see page 1

REMP DOSE FACTORS FOR CHILD AGE GROUP: MEAT (Page 1 of 2)

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

Approval	MWS
Date	see page 1

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

Approval	MWS
Date	see page 1

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

Approval	MWS
Date	see page 1

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

Approval	MWS
Date	see page 1

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

Approval	MWS
Date	see page 1

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

Approval	MWS
Date	see page 1

REMP DOSE FACTORS FOR CHILD AGE GROUP: INHALATION - QUARTERLY SAMPLING (Page 1 of 2)

mrem-m³/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

Approval	MWS
Date	see page 1

REMP DOSE FACTORS FOR CHILD AGE GROUP: INHALATION - QUARTERLY SAMPLING (Page 2 of 2)

mrem-m³/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

Approval	MWS
Date	see page 1

REMP DOSE FACTORS FOR CHILD AGE GROUP: INHALATION - WEEKLY SAMPLING (Page 1 of 2)

mrem-m³/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

Approval	MWS
Date	see page 1

REMP DOSE FACTORS FOR CHILD AGE GROUP: INHALATION - WEEKLY SAMPLING (Page 2 of 2)

mrem-m³/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

Approval	MWS
Date	see page 1

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

Approval	MWS
Date	see page 1

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

Approval	MWS
Date	see page 1

REMP DOSE FACTORS FOR INFANT 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	1.02E-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

Approval	MWS
Date	see page 1

REMP DOSE FACTORS FOR INFANT AGE GROUP: DRINKING WATER (Page 2 of 2)

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

Approval MWS
Date see page 1

REMP DOSE FACTORS FOR INFANT AGE GROUP:INHALATION - QUARTERLY SAMPLING (Page 1 of 2)

mrem-m³/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

Approval	MWS
Date	see page 1

REMP DOSE FACTORS FOR INFANT AGE GROUP: INHALATION - QUARTERLY SAMPLING (Page 2 of 2)

mrem-m³/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

Approval MWS
Date see page 1

REMP DOSE FACTORS FOR INFANT AGE GROUP: INHALATION - WEEKLY SAMPLING (Page 1 of 2)

mrem-m³/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

Approval	MWS
Date	see page 1

REMP DOSE FACTORS FOR INFANT AGE GROUP: INHALATION - WEEKLY SAMPLING (Page 2 of 2)

mrem-m³/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

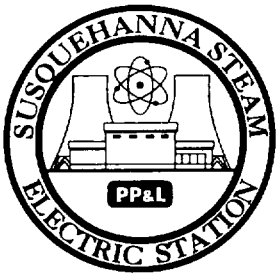
REMP DOSE FACTORS FOR CHILD AGE GROUP: SHORELINE/SEDIMENT TOTAL BODY AND SKIN DOSE

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
Date	see page 1

PROCEDURE COVER SHEET

	NUCLEAR DEPARTMENT PROCEDURE DOSE ASSESSMENT POLICY STATEMENTS	ODCM-QA-009 Revision 1 Page 1 of 13

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

The revisions described below are either editorial in nature or change the classification of systems with respect to whether they are designed to be clean or contaminated. These changes do not affect the operation of any equipment nor change any limits. Periodic sampling is required by ODCM-QA-009 for systems classified as either Insignificant Effluent Pathways or 80-10 Systems. A change to the classification of a system between these two categories does not change the requirement to sample. Thus, Revision 1 of ODCM-QA-009 does not reduce 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 established by the previous revision of this procedure.

1. Deleted old Technical Specification statements and references and removed shading from Improved Technical Specification statements.

2. Deleted Approval/date box, which is not required by Improved Technical Specifications.

3. Sections 2.1- Editorial corrections.

4. Attachment A – added RBCCW (System 014) to list of systems classified as "Not an Effluent Pathway" in accordance with PLI-77223.

5. Attachment B (Systems Classified as Insignificant Effluent Pathway), clarified classification of RFPT Lube Oil System by making entry separate from Main Turbine Lube Oil System. Deleted note 4, which is not needed.

6. Attachment D (Systems with NRC I/E Bulletin 80-10 Applicability), deleted entries for Systems 048, 093, and 095, which are classified as Insignificant Effluent Pathways in accordance with EC-ENVR-1008.

7. System 086 (LLRWHF) was deleted from Attachment B (Systems Classified as Insignificant Effluent Pathway) and added to Attachment D (Systems with NRC I/E Bulletin 80-10 Applicability) in accordance with revision 2 of Safety Evaluation NL-92-007, Operation of LLRWHF at SSES.

8. Remove System 027 (Station Aux. Boiler) and Systems 037B and D (Condensate and Refuel Water Transfer) from Attachment A, based on Form NDAP-QA-0101-2 comments received.

9. Add System 022 (Makeup Demineralizers) and System 042 (Circulating Water) to Attachment D. Remove System 099D (Sewage Treatment Plant) from Attachment D based on Form NDAP-QA-0101-2 comments received.

TABLE OF CONTENTS

ATTACHMENTS

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 effluent 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

d. Systems with NRC I/E Bulletin 80-10 Applicability

Listings of systems by category are provided in Attachments A, B, C, and D.

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 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-90-029, Temporary Laundry Facility.

3.11 Safety Evaluation NL-92-007, Operation of LLRWHF at SSES.

3.12 Safety Evaluation NL-95-001, Refueling Outage Decay Heat Removal and Tie-In of the SDHR Temporary Cooling Equipment.

3.13 Safety Evaluation NL-95-015, Operation of the Sewage Treatment Plant with Sludge Activity Above Environmental LLDs.

3.14 PLI-77223, Letter from D. L. Hagan to K. E. Shank, "Potential Unmonitored Release Assessment."

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 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 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 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.

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
014	Reactor Building Closed Cooling Water	2
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
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
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

Reference Note (Below):

1. PP&L Calculation EC-ENVR-1008
2. PLI-77223

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

Reference Note (Below):

1. PP&L Calculation EC-ENVR-1008

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
N/A	Temporary SDHR System	2
N/A	Temporary Laundry Facility	3

Reference Note (Below):

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

SYSTEMS CLASSIFIED AS INSIGNIFICANT EFFLUENT PATHWAY

SYSTEM NO.	DESCRIPTION	REFERENCE
037B	Condensate Storage and Transfer	1
037D	Refueling Water Storage and Transfer	1
048	RFPT Lube Oil	1
095	H_2 Seal Oil	1
093	Main Turbine Lube Oil	1
099D	Sewage Treatment Plant	4

Reference Note (Below):

1. PP&L Calculation EC-ENVR-1008
2. Deleted
3. Deleted
4. 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.

SYSTEMS CLASSIFIED AS SIGNIFICANT EFFLUENT PATHWAY

SYSTEM NO.	DESCRIPTION	REFERENCE
069	Liquid Waste Management Systems	1
072	Gaseous Waste Management Systems	2

Reference Note (Below):

1. SSES FSAR Chapter 11.2
2. SSES FSAR Chapter 11.3

SYSTEMS WITH NRC I/E BULLETIN 80-10 APPLICABILITY

SYSTEM NO.	DESCRIPTION	REFERENCE
011	Service Water (F/P HTX Discharge)	1
016	RHR Service Water	1
018	Instrument Air	1
019	Service Air	1
022	Makeup Demineralizers	1
027	Station Auxiliary Boiler/ Auxiliary Steam	1
035	Shutdown Decay Heat Removal Service Water	1
040	Batch Lube Oil Tank	1
042	Circulating Water	1
054	Emergency Service Water	1
086	Low Level Radwaste Handling Facility	2
N/A	Condensate Storage Tank Berm	1

Reference Note (Below):

1. PLI-77223
2. Safety Evaluation NL-92-007, Rev. 2, Operation of LLRWHF at SSES