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Request for Comments on Blending of Low-Level Radioactive Waste; Notice of Public Meeting

Comment On: NRC-2009-0520-0001
Meetings: Blending of Low-Level Radioactive Waste

Document: NRC-2009-0520-DRAFT-0002
Comment on FR Doc # E9-28507

Submitter Information

(2) 11/30/09
74 FR 62606

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Organization: Waste Control Specialists LLC

General Comment

See attached.

Attachments

NRC-2009-0520-DRAFT-0002.1: Comment on FR Doc # E9-28507

SUNSI Review Complete
Template = ADM-013

E-RIDS = ADM-03
Add = J. Kennedy (JEK1)

WASTE CONTROL
SPECIALISTS LLC

January 8, 2010

Mr. Larry Camper, Director
Division of Waste Management
and Environmental Protection
Office of Federal and State Materials
and Environmental Management Programs
U.S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, DC 20555

References: (1) Texas Radioactive Material License No. R04100, Amendment 00

(2) Presentation by J. Scott Kirk, CHP (WCS) to NRC Staff, *Changing NRC Policy on Waste Dilution to Alter Waste Classification: Why Now?*, on December 14, 2009

(3) Letter from J. Scott Kirk, CHP (WCS) to Annette L. Vietti-Cook (NRC), Low-Level Radioactive Waste Policy, dated September 22, 2009

Subject: Supplemental Information Regarding Potential Radiological Impacts to an Intruder Resident from Blended Low-Level Radioactive Waste

Dear Mr. Camper:

On December 14-15, 2009, I joined representatives of Waste Control Specialists LLC (WCS) in meetings hosted by the U.S. Nuclear Regulatory Commission (NRC) staff to discuss the views of various entities on the dilution of Class B/C Low-Level Radioactive Waste (LLW) to levels that would allow its disposal as Class A LLW (Reference 2). During the meetings representatives from Energy*Solutions* Inc. acknowledged that the final radiological concentrations of diluted waste that it would dispose of at its Clive, Utah, facility pursuant to the proposed revised policy on dilution would likely approach the upper bound distinguishing Class A from Class B LLW, as specified in Title 10, Code of Federal Regulations, Section 61.55 (10 CFR 61.55). As a result, questions were raised as to whether an analysis had been conducted to ascertain the radiological impact if a member of the public inadvertently were to intrude into the diluted waste at a generic disposal facility following the expiration of institutional controls in 100 years. NRC staff acknowledged that it had not yet conducted such an analysis.

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Following the meetings, WCS conducted such a detailed analysis based on the guidance provided in NUREG/CR-4370, *Update of Part 61 Impacts Analysis*, in a risk-informed manner. The analysis was conducted to assess the radiological impacts of waste diluted to the upper bound of the Class A limit. It was assumed that disposal of such waste at a generic site only had to comply with the minimum requirements for disposing of Class A waste, as specified in 10 CFR 61. That is, no credit was given for controls (e.g., robust containers, intrusion barriers, and burial deeper than 2 meters) in the analysis other than those currently required by regulation relating to the disposal of Class A LLW.

This approach is appropriate because, as WCS understands the proposed policy change, the diluted Class A waste is intended to be treated as any other Class A waste. Indeed, imposition of additional controls on diluted Class A waste undermines the purpose of the proposed policy change and argues for leaving the waste as Class B/C so that the Class B/C controls may be appropriately applied.

The analysis indicates that the annual radiation dose to an inadvertent intruder resident could be in a range of approximately 46,600 millirems after institutional controls expire in 100 years—465 times greater than the the permissible annual radiation dose standard of 100 millirems, as specified in 10 CFR 20.1301. In 300 years, the annual radiation dose would still approach 500 millirems.

Radiological *consequences* of this magnitude arise from the manner in which the original analysis underlying 10 CFR 61 was conducted. When the regulation was first issued, the NRC did not analyze all radionuclides at the upper thresholds of the waste classifications in 10 CFR 61.55. Instead, the NRC evaluated typical wastes and waste forms that were being generated at the time. Therefore, dilution of waste to the upper bound of the Class A limits, and on such a large scale as is now under consideration by the NRC, was never analyzed when this regulation was first promulgated. The enclosed analysis underscores the point that waste at the upper end of the Class A limits cannot be safely disposed of in Class A disposal sites without requiring additional controls that are currently not required under 10 CFR 61—the waste classification in and of itself does not provide adequate assurances to protect public health or the environment.

At the direction of the Commissioners, the NRC staff is preparing a rulemaking to consider additional requirements that may be necessary to ensure that unique waste streams, such a large quantities of Depleted Uranium (DU), may be safely disposed of as Class A, B, or C LLW. The Commissioners' directive was based in part, on the fact that disposal of large quantities of DU was not adequately analyzed during the initial rulemaking for 10 CFR 61 (i.e., the disposal of large quantities of DU constituted an Unreviewed Safety Question).

The results of the enclosed radiological analysis raises concerns similar to those related to disposing of large quantities of DU since "blending" on the scale contemplated has also never before been analyzed by NRC. Such an analysis could identify additional regulatory requirements needed to protect an inadvertent intruder resident from potential exposures to high doses of radiation. Such requirements may include similar or identical regulatory controls to those currently mandated for disposal of Class B/C LLW—requirements which could only be enforceable through a risk-informed rulemaking with strict compatibility requirements for Agreement States hosting a disposal facility.

WCS continues to urge the Commission to evaluate all of the possible risks to public health and the environment that would arise from artificially manipulating Class B/C concentrations to levels that would allow its disposal as Class A LLW. We believe such diluted waste can only be safely disposed at depths of at least 5 meters and at facilities equipped with multiple barriers to protect public health and the environment long after the expiration of institutional controls. The Texas Compact Disposal Facility (licensed under Reference 1) provides assured isolation of Class B/C LLW for the foreseeable future, thereby negating the need for changes to NRC's longstanding policy that proscribes diluting waste for the purpose of changing waste classification.

This letter supplements the comments provided at the December 14-15, 2009, meetings and in the previous letter that WCS has submitted on this topic (References 2 and 3).

Please find enclosed the information that was used by Mr. William P. Dornsife (WCS Executive Vice President of Licensing and Regulatory Affairs) to conduct the analysis.

WCS requests that a copy of all correspondence regarding this matter be submitted directly to my attention by fax (972-448-1419) or email (skirk@valhi.net). Thank you for your consideration of this submission.

Sincerely,

J. Scott Kirk

J. Scott Kirk, CHP
Vice President, Licensing, Corporate Compliance & Radiation Safety

Enclosures

cc: Annette L. Vietti-Cook
R. William Borchardt
Martin J. Virgilio
Charles L. Miller, Ph.D.
Mark Vickery, P.G., TCEQ
Michael Ford, CHP, TLLRWDCC
William P. Dornsife, WCS

ENCLOSURE 1

BASIC ASSUMPTIONS USED TO ESTIMATE THE RADIATION DOSE FOR AN INADVERTENT INTRUDER RESIDENT

The intruder analysis uses the methodology and assumptions in NUREG/CR-4370, "Update of Part 61 Impacts Analysis Methodology," pp. 4-22 for the intruder-construction scenario. The following are other major assumption in the analysis:

- A two-meter cover was assumed with three meters being excavated, resulting in a three-to-one dilution in the waste material spread over the site.
- Source term is based on manifest data for actual processed resin waste received at WCS and diluted down to the controlling Cs-137 Class A limit.
- Density of waste following dilution is 1 g/cm3.

The radionuclide source term used to calculate radiation doses to an inadvertent intruder resident was derived from data listed on shipping manifest for processed ion exchange resins. The radionuclide concentrations present in the ion exchange resins were each scaled to the adjusted Cs-137 value based on actual data taken from the Shipping Manifest. The scaling ratios were needed to reflect the radionuclide concentrations present in the resins as the waste is diluted to the upper bound of the Class A limits for Cs-137 as specified in 10 CFR 61.55.

Unit conversions from Ci/m^3 to pCi/g were required. A dilution factor of 3 was also applied to account for the inadvertent mixing of clean soil with radioactive waste to support the underlying assumptions for an inadvertent intruder resident as specified in NUREG/CR-4370. A scaling factor of 1.38 was also used to account for the sum-of-fractions needed to adjust the mixtures of radionuclides listed on the shipping manifest to limits specified in 10 CFR 61.55.

A complete listing of the radionuclide source term is listed on the following page.

EXAMPLE:

Radionuclide	Shipping Manifest Activity (Ci/m^3)	Class A Limit (Ci/g)	Activity:Class A limit	Adjusted Class A Concentration (Ci/m^3)*	Adjusted Class A Concentration (pCi/g)	Concentration in Soil at T=0 (pCi/g)	Source Term at T=0 (pCi/g)
Am-241	7.65E-4	10 nCi/g	6.08E+01	1.26E-05	1.26E+01	4.20E+00	3.04e+00

* See RESRAD Output File p.15 for radionuclide concentrations in soil.

Am-241 = [[7.65E-04 Ci/m^3 + 6.078E+01 Ci/m^3 x 1E+06 pCi/g per Ci/m^3x 1 g/cm^3] x 0.333] ÷ 1.38 = 3.04E+00 pCi/g

BASIC ASSUMPTIONS USED TO ESTIMATE THE RADIATION DOSE FOR AN INADVERTENT INTRUDER RESIDENT (CONTINUED)

Radioactive decay of the calculated soil concentrations at time interval of 10, 100, 150, 300 and 500 years into the future were accounted for by algorithms contained in RESRAD Version 6.5. Other assumptions as identified in the attached spreadsheets for input and dilution factors supporting inadvertent intruder scenario and the RESRAD Output Files (Enclosure 3).

Radionuclide Source Term Based on Actual Resin Waste Stream

Radionuclide	Shipping Manifest Activity (Ci/m^3)	Class A Limit (Ci/g)	Activity:Class A limit	Adjusted Class A Concentration (Ci/m^3)*	Adjusted Class A Concentration (pCi/g)	Concentration in Soil at T=0 (pCi/g)**,***	Source Term at T=0 (pCi/g)***,****
Am-241	0.000765	10 nCi/gm		1.26E-05	1.26E+01	4.20E+00	3.04E+00
C-14	0.0138	0.8		2.27E-04	2.27E+02	7.57E+01	5.48E+01
Cm-243	0.00335	10 nCi/gm		5.51E-05	5.51E+01	1.84E+01	1.33E+01
Co-60	62.35	700		1.03E+00	1.03E+06	3.42E+05	2.48E+05
Cs-134	32.9			5.41E-01	5.41E+05	1.80E+05	1.31E+05
Cs-137	60.78	1.00E+00	6.08E+01	1.00E+00	1.00E+06	3.33E+05	2.42E+05
Fe-55	172			2.83E+00	2.83E+06	9.43E+05	6.84E+05
H-3	0.0122	40		2.01E-04	2.01E+02	6.69E+01	4.85E+01
I-129	0.00000015	0.008		2.47E-09	2.47E-03	8.23E-04	5.96E-04
Ni-59	0.342			5.63E-03	5.63E+03	1.88E+03	1.36E+03
Ni-63	61.96	3.5		1.02E+00	1.02E+06	3.40E+05	2.46E+05
Pu-238	0.00122	10 nCi/gm		2.01E-05	2.01E+01	6.69E+00	4.85E+00
Pu-239	0.000824	10 nCi/gm		1.36E-05	1.36E+01	4.52E+00	3.27E+00
Pu-241	0.259	350 nCi/gm		4.26E-03	4.26E+03	1.42E+03	1.03E+03
Sb-125	0.146			2.40E-03	2.40E+03	8.01E+02	5.80E+02
Sr-90	0.165	0.04		2.71E-03	2.71E+03	9.05E+02	6.56E+02
Tc-99	0.00000298	0.3		4.90E-08	4.90E-02	1.63E-02	1.18E-02

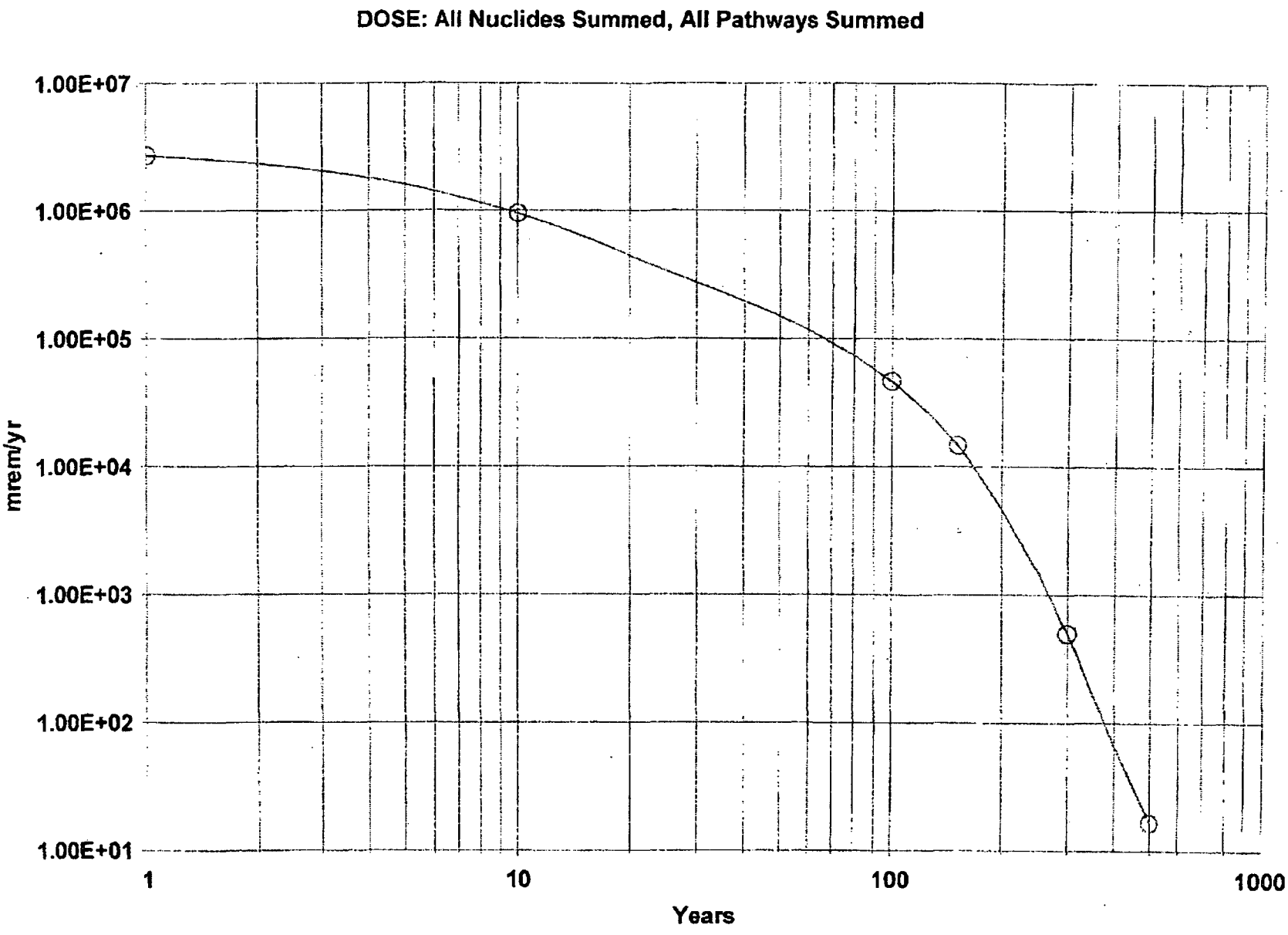
* Concentrations normalized to upper bound of Class "A" limit for Cs-137.
**Last column - factor of 3 dilution - assume it's from having a 2 meter cover and a 3 meter basement.
***Radionuclide source term used in RESRAD (see RESRAD output file p.15)
****The Concentration value was divided by 1.38 which is the value given as the sum of fractions

Input/Dilution Factors for Intruder Scenarios	
Facility Parameters	
Cover thickness, thin (m)	2
Waste thickness (m)	15
Institutional control period (yr)	100

Intruder Resident		Intruder-construction assumptions	
House area (m^2)	200	NUREG/CR-4370, p.4-22 l0m x 20m (m^2)	200
Excavation depth (m)	3	NUREG/CR-4370, p. 4-22 (m)	3
Volume excavated, total (m^3)	904	NUREG/CR-4370, p. 4-22, corrected volume formula (m^3)	904
Volume backfilled around foundation (m^3)	304	NLJREG/CR-4370, p. 4-30, corrected volume formula (m^3)	304
Net volume excavated (m^3)	600	NUREG/CR-4370, p. 4-30 (m^3)	600
Net volume of cover excavated (m^3)	400		600
Net volume of waste excavated (m^3)	200		
Total soil volume, potentially contaminated (m^3)	601.98	Drill cuttings + basement excavation (m^3)	601.976
Waste volume in total soil volume (m^3)	200.49	Waste volume in drill cuttings and basement excavation (m^3)	0
Area for spreading contamination (m^2)	1,750	NUREG/CR-4370, p. 4-34, 25-rn radius minus 200 m^2 house (m^2)	1750
Depth of soil after spreading (m)	0.344	(600 m^3 excavated) /(1,750 m^2 area) (m)	0.344
Waste dilution in surface soil	0.333	Vol of waste excavated per Vol of soil excavated	0.333

ENCLOSURE 2

RADIATION DOSE PROJECTIONS



C:\USERS\WDORNSIFE\DOCUMENTS\RESRAD FILES\BLENDING0106.RAD 01/06/2010 10:10 GRAPHICS.ASC Includes All Pathways

ENCLOSURE 3

ESTIMATED RADIATION DOSES TO AN INADVERTENT INTRUDER RESIDENT IMPACTED BY WASTE DILUTED TO THE UPPER BOUND OF THE CLASS A LIMIT

(See RESRAD Output File pp. 15-21)

Radiation Dose Estimates* from 100 to 500 Years After Expiration of Institutional Controls				
Time Post Closure (Years)	100	150	300	500
Dose (mrem/y)	4.66E+04	1.47E+04	4.95E+02	1.66E+01

*** Summation of calculated doses from water dependent and independent pathways (see RESRAD Output File, pp. 15-21).**

Radiation Dose per Exposure Pathway (mrem/year) Water Independent Pathways at T=0 Years							
Radionuclide	Ground	Inhalation	Plant	Meat	Milk	Soil	Total
Am-241	7.40E-02	7.21E-02	3.64E-01	1.60E-03	9.27E-05	3.03E-01	8.15E-01
C-14	2.13E-05	6.89E-04	1.45E+00	1.46E-01	3.65E-02	1.62E-04	1.63E+00
Cm-243	4.30E+00	2.16E-01	1.09E+00	1.91E-03	2.77E-04	9.03E-01	6.50E+00
Co-60	2.05E+06	2.72E+00	1.64E+04	1.76E+03	2.18E+02	1.71E+02	2.07E+06
Cs-134	5.77E+05	2.75E-01	1.07E+04	2.06E+03	6.99E+02	2.23E+02	5.90E+05
Cs-137	4.47E+05	4.08E-01	1.57E+04	3.02E+03	1.03E+03	3.27E+02	4.67E+05
Fe-55	0.00E+00	8.67E-02	1.21E+01	2.12E+01	4.67E-01	1.00E+01	4.39E+01
H-3	0.00E+00	2.37E-03	1.23E-01	4.54E-03	3.44E-03	1.84E-05	1.33E-01
I-129	4.32E-06	5.43E-09	1.06E-04	6.36E-06	1.19E-05	4.41E-06	1.33E-04
Ni-59	0.00E+00	1.96E-04	4.69E-01	1.41E-02	7.08E-02	7.82E-03	5.62E-01
Ni-63	0.00E+00	8.24E-02	2.32E+02	6.96E+00	3.51E+01	3.87E+00	2.78E+02
Pu-238	4.27E-04	1.01E-01	5.09E-01	4.48E-03	6.48E-05	4.23E-01	1.04E+00
Pu-239	5.42E-04	7.50E-02	3.81E-01	3.36E-03	4.86E-05	3.17E-01	7.77E-01
Pu-241	3.03E-02	4.63E-01	2.36E+00	2.04E-02	3.13E-04	1.96E+00	4.84E+00
Sb-125	6.62E+02	3.55E-04	5.87E+00	9.27E-02	1.04E-02	4.66E-02	6.68E+02
Sr-90	8.63E+00	4.53E-02	9.61E+02	3.55E+01	1.01E+01	2.71E+00	1.02E+03
Tc-99	7.98E-07	5.02E-09	2.72E-03	1.19E-06	1.40E-05	4.51E-07	2.73E-03
Total	**3.07E+06**	**4.55E+00**	**4.41E+04**	**6.91E+03**	**1.99E+03**	**7.42E+02**	**3.13E+06**

Radiation Dose per Exposure Pathway (mrem/year) Water Dependent Pathways at T=0 Years						
Radionuclide	Water	Fish	Plant	Meat	Milk	Total
Am-241	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
C-14	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cm-243	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Co-60	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cs-134	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cs-137	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Fe-55	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
H-3	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-129	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ni-59	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ni-63	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Pu-238	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Pu-239	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Pu-241	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Sb-125	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Sr-90	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Tc-99	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**

Radiation Dose per Exposure Pathway (mrem/year) Water Independent Pathways at T=100 Years							
Radionuclide	Gruond	Inhalation	Plant	Meat	Milk	Soil	Total
Am-241	5.89E-02	5.72E-02	2.90E-01	1.28E-03	7.37E-05	2.40E-01	6.47E-01
C-14	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cm-243	3.77E-01	1.93E-02	9.71E-02	1.83E-04	2.45E-05	8.06E-02	5.74E-01
Co-60	3.98E+00	5.28E-06	3.19E-02	3.42E-03	4.23E-04	3.32E-04	4.02E+00
Cs-134	1.45E-09	6.92E-16	2.70E-11	5.19E-12	1.76E-12	5.62E-13	1.49E-09
Cs-137	**4.43E+04**	**4.04E-02**	**1.56E+03**	**3.00E+02**	**1.02E+02**	**3.25E+01**	4.63E+04
Fe-55	0.00E+00	6.14E-13	8.55E-11	1.50E-10	3.26E-12	7.10E-11	3.11E-10
H-3	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-129	1.76E-08	2.22E-11	4.34E-07	2.60E-08	4.88E-08	1.80E-08	5.44E-07
Ni-59	0.00E+00	1.96E-04	4.68E-01	1.40E-02	7.06E-02	7.80E-03	5.61E-01
Ni-63	**0.00E+00**	**4.00E-02**	**1.13E+02**	**3.38E+00**	**1.70E+01**	**1.88E+00**	1.35E+02
Pu-238	1.94E-04	4.59E-02	2.31E-01	2.03E-03	3.01E-05	1.92E-01	4.71E-01
Pu-239	5.40E-04	7.47E-02	3.80E-01	3.34E-03	4.84E-05	3.16E-01	7.74E-01
Pu-241	6.91E-01	6.75E-01	3.42E+00	1.51E-02	8.67E-06	2.84E+00	7.63E+00
Sb-125	1.09E-12	6.06E-19	1.31E-14	2.33E-16	2.48E-17	8.22E-17	1.11E-12
Sr-90	**7.78E-01**	**4.00E-03**	**8.57E+01**	**3.16E+00**	**8.97E-01**	**2.39E-01**	9.08E+01
Tc-99	9.71E-11	6.11E-13	3.31E-07	1.45E-10	1.71E-09	5.49E-11	3.33E-07
Total	**4.43E+04**	**9.57E-01**	**1.76E+03**	**3.06E+02**	**1.20E+02**	**3.83E+01**	**4.66E+04**

Radiation Dose per Exposure Pathway (mrem/year) Water Dependent Pathways at T=100 Years						
Radionuclide	Water	Fish	Plant	Meat	Milk	Total
Am-241	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
C-14	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cm-243	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Co-60	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cs-134	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cs-137	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Fe-55	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
H-3	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-129	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ni-59	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ni-63	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Pu-238	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Pu-239	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Pu-241	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Sb-125	6.45E-11	0.00E+00	5.14E-12	2.64E-13	5.19E-14	6.99E-11
Sr-90	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Tc-99	4.31E-05	0.00E+00	7.62E-06	9.03E-09	1.87E-07	5.09E-05
Total	**4.31E-05**	**0.00E+00**	**7.62E-06**	**9.03E-09**	**1.87E-07**	**5.09E-05**

Radiation Dose per Exposure Pathway (mrem/year) Water Independent Pathways at T=150 Years							
Radionuclide	Ground	Inhalation	Plant	Meat	Milk	Soil	Total
Am-241	5.25E-02	5.10E-02	2.58E-01	1.14E-03	6.56E-05	2.14E-01	5.77E-01
C-14	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cm-243	1.12E-01	5.96E-03	3.01E-02	6.54E-05	7.42E-06	2.50E-02	2.50E-02
Co-60	5.55E-03	7.36E-09	4.45E-05	4.77E-06	5.89E-07	4.63E-07	5.60E-03
Cs-134	7.28E-17	3.47E-23	1.35E-18	2.60E-19	8.83E-20	2.82E-20	7.46E-17
Cs-137	**1.40E+04**	**1.27E-02**	**4.91E+02**	**9.44E+01**	**3.20E+01**	**1.02E+01**	**1.46E+04**
Fe-55	0.00E+00	1.63E-18	2.27E-16	4.00E-16	8.67E-18	1.89E-16	8.27E-16
H-3	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-129	1.13E-09	1.42E-12	2.77E-08	1.66E-09	3.12E-09	1.15E-09	3.48E-08
Ni-59	0.00E+00	1.96E-04	4.68E-01	1.40E-02	7.05E-02	7.79E-03	5.60E-01
Ni-63	**0.00E+00**	**2.78E-02**	**7.85E+01**	**2.35E+00**	**1.18E+01**	**1.31E+00**	**9.41E+01**
Pu-238	1.31E-04	3.09E-02	1.56E-01	1.37E-03	2.07E-05	1.29E-01	3.17E-01
Pu-239	5.39E-04	7.46E-02	3.79E-01	3.34E-03	4.83E-05	3.15E-01	7.73E-01
Pu-241	6.21E-01	6.04E-01	3.06E+00	1.35E-02	7.78E-04	2.54E+00	6.84E+00
Sb-125	4.45E-20	2.47E-26	5.34E-22	9.48E-24	1.01E-24	3.34E-24	4.50E-20
Sr-90	**2.31E-01**	**1.19E-03**	**2.55E+01**	**9.40E-01**	**2.67E-01**	**7.11E-02**	**2.70E+01**
Tc-99	1.07E-12	6.74E-15	3.65E-09	1.60E-12	1.88E-11	6.06E-13	3.67E-09
Total	**1.40E+04**	**8.09E-01**	**6.00E+02**	**9.77E+01**	**4.42E+01**	**1.48E+01**	**1.47E+04**

Radiation Dose per Exposure Pathway (mrem/year) Water Dependent Pathways at T=150 Years						
Radionuclide	Water	Fish	Plant	Meat	Milk	Total
Am-241	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
C-14	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cm-243	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Co-60	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cs-134	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cs-137	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Fe-55	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
H-3	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-129	5.33E-04	0.00E+00	4.13E-05	7.05E-06	2.19E-05	6.03E-04
Ni-59	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ni-63	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Pu-238	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Pu-239	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Pu-241	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Sb-125	2.62E-18	0.00E+00	2.09E-19	1.08E-20	2.11E-21	2.84E-18
Sr-90	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Tc-99	4.75E-07	0.00E+00	8.41E-08	9.96E-11	2.07E-09	5.62E-07
Total	**5.34E-04**	**0.00E+00**	**4.14E-05**	**7.05E-06**	**2.19E-05**	**6.04E-04**

Radiation Dose per Exposure Pathway (mrem/year) Water Independent Pathways at T=300 Years							
Radionuclide	Ground	Inhalation	Plant	Meat	Milk	Soil	Total
Am-241	3.72E-02	3.61E-02	1.83E-01	8.08E-04	4.65E-05	1.52E-01	4.09E-01
C-14	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cm-243	2.96E-03	5.05E-04	2.56E-03	1.73E-05	4.21E-07	2.13E-03	2.13E-03
Co-60	1.50E-11	1.99E-17	1.20E-13	1.29E-14	1.60E-15	1.25E-15	1.52E-11
Cs-134	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cs-137	**4.36E+02**	**3.98E-04**	**1.53E+01**	**2.95E+00**	**1.00E+00**	**3.20E-01**	**4.56E+02**
Fe-55	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
H-3	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-129	2.94E-13	3.69E-16	7.23E-12	4.33E-13	8.13E-13	3.00E-13	9.07E-12
Ni-59	0.00E+00	1.95E-04	4.66E-01	1.40E-02	7.03E-02	7.76E-03	5.58E-01
Ni-63	**0.00E+00**	**9.40E-03**	**2.65E+01**	**7.94E-01**	**4.00E+00**	**4.42E-01**	**3.18E+01**
Pu-238	4.10E-05	9.45E-03	4.76E-02	4.19E-04	7.18E-06	3.95E-02	9.70E-02
Pu-239	5.37E-04	7.42E-02	3.77E-01	3.32E-03	4.80E-05	3.14E-01	7.69E-01
Pu-241	4.41E-01	4.28E-01	2.17E+00	9.57E-03	5.51E-04	1.80E+00	4.85E+00
Sb-125	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Sr-90	**6.06E-03**	**3.12E-05**	**6.68E-01**	**2.47E-02**	**6.99E-03**	**1.87E-03**	**7.08E-01**
Tc-99	1.44E-18	9.06E-21	4.90E-15	2.15E-18	2.53E-17	8.14E-19	4.93E-15
Total	**4.37E+02**	**5.58E-01**	**4.58E+01**	**3.80E+00**	**5.08E+00**	**3.07E+00**	**4.95E+02**

Radiation Dose per Exposure Pathway (mrem/year) Water Dependent Pathways at T=300 Years						
Radionuclide	Water	Fish	Plant	Meat	Milk	Total
Am-241	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
C-14	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cm-243	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Co-60	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cs-134	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cs-137	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Fe-55	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
H-3	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-129	1.39E-07	0.00E+00	1.08E-08	1.84E-09	5.27E-09	1.57E-07
Ni-59	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ni-63	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Pu-238	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Pu-239	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Pu-241	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Sb-125	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Sr-90	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Tc-99	6.39E-13	0.00E+00	1.13E-13	1.34E-16	2.78E-15	7.55E-13
Total	**1.39E-07**	**0.00E+00**	**1.08E-08**	**1.84E-09**	**5.27E-09**	**1.57E-07**

Radiation Dose per Exposure Pathway (mrem/year) Water Independent Pathways at T=500 Years							
Radionuclide	Ground	Inhalation	Plant	Meat	Milk	Soil	Total
Am-241	2.36E-02	2.28E-02	1.16E-01	5.14E-04	2.93E-05	9.56E-02	2.58E-01
C-14	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cm-243	6.79E-05	3.57E-04	1.82E-03	1.59E-05	2.34E-07	1.51E-03	3.77E-03
Co-60	5.67E-23	0.00E+00	4.55E-25	0.00E+00	0.00E+00	0.00E+00	5.71E-23
Cs-134	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cs-137	**4.29E+00**	**3.91E-06**	**1.51E-01**	**2.90E-02**	**9.84E-03**	**3.14E-03**	**4.48E+00**
Fe-55	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
H-3	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-129	4.90E-18	6.16E-21	1.21E-16	7.21E-18	1.35E-17	5.00E-18	1.51E-16
Ni-59	0.00E+00	1.94E-04	4.64E-01	1.39E-02	7.00E-02	7.73E-03	5.56E-01
Ni-63	**0.00E+00**	**2.21E-03**	**6.24E+00**	**1.87E-01**	**9.41E-01**	**1.04E-01**	**7.48E+00**
Pu-238	1.14E-05	1.95E-03	9.81E-03	8.65E-05	2.41E-06	8.13E-03	2.00E-02
Pu-239	5.33E-04	7.36E-02	3.75E-01	3.30E-03	4.77E-05	3.11E-01	7.64E-01
Pu-241	**2.79E-01**	**2.70E-01**	**1.37E+00**	**6.08E-03**	**3.48E-04**	**1.13E+00**	**3.06E+00**
Sb-125	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Sr-90	4.73E-05	2.43E-07	5.21E-03	1.92E-04	5.45E-05	1.45E-05	5.52E-03
Tc-99	2.14E-26	1.34E-28	7.27E-23	3.19E-26	3.75E-25	1.21E-26	7.32E-23
Total	**4.59E+00**	**3.71E-01**	**8.74E+00**	**2.40E-01**	**1.02E+00**	**1.67E+00**	**1.66E+01**

Radiation Dose per Exposure Pathway (mrem/year) Water Dependent Pathways at T=500 Years						
Radionuclide	Water	Fish	Plant	Meat	Milk	Total
Am-241	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
C-14	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cm-243	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Co-60	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cs-134	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cs-137	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Fe-55	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
H-3	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-129	2.32E-12	0.00E+00	1.79E-13	3.07E-14	9.53E-14	2.62E-12
Ni-59	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ni-63	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Pu-238	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Pu-239	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Pu-241	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Sb-125	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Sr-90	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Tc-99	9.47E-21	0.00E+00	1.68E-21	1.99E-24	4.13E-23	1.12E-20
Total	**2.32E-12**	**0.00E+00**	**1.79E-13**	**3.07E-14**	**9.53E-14**	**2.62E-12**

ENCLOSURE 4

RESRAD OUTPUT FILES

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Dose Conversion Factor (and Related) Parameter Summary

Dose Library: FGR 12 & FGR 11

0 Menu	Parameter	Current Value#	Base Case*	Parameter Name
A-1	DCF's for external ground radiation, (mrem/yr)/(pCi/g)			
A-1	Ac-225 (Source: FGR 12)	6.371E-02	6.371E-02	DCF1(1)
A-1	Ac-227 (Source: FGR 12)	4.951E-04	4.951E-04	DCF1(2)
A-1	Am-241 (Source: FGR 12)	4.372E-02	4.372E-02	DCF1(3)
A-1	Am-243 (Source: FGR 12)	1.420E-01	1.420E-01	DCF1(4)
A-1	At-217 (Source: FGR 12)	1.773E-03	1.773E-03	DCF1(5)
A-1	At-218 (Source: FGR 12)	5.847E-03	5.847E-03	DCF1(6)
A-1	Ba-137m (Source: FGR 12)	3.606E+00	3.606E+00	DCF1(7)
A-1	Bi-210 (Source: FGR 12)	3.606E-03	3.606E-03	DCF1(8)
A-1	Bi-211 (Source: FGR 12)	2.559E-01	2.559E-01	DCF1(9)
A-1	Bi-213 (Source: FGR 12)	7.660E-01	7.660E-01	DCF1(10)
A-1	Bi-214 (Source: FGR 12)	9.808E+00	9.808E+00	DCF1(11)
A-1	C-14 (Source: FGR 12)	1.345E-05	1.345E-05	DCF1(12)
A-1	Cm-243 (Source: FGR 12)	5.829E-01	5.829E-01	DCF1(13)
A-1	Co-60 (Source: FGR 12)	1.622E+01	1.622E+01	DCF1(14)
A-1	Cs-134 (Source: FGR 12)	9.472E+00	9.472E+00	DCF1(15)
A-1	Cs-137 (Source: FGR 12)	7.510E-04	7.510E-04	DCF1(16)
A-1	Fe-55 (Source: FGR 12)	0.000E+00	0.000E+00	DCF1(17)
A-1	Fr-221 (Source: FGR 12)	1.536E-01	1.536E-01	DCF1(18)
A-1	Fr-223 (Source: FGR 12)	1.980E-01	1.980E-01	DCF1(19)
A-1	H-3 (Source: FGR 12)	0.000E+00	0.000E+00	DCF1(20)
A-1	I-129 (Source: FGR 12)	1.295E-02	1.295E-02	DCF1(21)
A-1	Ni-59 (Source: FGR 12)	0.000E+00	0.000E+00	DCF1(22)
A-1	Ni-63 (Source: FGR 12)	0.000E+00	0.000E+00	DCF1(23)
A-1	Np-237 (Source: FGR 12)	7.790E-02	7.790E-02	DCF1(24)
A-1	Np-239 (Source: FGR 12)	7.529E-01	7.529E-01	DCF1(25)
A-1	Pa-231 (Source: FGR 12)	1.906E-01	1.906E-01	DCF1(26)
A-1	Pa-233 (Source: FGR 12)	1.020E+00	1.020E+00	DCF1(27)
A-1	Pb-209 (Source: FGR 12)	7.734E-04	7.734E-04	DCF1(28)
A-1	Pb-210 (Source: FGR 12)	2.447E-03	2.447E-03	DCF1(29)
A-1	Pb-211 (Source: FGR 12)	3.064E-01	3.064E-01	DCF1(30)
A-1	Pb-214 (Source: FGR 12)	1.341E+00	1.341E+00	DCF1(31)
A-1	Po-210 (Source: FGR 12)	5.231E-05	5.231E-05	DCF1(32)
A-1	Po-211 (Source: FGR 12)	4.764E-02	4.764E-02	DCF1(33)
A-1	Po-213 (Source: FGR 12)	0.000E+00	0.000E+00	DCF1(34)
A-1	Po-214 (Source: FGR 12)	5.138E-04	5.138E-04	DCF1(35)
A-1	Po-215 (Source: FGR 12)	1.016E-03	1.016E-03	DCF1(36)
A-1	Po-218 (Source: FGR 12)	5.642E-05	5.642E-05	DCF1(37)
A-1	Pu-238 (Source: FGR 12)	1.513E-04	1.513E-04	DCF1(38)
A-1	Pu-239 (Source: FGR 12)	2.952E-04	2.952E-04	DCF1(39)
A-1	Pu-241 (Source: FGR 12)	5.904E-06	5.904E-06	DCF1(40)
A-1	Ra-223 (Source: FGR 12)	6.034E-01	6.034E-01	DCF1(41)
A-1	Ra-225 (Source: FGR 12)	1.102E-02	1.102E-02	DCF1(42)
A-1	Ra-226 (Source: FGR 12)	3.176E-02	3.176E-02	DCF1(43)
A-1	Rn-219 (Source: FGR 12)	3.083E-01	3.083E-01	DCF1(44)
A-1	Rn-222 (Source: FGR 12)	2.354E-03	2.354E-03	DCF1(45)
A-1	Sb-125 (Source: FGR 12)	2.447E+00	2.447E+00	DCF1(46)

			new intruder	
A-1	Sr-90	(Source: FGR 12)	7.043E-04	7.043E-04	DCF1(47)
A-1	Tc-99	(Source: FGR 12)	1.255E-04	1.255E-04	DCF1(48)
A-1	Te-125m	(Source: FGR 12)	1.515E-02	1.515E-02	DCF1(49)

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Dose Conversion Factor (and Related) Parameter Summary (continued)
Dose Library: FGR 12 & FGR 11

0 Menu	Parameter	Current Value#	Base Case*	Parameter Name
A-1	Th-227 (Source: FGR 12)	5.212E-01	5.212E-01	DCF1(50)
A-1	Th-229 (Source: FGR 12)	3.213E-01	3.213E-01	DCF1(51)
A-1	Th-230 (Source: FGR 12)	1.209E-03	1.209E-03	DCF1(52)
A-1	Th-231 (Source: FGR 12)	3.643E-02	3.643E-02	DCF1(53)
A-1	Tl-207 (Source: FGR 12)	1.980E-02	1.980E-02	DCF1(54)
A-1	Tl-209 (Source: FGR 12)	1.293E+01	1.293E+01	DCF1(55)
A-1	Tl-210 (Source: no data)	0.000E+00	-2.000E+00	DCF1(56)
A-1	U-233 (Source: FGR 12)	1.397E-03	1.397E-03	DCF1(57)
A-1	U-234 (Source: FGR 12)	4.017E-04	4.017E-04	DCF1(58)
A-1	U-235 (Source: FGR 12)	7.211E-01	7.211E-01	DCF1(59)
A-1	U-237 (Source: FGR 12)	5.306E-01	5.306E-01	DCF1(60)
A-1	Y-90 (Source: FGR 12)	2.391E-02	2.391E-02	DCF1(61)
B-1	Dose conversion factors for inhalation, mrem/pCi:			
B-1	Ac-225+D	1.082E-02	1.080E-02	DCF2(1)
B-1	Ac-227	6.700E+00	6.700E+00	DCF2(2)
B-1	Ac-227+D	6.700E+00	6.700E+00	DCF2(3)
B-1	Am-241	4.440E-01	4.440E-01	DCF2(4)
B-1	Am-243	4.400E-01	4.400E-01	DCF2(5)
B-1	Bi-210	1.960E-04	1.960E-04	DCF2(7)
B-1	C-14(p) (Class: ORGANIC)	2.090E-06	2.090E-06	DCF2(8)
B-1	C-14(g) (Class: CO2)	2.350E-08	2.350E-08	C14GInhDCF
B-1	Cm-243	3.070E-01	3.070E-01	DCF2(9)
B-1	Co-60	2.190E-04	2.190E-04	DCF2(13)
B-1	Cs-134	4.620E-05	4.620E-05	DCF2(14)
B-1	Cs-137+D	3.190E-05	3.190E-05	DCF2(15)
B-1	Fe-55	2.690E-06	2.690E-06	DCF2(16)
B-1	H-3	6.400E-08	6.400E-08	DCF2(17)
B-1	I-129	1.740E-04	1.740E-04	DCF2(18)
B-1	Ni-59	2.700E-06	2.700E-06	DCF2(19)
B-1	Ni-63	6.290E-06	6.290E-06	DCF2(20)
B-1	Np-237	5.400E-01	5.400E-01	DCF2(21)
B-1	Np-239	2.510E-06	2.510E-06	DCF2(22)
B-1	Pa-231	1.280E+00	1.280E+00	DCF2(24)
B-1	Pa-233	9.550E-06	9.550E-06	DCF2(26)
B-1	Pb-210	1.360E-02	1.360E-02	DCF2(27)
B-1	Po-210	9.400E-03	9.400E-03	DCF2(28)
B-1	Pu-238	3.920E-01	3.920E-01	DCF2(29)
B-1	Pu-239	4.290E-01	4.290E-01	DCF2(31)
B-1	Pu-241	8.250E-03	8.250E-03	DCF2(33)
B-1	Ra-223+D	7.849E-03	7.840E-03	DCF2(35)
B-1	Ra-225	7.770E-03	7.770E-03	DCF2(36)
B-1	Ra-226	8.580E-03	8.580E-03	DCF2(37)
B-1	Rn-222+D	1.440E-05	0.000E+00	DCF2(38)
B-1	Sb-125	1.220E-05	1.220E-05	DCF2(39)
B-1	Sr-90	1.300E-03	1.300E-03	DCF2(41)
B-1	Tc-99	8.320E-06	8.320E-06	DCF2(42)
B-1	Te-125m	7.290E-06	7.290E-06	DCF2(43)
B-1	Th-227	1.620E-02	1.620E-02	DCF2(44)
B-1	Th-229	2.150E+00	2.150E+00	DCF2(45)

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Dose Conversion Factor (and Related) Parameter Summary (continued)
Dose Library: FGR 12 & FGR 11

0 Menu	Parameter	Current Value#	Base Case*	Parameter Name
B-1	Th-230	3.260E-01	3.260E-01	DCF2(46)
B-1	Th-231	8.770E-07	8.770E-07	DCF2(47)
B-1	U-233	1.350E-01	1.350E-01	DCF2(49)
B-1	U-234	1.320E-01	1.320E-01	DCF2(50)
B-1	U-235	1.230E-01	1.230E-01	DCF2(51)
B-1	U-237	3.530E-06	3.530E-06	DCF2(53)
B-1	Y-90	8.440E-06	8.440E-06	DCF2(54)
D-1	Dose conversion factors for ingestion, mrem/pCi:			
D-1	Ac-225+D	1.119E-04	1.110E-04	DCF3(1)

			new intruder	
D-1	Ac-227	1.410E-02	1.410E-02	DCF3(2)
D-1	Ac-227+D	1.411E-02	1.410E-02	DCF3(3)
D-1	Am-241	3.640E-03	3.640E-03	DCF3(4)
D-1	Am-243	3.620E-03	3.620E-03	DCF3(5)
D-1	Bi-210	6.400E-06	6.400E-06	DCF3(7)
D-1	C-14	2.090E-06	2.090E-06	DCF3(8)
D-1	Cm-243	2.510E-03	2.510E-03	DCF3(9)
D-1	Co-60	2.690E-05	2.690E-05	DCF3(13)
D-1	Cs-134	7.330E-05	7.330E-05	DCF3(14)
D-1	Cs-137+D	5.000E-05	5.000E-05	DCF3(15)
D-1	Fe-55	6.070E-07	6.070E-07	DCF3(16)
D-1	H-3	6.400E-08	6.400E-08	DCF3(17)
D-1	I-129	2.760E-04	2.760E-04	DCF3(18)
D-1	Ni-59	2.100E-07	2.100E-07	DCF3(19)
D-1	Ni-63	5.770E-07	5.770E-07	DCF3(20)
D-1	Np-237	4.440E-03	4.440E-03	DCF3(21)
D-1	Np-239	3.260E-06	3.260E-06	DCF3(22)
D-1	Pa-231	1.060E-02	1.060E-02	DCF3(24)
D-1	Pa-233	3.630E-06	3.630E-06	DCF3(26)
D-1	Pb-210	5.370E-03	5.370E-03	DCF3(27)
D-1	Po-210	1.900E-03	1.900E-03	DCF3(28)
D-1	Pu-238	3.200E-03	3.200E-03	DCF3(29)
D-1	Pu-239	3.540E-03	3.540E-03	DCF3(31)
D-1	Pu-241	6.840E-05	6.840E-05	DCF3(33)
D-1	Ra-223+D	6.595E-04	6.590E-04	DCF3(35)
D-1	Ra-225	3.850E-04	3.850E-04	DCF3(36)
D-1	Ra-226	1.320E-03	1.320E-03	DCF3(37)
D-1	Rn-222+D	9.079E-07	0.000E+00	DCF3(38)
D-1	Sb-125	2.810E-06	2.810E-06	DCF3(39)
D-1	Sr-90	1.420E-04	1.420E-04	DCF3(41)
D-1	Tc-99	1.460E-06	1.460E-06	DCF3(42)
D-1	Te-125m	3.670E-06	3.670E-06	DCF3(43)
D-1	Th-227	3.810E-05	3.810E-05	DCF3(44)
D-1	Th-229	3.530E-03	3.530E-03	DCF3(45)
D-1	Th-230	5.480E-04	5.480E-04	DCF3(46)
D-1	Th-231	1.350E-06	1.350E-06	DCF3(47)
D-1	U-233	2.890E-04	2.890E-04	DCF3(49)
D-1	U-234	2.830E-04	2.830E-04	DCF3(50)
D-1	U-235	2.660E-04	2.660E-04	DCF3(51)
D-1	U-237	3.170E-06	3.170E-06	DCF3(53)

Dose Conversion Factor (and Related) Parameter Summary (continued)
Dose Library: FGR 12 & FGR 11

Menu	Parameter	Current Value#	Base Case*	Parameter Name
D-1	Y-90	1.080E-05	1.080E-05	DCF3(54)
D-34	Food transfer factors:			
D-34	Ac-225+D , plant/soil concentration ratio, dimensionless	2.500E-03	2.500E-03	RTF(1,1)
D-34	Ac-225+D , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	2.000E-05	2.000E-05	RTF(1,2)
D-34	Ac-225+D , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	2.000E-05	2.000E-05	RTF(1,3)
D-34	Ac-227 , plant/soil concentration ratio, dimensionless	2.500E-03	2.500E-03	RTF(2,1)
D-34	Ac-227 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	2.000E-05	2.000E-05	RTF(2,2)
D-34	Ac-227 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	2.000E-05	2.000E-05	RTF(2,3)
D-34	Ac-227+D , plant/soil concentration ratio, dimensionless	2.500E-03	2.500E-03	RTF(3,1)
D-34	Ac-227+D , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	2.000E-05	2.000E-05	RTF(3,2)
D-34	Ac-227+D , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	2.000E-05	2.000E-05	RTF(3,3)
D-34	Am-241 , plant/soil concentration ratio, dimensionless	1.000E-03	1.000E-03	RTF(4,1)
D-34	Am-241 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	5.000E-05	5.000E-05	RTF(4,2)
D-34	Am-241 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	2.000E-06	2.000E-06	RTF(4,3)
D-34	Am-243 , plant/soil concentration ratio, dimensionless	1.000E-03	1.000E-03	RTF(5,1)
D-34	Am-243 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	5.000E-05	5.000E-05	RTF(5,2)
D-34	Am-243 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	2.000E-06	2.000E-06	RTF(5,3)
D-34	Bi-210 , plant/soil concentration ratio, dimensionless	1.000E-01	1.000E-01	RTF(7,1)
D-34	Bi-210 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	2.000E-03	2.000E-03	RTF(7,2)
D-34	Bi-210 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	5.000E-04	5.000E-04	RTF(7,3)
D-34	C-14 , plant/soil concentration ratio, dimensionless	5.500E+00	5.500E+00	RTF(8,1)
D-34	C-14 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	3.100E-02	3.100E-02	RTF(8,2)
D-34	C-14 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	1.200E-02	1.200E-02	RTF(8,3)
D-34	Cm-243 , plant/soil concentration ratio, dimensionless	1.000E-03	1.000E-03	RTF(9,1)

				new intruder	
D-34	Cm-243	beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	2.000E-05	2.000E-05	RTF(9,2)
D-34	Cm-243	milk/livestock-intake ratio, (pCi/L)/(pCi/d)	2.000E-06	2.000E-06	RTF(9,3)
D-34					
D-34	Co-60	plant/soil concentration ratio, dimensionless	8.000E-02	8.000E-02	RTF(13,1)
D-34	Co-60	beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	2.000E-02	2.000E-02	RTF(13,2)
D-34	Co-60	milk/livestock-intake ratio, (pCi/L)/(pCi/d)	2.000E-03	2.000E-03	RTF(13,3)
D-34					
D-34	Cs-134	plant/soil concentration ratio, dimensionless	4.000E-02	4.000E-02	RTF(14,1)
D-34	Cs-134	beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	3.000E-02	3.000E-02	RTF(14,2)
D-34	Cs-134	milk/livestock-intake ratio, (pCi/L)/(pCi/d)	8.000E-03	8.000E-03	RTF(14,3)
D-34					
D-34	Cs-137+D	plant/soil concentration ratio, dimensionless	4.000E-02	4.000E-02	RTF(15,1)
D-34	Cs-137+D	beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	3.000E-02	3.000E-02	RTF(15,2)
D-34	Cs-137+D	milk/livestock-intake ratio, (pCi/L)/(pCi/d)	8.000E-03	8.000E-03	RTF(15,3)
D-34					
D-34	Fe-55	plant/soil concentration ratio, dimensionless	1.000E-03	1.000E-03	RTF(16,1)
D-34	Fe-55	beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	2.000E-02	2.000E-02	RTF(16,2)
D-34	Fe-55	milk/livestock-intake ratio, (pCi/L)/(pCi/d)	3.000E-04	3.000E-04	RTF(16,3)

Menu	Parameter	Current Value#	Base Case*	Parameter Name
D-34	H-3 plant/soil concentration ratio, dimensionless	4.800E+00	4.800E+00	RTF(17,1)
D-34	H-3 beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	1.200E-02	1.200E-02	RTF(17,2)
D-34	H-3 milk/livestock-intake ratio, (pCi/L)/(pCi/d)	1.000E-02	1.000E-02	RTF(17,3)
D-34				
D-34	I-129 plant/soil concentration ratio, dimensionless	2.000E-02	2.000E-02	RTF(18,1)
D-34	I-129 beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	7.000E-03	7.000E-03	RTF(18,2)
D-34	I-129 milk/livestock-intake ratio, (pCi/L)/(pCi/d)	1.000E-02	1.000E-02	RTF(18,3)
D-34				
D-34	Ni-59 plant/soil concentration ratio, dimensionless	5.000E-02	5.000E-02	RTF(19,1)
D-34	Ni-59 beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	5.000E-03	5.000E-03	RTF(19,2)
D-34	Ni-59 milk/livestock-intake ratio, (pCi/L)/(pCi/d)	2.000E-02	2.000E-02	RTF(19,3)
D-34				
D-34	Ni-63 plant/soil concentration ratio, dimensionless	5.000E-02	5.000E-02	RTF(20,1)
D-34	Ni-63 beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	5.000E-03	5.000E-03	RTF(20,2)
D-34	Ni-63 milk/livestock-intake ratio, (pCi/L)/(pCi/d)	2.000E-02	2.000E-02	RTF(20,3)
D-34				
D-34	Np-237 plant/soil concentration ratio, dimensionless	2.000E-02	2.000E-02	RTF(21,1)
D-34	Np-237 beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	1.000E-03	1.000E-03	RTF(21,2)
D-34	Np-237 milk/livestock-intake ratio, (pCi/L)/(pCi/d)	5.000E-06	5.000E-06	RTF(21,3)
D-34				
D-34	Np-239 plant/soil concentration ratio, dimensionless	2.000E-02	2.000E-02	RTF(22,1)
D-34	Np-239 beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	1.000E-03	1.000E-03	RTF(22,2)
D-34	Np-239 milk/livestock-intake ratio, (pCi/L)/(pCi/d)	5.000E-06	5.000E-06	RTF(22,3)
D-34				
D-34	Pa-231 plant/soil concentration ratio, dimensionless	1.000E-02	1.000E-02	RTF(24,1)
D-34	Pa-231 beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	5.000E-03	5.000E-03	RTF(24,2)
D-34	Pa-231 milk/livestock-intake ratio, (pCi/L)/(pCi/d)	5.000E-06	5.000E-06	RTF(24,3)
D-34				
D-34	Pa-233 plant/soil concentration ratio, dimensionless	1.000E-02	1.000E-02	RTF(26,1)
D-34	Pa-233 beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	5.000E-03	5.000E-03	RTF(26,2)
D-34	Pa-233 milk/livestock-intake ratio, (pCi/L)/(pCi/d)	5.000E-06	5.000E-06	RTF(26,3)
D-34				
D-34	Pb-210 plant/soil concentration ratio, dimensionless	1.000E-02	1.000E-02	RTF(27,1)
D-34	Pb-210 beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	8.000E-04	8.000E-04	RTF(27,2)
D-34	Pb-210 milk/livestock-intake ratio, (pCi/L)/(pCi/d)	3.000E-04	3.000E-04	RTF(27,3)
D-34				
D-34	Po-210 plant/soil concentration ratio, dimensionless	1.000E-03	1.000E-03	RTF(28,1)
D-34	Po-210 beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	5.000E-03	5.000E-03	RTF(28,2)
D-34	Po-210 milk/livestock-intake ratio, (pCi/L)/(pCi/d)	3.400E-04	3.400E-04	RTF(28,3)
D-34				
D-34	Pu-238 plant/soil concentration ratio, dimensionless	1.000E-03	1.000E-03	RTF(29,1)
D-34	Pu-238 beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	1.000E-04	1.000E-04	RTF(29,2)
D-34	Pu-238 milk/livestock-intake ratio, (pCi/L)/(pCi/d)	1.000E-06	1.000E-06	RTF(29,3)
D-34				
D-34	Pu-239 plant/soil concentration ratio, dimensionless	1.000E-03	1.000E-03	RTF(31,1)
D-34	Pu-239 beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	1.000E-04	1.000E-04	RTF(31,2)
D-34	Pu-239 milk/livestock-intake ratio, (pCi/L)/(pCi/d)	1.000E-06	1.000E-06	RTF(31,3)
D-34				

Menu	Parameter	Current Value#	new intruder Base Case*	Parameter Name
D-34	Pu-241 , plant/soil concentration ratio, dimensionless	1.000E-03	1.000E-03	RTF(33,1)
D-34	Pu-241 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	1.000E-04	1.000E-04	RTF(33,2)
D-34	Pu-241 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	1.000E-06	1.000E-06	RTF(33,3)
D-34				
D-34	Ra-223+D , plant/soil concentration ratio, dimensionless	4.000E-02	4.000E-02	RTF(35,1)
D-34	Ra-223+D , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	1.000E-03	1.000E-03	RTF(35,2)
D-34	Ra-223+D , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	1.000E-03	1.000E-03	RTF(35,3)
D-34				
D-34	Ra-225 , plant/soil concentration ratio, dimensionless	4.000E-02	4.000E-02	RTF(36,1)
D-34	Ra-225 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	1.000E-03	1.000E-03	RTF(36,2)
D-34	Ra-225 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	1.000E-03	1.000E-03	RTF(36,3)
D-34				
D-34	Ra-226 , plant/soil concentration ratio, dimensionless	4.000E-02	4.000E-02	RTF(37,1)
D-34	Ra-226 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	1.000E-03	1.000E-03	RTF(37,2)
D-34	Ra-226 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	1.000E-03	1.000E-03	RTF(37,3)
D-34				
D-34	Rn-222+D , plant/soil concentration ratio, dimensionless	0.000E+00	0.000E+00	RTF(38,1)
D-34	Rn-222+D , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	0.000E+00	0.000E+00	RTF(38,2)
D-34	Rn-222+D , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	0.000E+00	0.000E+00	RTF(38,3)
D-34				
D-34	Sb-125 , plant/soil concentration ratio, dimensionless	1.000E-02	1.000E-02	RTF(39,1)
D-34	Sb-125 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	1.000E-03	1.000E-03	RTF(39,2)
D-34	Sb-125 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	1.000E-04	1.000E-04	RTF(39,3)
D-34				
D-34	Sr-90 , plant/soil concentration ratio, dimensionless	3.000E-01	3.000E-01	RTF(41,1)
D-34	Sr-90 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	8.000E-03	8.000E-03	RTF(41,2)
D-34	Sr-90 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	2.000E-03	2.000E-03	RTF(41,3)
D-34				
D-34	Tc-99 , plant/soil concentration ratio, dimensionless	5.000E+00	5.000E+00	RTF(42,1)
D-34	Tc-99 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	1.000E-04	1.000E-04	RTF(42,2)
D-34	Tc-99 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	1.000E-03	1.000E-03	RTF(42,3)
D-34				
D-34	Te-125m , plant/soil concentration ratio, dimensionless	6.000E-01	6.000E-01	RTF(43,1)
D-34	Te-125m , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	7.000E-03	7.000E-03	RTF(43,2)
D-34	Te-125m , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	5.000E-04	5.000E-04	RTF(43,3)
D-34				
D-34	Th-227 , plant/soil concentration ratio, dimensionless	1.000E-03	1.000E-03	RTF(44,1)
D-34	Th-227 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	1.000E-04	1.000E-04	RTF(44,2)
D-34	Th-227 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	5.000E-06	5.000E-06	RTF(44,3)
D-34				
D-34	Th-229 , plant/soil concentration ratio, dimensionless	1.000E-03	1.000E-03	RTF(45,1)
D-34	Th-229 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	1.000E-04	1.000E-04	RTF(45,2)
D-34	Th-229 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	5.000E-06	5.000E-06	RTF(45,3)
D-34				
D-34	Th-230 , plant/soil concentration ratio, dimensionless	1.000E-03	1.000E-03	RTF(46,1)
D-34	Th-230 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	1.000E-04	1.000E-04	RTF(46,2)
D-34	Th-230 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	5.000E-06	5.000E-06	RTF(46,3)
D-34				

Dose Conversion Factor (and Related) Parameter Summary (continued)
Dose Library: FGR 12 & FGR 11

Menu	Parameter	Current Value#	Base Case*	Parameter Name
D-34	Th-231 , plant/soil concentration ratio, dimensionless	1.000E-03	1.000E-03	RTF(47,1)
D-34	Th-231 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	1.000E-04	1.000E-04	RTF(47,2)
D-34	Th-231 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	5.000E-06	5.000E-06	RTF(47,3)
D-34				
D-34	U-233 , plant/soil concentration ratio, dimensionless	2.500E-03	2.500E-03	RTF(49,1)
D-34	U-233 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	3.400E-04	3.400E-04	RTF(49,2)
D-34	U-233 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	6.000E-04	6.000E-04	RTF(49,3)
D-34				
D-34	U-234 , plant/soil concentration ratio, dimensionless	2.500E-03	2.500E-03	RTF(50,1)
D-34	U-234 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	3.400E-04	3.400E-04	RTF(50,2)
D-34	U-234 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	6.000E-04	6.000E-04	RTF(50,3)
D-34				
D-34	U-235 , plant/soil concentration ratio, dimensionless	2.500E-03	2.500E-03	RTF(51,1)
D-34	U-235 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	3.400E-04	3.400E-04	RTF(51,2)
D-34	U-235 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	6.000E-04	6.000E-04	RTF(51,3)
D-34				
D-34	U-237 , plant/soil concentration ratio, dimensionless	2.500E-03	2.500E-03	RTF(53,1)
D-34	U-237 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	3.400E-04	3.400E-04	RTF(53,2)
D-34	U-237 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	6.000E-04	6.000E-04	RTF(53,3)
D-34				
D-34	Y-90 , plant/soil concentration ratio, dimensionless	2.500E-03	2.500E-03	RTF(54,1)

				new intruder	
D-34	Y-90	, beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	2.000E-03	2.000E-03	RTF(54,2)
D-34	Y-90	, milk/livestock-intake ratio, (pCi/L)/(pCi/d)	2.000E-05	2.000E-05	RTF(54,3)
D-5	Bioaccumulation factors, fresh water, L/kg:				
D-5	Ac-225+D	, fish	1.500E+01	1.500E+01	BIOFAC(1,1)
D-5	Ac-225+D	, crustacea and mollusks	1.000E+03	1.000E+03	BIOFAC(1,2)
D-5	Ac-227	, fish	1.500E+01	1.500E+01	BIOFAC(2,1)
D-5	Ac-227	, crustacea and mollusks	1.000E+03	1.000E+03	BIOFAC(2,2)
D-5	Ac-227+D	, fish	1.500E+01	1.500E+01	BIOFAC(3,1)
D-5	Ac-227+D	, crustacea and mollusks	1.000E+03	1.000E+03	BIOFAC(3,2)
D-5	Am-241	, fish	3.000E+01	3.000E+01	BIOFAC(4,1)
D-5	Am-241	, crustacea and mollusks	1.000E+03	1.000E+03	BIOFAC(4,2)
D-5	Am-243	, fish	3.000E+01	3.000E+01	BIOFAC(5,1)
D-5	Am-243	, crustacea and mollusks	1.000E+03	1.000E+03	BIOFAC(5,2)
D-5	Bi-210	, fish	1.500E+01	1.500E+01	BIOFAC(7,1)
D-5	Bi-210	, crustacea and mollusks	1.000E+01	1.000E+01	BIOFAC(7,2)
D-5	C-14	, fish	5.000E+04	5.000E+04	BIOFAC(8,1)
D-5	C-14	, crustacea and mollusks	9.100E+03	9.100E+03	BIOFAC(8,2)
D-5	Cm-243	, fish	3.000E+01	3.000E+01	BIOFAC(9,1)
D-5	Cm-243	, crustacea and mollusks	1.000E+03	1.000E+03	BIOFAC(9,2)

Dose Conversion Factor (and Related) Parameter Summary (continued)
Dose Library: FGR 12 & FGR 11

0 Menu	Parameter		Current value#	Base Case*	Parameter Name
D-5	Co-60	, fish	3.000E+02	3.000E+02	BIOFAC(13,1)
D-5	Co-60	, crustacea and mollusks	2.000E+02	2.000E+02	BIOFAC(13,2)
D-5	Cs-134	, fish	2.000E+03	2.000E+03	BIOFAC(14,1)
D-5	Cs-134	, crustacea and mollusks	1.000E+02	1.000E+02	BIOFAC(14,2)
D-5	Cs-137+D	, fish	2.000E+03	2.000E+03	BIOFAC(15,1)
D-5	Cs-137+D	, crustacea and mollusks	1.000E+02	1.000E+02	BIOFAC(15,2)
D-5	Fe-55	, fish	2.000E+02	2.000E+02	BIOFAC(16,1)
D-5	Fe-55	, crustacea and mollusks	3.200E+03	3.200E+03	BIOFAC(16,2)
D-5	H-3	, fish	1.000E+00	1.000E+00	BIOFAC(17,1)
D-5	H-3	, crustacea and mollusks	1.000E+00	1.000E+00	BIOFAC(17,2)
D-5	I-129	, fish	4.000E+01	4.000E+01	BIOFAC(18,1)
D-5	I-129	, crustacea and mollusks	5.000E+00	5.000E+00	BIOFAC(18,2)
D-5	Ni-59	, fish	1.000E+02	1.000E+02	BIOFAC(19,1)
D-5	Ni-59	, crustacea and mollusks	1.000E+02	1.000E+02	BIOFAC(19,2)
D-5	Ni-63	, fish	1.000E+02	1.000E+02	BIOFAC(20,1)
D-5	Ni-63	, crustacea and mollusks	1.000E+02	1.000E+02	BIOFAC(20,2)
D-5	Np-237	, fish	3.000E+01	3.000E+01	BIOFAC(21,1)
D-5	Np-237	, crustacea and mollusks	4.000E+02	4.000E+02	BIOFAC(21,2)
D-5	Np-239	, fish	3.000E+01	3.000E+01	BIOFAC(22,1)
D-5	Np-239	, crustacea and mollusks	4.000E+02	4.000E+02	BIOFAC(22,2)
D-5	Pa-231	, fish	1.000E+01	1.000E+01	BIOFAC(24,1)
D-5	Pa-231	, crustacea and mollusks	1.100E+02	1.100E+02	BIOFAC(24,2)
D-5	Pa-233	, fish	1.000E+01	1.000E+01	BIOFAC(26,1)
D-5	Pa-233	, crustacea and mollusks	1.100E+02	1.100E+02	BIOFAC(26,2)
D-5	Pb-210	, fish	3.000E+02	3.000E+02	BIOFAC(27,1)
D-5	Pb-210	, crustacea and mollusks	1.000E+02	1.000E+02	BIOFAC(27,2)
D-5	Po-210	, fish	1.000E+02	1.000E+02	BIOFAC(28,1)
D-5	Po-210	, crustacea and mollusks	2.000E+04	2.000E+04	BIOFAC(28,2)
D-5	Pu-238	, fish	3.000E+01	3.000E+01	BIOFAC(29,1)
D-5	Pu-238	, crustacea and mollusks	1.000E+02	1.000E+02	BIOFAC(29,2)

			new intruder		
D-5					
D-5	Pu-239	, fish	3.000E+01	3.000E+01	BIOFAC(31,1)
D-5	Pu-239	, crustacea and mollusks	1.000E+02	1.000E+02	BIOFAC(31,2)
D-5					
D-5	Pu-241	, fish	3.000E+01	3.000E+01	BIOFAC(33,1)
D-5	Pu-241	, crustacea and mollusks	1.000E+02	1.000E+02	BIOFAC(33,2)

Dose Conversion Factor (and Related) Parameter Summary (continued)
Dose Library: FGR 12 & FGR 11

0 Menu	Parameter		Current Value#	Base Case*	Parameter Name
D-5	Ra-223+D	, fish	5.000E+01	5.000E+01	BIOFAC(35,1)
D-5	Ra-223+D	, crustacea and mollusks	2.500E+02	2.500E+02	BIOFAC(35,2)
D-5	Ra-225	, fish	5.000E+01	5.000E+01	BIOFAC(36,1)
D-5	Ra-225	, crustacea and mollusks	2.500E+02	2.500E+02	BIOFAC(36,2)
D-5	Ra-226	, fish	5.000E+01	5.000E+01	BIOFAC(37,1)
D-5	Ra-226	, crustacea and mollusks	2.500E+02	2.500E+02	BIOFAC(37,2)
D-5	Rn-222+D	, fish	0.000E+00	0.000E+00	BIOFAC(38,1)
D-5	Rn-222+D	, crustacea and mollusks	0.000E+00	0.000E+00	BIOFAC(38,2)
D-5	Sb-125	, fish	1.000E+02	1.000E+02	BIOFAC(39,1)
D-5	Sb-125	, crustacea and mollusks	1.000E+01	1.000E+01	BIOFAC(39,2)
D-5	Sr-90	, fish	6.000E+01	6.000E+01	BIOFAC(41,1)
D-5	Sr-90	, crustacea and mollusks	1.000E+02	1.000E+02	BIOFAC(41,2)
D-5	Tc-99	, fish	2.000E+01	2.000E+01	BIOFAC(42,1)
D-5	Tc-99	, crustacea and mollusks	5.000E+00	5.000E+00	BIOFAC(42,2)
D-5	Te-125m	, fish	4.000E+02	4.000E+02	BIOFAC(43,1)
D-5	Te-125m	, crustacea and mollusks	7.500E+01	7.500E+01	BIOFAC(43,2)
D-5	Th-227	, fish	1.000E+02	1.000E+02	BIOFAC(44,1)
D-5	Th-227	, crustacea and mollusks	5.000E+02	5.000E+02	BIOFAC(44,2)
D-5	Th-229	, fish	1.000E+02	1.000E+02	BIOFAC(45,1)
D-5	Th-229	, crustacea and mollusks	5.000E+02	5.000E+02	BIOFAC(45,2)
D-5	Th-230	, fish	1.000E+02	1.000E+02	BIOFAC(46,1)
D-5	Th-230	, crustacea and mollusks	5.000E+02	5.000E+02	BIOFAC(46,2)
D-5	Th-231	, fish	1.000E+02	1.000E+02	BIOFAC(47,1)
D-5	Th-231	, crustacea and mollusks	5.000E+02	5.000E+02	BIOFAC(47,2)
D-5	U-233	, fish	1.000E+01	1.000E+01	BIOFAC(49,1)
D-5	U-233	, crustacea and mollusks	6.000E+01	6.000E+01	BIOFAC(49,2)
D-5	U-234	, fish	1.000E+01	1.000E+01	BIOFAC(50,1)
D-5	U-234	, crustacea and mollusks	6.000E+01	6.000E+01	BIOFAC(50,2)
D-5	U-235	, fish	1.000E+01	1.000E+01	BIOFAC(51,1)
D-5	U-235	, crustacea and mollusks	6.000E+01	6.000E+01	BIOFAC(51,2)
D-5	U-237	, fish	1.000E+01	1.000E+01	BIOFAC(53,1)
D-5	U-237	, crustacea and mollusks	6.000E+01	6.000E+01	BIOFAC(53,2)

Dose Conversion Factor (and Related) Parameter Summary (continued)
Dose Library: FGR 12 & FGR 11

0 Menu	Parameter		Current Value#	Base Case*	Parameter Name
D-5	Y-90	, fish	3.000E+01	3.000E+01	BIOFAC(54,1)
D-5	Y-90	, crustacea and mollusks	1.000E+03	1.000E+03	BIOFAC(54,2)

#For DCF1(xxx) only, factors are for infinite depth & area. See ETFG table in Ground Pathway of Detailed Report.
*Base Case means Default.Lib w/o Associate Nuclide contributions.

Site-Specific Parameter Summary

Menu	Parameter	User Input	Default	Used by RESRAD (If different from user input)	Parameter Name
R011	Area of contaminated zone (m**2)	1.750E+03	1.000E+04	---	AREA
R011	Thickness of contaminated zone (m)	3.400E-01	2.000E+00	---	THICK0
R011	Fraction of contamination that is submerged	0.000E+00	0.000E+00	---	SUBMFRACT
R011	Length parallel to aquifer flow (m)	4.200E+01	1.000E+02	---	LCZPAQ
R011	Basic radiation dose limit (mrem/yr)	2.500E+01	3.000E+01	---	BRDL
R011	Time since placement of material (yr)	0.000E+00	0.000E+00	---	TI
R011	Times for calculations (yr)	1.000E+00	1.000E+00	---	T(2)
R011	Times for calculations (yr)	1.000E+01	3.000E+00	---	T(3)
R011	Times for calculations (yr)	1.000E+02	1.000E+01	---	T(4)
R011	Times for calculations (yr)	1.500E+02	3.000E+01	---	T(5)
R011	Times for calculations (yr)	3.000E+02	1.000E+02	---	T(6)
R011	Times for calculations (yr)	5.000E+02	3.000E+02	---	T(7)
R011	Times for calculations (yr)	not used	1.000E+03	---	T(8)
R011	Times for calculations (yr)	not used	0.000E+00	---	T(9)
R011	Times for calculations (yr)	not used	0.000E+00	---	T(10)
R012	Initial principal radionuclide (pCi/g): Am-241	3.040E+00	0.000E+00	---	S1(4)
R012	Initial principal radionuclide (pCi/g): C-14	5.480E+01	0.000E+00	---	S1(8)
R012	Initial principal radionuclide (pCi/g): Cm-243	1.330E+01	0.000E+00	---	S1(9)
R012	Initial principal radionuclide (pCi/g): Co-60	2.480E+05	0.000E+00	---	S1(13)
R012	Initial principal radionuclide (pCi/g): Cs-134	1.310E+05	0.000E+00	---	S1(14)
R012	Initial principal radionuclide (pCi/g): Cs-137	2.420E+05	0.000E+00	---	S1(15)
R012	Initial principal radionuclide (pCi/g): Fe-55	6.840E+05	0.000E+00	---	S1(16)
R012	Initial principal radionuclide (pCi/g): H-3	4.850E+01	0.000E+00	---	S1(17)
R012	Initial principal radionuclide (pCi/g): I-129	6.000E-04	0.000E+00	---	S1(18)
R012	Initial principal radionuclide (pCi/g): Ni-59	1.360E+03	0.000E+00	---	S1(19)
R012	Initial principal radionuclide (pCi/g): Ni-63	2.460E+05	0.000E+00	---	S1(20)
R012	Initial principal radionuclide (pCi/g): Pu-238	4.850E+00	0.000E+00	---	S1(29)
R012	Initial principal radionuclide (pCi/g): Pu-239	3.270E+00	0.000E+00	---	S1(31)
R012	Initial principal radionuclide (pCi/g): Pu-241	1.030E+03	0.000E+00	---	S1(33)
R012	Initial principal radionuclide (pCi/g): Sb-125	5.800E+02	0.000E+00	---	S1(39)
R012	Initial principal radionuclide (pCi/g): Sr-90	6.560E+02	0.000E+00	---	S1(41)
R012	Initial principal radionuclide (pCi/g): Tc-99	1.180E-02	0.000E+00	---	S1(42)
R012	Concentration in groundwater (pCi/L): Am-241	not used	0.000E+00	---	W1(4)
R012	Concentration in groundwater (pCi/L): C-14	not used	0.000E+00	---	W1(8)
R012	Concentration in groundwater (pCi/L): Cm-243	not used	0.000E+00	---	W1(9)
R012	Concentration in groundwater (pCi/L): Co-60	not used	0.000E+00	---	W1(13)
R012	Concentration in groundwater (pCi/L): Cs-134	not used	0.000E+00	---	W1(14)
R012	Concentration in groundwater (pCi/L): Cs-137	not used	0.000E+00	---	W1(15)
R012	Concentration in groundwater (pCi/L): Fe-55	not used	0.000E+00	---	W1(16)
R012	Concentration in groundwater (pCi/L): H-3	not used	0.000E+00	---	W1(17)
R012	Concentration in groundwater (pCi/L): I-129	not used	0.000E+00	---	W1(18)
R012	Concentration in groundwater (pCi/L): Ni-59	not used	0.000E+00	---	W1(19)
R012	Concentration in groundwater (pCi/L): Ni-63	not used	0.000E+00	---	W1(20)
R012	Concentration in groundwater (pCi/L): Pu-238	not used	0.000E+00	---	W1(29)
R012	Concentration in groundwater (pCi/L): Pu-239	not used	0.000E+00	---	W1(31)
R012	Concentration in groundwater (pCi/L): Pu-241	not used	0.000E+00	---	W1(33)
R012	Concentration in groundwater (pCi/L): Sb-125	not used	0.000E+00	---	W1(39)
R012	Concentration in groundwater (pCi/L): Sr-90	not used	0.000E+00	---	W1(41)
R012	Concentration in groundwater (pCi/L): Tc-99	not used	0.000E+00	---	W1(42)

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Site-Specific Parameter Summary (continued)

Menu	Parameter	User Input	Default	Used by RESRAD (If different from user input)	Parameter Name
R013	Cover depth (m)	0.000E+00	0.000E+00	---	COVER0
R013	Density of cover material (g/cm**3)	not used	1.500E+00	---	DENSCV
R013	Cover depth erosion rate (m/yr)	not used	1.000E-03	---	VCV
R013	Density of contaminated zone (g/cm**3)	1.500E+00	1.500E+00	---	DENSCZ
R013	Contaminated zone erosion rate (m/yr)	0.000E+00	1.000E-03	---	VCZ
R013	Contaminated zone total porosity	4.000E-01	4.000E-01	---	TPCZ
R013	Contaminated zone field capacity	2.000E-01	2.000E-01	---	FCCZ
R013	Contaminated zone hydraulic conductivity (m/yr)	1.000E+01	1.000E+01	---	HCCZ
R013	Contaminated zone b parameter	5.300E+00	5.300E+00	---	BCZ
R013	Average annual wind speed (m/sec)	2.000E+00	2.000E+00	---	WIND
R013	Humidity in air (g/m**3)	8.000E+00	8.000E+00	---	HUMID
R013	Evapotranspiration coefficient	9.800E-01	5.000E-01	---	EVAPTR
R013	Precipitation (m/yr)	2.000E-01	1.000E+00	---	PRECIP
R013	Irrigation (m/yr)	2.000E-01	2.000E-01	---	RI
R013	Irrigation mode	overhead	overhead	---	IDITCH
R013	Runoff coefficient	2.000E-01	2.000E-01	---	RUNOFF
R013	Watershed area for nearby stream or pond (m**2)	1.000E+06	1.000E+06	---	WAREA
R013	Accuracy for water/soil computations	1.000E-03	1.000E-03	---	EPS

new intruder

R014	Density of saturated zone (g/cm**3)	1.500E+00	1.500E+00	---	DENSAQ
R014	Saturated zone total porosity	4.000E-01	4.000E-01	---	TPSZ
R014	Saturated zone effective porosity	2.000E-01	2.000E-01	---	EPSZ
R014	Saturated zone field capacity	2.000E-01	2.000E-01	---	FCSZ
R014	Saturated zone hydraulic conductivity (m/yr)	1.000E+02	1.000E+02	---	HCSZ
R014	Saturated zone hydraulic gradient	2.000E-02	2.000E-02	---	HGWT
R014	Saturated zone b parameter	not used	5.300E+00	---	BSZ
R014	Water table drop rate (m/yr)	0.000E+00	1.000E-03	---	VWT
R014	Well pump intake depth (m below water table)	1.000E+01	1.000E+01	---	DWIBWT
R014	Model: Nondispersion (ND) or Mass-Balance (MB)	ND	ND	---	MODEL
R014	Well pumping rate (m**3/yr)	2.500E+02	2.500E+02	---	UW
R015	Number of unsaturated zone strata	1	1	---	NS
R015	Unsat. zone 1, thickness (m)	4.000E+00	4.000E+00	---	H(1)
R015	Unsat. zone 1, soil density (g/cm**3)	1.500E+00	1.500E+00	---	DENSUZ(1)
R015	Unsat. zone 1, total porosity	4.000E-01	4.000E-01	---	TPUZ(1)
R015	Unsat. zone 1, effective porosity	2.000E-01	2.000E-01	---	EPUZ(1)
R015	Unsat. zone 1, field capacity	2.000E-01	2.000E-01	---	FCUZ(1)
R015	Unsat. zone 1, soil-specific b parameter	5.300E+00	5.300E+00	---	BUZ(1)
R015	Unsat. zone 1, hydraulic conductivity (m/yr)	1.000E+01	1.000E+01	---	HCUZ(1)
R016	Distribution coefficients for Am-241				
R016	Contaminated zone (cm**3/g)	2.000E+01	2.000E+01	---	DCNUCC(4)
R016	Unsaturated zone 1 (cm**3/g)	2.000E+01	2.000E+01	---	DCNUCU(4,1)
R016	Saturated zone (cm**3/g)	2.000E+01	2.000E+01	---	DCNUCS(4)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	7.004E-04	ALEACH(4)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(4)

Site-Specific Parameter Summary (continued)

Menu	Parameter	User Input	Default	Used by RESRAD (If different from user input)	Parameter Name
R016	Distribution coefficients for C-14				
R016	Contaminated zone (cm**3/g)	0.000E+00	0.000E+00	---	DCNUCC(8)
R016	Unsaturated zone 1 (cm**3/g)	0.000E+00	0.000E+00	---	DCNUCU(8,1)
R016	Saturated zone (cm**3/g)	0.000E+00	0.000E+00	---	DCNUCS(8)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	9.013E-02	ALEACH(8)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(8)
R016	Distribution coefficients for Cm-243				
R016	Contaminated zone (cm**3/g)	-1.000E+00	-1.000E+00	1.378E+03	DCNUCC(9)
R016	Unsaturated zone 1 (cm**3/g)	-1.000E+00	-1.000E+00	1.378E+03	DCNUCU(9,1)
R016	Saturated zone (cm**3/g)	-1.000E+00	-1.000E+00	1.378E+03	DCNUCS(9)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	1.024E-05	ALEACH(9)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(9)
R016	Distribution coefficients for Co-60				
R016	Contaminated zone (cm**3/g)	1.000E+03	1.000E+03	---	DCNUCC(13)
R016	Unsaturated zone 1 (cm**3/g)	1.000E+03	1.000E+03	---	DCNUCU(13,1)
R016	Saturated zone (cm**3/g)	1.000E+03	1.000E+03	---	DCNUCS(13)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	1.412E-05	ALEACH(13)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(13)
R016	Distribution coefficients for Cs-134				
R016	Contaminated zone (cm**3/g)	4.600E+03	4.600E+03	---	DCNUCC(14)
R016	Unsaturated zone 1 (cm**3/g)	4.600E+03	4.600E+03	---	DCNUCU(14,1)
R016	Saturated zone (cm**3/g)	4.600E+03	4.600E+03	---	DCNUCS(14)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	3.069E-06	ALEACH(14)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(14)
R016	Distribution coefficients for Cs-137				
R016	Contaminated zone (cm**3/g)	4.600E+03	4.600E+03	---	DCNUCC(15)
R016	Unsaturated zone 1 (cm**3/g)	4.600E+03	4.600E+03	---	DCNUCU(15,1)
R016	Saturated zone (cm**3/g)	4.600E+03	4.600E+03	---	DCNUCS(15)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	3.069E-06	ALEACH(15)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(15)
R016	Distribution coefficients for Fe-55				
R016	Contaminated zone (cm**3/g)	1.000E+03	1.000E+03	---	DCNUCC(16)
R016	Unsaturated zone 1 (cm**3/g)	1.000E+03	1.000E+03	---	DCNUCU(16,1)
R016	Saturated zone (cm**3/g)	1.000E+03	1.000E+03	---	DCNUCS(16)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	1.412E-05	ALEACH(16)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(16)
R016	Distribution coefficients for H-3				
R016	Contaminated zone (cm**3/g)	0.000E+00	0.000E+00	---	DCNUCC(17)
R016	Unsaturated zone 1 (cm**3/g)	0.000E+00	0.000E+00	---	DCNUCU(17,1)
R016	Saturated zone (cm**3/g)	0.000E+00	0.000E+00	---	DCNUCS(17)

				new intruder	
R016	Leach rate (/yr)	0.000E+00	0.000E+00	9.013E-02	ALEACH(17)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(17)

Site-Specific Parameter Summary (continued)

Menu	Parameter	User Input	Default	Used by RESRAD (If different from user input)	Parameter Name
R016	Distribution coefficients for I-129				
R016	Contaminated zone (cm**3/g)	1.000E-01	1.000E-01	---	DCNUCC(18)
R016	Unsaturated zone 1 (cm**3/g)	1.000E-01	1.000E-01	---	DCNUCU(18,1)
R016	Saturated zone (cm**3/g)	1.000E-01	1.000E-01	---	DCNUCS(18)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	5.501E-02	ALEACH(18)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(18)
R016	Distribution coefficients for Ni-59				
R016	Contaminated zone (cm**3/g)	1.000E+03	1.000E+03	---	DCNUCC(19)
R016	Unsaturated zone 1 (cm**3/g)	1.000E+03	1.000E+03	---	DCNUCU(19,1)
R016	Saturated zone (cm**3/g)	1.000E+03	1.000E+03	---	DCNUCS(19)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	1.412E-05	ALEACH(19)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(19)
R016	Distribution coefficients for Ni-63				
R016	Contaminated zone (cm**3/g)	1.000E+03	1.000E+03	---	DCNUCC(20)
R016	Unsaturated zone 1 (cm**3/g)	1.000E+03	1.000E+03	---	DCNUCU(20,1)
R016	Saturated zone (cm**3/g)	1.000E+03	1.000E+03	---	DCNUCS(20)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	1.412E-05	ALEACH(20)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(20)
R016	Distribution coefficients for Pu-238				
R016	Contaminated zone (cm**3/g)	2.000E+03	2.000E+03	---	DCNUCC(29)
R016	Unsaturated zone 1 (cm**3/g)	2.000E+03	2.000E+03	---	DCNUCU(29,1)
R016	Saturated zone (cm**3/g)	2.000E+03	2.000E+03	---	DCNUCS(29)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	7.058E-06	ALEACH(29)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(29)
R016	Distribution coefficients for Pu-239				
R016	Contaminated zone (cm**3/g)	2.000E+03	2.000E+03	---	DCNUCC(31)
R016	Unsaturated zone 1 (cm**3/g)	2.000E+03	2.000E+03	---	DCNUCU(31,1)
R016	Saturated zone (cm**3/g)	2.000E+03	2.000E+03	---	DCNUCS(31)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	7.058E-06	ALEACH(31)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(31)
R016	Distribution coefficients for Pu-241				
R016	Contaminated zone (cm**3/g)	2.000E+03	2.000E+03	---	DCNUCC(33)
R016	Unsaturated zone 1 (cm**3/g)	2.000E+03	2.000E+03	---	DCNUCU(33,1)
R016	Saturated zone (cm**3/g)	2.000E+03	2.000E+03	---	DCNUCS(33)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	7.058E-06	ALEACH(33)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(33)
R016	Distribution coefficients for Sb-125				
R016	Contaminated zone (cm**3/g)	0.000E+00	0.000E+00	---	DCNUCC(39)
R016	Unsaturated zone 1 (cm**3/g)	0.000E+00	0.000E+00	---	DCNUCU(39,1)
R016	Saturated zone (cm**3/g)	0.000E+00	0.000E+00	---	DCNUCS(39)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	9.013E-02	ALEACH(39)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(39)

Site-Specific Parameter Summary (continued)

Menu	Parameter	User Input	Default	Used by RESRAD (If different from user input)	Parameter Name
R016	Distribution coefficients for Sr-90				
R016	Contaminated zone (cm**3/g)	3.000E+01	3.000E+01	---	DCNUCC(41)
R016	Unsaturated zone 1 (cm**3/g)	3.000E+01	3.000E+01	---	DCNUCU(41,1)
R016	Saturated zone (cm**3/g)	3.000E+01	3.000E+01	---	DCNUCS(41)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	4.681E-04	ALEACH(41)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(41)
R016	Distribution coefficients for Tc-99				
R016	Contaminated zone (cm**3/g)	0.000E+00	0.000E+00	---	DCNUCC(42)
R016	Unsaturated zone 1 (cm**3/g)	0.000E+00	0.000E+00	---	DCNUCU(42,1)
R016	Saturated zone (cm**3/g)	0.000E+00	0.000E+00	---	DCNUCS(42)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	9.013E-02	ALEACH(42)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(42)
R016	Distribution coefficients for daughter Ac-225				

R016	Contaminated zone (cm**3/g)	2.000E+01	2.000E+01	---	DCNUCC(1)
R016	Unsaturated zone 1 (cm**3/g)	2.000E+01	2.000E+01	---	DCNUCU(1,1)
R016	Saturated zone (cm**3/g)	2.000E+01	2.000E+01	---	DCNUCS(1)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	7.004E-04	ALEACH(1)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(1)
R016	Distribution coefficients for daughter Ac-227				
R016	Contaminated zone (cm**3/g)	2.000E+01	2.000E+01	---	DCNUCC(2)
R016	Unsaturated zone 1 (cm**3/g)	2.000E+01	2.000E+01	---	DCNUCU(2,1)
R016	Saturated zone (cm**3/g)	2.000E+01	2.000E+01	---	DCNUCS(2)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	7.004E-04	ALEACH(2)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(2)
R016	Distribution coefficients for daughter Am-243				
R016	Contaminated zone (cm**3/g)	2.000E+01	2.000E+01	---	DCNUCC(5)
R016	Unsaturated zone 1 (cm**3/g)	2.000E+01	2.000E+01	---	DCNUCU(5,1)
R016	Saturated zone (cm**3/g)	2.000E+01	2.000E+01	---	DCNUCS(5)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	7.004E-04	ALEACH(5)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(5)
R016	Distribution coefficients for daughter Bi-210				
R016	Contaminated zone (cm**3/g)	0.000E+00	0.000E+00	---	DCNUCC(7)
R016	Unsaturated zone 1 (cm**3/g)	0.000E+00	0.000E+00	---	DCNUCU(7,1)
R016	Saturated zone (cm**3/g)	0.000E+00	0.000E+00	---	DCNUCS(7)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	9.013E-02	ALEACH(7)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(7)
R016	Distribution coefficients for daughter Np-237				
R016	Contaminated zone (cm**3/g)	-1.000E+00	-1.000E+00	2.574E+02	DCNUCC(21)
R016	Unsaturated zone 1 (cm**3/g)	-1.000E+00	-1.000E+00	2.574E+02	DCNUCU(21,1)
R016	Saturated zone (cm**3/g)	-1.000E+00	-1.000E+00	2.574E+02	DCNUCS(21)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	5.481E-05	ALEACH(21)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(21)

Site-Specific Parameter Summary (continued)

0 Menu	Parameter	User Input	Default	Used by RESRAD (If different from user input)	Parameter Name
R016	Distribution coefficients for daughter Np-239				
R016	Contaminated zone (cm**3/g)	-1.000E+00	-1.000E+00	2.574E+02	DCNUCC(22)
R016	Unsaturated zone 1 (cm**3/g)	-1.000E+00	-1.000E+00	2.574E+02	DCNUCU(22,1)
R016	Saturated zone (cm**3/g)	-1.000E+00	-1.000E+00	2.574E+02	DCNUCS(22)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	5.481E-05	ALEACH(22)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(22)
R016	Distribution coefficients for daughter Pa-231				
R016	Contaminated zone (cm**3/g)	5.000E+01	5.000E+01	---	DCNUCC(24)
R016	Unsaturated zone 1 (cm**3/g)	5.000E+01	5.000E+01	---	DCNUCU(24,1)
R016	Saturated zone (cm**3/g)	5.000E+01	5.000E+01	---	DCNUCS(24)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	2.815E-04	ALEACH(24)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(24)
R016	Distribution coefficients for daughter Pa-233				
R016	Contaminated zone (cm**3/g)	5.000E+01	5.000E+01	---	DCNUCC(26)
R016	Unsaturated zone 1 (cm**3/g)	5.000E+01	5.000E+01	---	DCNUCU(26,1)
R016	Saturated zone (cm**3/g)	5.000E+01	5.000E+01	---	DCNUCS(26)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	2.815E-04	ALEACH(26)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(26)
R016	Distribution coefficients for daughter Pb-210				
R016	Contaminated zone (cm**3/g)	1.000E+02	1.000E+02	---	DCNUCC(27)
R016	Unsaturated zone 1 (cm**3/g)	1.000E+02	1.000E+02	---	DCNUCU(27,1)
R016	Saturated zone (cm**3/g)	1.000E+02	1.000E+02	---	DCNUCS(27)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	1.410E-04	ALEACH(27)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(27)
R016	Distribution coefficients for daughter Po-210				
R016	Contaminated zone (cm**3/g)	1.000E+01	1.000E+01	---	DCNUCC(28)
R016	Unsaturated zone 1 (cm**3/g)	1.000E+01	1.000E+01	---	DCNUCU(28,1)
R016	Saturated zone (cm**3/g)	1.000E+01	1.000E+01	---	DCNUCS(28)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	1.390E-03	ALEACH(28)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(28)
R016	Distribution coefficients for daughter Ra-223				
R016	Contaminated zone (cm**3/g)	7.000E+01	7.000E+01	---	DCNUCC(35)
R016	Unsaturated zone 1 (cm**3/g)	7.000E+01	7.000E+01	---	DCNUCU(35,1)
R016	Saturated zone (cm**3/g)	7.000E+01	7.000E+01	---	DCNUCS(35)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	2.012E-04	ALEACH(35)

R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(35)
R016	Distribution coefficients for daughter Ra-225				
R016	Contaminated zone (cm**3/g)	7.000E+01	7.000E+01	---	DCNUCC(36)
R016	Unsaturated zone 1 (cm**3/g)	7.000E+01	7.000E+01	---	DCNUCU(36,1)
R016	Saturated zone (cm**3/g)	7.000E+01	7.000E+01	---	DCNUCS(36)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	2.012E-04	ALEACH(36)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(36)

Site-Specific Parameter Summary (continued)

Menu	Parameter	User Input	Default	Used by RESRAD (If different from user input)	Parameter Name
R016	Distribution coefficients for daughter Ra-226				
R016	Contaminated zone (cm**3/g)	7.000E+01	7.000E+01	---	DCNUCC(37)
R016	Unsaturated zone 1 (cm**3/g)	7.000E+01	7.000E+01	---	DCNUCU(37,1)
R016	Saturated zone (cm**3/g)	7.000E+01	7.000E+01	---	DCNUCS(37)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	2.012E-04	ALEACH(37)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(37)
R016	Distribution coefficients for daughter Rn-222				
R016	Contaminated zone (cm**3/g)	0.000E+00	0.000E+00	---	DCNUCC(38)
R016	Unsaturated zone 1 (cm**3/g)	0.000E+00	0.000E+00	---	DCNUCU(38,1)
R016	Saturated zone (cm**3/g)	0.000E+00	0.000E+00	---	DCNUCS(38)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	9.013E-02	ALEACH(38)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(38)
R016	Distribution coefficients for daughter Te-125m				
R016	Contaminated zone (cm**3/g)	0.000E+00	0.000E+00	---	DCNUCC(43)
R016	Unsaturated zone 1 (cm**3/g)	0.000E+00	0.000E+00	---	DCNUCU(43,1)
R016	Saturated zone (cm**3/g)	0.000E+00	0.000E+00	---	DCNUCS(43)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	9.013E-02	ALEACH(43)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(43)
R016	Distribution coefficients for daughter Th-227				
R016	Contaminated zone (cm**3/g)	6.000E+04	6.000E+04	---	DCNUCC(44)
R016	Unsaturated zone 1 (cm**3/g)	6.000E+04	6.000E+04	---	DCNUCU(44,1)
R016	Saturated zone (cm**3/g)	6.000E+04	6.000E+04	---	DCNUCS(44)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	2.353E-07	ALEACH(44)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(44)
R016	Distribution coefficients for daughter Th-229				
R016	Contaminated zone (cm**3/g)	6.000E+04	6.000E+04	---	DCNUCC(45)
R016	Unsaturated zone 1 (cm**3/g)	6.000E+04	6.000E+04	---	DCNUCU(45,1)
R016	Saturated zone (cm**3/g)	6.000E+04	6.000E+04	---	DCNUCS(45)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	2.353E-07	ALEACH(45)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(45)
R016	Distribution coefficients for daughter Th-230				
R016	Contaminated zone (cm**3/g)	6.000E+04	6.000E+04	---	DCNUCC(46)
R016	Unsaturated zone 1 (cm**3/g)	6.000E+04	6.000E+04	---	DCNUCU(46,1)
R016	Saturated zone (cm**3/g)	6.000E+04	6.000E+04	---	DCNUCS(46)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	2.353E-07	ALEACH(46)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(46)
R016	Distribution coefficients for daughter Th-231				
R016	Contaminated zone (cm**3/g)	6.000E+04	6.000E+04	---	DCNUCC(47)
R016	Unsaturated zone 1 (cm**3/g)	6.000E+04	6.000E+04	---	DCNUCU(47,1)
R016	Saturated zone (cm**3/g)	6.000E+04	6.000E+04	---	DCNUCS(47)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	2.353E-07	ALEACH(47)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(47)

Site-Specific Parameter Summary (continued)

Menu	Parameter	User Input	Default	Used by RESRAD (If different from user input)	Parameter Name
R016	Distribution coefficients for daughter U-233				
R016	Contaminated zone (cm**3/g)	5.000E+01	5.000E+01	---	DCNUCC(49)
R016	Unsaturated zone 1 (cm**3/g)	5.000E+01	5.000E+01	---	DCNUCU(49,1)
R016	Saturated zone (cm**3/g)	5.000E+01	5.000E+01	---	DCNUCS(49)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	2.815E-04	ALEACH(49)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(49)
R016	Distribution coefficients for daughter U-234				
R016	Contaminated zone (cm**3/g)	5.000E+01	5.000E+01	---	DCNUCC(50)

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R016	Unsaturated zone 1 (cm**3/g)	5.000E+01	5.000E+01	---	DCNUCU(50,1)
R016	Saturated zone (cm**3/g)	5.000E+01	5.000E+01	---	DCNUCS(50)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	2.815E-04	ALEACH(50)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(50)
R016	Distribution coefficients for daughter U-235				
R016	Contaminated zone (cm**3/g)	5.000E+01	5.000E+01	---	DCNUCC(51)
R016	Unsaturated zone 1 (cm**3/g)	5.000E+01	5.000E+01	---	DCNUCU(51,1)
R016	Saturated zone (cm**3/g)	5.000E+01	5.000E+01	---	DCNUCS(51)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	2.815E-04	ALEACH(51)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(51)
R016	Distribution coefficients for daughter U-237				
R016	Contaminated zone (cm**3/g)	5.000E+01	5.000E+01	---	DCNUCC(53)
R016	Unsaturated zone 1 (cm**3/g)	5.000E+01	5.000E+01	---	DCNUCU(53,1)
R016	Saturated zone (cm**3/g)	5.000E+01	5.000E+01	---	DCNUCS(53)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	2.815E-04	ALEACH(53)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(53)
R016	Distribution coefficients for daughter Y-90				
R016	Contaminated zone (cm**3/g)	7.200E+02	7.200E+02	---	DCNUCC(54)
R016	Unsaturated zone 1 (cm**3/g)	7.200E+02	7.200E+02	---	DCNUCU(54,1)
R016	Saturated zone (cm**3/g)	7.200E+02	7.200E+02	---	DCNUCS(54)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	1.960E-05	ALEACH(54)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(54)
R017	Inhalation rate (m**3/yr)	8.400E+03	8.400E+03	---	INHALR
R017	Mass loading for inhalation (g/m**3)	1.000E-04	1.000E-04	---	MLINH
R017	Exposure duration	3.000E+01	3.000E+01	---	ED
R017	Shielding factor, inhalation	4.000E-01	4.000E-01	---	SHF3
R017	Shielding factor, external gamma	7.000E-01	7.000E-01	---	SHF1
R017	Fraction of time spent indoors	5.000E-01	5.000E-01	---	FIND
R017	Fraction of time spent outdoors (on site)	2.500E-01	2.500E-01	---	FOTD
R017	Shape factor flag, external gamma	1.000E+00	1.000E+00	>0 shows circular AREA.	FS

Site-Specific Parameter Summary (continued)

Menu	Parameter	User Input	Default	used by RESRAD (If different from user input)	Parameter Name
R017	Radii of shape factor array (used if FS = -1):				
R017	Outer annular radius (m), ring 1:	not used	5.000E+01	---	RAD_SHAPE(1)
R017	Outer annular radius (m), ring 2:	not used	7.071E+01	---	RAD_SHAPE(2)
R017	Outer annular radius (m), ring 3:	not used	0.000E+00	---	RAD_SHAPE(3)
R017	Outer annular radius (m), ring 4:	not used	0.000E+00	---	RAD_SHAPE(4)
R017	Outer annular radius (m), ring 5:	not used	0.000E+00	---	RAD_SHAPE(5)
R017	Outer annular radius (m), ring 6:	not used	0.000E+00	---	RAD_SHAPE(6)
R017	Outer annular radius (m), ring 7:	not used	0.000E+00	---	RAD_SHAPE(7)
R017	Outer annular radius (m), ring 8:	not used	0.000E+00	---	RAD_SHAPE(8)
R017	Outer annular radius (m), ring 9:	not used	0.000E+00	---	RAD_SHAPE(9)
R017	Outer annular radius (m), ring 10:	not used	0.000E+00	---	RAD_SHAPE(10)
R017	Outer annular radius (m), ring 11:	not used	0.000E+00	---	RAD_SHAPE(11)
R017	Outer annular radius (m), ring 12:	not used	0.000E+00	---	RAD_SHAPE(12)
R017	Fractions of annular areas within AREA:				
R017	Ring 1	not used	1.000E+00	---	FRACA(1)
R017	Ring 2	not used	2.732E-01	---	FRACA(2)
R017	Ring 3	not used	0.000E+00	---	FRACA(3)
R017	Ring 4	not used	0.000E+00	---	FRACA(4)
R017	Ring 5	not used	0.000E+00	---	FRACA(5)
R017	Ring 6	not used	0.000E+00	---	FRACA(6)
R017	Ring 7	not used	0.000E+00	---	FRACA(7)
R017	Ring 8	not used	0.000E+00	---	FRACA(8)
R017	Ring 9	not used	0.000E+00	---	FRACA(9)
R017	Ring 10	not used	0.000E+00	---	FRACA(10)
R017	Ring 11	not used	0.000E+00	---	FRACA(11)
R017	Ring 12	not used	0.000E+00	---	FRACA(12)
R018	Fruits, vegetables and grain consumption (kg/yr)	1.600E+02	1.600E+02	---	DIET(1)
R018	Leafy vegetable consumption (kg/yr)	1.400E+01	1.400E+01	---	DIET(2)
R018	Milk consumption (L/yr)	9.200E+01	9.200E+01	---	DIET(3)
R018	Meat and poultry consumption (kg/yr)	6.300E+01	6.300E+01	---	DIET(4)
R018	Fish consumption (kg/yr)	not used	5.400E+00	---	DIET(5)
R018	Other seafood consumption (kg/yr)	not used	9.000E-01	---	DIET(6)
R018	Soil ingestion rate (g/yr)	3.650E+01	3.650E+01	---	SOIL
R018	Drinking water intake (L/yr)	5.100E+02	5.100E+02	---	DWI
R018	Contamination fraction of drinking water	1.000E+00	1.000E+00	---	FDW
R018	Contamination fraction of household water	not used	1.000E+00	---	FHHW
R018	Contamination fraction of livestock water	1.000E+00	1.000E+00	---	FLW

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R018	Contamination fraction of irrigation water	1.000E+00	1.000E+00	---	FIRW
R018	Contamination fraction of aquatic food	not used	5.000E-01	---	FR9
R018	Contamination fraction of plant food	-1	-1	0.500E+00	FPLANT
R018	Contamination fraction of meat	-1	-1	0.875E-01	FMEAT
R018	Contamination fraction of milk	-1	-1	0.875E-01	FMILK
R019	Livestock fodder intake for meat (kg/day)	6.800E+01	6.800E+01	---	LFI5
R019	Livestock fodder intake for milk (kg/day)	5.500E+01	5.500E+01	---	LFI6
R019	Livestock water intake for meat (L/day)	5.000E+01	5.000E+01	---	LWI5
R019	Livestock water intake for milk (L/day)	1.600E+02	1.600E+02	---	LWI6
R019	Livestock soil intake (kg/day)	5.000E-01	5.000E-01	---	LSI

Site-Specific Parameter Summary (continued)

Menu	Parameter	User Input	Default	Used by RESRAD (If different from user input)	Parameter Name
R019	Mass loading for foliar deposition (g/m**3)	1.000E-04	1.000E-04	---	MLFD
R019	Depth of soil mixing layer (m)	1.500E-01	1.500E-01	---	DM
R019	Depth of roots (m)	9.000E-01	9.000E-01	---	DROOT
R019	Drinking water fraction from ground water	1.000E+00	1.000E+00	---	FGWDW
R019	Household water fraction from ground water	not used	1.000E+00	---	FGWHH
R019	Livestock water fraction from ground water	1.000E+00	1.000E+00	---	FGWLW
R019	Irrigation fraction from ground water	1.000E+00	1.000E+00	---	FGWIR
R19B	Wet weight crop yield for Non-Leafy (kg/m**2)	7.000E-01	7.000E-01	---	YV(1)
R19B	Wet weight crop yield for Leafy (kg/m**2)	1.500E+00	1.500E+00	---	YV(2)
R19B	Wet weight crop yield for Fodder (kg/m**2)	1.100E+00	1.100E+00	---	YV(3)
R19B	Growing Season for Non-Leafy (years)	1.700E-01	1.700E-01	---	TE(1)
R19B	Growing Season for Leafy (years)	2.500E-01	2.500E-01	---	TE(2)
R19B	Growing Season for Fodder (years)	8.000E-02	8.000E-02	---	TE(3)
R19B	Translocation Factor for Non-Leafy	1.000E-01	1.000E-01	---	TIV(1)
R19B	Translocation Factor for Leafy	1.000E+00	1.000E+00	---	TIV(2)
R19B	Translocation Factor for Fodder	1.000E+00	1.000E+00	---	TIV(3)
R19B	Dry Foliar Interception Fraction for Non-Leafy	2.500E-01	2.500E-01	---	RDRY(1)
R19B	Dry Foliar Interception Fraction for Leafy	2.500E-01	2.500E-01	---	RDRY(2)
R19B	Dry Foliar Interception Fraction for Fodder	2.500E-01	2.500E-01	---	RDRY(3)
R19B	Wet Foliar Interception Fraction for Non-Leafy	2.500E-01	2.500E-01	---	RWET(1)
R19B	Wet Foliar Interception Fraction for Leafy	2.500E-01	2.500E-01	---	RWET(2)
R19B	Wet Foliar Interception Fraction for Fodder	2.500E-01	2.500E-01	---	RWET(3)
R19B	Weathering Removal Constant for Vegetation	2.000E+01	2.000E+01	---	WLAM
C14	C-12 concentration in water (g/cm**3)	2.000E-05	2.000E-05	---	C12WTR
C14	C-12 concentration in contaminated soil (g/g)	3.000E-02	3.000E-02	---	C12CZ
C14	Fraction of vegetation carbon from soil	2.000E-02	2.000E-02	---	CSOIL
C14	Fraction of vegetation carbon from air	9.800E-01	9.800E-01	---	CAIR
C14	C-14 evasion layer thickness in soil (m)	3.000E-01	3.000E-01	---	DMC
C14	C-14 evasion flux rate from soil (1/sec)	7.000E-07	7.000E-07	---	EVSN
C14	C-12 evasion flux rate from soil (1/sec)	1.000E-10	1.000E-10	---	REVSN
C14	Fraction of grain in beef cattle feed	8.000E-01	8.000E-01	---	AVFG4
C14	Fraction of grain in milk cow feed	2.000E-01	2.000E-01	---	AVFG5
STOR	Storage times of contaminated foodstuffs (days):				
STOR	Fruits, non-leafy vegetables, and grain	1.400E+01	1.400E+01	---	STOR_T(1)
STOR	Leafy vegetables	1.000E+00	1.000E+00	---	STOR_T(2)
STOR	Milk	1.000E+00	1.000E+00	---	STOR_T(3)
STOR	Meat and poultry	2.000E+01	2.000E+01	---	STOR_T(4)
STOR	Fish	7.000E+00	7.000E+00	---	STOR_T(5)
STOR	Crustacea and mollusks	7.000E+00	7.000E+00	---	STOR_T(6)
STOR	Well water	1.000E+00	1.000E+00	---	STOR_T(7)
STOR	Surface water	1.000E+00	1.000E+00	---	STOR_T(8)
STOR	Livestock fodder	4.500E+01	4.500E+01	---	STOR_T(9)
R021	Thickness of building foundation (m)	not used	1.500E-01	---	FLOOR1
R021	Bulk density of building foundation (g/cm**3)	not used	2.400E+00	---	DENSFL
R021	Total porosity of the cover material	not used	4.000E-01	---	TPCV
R021	Total porosity of the building foundation	not used	1.000E-01	---	TPFL

Site-Specific Parameter Summary (continued)

Menu	Parameter	User Input	Default	Used by RESRAD (If different from user input)	Parameter Name
R021	Volumetric water content of the cover material	not used	5.000E-02	---	PH2OCV
R021	Volumetric water content of the foundation	not used	3.000E-02	---	PH2OFL
R021	Diffusion coefficient for radon gas (m/sec):				
R021	in cover material	not used	2.000E-06	---	DIFCV

				new intruder	
R021	in foundation material	not used	3.000E-07	---	DIFFL
R021	in contaminated zone soil	not used	2.000E-06	---	DIFC2
R021	Radon vertical dimension of mixing (m)	not used	2.000E+00	---	HMIX
R021	Average building air exchange rate (1/hr)	not used	5.000E-01	---	REXG
R021	Height of the building (room) (m)	not used	2.500E+00	---	HRM
R021	Building interior area factor	not used	0.000E+00	---	FAI
R021	Building depth below ground surface (m)	not used	-1.000E+00	---	DMFL
R021	Emanating power of Rn-222 gas	not used	2.500E-01	---	EMANA(1)
R021	Emanating power of Rn-220 gas	not used	1.500E-01	---	EMANA(2)
TITL	Number of graphical time points	32	---	---	NPTS
TITL	Maximum number of integration points for dose	17	---	---	LYMAX
TITL	Maximum number of integration points for risk	257	---	---	KYMAX

Summary of Pathway Selections

Pathway	User Selection
1 -- external gamma	active
2 -- inhalation (w/o radon)	active
3 -- plant ingestion	active
4 -- meat ingestion	active
5 -- milk ingestion	active
6 -- aquatic foods	suppressed
7 -- drinking water	active
8 -- soil ingestion	active
9 -- radon	suppressed
Find peak pathway doses	active

Contaminated Zone Dimensions

Area:	1750.00 square meters
Thickness:	0.34 meters
Cover Depth:	0.00 meters

Initial Soil Concentrations, pCi/g

Am-241	3.040E+00
C-14	5.480E+01
Cm-243	1.330E+01
Co-60	2.480E+05
Cs-134	1.310E+05
Cs-137	2.420E+05
Fe-55	6.840E+05
H-3	4.850E+01
I-129	6.000E-04
Ni-59	1.360E+03
Ni-63	2.460E+05
Pu-238	4.850E+00
Pu-239	3.270E+00
Pu-241	1.030E+03
Sb-125	5.800E+02
Sr-90	6.560E+02
Tc-99	1.180E-02

0

Total Dose TDOSE(t), mrem/yr
Basic Radiation Dose Limit = 2.500E+01 mrem/yr
Total Mixture Sum M(t) = Fraction of Basic Dose Limit Received at Time (t)

t (years):	0.000E+00	1.000E+00	1.000E+01	1.000E+02	1.500E+02	3.000E+02	5.000E+02
TDOSE(t):	3.128E+06	2.694E+06	9.475E+05	4.657E+04	1.472E+04	4.949E+02	1.663E+01
M(t):	1.251E+05	1.077E+05	3.790E+04	1.863E+03	5.888E+02	1.980E+01	6.652E-01

0Maximum TDOSE(t): 3.128E+06 mrem/yr at t = 0.000E+00 years

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As mrem/yr and Fraction of Total Dose At t = 0.000E+00 years
Water Independent Pathways (Inhalation excludes radon)

0

Radio-	Ground		Inhalation		Radon		Plant		Meat		Milk		Soil	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Am-241	7.403E-02	0.0000	7.205E-02	0.0000	0.000E+00	0.0000	3.642E-01	0.0000	1.602E-03	0.0000	9.271E-05	0.0000	3.026E-01	0.0000
C-14	2.133E-05	0.0000	6.891E-04	0.0000	0.000E+00	0.0000	1.445E+00	0.0000	1.459E-01	0.0000	3.648E-02	0.0000	1.616E-04	0.0000
Cm-243	4.297E+00	0.0000	2.156E-01	0.0000	0.000E+00	0.0000	1.087E+00	0.0000	1.913E-03	0.0000	2.766E-04	0.0000	9.029E-01	0.0000
Co-60	2.050E+06	0.6553	2.720E+00	0.0000	0.000E+00	0.0000	1.644E+04	0.0053	1.761E+03	0.0006	2.176E+02	0.0001	1.711E+02	0.0001
Cs-134	5.766E+05	0.1844	2.747E-01	0.0000	0.000E+00	0.0000	1.072E+04	0.0034	2.060E+03	0.0007	6.992E+02	0.0002	2.232E+02	0.0001
Cs-137	4.470E+05	0.1429	4.078E-01	0.0000	0.000E+00	0.0000	1.573E+04	0.0050	3.022E+03	0.0010	1.026E+03	0.0003	3.274E+02	0.0001

									new intruder					
Fe-55	0.000E+00	0.0000	8.672E-02	0.0000	0.000E+00	0.0000	1.207E+01	0.0000	2.123E+01	0.0000	4.607E-01	0.0000	1.002E+01	0.0000
H-3	0.000E+00	0.0000	2.372E-03	0.0000	0.000E+00	0.0000	1.228E-01	0.0000	4.544E-03	0.0000	3.443E-03	0.0000	1.840E-05	0.0000
I-129	4.321E-06	0.0000	5.429E-09	0.0000	0.000E+00	0.0000	1.062E-04	0.0000	6.355E-06	0.0000	1.194E-05	0.0000	4.411E-06	0.0000
Ni-59	0.000E+00	0.0000	1.962E-04	0.0000	0.000E+00	0.0000	4.694E-01	0.0000	1.405E-02	0.0000	7.077E-02	0.0000	7.818E-03	0.0000
Ni-63	0.000E+00	0.0000	8.239E-02	0.0000	0.000E+00	0.0000	2.324E+02	0.0001	6.957E+00	0.0000	3.505E+01	0.0000	3.872E+00	0.0000
Pu-238	4.268E-04	0.0000	1.012E-01	0.0000	0.000E+00	0.0000	5.094E-01	0.0000	4.482E-03	0.0000	6.484E-05	0.0000	4.232E-01	0.0000
Pu-239	5.420E-04	0.0000	7.497E-02	0.0000	0.000E+00	0.0000	3.815E-01	0.0000	3.356E-03	0.0000	4.855E-05	0.0000	3.169E-01	0.0000
Pu-241	3.027E-02	0.0000	4.626E-01	0.0000	0.000E+00	0.0000	2.364E+00	0.0000	2.041E-02	0.0000	3.134E-04	0.0000	1.964E+00	0.0000
Sb-125	6.618E+02	0.0002	3.547E-04	0.0000	0.000E+00	0.0000	5.871E+00	0.0000	9.267E-02	0.0000	1.044E-02	0.0000	4.663E-02	0.0000
Sr-90	8.629E+00	0.0000	4.531E-02	0.0000	0.000E+00	0.0000	9.613E+02	0.0003	3.547E+01	0.0000	1.013E+01	0.0000	2.707E+00	0.0000
Tc-99	7.977E-07	0.0000	5.017E-09	0.0000	0.000E+00	0.0000	2.715E-03	0.0000	1.187E-06	0.0000	1.398E-05	0.0000	4.510E-07	0.0000
*******	*********	******	*********	******	*********	******	*********	******	*********	******	*********	******	*********	******
Total	3.074E+06	0.9828	4.547E+00	0.0000	0.000E+00	0.0000	4.410E+04	0.0141	6.908E+03	0.0022	1.988E+03	0.0006	7.424E+02	0.0002

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Summary : RESRAD Intruder Resident
File : C:\USERS\WDORNSIFE\DOCUMENTS\RESRAD FILES\BLENDING0106.RAD

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As mrem/yr and Fraction of Total Dose At t = 0.000E+00 years
0 Water Dependent Pathways
0

Radio-	Water		Fish		Radon		Plant		Meat		Milk		All Pathways*	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Am-241	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	8.146E-01	0.0000
C-14	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.628E+00	0.0000
Cm-243	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	6.504E+00	0.0000
Co-60	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.068E+06	0.6613
Cs-134	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.903E+05	0.1887
Cs-137	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.671E+05	0.1493
Fe-55	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.387E+01	0.0000
H-3	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.332E-01	0.0000
I-129	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.333E-04	0.0000
Ni-59	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.622E-01	0.0000
Ni-63	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.784E+02	0.0001
Pu-238	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.039E+00	0.0000
Pu-239	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	7.773E-01	0.0000
Pu-241	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.842E+00	0.0000
Sb-125	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	6.678E+02	0.0002
Sr-90	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.018E+03	0.0003
Tc-99	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.731E-03	0.0000
*******	*********	******	*********	******	*********	******	*********	******	*********	******	*********	******	*********	******
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.128E+06	1.0000

0*Sum of all water independent and dependent pathways.
1RESRAD, Version 6.5 T½ Limit = 1 day 01/07/2010 15:00 Page 26
Summary : RESRAD Intruder Resident
File : C:\USERS\WDORNSIFE\DOCUMENTS\RESRAD FILES\BLENDING0106.RAD

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As mrem/yr and Fraction of Total Dose At t = 1.000E+00 years
0 Water Independent Pathways (Inhalation excludes radon)
0

Radio-	Ground		Inhalation		Radon		Plant		Meat		Milk		Soil	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Am-241	7.386E-02	0.0000	7.188E-02	0.0000	0.000E+00	0.0000	3.634E-01	0.0000	1.599E-03	0.0000	9.250E-05	0.0000	3.019E-01	0.0000
C-14	6.506E-14	0.0000	2.102E-12	0.0000	0.000E+00	0.0000	9.535E-09	0.0000	5.567E-09	0.0000	8.415E-10	0.0000	4.930E-13	0.0000
Cm-243	4.193E+00	0.0000	2.104E-01	0.0000	0.000E+00	0.0000	1.061E+00	0.0000	1.867E-03	0.0000	2.700E-04	0.0000	8.812E-01	0.0000
Co-60	1.797E+06	0.6672	2.385E+00	0.0000	0.000E+00	0.0000	1.441E+04	0.0054	1.544E+03	0.0006	1.908E+02	0.0001	1.500E+02	0.0001
Cs-134	4.120E+05	0.1530	1.963E-01	0.0000	0.000E+00	0.0000	7.661E+03	0.0028	1.472E+03	0.0005	4.996E+02	0.0002	1.595E+02	0.0001
Cs-137	4.368E+05	0.1622	3.985E-01	0.0000	0.000E+00	0.0000	1.537E+04	0.0057	2.953E+03	0.0011	1.002E+03	0.0004	3.200E+02	0.0001
Fe-55	0.000E+00	0.0000	6.708E-02	0.0000	0.000E+00	0.0000	9.335E+00	0.0000	1.643E+01	0.0000	3.564E-01	0.0000	7.754E+00	0.0000
H-3	0.000E+00	0.0000	2.456E-05	0.0000	0.000E+00	0.0000	1.374E-03	0.0000	6.469E-05	0.0000	4.535E-05	0.0000	1.905E-07	0.0000
I-129	4.090E-06	0.0000	5.138E-09	0.0000	0.000E+00	0.0000	1.006E-04	0.0000	6.021E-06	0.0000	1.130E-05	0.0000	4.175E-06	0.0000
Ni-59	0.000E+00	0.0000	1.962E-04	0.0000	0.000E+00	0.0000	4.693E-01	0.0000	1.405E-02	0.0000	7.077E-02	0.0000	7.818E-03	0.0000
Ni-63	0.000E+00	0.0000	8.180E-02	0.0000	0.000E+00	0.0000	2.308E+02	0.0001	6.907E+00	0.0000	3.479E+01	0.0000	3.844E+00	0.0000
Pu-238	4.234E-04	0.0000	1.004E-01	0.0000	0.000E+00	0.0000	5.054E-01	0.0000	4.447E-03	0.0000	6.434E-05	0.0000	4.199E-01	0.0000
Pu-239	5.420E-04	0.0000	7.496E-02	0.0000	0.000E+00	0.0000	3.815E-01	0.0000	3.356E-03	0.0000	4.855E-05	0.0000	3.169E-01	0.0000
Pu-241	6.829E-02	0.0000	4.791E-01	0.0000	0.000E+00	0.0000	2.446E+00	0.0000	2.031E-02	0.0000	3.478E-04	0.0000	2.032E+00	0.0000
Sb-125	4.711E+02	0.0002	2.609E-04	0.0000	0.000E+00	0.0000	5.624E+00	0.0000	9.960E-02	0.0000	1.060E-02	0.0000	3.537E-02	0.0000
Sr-90	8.600E+00	0.0000	4.423E-02	0.0000	0.000E+00	0.0000	9.473E+02	0.0004	3.498E+01	0.0000	9.914E+00	0.0000	2.646E+00	0.0000
Tc-99	7.289E-07	0.0000	4.585E-09	0.0000	0.000E+00	0.0000	2.482E-03	0.0000	1.087E-06	0.0000	1.279E-05	0.0000	4.121E-07	0.0000
*******	*********	******	*********	******	*********	******	*********	******	*********	******	*********	******	*********	******
Total	2.647E+06	0.9825	4.110E+00	0.0000	0.000E+00	0.0000	3.864E+04	0.0143	6.028E+03	0.0022	1.738E+03	0.0006	6.477E+02	0.0002

1RESRAD, Version 6.5 T½ Limit = 1 day 01/07/2010 15:00 Page 27
Summary : RESRAD Intruder Resident
File : C:\USERS\WDORNSIFE\DOCUMENTS\RESRAD FILES\BLENDING0106.RAD

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As mrem/yr and Fraction of Total Dose At t = 1.000E+00 years
0 Water Dependent Pathways

new intruder

Radio-Nuclide	Water mrem/yr	Water fract.	Fish mrem/yr	Fish fract.	Radon mrem/yr	Radon fract.	Plant mrem/yr	Plant fract.	Meat mrem/yr	Meat fract.	Milk mrem/yr	Milk fract.	All Pathways* mrem/yr	All Pathways* fract.
Am-241	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	8.127E-01	0.0000
C-14	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.595E-08	0.0000
Cm-243	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	6.348E+00	0.0000
Co-60	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.814E+06	0.6733
Cs-134	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.218E+05	0.1566
Cs-137	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.564E+05	0.1695
Fe-55	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.394E+01	0.0000
H-3	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.509E-03	0.0000
I-129	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.262E-04	0.0000
Ni-59	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.622E-01	0.0000
Ni-63	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.764E+02	0.0001
Pu-238	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.031E+00	0.0000
Pu-239	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	7.772E-01	0.0000
Pu-241	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.046E+00	0.0000
Sb-125	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.768E+02	0.0002
Sr-90	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.003E+03	0.0004
Tc-99	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.497E-03	0.0000
*********	*********	******	*********	******	*********	******	*********	******	*********	******	*********	******	*********	******
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.694E+06	1.0000

0*Sum of all water independent and dependent pathways.

1RESRAD, Version 6.5 T½ Limit = 1 day 01/07/2010 15:00 Page 28

Summary : RESRAD Intruder Resident

File : C:\USERS\WDORNSIFE\DOCUMENTS\RESRAD FILES\BLENDING0106.RAD

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As mrem/yr and Fraction of Total Dose At t = 1.000E+01 years
Water Independent Pathways (Inhalation excludes radon)

Radio-Nuclide	Ground mrem/yr	Ground fract.	Inhalation mrem/yr	Inhalation fract.	Radon mrem/yr	Radon fract.	Plant mrem/yr	Plant fract.	Meat mrem/yr	Meat fract.	Milk mrem/yr	Milk fract.	Soil mrem/yr	Soil fract.
Am-241	7.235E-02	0.0000	7.041E-02	0.0000	0.000E+00	0.0000	3.560E-01	0.0000	1.566E-03	0.0000	9.060E-05	0.0000	2.957E-01	0.0000
C-14	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Cm-243	3.369E+00	0.0000	1.691E-01	0.0000	0.000E+00	0.0000	8.525E-01	0.0000	1.503E-03	0.0000	2.169E-04	0.0000	7.082E-01	0.0000
Co-60	5.502E+05	0.5807	7.301E-01	0.0000	0.000E+00	0.0000	4.412E+03	0.0047	4.727E+02	0.0005	5.842E+01	0.0001	4.594E+01	0.0000
Cs-134	2.000E+04	0.0211	9.526E-03	0.0000	0.000E+00	0.0000	3.718E+02	0.0004	7.146E+01	0.0001	2.425E+01	0.0000	7.742E+00	0.0000
Cs-137	3.548E+05	0.3744	3.237E-01	0.0000	0.000E+00	0.0000	1.248E+04	0.0132	2.399E+03	0.0025	8.139E+02	0.0009	2.599E+02	0.0003
Fe-55	0.000E+00	0.0000	6.655E-03	0.0000	0.000E+00	0.0000	9.260E-01	0.0000	1.629E+00	0.0000	3.536E-02	0.0000	7.692E-01	0.0000
H-3	0.000E+00	0.0000	3.365E-23	0.0000	0.000E+00	0.0000	1.883E-21	0.0000	8.863E-23	0.0000	6.213E-23	0.0000	2.610E-25	0.0000
I-129	2.493E-06	0.0000	3.132E-09	0.0000	0.000E+00	0.0000	6.130E-05	0.0000	3.670E-06	0.0000	6.890E-06	0.0000	2.545E-06	0.0000
Ni-59	0.000E+00	0.0000	1.962E-04	0.0000	0.000E+00	0.0000	4.692E-01	0.0000	1.405E-02	0.0000	7.075E-02	0.0000	7.816E-03	0.0000
Ni-63	0.000E+00	0.0000	7.664E-02	0.0000	0.000E+00	0.0000	2.162E+02	0.0002	6.472E+00	0.0000	3.260E+01	0.0000	3.601E+00	0.0000
Pu-238	3.944E-04	0.0000	9.351E-02	0.0000	0.000E+00	0.0000	4.707E-01	0.0000	4.141E-03	0.0000	6.001E-05	0.0000	3.910E-01	0.0000
Pu-239	5.419E-04	0.0000	7.494E-02	0.0000	0.000E+00	0.0000	3.813E-01	0.0000	3.355E-03	0.0000	4.853E-05	0.0000	3.168E-01	0.0000
Pu-241	3.342E-01	0.0000	5.927E-01	0.0000	0.000E+00	0.0000	3.012E+00	0.0000	1.944E-02	0.0000	5.885E-04	0.0000	2.502E+00	0.0000
Sb-125	2.202E+01	0.0000	1.220E-05	0.0000	0.000E+00	0.0000	2.641E-01	0.0000	4.693E-03	0.0000	4.987E-04	0.0000	1.655E-03	0.0000
Sr-90	6.912E+00	0.0000	3.555E-02	0.0000	0.000E+00	0.0000	7.614E+02	0.0008	2.811E+01	0.0000	7.968E+00	0.0000	2.127E+00	0.0000
Tc-99	3.239E-07	0.0000	2.037E-09	0.0000	0.000E+00	0.0000	1.103E-03	0.0000	4.831E-07	0.0000	5.685E-06	0.0000	1.831E-07	0.0000
*********	*********	******	*********	******	*********	******	*********	******	*********	******	*********	******	*********	******
Total	9.250E+05	0.9763	2.183E+00	0.0000	0.000E+00	0.0000	1.825E+04	0.0193	2.979E+03	0.0031	9.373E+02	0.0010	3.243E+02	0.0003

1RESRAD, Version 6.5 T½ Limit = 1 day 01/07/2010 15:00 Page 29

Summary : RESRAD Intruder Resident

File : C:\USERS\WDORNSIFE\DOCUMENTS\RESRAD FILES\BLENDING0106.RAD

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As mrem/yr and Fraction of Total Dose At t = 1.000E+01 years
Water Dependent Pathways

Radio-Nuclide	Water mrem/yr	Water fract.	Fish mrem/yr	Fish fract.	Radon mrem/yr	Radon fract.	Plant mrem/yr	Plant fract.	Meat mrem/yr	Meat fract.	Milk mrem/yr	Milk fract.	All Pathways* mrem/yr	All Pathways* fract.
Am-241	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	7.961E-01	0.0000
C-14	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Cm-243	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.100E+00	0.0000
Co-60	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.552E+05	0.5860
Cs-134	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.047E+04	0.0216
Cs-137	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.707E+05	0.3913
Fe-55	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.367E+00	0.0000
H-3	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.068E-21	0.0000
I-129	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	7.690E-05	0.0000
Ni-59	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.621E-01	0.0000
Ni-63	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.590E+02	0.0003
Pu-238	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	9.598E-01	0.0000
Pu-239	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	7.770E-01	0.0000
Pu-241	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	6.462E+00	0.0000
Sb-125	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.229E+01	0.0000
Sr-90	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	8.066E+02	0.0009

									new intruder					
Tc-99	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.109E-03	0.0000
*******	*********	******	*********	******	*********	******	*********	******	*********	******	*********	******	*********	******
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	9.475E+05	1.0000

0*Sum of all water independent and dependent pathways.

1RESRAD, Version 6.5 T= Limit = 1 day 01/07/2010 15:00 Page 30
Summary : RESRAD Intruder Resident
File : C:\USERS\WDORNSIFE\DOCUMENTS\RESRAD FILES\BLENDING0106.RAD

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As mrem/yr and Fraction of Total Dose At t = 1.000E+02 years
0 Water Independent Pathways (Inhalation excludes radon)

0	Ground		Inhalation		Radon		Plant		Meat		Milk		Soil	
Radio-														
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Am-241	5.885E-02	0.0000	5.722E-02	0.0000	0.000E+00	0.0000	2.895E-01	0.0000	1.275E-03	0.0000	7.365E-05	0.0000	2.403E-01	0.0000
C-14	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Cm-243	3.771E-01	0.0000	1.925E-02	0.0000	0.000E+00	0.0000	9.707E-02	0.0000	1.826E-04	0.0000	2.449E-05	0.0000	8.063E-02	0.0000
Co-60	3.982E+00	0.0001	5.283E-06	0.0000	0.000E+00	0.0000	3.193E-02	0.0000	3.421E-03	0.0000	4.227E-04	0.0000	3.324E-04	0.0000
Cs-134	1.452E-09	0.0000	6.915E-16	0.0000	0.000E+00	0.0000	2.699E-11	0.0000	5.187E-12	0.0000	1.760E-12	0.0000	5.620E-13	0.0000
Cs-137	4.433E+04	0.9520	4.045E-02	0.0000	0.000E+00	0.0000	1.560E+03	0.0335	2.997E+02	0.0064	1.017E+02	0.0022	3.248E+01	0.0007
Fe-55	0.000E+00	0.0000	6.141E-13	0.0000	0.000E+00	0.0000	8.545E-11	0.0000	1.504E-10	0.0000	3.263E-12	0.0000	7.099E-11	0.0000
H-3	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
I-129	1.764E-08	0.0000	2.216E-11	0.0000	0.000E+00	0.0000	4.338E-07	0.0000	2.597E-08	0.0000	4.876E-08	0.0000	1.801E-08	0.0000
Ni-59	0.000E+00	0.0000	1.958E-04	0.0000	0.000E+00	0.0000	4.683E-01	0.0000	1.402E-02	0.0000	7.060E-02	0.0000	7.800E-03	0.0000
Ni-63	0.000E+00	0.0000	3.997E-02	0.0000	0.000E+00	0.0000	1.127E+02	0.0024	3.375E+00	0.0001	1.700E+01	0.0004	1.878E+00	0.0000
Pu-238	1.938E-04	0.0000	4.590E-02	0.0000	0.000E+00	0.0000	2.311E-01	0.0000	2.033E-03	0.0000	3.011E-05	0.0000	1.919E-01	0.0000
Pu-239	5.402E-04	0.0000	7.470E-02	0.0000	0.000E+00	0.0000	3.801E-01	0.0000	3.344E-03	0.0000	4.838E-05	0.0000	3.157E-01	0.0000
Pu-241	6.906E-01	0.0000	6.752E-01	0.0000	0.000E+00	0.0000	3.416E+00	0.0001	1.512E-02	0.0000	8.666E-04	0.0000	2.836E+00	0.0001
Sb-125	1.094E-12	0.0000	6.062E-19	0.0000	0.000E+00	0.0000	1.312E-14	0.0000	2.333E-16	0.0000	2.478E-17	0.0000	8.224E-17	0.0000
Sr-90	7.779E-01	0.0000	4.001E-03	0.0000	0.000E+00	0.0000	8.569E+01	0.0018	3.164E+00	0.0001	8.968E-01	0.0000	2.394E-01	0.0000
Tc-99	9.713E-11	0.0000	6.109E-13	0.0000	0.000E+00	0.0000	3.307E-07	0.0000	1.449E-10	0.0000	1.705E-09	0.0000	5.492E-11	0.0000
*******	*********	******	*********	******	*********	******	*********	******	*********	******	*********	******	*********	******
Total	4.434E+04	0.9521	9.568E-01	0.0000	0.000E+00	0.0000	1.763E+03	0.0379	3.063E+02	0.0066	1.197E+02	0.0026	3.827E+01	0.0008

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Summary : RESRAD Intruder Resident
File : C:\USERS\WDORNSIFE\DOCUMENTS\RESRAD FILES\BLENDING0106.RAD

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As mrem/yr and Fraction of Total Dose At t = 1.000E+02 years
0 Water Dependent Pathways

0	Water		Fish		Radon		Plant		Meat		Milk		All Pathways*	
Radio-														
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Am-241	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	6.473E-01	0.0000
C-14	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Cm-243	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.743E-01	0.0000
Co-60	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.018E+00	0.0001
Cs-134	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.486E-09	0.0000
Cs-137	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.633E+04	0.9948
Fe-55	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.107E-10	0.0000
H-3	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
I-129	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.442E-07	0.0000
Ni-59	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.609E-01	0.0000
Ni-63	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.350E+02	0.0029
Pu-238	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.712E-01	0.0000
Pu-239	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	7.745E-01	0.0000
Pu-241	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	7.633E+00	0.0002
Sb-125	6.449E-11	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.142E-12	0.0000	2.644E-13	0.0000	5.192E-14	0.0000	7.106E-11	0.0000
Sr-90	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	9.077E+01	0.0019
Tc-99	4.307E-05	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	7.619E-06	0.0000	9.028E-09	0.0000	1.874E-07	0.0000	5.122E-05	0.0000
*******	*********	******	*********	******	*********	******	*********	******	*********	******	*********	******	*********	******
Total	4.307E-05	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	7.619E-06	0.0000	9.029E-09	0.0000	1.874E-07	0.0000	4.657E+04	1.0000

0*Sum of all water independent and dependent pathways.

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Summary : RESRAD Intruder Resident
File : C:\USERS\WDORNSIFE\DOCUMENTS\RESRAD FILES\BLENDING0106.RAD

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As mrem/yr and Fraction of Total Dose At t = 1.500E+02 years
0 Water Independent Pathways (Inhalation excludes radon)

0	Ground		Inhalation		Radon		Plant		Meat		Milk		Soil	
Radio-														
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Am-241	5.247E-02	0.0000	5.100E-02	0.0000	0.000E+00	0.0000	2.582E-01	0.0000	1.137E-03	0.0000	6.564E-05	0.0000	2.142E-01	0.0000
C-14	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Cm-243	1.118E-01	0.0000	5.957E-03	0.0000	0.000E+00	0.0000	3.005E-02	0.0000	6.542E-05	0.0000	7.422E-06	0.0000	2.496E-02	0.0000
Co-60	5.549E-03	0.0000	7.362E-09	0.0000	0.000E+00	0.0000	4.449E-05	0.0000	4.767E-06	0.0000	5.891E-07	0.0000	4.632E-07	0.0000
Cs-134	7.283E-17	0.0000	3.469E-23	0.0000	0.000E+00	0.0000	1.354E-18	0.0000	2.602E-19	0.0000	8.831E-20	0.0000	2.820E-20	0.0000

									new intruder					
Cs-137	1.396E+04	0.9485	1.274E-02	0.0000	0.000E+00	0.0000	4.912E+02	0.0334	9.440E+01	0.0064	3.203E+01	0.0022	1.023E+01	0.0007
Fe-55	0.000E+00	0.0000	1.634E-18	0.0000	0.000E+00	0.0000	2.274E-16	0.0000	4.001E-16	0.0000	8.682E-18	0.0000	1.889E-16	0.0000
H-3	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
I-129	1.127E-09	0.0000	1.416E-12	0.0000	0.000E+00	0.0000	2.772E-08	0.0000	1.659E-09	0.0000	3.115E-09	0.0000	1.151E-09	0.0000
Ni-59	0.000E+00	0.0000	1.955E-04	0.0000	0.000E+00	0.0000	4.677E-01	0.0000	1.400E-02	0.0000	7.052E-02	0.0000	7.791E-03	0.0000
Ni-63	0.000E+00	0.0000	2.784E-02	0.0000	0.000E+00	0.0000	7.853E+01	0.0053	2.350E+00	0.0002	1.184E+01	0.0008	1.308E+00	0.0001
Pu-238	1.307E-04	0.0000	3.092E-02	0.0000	0.000E+00	0.0000	1.556E-01	0.0000	1.369E-03	0.0000	2.069E-05	0.0000	1.293E-01	0.0000
Pu-239	5.393E-04	0.0000	7.456E-02	0.0000	0.000E+00	0.0000	3.794E-01	0.0000	3.338E-03	0.0000	4.829E-05	0.0000	3.152E-01	0.0000
Pu-241	6.213E-01	0.0000	6.042E-01	0.0000	0.000E+00	0.0000	3.058E+00	0.0002	1.348E-02	0.0000	7.775E-04	0.0000	2.538E+00	0.0002
Sb-125	4.448E-20	0.0000	2.465E-26	0.0000	0.000E+00	0.0000	5.335E-22	0.0000	9.483E-24	0.0000	1.008E-24	0.0000	3.343E-24	0.0000
Sr-90	2.311E-01	0.0000	1.189E-03	0.0000	0.000E+00	0.0000	2.546E+01	0.0017	9.401E-01	0.0001	2.665E-01	0.0000	7.112E-02	0.0000
Tc-99	1.072E-12	0.0000	6.742E-15	0.0000	0.000E+00	0.0000	3.650E-09	0.0000	1.599E-12	0.0000	1.881E-11	0.0000	6.060E-13	0.0000
*******	*********	******	*********	******	*********	******	*********	******	*********	******	*********	******	*********	******
Total	1.396E+04	0.9486	8.086E-01	0.0001	0.000E+00	0.0000	5.996E+02	0.0407	9.772E+01	0.0066	4.421E+01	0.0030	1.484E+01	0.0010

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Summary : RESRAD Intruder Resident
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Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As mrem/yr and Fraction of Total Dose At t = 1.500E+02 years

0
0 Water Dependent Pathways

Radio-	Water		Fish		Radon		Plant		Meat		Milk		All Pathways*	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
******	*********	******	*********	******	*********	******	*********	******	*********	******	*********	******	*********	******
Am-241	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.770E-01	0.0000
C-14	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Cm-243	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.728E-01	0.0000
Co-60	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.599E-03	0.0000
Cs-134	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	7.456E-17	0.0000
Cs-137	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.459E+04	0.9912
Fe-55	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	8.268E-16	0.0000
H-3	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
I-129	5.332E-04	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.127E-05	0.0000	7.051E-06	0.0000	2.193E-05	0.0000	6.035E-04	0.0000
Ni-59	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.602E-01	0.0000
Ni-63	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	9.405E+01	0.0064
Pu-238	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.173E-01	0.0000
Pu-239	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	7.731E-01	0.0001
Pu-241	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	6.836E+00	0.0005
Sb-125	2.622E-18	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.090E-19	0.0000	1.075E-20	0.0000	2.111E-21	0.0000	2.889E-18	0.0000
Sr-90	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.697E+01	0.0018
Tc-99	4.753E-07	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	8.407E-08	0.0000	9.963E-11	0.0000	2.068E-09	0.0000	5.652E-07	0.0000
*******	*********	******	*********	******	*********	******	*********	******	*********	******	*********	******	*********	******
Total	5.337E-04	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.135E-05	0.0000	7.052E-06	0.0000	2.193E-05	0.0000	1.472E+04	1.0000

0*Sum of all water independent and dependent pathways.
1RESRAD, Version 6.5 T½ Limit = 1 day 01/07/2010 15:00 Page 34
Summary : RESRAD Intruder Resident
File : C:\USERS\WDORNSIFE\DOCUMENTS\RESRAD FILES\BLENDING0106.RAD

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As mrem/yr and Fraction of Total Dose At t = 3.000E+02 years

0
0 Water Independent Pathways (Inhalation excludes radon)

Radio-	Ground		Inhalation		Radon		Plant		Meat		Milk		Soil	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
******	*********	******	*********	******	*********	******	*********	******	*********	******	*********	******	*********	******
Am-241	3.721E-02	0.0001	3.610E-02	0.0001	0.000E+00	0.0000	1.831E-01	0.0004	8.080E-04	0.0000	4.648E-05	0.0000	1.516E-01	0.0003
C-14	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Cm-243	2.957E-03	0.0000	5.046E-04	0.0000	0.000E+00	0.0000	2.561E-03	0.0000	1.731E-05	0.0000	4.209E-07	0.0000	2.127E-03	0.0000
Co-60	1.502E-11	0.0000	1.993E-17	0.0000	0.000E+00	0.0000	1.204E-13	0.0000	1.291E-14	0.0000	1.595E-15	0.0000	1.254E-15	0.0000
Cs-134	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Cs-137	4.361E+02	0.8812	3.979E-04	0.0000	0.000E+00	0.0000	1.534E+01	0.0310	2.949E+00	0.0060	1.001E+00	0.0020	3.195E-01	0.0006
Fe-55	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
H-3	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
I-129	2.940E-13	0.0000	3.694E-16	0.0000	0.000E+00	0.0000	7.230E-12	0.0000	4.328E-13	0.0000	8.126E-13	0.0000	3.001E-13	0.0000
Ni-59	0.000E+00	0.0000	1.949E-04	0.0000	0.000E+00	0.0000	4.661E-01	0.0009	1.395E-02	0.0000	7.028E-02	0.0001	7.764E-03	0.0000
Ni-63	0.000E+00	0.0000	9.404E-03	0.0000	0.000E+00	0.0000	2.653E+01	0.0536	7.941E-01	0.0016	4.000E+00	0.0081	4.419E-01	0.0009
Pu-238	4.098E-05	0.0000	9.451E-03	0.0000	0.000E+00	0.0000	4.756E-02	0.0001	4.186E-04	0.0000	7.175E-06	0.0000	3.949E-02	0.0001
Pu-239	5.366E-04	0.0000	7.416E-02	0.0001	0.000E+00	0.0000	3.774E-01	0.0008	3.320E-03	0.0000	4.803E-05	0.0000	3.135E-01	0.0006
Pu-241	4.410E-01	0.0009	4.279E-01	0.0009	0.000E+00	0.0000	2.170E+00	0.0044	9.572E-03	0.0000	5.509E-04	0.0000	1.797E+00	0.0036
Sb-125	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Sr-90	6.064E-03	0.0000	3.119E-05	0.0000	0.000E+00	0.0000	6.680E-01	0.0013	2.466E-02	0.0000	6.991E-03	0.0000	1.866E-03	0.0000
Tc-99	1.440E-18	0.0000	9.059E-21	0.0000	0.000E+00	0.0000	4.904E-15	0.0000	2.148E-18	0.0000	2.528E-17	0.0000	8.143E-19	0.0000
*******	*********	******	*********	******	*********	******	*********	******	*********	******	*********	******	*********	******
Total	4.366E+02	0.8822	5.582E-01	0.0011	0.000E+00	0.0000	4.579E+01	0.0925	3.795E+00	0.0077	5.079E+00	0.0103	3.075E+00	0.0062

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Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As mrem/yr and Fraction of Total Dose At t = 3.000E+02 years

Water Dependent Pathways

Radio-Nuclide	Water mrem/yr	Water fract.	Fish mrem/yr	Fish fract.	Radon mrem/yr	Radon fract.	Plant mrem/yr	Plant fract.	Meat mrem/yr	Meat fract.	Milk mrem/yr	Milk fract.	All Pathways* mrem/yr	All Pathways* fract.
Am-241	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.089E-01	0.0008
C-14	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Cm-243	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	8.168E-03	0.0000
Co-60	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.516E-11	0.0000
Cs-134	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Cs-137	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.557E+02	0.9209
Fe-55	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
H-3	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
I-129	1.391E-07	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.076E-08	0.0000	1.839E-09	0.0000	5.720E-09	0.0000	1.574E-07	0.0000
Ni-59	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.583E-01	0.0011
Ni-63	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.178E+01	0.0642
Pu-238	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	9.696E-02	0.0002
Pu-239	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	7.689E-01	0.0016
Pu-241	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.846E+00	0.0098
Sb-125	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Sr-90	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	7.076E-01	0.0014
Tc-99	6.386E-13	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.130E-13	0.0000	1.339E-16	0.0000	2.779E-15	0.0000	7.594E-13	0.0000
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Total	1.391E-07	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.076E-08	0.0000	1.839E-09	0.0000	5.720E-09	0.0000	4.949E+02	1.0000

0*Sum of all water independent and dependent pathways.

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As mrem/yr and Fraction of Total Dose At t = 5.000E+02 years
Water Independent Pathways (Inhalation excludes radon)

Radio-Nuclide	Ground mrem/yr	Ground fract.	Inhalation mrem/yr	Inhalation fract.	Radon mrem/yr	Radon fract.	Plant mrem/yr	Plant fract.	Meat mrem/yr	Meat fract.	Milk mrem/yr	Milk fract.	Soil mrem/yr	Soil fract.
Am-241	2.357E-02	0.0014	2.277E-02	0.0014	0.000E+00	0.0000	1.159E-01	0.0070	5.135E-04	0.0000	2.934E-05	0.0000	9.564E-02	0.0058
C-14	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Cm-243	6.787E-05	0.0000	3.574E-04	0.0000	0.000E+00	0.0000	1.818E-03	0.0001	1.591E-05	0.0000	2.335E-07	0.0000	1.511E-03	0.0001
Co-60	5.667E-23	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.544E-25	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Cs-134	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Cs-137	4.290E+00	0.2580	3.914E-06	0.0000	0.000E+00	0.0000	1.509E-01	0.0091	2.901E-02	0.0017	9.843E-03	0.0006	3.143E-03	0.0002
Fe-55	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
H-3	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
I-129	4.900E-18	0.0000	6.156E-21	0.0000	0.000E+00	0.0000	1.205E-16	0.0000	7.214E-18	0.0000	1.354E-17	0.0000	5.002E-18	0.0000
Ni-59	0.000E+00	0.0000	1.940E-04	0.0000	0.000E+00	0.0000	4.639E-01	0.0279	1.389E-02	0.0008	6.995E-02	0.0042	7.727E-03	0.0005
Ni-63	0.000E+00	0.0000	2.213E-03	0.0001	0.000E+00	0.0000	6.243E+00	0.3754	1.869E-01	0.0112	9.413E-01	0.0566	1.040E-01	0.0063
Pu-238	1.135E-05	0.0000	1.953E-03	0.0001	0.000E+00	0.0000	9.812E-03	0.0006	8.648E-05	0.0000	2.410E-06	0.0000	8.132E-03	0.0005
Pu-239	5.330E-04	0.0000	7.363E-02	0.0044	0.000E+00	0.0000	3.747E-01	0.0225	3.297E-03	0.0002	4.769E-05	0.0000	3.113E-01	0.0187
Pu-241	2.792E-01	0.0168	2.700E-01	0.0162	0.000E+00	0.0000	1.374E+00	0.0826	6.081E-03	0.0004	3.478E-04	0.0000	1.134E+00	0.0682
Sb-125	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Sr-90	4.727E-05	0.0000	2.431E-07	0.0000	0.000E+00	0.0000	5.207E-03	0.0003	1.922E-04	0.0000	5.449E-05	0.0000	1.454E-05	0.0000
Tc-99	2.136E-26	0.0000	1.343E-28	0.0000	0.000E+00	0.0000	7.272E-23	0.0000	3.186E-26	0.0000	3.749E-25	0.0000	1.207E-26	0.0000
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Total	4.594E+00	0.2762	3.711E-01	0.0223	0.000E+00	0.0000	8.738E+00	0.5255	2.399E-01	0.0144	1.022E+00	0.0614	1.665E+00	0.1001

Total Dose Contributions TDOSE(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As mrem/yr and Fraction of Total Dose At t = 5.000E+02 years
Water Dependent Pathways

Radio-Nuclide	Water mrem/yr	Water fract.	Fish mrem/yr	Fish fract.	Radon mrem/yr	Radon fract.	Plant mrem/yr	Plant fract.	Meat mrem/yr	Meat fract.	Milk mrem/yr	Milk fract.	All Pathways* mrem/yr	All Pathways* fract.
Am-241	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.585E-01	0.0155
C-14	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Cm-243	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.770E-03	0.0002
Co-60	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.712E-23	0.0000
Cs-134	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
Cs-137	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	4.483E+00	0.2696
Fe-55	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
H-3	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000
I-129	2.318E-12	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.794E-13	0.0000	3.066E-14	0.0000	9.533E-14	0.0000	2.624E-12	0.0000
Ni-59	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.557E-01	0.0334
Ni-63	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	7.477E+00	0.4496
Pu-238	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.000E-02	0.0012
Pu-239	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	7.634E-01	0.0459
Pu-241	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.063E+00	0.1842
Sb-125	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000

												new intruder						
Sr-90	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.516E-03	0.0003
Tc-99	9.469E-21	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.675E-21	0.0000	1.985E-24	0.0000	4.121E-23	0.0000	1.126E-20	0.0000
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Total	2.318E-12	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.794E-13	0.0000	3.066E-14	0.0000	9.533E-14	0.0000	1.663E+01	1.0000

0*Sum of all water independent and dependent pathways.

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Dose/Source Ratios Summed Over All Pathways
Parent and Progeny Principal Radionuclide Contributions Indicated

0 Parent (i)	Product (j)	Thread Fraction	DSR(j,t) At Time in Years (mrem/yr)/(pCi/g) 0.000E+00	1.000E+00	1.000E+01	1.000E+02	1.500E+02	3.000E+02	5.000E+02
ÄÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄ
Am-241	Am-241	1.000E+00	2.680E-01	2.673E-01	2.619E-01	2.128E-01	1.897E-01	1.342E-01	8.467E-02
Am-241	Np-237	1.000E+00	4.799E-07	1.489E-06	1.051E-05	9.090E-05	1.287E-04	2.184E-04	2.970E-04
Am-241	Pa-233	1.000E+00	7.458E-08	2.565E-07	1.893E-06	1.648E-05	2.333E-05	3.961E-05	5.387E-05
Am-241	U-233	1.000E+00	9.031E-15	6.542E-14	3.142E-12	2.671E-10	5.741E-10	2.022E-09	4.794E-09
Am-241	Th-229	1.000E+00	2.081E-18	3.615E-17	1.274E-14	1.074E-11	3.493E-11	2.526E-10	1.032E-09
Am-241	Ra-225	1.000E+00	8.065E-19	1.776E-17	7.427E-15	6.427E-12	2.092E-11	1.514E-10	6.186E-10
Am-241	Ac-225+D	1.000E+00	1.937E-18	4.360E-17	1.854E-14	1.609E-11	5.236E-11	3.790E-10	1.549E-09
Am-241	ädSR(j)		2.680E-01	2.673E-01	2.619E-01	2.129E-01	1.898E-01	1.345E-01	8.502E-02
0C-14	C-14	1.000E+00	2.971E-02	2.910E-10	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0Cm-243	Cm-243	2.367E-03	1.157E-03	1.130E-03	9.075E-04	1.016E-04	3.009E-05	7.824E-07	6.026E-09
Cm-243	Am-243	2.367E-03	3.544E-08	1.052E-07	6.594E-07	2.541E-06	2.617E-06	2.390E-06	2.041E-06
Cm-243	Np-239	2.367E-03	4.577E-08	1.374E-07	8.665E-07	3.341E-06	3.441E-06	3.143E-06	2.684E-06
Cm-243	Pu-239	2.367E-03	2.998E-13	1.906E-12	7.800E-11	3.817E-09	6.573E-09	1.456E-08	2.384E-08
Cm-243	U-235	2.367E-03	1.109E-22	1.690E-21	5.027E-19	2.732E-16	7.407E-16	3.574E-15	1.027E-14
Cm-243	Th-231	2.367E-03	5.115E-24	7.854E-23	2.349E-20	1.278E-17	3.464E-17	1.672E-16	4.804E-16
Cm-243	Pa-231	2.367E-03	3.787E-27	1.293E-25	2.643E-22	1.506E-18	6.311E-18	6.449E-17	3.207E-16
Cm-243	Ac-227	2.367E-03	1.400E-29	8.019E-28	8.074E-24	2.948E-19	1.560E-18	2.123E-17	1.199E-16
Cm-243	Th-227	2.367E-03	1.086E-30	8.473E-29	1.168E-24	4.531E-20	2.403E-19	3.277E-18	1.853E-17
Cm-243	Ra-223+D	2.367E-03	3.396E-30	3.110E-28	4.912E-24	1.951E-19	1.036E-18	1.414E-17	7.994E-17
Cm-243	ädSR(j)		1.158E-03	1.130E-03	9.090E-04	1.075E-04	3.616E-05	6.330E-06	4.754E-06
0Cm-243	Cm-243	3.312E-05	1.620E-05	1.581E-05	1.270E-05	1.421E-06	4.211E-07	1.095E-08	8.433E-11
Cm-243	Am-243	3.312E-05	4.959E-10	1.471E-09	9.228E-09	3.555E-08	3.662E-08	3.345E-08	2.856E-08
Cm-243	Np-239	3.312E-05	6.405E-10	1.923E-09	1.213E-08	4.675E-08	4.816E-08	4.398E-08	3.756E-08
Cm-243	Pu-239	3.312E-05	4.195E-15	2.667E-14	1.091E-12	5.342E-11	9.197E-11	2.038E-10	3.336E-10
Cm-243	U-235	3.312E-05	1.552E-24	2.364E-23	7.035E-21	3.823E-18	1.036E-17	5.001E-17	1.437E-16
Cm-243	Th-231	3.312E-05	7.158E-26	1.099E-24	3.287E-22	1.788E-19	4.847E-19	2.339E-18	6.722E-18
Cm-243	Pa-231	3.312E-05	5.299E-29	1.809E-27	3.699E-24	2.108E-20	8.832E-20	9.024E-19	4.488E-18
Cm-243	Ac-227+D	3.312E-05	1.355E-31	9.344E-30	1.143E-25	4.336E-21	2.298E-20	3.131E-19	1.770E-18
Cm-243	Ra-223+D	3.312E-05	7.161E-32	5.414E-30	7.185E-26	2.766E-21	1.467E-20	2.000E-19	1.131E-18
Cm-243	ädSR(j)		1.620E-05	1.581E-05	1.272E-05	1.504E-06	5.060E-07	8.858E-08	6.653E-08
0Cm-243	Cm-243	9.838E-01	4.811E-01	4.696E-01	3.772E-01	4.222E-02	1.251E-02	3.252E-04	2.505E-06
Cm-243	Pu-239	9.838E-01	3.340E-06	9.913E-06	6.240E-05	2.522E-04	2.686E-04	2.741E-04	2.723E-04
Cm-243	U-235	9.838E-01	2.035E-15	1.417E-14	6.245E-13	3.150E-11	5.487E-11	1.260E-10	2.163E-10
Cm-243	Th-231	9.838E-01	9.426E-17	6.600E-16	2.919E-14	1.473E-12	2.566E-12	5.893E-12	1.012E-11
Cm-243	Pa-231	9.838E-01	9.033E-20	1.438E-18	4.426E-16	2.448E-13	6.686E-13	3.301E-12	9.781E-12
Cm-243	Ac-227	9.838E-01	3.795E-22	1.047E-20	1.663E-17	5.618E-14	1.891E-13	1.185E-12	3.864E-12
Cm-243	Th-227	9.838E-01	3.232E-23	1.177E-21	2.437E-18	8.646E-15	2.916E-14	1.829E-13	5.970E-13
Cm-243	Ra-223+D	9.838E-01	1.062E-22	4.441E-21	1.031E-17	3.725E-14	1.257E-13	7.893E-13	2.576E-12
Cm-243	ädSR(j)		4.811E-01	4.696E-01	3.773E-01	4.248E-02	1.278E-02	5.993E-04	2.748E-04

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Summary : RESRAD Intruder Resident
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Dose/Source Ratios Summed Over All Pathways
Parent and Progeny Principal Radionuclide Contributions Indicated

0 Parent (i)	Product (j)	Thread Fraction	DSR(j,t) At Time in Years (mrem/yr)/(pCi/g) 0.000E+00	1.000E+00	1.000E+01	1.000E+02	1.500E+02	3.000E+02	5.000E+02
ÄÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄ
Cm-243	Cm-243	1.377E-02	6.732E-03	6.570E-03	5.278E-03	5.908E-04	1.750E-04	4.551E-06	3.505E-08
Cm-243	Pu-239	1.377E-02	4.673E-08	1.387E-07	8.731E-07	3.529E-06	3.759E-06	3.835E-06	3.810E-06
Cm-243	U-235	1.377E-02	2.848E-17	1.983E-16	8.739E-15	4.407E-13	7.677E-13	1.763E-12	3.027E-12
Cm-243	Th-231	1.377E-02	1.319E-18	9.236E-18	4.085E-16	2.061E-14	3.591E-14	8.246E-14	1.416E-13
Cm-243	Pa-231	1.377E-02	1.264E-21	2.012E-20	6.194E-18	3.426E-15	9.356E-15	4.619E-14	1.369E-13
Cm-243	Ac-227+D	1.377E-02	3.887E-24	1.267E-22	2.373E-19	8.270E-16	2.788E-15	1.748E-14	5.703E-14
Cm-243	Ra-223+D	1.377E-02	2.114E-24	7.468E-23	1.497E-19	5.278E-16	1.780E-15	1.116E-14	3.643E-14
Cm-243	ädSR(j)		6.732E-03	6.571E-03	5.279E-03	5.944E-04	1.788E-04	8.386E-06	3.846E-06
0Co-60	Co-60	1.000E+00	8.340E+00	7.313E+00	2.239E+00	1.620E-05	2.258E-08	6.112E-17	2.306E-28
0Cs-134	Cs-134	1.000E+00	4.506E+00	3.220E+00	1.563E-01	1.134E-14	5.692E-22	7.006E-44	0.000E+00
0Cs-137+D	Cs-137+D	1.000E+00	1.930E+00	1.886E+00	1.532E+00	1.914E-01	6.029E-02	1.883E-03	1.853E-05
0Fe-55	Fe-55	1.000E+00	6.414E-05	4.962E-05	4.922E-06	4.542E-16	1.209E-21	2.278E-38	0.000E+00
0H-3	H-3	1.000E+00	2.747E-03	3.112E-05	4.263E-23	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0I-129	I-129	1.000E+00	2.221E-01	2.103E-01	1.282E-01	9.070E-04	1.006E+00	2.624E-04	4.373E-09
0Ni-59	Ni-59	1.000E+00	4.134E-04	4.134E-04	4.133E-04	4.124E-04	4.119E-04	4.105E-04	4.086E-04
0Ni-63	Ni-63	1.000E+00	1.132E-03	1.123E-03	1.053E-03	5.489E-04	3.823E-04	1.292E-04	3.039E-05
0Pu-238	Pu-238	1.840E-09	3.941E-10	3.910E-10	3.641E-10	1.787E-10	1.204E-10	3.676E-11	7.561E-12
0Pu-238	Pu-238	1.000E+00	2.142E-01	2.125E-01	1.979E-01	9.714E-02	6.542E-02	1.998E-02	4.109E-03
Pu-238	U-234	1.000E+00	5.440E-08	1.649E-07	1.121E-06	7.613E-06	9.572E-06	1.208E-05	1.242E-05

								new intruder	
Pu-238	Th-230	1.000E+00	2.294E-13	1.558E-12	7.048E-11	5.111E-09	1.019E-08	2.975E-08	5.874E-08
Pu-238	Ra-226	1.000E+00	7.282E-16	1.172E-14	3.755E-12	2.745E-09	8.363E-09	5.093E-08	1.729E-07
Pu-238	Rn-222+D	1.000E+00	2.625E-15	4.055E-14	1.260E-11	9.167E-09	2.792E-08	1.700E-07	5.770E-07
Pu-238	Pb-210	1.000E+00	6.322E-18	1.835E-16	3.166E-13	1.409E-09	5.316E-09	4.188E-08	1.592E-07
Pu-238	Bi-210	1.000E+00	1.906E-20	6.483E-19	1.292E-15	5.901E-12	2.229E-11	1.757E-10	6.681E-10
Pu-238	Po-210	1.000E+00	4.713E-19	1.897E-17	4.938E-14	2.433E-10	9.215E-10	7.288E-09	2.774E-08
Pu-238	ädsr(j)		2.142E-01	2.125E-01	1.979E-01	9.715E-02	6.543E-02	1.999E-02	4.123E-03
0Pu-239	Pu-239	9.862E-01	2.344E-01	2.344E-01	2.343E-01	2.336E-01	2.332E-01	2.319E-01	2.302E-01
Pu-239	U-235	9.862E-01	2.140E-10	6.427E-10	4.495E-09	4.242E-08	6.303E-08	1.229E-07	1.984E-07
Pu-239	Th-231	9.862E-01	9.944E-12	3.000E-11	2.102E-10	1.984E-09	2.948E-09	5.748E-09	9.279E-09
Pu-239	Pa-231	9.862E-01	1.303E-14	9.601E-14	4.690E-12	4.237E-10	9.406E-10	3.637E-09	9.684E-09
Pu-239	Ac-227	9.862E-01	6.391E-17	8.629E-16	2.262E-13	1.085E-10	2.859E-10	1.339E-09	3.864E-09
Pu-239	Th-227	9.862E-01	5.994E-18	1.035E-16	3.360E-14	1.672E-11	4.411E-11	2.067E-10	5.970E-10
Pu-239	Ra-223+D	9.862E-01	2.067E-17	4.020E-16	1.428E-13	7.208E-11	1.902E-10	8.920E-10	2.576E-09
Pu-239	ädsr(j)		2.344E-01	2.344E-01	2.343E-01	2.336E-01	2.332E-01	2.319E-01	2.302E-01

Dose/Source Ratios Summed Over All Pathways
Parent and Progeny Principal Radionuclide Contributions Indicated

0 Parent (i)	Product (j)	Thread Fraction	DSR(j,t) At Time in Years (mrem/yr)/(pCi/g) 0.000E+00	1.000E+00	1.000E+01	1.000E+02	1.500E+02	3.000E+02	5.000E+02
Pu-239	Pu-239	1.380E-02	3.280E-03	3.280E-03	3.279E-03	3.268E-03	3.263E-03	3.245E-03	3.222E-03
Pu-239	U-235	1.380E-02	2.995E-12	8.993E-12	6.290E-11	5.936E-10	8.819E-10	1.720E-09	2.776E-09
Pu-239	Th-231	1.380E-02	1.391E-13	4.197E-13	2.941E-12	2.776E-11	4.125E-11	8.044E-11	1.298E-10
Pu-239	Pa-231	1.380E-02	1.823E-16	1.343E-15	6.563E-14	5.929E-12	1.316E-11	5.089E-11	1.355E-10
Pu-239	Ac-227+D	1.380E-02	6.940E-19	1.087E-17	3.256E-15	1.599E-12	4.215E-12	1.975E-11	5.702E-11
Pu-239	Ra-223+D	1.380E-02	3.885E-19	6.520E-18	2.060E-15	1.021E-12	2.692E-12	1.262E-11	3.643E-11
Pu-239	ädsr(j)		3.280E-03	3.280E-03	3.279E-03	3.268E-03	3.263E-03	3.245E-03	3.222E-03
0Pu-241	Pu-241	1.000E+00	4.482E-03	4.271E-03	2.769E-03	3.636E-05	3.276E-06	2.394E-09	1.576E-13
Pu-241	Am-241	1.000E+00	2.116E-04	6.207E-04	3.499E-03	7.371E-03	6.629E-03	4.696E-03	2.962E-03
Pu-241	Np-237	1.000E+00	2.441E-10	1.777E-09	7.541E-08	2.451E-06	3.769E-06	6.912E-06	9.672E-06
Pu-241	Pa-233	1.000E+00	3.610E-11	2.935E-10	1.350E-08	4.442E-07	6.834E-07	1.254E-06	1.754E-06
Pu-241	U-233	1.000E+00	3.528E-18	5.450E-17	1.564E-14	6.041E-12	1.476E-11	5.956E-11	1.492E-10
Pu-241	Th-229	1.000E+00	6.295E-22	2.269E-20	4.843E-17	2.104E-13	8.037E-13	6.969E-12	3.077E-11
Pu-241	Ra-225	1.000E+00	2.209E-22	1.055E-20	2.798E-17	1.258E-13	4.811E-13	4.177E-12	1.845E-11
Pu-241	Ac-225+D	1.000E+00	5.263E-22	2.577E-20	6.979E-17	3.149E-13	1.204E-12	1.046E-11	4.619E-11
Pu-241	ädsr(j)		4.694E-03	4.892E-03	6.269E-03	7.411E-03	6.636E-03	4.705E-03	2.974E-03
0Pu-241	Pu-241	2.450E-05	1.098E-07	1.047E-07	6.785E-08	8.910E-10	8.025E-11	5.865E-14	3.861E-18
Pu-241	U-237	2.450E-05	6.924E-06	6.803E-06	4.411E-06	5.792E-08	5.217E-09	3.812E-12	2.510E-16
Pu-241	Np-237	2.450E-05	1.098E-11	3.465E-11	2.043E-10	5.109E-10	5.132E-10	5.094E-10	5.038E-10
Pu-241	Pa-233	2.450E-05	1.700E-12	5.966E-12	3.685E-11	9.268E-11	9.310E-11	9.240E-11	9.139E-11
Pu-241	U-233	2.450E-05	2.021E-19	1.512E-18	6.573E-17	2.312E-15	3.725E-15	7.834E-15	1.299E-14
Pu-241	Th-229	2.450E-05	4.531E-23	8.264E-22	2.762E-19	1.158E-16	2.930E-16	1.309E-15	3.728E-15
Pu-241	Ra-225	2.450E-05	1.737E-23	4.051E-22	1.612E-19	6.931E-17	1.755E-16	7.846E-16	2.236E-15
Pu-241	Ac-225+D	2.450E-05	4.168E-23	9.943E-22	4.024E-19	1.735E-16	4.394E-16	1.964E-15	5.597E-15
Pu-241	ädsr(j)		7.034E-06	6.907E-06	4.479E-06	5.941E-08	5.903E-09	6.057E-10	5.952E-10
0Sb-125	Sb-125	7.720E-01	8.805E-01	6.265E-01	2.928E-02	7.188E-14	2.922E-21	1.976E-43	0.000E+00
0Sb-125	Sb-125	2.280E-01	2.600E-01	1.850E-01	8.647E-03	2.123E-14	8.630E-22	5.885E-44	0.000E+00
Sb-125	Te-125m	2.280E-01	1.086E-02	1.063E-02	4.991E-04	2.940E-14	1.195E-21	7.427E-44	0.000E+00
Sb-125	ädsr(j)		2.709E-01	1.957E-01	9.146E-03	5.063E-14	2.058E-21	1.331E-43	0.000E+00
0Sr-90	Sr-90	1.000E+00	1.454E+00	1.419E+00	1.140E+00	1.283E-01	3.813E-02	1.000E-03	7.798E-06
Sr-90	Y-90	1.000E+00	9.874E-02	1.110E-01	8.919E-02	1.004E-02	2.983E-03	7.825E-05	6.099E-07
Sr-90	ädsr(j)		1.552E+00	1.530E+00	1.230E+00	1.384E-01	4.112E-02	1.079E-03	8.408E-06
0Tc-99	Tc-99	1.000E+00	2.314E-01	2.116E-01	9.402E-02	4.340E-03	4.790E-05	6.436E-11	9.543E-19
†††††††††	†††††††††	††††††††	††††††††	††††††††	††††††††	††††††††	††††††††	††††††††	††††††††

The DSR includes contributions from associated (half-life > 1 day) daughters.

Single Radionuclide Soil Guidelines G(i,t) in pCi/g
Basic Radiation Dose Limit = 2.500E+01 mrem/yr

0Nuclide (i)	t= 0.000E+00	1.000E+00	1.000E+01	1.000E+02	1.500E+02	3.000E+02	5.000E+02
Am-241	9.330E+01	9.351E+01	9.547E+01	1.174E+02	1.317E+02	1.859E+02	2.940E+02
C-14	8.416E+02	8.592E+10	*4.455E+12	*4.455E+12	*4.455E+12	*4.455E+12	*4.455E+12
Cm-243	5.112E+01	5.238E+01	6.519E+01	5.790E+02	1.924E+03	4.071E+04	8.819E+04
Co-60	2.997E+00	3.419E+00	1.117E+01	1.543E+06	1.107E+09	*1.132E+15	*1.132E+15
Cs-134	5.548E+00	7.764E+00	1.600E+02	*1.295E+15	*1.295E+15	*1.295E+15	*1.295E+15
Cs-137	1.295E+01	1.326E+01	1.632E+01	1.306E+02	4.147E+02	1.328E+04	1.350E+06
Fe-55	3.898E+05	5.039E+05	5.079E+06	*2.410E+15	*2.410E+15	*2.410E+15	*2.410E+15
H-3	9.102E+03	8.034E+05	*9.597E+15	*9.597E+15	*9.597E+15	*9.597E+15	*9.597E+15
I-129	1.126E+02	1.189E+02	1.951E+02	2.756E+04	2.485E+01	9.528E+04	*1.766E+08
Ni-59	6.048E+04	6.048E+04	6.049E+04	6.062E+04	6.069E+04	6.090E+04	6.119E+04
Ni-63	2.209E+04	2.225E+04	2.375E+04	4.554E+04	6.539E+04	1.935E+05	8.225E+05
Pu-238	1.167E+02	1.176E+02	1.263E+02	2.573E+02	3.821E+02	1.250E+03	6.064E+03
Pu-239	1.052E+02	1.052E+02	1.052E+02	1.056E+02	1.057E+02	1.063E+02	1.071E+02

							new intruder
Pu-241	5.318E+03	5.103E+03	3.985E+03	3.374E+03	3.767E+03	5.314E+03	8.407E+03
Sb-125	2.171E+01	3.041E+01	6.506E+02	2.041E+14	*1.033E+15	*1.033E+15	*1.033E+15
Sr-90	1.610E+01	1.634E+01	2.033E+01	1.807E+02	6.080E+02	2.318E+04	2.973E+06
Tc-99	1.080E+02	1.181E+02	2.659E+02	5.760E+03	5.220E+05	*1.697E+10	*1.697E+10
¡¡¡¡¡¡¡	¡¡¡¡¡¡¡¡¡	¡¡¡¡¡¡¡¡¡	¡¡¡¡¡¡¡¡¡	¡¡¡¡¡¡¡¡¡	¡¡¡¡¡¡¡¡¡	¡¡¡¡¡¡¡¡¡	¡¡¡¡¡¡¡¡¡

*At specific activity limit

0

Summed Dose/Source Ratios DSR(i,t) in (mrem/yr)/(pCi/g)
and Single Radionuclide Soil Guidelines G(i,t) in pCi/g
at tmin = time of minimum single radionuclide soil guideline
and at tmax = time of maximum total dose = 0.000E+00 years

0Nuclide (i)	Initial (pCi/g)	tmin (years)	DSR(i,tmin)	G(i,tmin) (pCi/g)	DSR(i,tmax)	G(i,tmax) (pCi/g)
ÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄ
Am-241	3.040E+00	0.000E+00	2.680E-01	9.330E+01	2.680E-01	9.330E+01
C-14	5.480E+01	0.000E+00	2.971E-02	8.416E+02	2.971E-02	8.416E+02
Cm-243	1.330E+01	0.000E+00	4.890E-01	5.112E+01	4.890E-01	5.112E+01
Co-60	2.480E+05	0.000E+00	8.340E+00	2.997E+00	8.340E+00	2.997E+00
Cs-134	1.310E+05	0.000E+00	4.506E+00	5.548E+00	4.506E+00	5.548E+00
Cs-137	2.420E+05	0.000E+00	1.930E+00	1.295E+01	1.930E+00	1.295E+01
Fe-55	6.840E+05	0.000E+00	6.414E-05	3.898E+05	6.414E-05	3.898E+05
H-3	4.850E+01	0.000E+00	2.747E-03	9.102E+03	2.747E-03	9.102E+03
I-129	6.000E-04	112.4 ñ 0.2	7.873E+00	3.175E+00	2.221E-01	1.126E+02
Ni-59	1.360E+03	0.000E+00	4.134E-04	6.048E+04	4.134E-04	6.048E+04
Ni-63	2.460E+05	0.000E+00	1.132E-03	2.209E+04	1.132E-03	2.209E+04
Pu-238	4.850E+00	0.000E+00	2.142E-01	1.167E+02	2.142E-01	1.167E+02
Pu-239	3.270E+00	0.000E+00	2.377E-01	1.052E+02	2.377E-01	1.052E+02
Pu-241	1.030E+03	51.1 ñ 0.1	7.936E-03	3.150E+03	4.701E-03	5.318E+03
Sb-125	5.800E+02	0.000E+00	1.151E+00	2.171E+01	1.151E+00	2.171E+01
Sr-90	6.560E+02	0.000E+00	1.552E+00	1.610E+01	1.552E+00	1.610E+01
Tc-99	1.180E-02	0.000E+00	2.314E-01	1.080E+02	2.314E-01	1.080E+02
¡¡¡¡¡¡¡	¡¡¡¡¡¡¡¡¡	¡¡¡¡¡¡¡¡¡¡¡¡¡¡¡¡	¡¡¡¡¡¡¡¡¡	¡¡¡¡¡¡¡¡¡	¡¡¡¡¡¡¡¡¡	¡¡¡¡¡¡¡¡¡

Summary : RESRAD Intruder Resident
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Individual Nuclide Dose Summed Over All Pathways
Parent Nuclide and Branch Fraction Indicated

0Nuclide (j)	Parent (i)	THF(i)	DOSE(j,t), mrem/yr t= 0.000E+00	1.000E+00	1.000E+01	1.000E+02	1.500E+02	3.000E+02	5.000E+02
ÄÄÄÄÄÄÄ	ÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄÄ
Am-241	Am-241	1.000E+00	8.146E-01	8.127E-01	7.960E-01	6.470E-01	5.766E-01	4.081E-01	2.574E-01
Am-241	Pu-241	1.000E+00	2.179E-01	6.393E-01	3.604E+00	7.592E+00	6.828E+00	4.837E+00	3.051E+00
Am-241	aDOSE(j)		1.033E+00	1.452E+00	4.400E+00	8.239E+00	7.404E+00	5.245E+00	3.309E+00
0Np-237	Am-241	1.000E+00	1.459E-06	4.527E-06	3.195E-05	2.763E-04	3.912E-04	6.638E-04	9.029E-04
Np-237	Pu-241	1.000E+00	2.514E-07	1.830E-06	7.768E-05	2.524E-03	3.882E-03	7.120E-03	9.962E-03
Np-237	Pu-241	2.450E-05	1.131E-08	3.569E-08	2.104E-07	5.262E-07	5.286E-07	5.246E-07	5.189E-07
Np-237	aDOSE(j)		1.722E-06	6.393E-06	1.098E-04	2.801E-03	4.274E-03	7.784E-03	1.087E-02
0Pa-233	Am-241	1.000E+00	2.267E-07	7.797E-07	5.755E-06	5.010E-05	7.094E-05	1.204E-04	1.638E-04
Pa-233	Pu-241	1.000E+00	3.719E-08	3.023E-07	1.391E-05	4.575E-04	7.039E-04	1.291E-03	1.807E-03
Pa-233	Pu-241	2.450E-05	1.751E-09	6.145E-09	3.796E-08	9.546E-08	9.590E-08	9.518E-08	9.413E-08
Pa-233	aDOSE(j)		2.657E-07	1.088E-06	1.970E-05	5.077E-04	7.750E-04	1.412E-03	1.971E-03
0U-233	Am-241	1.000E+00	2.745E-14	1.989E-13	9.553E-12	8.119E-10	1.745E-09	6.147E-09	1.457E-08
U-233	Pu-241	1.000E+00	3.634E-15	5.614E-14	1.611E-11	6.222E-09	1.521E-08	6.135E-08	1.537E-07
U-233	Pu-241	2.450E-05	2.082E-16	1.557E-15	6.770E-14	2.382E-12	3.837E-12	8.069E-12	1.338E-11
U-233	aDOSE(j)		3.130E-14	2.566E-13	2.573E-11	7.036E-09	1.696E-08	6.750E-08	1.682E-07
0Th-229	Am-241	1.000E+00	6.328E-18	1.099E-16	3.874E-14	3.266E-11	1.062E-10	7.679E-10	3.136E-09
Th-229	Pu-241	1.000E+00	6.483E-19	2.337E-17	4.988E-14	2.167E-10	8.278E-10	7.178E-09	3.169E-08
Th-229	Pu-241	2.450E-05	4.667E-20	8.511E-19	2.845E-16	1.193E-13	3.018E-13	1.348E-12	3.840E-12
Th-229	aDOSE(j)		7.023E-18	1.341E-16	8.890E-14	2.495E-10	9.343E-10	7.947E-09	3.483E-08
0Ra-225	Am-241	1.000E+00	2.452E-18	5.399E-17	2.258E-14	1.954E-11	6.360E-11	4.603E-10	1.880E-09
Ra-225	Pu-241	1.000E+00	2.275E-19	1.086E-17	2.882E-14	1.296E-10	4.956E-10	4.302E-09	1.900E-08
Ra-225	Pu-241	2.450E-05	1.789E-20	4.172E-19	1.660E-16	7.139E-14	1.808E-13	8.082E-13	2.303E-12
Ra-225	aDOSE(j)		2.697E-18	6.527E-17	5.157E-14	1.492E-10	5.594E-10	4.763E-09	2.089E-08
0Ac-225	Am-241	1.000E+00	5.890E-18	1.326E-16	5.636E-14	4.890E-11	1.592E-10	1.152E-09	4.708E-09
Ac-225	Pu-241	1.000E+00	5.421E-19	2.654E-17	7.189E-14	3.243E-10	1.240E-09	1.077E-08	4.757E-08
Ac-225	Pu-241	2.450E-05	4.293E-20	1.024E-18	4.144E-16	1.787E-13	4.526E-13	2.023E-12	5.765E-12
Ac-225	aDOSE(j)		6.475E-18	1.601E-16	1.287E-13	3.734E-10	1.400E-09	1.192E-08	5.228E-08
0C-14	C-14	1.000E+00	1.628E+00	1.595E-08	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0Cm-243	Cm-243	2.367E-03	1.539E-02	1.502E-02	1.207E-02	1.351E-03	4.002E-04	1.041E-05	8.015E-08
Cm-243	Cm-243	3.312E-05	2.154E-04	2.102E-04	1.689E-04	1.891E-05	5.601E-06	1.456E-07	1.122E-09
Cm-243	aDOSE(j)		1.561E-02	1.523E-02	1.224E-02	1.370E-03	4.058E-04	1.055E-05	8.127E-08
0Am-243	Cm-243	2.367E-03	4.714E-07	1.399E-06	8.770E-06	3.379E-05	3.480E-05	3.179E-05	2.714E-05
Am-243	Cm-243	3.312E-05	6.596E-09	1.957E-08	1.227E-07	4.728E-07	4.870E-07	4.448E-07	3.798E-07
Am-243	aDOSE(j)		4.780E-07	1.418E-06	8.893E-06	3.426E-05	3.529E-05	3.223E-05	2.752E-05
0Np-239	Cm-243	2.367E-03	6.087E-07	1.828E-06	1.153E-05	4.444E-05	4.577E-05	4.181E-05	3.569E-05
Np-239	Cm-243	3.312E-05	8.518E-09	2.558E-08	1.613E-07	6.218E-07	6.405E-07	5.850E-07	4.995E-07
Np-239	aDOSE(j)		6.173E-07	1.854E-06	1.169E-05	4.506E-05	4.641E-05	4.239E-05	3.619E-05
0Pu-239	Cm-243	2.367E-03	3.987E-12	2.535E-11	1.037E-09	5.077E-08	8.742E-08	1.937E-07	3.171E-07

Summary : RESRAD Intruder Resident
File : C:\USERS\WDORNSIFE\DOCUMENTS\RESRAD FILES\BLENDING0106.RAD

Individual Nuclide Dose Summed Over All Pathways
Parent Nuclide and Branch Fraction Indicated

ONuclide (j)	Parent (i)	THF(i)	DOSE(j,t), mrem/yr t= 0.000E+00	1.000E+00	1.000E+01	1.000E+02	1.500E+02	3.000E+02	5.000E+02
Pu-239	Cm-243	3.312E-05	5.579E-14	3.547E-13	1.452E-11	7.104E-10	1.223E-09	2.710E-09	4.437E-09
Pu-239	Cm-243	9.838E-01	4.442E-05	1.318E-04	8.299E-04	3.354E-03	3.573E-03	3.645E-03	3.622E-03
Pu-239	Cm-243	1.377E-02	6.215E-07	1.845E-06	1.161E-05	4.694E-05	4.999E-05	5.101E-05	5.068E-05
Pu-239	Pu-239	9.862E-01	7.665E-01	7.665E-01	7.663E-01	7.638E-01	7.624E-01	7.583E-01	7.529E-01
Pu-239	aDOSE(j)		7.666E-01	7.666E-01	7.671E-01	7.672E-01	7.660E-01	7.620E-01	7.566E-01
OU-235	Cm-243	2.367E-03	1.475E-21	2.247E-20	6.686E-18	3.634E-15	9.851E-15	4.754E-14	1.366E-13
U-235	Cm-243	3.312E-05	2.064E-23	3.145E-22	9.356E-20	5.085E-17	1.378E-16	6.652E-16	1.911E-15
U-235	Cm-243	9.838E-01	2.707E-14	1.885E-13	8.306E-12	4.189E-10	7.297E-10	1.676E-09	2.877E-09
U-235	Cm-243	1.377E-02	3.787E-16	2.637E-15	1.162E-13	5.862E-12	1.021E-11	2.345E-11	4.026E-11
U-235	Pu-239	9.862E-01	6.998E-10	2.102E-09	1.470E-08	1.387E-07	2.061E-07	4.019E-07	6.487E-07
U-235	Pu-239	1.380E-02	9.793E-12	2.941E-11	2.057E-10	1.941E-09	2.884E-09	5.624E-09	9.078E-09
U-235	aDOSE(j)		7.096E-10	2.131E-09	1.491E-08	1.411E-07	2.097E-07	4.092E-07	6.607E-07
OTh-231	Cm-243	2.367E-03	6.804E-23	1.045E-21	3.125E-19	1.700E-16	4.607E-16	2.223E-15	6.389E-15
Th-231	Cm-243	3.312E-05	9.520E-25	1.462E-23	4.372E-21	2.378E-18	6.447E-18	3.111E-17	8.940E-17
Th-231	Cm-243	9.838E-01	1.254E-15	8.778E-15	3.883E-13	1.959E-11	3.413E-11	7.838E-11	1.346E-10
Th-231	Cm-243	1.377E-02	1.754E-17	1.228E-16	5.433E-15	2.742E-13	4.776E-13	1.097E-12	1.883E-12
Th-231	Pu-239	9.862E-01	3.252E-11	9.809E-11	6.873E-10	6.488E-09	9.639E-09	1.880E-08	3.034E-08
Th-231	Pu-239	1.380E-02	4.550E-13	1.373E-12	9.618E-12	9.079E-11	1.349E-10	2.630E-10	4.246E-10
Th-231	aDOSE(j)		3.297E-11	9.947E-11	6.973E-10	6.599E-09	9.809E-09	1.914E-08	3.090E-08
OPa-231	Cm-243	2.367E-03	5.036E-26	1.720E-24	3.516E-21	2.003E-17	8.394E-17	8.577E-16	4.266E-15
Pa-231	Cm-243	3.312E-05	6.915E-28	2.406E-26	4.920E-23	2.803E-19	1.175E-18	1.200E-17	5.969E-17
Pa-231	Cm-243	9.838E-01	1.201E-18	1.912E-17	5.887E-15	3.256E-12	8.893E-12	4.391E-11	1.301E-10
Pa-231	Cm-243	1.377E-02	1.681E-20	2.676E-19	8.238E-17	4.557E-14	1.244E-13	6.144E-13	1.820E-12
Pa-231	Pu-239	9.862E-01	4.260E-14	3.140E-13	1.534E-11	1.386E-09	3.076E-09	1.189E-08	3.167E-08
Pa-231	Pu-239	1.380E-02	5.961E-16	4.393E-15	2.146E-13	1.939E-11	4.304E-11	1.664E-10	4.431E-10
Pa-231	aDOSE(j)		4.319E-14	3.184E-13	1.556E-11	1.408E-09	3.128E-09	1.210E-08	3.224E-08
OAc-227	Cm-243	2.367E-03	1.814E-28	1.066E-26	1.074E-22	3.921E-18	2.075E-17	2.824E-16	1.595E-15
Ac-227	Cm-243	9.838E-01	5.048E-21	1.393E-19	2.211E-16	7.471E-13	2.516E-12	1.576E-11	5.139E-11
Ac-227	Pu-239	9.862E-01	2.090E-16	2.822E-15	7.397E-13	3.549E-10	9.349E-10	4.377E-09	1.263E-08
Ac-227	aDOSE(j)		2.090E-16	2.822E-15	7.399E-13	3.557E-10	9.375E-10	4.393E-09	1.269E-08
OTh-227	Cm-243	2.367E-03	1.421E-29	1.111E-27	1.553E-23	6.026E-19	3.196E-18	4.358E-17	2.464E-16
Th-227	Cm-243	9.838E-01	4.299E-22	1.565E-20	3.242E-17	1.150E-13	3.879E-13	2.433E-12	7.941E-12
Th-227	Pu-239	9.862E-01	1.960E-17	3.384E-16	1.099E-13	5.468E-11	1.442E-10	6.761E-10	1.952E-09
Th-227	aDOSE(j)		1.960E-17	3.385E-16	1.099E-13	5.480E-11	1.446E-10	6.785E-10	1.960E-09
ORa-223	Cm-243	2.367E-03	3.111E-29	4.122E-27	6.533E-23	2.595E-18	1.378E-17	1.880E-16	1.063E-15
Ra-223	Cm-243	3.312E-05	0.000E+00	7.072E-29	9.556E-25	3.679E-20	1.951E-19	2.660E-18	1.504E-17
Ra-223	Cm-243	9.838E-01	1.412E-21	5.907E-20	1.371E-16	4.955E-13	1.672E-12	1.050E-11	3.427E-11
Ra-223	Cm-243	1.377E-02	2.812E-23	9.932E-22	1.991E-18	7.020E-15	2.367E-14	1.485E-13	4.845E-13
Ra-223	Pu-239	9.862E-01	6.759E-17	1.315E-15	4.669E-13	2.357E-10	6.220E-10	2.917E-09	8.424E-09
Ra-223	Pu-239	1.380E-02	1.270E-18	2.132E-17	6.737E-15	3.338E-12	8.802E-12	4.125E-11	1.191E-10
Ra-223	aDOSE(j)		6.886E-17	1.336E-15	4.738E-13	2.395E-10	6.325E-10	2.969E-09	8.578E-09
OAc-227	Cm-243	3.312E-05	0.000E+00	1.169E-28	1.520E-24	5.767E-20	3.057E-19	4.165E-18	2.354E-17

Summary : RESRAD Intruder Resident
File : C:\USERS\WDORNSIFE\DOCUMENTS\RESRAD FILES\BLENDING0106.RAD

Individual Nuclide Dose Summed Over All Pathways
Parent Nuclide and Branch Fraction Indicated

ONuclide (j)	Parent (i)	THF(i)	DOSE(j,t), mrem/yr t= 0.000E+00	1.000E+00	1.000E+01	1.000E+02	1.500E+02	3.000E+02	5.000E+02
Ac-227	Cm-243	1.377E-02	5.169E-23	1.686E-21	3.156E-18	1.100E-14	3.708E-14	2.325E-13	7.585E-13
Ac-227	Pu-239	1.380E-02	2.269E-18	3.556E-17	1.065E-14	5.229E-12	1.378E-11	6.458E-11	1.865E-10
Ac-227	aDOSE(j)		2.269E-18	3.556E-17	1.065E-14	5.240E-12	1.382E-11	6.482E-11	1.872E-10
OCm-243	Cm-243	9.838E-01	6.399E+00	6.245E+00	5.017E+00	5.616E-01	1.664E-01	4.325E-03	3.332E-05
Cm-243	Cm-243	1.377E-02	8.954E-02	8.739E-02	7.020E-02	7.858E-03	2.328E-03	6.053E-05	4.662E-07
Cm-243	aDOSE(j)		6.488E+00	6.332E+00	5.087E+00	5.694E-01	1.687E-01	4.386E-03	3.378E-05
OCo-60	Co-60	1.000E+00	2.068E+06	1.814E+06	5.552E+05	4.018E+00	5.599E-03	1.516E-11	5.712E-23
OCs-134	Cs-134	1.000E+00	5.903E+05	4.218E+05	2.047E+04	1.486E-09	7.456E-17	0.000E+00	0.000E+00
OCs-137	Cs-137	1.000E+00	4.671E+05	4.564E+05	3.707E+05	4.633E+04	1.459E+04	4.557E+02	4.483E+00
OFe-55	Fe-55	1.000E+00	4.387E+01	3.394E+01	3.367E+00	3.107E-10	8.268E-16	0.000E+00	0.000E+00
OH-3	H-3	1.000E+00	1.332E-01	1.509E-03	2.068E-21	0.000E+00	0.000E+00	0.000E+00	0.000E+00
OI-129	I-129	1.000E+00	1.333E-04	1.262E-04	7.690E-05	5.442E-07	6.035E-04	1.574E-07	2.624E-12
ONi-59	Ni-59	1.000E+00	5.622E-01	5.622E-01	5.621E-01	5.609E-01	5.602E-01	5.583E-01	5.557E-01
ONi-63	Ni-63	1.000E+00	2.784E+02	2.764E+02	2.590E+02	1.350E+02	9.405E+01	3.178E+01	7.477E+00
OPu-238	Pu-238	1.840E-09	1.911E-09	1.896E-09	1.766E-09	8.669E-10	5.838E-10	1.783E-10	3.667E-11
Pu-238	Pu-238	1.000E+00	1.039E+00	1.031E+00	9.598E-01	4.711E-01	3.173E-01	9.690E-02	1.993E-02
Pu-238	aDOSE(j)		1.039E+00	1.031E+00	9.598E-01	4.711E-01	3.173E-01	9.690E-02	1.993E-02
OU-234	Pu-238	1.000E+00	2.638E-07	7.996E-07	5.438E-06	3.692E-05	4.642E-05	5.859E-05	6.022E-05
OTh-230	Pu-238	1.000E+00	1.113E-12	7.557E-12	3.418E-10	2.479E-08	4.943E-08	1.443E-07	2.849E-07
ORa-226	Pu-238	1.000E+00	3.532E-15	5.684E-14	1.821E-11	1.332E-08	4.056E-08	2.470E-07	8.385E-07
ORn-222	Pu-238	1.000E+00	1.273E-14	1.967E-13	6.111E-11	4.446E-08	1.354E-07	8.245E-07	2.799E-06
OPb-210	Pu-238	1.000E+00	3.066E-17	8.898E-16	1.536E-12	6.834E-09	2.578E-08	2.031E-07	7.720E-07

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                                                                                                                  new intruder
0Bi-210   Pu-238  1.000E+00    9.246E-20 3.144E-18 6.268E-15 2.862E-11 1.081E-10 8.523E-10 3.240E-09
0Po-210   Pu-238  1.000E+00    2.286E-18 9.199E-17 2.395E-13 1.180E-09 4.469E-09 3.535E-08 1.345E-07
0Pu-239   Pu-239  1.380E-02    1.073E-02 1.073E-02 1.072E-02 1.069E-02 1.067E-02 1.061E-02 1.054E-02
0Pu-241   Pu-241  1.000E+00    4.616E+00 4.399E+00 2.853E+00 3.746E-02 3.374E-03 2.466E-06 1.623E-10
 Pu-241   Pu-241  2.450E-05    1.131E-04 1.078E-04 6.989E-05 9.177E-07 8.266E-08 6.041E-11 3.977E-15
 Pu-241   aDOSE(j)             4.617E+00 4.400E+00 2.853E+00 3.746E-02 3.374E-03 2.466E-06 1.623E-10
0U-237    Pu-241  2.450E-05    7.132E-03 7.007E-03 4.543E-03 5.965E-05 5.373E-06 3.927E-09 2.585E-13
1RESRAD, Version 6.5       T½ Limit = 1 day          01/07/2010  15:00  Page  45
 Summary : RESRAD Intruder Resident
 File    : C:\USERS\WDORNSIFE\DOCUMENTS\RESRAD FILES\BLENDING0106.RAD

                          Individual Nuclide Dose Summed Over All Pathways
                            Parent Nuclide and Branch Fraction Indicated
0Nuclide Parent   THF(i)                                DOSE(j,t), mrem/yr
   (j)     (i)            t= 0.000E+00 1.000E+00 1.000E+01 1.000E+02 1.500E+02 3.000E+02 5.000E+02
 ÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄ    ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄ
 Sb-125  Sb-125  7.720E-01    5.107E+02 3.634E+02 1.698E+01 4.169E-11 1.695E-18 0.000E+00 0.000E+00
 Sb-125  Sb-125  2.280E-01    1.508E+02 1.073E+02 5.015E+00 1.231E-11 5.006E-19 0.000E+00 0.000E+00
 Sb-125  aDOSE(j)             6.615E+02 4.707E+02 2.200E+01 5.400E-11 2.195E-18 0.000E+00 0.000E+00
0Te-125m Sb-125  2.280E-01    6.301E+00 6.163E+00 2.895E-01 1.705E-11 6.933E-19 0.000E+00 0.000E+00
0Sr-90   Sr-90   1.000E+00    9.536E+02 9.307E+02 7.481E+02 8.419E+01 2.502E+01 6.563E-01 5.116E-03
0Y-90    Sr-90   1.000E+00    6.477E+01 7.279E+01 5.851E+01 6.585E+00 1.957E+00 5.133E-02 4.001E-04
0Tc-99   Tc-99   1.000E+00    2.731E-03 2.497E-03 1.109E-03 5.122E-05 5.652E-07 7.594E-13 1.126E-20
 ¡¡¡¡¡¡¡ ¡¡¡¡¡¡¡ ¡¡¡¡¡¡¡¡¡    ¡¡¡¡¡¡¡¡¡ ¡¡¡¡¡¡¡¡¡ ¡¡¡¡¡¡¡¡¡ ¡¡¡¡¡¡¡¡¡ ¡¡¡¡¡¡¡¡¡ ¡¡¡¡¡¡¡¡¡ ¡¡¡¡¡¡¡¡¡
 THF(i) is the thread fraction of the parent nuclide.
1RESRAD, Version 6.5       T½ Limit = 1 day          01/07/2010  15:00  Page  46
 Summary : RESRAD Intruder Resident
 File    : C:\USERS\WDORNSIFE\DOCUMENTS\RESRAD FILES\BLENDING0106.RAD

                              Individual Nuclide Soil Concentration
                            Parent Nuclide and Branch Fraction Indicated
0Nuclide Parent   THF(i)                                S(j,t), pCi/g
   (j)     (i)            t= 0.000E+00 1.000E+00 1.000E+01 1.000E+02 1.500E+02 3.000E+02 5.000E+02
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 Am-241  Am-241  1.000E+00    3.040E+00 3.033E+00 2.971E+00 2.414E+00 2.152E+00 1.523E+00 9.606E-01
 Am-241  Pu-241  1.000E+00    0.000E+00 1.611E+00 1.295E+01 2.833E+01 2.548E+01 1.805E+01 1.139E+01
 Am-241  aS(j):               3.040E+00 4.644E+00 1.592E+01 3.074E+01 2.763E+01 1.958E+01 1.235E+01
0Np-237  Am-241  1.000E+00    0.000E+00 9.835E-07 9.731E-06 8.769E-05 1.243E-04 2.113E-04 2.876E-04
 Np-237  Pu-241  1.000E+00    0.000E+00 2.633E-07 2.274E-05 8.001E-04 1.233E-03 2.266E-03 3.173E-03
 Np-237  Pu-241  2.450E-05    0.000E+00 7.772E-09 6.472E-08 1.677E-07 1.685E-07 1.672E-07 1.654E-07
 Np-237  aS(j):               0.000E+00 1.254E-06 3.254E-05 8.880E-04 1.358E-03 2.478E-03 3.460E-03
0Pa-233  Am-241  1.000E+00    0.000E+00 8.787E-07 9.628E-06 8.761E-05 1.243E-04 2.113E-04 2.875E-04
 Pa-233  Pu-241  1.000E+00    0.000E+00 2.132E-07 2.230E-05 7.991E-04 1.232E-03 2.265E-03 3.172E-03
 Pa-233  Pu-241  2.450E-05    0.000E+00 6.936E-09 6.417E-08 1.676E-07 1.684E-07 1.672E-07 1.653E-07
 Pa-233  aS(j):               0.000E+00 1.099E-06 3.199E-05 8.869E-04 1.357E-03 2.477E-03 3.460E-03
0U-233   Am-241  1.000E+00    0.000E+00 1.741E-12 2.089E-10 1.970E-08 4.250E-08 1.503E-07 3.569E-07
 U-233   Pu-241  1.000E+00    0.000E+00 2.856E-13 3.345E-10 1.506E-07 3.700E-07 1.500E-06 3.762E-06
 U-233   Pu-241  2.450E-05    0.000E+00 1.345E-14 1.493E-12 5.801E-11 9.372E-11 1.976E-10 3.279E-10
 U-233   aS(j):               0.000E+00 2.040E-12 5.449E-10 1.704E-07 4.126E-07 1.650E-06 4.120E-06
0Th-229  Am-241  1.000E+00    0.000E+00 5.019E-17 6.521E-14 6.314E-11 2.064E-10 1.500E-09 6.137E-09
 Th-229  Pu-241  1.000E+00    0.000E+00 6.237E-18 8.003E-14 4.180E-10 1.607E-09 1.401E-08 6.201E-08
 Th-229  Pu-241  2.450E-05    0.000E+00 3.784E-19 4.815E-16 2.313E-13 5.878E-13 2.636E-12 7.520E-12
 Th-229  aS(j):               0.000E+00 5.680E-17 1.457E-13 4.814E-10 1.814E-09 1.552E-08 6.816E-08
0Ra-225  Am-241  1.000E+00    0.000E+00 4.173E-17 6.407E-14 6.303E-11 2.061E-10 1.499E-09 6.135E-09
 Ra-225  Pu-241  1.000E+00    0.000E+00 4.925E-18 7.821E-14 4.172E-10 1.605E-09 1.401E-08 6.199E-08
 Ra-225  Pu-241  2.450E-05    0.000E+00 3.133E-19 4.733E-16 2.309E-13 5.872E-13 2.635E-12 7.518E-12
 Ra-225  aS(j):               0.000E+00 4.697E-17 1.428E-13 4.805E-10 1.811E-09 1.551E-08 6.813E-08
0Ac-225  Am-241  1.000E+00    0.000E+00 3.653E-17 6.330E-14 6.296E-11 2.060E-10 1.498E-09 6.134E-09
 Ac-225  Pu-241  1.000E+00    0.000E+00 4.149E-18 7.700E-14 4.166E-10 1.603E-09 1.400E-08 6.198E-08
 Ac-225  Pu-241  2.450E-05    0.000E+00 2.733E-19 4.678E-16 2.307E-13 5.869E-13 2.634E-12 7.517E-12
 Ac-225  aS(j):               0.000E+00 4.095E-17 1.408E-13 4.798E-10 1.810E-09 1.550E-08 6.812E-08
0C-14    C-14    1.000E+00    5.480E+01 1.672E-07 0.000E+00 0.000E+00 0.000E+00 0.000E+00 0.000E+00
0Cm-243  Cm-243  2.367E-03    3.148E-02 3.072E-02 2.468E-02 2.763E-03 8.184E-04 2.128E-05 1.639E-07
 Cm-243  Cm-243  3.312E-05    4.405E-04 4.299E-04 3.454E-04 3.866E-05 1.145E-05 2.978E-07 2.293E-09
 Cm-243  aS(j):               3.192E-02 3.115E-02 2.503E-02 2.801E-03 8.299E-04 2.158E-05 1.662E-07
0Am-243  Cm-243  2.367E-03    0.000E+00 2.920E-06 2.614E-05 1.050E-04 1.082E-04 9.890E-05 8.444E-05
 Am-243  Cm-243  3.312E-05    0.000E+00 4.086E-08 3.657E-07 1.469E-06 1.515E-06 1.384E-06 1.182E-06
 Am-243  aS(j):               0.000E+00 2.961E-06 2.650E-05 1.065E-04 1.098E-04 1.003E-04 8.562E-05
0Np-239  Cm-243  2.367E-03    0.000E+00 2.893E-06 2.611E-05 1.050E-04 1.082E-04 9.890E-05 8.444E-05
 Np-239  Cm-243  3.312E-05    0.000E+00 4.048E-08 3.654E-07 1.469E-06 1.515E-06 1.384E-06 1.182E-06
 Np-239  aS(j):               0.000E+00 2.933E-06 2.648E-05 1.065E-04 1.098E-04 1.003E-04 8.562E-05
0Pu-239  Cm-243  2.367E-03    0.000E+00 4.145E-11 3.915E-09 2.118E-07 3.660E-07 8.132E-07 1.333E-06
1RESRAD, Version 6.5       T½ Limit = 1 day          01/07/2010  15:00  Page  47
 Summary : RESRAD Intruder Resident
 File    : C:\USERS\WDORNSIFE\DOCUMENTS\RESRAD FILES\BLENDING0106.RAD

                              Individual Nuclide Soil Concentration
                            Parent Nuclide and Branch Fraction Indicated
0Nuclide Parent   THF(i)                                S(j,t), pCi/g
   (j)     (i)            t= 0.000E+00 1.000E+00 1.000E+01 1.000E+02 1.500E+02 3.000E+02 5.000E+02
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								new intruder	
Pu-239	Cm-243	3.312E-05	0.000E+00	5.800E-13	5.478E-11	2.964E-09	5.121E-09	1.138E-08	1.865E-08
Pu-239	Cm-243	9.838E-01	0.000E+00	3.723E-04	3.345E-03	1.410E-02	1.503E-02	1.534E-02	1.524E-02
Pu-239	Cm-243	1.377E-02	0.000E+00	5.210E-06	4.680E-05	1.972E-04	2.103E-04	2.146E-04	2.132E-04
Pu-239	Pu-239	9.862E-01	3.225E+00	3.225E+00	3.224E+00	3.213E+00	3.208E+00	3.190E+00	3.168E+00
Pu-239	aS(j):		3.225E+00	3.225E+00	3.227E+00	3.228E+00	3.223E+00	3.206E+00	3.183E+00
0U-235	Cm-243	2.367E-03	0.000E+00	1.351E-20	1.310E-17	8.127E-15	2.213E-14	1.073E-13	3.087E-13
U-235	Cm-243	3.312E-05	0.000E+00	1.891E-22	1.832E-19	1.137E-16	3.097E-16	1.501E-15	4.320E-15
U-235	Cm-243	9.838E-01	0.000E+00	1.841E-13	1.712E-11	9.419E-10	1.645E-09	3.788E-09	6.509E-09
U-235	Cm-243	1.377E-02	0.000E+00	2.576E-15	2.396E-13	1.318E-11	2.302E-11	5.300E-11	9.108E-11
U-235	Pu-239	9.862E-01	0.000E+00	3.176E-09	3.171E-08	3.126E-07	4.652E-07	9.087E-07	1.468E-06
U-235	Pu-239	1.380E-02	0.000E+00	4.444E-11	4.437E-10	4.374E-09	6.510E-09	1.272E-08	2.054E-08
U-235	aS(j):		0.000E+00	3.220E-09	3.217E-08	3.179E-07	4.734E-07	9.253E-07	1.495E-06
0Th-231	Cm-243	2.367E-03	0.000E+00	1.334E-20	1.308E-17	8.126E-15	2.213E-14	1.073E-13	3.087E-13
Th-231	Cm-243	3.312E-05	0.000E+00	1.867E-22	1.830E-19	1.137E-16	3.097E-16	1.501E-15	4.320E-15
Th-231	Cm-243	9.838E-01	0.000E+00	1.825E-13	1.711E-11	9.418E-10	1.645E-09	3.788E-09	6.509E-09
Th-231	Cm-243	1.377E-02	0.000E+00	2.554E-15	2.394E-13	1.318E-11	2.302E-11	5.300E-11	9.108E-11
Th-231	Pu-239	9.862E-01	0.000E+00	3.162E-09	3.170E-08	3.126E-07	4.652E-07	9.087E-07	1.468E-06
Th-231	Pu-239	1.380E-02	0.000E+00	4.425E-11	4.435E-10	4.374E-09	6.510E-09	1.272E-08	2.054E-08
Th-231	aS(j):		0.000E+00	3.207E-09	3.216E-08	3.179E-07	4.734E-07	9.253E-07	1.495E-06
0Pa-231	Cm-243	2.367E-03	0.000E+00	6.972E-26	6.991E-22	4.722E-18	1.991E-17	2.046E-16	1.020E-15
Pa-231	Cm-243	3.312E-05	0.000E+00	9.756E-28	9.782E-24	6.608E-20	2.785E-19	2.863E-18	1.427E-17
Pa-231	Cm-243	9.838E-01	0.000E+00	1.285E-18	1.230E-15	7.714E-13	2.116E-12	1.049E-11	3.113E-11
Pa-231	Cm-243	1.377E-02	0.000E+00	1.798E-20	1.721E-17	1.079E-14	2.961E-14	1.468E-13	4.356E-13
Pa-231	Pu-239	9.862E-01	0.000E+00	3.331E-14	3.350E-12	3.291E-10	7.329E-10	2.843E-09	7.579E-09
Pa-231	Pu-239	1.380E-02	0.000E+00	4.661E-16	4.688E-14	4.605E-12	1.026E-11	3.978E-11	1.061E-10
Pa-231	aS(j):		0.000E+00	3.378E-14	3.398E-12	3.345E-10	7.453E-10	2.893E-09	7.716E-09
0Ac-227	Cm-243	2.367E-03	0.000E+00	4.361E-28	4.249E-23	2.003E-18	1.070E-17	1.468E-16	8.318E-16
Ac-227	Cm-243	9.838E-01	0.000E+00	1.013E-20	9.286E-17	3.841E-13	1.302E-12	8.207E-12	2.683E-11
Ac-227	Pu-239	9.862E-01	0.000E+00	3.492E-16	3.284E-13	1.832E-10	4.850E-10	2.281E-09	6.596E-09
Ac-227	aS(j):		0.000E+00	3.492E-16	3.285E-13	1.835E-10	4.863E-10	2.290E-09	6.623E-09
0Th-227	Cm-243	2.367E-03	0.000E+00	3.124E-28	4.099E-23	1.997E-18	1.068E-17	1.467E-16	8.314E-16
Th-227	Cm-243	9.838E-01	0.000E+00	7.703E-21	9.025E-17	3.832E-13	1.300E-12	8.202E-12	2.682E-11
Th-227	Pu-239	9.862E-01	0.000E+00	2.823E-16	3.214E-13	1.828E-10	4.844E-10	2.280E-09	6.594E-09
Th-227	aS(j):		0.000E+00	2.823E-16	3.215E-13	1.832E-10	4.857E-10	2.288E-09	6.621E-09
0Ra-223	Cm-243	2.367E-03	0.000E+00	2.495E-28	4.009E-23	1.993E-18	1.066E-17	1.466E-16	8.311E-16
Ra-223	Cm-243	3.312E-05	0.000E+00	4.932E-30	5.816E-25	2.797E-20	1.495E-19	2.053E-18	1.164E-17
Ra-223	Cm-243	9.838E-01	0.000E+00	6.416E-21	8.867E-17	3.826E-13	1.299E-12	8.199E-12	2.681E-11
Ra-223	Cm-243	1.377E-02	0.000E+00	1.193E-22	1.277E-18	5.367E-15	1.821E-14	1.148E-13	3.753E-13
Ra-223	Pu-239	9.862E-01	0.000E+00	2.451E-16	3.172E-13	1.826E-10	4.841E-10	2.279E-09	6.593E-09
Ra-223	Pu-239	1.380E-02	0.000E+00	4.281E-18	4.535E-15	2.560E-12	6.781E-12	3.191E-11	9.229E-11
Ra-223	aS(j):		0.000E+00	2.494E-16	3.218E-13	1.856E-10	4.922E-10	2.320E-09	6.713E-09
0Ac-227	Cm-243	3.312E-05	0.000E+00	6.103E-30	5.946E-25	2.803E-20	1.497E-19	2.054E-18	1.164E-17

Individual Nuclide Soil Concentration
Parent Nuclide and Branch Fraction Indicated

Nuclide (j)	Parent (i)	THF(i)	S(j,t), pCi/g t= 0.000E+00	1.000E+00	1.000E+01	1.000E+02	1.500E+02	3.000E+02	5.000E+02
ÄÄÄÄÄÄ	ÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄ
Ac-227	Cm-243	1.377E-02	0.000E+00	1.417E-22	1.299E-18	5.374E-15	1.822E-14	1.148E-13	3.754E-13
Ac-227	Pu-239	1.380E-02	0.000E+00	4.887E-18	4.596E-15	2.563E-12	6.786E-12	3.192E-11	9.230E-11
Ac-227	aS(j):		0.000E+00	4.887E-18	4.597E-15	2.568E-12	6.804E-12	3.204E-11	9.268E-11
0Cm-243	Cm-243	9.838E-01	1.308E+01	1.277E+01	1.026E+01	1.148E+00	3.402E-01	8.845E-03	6.813E-05
Cm-243	Cm-243	1.377E-02	1.831E-01	1.787E-01	1.436E-01	1.607E-02	4.760E-03	1.238E-04	9.533E-07
Cm-243	aS(j):		1.327E+01	1.295E+01	1.040E+01	1.164E+00	3.450E-01	8.969E-03	6.908E-05
0Co-60	Co-60	1.000E+00	2.480E+05	2.174E+05	6.657E+04	4.817E-01	6.713E-04	1.817E-12	6.856E-24
0Cs-134	Cs-134	1.000E+00	1.310E+05	9.360E+04	4.543E+03	3.298E-10	1.655E-17	2.019E-39	0.000E+00
0Cs-137	Cs-137	1.000E+00	2.420E+05	2.365E+05	1.921E+05	2.400E+04	7.559E+03	2.361E+02	2.323E+00
0Fe-55	Fe-55	1.000E+00	6.840E+05	5.291E+05	5.249E+04	4.844E-06	1.289E-11	2.429E-28	0.000E+00
0H-3	H-3	1.000E+00	4.850E+01	5.022E-01	6.877E-19	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0I-129	I-129	1.000E+00	6.000E-04	5.679E-04	3.462E-04	2.449E-06	1.565E-07	4.082E-11	6.804E-16
0Ni-59	Ni-59	1.000E+00	1.360E+03	1.360E+03	1.360E+03	1.357E+03	1.355E+03	1.351E+03	1.344E+03
0Ni-63	Ni-63	1.000E+00	2.460E+05	2.442E+05	2.288E+05	1.193E+05	8.311E+04	2.808E+04	6.607E+03
0Pu-238	Pu-238	1.840E-09	8.924E-09	8.854E-09	8.246E-09	4.047E-09	2.726E-09	8.325E-10	1.712E-10
Pu-238	Pu-238	1.000E+00	4.850E+00	4.812E+00	4.481E+00	2.200E+00	1.481E+00	4.524E-01	9.306E-02
Pu-238	aS(j):		4.850E+00	4.812E+00	4.481E+00	2.200E+00	1.481E+00	4.524E-01	9.306E-02
0U-234	Pu-238	1.000E+00	0.000E+00	1.369E-05	1.320E-04	9.351E-04	1.178E-03	1.488E-03	1.530E-03
0Th-230	Pu-238	1.000E+00	0.000E+00	6.172E-11	6.023E-09	4.785E-07	9.576E-07	2.804E-06	5.543E-06
0Ra-226	Pu-238	1.000E+00	0.000E+00	8.917E-15	8.742E-12	7.241E-09	2.216E-08	1.356E-07	4.610E-07
0Rn-222	Pu-238	1.000E+00	0.000E+00	8.514E-15	8.691E-12	7.228E-09	2.212E-08	1.354E-07	4.603E-07
0Pb-210	Pu-238	1.000E+00	0.000E+00	6.484E-17	6.371E-13	3.449E-09	1.310E-08	1.039E-07	3.959E-07
0Bi-210	Pu-238	1.000E+00	0.000E+00	5.984E-17	6.310E-13	3.441E-09	1.308E-08	1.037E-07	3.952E-07
0Po-210	Pu-238	1.000E+00	0.000E+00	1.624E-17	5.145E-13	3.375E-09	1.291E-08	1.031E-07	3.938E-07
0Pu-239	Pu-239	1.380E-02	4.513E-02	4.512E-02	4.511E-02	4.496E-02	4.488E-02	4.464E-02	4.432E-02
0Pu-241	Pu-241	1.000E+00	1.030E+03	9.816E+02	6.364E+02	8.357E+00	7.527E-01	5.501E-04	3.621E-08
Pu-241	Pu-241	2.450E-05	2.523E-02	2.405E-02	1.559E-02	2.047E-04	1.844E-05	1.348E-08	8.872E-13
Pu-241	aS(j):		1.030E+03	9.816E+02	6.364E+02	8.357E+00	7.527E-01	5.501E-04	3.621E-08
0U-237	Pu-241	2.450E-05	0.000E+00	2.408E-02	1.561E-02	2.050E-04	1.847E-05	1.350E-08	8.884E-13

Summary : RESRAD Intruder Resident
File : C:\USERS\WDORNSIFE\DOCUMENTS\RESRAD FILES\BLENDING0106.RAD

Individual Nuclide Soil Concentration
Parent Nuclide and Branch Fraction Indicated

ONuclide (j)	Parent (i)	THF(i)	S(j,t), pCi/g t= 0.000E+00	1.000E+00	1.000E+01	1.000E+02	1.500E+02	3.000E+02	5.000E+02
AAAAAAA	AAAAAAA	AAAAAAAAA	AAAAAAAAA	AAAAAAAAA	AAAAAAAAA	AAAAAAAAA	AAAAAAAAA	AAAAAAAAA	AAAAAAAAA
Sb-125	Sb-125	7.720E-01	4.478E+02	3.186E+02	1.489E+01	7.400E-13	3.008E-20	1.626E-42	0.000E+00
Sb-125	Sb-125	2.280E-01	1.322E+02	9.409E+01	4.397E+00	2.185E-13	8.884E-21	8.128E-43	0.000E+00
Sb-125	&S(j):		5.800E+02	4.127E+02	1.929E+01	9.585E-13	3.897E-20	2.438E-42	0.000E+00
OTe-125m	Sb-125	2.280E-01	0.000E+00	9.818E+01	4.665E+00	2.318E-13	9.425E-21	8.128E-43	0.000E+00
OSr-90	Sr-90	1.000E+00	6.560E+02	6.403E+02	5.146E+02	5.792E+01	1.721E+01	4.515E-01	3.519E-03
OY-90	Sr-90	1.000E+00	0.000E+00	6.404E+02	5.148E+02	5.793E+01	1.721E+01	4.516E-01	3.520E-03
OTc-99	Tc-99	1.000E+00	1.180E-02	1.078E-02	4.791E-03	1.437E-06	1.586E-08	2.131E-14	3.159E-22
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THF(i) is the thread fraction of the parent nuclide.
ORESCALC.EXE execution time = 50.60 seconds