Docket No. 50-213
CY-05-002

Attachment 3

Haddam Neck Plant

Resident/Farmer Dose Assessment

January 2005

Assessment of the Radiological Effects on Future Residents from the Alternative Disposal of the Solid Waste from the Decommissioning of the Haddam Neck Plant at the Waste Control Specialists Hazardous Waste Landfill

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from the Alternative Disposal of the Solid Waste from the Decommissioning
of the Haddam Neck Plant at the Waste Control Specialists Hazardous Waste Landfill

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Assessment of the Radiological Effects on Future Residents
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1.0 Purpose

This assessment calculates the radiological effect per given activity concentration per isotope to the future resident farmer at the Waste Control Specialists (WCS) disposal facility from the alternative disposal of wastes containing residual radioactive material contamination. These wastes are from decommissioning activities conducted at the Connecticut Yankee Haddam Neck Plant.

2.0 Background

WCS operates a hazardous waste landfill under a permit issued by the State of Texas. The facility has a successful history of disposal of wastes contaminated with residual radioactive materials contaminated with source material (i.e., ^{238}U and ^{232}Th) that has been exempted under 10CFR40. The input parameters used herein have been used previously by WCS staff to evaluate the radiological effects of disposal of this exempt source material to the resident farmer as an Average Member of the Critical Group (AMCG) who might live upon the disposal facility at some time after facility closure up to 1,000 years in the future.

Connecticut Yankee (CY) is decommissioning the Haddam Neck Nuclear Power Plant (HNP) in accordance with an NRC approved License Termination Plan (LTP). Waste materials generated during the decommissioning activities vary greatly in the amount of residual radioactive material that they contain. Connecticut Yankee is seeking NRC approval to dispose of decommissioning materials containing very low quantities of residual radioactive material at the WCS landfill.

3.0 Methodology

3.1 Isotopic Concentrations

The dose assessment was performed using the RESRAD 6.22 computer code. Except where specifically noted, the RESRAD default parameters were used as input parameters. The CY License Termination Plan (LTP) identifies 20 potential isotopes of concern in the subject waste. Each of these isotopes were included in the model at a soil concentration of one (1) pCi/gram. Therefore, the dose assessment results indicate a dose equivalent per soil concentration per isotope (i.e., in mrem/year per pCi/g per isotope), and are not intended to be evaluated as a direct output (i.e., isotopes may be present in less or greater concentrations than one (1) pCi/gram).

Table 3-1: Isotopes of Concern

- ^{3}H
- ^{14}C
- ^{54}Mn
- ^{55}Fe
- ^{60}Co
- ^{63}Ni
- ^{90}Sr
- ^{94}Nb
- ^{99}Tc
- ^{108m}Ag
- ^{134}Cs
- ^{137}Cs
- ^{152}Eu
- ^{154}Eu
- ^{155}Eu
- ^{238}Pu
- $^{239/240}Pu$
- ^{241}Pu
- ^{241}Am
- $^{243/240}Cm$

3.2 The Model

The RESRAD computer code is utilized to calculate doses, risks, and guidance values for residual concentrations of radionuclides in material. The code was designed by the Department of Energy (DOE) to demonstrate compliance with DOE Order 5400.5.

The radiation dose, as determined by RESRAD, is the Total Effective Dose Equivalent (TEDE) from the sum of external radiation plus the Committed Effective Dose Equivalent (CEDE) from internally deposited radionuclides. The critical population group is a relatively small, homogeneous group that is representative of those individuals in the population that could reside at the site after closure. The exposure scenario represents the reasonable maximally exposed resident farmer, who resides, works, grows crops, and raises livestock on site. The "Aquatic Foods" pathway was suppressed due to the topography of the area around the WCS landfill (i.e., it is an arid region with no surface water near enough to be affected[mrnm1]).

Because this scenario is based on "prudently conservative" assumptions that tend to overestimate potential doses, use of this scenario results in estimated doses that will be greater than exposure to future residents. The highest dose per year for each isotope was used to determine the potential effects of that isotope. Copies of the graphic outputs for TEDE for each isotope at one (1) pCi/g are included in Appendix A.

RESRAD input parameters for the subject calculation, as well as their bases, are provided in Appendices B and C, and include calculations using site specific material characteristics, as determined from the site hydro-geological report[mrnm2]. Otherwise, RESRAD default parameters were used. No institutional control period was credited (i.e., the model was evaluated from the time of waste emplacement to 1,000 years thereafter).

4.0 Results

The only isotopes resulting in a measurable dose were ^{3}H and ^{238}Pu. The thick and almost impermeable (i.e., red bed clay) unsaturated zone under the WCS landfill prevents most of the water soluble isotopes from reaching the water table. Tritium (^{3}H) moves as water and results in a negligible dose equivalent after approximately 244 years. Refer to Table 4-1: Dose Equivalent per Concentration per Isotope, for a summary of results. The thick and almost impermeable (i.e., red bed clay) cover [cap] placed over the WCS landfill prevents most radon emitting and direct exposure isotopes from resulting in a measurable dose equivalent. The exception being ^{238}Pu, whose progeny is sufficiently long-lived to pose a negligible Radon and direct dose hazard near the 1,000 year point (i.e., progeny in-growth coordinated with cap erosion).

5.0 Conclusion

This assessment establishes a dose equivalent per year per activity concentration to the future Resident Farmer AMCG as a result of the subject disposal activities for each isotope of concern. Since, the relationship between activity concentration, for any given isotope, and resultant dose equivalent are linear, these values can be weighted by the actual isotopic concentrations in the waste stream to determine a dose equivalent estimate for the disposal activity.

Table 4-1: Dose Equivalent per Concentration per Isotope

Isotope	Time after Placement to Peak Dose (Years)	Dose Equivalent per Concentration at Time of Peak Dose (mrem/year per pCi/gram)
^{3}H	243.7	4.202E-8
^{14}C	0	0
^{54}Mn	0	0
^{55}Fe	0	0
^{60}Co	0	0
^{63}Ni	0	0
^{90}Sr	0	0
^{94}Nb	0	0
^{99}Tc	0	0
^{108m}Ag	0	0
^{134}Cs	0	0
^{137}Cs	0	0
^{152}Eu	0	0
^{154}Eu	0	0
^{155}Eu	0	0
^{238}Pu	1,000	4.299E-7
^{239}Pu	0	0
^{241}Pu	0	0
^{241}Am	0	
^{243}Cm	0	

6.0 Appendices

Appendix A: RESRAD Graphic Output for Resident Farmer Disposal Scenario

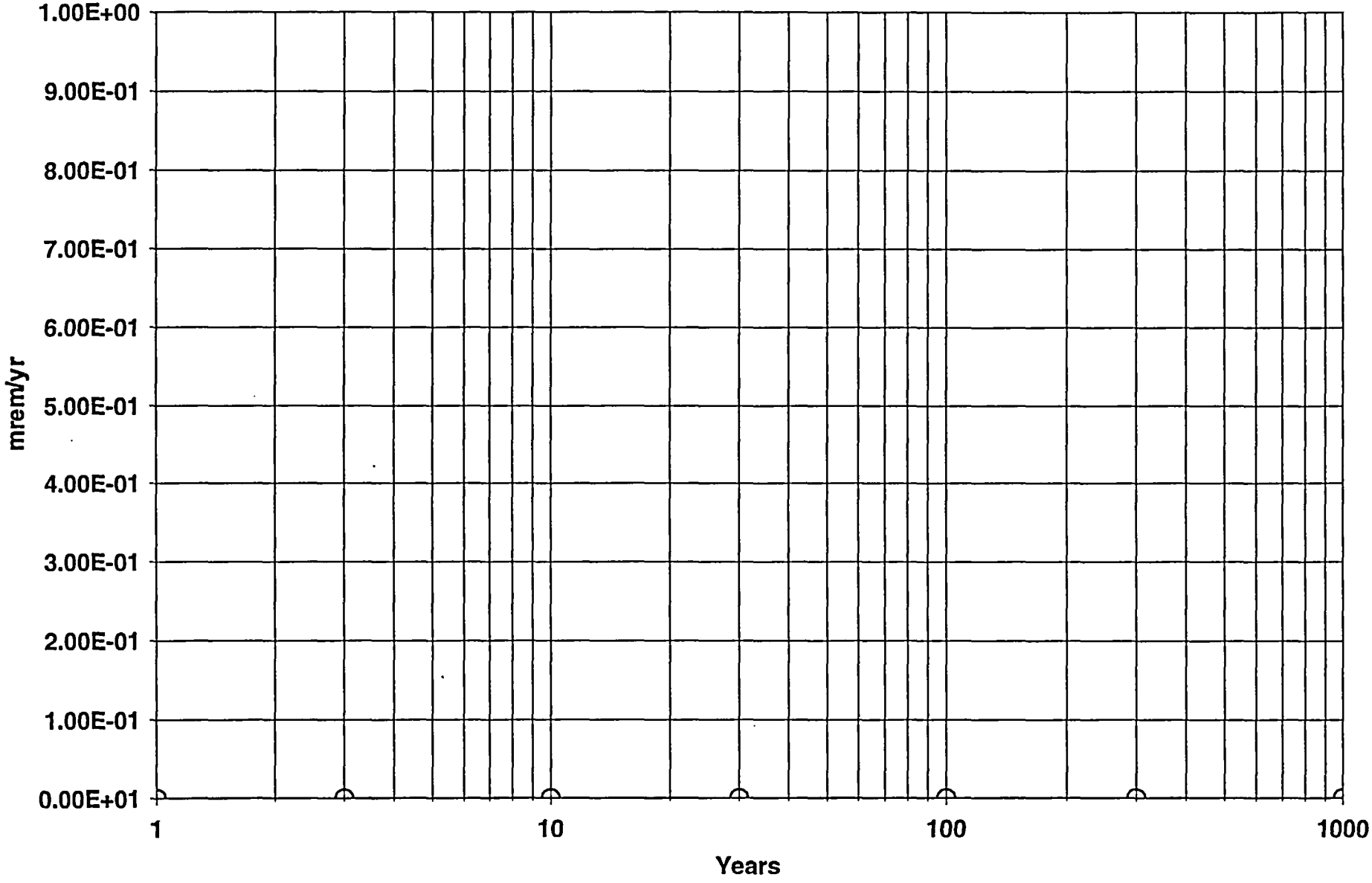
Appendix B: RESRAD Report of Input Parameters and Resultant TEDE for Resident Farmer Disposal Scenario

Appendix C: Technical Bases for RESRAD Input Parameters

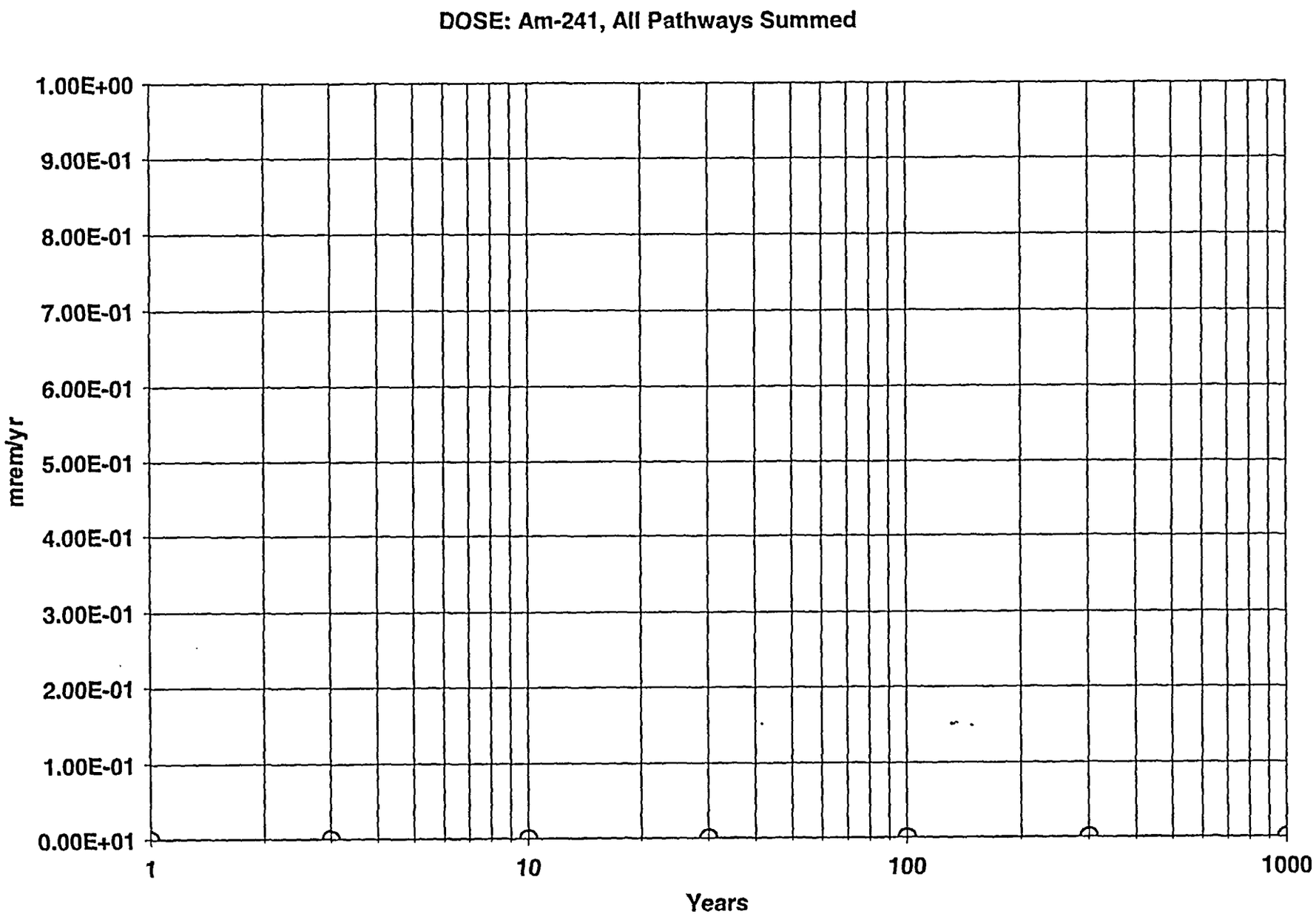
APPENDIX A

RESRAD Graphic Output for Resident Farmer Scenario

DOSE: Ag-108m, All Pathways Summed

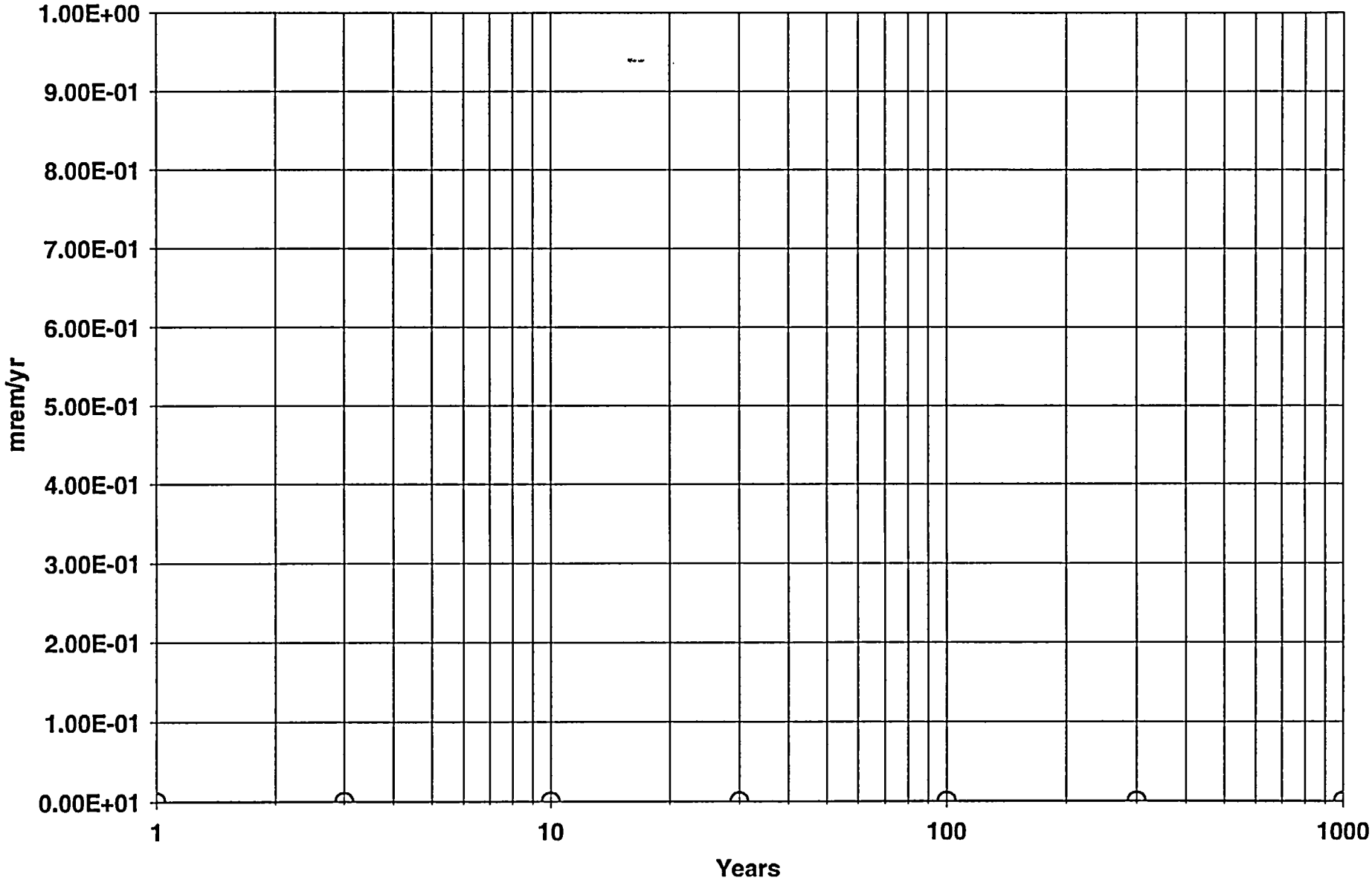


CY to WCS.RAD 11/10/2004 13:56 Includes All Pathways



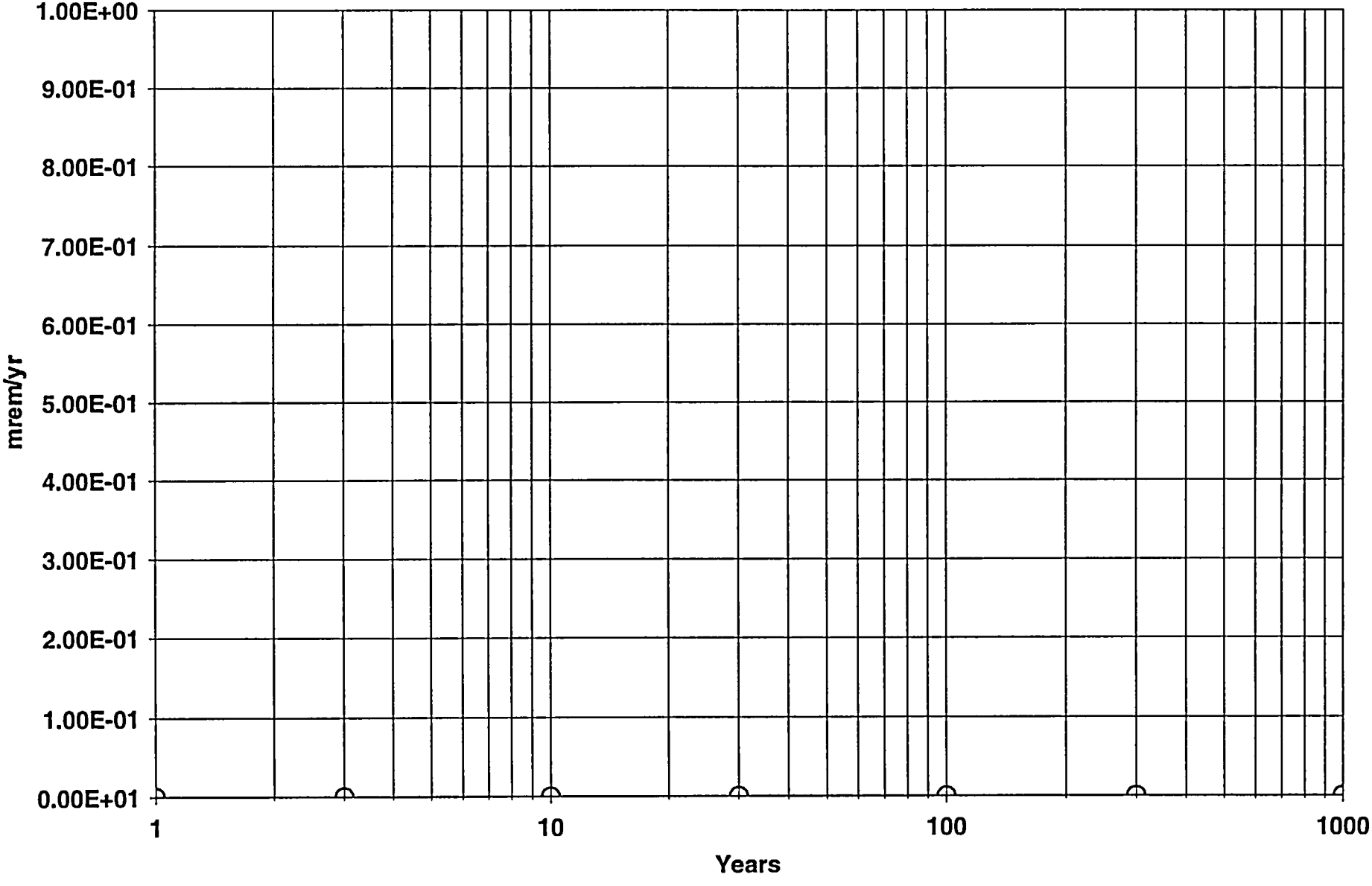
CY to WCS.RAD 11/10/2004 13:56 Includes All Pathways

DOSE: C-14, All Pathways Summed



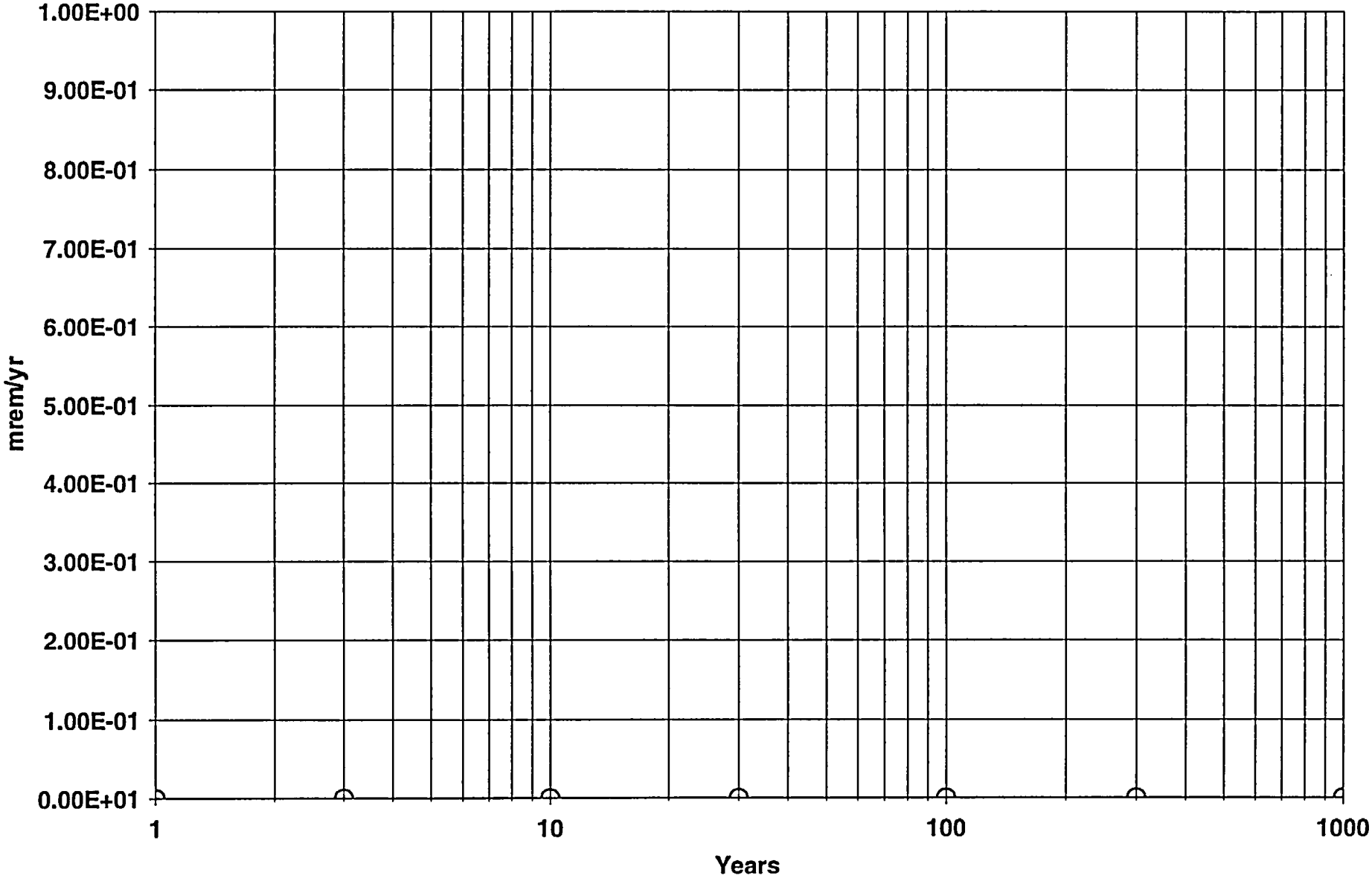
CY to WCS.RAD 11/10/2004 13:56 Includes All Pathways

DOSE: Cm-243a, All Pathways Summed

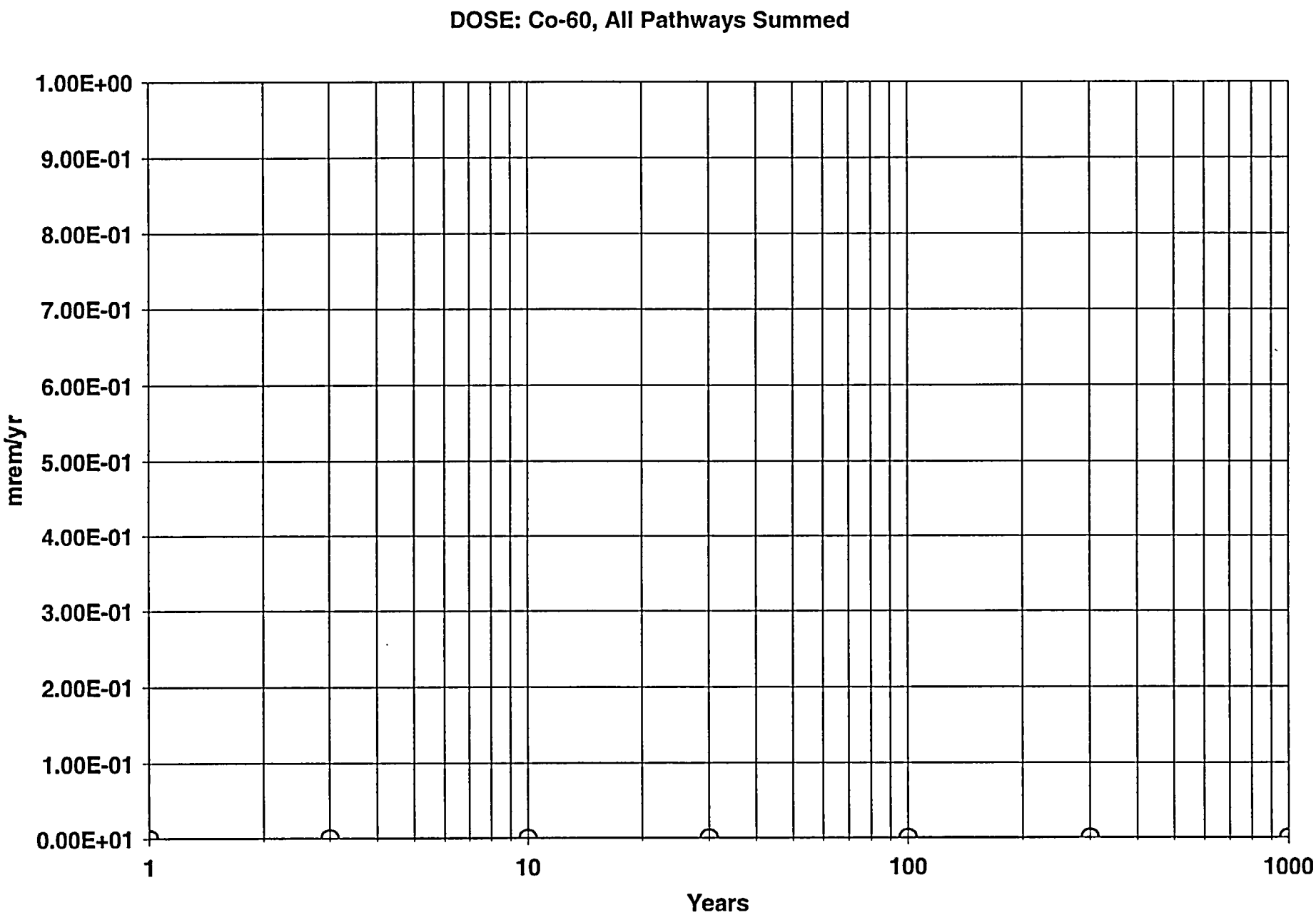


CY to WCS.RAD 11/10/2004 13:56 Includes All Pathways

DOSE: Cm-243b, All Pathways Summed



CY to WCS.RAD 11/10/2004 13:56 Includes All Pathways



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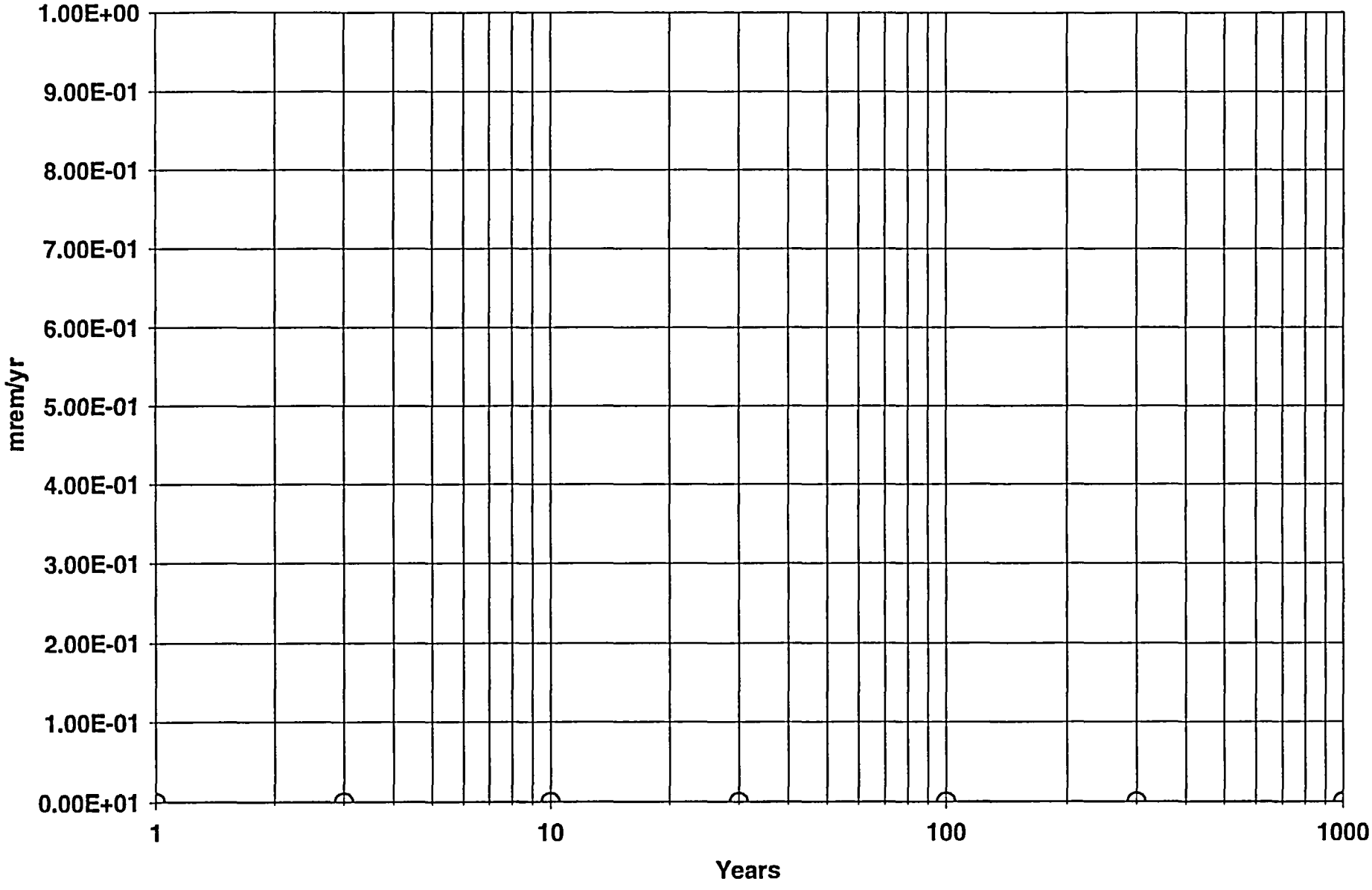
DOSE: Cs-134, All Pathways Summed



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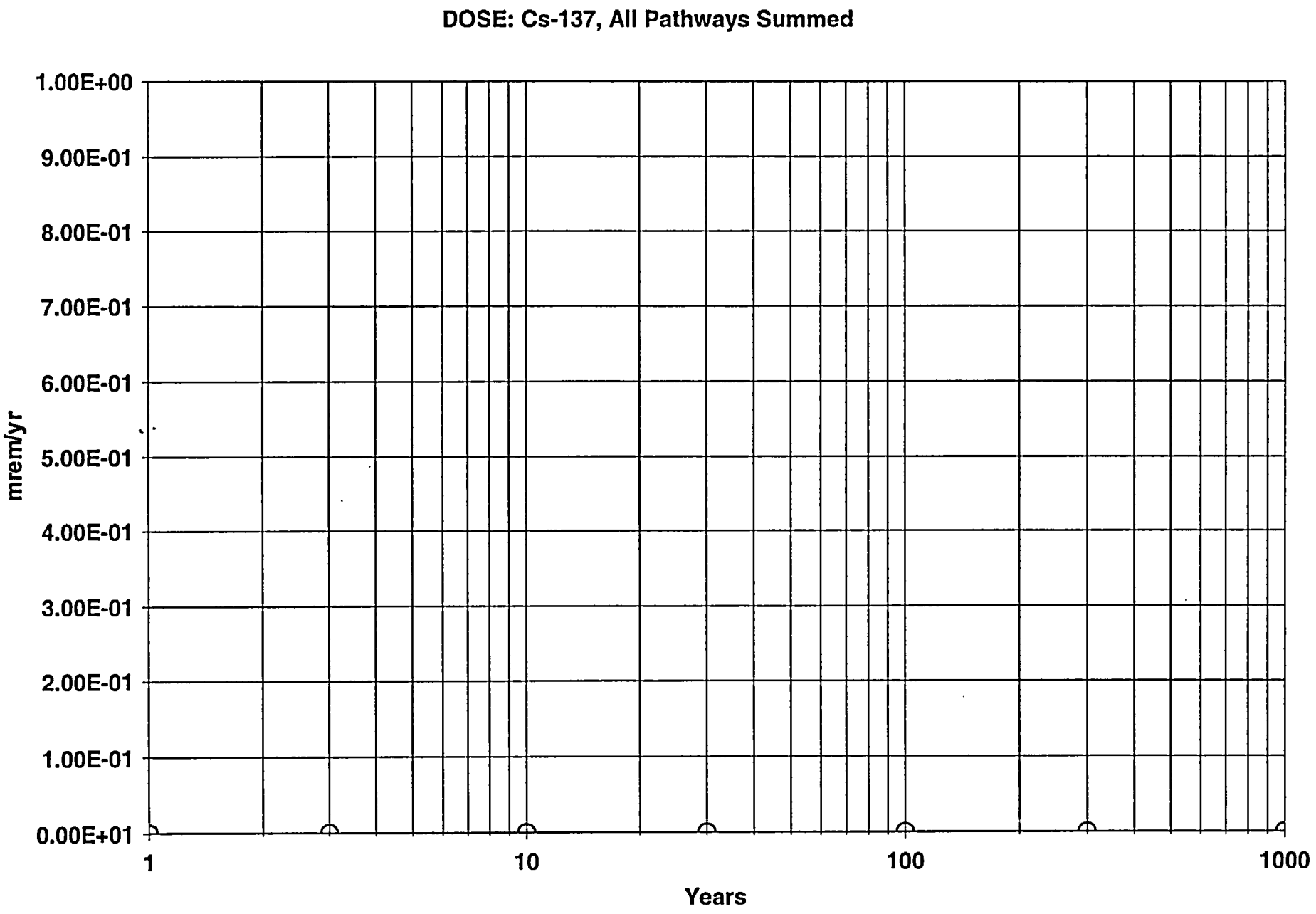

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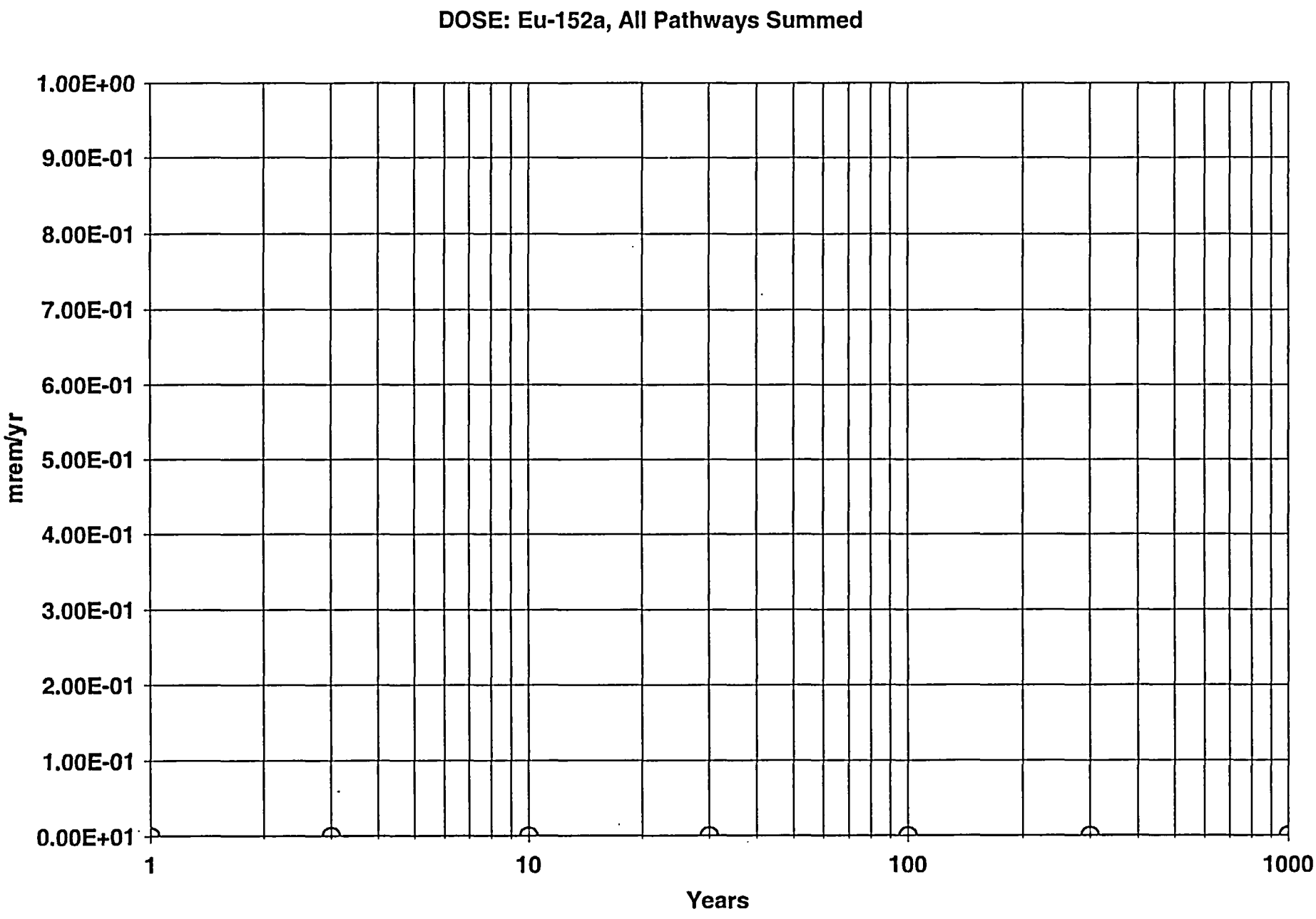
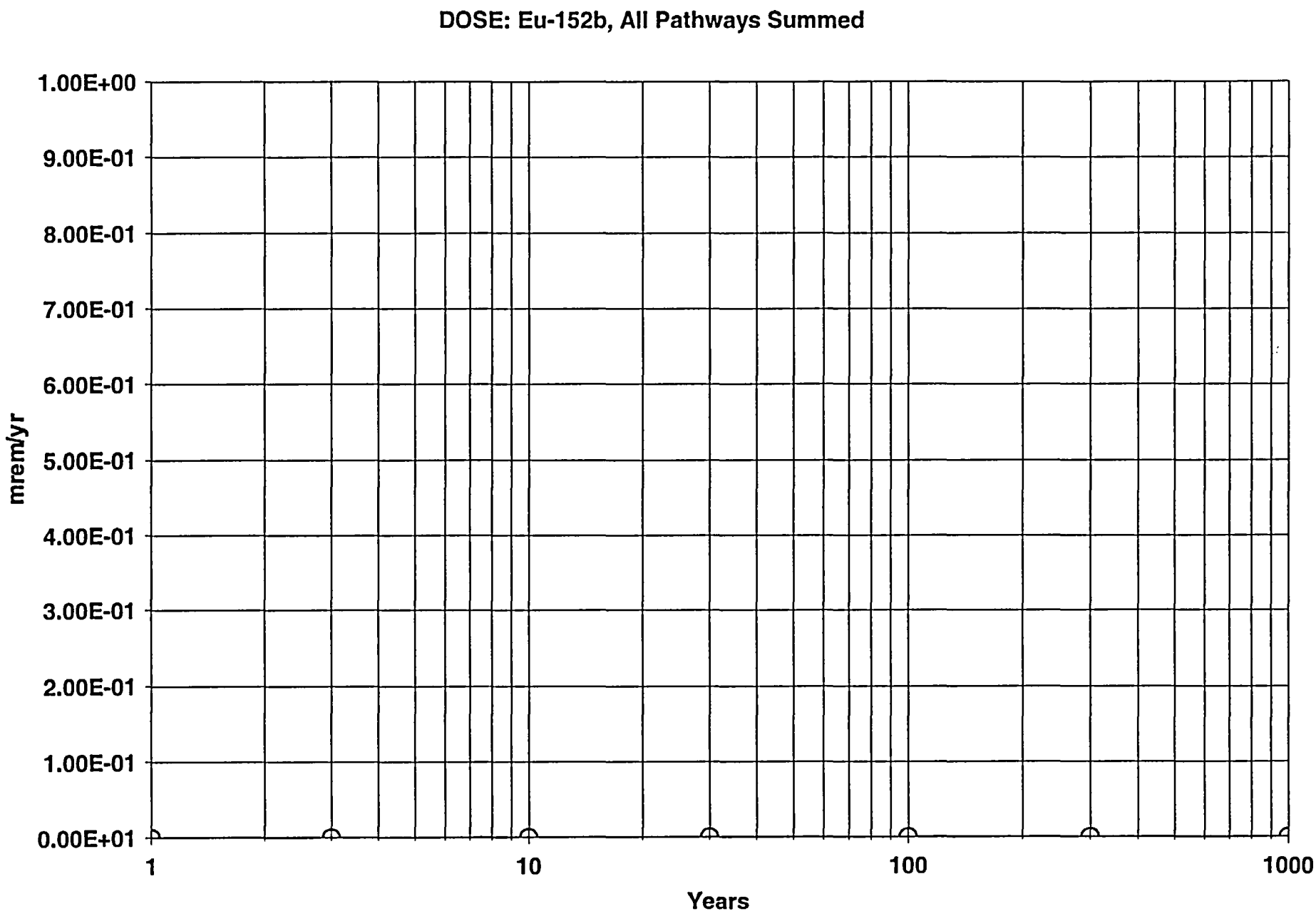
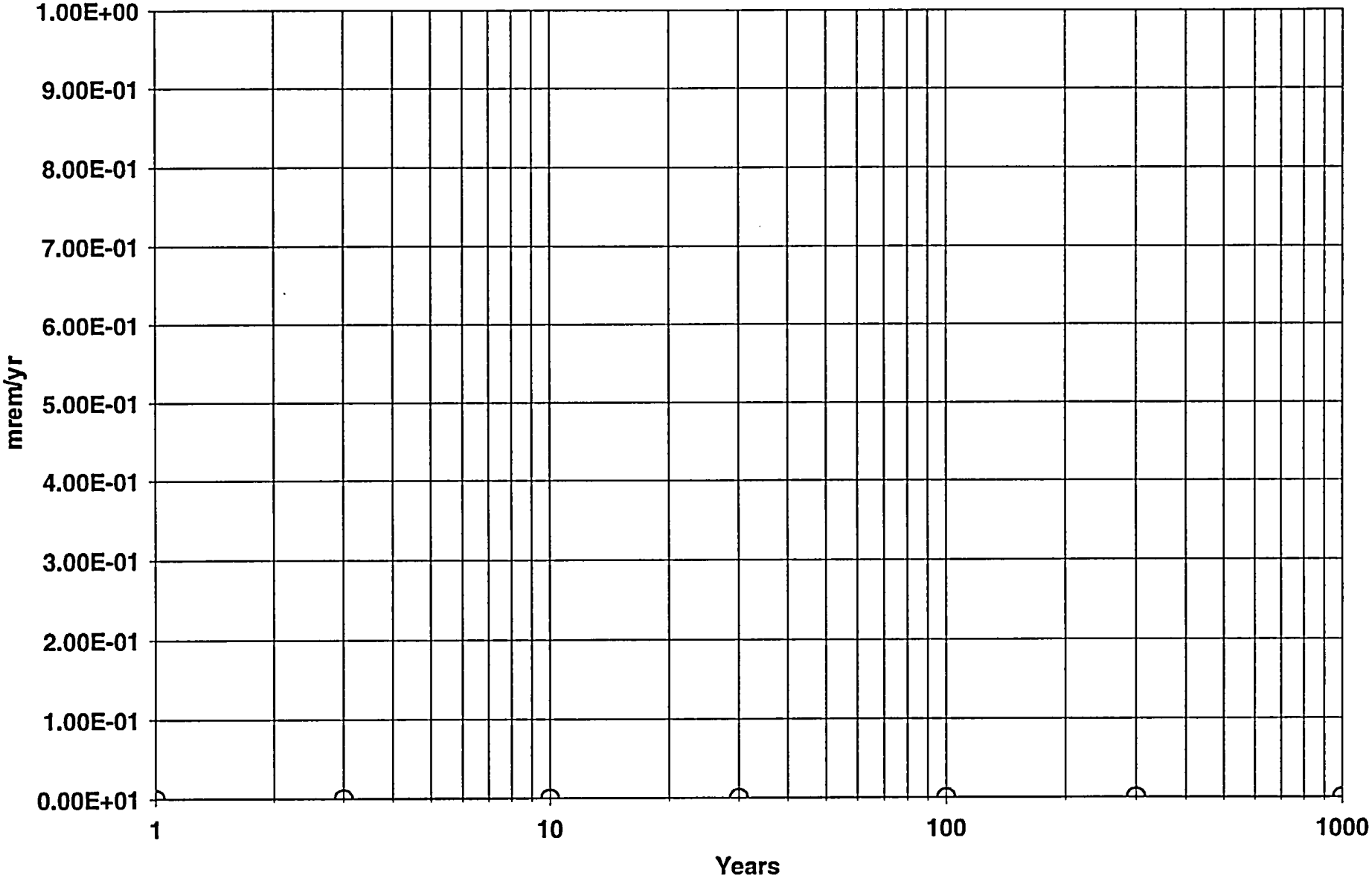


CY to WCS.RAD 11/10/2004 13:56 Includes All Pathways



CY to WCS.RAD 11/10/2004 13:56 Includes All Pathways

DOSE: Eu-154, All Pathways Summed



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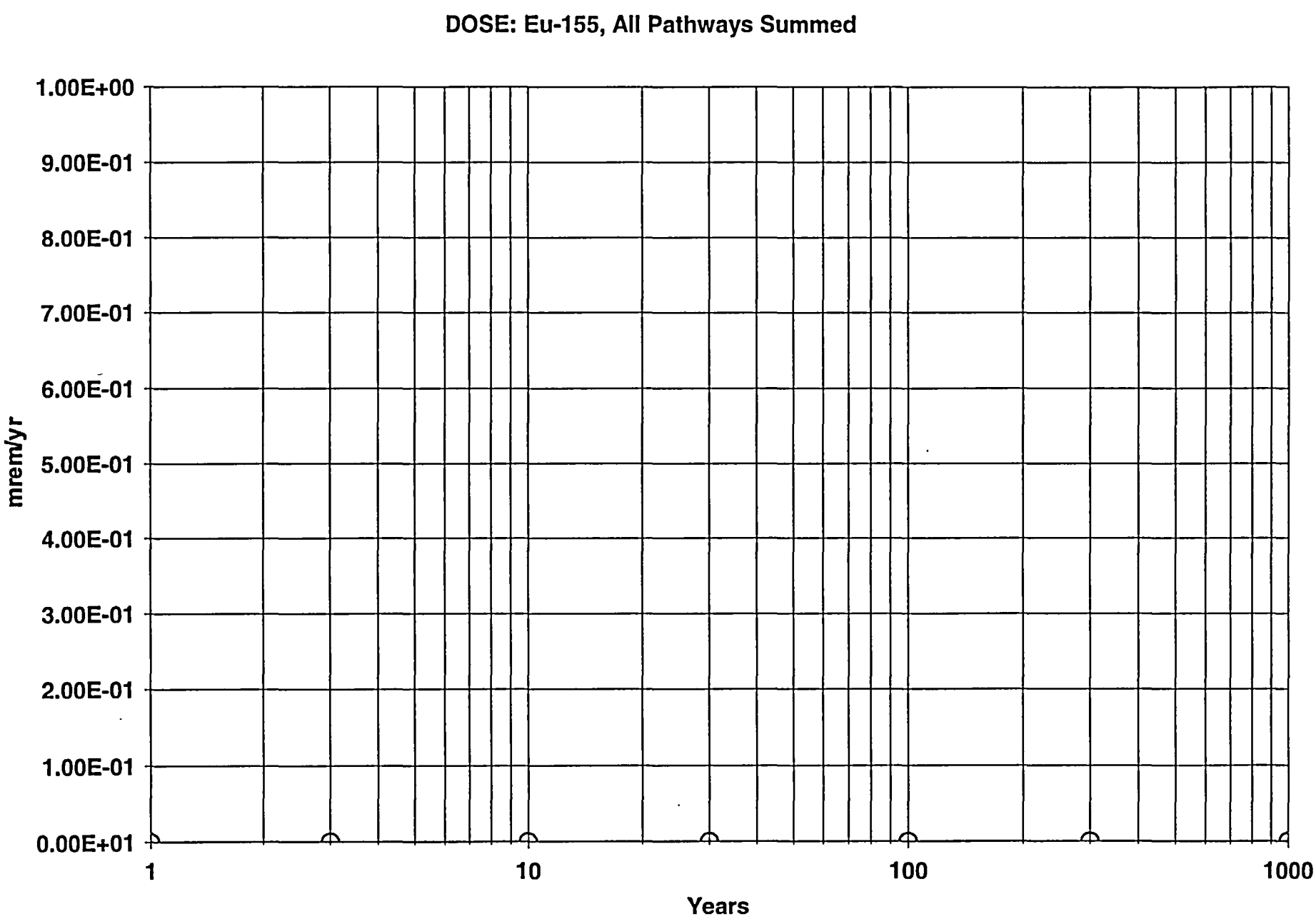

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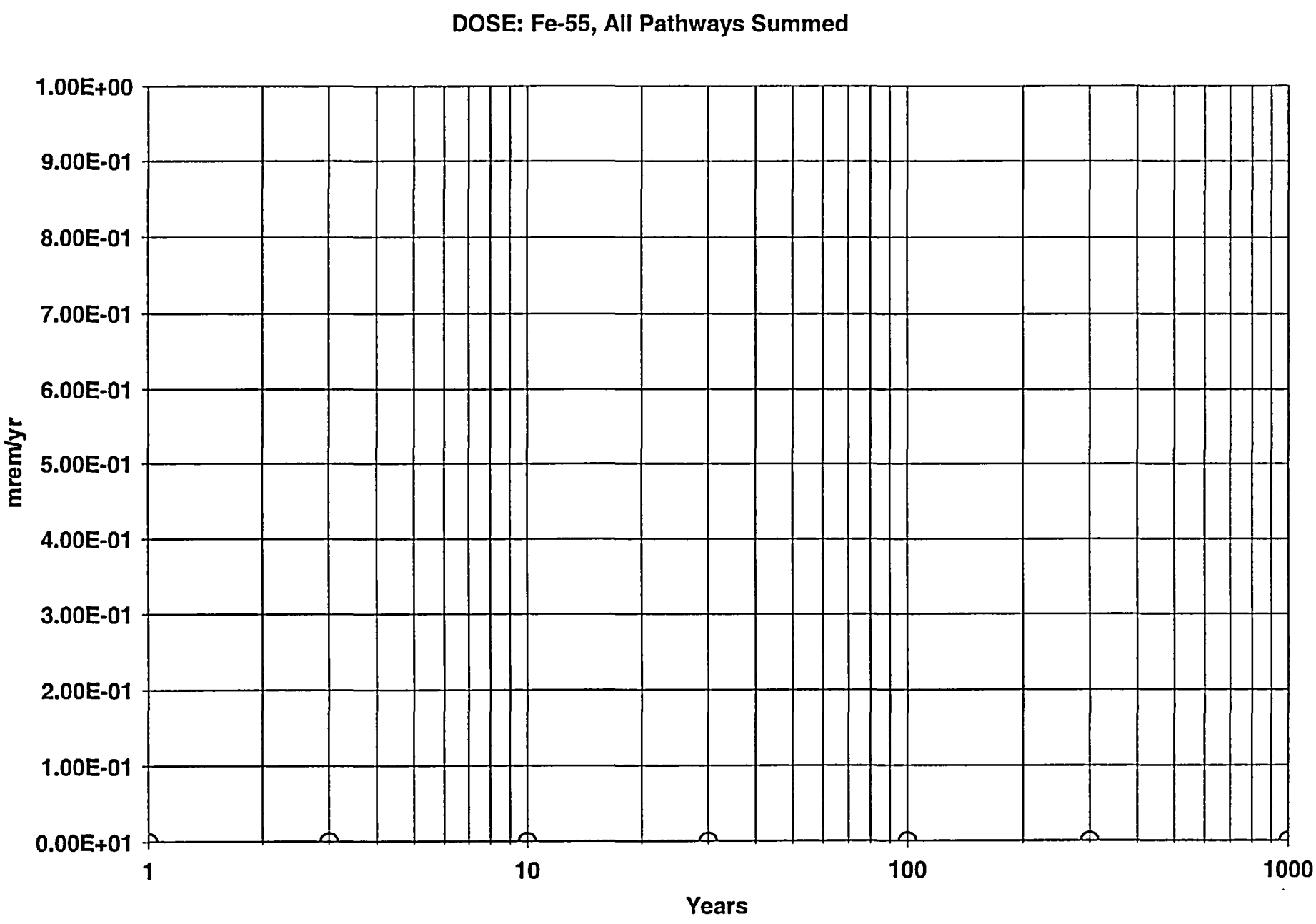

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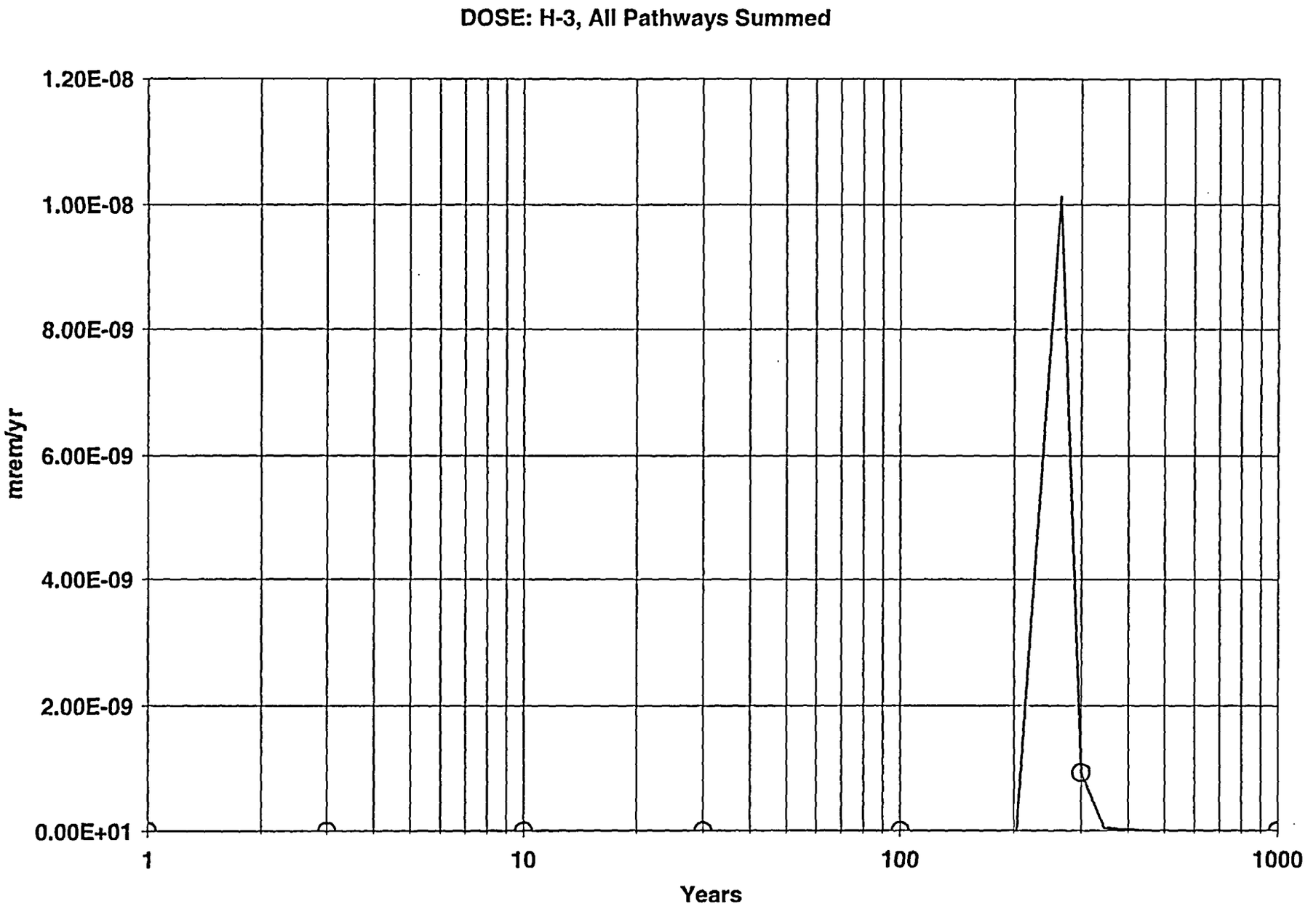
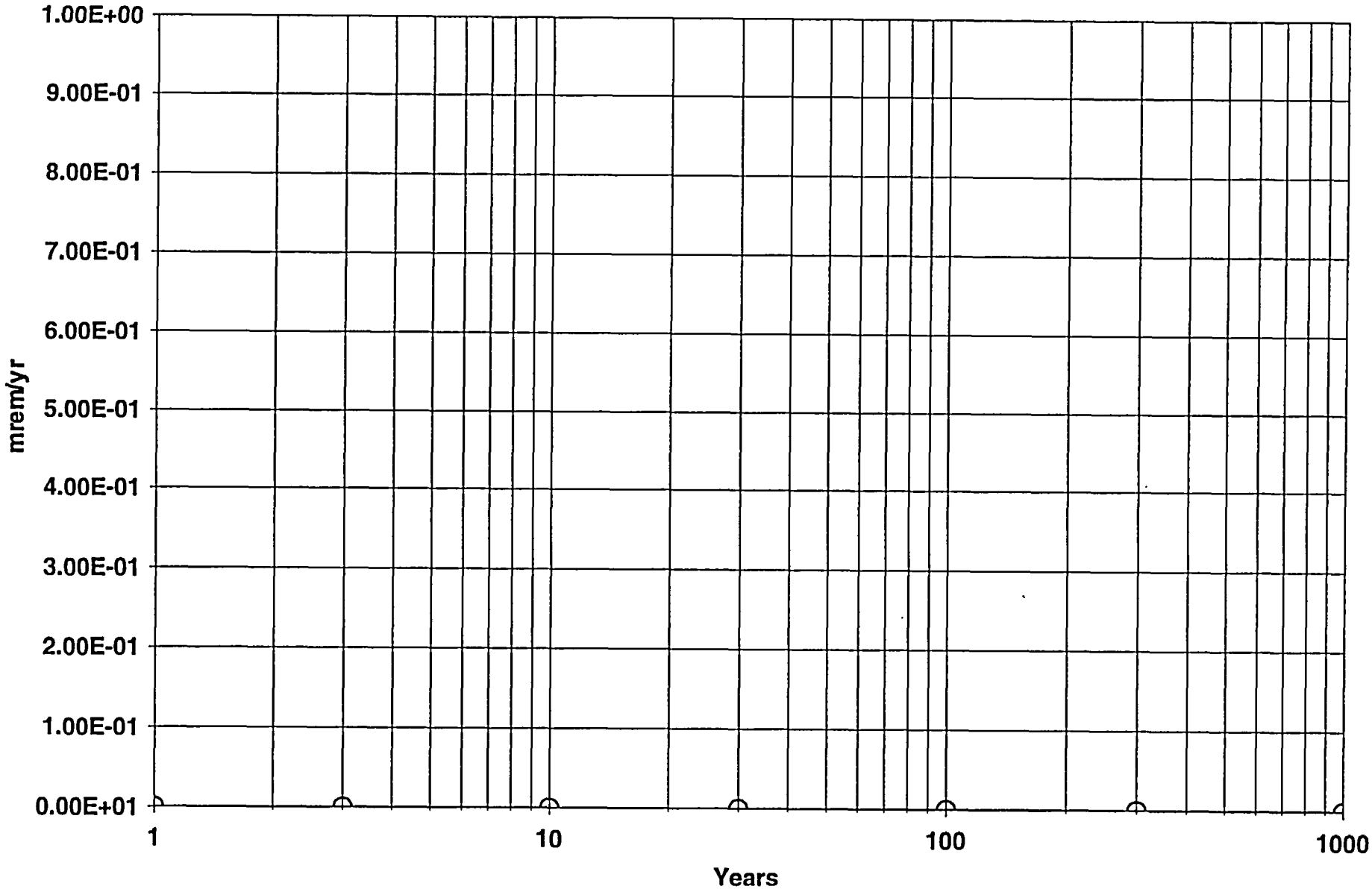


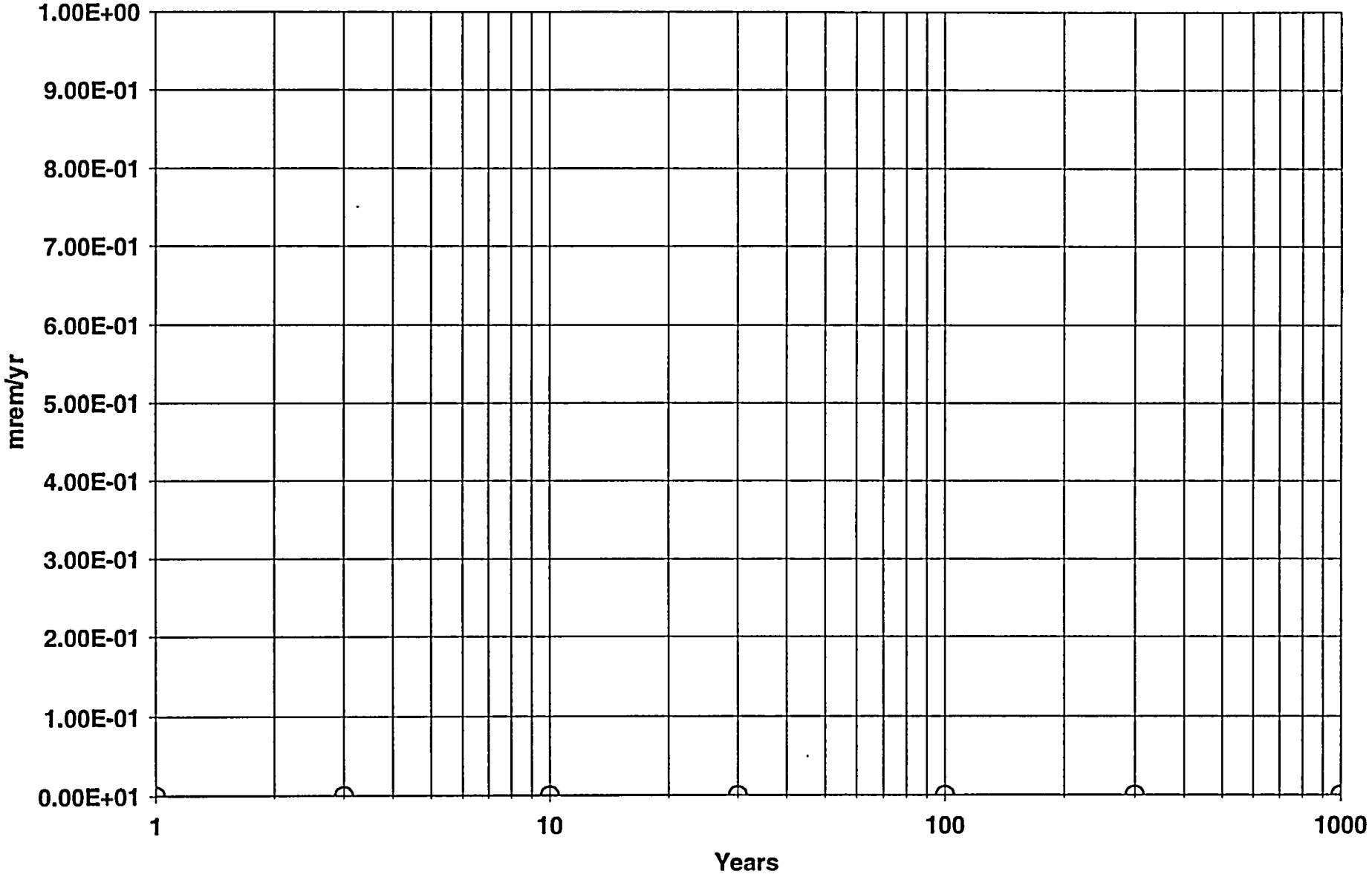
CY to WCS.RAD 11/10/2004 13:56 Includes All Pathways

DOSE: Mn-54, All Pathways Summed



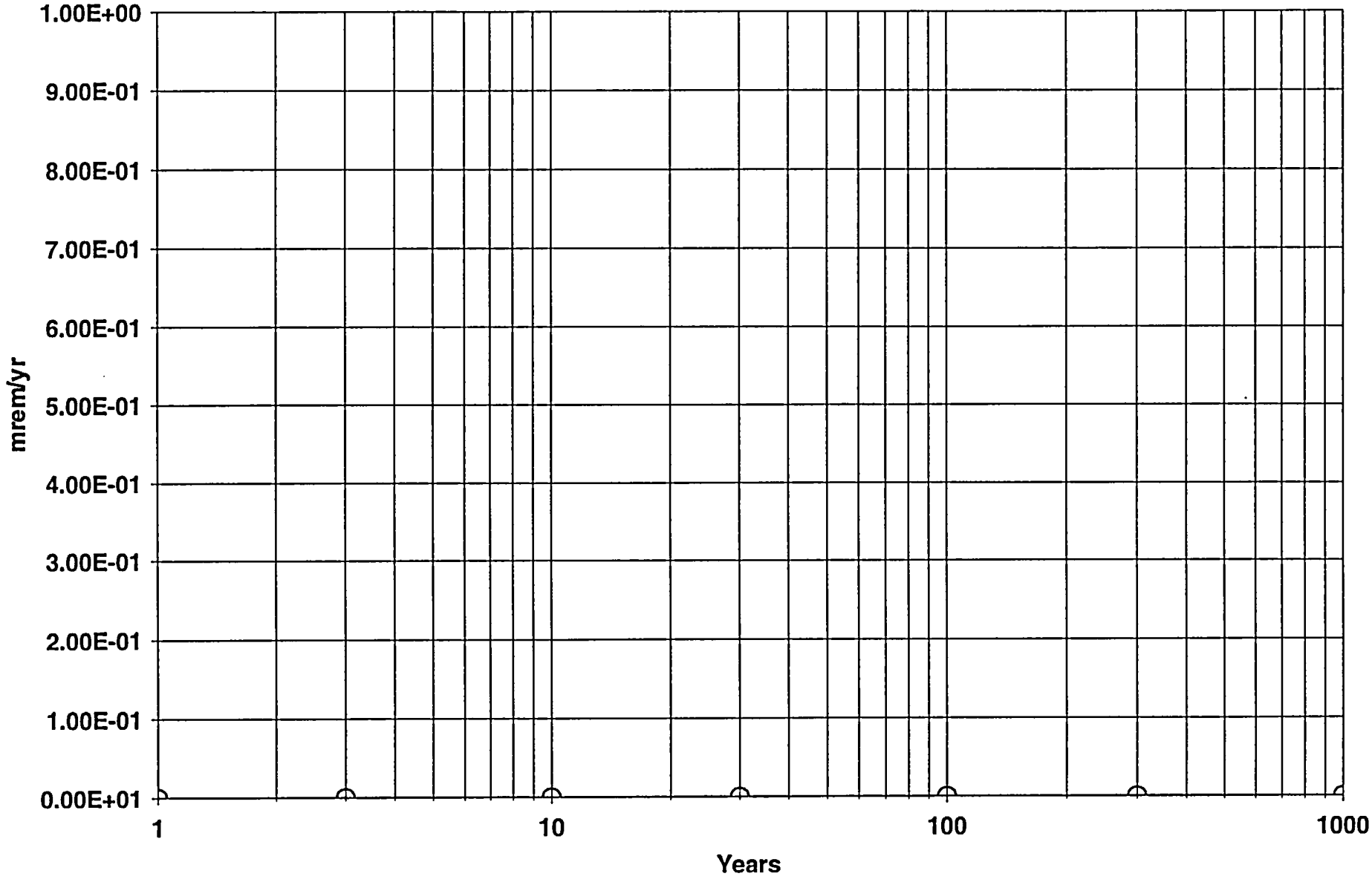
CY to WCS.RAD 11/10/2004 13:56 Includes All Pathways

DOSE: Nb-94, All Pathways Summed



CY to WCS.RAD 11/10/2004 13:56 Includes All Pathways

DOSE: Ni-63, All Pathways Summed



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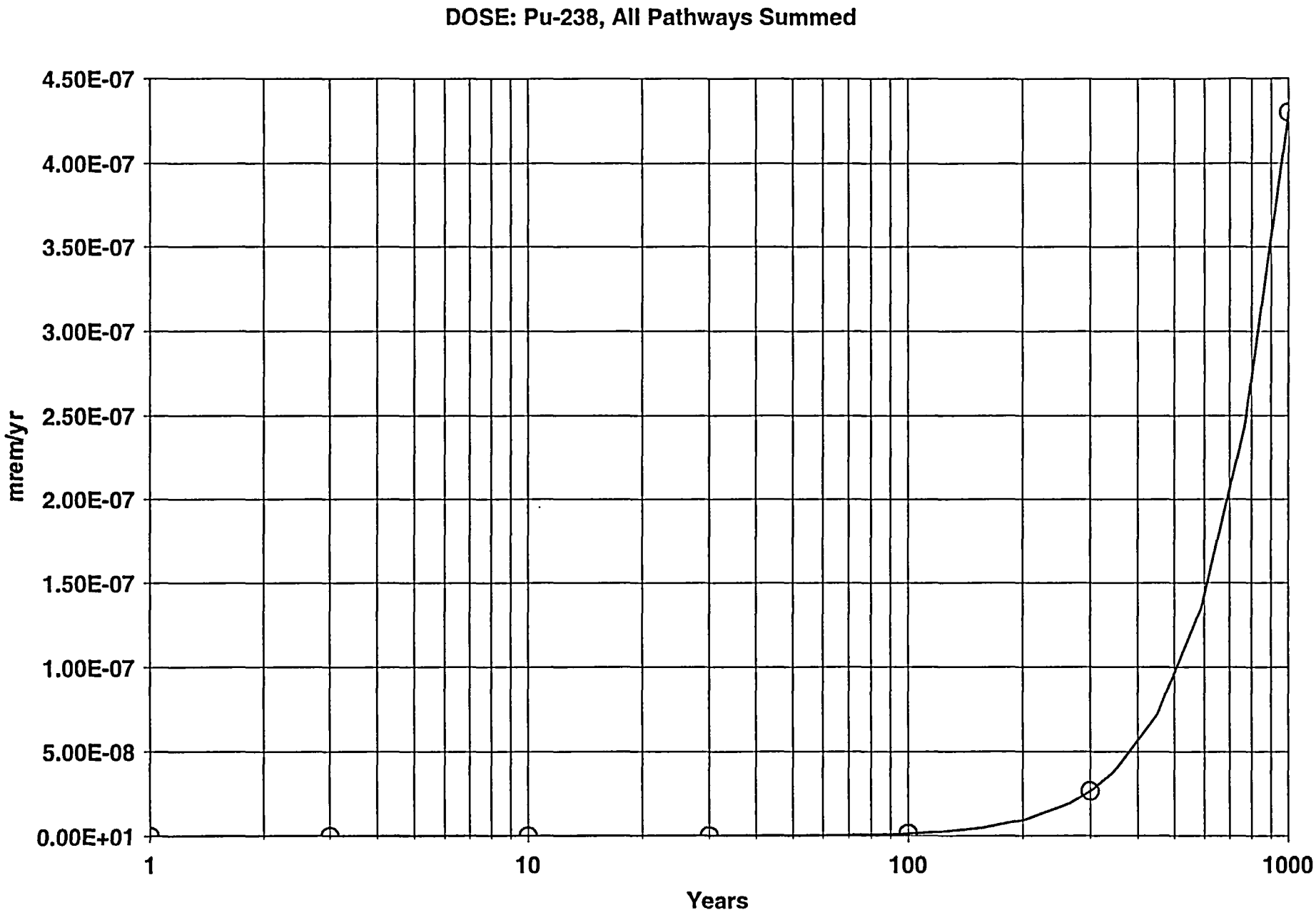

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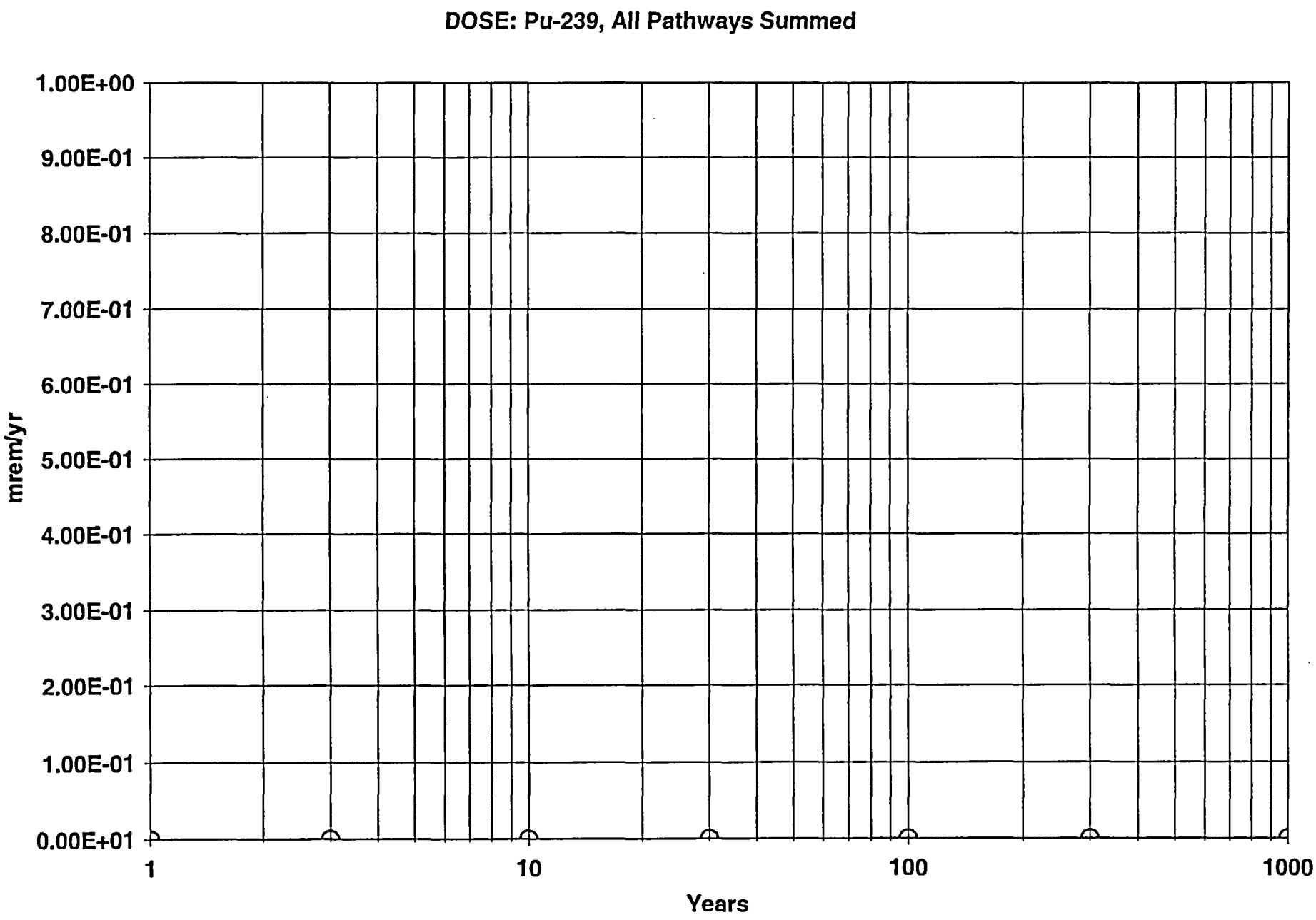

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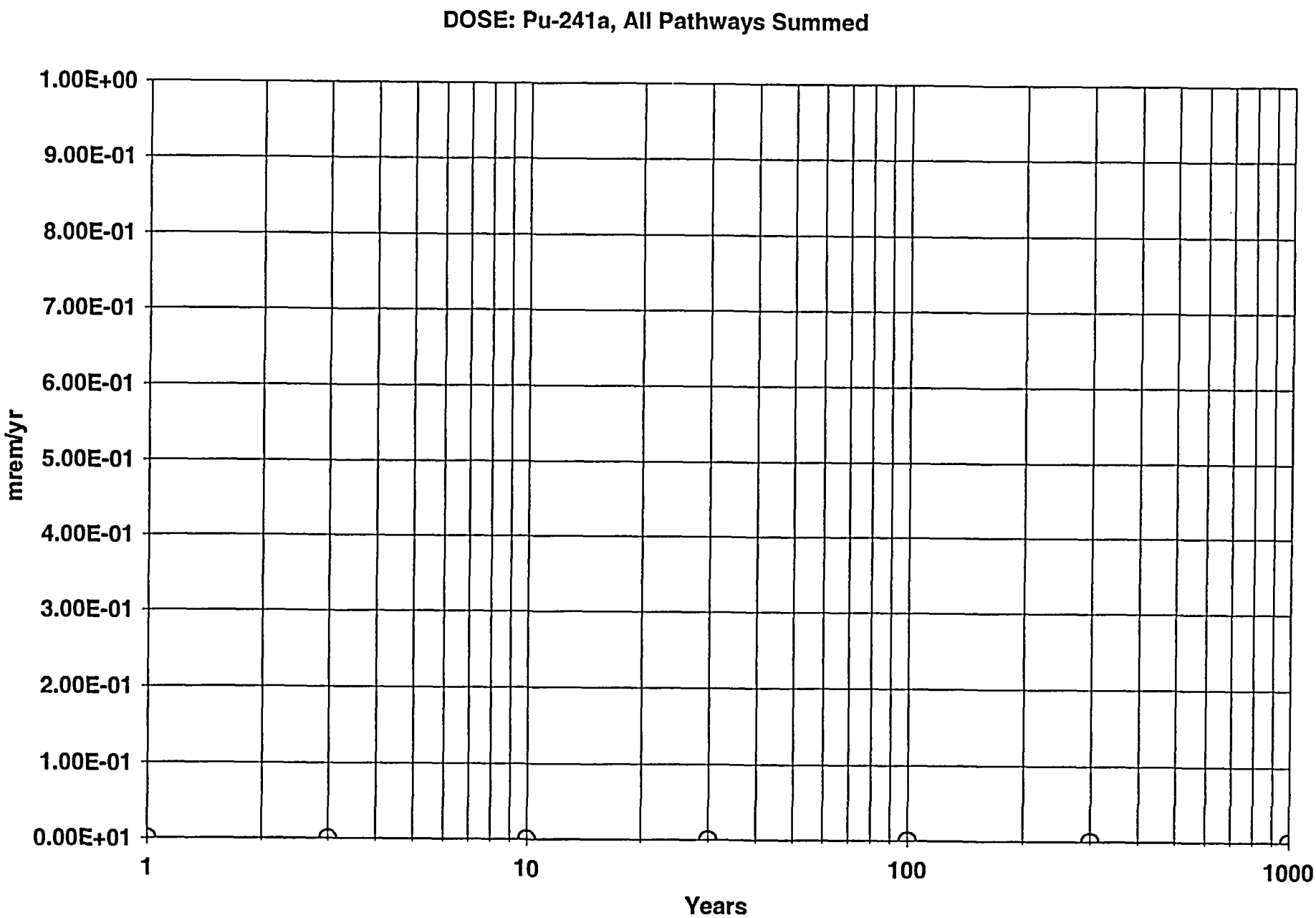

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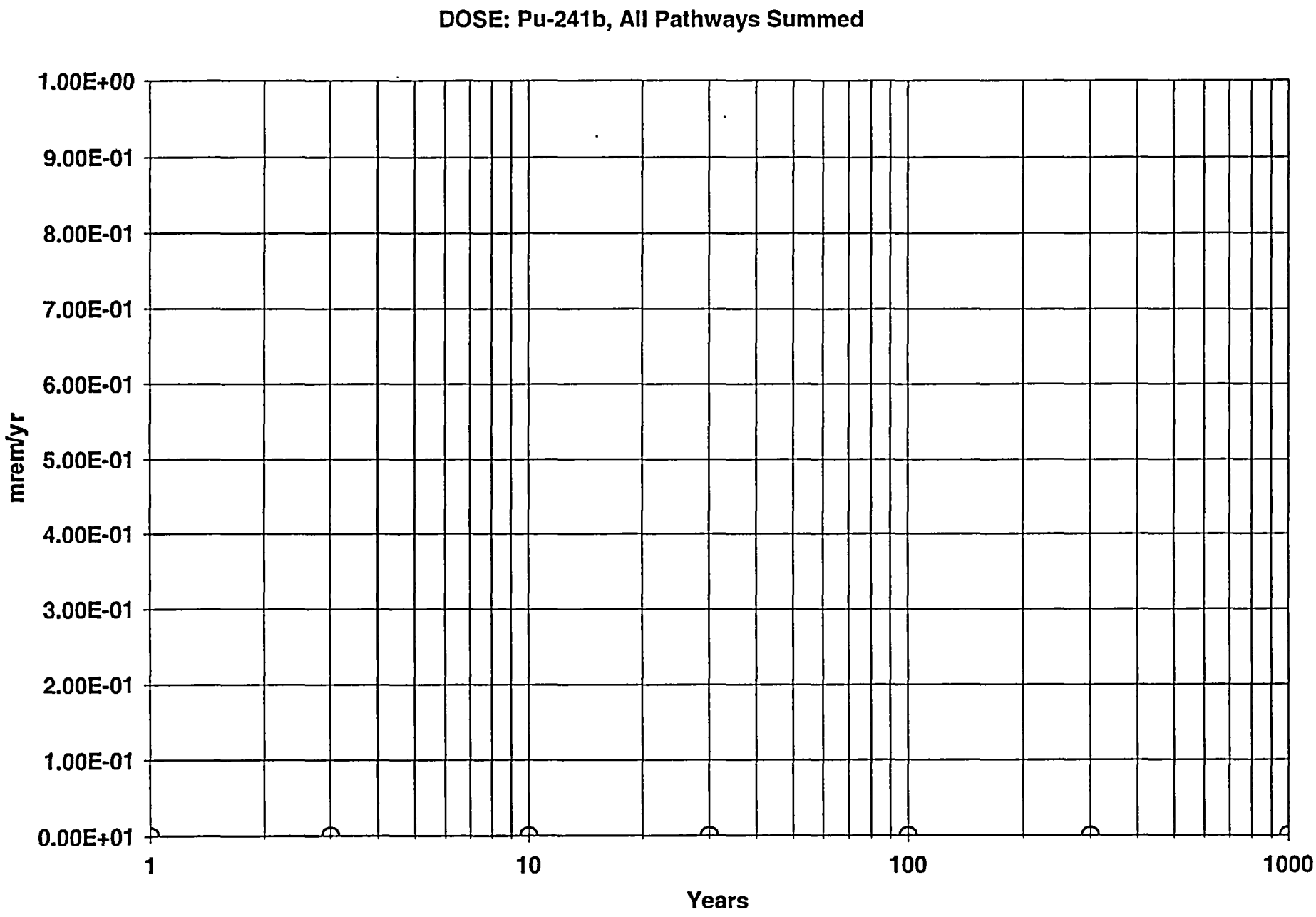
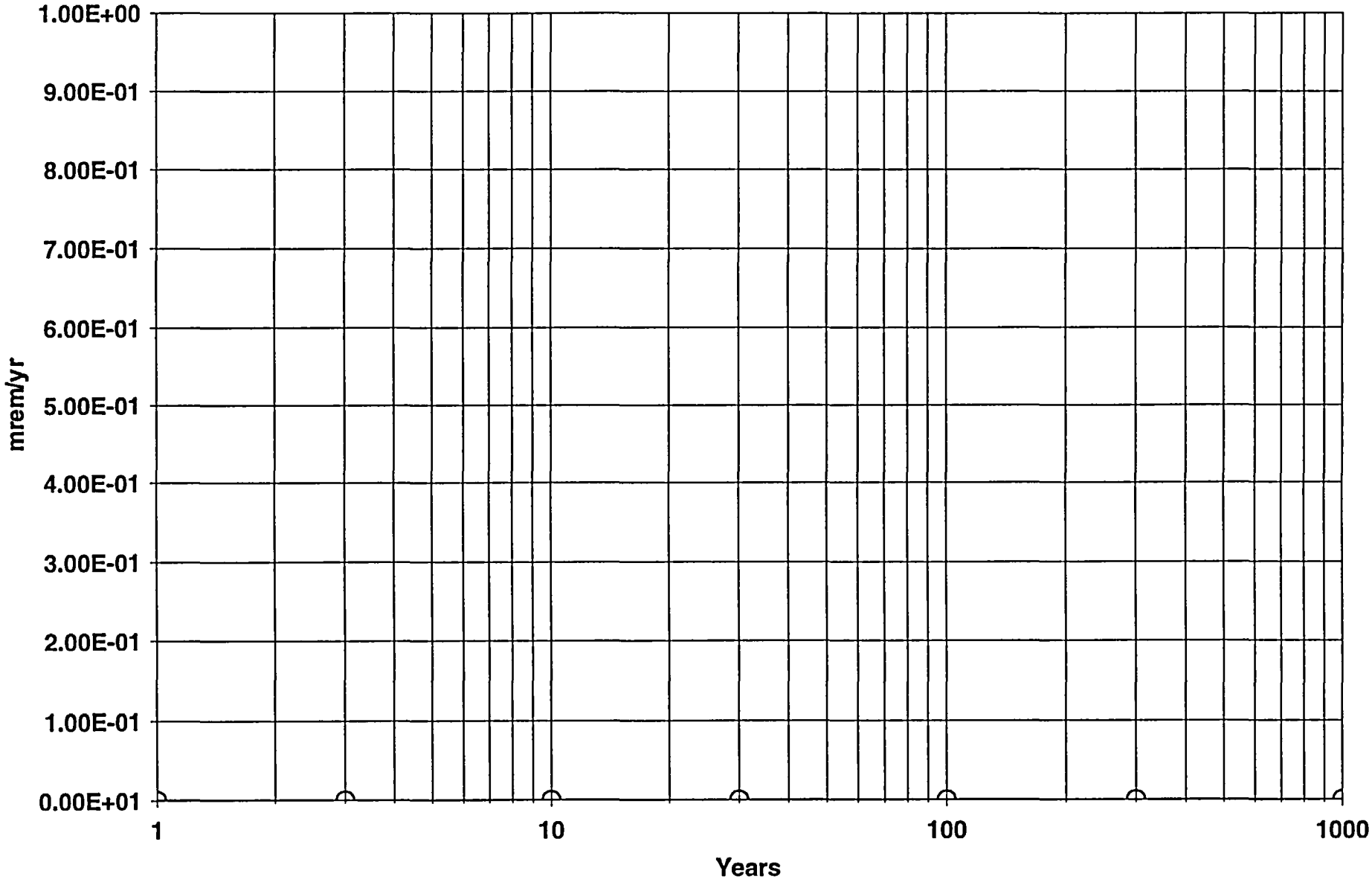


CY to WCS.RAD 11/10/2004 13:56 Includes All Pathways

DOSE: Sr-90, All Pathways Summed



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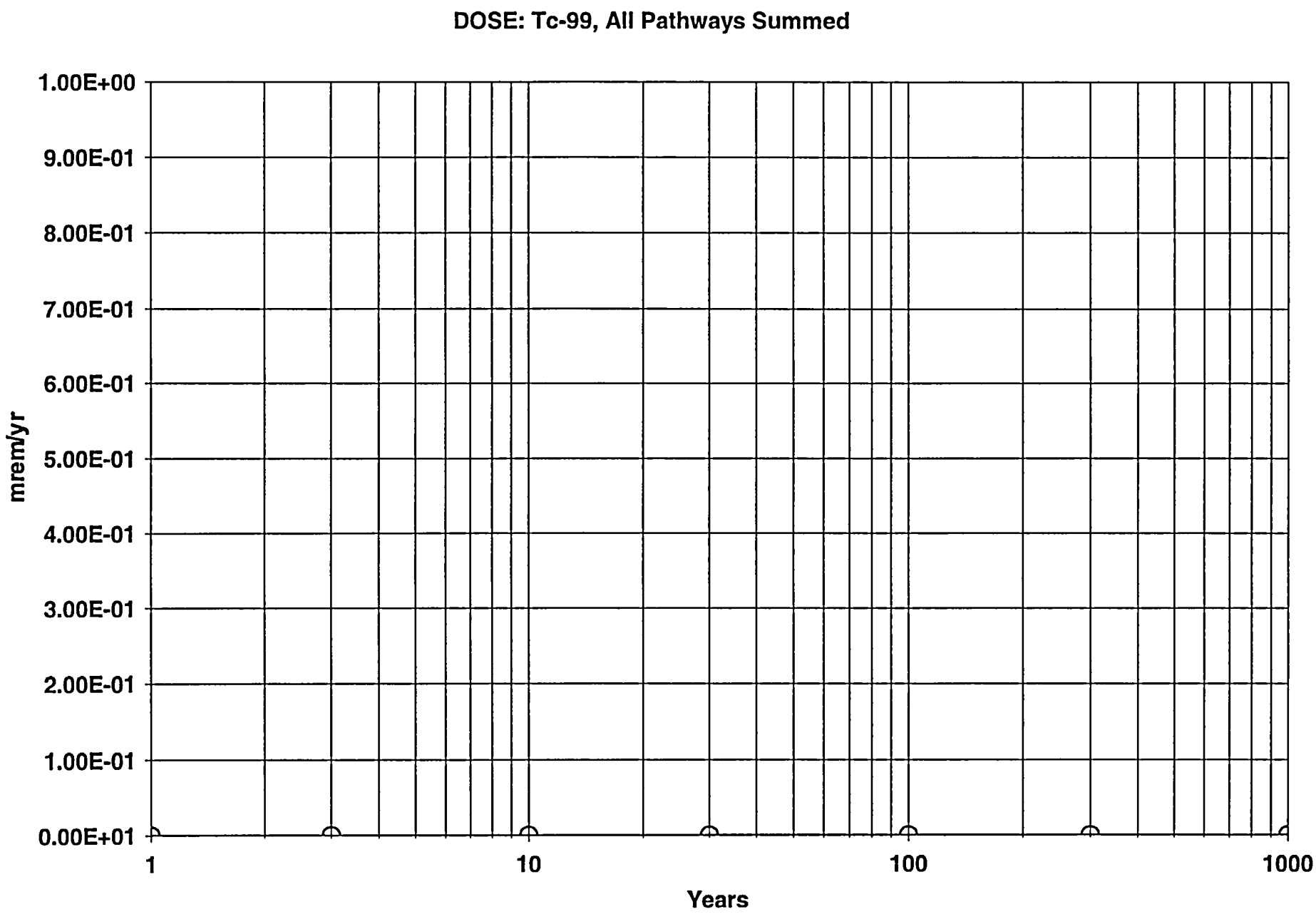

CY to WCS.RAD 11/10/2004 13:56 Includes All Pathways

APPENDIX B

RESRAD Report of Input Parameters and Resultant TEDE for Resident Farmer Disposal Scenario

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Dose Conversion Factor (and Related) Parameter Summary
File: HEAST 1995 Morbidity

0 Menu	Parameter	Current Value	Default	Parameter Name
B-1	Dose conversion factors for inhalation, mrem/pCi:			
B-1	Ac-227+D	6.720E+00	6.720E+00	DCF2(1)
B-1	Ag-108m+D	2.830E-04	2.830E-04	DCF2(2)
B-1	Am-241	4.440E-01	4.440E-01	DCF2(3)
B-1	Am-243+D	4.400E-01	4.400E-01	DCF2(4)
B-1	C-14	2.090E-06	2.090E-06	DCF2(5)
B-1	Cm-243	3.070E-01	3.070E-01	DCF2(6)
B-1	Co-60	2.190E-04	2.190E-04	DCF2(8)
B-1	Cs-134	4.630E-05	4.630E-05	DCF2(9)
B-1	Cs-137+D	3.190E-05	3.190E-05	DCF2(10)
B-1	Eu-152	2.210E-04	2.210E-04	DCF2(11)
B-1	Eu-154	2.860E-04	2.860E-04	DCF2(13)
B-1	Eu-155	4.140E-05	4.140E-05	DCF2(14)
B-1	Fe-55	2.690E-06	2.690E-06	DCF2(15)
B-1	Gd-152	2.430E-01	2.430E-01	DCF2(16)
B-1	H-3	6.400E-08	6.400E-08	DCF2(17)
B-1	Mn-54	6.700E-06	6.700E-06	DCF2(18)
B-1	Nb-94	4.140E-04	4.140E-04	DCF2(19)
B-1	Ni-63	6.290E-06	6.290E-06	DCF2(20)
B-1	Np-237+D	5.400E-01	5.400E-01	DCF2(21)
B-1	Pa-231	1.280E+00	1.280E+00	DCF2(22)
B-1	Pb-210+D	1.380E-02	1.380E-02	DCF2(23)
B-1	Po-210	9.400E-03	9.400E-03	DCF2(24)
B-1	Pu-238	3.920E-01	3.920E-01	DCF2(25)
B-1	Pu-239	4.290E-01	4.290E-01	DCF2(26)
B-1	Pu-241+D	8.250E-03	8.250E-03	DCF2(27)
B-1	Ra-226+D	8.600E-03	8.600E-03	DCF2(29)
B-1	Sr-90+D	1.310E-03	1.310E-03	DCF2(30)
B-1	Tc-99	8.330E-06	8.330E-06	DCF2(31)
B-1	Th-229+D	2.160E+00	2.160E+00	DCF2(32)
B-1	Th-230	3.260E-01	3.260E-01	DCF2(33)
B-1	U-233	1.350E-01	1.350E-01	DCF2(34)
B-1	U-234	1.320E-01	1.320E-01	DCF2(35)
B-1	U-235+D	1.230E-01	1.230E-01	DCF2(36)
D-1	Dose conversion factors for ingestion, mrem/pCi:			
D-1	Ac-227+D	1.480E-02	1.480E-02	DCF3(1)
D-1	Ag-108m+D	7.620E-06	7.620E-06	DCF3(2)
D-1	Am-241	3.640E-03	3.640E-03	DCF3(3)
D-1	Am-243+D	3.630E-03	3.630E-03	DCF3(4)
D-1	C-14	2.090E-06	2.090E-06	DCF3(5)
D-1	Cm-243	2.510E-03	2.510E-03	DCF3(6)
D-1	Co-60	2.690E-05	2.690E-05	DCF3(8)
D-1	Cs-134	7.330E-05	7.330E-05	DCF3(9)
D-1	Cs-137+D	5.000E-05	5.000E-05	DCF3(10)
D-1	Eu-152	6.480E-06	6.480E-06	DCF3(11)
D-1	Eu-154	9.550E-06	9.550E-06	DCF3(13)
D-1	Eu-155	1.530E-06	1.530E-06	DCF3(14)
D-1	Fe-55	6.070E-07	6.070E-07	DCF3(15)
D-1	Gd-152	1.610E-04	1.610E-04	DCF3(16)
D-1	H-3	6.400E-08	6.400E-08	DCF3(17)

Dose Conversion Factor (and Related) Parameter Summary (continued)
File: HEAST 1995 Morbidity

0 Menu	Parameter	Current Value	Default	Parameter Name
D-1	Mn-54	2.770E-06	2.770E-06	DCF3(18)
D-1	Nb-94	7.140E-06	7.140E-06	DCF3(19)
D-1	Ni-63	5.770E-07	5.770E-07	DCF3(20)

D-1	Np-237+D	4.440E-03	4.440E-03	DCF3(21)
D-1	Pa-231	1.060E-02	1.060E-02	DCF3(22)
D-1	Pb-210+D	5.370E-03	5.370E-03	DCF3(23)
D-1	Po-210	1.900E-03	1.900E-03	DCF3(24)
D-1	Pu-238	3.200E-03	3.200E-03	DCF3(25)
D-1	Pu-239	3.540E-03	3.540E-03	DCF3(26)
D-1	Pu-241+D	6.850E-05	6.850E-05	DCF3(27)
D-1	Ra-226+D	1.330E-03	1.330E-03	DCF3(29)
D-1	Sr-90+D	1.530E-04	1.530E-04	DCF3(30)
D-1	Tc-99	1.460E-06	1.460E-06	DCF3(31)
D-1	Th-229+D	4.030E-03	4.030E-03	DCF3(32)
D-1	Th-230	5.480E-04	5.480E-04	DCF3(33)
D-1	U-233	2.890E-04	2.890E-04	DCF3(34)
D-1	U-234	2.830E-04	2.830E-04	DCF3(35)
D-1	U-235+D	2.670E-04	2.670E-04	DCF3(36)
D-34	Food transfer factors:			
D-34	Ac-227+D , plant/soil concentration ratio, dimensionless	2.500E-03	2.500E-03	RTF(1,1)
D-34	Ac-227+D , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	2.000E-05	2.000E-05	RTF(1,2)
D-34	Ac-227+D , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	2.000E-05	2.000E-05	RTF(1,3)
D-34				
D-34	Ag-108m+D, plant/soil concentration ratio, dimensionless	1.500E-01	1.500E-01	RTF(2,1)
D-34	Ag-108m+D, beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	3.000E-03	3.000E-03	RTF(2,2)
D-34	Ag-108m+D, milk/livestock-intake ratio, (pCi/L)/(pCi/d)	2.500E-02	2.500E-02	RTF(2,3)
D-34				
D-34	Am-241 , plant/soil concentration ratio, dimensionless	1.000E-03	1.000E-03	RTF(3,1)
D-34	Am-241 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	5.000E-05	5.000E-05	RTF(3,2)
D-34	Am-241 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	2.000E-06	2.000E-06	RTF(3,3)
D-34				
D-34	Am-243+D , plant/soil concentration ratio, dimensionless	1.000E-03	1.000E-03	RTF(4,1)
D-34	Am-243+D , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	5.000E-05	5.000E-05	RTF(4,2)
D-34	Am-243+D , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	2.000E-06	2.000E-06	RTF(4,3)
D-34				
D-34	C-14 , plant/soil concentration ratio, dimensionless	5.500E+00	5.500E+00	RTF(5,1)
D-34	C-14 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	3.100E-02	3.100E-02	RTF(5,2)
D-34	C-14 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	1.200E-02	1.200E-02	RTF(5,3)
D-34				
D-34	Cm-243 , plant/soil concentration ratio, dimensionless	1.000E-03	1.000E-03	RTF(6,1)
D-34	Cm-243 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	2.000E-05	2.000E-05	RTF(6,2)
D-34	Cm-243 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	2.000E-06	2.000E-06	RTF(6,3)
D-34				
D-34	Co-60 , plant/soil concentration ratio, dimensionless	8.000E-02	8.000E-02	RTF(8,1)
D-34	Co-60 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	2.000E-02	2.000E-02	RTF(8,2)
D-34	Co-60 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	2.000E-03	2.000E-03	RTF(8,3)
D-34				
D-34	Cs-134 , plant/soil concentration ratio, dimensionless	4.000E-02	4.000E-02	RTF(9,1)
D-34	Cs-134 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	3.000E-02	3.000E-02	RTF(9,2)
D-34	Cs-134 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	8.000E-03	8.000E-03	RTF(9,3)

0 Menu	Parameter	Current Value	Default	Parameter Name
D-34	Cs-137+D , plant/soil concentration ratio, dimensionless	4.000E-02	4.000E-02	RTF(10,1)
D-34	Cs-137+D , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	3.000E-02	3.000E-02	RTF(10,2)
D-34	Cs-137+D , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	8.000E-03	8.000E-03	RTF(10,3)
D-34				
D-34	Eu-152 , plant/soil concentration ratio, dimensionless	2.500E-03	2.500E-03	RTF(11,1)
D-34	Eu-152 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	2.000E-03	2.000E-03	RTF(11,2)
D-34	Eu-152 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	2.000E-05	2.000E-05	RTF(11,3)
D-34				
D-34	Eu-154 , plant/soil concentration ratio, dimensionless	2.500E-03	2.500E-03	RTF(13,1)
D-34	Eu-154 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	2.000E-03	2.000E-03	RTF(13,2)
D-34	Eu-154 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	2.000E-05	2.000E-05	RTF(13,3)
D-34				
D-34	Eu-155 , plant/soil concentration ratio, dimensionless	2.500E-03	2.500E-03	RTF(14,1)
D-34	Eu-155 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	2.000E-03	2.000E-03	RTF(14,2)
D-34	Eu-155 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	2.000E-05	2.000E-05	RTF(14,3)
D-34				
D-34	Fe-55 , plant/soil concentration ratio, dimensionless	1.000E-03	1.000E-03	RTF(15,1)
D-34	Fe-55 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	2.000E-02	2.000E-02	RTF(15,2)
D-34	Fe-55 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	3.000E-04	3.000E-04	RTF(15,3)
D-34				
D-34	Gd-152 , plant/soil concentration ratio, dimensionless	2.500E-03	2.500E-03	RTF(16,1)
D-34	Gd-152 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	2.000E-03	2.000E-03	RTF(16,2)
D-34	Gd-152 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	2.000E-05	2.000E-05	RTF(16,3)
D-34				
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	Mn-54 , plant/soil concentration ratio, dimensionless	3.000E-01	3.000E-01	RTF(18,1)
D-34	Mn-54 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	5.000E-04	5.000E-04	RTF(18,2)
D-34	Mn-54 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	3.000E-04	3.000E-04	RTF(18,3)
D-34				
D-34	Nb-94 , plant/soil concentration ratio, dimensionless	1.000E-02	1.000E-02	RTF(19,1)
D-34	Nb-94 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	3.000E-07	3.000E-07	RTF(19,2)
D-34	Nb-94 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	2.000E-06	2.000E-06	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)

Menu	Parameter	Current Value	Default	Parameter Name
D-34				
D-34	Np-237+D , plant/soil concentration ratio, dimensionless	2.000E-02	2.000E-02	RTF(21,1)
D-34	Np-237+D , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	1.000E-03	1.000E-03	RTF(21,2)
D-34	Np-237+D , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	5.000E-06	5.000E-06	RTF(21,3)
D-34				
D-34	Pa-231 , plant/soil concentration ratio, dimensionless	1.000E-02	1.000E-02	RTF(22,1)
D-34	Pa-231 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	5.000E-03	5.000E-03	RTF(22,2)
D-34	Pa-231 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	5.000E-06	5.000E-06	RTF(22,3)
D-34				
D-34	Pb-210+D , plant/soil concentration ratio, dimensionless	1.000E-02	1.000E-02	RTF(23,1)
D-34	Pb-210+D , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	8.000E-04	8.000E-04	RTF(23,2)
D-34	Pb-210+D , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	3.000E-04	3.000E-04	RTF(23,3)

Dose Conversion Factor (and Related) Parameter Summary (continued)
File: HEAST 1995 Morbidity

Menu	Parameter	Current Value	Default	Parameter Name
D-34	Po-210 , plant/soil concentration ratio, dimensionless	1.000E-03	1.000E-03	RTF(24,1)
D-34	Po-210 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	5.000E-03	5.000E-03	RTF(24,2)
D-34	Po-210 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	3.400E-04	3.400E-04	RTF(24,3)
D-34				
D-34	Pu-238 , plant/soil concentration ratio, dimensionless	1.000E-03	1.000E-03	RTF(25,1)
D-34	Pu-238 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	1.000E-04	1.000E-04	RTF(25,2)
D-34	Pu-238 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	1.000E-06	1.000E-06	RTF(25,3)
D-34				
D-34	Pu-239 , plant/soil concentration ratio, dimensionless	1.000E-03	1.000E-03	RTF(26,1)
D-34	Pu-239 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	1.000E-04	1.000E-04	RTF(26,2)
D-34	Pu-239 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	1.000E-06	1.000E-06	RTF(26,3)
D-34				
D-34	Pu-241+D , plant/soil concentration ratio, dimensionless	1.000E-03	1.000E-03	RTF(27,1)
D-34	Pu-241+D , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	1.000E-04	1.000E-04	RTF(27,2)
D-34	Pu-241+D , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	1.000E-06	1.000E-06	RTF(27,3)
D-34				
D-34	Ra-226+D , plant/soil concentration ratio, dimensionless	4.000E-02	4.000E-02	RTF(29,1)
D-34	Ra-226+D , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	1.000E-03	1.000E-03	RTF(29,2)
D-34	Ra-226+D , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	1.000E-03	1.000E-03	RTF(29,3)
D-34				
D-34	Sr-90+D , plant/soil concentration ratio, dimensionless	3.000E-01	3.000E-01	RTF(30,1)
D-34	Sr-90+D , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	8.000E-03	8.000E-03	RTF(30,2)
D-34	Sr-90+D , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	2.000E-03	2.000E-03	RTF(30,3)
D-34				
D-34	Tc-99 , plant/soil concentration ratio, dimensionless	5.000E+00	5.000E+00	RTF(31,1)
D-34	Tc-99 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	1.000E-04	1.000E-04	RTF(31,2)
D-34	Tc-99 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	1.000E-03	1.000E-03	RTF(31,3)
D-34				
D-34	Th-229+D , plant/soil concentration ratio, dimensionless	1.000E-03	1.000E-03	RTF(32,1)
D-34	Th-229+D , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	1.000E-04	1.000E-04	RTF(32,2)
D-34	Th-229+D , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	5.000E-06	5.000E-06	RTF(32,3)
D-34				
D-34	Th-230 , plant/soil concentration ratio, dimensionless	1.000E-03	1.000E-03	RTF(33,1)
D-34	Th-230 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	1.000E-04	1.000E-04	RTF(33,2)
D-34	Th-230 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	5.000E-06	5.000E-06	RTF(33,3)
D-34				
D-34	U-233 , plant/soil concentration ratio, dimensionless	2.500E-03	2.500E-03	RTF(34,1)
D-34	U-233 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	3.400E-04	3.400E-04	RTF(34,2)
D-34	U-233 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	6.000E-04	6.000E-04	RTF(34,3)
D-34				
D-34	U-234 , plant/soil concentration ratio, dimensionless	2.500E-03	2.500E-03	RTF(35,1)
D-34	U-234 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	3.400E-04	3.400E-04	RTF(35,2)
D-34	U-234 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	6.000E-04	6.000E-04	RTF(35,3)
D-34				
D-34	U-235+D , plant/soil concentration ratio, dimensionless	2.500E-03	2.500E-03	RTF(36,1)
D-34	U-235+D , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	3.400E-04	3.400E-04	RTF(36,2)
D-34	U-235+D , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	6.000E-04	6.000E-04	RTF(36,3)
D-5	Bioaccumulation factors, fresh water, L/kg:			
D-5	Ac-227+D , fish	1.500E+01	1.500E+01	BIOFAC(1,1)
D-5	Ac-227+D , crustacea and mollusks	1.000E+03	1.000E+03	BIOFAC(1,2)

Dose Conversion Factor (and Related) Parameter Summary (continued)
File: HEAST 1995 Morbidity

Menu	Parameter	Current Value	Default	Parameter Name
D-5	Ag-108m+D, fish	5.000E+00	5.000E+00	BIOFAC(2,1)
D-5	Ag-108m+D, crustacea and mollusks	7.700E+02	7.700E+02	BIOFAC(2,2)
D-5				
D-5	Am-241 , fish	3.000E+01	3.000E+01	BIOFAC(3,1)
D-5	Am-241 , crustacea and mollusks	1.000E+03	1.000E+03	BIOFAC(3,2)
D-5				
D-5	Am-243+D , fish	3.000E+01	3.000E+01	BIOFAC(4,1)
D-5	Am-243+D , crustacea and mollusks	1.000E+03	1.000E+03	BIOFAC(4,2)
D-5				
D-5	C-14 , fish	5.000E+04	5.000E+04	BIOFAC(5,1)
D-5	C-14 , crustacea and mollusks	9.100E+03	9.100E+03	BIOFAC(5,2)
D-5				
D-5	Cm-243 , fish	3.000E+01	3.000E+01	BIOFAC(6,1)
D-5	Cm-243 , crustacea and mollusks	1.000E+03	1.000E+03	BIOFAC(6,2)
D-5				
D-5	Co-60 , fish	3.000E+02	3.000E+02	BIOFAC(8,1)

D-5	Co-60 , crustacea and mollusks	2.000E+02	2.000E+02	BIOFAC(8,2)
D-5	Cs-134 , fish	2.000E+03	2.000E+03	BIOFAC(9,1)
D-5	Cs-134 , crustacea and mollusks	1.000E+02	1.000E+02	BIOFAC(9,2)
D-5	Cs-137+D , fish	2.000E+03	2.000E+03	BIOFAC(10,1)
D-5	Cs-137+D , crustacea and mollusks	1.000E+02	1.000E+02	BIOFAC(10,2)
D-5	Eu-152 , fish	5.000E+01	5.000E+01	BIOFAC(11,1)
D-5	Eu-152 , crustacea and mollusks	1.000E+03	1.000E+03	BIOFAC(11,2)
D-5	Eu-154 , fish	5.000E+01	5.000E+01	BIOFAC(13,1)
D-5	Eu-154 , crustacea and mollusks	1.000E+03	1.000E+03	BIOFAC(13,2)
D-5	Eu-155 , fish	5.000E+01	5.000E+01	BIOFAC(14,1)
D-5	Eu-155 , crustacea and mollusks	1.000E+03	1.000E+03	BIOFAC(14,2)
D-5	Fe-55 , fish	2.000E+02	2.000E+02	BIOFAC(15,1)
D-5	Fe-55 , crustacea and mollusks	3.200E+03	3.200E+03	BIOFAC(15,2)
D-5	Gd-152 , fish	2.500E+01	2.500E+01	BIOFAC(16,1)
D-5	Gd-152 , crustacea and mollusks	1.000E+03	1.000E+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	Mn-54 , fish	4.000E+02	4.000E+02	BIOFAC(18,1)
D-5	Mn-54 , crustacea and mollusks	9.000E+04	9.000E+04	BIOFAC(18,2)
D-5	Nb-94 , fish	3.000E+02	3.000E+02	BIOFAC(19,1)
D-5	Nb-94 , 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)

Dose Conversion Factor (and Related) Parameter Summary (continued)
File: HEAST 1995 Morbidity

0 Menu	Parameter	Current Value	Default	Parameter Name
D-5	Np-237+D , fish	3.000E+01	3.000E+01	BIOFAC(21,1)
D-5	Np-237+D , crustacea and mollusks	4.000E+02	4.000E+02	BIOFAC(21,2)
D-5	Pa-231 , fish	1.000E+01	1.000E+01	BIOFAC(22,1)
D-5	Pa-231 , crustacea and mollusks	1.100E+02	1.100E+02	BIOFAC(22,2)
D-5	Pb-210+D , fish	3.000E+02	3.000E+02	BIOFAC(23,1)
D-5	Pb-210+D , crustacea and mollusks	1.000E+02	1.000E+02	BIOFAC(23,2)
D-5	Po-210 , fish	1.000E+02	1.000E+02	BIOFAC(24,1)
D-5	Po-210 , crustacea and mollusks	2.000E+04	2.000E+04	BIOFAC(24,2)
D-5	Pu-238 , fish	3.000E+01	3.000E+01	BIOFAC(25,1)
D-5	Pu-238 , crustacea and mollusks	1.000E+02	1.000E+02	BIOFAC(25,2)
D-5	Pu-239 , fish	3.000E+01	3.000E+01	BIOFAC(26,1)
D-5	Pu-239 , crustacea and mollusks	1.000E+02	1.000E+02	BIOFAC(26,2)
D-5	Pu-241+D , fish	3.000E+01	3.000E+01	BIOFAC(27,1)
D-5	Pu-241+D , crustacea and mollusks	1.000E+02	1.000E+02	BIOFAC(27,2)
D-5	Ra-226+D , fish	5.000E+01	5.000E+01	BIOFAC(29,1)
D-5	Ra-226+D , crustacea and mollusks	2.500E+02	2.500E+02	BIOFAC(29,2)
D-5	Sr-90+D , fish	6.000E+01	6.000E+01	BIOFAC(30,1)
D-5	Sr-90+D , crustacea and mollusks	1.000E+02	1.000E+02	BIOFAC(30,2)
D-5	Tc-99 , fish	2.000E+01	2.000E+01	BIOFAC(31,1)
D-5	Tc-99 , crustacea and mollusks	5.000E+00	5.000E+00	BIOFAC(31,2)
D-5	Th-229+D , fish	1.000E+02	1.000E+02	BIOFAC(32,1)
D-5	Th-229+D , crustacea and mollusks	5.000E+02	5.000E+02	BIOFAC(32,2)
D-5	Th-230 , fish	1.000E+02	1.000E+02	BIOFAC(33,1)
D-5	Th-230 , crustacea and mollusks	5.000E+02	5.000E+02	BIOFAC(33,2)
D-5	U-233 , fish	1.000E+01	1.000E+01	BIOFAC(34,1)
D-5	U-233 , crustacea and mollusks	6.000E+01	6.000E+01	BIOFAC(34,2)
D-5	U-234 , fish	1.000E+01	1.000E+01	BIOFAC(35,1)
D-5	U-234 , crustacea and mollusks	6.000E+01	6.000E+01	BIOFAC(35,2)
D-5	U-235+D , fish	1.000E+01	1.000E+01	BIOFAC(36,1)
D-5	U-235+D , crustacea and mollusks	6.000E+01	6.000E+01	BIOFAC(36,2)

Site-Specific Parameter Summary

0 Parameter	User		Used by RESRAD

Menu Name	Parameter	Input	Default	(If different from user input)	
R011 AREA	Area of contaminated zone (m**2)	1.323E+03	1.000E+04	---	
R011 THICKO	Thickness of contaminated zone (m)	2.286E+01	2.000E+00	---	
R011 LCZPAQ	Length parallel to aquifer flow (m)	5.303E+01	1.000E+02	---	
R011 BRDL	Basic radiation dose limit (mrem/yr)	1.000E+00	2.500E+01	---	
R011	Time since placement of material (yr)	0.000E+00	0.000E+00	---	TI
R011 2)	Times for calculations (yr)	1.000E+00	1.000E+00	---	T(
R011 3)	Times for calculations (yr)	3.000E+00	3.000E+00	---	T(
R011 4)	Times for calculations (yr)	1.000E+01	1.000E+01	---	T(
R011 5)	Times for calculations (yr)	3.000E+01	3.000E+01	---	T(
R011 6)	Times for calculations (yr)	1.000E+02	1.000E+02	---	T(
R011 7)	Times for calculations (yr)	3.000E+02	3.000E+02	---	T(
R011 8)	Times for calculations (yr)	1.000E+03	1.000E+03	---	T(
R011 9)	Times for calculations (yr)	not used	0.000E+00	---	T(
R011 T(10)	Times for calculations (yr)	not used	0.000E+00	---	
R012 2)	Initial principal radionuclide (pCi/g): Ag-108m	1.000E+00	0.000E+00	---	S1(
R012 3)	Initial principal radionuclide (pCi/g): Am-241	1.000E+00	0.000E+00	---	S1(
R012 5)	Initial principal radionuclide (pCi/g): C-14	1.000E+00	0.000E+00	---	S1(
R012 6)	Initial principal radionuclide (pCi/g): Cm-243	1.000E+00	0.000E+00	---	S1(
R012 8)	Initial principal radionuclide (pCi/g): Co-60	1.000E+00	0.000E+00	---	S1(
R012 9)	Initial principal radionuclide (pCi/g): Cs-134	1.000E+00	0.000E+00	---	S1(
R012 S1(10)	Initial principal radionuclide (pCi/g): Cs-137	1.000E+00	0.000E+00	---	
R012 S1(11)	Initial principal radionuclide (pCi/g): Eu-152	1.000E+00	0.000E+00	---	
R012 S1(13)	Initial principal radionuclide (pCi/g): Eu-154	1.000E+00	0.000E+00	---	
R012 S1(14)	Initial principal radionuclide (pCi/g): Eu-155	1.000E+00	0.000E+00	---	
R012 S1(15)	Initial principal radionuclide (pCi/g): Fe-55	1.000E+00	0.000E+00	---	
R012 S1(17)	Initial principal radionuclide (pCi/g): H-3	1.000E+00	0.000E+00	---	
R012 S1(18)	Initial principal radionuclide (pCi/g): Mn-54	1.000E+00	0.000E+00	---	
R012 S1(19)	Initial principal radionuclide (pCi/g): Nb-94	1.000E+00	0.000E+00	---	
R012 S1(20)	Initial principal radionuclide (pCi/g): Ni-63	1.000E+00	0.000E+00	---	
R012 S1(25)	Initial principal radionuclide (pCi/g): Pu-238	1.000E+00	0.000E+00	---	
R012 S1(26)	Initial principal radionuclide (pCi/g): Pu-239	1.000E+00	0.000E+00	---	
R012 S1(27)	Initial principal radionuclide (pCi/g): Pu-241	1.000E+00	0.000E+00	---	
R012 S1(30)	Initial principal radionuclide (pCi/g): Sr-90	1.000E+00	0.000E+00	---	
R012 S1(31)	Initial principal radionuclide (pCi/g): Tc-99	1.000E+00	0.000E+00	---	
R012 2)	Concentration in groundwater (pCi/L): Ag-108m	not used	0.000E+00	---	W1(
R012 3)	Concentration in groundwater (pCi/L): Am-241	not used	0.000E+00	---	W1(
R012 5)	Concentration in groundwater (pCi/L): C-14	not used	0.000E+00	---	W1(
R012 6)	Concentration in groundwater (pCi/L): Cm-243	not used	0.000E+00	---	W1(
R012 8)	Concentration in groundwater (pCi/L): Co-60	not used	0.000E+00	---	W1(
R012 9)	Concentration in groundwater (pCi/L): Cs-134	not used	0.000E+00	---	W1(
R012 W1(10)	Concentration in groundwater (pCi/L): Cs-137	not used	0.000E+00	---	
R012 W1(11)	Concentration in groundwater (pCi/L): Eu-152	not used	0.000E+00	---	
R012 W1(13)	Concentration in groundwater (pCi/L): Eu-154	not used	0.000E+00	---	
R012 W1(14)	Concentration in groundwater (pCi/L): Eu-155	not used	0.000E+00	---	
R012 W1(15)	Concentration in groundwater (pCi/L): Fe-55	not used	0.000E+00	---	

Menu	Parameter			User Input	Default	Used by RESRAD (If different from user input)	Parameter Name
R012	Concentration in groundwater	(pCi/L):	H-3	not used	0.000E+00	---	W1(17)
R012	Concentration in groundwater	(pCi/L):	Mn-54	not used	0.000E+00	---	W1(18)
R012	Concentration in groundwater	(pCi/L):	Nb-94	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(25)

Site-Specific Parameter Summary (continued)

0 Menu	Parameter			User Input	Default	Used by RESRAD (If different from user input)	Parameter Name
R012	Concentration in groundwater	(pCi/L):	Pu-239	not used	0.000E+00	---	W1(26)
R012	Concentration in groundwater	(pCi/L):	Pu-241	not used	0.000E+00	---	W1(27)
R012	Concentration in groundwater	(pCi/L):	Sr-90	not used	0.000E+00	---	W1(30)
R012	Concentration in groundwater	(pCi/L):	Tc-99	not used	0.000E+00	---	W1(31)
R013	Cover depth (m)			5.000E+00	0.000E+00	---	COVER0
R013	Density of cover material (g/cm**3)			2.350E+00	1.500E+00	---	DENSCV
R013	Cover depth erosion rate (m/yr)			1.830E-06	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)			1.000E-03	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			8.000E-01	5.000E-01	---	EVAPTR
R013	Precipitation (m/yr)			3.550E-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			5.000E-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
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			5.300E+00	5.300E+00	---	BSZ
R014	Water table drop rate (m/yr)			1.000E-03	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)			3.000E+02	4.000E+00	---	H(1)
R015	Unsat. zone 1, soil density (g/cm**3)			2.350E+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			6.000E-02	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)

Menu	Parameter	User Input	Default	Used by RESRAD (If different from user input)	Parameter Name
R015	Unsat. zone 1, hydraulic conductivity (m/yr)	1.000E-03	1.000E+01	---	HCUZ(1)
R016	Distribution coefficients for Ag-108m				
R016	Contaminated zone (cm**3/g)	0.000E+00	0.000E+00	---	DCNUCC(2)
R016	Unsaturated zone 1 (cm**3/g)	1.800E+02	0.000E+00	---	DCNUCU(2,1)
R016	Saturated zone (cm**3/g)	0.000E+00	0.000E+00	---	DCNUCS(2)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	1.183E-02	ALEACH(2)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(2)

Site-Specific Parameter Summary (continued)

Menu	Parameter	User Input	Default	Used by RESRAD (If different from user input)	Parameter Name
R016	Distribution coefficients for Am-241				
R016	Contaminated zone (cm**3/g)	2.000E+01	2.000E+01	---	DCNUCC(3)
R016	Unsaturated zone 1 (cm**3/g)	8.400E+03	2.000E+01	---	DCNUCU(3,1)
R016	Saturated zone (cm**3/g)	2.000E+01	2.000E+01	---	DCNUCS(3)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	1.091E-04	ALEACH(3)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(3)
R016	Distribution coefficients for C-14				
R016	Contaminated zone (cm**3/g)	0.000E+00	0.000E+00	---	DCNUCC(5)
R016	Unsaturated zone 1 (cm**3/g)	1.000E+00	0.000E+00	---	DCNUCU(5,1)
R016	Saturated zone (cm**3/g)	0.000E+00	0.000E+00	---	DCNUCS(5)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	1.183E-02	ALEACH(5)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(5)
R016	Distribution coefficients for Cm-243				
R016	Contaminated zone (cm**3/g)	-1.000E+00	-1.000E+00	1.378E+03	DCNUCC(6)
R016	Unsaturated zone 1 (cm**3/g)	-1.000E+00	-1.000E+00	1.378E+03	DCNUCU(6,1)
R016	Saturated zone (cm**3/g)	-1.000E+00	-1.000E+00	1.378E+03	DCNUCS(6)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	1.598E-06	ALEACH(6)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(6)
R016	Distribution coefficients for Co-60				
R016	Contaminated zone (cm**3/g)	1.000E+03	1.000E+03	---	DCNUCC(8)
R016	Unsaturated zone 1 (cm**3/g)	5.500E+02	1.000E+03	---	DCNUCU(8,1)
R016	Saturated zone (cm**3/g)	1.000E+03	1.000E+03	---	DCNUCS(8)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	2.201E-06	ALEACH(8)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(8)
R016	Distribution coefficients for Cs-134				
R016	Contaminated zone (cm**3/g)	1.000E+03	1.000E+03	---	DCNUCC(9)
R016	Unsaturated zone 1 (cm**3/g)	1.900E+03	1.000E+03	---	DCNUCU(9,1)
R016	Saturated zone (cm**3/g)	1.000E+03	1.000E+03	---	DCNUCS(9)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	2.201E-06	ALEACH(9)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(9)
R016	Distribution coefficients for Cs-137				
R016	Contaminated zone (cm**3/g)	1.000E+03	1.000E+03	---	DCNUCC(10)
R016	Unsaturated zone 1 (cm**3/g)	1.900E+03	1.000E+03	---	DCNUCU(10,1)
R016	Saturated zone (cm**3/g)	1.000E+03	1.000E+03	---	DCNUCS(10)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	2.201E-06	ALEACH(10)

R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(10)
R016	Distribution coefficients for Eu-152				
R016	Contaminated zone (cm**3/g)	-1.000E+00	-1.000E+00	8.249E+02	DCNUCC(11)
R016	Unsaturated zone 1 (cm**3/g)	-1.000E+00	-1.000E+00	8.249E+02	DCNUCU(11,1)
R016	Saturated zone (cm**3/g)	-1.000E+00	-1.000E+00	8.249E+02	DCNUCS(11)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	2.669E-06	ALEACH(11)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(11)

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 Eu-154				
R016	Contaminated zone (cm**3/g)	-1.000E+00	-1.000E+00	8.249E+02	DCNUCC(13)
R016	Unsaturated zone 1 (cm**3/g)	-1.000E+00	-1.000E+00	8.249E+02	DCNUCU(13,1)
R016	Saturated zone (cm**3/g)	-1.000E+00	-1.000E+00	8.249E+02	DCNUCS(13)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	2.669E-06	ALEACH(13)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(13)
R016	Distribution coefficients for Eu-155				
R016	Contaminated zone (cm**3/g)	-1.000E+00	-1.000E+00	8.249E+02	DCNUCC(14)
R016	Unsaturated zone 1 (cm**3/g)	-1.000E+00	-1.000E+00	8.249E+02	DCNUCU(14,1)
R016	Saturated zone (cm**3/g)	-1.000E+00	-1.000E+00	8.249E+02	DCNUCS(14)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	2.669E-06	ALEACH(14)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(14)
R016	Distribution coefficients for Fe-55				
R016	Contaminated zone (cm**3/g)	1.000E+03	1.000E+03	---	DCNUCC(15)
R016	Unsaturated zone 1 (cm**3/g)	1.650E+02	1.000E+03	---	DCNUCU(15,1)
R016	Saturated zone (cm**3/g)	1.000E+03	1.000E+03	---	DCNUCS(15)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	2.201E-06	ALEACH(15)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(15)
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)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	1.183E-02	ALEACH(17)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(17)
R016	Distribution coefficients for Mn-54				
R016	Contaminated zone (cm**3/g)	2.000E+02	2.000E+02	---	DCNUCC(18)
R016	Unsaturated zone 1 (cm**3/g)	1.800E+02	2.000E+02	---	DCNUCU(18,1)
R016	Saturated zone (cm**3/g)	2.000E+02	2.000E+02	---	DCNUCS(18)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	1.100E-05	ALEACH(18)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK(18)
R016	Distribution coefficients for Nb-94				
R016	Contaminated zone (cm**3/g)	0.000E+00	0.000E+00	---	DCNUCC(19)
R016	Unsaturated zone 1 (cm**3/g)	9.000E+02	0.000E+00	---	DCNUCU(19,1)
R016	Saturated zone (cm**3/g)	0.000E+00	0.000E+00	---	DCNUCS(19)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	1.183E-02	ALEACH(19)

```
 R016 ³  Solubility constant                          ³ 0.000E+00 ³ 0.000E+00 ³          not used            ³
SOLUBK(19)
      ³                                               ³           ³           ³                              ³
 R016 ³ Distribution coefficients for Ni-63           ³           ³           ³                              ³
 R016 ³  Contaminated zone (cm**3/g)                  ³ 1.000E+03 ³ 1.000E+03 ³            ---               ³
DCNUCC(20)
 R016 ³  Unsaturated zone 1 (cm**3/g)                 ³ 6.500E+02 ³ 1.000E+03 ³            ---               ³
DCNUCU(20,1)
 R016 ³  Saturated zone (cm**3/g)                     ³ 1.000E+03 ³ 1.000E+03 ³            ---               ³
DCNUCS(20)
 R016 ³  Leach rate (/yr)                             ³ 0.000E+00 ³ 0.000E+00 ³          2.201E-06           ³
ALEACH(20)
 R016 ³  Solubility constant                          ³ 0.000E+00 ³ 0.000E+00 ³          not used            ³
SOLUBK(20)
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                                   Site-Specific Parameter Summary (continued)
0     ³                                               ³   User    ³           ³     Used by RESRAD           ³
Parameter
 Menu ³                  Parameter                    ³   Input   ³  Default  ³ (If different from user input) ³
Name

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AAAAAAAAA
 R016 ³ Distribution coefficients for Pu-238          ³           ³           ³                              ³
 R016 ³  Contaminated zone (cm**3/g)                  ³ 2.000E+03 ³ 2.000E+03 ³            ---               ³
DCNUCC(25)
 R016 ³  Unsaturated zone 1 (cm**3/g)                 ³ 5.100E+03 ³ 2.000E+03 ³            ---               ³
DCNUCU(25,1)
 R016 ³  Saturated zone (cm**3/g)                     ³ 2.000E+03 ³ 2.000E+03 ³            ---               ³
DCNUCS(25)
 R016 ³  Leach rate (/yr)                             ³ 0.000E+00 ³ 0.000E+00 ³          1.101E-06           ³
ALEACH(25)
 R016 ³  Solubility constant                          ³ 0.000E+00 ³ 0.000E+00 ³          not used            ³
SOLUBK(25)
      ³                                               ³           ³           ³                              ³
 R016 ³ Distribution coefficients for Pu-239          ³           ³           ³                              ³
 R016 ³  Contaminated zone (cm**3/g)                  ³ 2.000E+03 ³ 2.000E+03 ³            ---               ³
DCNUCC(26)
 R016 ³  Unsaturated zone 1 (cm**3/g)                 ³ 5.100E+03 ³ 2.000E+03 ³            ---               ³
DCNUCU(26,1)
 R016 ³  Saturated zone (cm**3/g)                     ³ 2.000E+03 ³ 2.000E+03 ³            ---               ³
DCNUCS(26)
 R016 ³  Leach rate (/yr)                             ³ 0.000E+00 ³ 0.000E+00 ³          1.101E-06           ³
ALEACH(26)
 R016 ³  Solubility constant                          ³ 0.000E+00 ³ 0.000E+00 ³          not used            ³
SOLUBK(26)
      ³                                               ³           ³           ³                              ³
 R016 ³ Distribution coefficients for Pu-241          ³           ³           ³                              ³
 R016 ³  Contaminated zone (cm**3/g)                  ³ 2.000E+03 ³ 2.000E+03 ³            ---               ³
DCNUCC(27)
 R016 ³  Unsaturated zone 1 (cm**3/g)                 ³ 5.100E+03 ³ 2.000E+03 ³            ---               ³
DCNUCU(27,1)
 R016 ³  Saturated zone (cm**3/g)                     ³ 2.000E+03 ³ 2.000E+03 ³            ---               ³
DCNUCS(27)
 R016 ³  Leach rate (/yr)                             ³ 0.000E+00 ³ 0.000E+00 ³          1.101E-06           ³
ALEACH(27)
 R016 ³  Solubility constant                          ³ 0.000E+00 ³ 0.000E+00 ³          not used            ³
SOLUBK(27)
      ³                                               ³           ³           ³                              ³
 R016 ³ Distribution coefficients for Sr-90           ³           ³           ³                              ³
 R016 ³  Contaminated zone (cm**3/g)                  ³ 3.000E+01 ³ 3.000E+01 ³            ---               ³
DCNUCC(30)
 R016 ³  Unsaturated zone 1 (cm**3/g)                 ³ 1.100E+02 ³ 3.000E+01 ³            ---               ³
DCNUCU(30,1)
 R016 ³  Saturated zone (cm**3/g)                     ³ 3.000E+01 ³ 3.000E+01 ³            ---               ³
DCNUCS(30)
 R016 ³  Leach rate (/yr)                             ³ 0.000E+00 ³ 0.000E+00 ³          7.294E-05           ³
ALEACH(30)
 R016 ³  Solubility constant                          ³ 0.000E+00 ³ 0.000E+00 ³          not used            ³
SOLUBK(30)
      ³                                               ³           ³           ³                              ³
 R016 ³ Distribution coefficients for Tc-99           ³           ³           ³                              ³
 R016 ³  Contaminated zone (cm**3/g)                  ³ 0.000E+00 ³ 0.000E+00 ³            ---               ³
DCNUCC(31)
 R016 ³  Unsaturated zone 1 (cm**3/g)                 ³ 1.000E+00 ³ 0.000E+00 ³            ---               ³
DCNUCU(31,1)
 R016 ³  Saturated zone (cm**3/g)                     ³ 0.000E+00 ³ 0.000E+00 ³            ---               ³
DCNUCS(31)
 R016 ³  Leach rate (/yr)                             ³ 0.000E+00 ³ 0.000E+00 ³          1.183E-02           ³
ALEACH(31)
 R016 ³  Solubility constant                          ³ 0.000E+00 ³ 0.000E+00 ³          not used            ³
SOLUBK(31)
      ³                                               ³           ³           ³                              ³
 R016 ³ Distribution coefficients for daughter Ac-227 ³           ³           ³                              ³
 R016 ³  Contaminated zone (cm**3/g)                  ³ 2.000E+01 ³ 2.000E+01 ³            ---               ³
DCNUCC( 1)
 R016 ³  Unsaturated zone 1 (cm**3/g)                 ³ 2.400E+03 ³ 2.000E+01 ³            ---               ³
DCNUCU( 1,1)
 R016 ³  Saturated zone (cm**3/g)                     ³ 2.000E+01 ³ 2.000E+01 ³            ---               ³
DCNUCS( 1)
 R016 ³  Leach rate (/yr)                             ³ 0.000E+00 ³ 0.000E+00 ³          1.091E-04           ³
ALEACH( 1)
```

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 R016 *  Solubility constant                              * 0.000E+00 * 0.000E+00 *        not used               *
SOLUBK( 1)
       *                                                  *           *           *                               *
 R016 * Distribution coefficients for daughter Am-243     *           *           *                               *
 R016 *  Contaminated zone (cm**3/g)                      * 2.000E+01 * 2.000E+01 *          ---                  *
DCNUCC( 4)
 R016 *  Unsaturated zone 1 (cm**3/g)                     * 8.400E+03 * 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 *        1.091E-04              *
ALEACH( 4)
 R016 *  Solubility constant                              * 0.000E+00 * 0.000E+00 *        not used               *
SOLUBK( 4)
```


```
                                         Site-Specific Parameter Summary (continued)
0      *                                                  *  User     *           *       Used by RESRAD          *
Parameter
 Menu *                   Parameter                       *  Input    *  Default  * (If different from user input) *
Name

AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
AAAAAAAAA
 R016 * Distribution coefficients for daughter Gd-152     *           *           *                               *
 R016 *  Contaminated zone (cm**3/g)                      *-1.000E+00 *-1.000E+00 *        8.249E+02              *
DCNUCC(16)
 R016 *  Unsaturated zone 1 (cm**3/g)                     *-1.000E+00 *-1.000E+00 *        8.249E+02              *
DCNUCU(16,1)
 R016 *  Saturated zone (cm**3/g)                         *-1.000E+00 *-1.000E+00 *        8.249E+02              *
DCNUCS(16)
 R016 *  Leach rate (/yr)                                 * 0.000E+00 * 0.000E+00 *        2.669E-06              *
ALEACH(16)
 R016 *  Solubility constant                              * 0.000E+00 * 0.000E+00 *        not used               *
SOLUBK(16)
       *                                                  *           *           *                               *
 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 *        8.547E-06              *
ALEACH(21)
 R016 *  Solubility constant                              * 0.000E+00 * 0.000E+00 *        not used               *
SOLUBK(21)
       *                                                  *           *           *                               *
 R016 * Distribution coefficients for daughter Pa-231     *           *           *                               *
 R016 *  Contaminated zone (cm**3/g)                      * 5.000E+01 * 5.000E+01 *          ---                  *
DCNUCC(22)
 R016 *  Unsaturated zone 1 (cm**3/g)                     * 2.700E+03 * 5.000E+01 *          ---                  *
DCNUCU(22,1)
 R016 *  Saturated zone (cm**3/g)                         * 5.000E+01 * 5.000E+01 *          ---                  *
DCNUCS(22)
 R016 *  Leach rate (/yr)                                 * 0.000E+00 * 0.000E+00 *        4.387E-05              *
ALEACH(22)
 R016 *  Solubility constant                              * 0.000E+00 * 0.000E+00 *        not used               *
SOLUBK(22)
       *                                                  *           *           *                               *
 R016 * Distribution coefficients for daughter Pb-210     *           *           *                               *
 R016 *  Contaminated zone (cm**3/g)                      * 1.000E+02 * 1.000E+02 *          ---                  *
DCNUCC(23)
 R016 *  Unsaturated zone 1 (cm**3/g)                     * 5.500E+02 * 1.000E+02 *          ---                  *
DCNUCU(23,1)
 R016 *  Saturated zone (cm**3/g)                         * 1.000E+02 * 1.000E+02 *          ---                  *
DCNUCS(23)
 R016 *  Leach rate (/yr)                                 * 0.000E+00 * 0.000E+00 *        2.198E-05              *
ALEACH(23)
 R016 *  Solubility constant                              * 0.000E+00 * 0.000E+00 *        not used               *
SOLUBK(23)
       *                                                  *           *           *                               *
 R016 * Distribution coefficients for daughter Po-210     *           *           *                               *
 R016 *  Contaminated zone (cm**3/g)                      * 1.000E+01 * 1.000E+01 *          ---                  *
DCNUCC(24)
 R016 *  Unsaturated zone 1 (cm**3/g)                     * 3.000E+03 * 1.000E+01 *          ---                  *
DCNUCU(24,1)
 R016 *  Saturated zone (cm**3/g)                         * 1.000E+01 * 1.000E+01 *          ---                  *
DCNUCS(24)
 R016 *  Leach rate (/yr)                                 * 0.000E+00 * 0.000E+00 *        2.162E-04              *
ALEACH(24)
 R016 *  Solubility constant                              * 0.000E+00 * 0.000E+00 *        not used               *
SOLUBK(24)
       *                                                  *           *           *                               *
 R016 * Distribution coefficients for daughter Ra-226     *           *           *                               *
 R016 *  Contaminated zone (cm**3/g)                      * 7.000E+01 * 7.000E+01 *          ---                  *
DCNUCC(29)
 R016 *  Unsaturated zone 1 (cm**3/g)                     * 9.100E+03 * 7.000E+01 *          ---                  *
DCNUCU(29,1)
 R016 *  Saturated zone (cm**3/g)                         * 7.000E+01 * 7.000E+01 *          ---                  *
DCNUCS(29)
 R016 *  Leach rate (/yr)                                 * 0.000E+00 * 0.000E+00 *        3.137E-05              *
ALEACH(29)
```

R016 ³ Solubility constant ³ 0.000E+00 ³ 0.000E+00 ³ not used ³
SOLUBK(29)
³ ³ ³ ³ ³
R016 ³ Distribution coefficients for daughter Th-229 ³ ³ ³ ³
R016 ³ Contaminated zone (cm**3/g) ³ 6.000E+04 ³ 6.000E+04 ³ --- ³
DCNUCC(32)
R016 ³ Unsaturated zone 1 (cm**3/g) ³ 5.800E+03 ³ 6.000E+04 ³ --- ³
DCNUCU(32,1)
R016 ³ Saturated zone (cm**3/g) ³ 6.000E+04 ³ 6.000E+04 ³ --- ³
DCNUCS(32)
R016 ³ Leach rate (/yr) ³ 0.000E+00 ³ 0.000E+00 ³ 3.670E-08 ³
ALEACH(32)
R016 ³ Solubility constant ³ 0.000E+00 ³ 0.000E+00 ³ not used ³
SOLUBK(32)

Site-Specific Parameter Summary (continued)

0 ³ ³ User ³ ³ Used by RESRAD ³ Parameter
Menu ³ Parameter ³ Input ³ Default ³ (If different from user input) ³ Name

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R016 ³ Distribution coefficients for daughter Th-230 ³ ³ ³ ³
R016 ³ Contaminated zone (cm**3/g) ³ 6.000E+04 ³ 6.000E+04 ³ --- ³
DCNUCC(33)
R016 ³ Unsaturated zone 1 (cm**3/g) ³ 5.800E+03 ³ 6.000E+04 ³ --- ³
DCNUCU(33,1)
R016 ³ Saturated zone (cm**3/g) ³ 6.000E+04 ³ 6.000E+04 ³ --- ³
DCNUCS(33)
R016 ³ Leach rate (/yr) ³ 0.000E+00 ³ 0.000E+00 ³ 3.670E-08 ³
ALEACH(33)
R016 ³ Solubility constant ³ 0.000E+00 ³ 0.000E+00 ³ not used ³
SOLUBK(33)
³ ³ ³ ³ ³
R016 ³ Distribution coefficients for daughter U-233 ³ ³ ³ ³
R016 ³ Contaminated zone (cm**3/g) ³ 5.000E+01 ³ 5.000E+01 ³ --- ³
DCNUCC(34)
R016 ³ Unsaturated zone 1 (cm**3/g) ³ 1.600E+03 ³ 5.000E+01 ³ --- ³
DCNUCU(34,1)
R016 ³ Saturated zone (cm**3/g) ³ 5.000E+01 ³ 5.000E+01 ³ --- ³
DCNUCS(34)
R016 ³ Leach rate (/yr) ³ 0.000E+00 ³ 0.000E+00 ³ 4.387E-05 ³
ALEACH(34)
R016 ³ Solubility constant ³ 0.000E+00 ³ 0.000E+00 ³ not used ³
SOLUBK(34)
³ ³ ³ ³ ³
R016 ³ Distribution coefficients for daughter U-234 ³ ³ ³ ³
R016 ³ Contaminated zone (cm**3/g) ³ 5.000E+01 ³ 5.000E+01 ³ --- ³
DCNUCC(35)
R016 ³ Unsaturated zone 1 (cm**3/g) ³ 1.600E+03 ³ 5.000E+01 ³ --- ³
DCNUCU(35,1)
R016 ³ Saturated zone (cm**3/g) ³ 5.000E+01 ³ 5.000E+01 ³ --- ³
DCNUCS(35)
R016 ³ Leach rate (/yr) ³ 0.000E+00 ³ 0.000E+00 ³ 4.387E-05 ³
ALEACH(35)
R016 ³ Solubility constant ³ 0.000E+00 ³ 0.000E+00 ³ not used ³
SOLUBK(35)
³ ³ ³ ³ ³
R016 ³ Distribution coefficients for daughter U-235 ³ ³ ³ ³
R016 ³ Contaminated zone (cm**3/g) ³ 5.000E+01 ³ 5.000E+01 ³ --- ³
DCNUCC(36)
R016 ³ Unsaturated zone 1 (cm**3/g) ³ 1.600E+03 ³ 5.000E+01 ³ --- ³
DCNUCU(36,1)
R016 ³ Saturated zone (cm**3/g) ³ 5.000E+01 ³ 5.000E+01 ³ --- ³
DCNUCS(36)
R016 ³ Leach rate (/yr) ³ 0.000E+00 ³ 0.000E+00 ³ 4.387E-05 ³
ALEACH(36)
R016 ³ Solubility constant ³ 0.000E+00 ³ 0.000E+00 ³ not used ³
SOLUBK(36)
³ ³ ³ ³ ³
R017 ³ Inhalation rate (m**3/yr) ³ 8.400E+03 ³ 8.400E+03 ³ --- ³
INHALR
R017 ³ Mass loading for inhalation (g/m**3) ³ 1.000E-04 ³ 1.000E-04 ³ --- ³
MLINH
R017 ³ Exposure duration ³ 3.000E+01 ³ 3.000E+01 ³ --- ³ ED
R017 ³ Shielding factor, inhalation ³ 4.000E-01 ³ 4.000E-01 ³ --- ³
SHF3
R017 ³ Shielding factor, external gamma ³ 7.000E-01 ³ 7.000E-01 ³ --- ³
SHF1
R017 ³ Fraction of time spent indoors ³ 5.000E-01 ³ 5.000E-01 ³ --- ³
FIND
R017 ³ Fraction of time spent outdoors (on site) ³ 2.500E-01 ³ 2.500E-01 ³ --- ³
FOTD
R017 ³ Shape factor flag, external gamma ³ 1.000E+00 ³ 1.000E+00 ³ >0 shows circular AREA. ³ FS
R017 ³ Radii of shape factor array (used if FS = -1): ³ ³ ³ ³
R017 ³ Outer annular radius (m), ring 1: ³ not used ³ 5.000E+01 ³ --- ³
RAD_SHAPE(1)
R017 ³ Outer annular radius (m), ring 2: ³ not used ³ 7.071E+01 ³ --- ³
RAD_SHAPE(2)
R017 ³ Outer annular radius (m), ring 3: ³ not used ³ 0.000E+00 ³ --- ³
RAD_SHAPE(3)

```
 R017 ³   Outer annular radius (m), ring  4:             ³ not used  ³ 0.000E+00 ³              ---                ³
RAD_SHAPE( 4)
 R017 ³   Outer annular radius (m), ring  5:             ³ not used  ³ 0.000E+00 ³              ---                ³
RAD_SHAPE( 5)
 R017 ³   Outer annular radius (m), ring  6:             ³ not used  ³ 0.000E+00 ³              ---                ³
RAD_SHAPE( 6)
 R017 ³   Outer annular radius (m), ring  7:             ³ not used  ³ 0.000E+00 ³              ---                ³
RAD_SHAPE( 7)
 R017 ³   Outer annular radius (m), ring  8:             ³ not used  ³ 0.000E+00 ³              ---                ³
RAD_SHAPE( 8)
 R017 ³   Outer annular radius (m), ring  9:             ³ not used  ³ 0.000E+00 ³              ---                ³
RAD_SHAPE( 9)
 R017 ³   Outer annular radius (m), ring 10:             ³ not used  ³ 0.000E+00 ³              ---                ³
RAD_SHAPE(10)
 R017 ³   Outer annular radius (m), ring 11:             ³ not used  ³ 0.000E+00 ³              ---                ³
RAD_SHAPE(11)
 R017 ³   Outer annular radius (m), ring 12:             ³ not used  ³ 0.000E+00 ³              ---                ³
RAD_SHAPE(12)
      ³                                                  ³           ³           ³                                 ³
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 Summary : Haddam Neck Material at WCS                           File: CY to WCS.RAD

                                         Site-Specific Parameter Summary (continued)
0      ³                                                 ³  User     ³           ³         Used by RESRAD          ³
Parameter
 Menu ³                        Parameter                 ³  Input    ³  Default  ³ (If different from user input) ³
Name

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AAAAAAAAA
 R017 ³ Fractions of annular areas within AREA:          ³           ³           ³                                 ³
 R017 ³   Ring  1                                        ³ not used  ³ 1.000E+00 ³              ---                ³
FRACA( 1)
 R017 ³   Ring  2                                        ³ not used  ³ 2.732E-01 ³              ---                ³
FRACA( 2)
 R017 ³   Ring  3                                        ³ not used  ³ 0.000E+00 ³              ---                ³
FRACA( 3)
 R017 ³   Ring  4                                        ³ not used  ³ 0.000E+00 ³              ---                ³
FRACA( 4)
 R017 ³   Ring  5                                        ³ not used  ³ 0.000E+00 ³              ---                ³
FRACA( 5)
 R017 ³   Ring  6                                        ³ not used  ³ 0.000E+00 ³              ---                ³
FRACA( 6)
 R017 ³   Ring  7                                        ³ not used  ³ 0.000E+00 ³              ---                ³
FRACA( 7)
 R017 ³   Ring  8                                        ³ not used  ³ 0.000E+00 ³              ---                ³
FRACA( 8)
 R017 ³   Ring  9                                        ³ not used  ³ 0.000E+00 ³              ---                ³
FRACA( 9)
 R017 ³   Ring 10                                        ³ not used  ³ 0.000E+00 ³              ---                ³
FRACA(10)
 R017 ³   Ring 11                                        ³ not used  ³ 0.000E+00 ³              ---                ³
FRACA(11)
 R017 ³   Ring 12                                        ³ not used  ³ 0.000E+00 ³              ---                ³
FRACA(12)
      ³                                                  ³           ³           ³                                 ³
 R018 ³ Fruits, vegetables and grain consumption (kg/yr) ³ 1.600E+02 ³ 1.600E+02 ³              ---                ³
DIET(1)
 R018 ³ Leafy vegetable consumption (kg/yr)              ³ 1.400E+01 ³ 1.400E+01 ³              ---                ³
DIET(2)
 R018 ³ Milk consumption (L/yr)                          ³ 9.200E+01 ³ 9.200E+01 ³              ---                ³
DIET(3)
 R018 ³ Meat and poultry consumption (kg/yr)             ³ 6.300E+01 ³ 6.300E+01 ³              ---                ³
DIET(4)
 R018 ³ Fish consumption (kg/yr)                         ³ not used  ³ 5.400E+00 ³              ---                ³
DIET(5)
 R018 ³ Other seafood consumption (kg/yr)                ³ not used  ³ 9.000E-01 ³              ---                ³
DIET(6)
 R018 ³ Soil ingestion rate (g/yr)                       ³ 3.650E+01 ³ 3.650E+01 ³              ---                ³
SOIL
 R018 ³ Drinking water intake (L/yr)                     ³ 5.100E+02 ³ 5.100E+02 ³              ---                ³ DWI
 R018 ³ Contamination fraction of drinking water         ³ 1.000E+00 ³ 1.000E+00 ³              ---                ³ FDW
 R018 ³ Contamination fraction of household water        ³ 1.000E+00 ³ 1.000E+00 ³              ---                ³
FHHW
 R018 ³ Contamination fraction of livestock water        ³ 1.000E+00 ³ 1.000E+00 ³              ---                ³ FLW
 R018 ³ Contamination fraction of irrigation water       ³ 1.000E+00 ³ 1.000E+00 ³              ---                ³
FIRW
 R018 ³ Contamination fraction of aquatic food           ³ not used  ³ 5.000E-01 ³              ---                ³ FR9
 R018 ³ Contamination fraction of plant food             ³-1         ³-1         ³           0.500E+00             ³
FPLANT
 R018 ³ Contamination fraction of meat                   ³-1         ³-1         ³           0.661E-01             ³
FMEAT
 R018 ³ Contamination fraction of milk                   ³-1         ³-1         ³           0.661E-01             ³
FMILK
      ³                                                  ³           ³           ³                                 ³
 R019 ³ Livestock fodder intake for meat (kg/day)        ³ 6.800E+01 ³ 6.800E+01 ³              ---                ³
LFI5
 R019 ³ Livestock fodder intake for milk (kg/day)        ³ 5.500E+01 ³ 5.500E+01 ³              ---                ³
LFI6
 R019 ³ Livestock water intake for meat (L/day)          ³ 5.000E+01 ³ 5.000E+01 ³              ---                ³
LWI5
 R019 ³ Livestock water intake for milk (L/day)          ³ 1.600E+02 ³ 1.600E+02 ³              ---                ³
LWI6
 R019 ³ Livestock soil intake (kg/day)                   ³ 5.000E-01 ³ 5.000E-01 ³              ---                ³ LSI
```

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	1.000E+00	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)

Site-Specific Parameter Summary (continued)

0 Menu	Parameter	User Input	Default	Used by RESRAD (If different from user input)	Parameter Name
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
C14	DCF correction factor for gaseous forms of C14	8.894E+01	8.894E+01	---	CO2F
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 ³   Livestock fodder                                ³ 4.500E+01 ³ 4.500E+01 ³            ---               ³
STOR_T(9)
      ³                                                   ³           ³           ³                              ³
 R021 ³ Thickness of building foundation (m)              ³ 1.500E-01 ³ 1.500E-01 ³            ---               ³
FLOOR1
 R021 ³ Bulk density of building foundation (g/cm**3)     ³ 2.400E+00 ³ 2.400E+00 ³            ---               ³
DENSFL
 R021 ³ Total porosity of the cover material              ³ 4.000E-01 ³ 4.000E-01 ³            ---               ³
TPCV
 R021 ³ Total porosity of the building foundation         ³ 1.000E-01 ³ 1.000E-01 ³            ---               ³
TPFL
 R021 ³ Volumetric water content of the cover material    ³ 5.000E-02 ³ 5.000E-02 ³            ---               ³
PH2OCV
 R021 ³ Volumetric water content of the foundation        ³ 3.000E-02 ³ 3.000E-02 ³            ---               ³
PH2OFL
 R021 ³ Diffusion coefficient for radon gas (m/sec):      ³           ³           ³                              ³
 R021 ³   in cover material                               ³ 2.000E-06 ³ 2.000E-06 ³            ---               ³
DIFCV
 R021 ³   in foundation material                          ³ 3.000E-07 ³ 3.000E-07 ³            ---               ³
DIFFL
 R021 ³   in contaminated zone soil                       ³ 2.000E-06 ³ 2.000E-06 ³            ---               ³
DIFCZ
 R021 ³ Radon vertical dimension of mixing (m)            ³ 2.000E+00 ³ 2.000E+00 ³            ---               ³
HMIX
 R021 ³ Average building air exchange rate (1/hr)         ³ 5.000E-01 ³ 5.000E-01 ³            ---               ³
REXG
 R021 ³ Height of the building (room) (m)                 ³ 2.500E+00 ³ 2.500E+00 ³            ---               ³ HRM
 R021 ³ Building interior area factor                     ³ 0.000E+00 ³ 0.000E+00 ³ code computed (time dependent) ³ FAI
 R021 ³ Building depth below ground surface (m)           ³-1.000E+00 ³-1.000E+00 ³ code computed (time dependent) ³
DMFL
 R021 ³ Emanating power of Rn-222 gas                     ³ 2.500E-01 ³ 2.500E-01 ³            ---               ³
EMANA(1)
 R021 ³ Emanating power of Rn-220 gas                     ³ not used  ³ 1.500E-01 ³            ---               ³
EMANA(2)
      ³                                                   ³           ³           ³                              ³
 TITL ³ Number of graphical time points                   ³     32    ³    ---    ³            ---               ³
NPTS
 TITL ³ Maximum number of integration points for dose     ³     17    ³    ---    ³            ---               ³
LYMAX
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 Summary : Haddam Neck Material at WCS                     File: CY to WCS.RAD

                                              Site-Specific Parameter Summary (continued)
0     ³                                                   ³   User    ³           ³        Used by RESRAD        ³
Parameter
 Menu ³                   Parameter                       ³   Input   ³  Default  ³ (If different from user input) ³
Name

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 TITL ³ Maximum number of integration points for risk     ³     1     ³    ---    ³            ---               ³
KYMAX

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                      Summary of Pathway Selections

                     Pathway             ³  User Selection
          AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
             1 -- external gamma         ³      active
             2 -- inhalation (w/o radon) ³      active
             3 -- plant ingestion        ³      active
             4 -- meat ingestion         ³      active
             5 -- milk ingestion         ³      active
             6 -- aquatic foods          ³    suppressed
             7 -- drinking water         ³      active
             8 -- soil ingestion         ³      active
             9 -- radon                  ³      active
             Find peak pathway doses     ³      active
          ÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍÍ
1RESRAD, Version 6.22     T« Limit = 30 days       11/10/2004  13:56  Page  18
 Summary : Haddam Neck Material at WCS                     File: CY to WCS.RAD

      Contaminated Zone Dimensions           Initial Soil Concentrations, pCi/g
      AAAAAAAAAAAAAAAAAAAAAAAAAAAA           AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
        Area:    1323.00 square meters              Ag-108m     1.000E+00
   Thickness:      22.86 meters                     Am-241      1.000E+00
 Cover Depth:       5.00 meters                     C-14        1.000E+00
                                                    Cm-243      1.000E+00
                                                    Co-60       1.000E+00
                                                    Cs-134      1.000E+00
                                                    Cs-137      1.000E+00
                                                    Eu-152      1.000E+00
                                                    Eu-154      1.000E+00
                                                    Eu-155      1.000E+00
                                                    Fe-55       1.000E+00
                                                    H-3         1.000E+00
                                                    Mn-54       1.000E+00
                                                    Nb-94       1.000E+00
                                                    Ni-63       1.000E+00
                                                    Pu-238      1.000E+00
                                                    Pu-239      1.000E+00
```

Pu-241	1.000E+00
Sr-90	1.000E+00
Tc-99	1.000E+00

0

Total Dose TDOSE(t), mrem/yr
Basic Radiation Dose Limit = 1.000E+00 mrem/yr
Total Mixture Sum M(t) = Fraction of Basic Dose Limit Received at Time (t)

t (years):	0.000E+00	1.000E+00	3.000E+00	1.000E+01	3.000E+01	1.000E+02	3.000E+02	1.000E+03
TDOSE(t):	4.213E-16	6.308E-15	7.330E-14	1.916E-12	4.498E-11	1.402E-09	2.754E-08	4.299E-07
M(t):	4.213E-16	6.308E-15	7.330E-14	1.916E-12	4.498E-11	1.402E-09	2.754E-08	4.299E-07

0Maximum TDOSE(t): 4.299E-07 mrem/yr at t = 1.000E+03 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
0 Water Independent Pathways (Inhalation excludes radon)

0 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.
Ag-108m	0.000E+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
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	0.000E+00	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	0.000E+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	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	0.000E+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
Eu-152	0.000E+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
Eu-154	0.000E+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
Eu-155	0.000E+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
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
Mn-54	0.000E+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
Nb-94	0.000E+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
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	0.000E+00	0.0000
Pu-238	0.000E+00	0.0000	0.000E+00	0.0000	4.213E-16	1.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+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	0.000E+00	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	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	0.000E+00	0.0000
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	0.000E+00	0.0000
Total	0.000E+00	0.0000	0.000E+00	0.0000	4.213E-16	1.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000

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-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.
Ag-108m	0.000E+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
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	0.000E+00	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	0.000E+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	0.000E+00	0.0000

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 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
0.000E+00 0.0000
 Eu-152  0.000E+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
 Eu-154  0.000E+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
 Eu-155  0.000E+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
 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
 Mn-54   0.000E+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
 Nb-94   0.000E+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
 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
0.000E+00 0.0000
 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
4.213E-16 1.0000
 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
0.000E+00 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
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
0.000E+00 0.0000
 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
0.000E+00 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
4.213E-16 1.0000
0*Sum of all water independent and dependent pathways.
1RESRAD, Version 6.22     T« Limit = 30 days          11/10/2004  13:56  Page  21
 Summary : Haddam Neck Material at WCS                        File: CY to WCS.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            Ground            Inhalation            Radon              Plant              Meat               Milk
Soil
 Radio-  AAAAAAAAAAAAAAAAA AAAAAAAAAAAAAAAAA AAAAAAAAAAAAAAAAA AAAAAAAAAAAAAAAAA AAAAAAAAAAAAAAAAA AAAAAAAAAAAAAAAAA
AAAAAAAAAAAAAAAAA
 Nuclide  mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.
mrem/yr  fract.
 AAAAAAA AAAAAAAAA AAAAAA  AAAAAAAAA AAAAAA  AAAAAAAAA AAAAAA  AAAAAAAAA AAAAAA  AAAAAAAAA AAAAAA  AAAAAAAAA AAAAAA
AAAAAAAAA AAAAAA
 Ag-108m 0.000E+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
 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
0.000E+00 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
0.000E+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
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  0.000E+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
 Eu-152  0.000E+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
 Eu-154  0.000E+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
 Eu-155  0.000E+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
 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
 Mn-54   0.000E+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
 Nb-94   0.000E+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
 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
0.000E+00 0.0000
 Pu-238  0.000E+00 0.0000  0.000E+00 0.0000  6.308E-15 1.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000
0.000E+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
0.000E+00 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
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
0.000E+00 0.0000
 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
0.000E+00 0.0000
 !!!!!!! !!!!!!!!! !!!!!!  !!!!!!!!! !!!!!!  !!!!!!!!! !!!!!!  !!!!!!!!! !!!!!!  !!!!!!!!! !!!!!!  !!!!!!!!! !!!!!!
!!!!!!!!! !!!!!!
 Total   0.000E+00 0.0000  0.000E+00 0.0000  6.308E-15 1.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000
0.000E+00 0.0000
1RESRAD, Version 6.22     T« Limit = 30 days          11/10/2004  13:56  Page  22
 Summary : Haddam Neck Material at WCS                        File: CY to WCS.RAD
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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 = 1.000E+00 years

```
0                                   Water Dependent Pathways
0            Water              Fish               Radon              Plant              Meat               Milk
All Pathways*
 Radio-  AAAAAAAAAAAAAAAAA  AAAAAAAAAAAAAAAAA  AAAAAAAAAAAAAAAAA  AAAAAAAAAAAAAAAAA  AAAAAAAAAAAAAAAAA  AAAAAAAAAAAAAAAAA
AAAAAAAAAAAAAAAAA
 Nuclide  mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.
mrem/yr  fract.
 AAAAAAA AAAAAAAAA AAAAAA  AAAAAAAAA AAAAAA  AAAAAAAAA AAAAAA  AAAAAAAAA AAAAAA  AAAAAAAAA AAAAAA  AAAAAAAAA AAAAAA
AAAAAAAAA AAAAAA
 Ag-108m 0.000E+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
 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
0.000E+00 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
0.000E+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
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  0.000E+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
 Eu-152  0.000E+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
 Eu-154  0.000E+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
 Eu-155  0.000E+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
 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
 Mn-54   0.000E+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
 Nb-94   0.000E+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
 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
0.000E+00 0.0000
 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
6.308E-15 1.0000
 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
0.000E+00 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
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
0.000E+00 0.0000
 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
0.000E+00 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
6.308E-15 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 = 3.000E+00 years

```
0                                   Water Independent Pathways (Inhalation excludes radon)
0            Ground             Inhalation         Radon              Plant              Meat               Milk
Soil
 Radio-  AAAAAAAAAAAAAAAAA  AAAAAAAAAAAAAAAAA  AAAAAAAAAAAAAAAAA  AAAAAAAAAAAAAAAAA  AAAAAAAAAAAAAAAAA  AAAAAAAAAAAAAAAAA
AAAAAAAAAAAAAAAAA
 Nuclide  mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.
mrem/yr  fract.
 AAAAAAA AAAAAAAAA AAAAAA  AAAAAAAAA AAAAAA  AAAAAAAAA AAAAAA  AAAAAAAAA AAAAAA  AAAAAAAAA AAAAAA  AAAAAAAAA AAAAAA
AAAAAAAAA AAAAAA
 Ag-108m 0.000E+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
 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
0.000E+00 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
0.000E+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
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  0.000E+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
 Eu-152  0.000E+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
 Eu-154  0.000E+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
 Eu-155  0.000E+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
 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
```

```
 Mn-54   0.000E+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
 Nb-94   0.000E+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
 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
0.000E+00 0.0000
 Pu-238  0.000E+00 0.0000  0.000E+00 0.0000  7.330E-14 1.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000
0.000E+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
0.000E+00 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
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
0.000E+00 0.0000
 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
0.000E+00 0.0000
 ||||||| ||||||||| ||||||  ||||||||| ||||||  ||||||||| ||||||  ||||||||| ||||||  ||||||||| ||||||  ||||||||| ||||||
||||||||| ||||||
 Total   0.000E+00 0.0000  0.000E+00 0.0000  7.330E-14 1.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000
0.000E+00 0.0000
1RESRAD, Version 6.22     T« Limit = 30 days          11/10/2004  13:56  Page  24
 Summary : Haddam Neck Material at WCS                        File: CY to WCS.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+00 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.
 |||||||| |||||||||| ||||||  |||||||||| ||||||  |||||||||| ||||||  |||||||||| ||||||  |||||||||| ||||||  |||||||||| ||||||
|||||||||| ||||||
 Ag-108m 0.000E+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
 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
0.000E+00 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
0.000E+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
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  0.000E+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
 Eu-152  0.000E+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
 Eu-154  0.000E+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
 Eu-155  0.000E+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
 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
 Mn-54   0.000E+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
 Nb-94   0.000E+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
 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
0.000E+00 0.0000
 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
7.330E-14 1.0000
 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
0.000E+00 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
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
0.000E+00 0.0000
 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
0.000E+00 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
7.330E-14 1.0000
0*Sum of all water independent and dependent pathways.
1RESRAD, Version 6.22     T« Limit = 30 days          11/10/2004  13:56  Page  25
 Summary : Haddam Neck Material at WCS                        File: CY to WCS.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
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.
 |||||||| |||||||||| ||||||  |||||||||| ||||||  |||||||||| ||||||  |||||||||| ||||||  |||||||||| ||||||  |||||||||| ||||||
|||||||||| ||||||
 Ag-108m 0.000E+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
```

```
 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
0.000E+00 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
0.000E+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
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  0.000E+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
 Eu-152  0.000E+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
 Eu-154  0.000E+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
 Eu-155  0.000E+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
 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
 Mn-54   0.000E+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
 Nb-94   0.000E+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
 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
0.000E+00 0.0000
 Pu-238  0.000E+00 0.0000  0.000E+00 0.0000  1.916E-12 1.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000
0.000E+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
0.000E+00 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
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
0.000E+00 0.0000
 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
0.000E+00 0.0000
 ¡¡¡¡¡¡¡ ¡¡¡¡¡¡¡¡¡ ¡¡¡¡¡¡  ¡¡¡¡¡¡¡¡¡ ¡¡¡¡¡¡  ¡¡¡¡¡¡¡¡¡ ¡¡¡¡¡¡  ¡¡¡¡¡¡¡¡¡ ¡¡¡¡¡¡  ¡¡¡¡¡¡¡¡¡ ¡¡¡¡¡¡  ¡¡¡¡¡¡¡¡¡ ¡¡¡¡¡¡
¡¡¡¡¡¡¡¡¡ ¡¡¡¡¡¡
 Total   0.000E+00 0.0000  0.000E+00 0.0000  1.916E-12 1.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000
0.000E+00 0.0000
1RESRAD, Version 6.22     T« Limit = 30 days          11/10/2004  13:56  Page  26
 Summary : Haddam Neck Material at WCS                        File: CY to WCS.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
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.
 ¡¡¡¡¡¡¡¡ ¡¡¡¡¡¡¡¡¡¡ ¡¡¡¡¡¡  ¡¡¡¡¡¡¡¡¡¡ ¡¡¡¡¡¡  ¡¡¡¡¡¡¡¡¡¡ ¡¡¡¡¡¡  ¡¡¡¡¡¡¡¡¡¡ ¡¡¡¡¡¡  ¡¡¡¡¡¡¡¡¡¡ ¡¡¡¡¡¡  ¡¡¡¡¡¡¡¡¡¡ ¡¡¡¡¡¡
¡¡¡¡¡¡¡¡¡¡ ¡¡¡¡¡¡
 Ag-108m 0.000E+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
 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
0.000E+00 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
0.000E+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
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  0.000E+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
 Eu-152  0.000E+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
 Eu-154  0.000E+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
 Eu-155  0.000E+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
 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
 Mn-54   0.000E+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
 Nb-94   0.000E+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
 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
0.000E+00 0.0000
 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
1.916E-12 1.0000
 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
0.000E+00 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
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
0.000E+00 0.0000
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 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
0.000E+00 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
1.916E-12 1.0000
0*Sum of all water independent and dependent pathways.
1RESRAD, Version 6.22     T½ Limit = 30 days          11/10/2004  13:56  Page  27
 Summary : Haddam Neck Material at WCS                        File: CY to WCS.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+01 years
0                                    Water Independent Pathways (Inhalation excludes radon)
0            Ground            Inhalation            Radon              Plant              Meat               Milk
Soil
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
 Nuclide  mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.
mrem/yr  fract.
 ÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ
 Ag-108m 0.000E+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
 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
0.000E+00 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
0.000E+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
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  0.000E+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
 Eu-152  0.000E+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
 Eu-154  0.000E+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
 Eu-155  0.000E+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
 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
 Mn-54   0.000E+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
 Nb-94   0.000E+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
 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
0.000E+00 0.0000
 Pu-238  0.000E+00 0.0000  0.000E+00 0.0000  4.498E-11 1.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000
0.000E+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
0.000E+00 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
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
0.000E+00 0.0000
 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
0.000E+00 0.0000
 ¡¡¡¡¡¡¡ ¡¡¡¡¡¡¡¡¡ ¡¡¡¡¡¡  ¡¡¡¡¡¡¡¡¡ ¡¡¡¡¡¡  ¡¡¡¡¡¡¡¡¡ ¡¡¡¡¡¡  ¡¡¡¡¡¡¡¡¡ ¡¡¡¡¡¡  ¡¡¡¡¡¡¡¡¡ ¡¡¡¡¡¡  ¡¡¡¡¡¡¡¡¡ ¡¡¡¡¡¡
¡¡¡¡¡¡¡¡¡ ¡¡¡¡¡¡
 Total    0.000E+00 0.0000  0.000E+00 0.0000  4.498E-11 1.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000
0.000E+00 0.0000
1RESRAD, Version 6.22     T½ Limit = 30 days          11/10/2004  13:56  Page  28
 Summary : Haddam Neck Material at WCS                        File: CY to WCS.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+01 years
0                                                    Water Dependent Pathways
0            Water             Fish              Radon              Plant              Meat               Milk
All Pathways*
 Radio-  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
 Nuclide  mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.
mrem/yr  fract.
 ÄÄÄÄÄÄÄ ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ  ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ
ÄÄÄÄÄÄÄÄÄ ÄÄÄÄÄÄ
 Ag-108m 0.000E+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
 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
0.000E+00 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
0.000E+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
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  0.000E+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
 Eu-152  0.000E+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
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 Eu-154  0.000E+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
 Eu-155  0.000E+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
 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
 Mn-54   0.000E+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
 Nb-94   0.000E+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
 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
0.000E+00 0.0000
 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
4.498E-11 1.0000
 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
0.000E+00 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
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
0.000E+00 0.0000
 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
0.000E+00 0.0000
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||||||||| ||||||
 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
4.498E-11 1.0000
0*Sum of all water independent and dependent pathways.
IRESRAD, Version 6.22     T« Limit = 30 days          11/10/2004  13:56  Page  29
 Summary : Haddam Neck Material at WCS                        File: CY to WCS.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.
 ####### ######### ######  ######### ######  ######### ######  ######### ######  ######### ######  ######### ######
######### ######
 Ag-108m 0.000E+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
 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
0.000E+00 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
0.000E+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
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  0.000E+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
 Eu-152  0.000E+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
 Eu-154  0.000E+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
 Eu-155  0.000E+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
 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
 Mn-54   0.000E+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
 Nb-94   0.000E+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
 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
0.000E+00 0.0000
 Pu-238  0.000E+00 0.0000  0.000E+00 0.0000  1.402E-09 1.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000
0.000E+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
0.000E+00 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
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
0.000E+00 0.0000
 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
0.000E+00 0.0000
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||||||||| ||||||
 Total   0.000E+00 0.0000  0.000E+00 0.0000  1.402E-09 1.0000  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000
0.000E+00 0.0000
IRESRAD, Version 6.22     T« Limit = 30 days          11/10/2004  13:56  Page  30
 Summary : Haddam Neck Material at WCS                        File: CY to WCS.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*
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```
 Radio-  AAAAAAAAAAAAAAAAA  AAAAAAAAAAAAAAAAA  AAAAAAAAAAAAAAAAA  AAAAAAAAAAAAAAAAA  AAAAAAAAAAAAAAAAA  AAAAAAAAAAAAAAAAA
AAAAAAAAAAAAAAAAA
 Nuclide  mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.
mrem/yr  fract.
 AAAAAAA AAAAAAAAA AAAAAA  AAAAAAAAA AAAAAA  AAAAAAAAA AAAAAA  AAAAAAAAA AAAAAA  AAAAAAAAA AAAAAA  AAAAAAAAA AAAAAA
AAAAAAAAA AAAAAA
 Ag-108m 0.000E+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
 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
0.000E+00 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
0.000E+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
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  0.000E+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
 Eu-152  0.000E+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
 Eu-154  0.000E+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
 Eu-155  0.000E+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
 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
 Mn-54   0.000E+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
 Nb-94   0.000E+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
 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
0.000E+00 0.0000
 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
1.402E-09 1.0000
 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
0.000E+00 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
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
0.000E+00 0.0000
 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
0.000E+00 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
1.402E-09 1.0000
0*Sum of all water independent and dependent pathways.
1RESRAD, Version 6.22     T« Limit = 30 days          11/10/2004  13:56  Page  31
 Summary : Haddam Neck Material at WCS                        File: CY to WCS.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                                   Water Independent Pathways (Inhalation excludes radon)
0            Ground            Inhalation            Radon              Plant              Meat               Milk
Soil
 Radio-  AAAAAAAAAAAAAAAAA  AAAAAAAAAAAAAAAAA  AAAAAAAAAAAAAAAAA  AAAAAAAAAAAAAAAAA  AAAAAAAAAAAAAAAAA  AAAAAAAAAAAAAAAAA
AAAAAAAAAAAAAAAAA
 Nuclide  mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.
mrem/yr  fract.
 AAAAAAA AAAAAAAAA AAAAAA  AAAAAAAAA AAAAAA  AAAAAAAAA AAAAAA  AAAAAAAAA AAAAAA  AAAAAAAAA AAAAAA  AAAAAAAAA AAAAAA
AAAAAAAAA AAAAAA
 Ag-108m 0.000E+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
 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
0.000E+00 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
0.000E+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
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  0.000E+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
 Eu-152  0.000E+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
 Eu-154  0.000E+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
 Eu-155  0.000E+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
 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
 Mn-54   0.000E+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
 Nb-94   0.000E+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
 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
0.000E+00 0.0000
```

```
 Pu-238  0.000E+00 0.0000  0.000E+00 0.0000  2.661E-08 0.9661  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000
0.000E+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
0.000E+00 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
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
0.000E+00 0.0000
 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
0.000E+00 0.0000
 !!!!!!! !!!!!!!!! !!!!!! !!!!!!!!! !!!!!! !!!!!!!!! !!!!!! !!!!!!!!! !!!!!! !!!!!!!!! !!!!!! !!!!!!!!! !!!!!!
!!!!!!!!! !!!!!!
 Total   0.000E+00 0.0000  0.000E+00 0.0000  2.661E-08 0.9661  0.000E+00 0.0000  0.000E+00 0.0000  0.000E+00 0.0000
0.000E+00 0.0000
1RESRAD, Version 6.22     T« Limit = 30 days          11/10/2004  13:56  Page  32
 Summary : Haddam Neck Material at WCS                        File: CY to WCS.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                                                  Water Dependent Pathways
0              Water              Fish               Radon              Plant              Meat               Milk
All Pathways*
 Radio-  AAAAAAAAAAAAAAAA  AAAAAAAAAAAAAAAA  AAAAAAAAAAAAAAAA  AAAAAAAAAAAAAAAA  AAAAAAAAAAAAAAAA  AAAAAAAAAAAAAAAA
AAAAAAAAAAAAAAAA
 Nuclide  mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.
mrem/yr  fract.
 AAAAAAA AAAAAAAAA AAAAAA  AAAAAAAAA AAAAAA  AAAAAAAAA AAAAAA  AAAAAAAAA AAAAAA  AAAAAAAAA AAAAAA  AAAAAAAAA AAAAAA
AAAAAAAAA AAAAAA
 Ag-108m 0.000E+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
 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
0.000E+00 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
0.000E+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
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  0.000E+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
 Eu-152  0.000E+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
 Eu-154  0.000E+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
 Eu-155  0.000E+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
 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     8.278E-10 0.0301  0.000E+00 0.0000  0.000E+00 0.0000  9.500E-11 0.0034  2.751E-12 0.0001  7.530E-12 0.0003
9.330E-10 0.0339
 Mn-54   0.000E+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
 Nb-94   0.000E+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
 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
0.000E+00 0.0000
 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
2.661E-08 0.9661
 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
0.000E+00 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
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
0.000E+00 0.0000
 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
0.000E+00 0.0000
 !!!!!!! !!!!!!!!! !!!!!! !!!!!!!!! !!!!!! !!!!!!!!! !!!!!! !!!!!!!!! !!!!!! !!!!!!!!! !!!!!! !!!!!!!!! !!!!!!
!!!!!!!!! !!!!!!
 Total   8.278E-10 0.0301  0.000E+00 0.0000  0.000E+00 0.0000  9.500E-11 0.0034  2.751E-12 0.0001  7.530E-12 0.0003
2.754E-08 1.0000
0*Sum of all water independent and dependent pathways.
1RESRAD, Version 6.22     T« Limit = 30 days          11/10/2004  13:56  Page  33
 Summary : Haddam Neck Material at WCS                        File: CY to WCS.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+03 years
0                                   Water Independent Pathways (Inhalation excludes radon)
0              Ground           Inhalation            Radon              Plant              Meat               Milk
Soil
 Radio-  AAAAAAAAAAAAAAAA  AAAAAAAAAAAAAAAA  AAAAAAAAAAAAAAAA  AAAAAAAAAAAAAAAA  AAAAAAAAAAAAAAAA  AAAAAAAAAAAAAAAA
AAAAAAAAAAAAAAAA
 Nuclide  mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.   mrem/yr  fract.
mrem/yr  fract.
 AAAAAAA AAAAAAAAA AAAAAA  AAAAAAAAA AAAAAA  AAAAAAAAA AAAAAA  AAAAAAAAA AAAAAA  AAAAAAAAA AAAAAA  AAAAAAAAA AAAAAA
AAAAAAAAA AAAAAA
 Ag-108m 0.000E+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
 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
0.000E+00 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
0.000E+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
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
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
Eu-152	0.000E+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
Eu-154	0.000E+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
Eu-155	0.000E+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
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
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
Mn-54	0.000E+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
Nb-94	0.000E+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
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
Pu-238	0.000E+00	0.0000	0.000E+00	0.0000	4.299E-07	1.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+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
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
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
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
†††††††	†††††††††	††††††	†††††††††	††††††	†††††††††	††††††	†††††††††	††††††	†††††††††	††††††	†††††††††	††††††
Total	0.000E+00	0.0000	0.000E+00	0.0000	4.299E-07	1.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000

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+03 years

0	Water Dependent Pathways											
0	Water		Fish		Radon		Plant		Meat		Milk	
All Pathways*												
Radio-	AAAAAAAAAAAAAAAA		AAAAAAAAAAAAAAAA		AAAAAAAAAAAAAAAA		AAAAAAAAAAAAAAAA		AAAAAAAAAAAAAAAA		AAAAAAAAAAAAAAAA	
Nuclide	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
AAAAAAA	AAAAAAAAA	AAAAAA	AAAAAAAAA	AAAAAA	AAAAAAAAA	AAAAAA	AAAAAAAAA	AAAAAA	AAAAAAAAA	AAAAAA	AAAAAAAAA	AAAAAA
Ag-108m	0.000E+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
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
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
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
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
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
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
Eu-152	0.000E+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
Eu-154	0.000E+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
Eu-155	0.000E+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
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
H-3	1.844E-30	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
Mn-54	0.000E+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
Nb-94	0.000E+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
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
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
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
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
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
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
†††††††	†††††††††	††††††	†††††††††	††††††	†††††††††	††††††	†††††††††	††††††	†††††††††	††††††	†††††††††	††††††
Total	1.844E-30	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*Sum of all water independent and dependent pathways.

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

0Parent (i)	Product (j)	Branch Fraction*	DSR(j,t) (mrem/yr)/(pCi/g) t= 0.000E+00	1.000E+00	3.000E+00	1.000E+01	3.000E+01	1.000E+02	3.000E+02	1.000E+03
AAAAAAA	AAAAAAA	AAAAAAAAA	AAAAAAAAA	AAAAAAAAA	AAAAAAAAA	AAAAAAAAA	AAAAAAAAA	AAAAAAAAA	AAAAAAAAA	AAAAAAAAA
Ag-108m	Ag-108m	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0Am-241	Am-241	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Am-241	Np-237	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Am-241	U-233	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Am-241	Th-229	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Am-241	ãDSR(j)		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0C-14	C-14	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0Cm-243	Cm-243	9.976E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Cm-243	Pu-239	9.976E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Cm-243	U-235	9.976E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Cm-243	Pa-231	9.976E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Cm-243	Ac-227	9.976E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Cm-243	ãDSR(j)		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0Cm-243	Cm-243	2.400E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Cm-243	Am-243	2.400E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Cm-243	Pu-239	2.400E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Cm-243	U-235	2.400E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Cm-243	Pa-231	2.400E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Cm-243	Ac-227	2.400E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Cm-243	ãDSR(j)		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0Co-60	Co-60	1.000E+00	1.324E-39	1.161E-39	8.927E-40	3.557E-40	2.565E-41	2.803E-45	0.000E+00	0.000E+00
0Cs-134	Cs-134	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0Cs-137	Cs-137	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0Eu-152	Eu-152	7.208E-01	3.657E-43	3.475E-43	3.125E-43	2.172E-43	7.707E-44	1.401E-45	0.000E+00	0.000E+00
0Eu-152	Eu-152	2.792E-01	1.415E-43	1.345E-43	1.205E-43	8.408E-44	3.083E-44	1.401E-45	0.000E+00	0.000E+00
Eu-152	Gd-152	2.792E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Eu-152	ãDSR(j)		1.415E-43	1.345E-43	1.205E-43	8.408E-44	3.083E-44	1.401E-45	0.000E+00	0.000E+00
0Eu-154	Eu-154	1.000E+00	5.671E-42	5.242E-42	4.477E-42	2.580E-42	5.353E-43	2.803E-45	0.000E+00	0.000E+00
0Eu-155	Eu-155	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0Fe-55	Fe-55	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0H-3	H-3	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	9.330E-10	2.079E-30
0Mn-54	Mn-54	1.000E+00	5.605E-45	2.803E-45	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00

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Summary : Haddam Neck Material at WCS File: CY to WCS.RAD

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

0Parent (i)	Product (j)	Branch Fraction*	DSR(j,t) (mrem/yr)/(pCi/g) t= 0.000E+00	1.000E+00	3.000E+00	1.000E+01	3.000E+01	1.000E+02	3.000E+02	1.000E+03
AAAAAAA	AAAAAAA	AAAAAAAAA	AAAAAAAAA	AAAAAAAAA	AAAAAAAAA	AAAAAAAAA	AAAAAAAAA	AAAAAAAAA	AAAAAAAAA	AAAAAAAAA
Nb-94	Nb-94	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0Ni-63	Ni-63	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0Pu-238	Pu-238	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Pu-238	U-234	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Pu-238	Th-230	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Pu-238	Ra-226	1.000E+00	4.213E-16	6.308E-15	7.330E-14	1.916E-12	4.498E-11	1.402E-09	2.661E-08	4.299E-07
Pu-238	Pb-210	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Pu-238	Po-210	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Pu-238	ãDSR(j)		4.213E-16	6.308E-15	7.330E-14	1.916E-12	4.498E-11	1.402E-09	2.661E-08	4.299E-07
0Pu-239	Pu-239	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Pu-239	U-235	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Pu-239	Pa-231	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Pu-239	Ac-227	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Pu-239	ãDSR(j)		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0Pu-241	Pu-241	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Pu-241	Am-241	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Pu-241	Np-237	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Pu-241	U-233	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Pu-241	Th-229	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Pu-241	ãDSR(j)		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0Pu-241	Pu-241	2.450E-05	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Pu-241	Np-237	2.450E-05	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Pu-241	U-233	2.450E-05	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Pu-241	Th-229	2.450E-05	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Pu-241	ãDSR(j)		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0Sr-90	Sr-90	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0Tc-99	Tc-99	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
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*Branch Fraction is the cumulative factor for the j't principal radionuclide daughter: CUMBRF(j) = BRF(1)*BRF(2)* ... BRF(j).
The DSR includes contributions from associated (half-life ó 30 days) daughters.

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Summary : Haddam Neck Material at WCS File: CY to WCS.RAD

Single Radionuclide Soil Guidelines G(i,t) in pCi/g
Basic Radiation Dose Limit = 1.000E+00 mrem/yr

0Nuclide (i)	t= 0.000E+00	1.000E+00	3.000E+00	1.000E+01	3.000E+01	1.000E+02	3.000E+02	1.000E+03
AAAAAAA	AAAAAAAAA	AAAAAAAAA	AAAAAAAAA	AAAAAAAAA	AAAAAAAAA	AAAAAAAAA	AAAAAAAAA	AAAAAAAAA
Ag-108m	*2.608E+13	*2.608E+13	*2.608E+13	*2.608E+13	*2.608E+13	*2.608E+13	*2.608E+13	*2.608E+13
Am-241	*3.424E+12	*3.424E+12	*3.424E+12	*3.424E+12	*3.424E+12	*3.424E+12	*3.424E+12	*3.424E+12
C-14	*4.454E+12	*4.454E+12	*4.454E+12	*4.454E+12	*4.454E+12	*4.454E+12	*4.454E+12	*4.454E+12
Cm-243	*5.159E+13	*5.159E+13	*5.159E+13	*5.159E+13	*5.159E+13	*5.159E+13	*5.159E+13	*5.159E+13
Co-60	*1.131E+15	*1.131E+15	*1.131E+15	*1.131E+15	*1.131E+15	*1.131E+15	*1.131E+15	*1.131E+15
Cs-134	*1.294E+15	*1.294E+15	*1.294E+15	*1.294E+15	*1.294E+15	*1.294E+15	*1.294E+15	*1.294E+15
Cs-137	*8.701E+13	*8.701E+13	*8.701E+13	*8.701E+13	*8.701E+13	*8.701E+13	*8.701E+13	*8.701E+13
Eu-152	*1.765E+14	*1.765E+14	*1.765E+14	*1.765E+14	*1.765E+14	*1.765E+14	*1.765E+14	*1.765E+14

Eu-154	*2.639E+14	*2.639E+14	*2.639E+14	*2.639E+14	*2.639E+14	*2.639E+14	*2.639E+14	*2.639E+14
Eu-155	*4.651E+14	*4.651E+14	*4.651E+14	*4.651E+14	*4.651E+14	*4.651E+14	*4.651E+14	*4.651E+14
Fe-55	*2.409E+15	*2.409E+15	*2.409E+15	*2.409E+15	*2.409E+15	*2.409E+15	*2.409E+15	*2.409E+15
H-3	*9.594E+15	*9.594E+15	*9.594E+15	*9.594E+15	*9.594E+15	*9.594E+15	1.072E+09	*9.594E+15
Mn-54	*7.744E+15	*7.744E+15	*7.744E+15	*7.744E+15	*7.744E+15	*7.744E+15	*7.744E+15	*7.744E+15
Nb-94	*1.875E+11	*1.875E+11	*1.875E+11	*1.875E+11	*1.875E+11	*1.875E+11	*1.875E+11	*1.875E+11
Ni-63	*5.916E+13	*5.916E+13	*5.916E+13	*5.916E+13	*5.916E+13	*5.916E+13	*5.916E+13	*5.916E+13
Pu-238	*1.711E+13	*1.711E+13	1.364E+13	5.219E+11	2.223E+10	7.132E+08	3.758E+07	2.326E+06
Pu-239	*6.212E+10	*6.212E+10	*6.212E+10	*6.212E+10	*6.212E+10	*6.212E+10	*6.212E+10	*6.212E+10
Pu-241	*1.030E+14	*1.030E+14	*1.030E+14	*1.030E+14	*1.030E+14	*1.030E+14	*1.030E+14	*1.030E+14
Sr-90	*1.365E+14	*1.365E+14	*1.365E+14	*1.365E+14	*1.365E+14	*1.365E+14	*1.365E+14	*1.365E+14
Tc-99	*1.696E+10	*1.696E+10	*1.696E+10	*1.696E+10	*1.696E+10	*1.696E+10	*1.696E+10	*1.696E+10
¡¡¡¡¡¡¡	¡¡¡¡¡¡¡¡¡	¡¡¡¡¡¡¡¡¡	¡¡¡¡¡¡¡¡¡	¡¡¡¡¡¡¡¡¡	¡¡¡¡¡¡¡¡¡	¡¡¡¡¡¡¡¡¡	¡¡¡¡¡¡¡¡¡	¡¡¡¡¡¡¡¡¡

*At specific activity limit

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 = 1.000E+03 years

0Nuclide (i)	Initial (pCi/g)	tmin (years)	DSR(i,tmin)	G(i,tmin) (pCi/g)	DSR(i,tmax)	G(i,tmax) (pCi/g)
¡¡¡¡¡¡¡	¡¡¡¡¡¡¡¡¡	¡¡¡¡¡¡¡¡¡¡¡¡¡¡¡¡	¡¡¡¡¡¡¡¡¡	¡¡¡¡¡¡¡¡¡	¡¡¡¡¡¡¡¡¡	¡¡¡¡¡¡¡¡¡
Ag-108m	1.000E+00	0.000E+00	0.000E+00	*2.608E+13	0.000E+00	*2.608E+13
Am-241	1.000E+00	0.000E+00	0.000E+00	*3.424E+12	0.000E+00	*3.424E+12
C-14	1.000E+00	0.000E+00	0.000E+00	*4.454E+12	0.000E+00	*4.454E+12
Cm-243	1.000E+00	0.000E+00	0.000E+00	*5.159E+13	0.000E+00	*5.159E+13
Co-60	1.000E+00	0.000E+00	0.000E+00	*1.131E+15	0.000E+00	*1.131E+15
Cs-134	1.000E+00	0.000E+00	0.000E+00	*1.294E+15	0.000E+00	*1.294E+15
Cs-137	1.000E+00	0.000E+00	0.000E+00	*8.701E+13	0.000E+00	*8.701E+13
Eu-152	1.000E+00	0.000E+00	0.000E+00	*1.765E+14	0.000E+00	*1.765E+14
Eu-154	1.000E+00	0.000E+00	0.000E+00	*2.639E+14	0.000E+00	*2.639E+14
Eu-155	1.000E+00	0.000E+00	0.000E+00	*4.651E+14	0.000E+00	*4.651E+14
Fe-55	1.000E+00	0.000E+00	0.000E+00	*2.409E+15	0.000E+00	*2.409E+15
H-3	1.000E+00	243.7 ñ 0.5	4.202E-08	2.380E+07	1.844E-30	*9.594E+15
Mn-54	1.000E+00	0.000E+00	0.000E+00	*7.744E+15	0.000E+00	*7.744E+15
Nb-94	1.000E+00	0.000E+00	0.000E+00	*1.875E+11	0.000E+00	*1.875E+11
Ni-63	1.000E+00	0.000E+00	0.000E+00	*5.916E+13	0.000E+00	*5.916E+13
Pu-238	1.000E+00	1.000E+03	4.299E-07	2.326E+06	4.299E-07	2.326E+06
Pu-239	1.000E+00	0.000E+00	0.000E+00	*6.212E+10	0.000E+00	*6.212E+10
Pu-241	1.000E+00	0.000E+00	0.000E+00	*1.030E+14	0.000E+00	*1.030E+14
Sr-90	1.000E+00	0.000E+00	0.000E+00	*1.365E+14	0.000E+00	*1.365E+14
Tc-99	1.000E+00	0.000E+00	0.000E+00	*1.696E+10	0.000E+00	*1.696E+10
¡¡¡¡¡¡¡	¡¡¡¡¡¡¡¡¡	¡¡¡¡¡¡¡¡¡¡¡¡¡¡¡¡	¡¡¡¡¡¡¡¡¡	¡¡¡¡¡¡¡¡¡	¡¡¡¡¡¡¡¡¡	¡¡¡¡¡¡¡¡¡

*At specific activity limit

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

0Nuclide (j)	Parent (i)	BRF(i)	DOSE(j,t), mrem/yr t= 0.000E+00	1.000E+00	3.000E+00	1.000E+01	3.000E+01	1.000E+02	3.000E+02	1.000E+03
¡¡¡¡¡¡¡	¡¡¡¡¡¡¡	¡¡¡¡¡¡¡¡¡	¡¡¡¡¡¡¡¡¡	¡¡¡¡¡¡¡¡¡	¡¡¡¡¡¡¡¡¡	¡¡¡¡¡¡¡¡¡	¡¡¡¡¡¡¡¡¡	¡¡¡¡¡¡¡¡¡	¡¡¡¡¡¡¡¡¡	¡¡¡¡¡¡¡¡¡
Ag-108m	Ag-108m	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0Am-241	Am-241	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Am-241	Pu-241	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Am-241	ÃDOSE(j)		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0Np-237	Am-241	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Np-237	Pu-241	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Np-237	Pu-241	2.450E-05	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Np-237	ÃDOSE(j)		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0U-233	Am-241	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
U-233	Pu-241	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
U-233	Pu-241	2.450E-05	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
U-233	ÃDOSE(j)		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0Th-229	Am-241	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-229	Pu-241	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-229	Pu-241	2.450E-05	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Th-229	ÃDOSE(j)		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0C-14	C-14	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0Cm-243	Cm-243	9.976E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Cm-243	Cm-243	2.400E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Cm-243	ÃDOSE(j)		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0Pu-239	Cm-243	9.976E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Pu-239	Cm-243	2.400E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Pu-239	Pu-239	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Pu-239	ÃDOSE(j)		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0U-235	Cm-243	9.976E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
U-235	Cm-243	2.400E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
U-235	Pu-239	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
U-235	ÃDOSE(j)		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0Pa-231	Cm-243	9.976E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Pa-231	Cm-243	2.400E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Pa-231	Pu-239	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Pa-231	ÃDOSE(j)		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0Ac-227	Cm-243	9.976E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ac-227	Cm-243	2.400E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ac-227	Pu-239	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Ac-227	ÃDOSE(j)		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0Am-243	Cm-243	2.400E-03	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0Co-60	Co-60	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00

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

DOSE(j,t), mrem/yr

0Nuclide (j)	Parent (i)	BRF(i)	t= 0.000E+00	1.000E+00	3.000E+00	1.000E+01	3.000E+01	1.000E+02	3.000E+02	1.000E+03
Cs-134	Cs-134	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0Cs-137	Cs-137	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0Eu-152	Eu-152	7.208E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Eu-152	Eu-152	2.792E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Eu-152	ΣDOSE(j)		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0Gd-152	Eu-152	2.792E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0Eu-154	Eu-154	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0Eu-155	Eu-155	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0Fe-55	Fe-55	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0H-3	H-3	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	9.330E-10	1.844E-30
0Mn-54	Mn-54	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0Nb-94	Nb-94	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0Ni-63	Ni-63	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0Pu-238	Pu-238	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0U-234	Pu-238	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0Th-230	Pu-238	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0Ra-226	Pu-238	1.000E+00	4.213E-16	6.308E-15	7.330E-14	1.916E-12	4.498E-11	1.402E-09	2.661E-08	4.299E-07
0Pb-210	Pu-238	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0Po-210	Pu-238	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0Pu-241	Pu-241	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Pu-241	Pu-241	2.450E-05	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Pu-241	ΣDOSE(j)		0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0Sr-90	Sr-90	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0Tc-99	Tc-99	1.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00

BRF(i) is the branch fraction of the parent nuclide.

Individual Nuclide Soil Concentration
Parent Nuclide and Branch Fraction Indicated

S(j,t), pCi/g

0Nuclide (j)	Parent (i)	BRF(i)	t= 0.000E+00	1.000E+00	3.000E+00	1.000E+01	3.000E+01	1.000E+02	3.000E+02	1.000E+03
Ag-108m	Ag-108m	1.000E+00	1.000E+00	9.829E-01	9.495E-01	8.413E-01	5.954E-01	1.776E-01	5.599E-03	3.116E-08
0Am-241	Am-241	1.000E+00	1.000E+00	9.983E-01	9.949E-01	9.830E-01	9.500E-01	8.428E-01	5.987E-01	1.809E-01
Am-241	Pu-241	1.000E+00	0.000E+00	1.561E-03	4.460E-03	1.259E-02	2.462E-02	2.878E-02	2.064E-02	6.237E-03
Am-241	ΣS(j):		1.000E+00	9.999E-01	9.993E-01	9.956E-01	9.746E-01	8.716E-01	6.194E-01	1.871E-01
0Np-237	Am-241	1.000E+00	0.000E+00	3.236E-07	9.692E-07	3.211E-06	9.471E-06	2.976E-05	7.590E-05	1.543E-04
Np-237	Pu-241	1.000E+00	0.000E+00	2.550E-10	2.221E-09	2.209E-08	1.493E-07	7.961E-07	2.386E-06	5.090E-06
Np-237	Pu-241	2.450E-05	0.000E+00	7.748E-12	2.217E-11	6.298E-11	1.259E-10	1.634E-10	1.644E-10	1.634E-10
Np-237	ΣS(j):		0.000E+00	3.239E-07	9.714E-07	3.233E-06	9.620E-06	3.055E-05	7.829E-05	1.594E-04
0U-233	Am-241	1.000E+00	0.000E+00	7.078E-13	6.363E-12	7.041E-11	6.263E-10	6.682E-09	5.379E-08	4.224E-07
U-233	Pu-241	1.000E+00	0.000E+00	3.732E-16	9.832E-15	3.350E-13	7.269E-12	1.500E-10	1.574E-09	1.360E-08
U-233	Pu-241	2.450E-05	0.000E+00	1.708E-17	1.489E-16	1.487E-15	1.018E-14	5.710E-14	1.997E-13	6.865E-13
U-233	ΣS(j):		0.000E+00	7.082E-13	6.373E-12	7.074E-11	6.336E-10	6.833E-09	5.536E-08	4.360E-07
0Th-229	Am-241	1.000E+00	0.000E+00	2.241E-17	6.044E-16	2.231E-14	5.969E-13	2.141E-11	5.287E-10	1.475E-08
Th-229	Pu-241	1.000E+00	0.000E+00	8.882E-21	7.053E-19	8.141E-17	5.520E-15	4.167E-13	1.451E-11	4.647E-10
Th-229	Pu-241	2.450E-05	0.000E+00	5.426E-22	1.431E-20	4.888E-19	1.070E-17	2.284E-16	2.645E-15	3.125E-14
Th-229	ΣS(j):		0.000E+00	2.242E-17	6.051E-16	2.239E-14	6.024E-13	2.182E-11	5.432E-10	1.522E-08
0C-14	C-14	1.000E+00	1.000E+00	9.881E-01	9.648E-01	8.874E-01	6.988E-01	3.028E-01	2.776E-02	6.478E-06
0Cm-243	Cm-243	9.976E-01	9.976E-01	9.736E-01	9.274E-01	7.822E-01	4.809E-01	8.763E-02	6.761E-04	2.728E-11
Cm-243	Cm-243	2.400E-03	2.400E-03	2.342E-03	2.231E-03	1.882E-03	1.157E-03	2.108E-04	1.627E-06	6.562E-14
Cm-243	ΣS(j):		1.000E+00	9.760E-01	9.296E-01	7.841E-01	4.821E-01	8.784E-02	6.777E-04	2.734E-11
0Pu-239	Cm-243	9.976E-01	0.000E+00	2.839E-05	8.313E-05	2.550E-04	6.116E-04	1.075E-03	1.171E-03	1.148E-03
Pu-239	Cm-243	2.400E-03	0.000E+00	3.224E-12	2.855E-11	3.000E-10	2.321E-09	1.656E-08	6.711E-08	2.294E-07
Pu-239	Pu-239	1.000E+00	1.000E+00	1.000E+00	9.999E-01	9.997E-01	9.991E-01	9.970E-01	9.911E-01	9.705E-01
Pu-239	ΣS(j):		1.000E+00	1.000E+00	1.000E+00	1.000E+00	9.997E-01	9.981E-01	9.922E-01	9.717E-01
0U-235	Cm-243	9.976E-01	0.000E+00	1.404E-14	1.243E-13	1.307E-12	1.012E-11	7.251E-11	2.983E-10	1.077E-09
U-235	Cm-243	2.400E-03	0.000E+00	1.061E-21	2.829E-20	1.005E-18	2.419E-17	6.350E-16	8.822E-15	1.110E-13
U-235	Pu-239	1.000E+00	0.000E+00	9.848E-10	2.954E-09	9.845E-09	2.951E-08	9.812E-08	2.922E-07	9.492E-07
U-235	ΣS(j):		0.000E+00	9.848E-10	2.954E-09	9.846E-09	2.952E-08	9.820E-08	2.925E-07	9.503E-07
0Pa-231	Cm-243	9.976E-01	0.000E+00	9.919E-20	2.646E-18	9.398E-17	2.264E-15	5.960E-14	8.353E-13	1.084E-11
Pa-231	Cm-243	2.400E-03	0.000E+00	5.617E-27	4.506E-25	5.377E-23	3.970E-21	3.690E-19	1.680E-17	7.581E-16
Pa-231	Pu-239	1.000E+00	0.000E+00	1.042E-14	9.376E-14	1.041E-12	9.364E-12	1.037E-10	9.248E-10	9.948E-09
Pa-231	ΣS(j):		0.000E+00	1.042E-14	9.376E-14	1.042E-12	9.366E-12	1.038E-10	9.256E-10	9.959E-09
0Ac-227	Cm-243	9.976E-01	0.000E+00	7.853E-22	6.220E-20	7.107E-18	4.652E-16	2.987E-14	6.604E-13	1.014E-11
Ac-227	Cm-243	2.400E-03	0.000E+00	3.560E-29	8.491E-27	3.275E-24	6.655E-22	1.572E-19	1.214E-17	6.881E-16
Ac-227	Pu-239	1.000E+00	0.000E+00	1.097E-16	2.915E-15	1.022E-13	2.385E-12	5.812E-11	7.502E-10	9.326E-09
Ac-227	ΣS(j):		0.000E+00	1.097E-16	2.915E-15	1.022E-13	2.386E-12	5.815E-11	7.509E-10	9.336E-09
0Am-243	Cm-243	2.400E-03	0.000E+00	2.230E-07	6.528E-07	2.002E-06	4.790E-06	8.348E-06	8.799E-06	7.638E-06
0Co-60	Co-60	1.000E+00	1.000E+00	8.768E-01	6.740E-01	2.685E-01	1.935E-02	1.945E-06	7.354E-18	0.000E+00

Individual Nuclide Soil Concentration
Parent Nuclide and Branch Fraction Indicated

S(j,t), pCi/g

0Nuclide (j)	Parent (i)	BRF(i)	t= 0.000E+00	1.000E+00	3.000E+00	1.000E+01	3.000E+01	1.000E+02	3.000E+02	1.000E+03
Cs-134	Cs-134	1.000E+00	1.000E+00	7.145E-01	3.648E-01	3.468E-02	4.171E-05	2.518E-15	1.541E-44	0.000E+00
0Cs-137	Cs-137	1.000E+00	1.000E+00	9.772E-01	9.330E-01	7.937E-01	5.000E-01	9.919E-02	9.759E-04	9.220E-11
0Eu-152	Eu-152	7.208E-01	7.208E-01	6.843E-01	6.167E-01	4.285E-01	1.515E-01	3.976E-03	1.209E-07	1.878E-23
Eu-152	Eu-152	2.792E-01	2.792E-01	2.651E-01	2.389E-01	1.660E-01	5.867E-02	1.540E-03	4.685E-08	7.275E-24
Eu-152	ΣS(j):		1.000E+00	9.493E-01	8.556E-01	5.945E-01	2.101E-01	5.516E-03	1.678E-07	2.606E-23
0Gd-152	Eu-152	2.792E-01	0.000E+00	1.746E-15	4.977E-15	1.397E-14	2.722E-14	3.426E-14	3.443E-14	3.437E-14
0Eu-154	Eu-154	1.000E+00	1.000E+00	9.243E-01	7.895E-01	4.549E-01	9.413E-02	3.794E-04	5.461E-11	6.179E-35
0Eu-155	Eu-155	1.000E+00	1.000E+00	8.696E-01	6.575E-01	2.472E-01	1.511E-02	8.526E-07	6.197E-19	0.000E+00
0Fe-55	Fe-55	1.000E+00	1.000E+00	7.736E-01	4.629E-01	7.675E-02	4.521E-04	7.090E-12	3.564E-34	0.000E+00

0H-3	H-3	1.000E+00	1.000E+00	9.343E-01	8.156E-01	5.069E-01	1.302E-01	1.119E-03	1.402E-09	3.084E-30
0Mn-54	Mn-54	1.000E+00	1.000E+00	4.448E-01	8.800E-02	3.031E-04	2.785E-11	6.547E-36	0.000E+00	0.000E+00
0Nb-94	Nb-94	1.000E+00	1.000E+00	9.882E-01	9.650E-01	8.882E-01	7.006E-01	3.054E-01	2.849E-02	7.065E-06
0Ni-63	Ni-63	1.000E+00	1.000E+00	9.928E-01	9.786E-01	9.303E-01	8.052E-01	4.857E-01	1.145E-01	7.300E-04
0Pu-238	Pu-238	1.000E+00	1.000E+00	9.921E-01	9.766E-01	9.240E-01	7.890E-01	4.538E-01	9.345E-02	3.703E-04
0U-234	Pu-238	1.000E+00	0.000E+00	2.824E-06	8.404E-06	2.725E-05	7.567E-05	1.955E-04	3.222E-04	3.443E-04
0Th-230	Pu-238	1.000E+00	0.000E+00	1.273E-11	1.139E-10	1.243E-09	1.062E-08	9.951E-08	5.945E-07	2.752E-06
0Ra-226	Pu-238	1.000E+00	0.000E+00	1.839E-15	4.944E-14	1.804E-12	4.675E-11	1.509E-09	2.890E-08	4.679E-07
0Pb-210	Pu-238	1.000E+00	0.000E+00	1.421E-17	1.133E-15	1.325E-13	9.244E-12	7.202E-10	2.219E-08	4.372E-07
0Po-210	Pu-238	1.000E+00	0.000E+00	3.953E-18	6.252E-16	1.081E-13	8.637E-12	7.069E-10	2.208E-08	4.366E-07
0Pu-241	Pu-241	1.000E+00	1.000E+00	9.530E-01	8.655E-01	6.179E-01	2.360E-01	8.118E-03	5.350E-07	1.244E-21
Pu-241	Pu-241	2.450E-05	2.450E-05	2.335E-05	2.121E-05	1.514E-05	5.781E-06	1.989E-07	1.311E-11	3.047E-26
Pu-241	%S(j):		1.000E+00	9.530E-01	8.655E-01	6.179E-01	2.360E-01	8.118E-03	5.351E-07	1.244E-21
0Sr-90	Sr-90	1.000E+00	1.000E+00	9.764E-01	9.309E-01	7.876E-01	4.886E-01	9.185E-02	7.749E-04	4.273E-11
0Tc-99	Tc-99	1.000E+00	1.000E+00	9.882E-01	9.651E-01	8.884E-01	7.013E-01	3.064E-01	2.876E-02	7.287E-06
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BRF(i) is the branch fraction of the parent nuclide.

0RESCALC.EXE execution time = 6.36 seconds