

## Appendix H39: RESRAD 7.0 Output for Area 3.2 Am-241

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### Dose Conversion Factor (and Related) Parameter Summary Dose Library: FGR 11

Menu	Parameter	Current Value#	Base Case*	Parameter Name
A-1	DCF's for external ground radiation, (mrem/yr)/(pCi/g)			
A-1	Ac-225 (Source: FGR 12)	6.371E-02	6.371E-02	DCF1 ( 1)
A-1	Am-241 (Source: FGR 12)	4.372E-02	4.372E-02	DCF1 ( 2)
A-1	At-217 (Source: FGR 12)	1.773E-03	1.773E-03	DCF1 ( 3)
A-1	Ba-137m (Source: FGR 12)	3.606E+00	3.606E+00	DCF1 ( 4)
A-1	Bi-213 (Source: FGR 12)	7.660E-01	7.660E-01	DCF1 ( 5)
A-1	Cs-137 (Source: FGR 12)	7.510E-04	7.510E-04	DCF1 ( 6)
A-1	Fr-221 (Source: FGR 12)	1.536E-01	1.536E-01	DCF1 ( 7)
A-1	Np-237 (Source: FGR 12)	7.790E-02	7.790E-02	DCF1 ( 8)
A-1	Pa-233 (Source: FGR 12)	1.020E+00	1.020E+00	DCF1 ( 9)
A-1	Pb-209 (Source: FGR 12)	7.734E-04	7.734E-04	DCF1 (10)
A-1	Po-213 (Source: FGR 12)	0.000E+00	0.000E+00	DCF1 (11)
A-1	Ra-225 (Source: FGR 12)	1.102E-02	1.102E-02	DCF1 (12)
A-1	Th-229 (Source: FGR 12)	3.213E-01	3.213E-01	DCF1 (13)
A-1	Tl-209 (Source: FGR 12)	1.293E+01	1.293E+01	DCF1 (14)
A-1	U-233 (Source: FGR 12)	1.397E-03	1.397E-03	DCF1 (15)
B-1	Dose conversion factors for inhalation, mrem/pCi:			
B-1	Am-241	4.440E-01	4.440E-01	DCF2 ( 1)
B-1	Cs-137+D	3.190E-05	3.190E-05	DCF2 ( 2)
B-1	Np-237+D	5.400E-01	5.400E-01	DCF2 ( 3)
B-1	Th-229+D	2.169E+00	2.150E+00	DCF2 ( 4)
B-1	U-233	1.350E-01	1.350E-01	DCF2 ( 5)
D-1	Dose conversion factors for ingestion, mrem/pCi:			
D-1	Am-241	3.640E-03	3.640E-03	DCF3 ( 1)
D-1	Cs-137+D	5.000E-05	5.000E-05	DCF3 ( 2)
D-1	Np-237+D	4.444E-03	4.440E-03	DCF3 ( 3)
D-1	Th-229+D	4.027E-03	3.530E-03	DCF3 ( 4)
D-1	U-233	2.890E-04	2.890E-04	DCF3 ( 5)
D-34	Food transfer factors:			
D-34	Am-241 , plant/soil concentration ratio, dimensionless	1.000E-03	1.000E-03	RTF ( 1,1)
D-34	Am-241 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	5.000E-05	5.000E-05	RTF ( 1,2)
D-34	Am-241 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	2.000E-06	2.000E-06	RTF ( 1,3)
D-34	Cs-137+D , plant/soil concentration ratio, dimensionless	4.000E-02	4.000E-02	RTF ( 2,1)
D-34	Cs-137+D , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	3.000E-02	3.000E-02	RTF ( 2,2)
D-34	Cs-137+D , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	8.000E-03	8.000E-03	RTF ( 2,3)
D-34	Np-237+D , plant/soil concentration ratio, dimensionless	2.000E-02	2.000E-02	RTF ( 3,1)
D-34	Np-237+D , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	1.000E-03	1.000E-03	RTF ( 3,2)
D-34	Np-237+D , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	5.000E-06	5.000E-06	RTF ( 3,3)
D-34	Th-229+D , plant/soil concentration ratio, dimensionless	1.000E-03	1.000E-03	RTF ( 4,1)
D-34	Th-229+D , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	1.000E-04	1.000E-04	RTF ( 4,2)
D-34	Th-229+D , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	5.000E-06	5.000E-06	RTF ( 4,3)

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

Menu	Parameter	Current Value#	Base Case*	Parameter Name
D-34	U-233 , plant/soil concentration ratio, dimensionless	2.500E-03	2.500E-03	RTF( 5,1)
D-34	U-233 , beef/livestock-intake ratio, (pCi/kg)/(pCi/d)	3.400E-04	3.400E-04	RTF( 5,2)
D-34	U-233 , milk/livestock-intake ratio, (pCi/L)/(pCi/d)	6.000E-04	6.000E-04	RTF( 5,3)
Dose Conversion Factor (and Related) Parameter Summary (continued)				
D-5	Bioaccumulation factors, fresh water, L/kg:			
D-5	Am-241 , fish	3.000E+01	3.000E+01	BIOFAC( 1,1)
D-5	Am-241 , crustacea and mollusks	1.000E+03	1.000E+03	BIOFAC( 1,2)
D-5	Bioaccumulation factors, fresh water, L/kg:			
D-5	Cs-137D , fish	2.000E+03	2.000E+03	BIOFAC( 2,1)
D-5	Cs-137D , crustacea and mollusks	1.000E+02	1.000E+02	BIOFAC( 2,2)
D-5	Bioaccumulation factors, fresh water, L/kg:			
D-5	Np-237D , fish	3.000E+01	3.000E+01	BIOFAC( 3,1)
D-5	Np-237D , crustacea and mollusks	4.000E+02	4.000E+02	BIOFAC( 3,2)
D-5	Bioaccumulation factors, fresh water, L/kg:			
D-5	Th-229D , fish	1.000E+02	1.000E+02	BIOFAC( 4,1)
D-5	Th-229D , crustacea and mollusks	5.000E+02	5.000E+02	BIOFAC( 4,2)
D-5	Bioaccumulation factors, fresh water, L/kg:			
D-5	U-233 , fish	1.000E+01	1.000E+01	BIOFAC( 5,1)
D-5	U-233 , crustacea and mollusks	6.000E+01	6.000E+01	BIOFAC( 5,2)

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

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#### Site-Specific Parameter Summary

Menu	Parameter	User Input	Default	Used by RESRAD (If different from user input)	Parameter Name
R011	Area of contaminated zone (m**2)	1.000E+03	1.000E+04	---	AREA
R011	Thickness of contaminated zone (m)	1.000E+00	2.000E+00	---	THICK0
R011	Fraction of contamination that is submerged	0.000E+00	0.000E+00	---	SUBMFRAC
R011	Length parallel to aquifer flow (m)	1.650E+02	1.000E+02	---	LCZPAQ
R011	Basic radiation dose limit (mrem/yr)	2.500E+01	3.000E+01	---	BRDL
R011	Time since placement of material (yr)	0.000E+00	0.000E+00	---	TI
R011	Times for calculations (yr)	1.000E+00	1.000E+00	---	T ( 2)
R011	Times for calculations (yr)	3.000E+00	3.000E+00	---	T ( 3)
R011	Times for calculations (yr)	1.000E+01	1.000E+01	---	T ( 4)
R011	Times for calculations (yr)	3.000E+01	3.000E+01	---	T ( 5)
R011	Times for calculations (yr)	1.000E+02	1.000E+02	---	T ( 6)
R011	Times for calculations (yr)	3.000E+02	3.000E+02	---	T ( 7)
R011	Times for calculations (yr)	1.000E+03	1.000E+03	---	T ( 8)
R011	Times for calculations (yr)	not used	0.000E+00	---	T ( 9)
R011	Times for calculations (yr)	not used	0.000E+00	---	T(10)
R012	Initial principal radionuclide (pCi/g): Am-241	1.890E-01	0.000E+00	---	S1(1)
R012	Initial principal radionuclide (pCi/g): Cs-137	1.110E-01	0.000E+00	---	S1(2)
R012	Concentration in groundwater (pCi/L): Am-241	not used	0.000E+00	---	W1( 1)
R012	Concentration in groundwater (pCi/L): Cs-137	not used	0.000E+00	---	W1( 2)
R013	Cover depth (m)	0.000E+00	0.000E+00	---	COVER0
R013	Density of cover material (g/cm**3)	not used	1.500E+00	---	DENSCV
R013	Cover depth erosion rate (m/yr)	not used	1.000E-03	---	VCV
R013	Density of contaminated zone (g/cm**3)	1.700E+00	1.500E+00	---	DENSCZ
R013	Contaminated zone erosion rate (m/yr)	0.000E+00	1.000E-03	---	VCZ
R013	Contaminated zone total porosity	3.600E-01	4.000E-01	---	TPCZ
R013	Contaminated zone field capacity	2.000E-01	2.000E-01	---	FCCZ
R013	Contaminated zone hydraulic conductivity (m/yr)	1.400E+02	1.000E+01	---	HCCZ
R013	Contaminated zone b parameter	1.400E+00	5.300E+00	---	BCZ
R013	Average annual wind speed (m/sec)	2.600E+00	2.000E+00	---	WIND
R013	Humidity in air (g/m**3)	not used	8.000E+00	---	HUMID
R013	Evapotranspiration coefficient	7.800E-01	5.000E-01	---	EVAPTR
R013	Precipitation (m/yr)	1.160E+00	1.000E+00	---	PRECIP
R013	Irrigation (m/yr)	4.700E-01	2.000E-01	---	RI
R013	Irrigation mode	overhead	overhead	---	IDITCH
R013	Runoff coefficient	4.100E-01	2.000E-01	---	RUNOFF
R013	Watershed area for nearby stream or pond (m**2)	1.370E+07	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)	1.700E+00	1.500E+00	---	DENSAQ
R014	Saturated zone total porosity	3.600E-01	4.000E-01	---	TPSZ
R014	Saturated zone effective porosity	2.500E-01	2.000E-01	---	EPSZ
R014	Saturated zone field capacity	2.000E-01	2.000E-01	---	FCSZ
R014	Saturated zone hydraulic conductivity (m/yr)	1.400E+03	1.000E+02	---	HCSZ
R014	Saturated zone hydraulic gradient	3.000E-02	2.000E-02	---	HGWT
R014	Saturated zone b parameter	not used	5.300E+00	---	BSZ
R014	Water table drop rate (m/yr)	0.000E+00	1.000E-03	---	VWT
R014	Well pump intake depth (m below water table)	5.000E+00	1.000E+01	---	DWIBWT
R014	Model: Nondispersion (ND) or Mass-Balance (MB)	MB	ND	---	MODEL

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Site-Specific Parameter Summary (continued)

Menu	Parameter	User Input	Default	Used by RESRAD (If different from user input)	Parameter Name
R014	Well pumping rate (m**3/yr)	5.720E+03	2.500E+02	---	UW
R015	Number of unsaturated zone strata	1	1	---	NS
R015	Unsat. zone 1, thickness (m)	2.000E+00	4.000E+00	---	H(1)
R015	Unsat. zone 1, soil density (g/cm**3)	1.700E+00	1.500E+00	---	DENSUZ(1)
R015	Unsat. zone 1, total porosity	3.600E-01	4.000E-01	---	TPUZ(1)
R015	Unsat. zone 1, effective porosity	2.500E-01	2.000E-01	---	EPUZ(1)
R015	Unsat. zone 1, field capacity	2.000E-01	2.000E-01	---	FCUZ(1)
R015	Unsat. zone 1, soil-specific b parameter	1.400E+00	5.300E+00	---	BUZ(1)
R015	Unsat. zone 1, hydraulic conductivity (m/yr)	1.400E+02	1.000E+01	---	HCUZ(1)
R016	Distribution coefficients for Am-241				
R016	Contaminated zone (cm**3/g)	1.900E+03	2.000E+01	---	DCNUCC( 1)
R016	Unsat. zone 1 (cm**3/g)	1.900E+03	2.000E+01	---	DCNUCU( 1,1)
R016	Saturated zone (cm**3/g)	1.900E+03	2.000E+01	---	DCNUCS( 1)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	7.862E-05	ALEACH( 1)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK( 1)
R016	Distribution coefficients for Cs-137				
R016	Contaminated zone (cm**3/g)	2.800E+02	4.600E+03	---	DCNUCC( 2)
R016	Unsat. zone 1 (cm**3/g)	2.800E+02	4.600E+03	---	DCNUCU( 2,1)
R016	Saturated zone (cm**3/g)	2.800E+02	4.600E+03	---	DCNUCS( 2)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	5.333E-04	ALEACH( 2)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK( 2)
R016	Distribution coefficients for daughter Np-237				
R016	Contaminated zone (cm**3/g)	2.300E+00	-1.000E+00	---	DCNUCC( 3)
R016	Unsat. zone 1 (cm**3/g)	2.300E+00	-1.000E+00	---	DCNUCU( 3,1)
R016	Saturated zone (cm**3/g)	2.300E+00	-1.000E+00	---	DCNUCS( 3)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	6.179E-02	ALEACH( 3)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK( 3)
R016	Distribution coefficients for daughter Th-229				
R016	Contaminated zone (cm**3/g)	5.890E+03	6.000E+04	---	DCNUCC( 4)
R016	Unsat. zone 1 (cm**3/g)	5.890E+03	6.000E+04	---	DCNUCU( 4,1)
R016	Saturated zone (cm**3/g)	5.890E+03	6.000E+04	---	DCNUCS( 4)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	2.536E-05	ALEACH( 4)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK( 4)
R016	Distribution coefficients for daughter U-233				
R016	Contaminated zone (cm**3/g)	3.500E+01	5.000E+01	---	DCNUCC( 5)
R016	Unsat. zone 1 (cm**3/g)	3.500E+01	5.000E+01	---	DCNUCU( 5,1)
R016	Saturated zone (cm**3/g)	3.500E+01	5.000E+01	---	DCNUCS( 5)
R016	Leach rate (/yr)	0.000E+00	0.000E+00	4.254E-03	ALEACH( 5)
R016	Solubility constant	0.000E+00	0.000E+00	not used	SOLUBK( 5)
R017	Inhalation rate (m**3/yr)	8.400E+03	8.400E+03	---	INHALR
R017	Mass loading for inhalation (g/m**3)	1.480E-05	1.000E-04	---	MLINH
R017	Exposure duration	1.000E+00	3.000E+01	---	ED
R017	Shielding factor, inhalation	1.000E+00	4.000E-01	---	SHF3

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#### Site-Specific Parameter Summary (continued)

Menu	Parameter	User Input	Default	Used by RESRAD (If different from user input)	Parameter Name
R017	Shielding factor, external gamma	2.730E-01	7.000E-01	---	SHF1
R017	Fraction of time spent indoors	6.600E-01	5.000E-01	---	FIND
R017	Fraction of time spent outdoors (on site)	2.500E-01	2.500E-01	---	FOTD
R017	Shape factor flag, external gamma	1.000E+00	1.000E+00	>0 shows circular AREA.	FS
R017	Radii of shape factor array (used if FS = -1):				
R017	Outer annular radius (m), ring 1:	not used	5.000E+01	---	RAD_SHAPE ( 1)
R017	Outer annular radius (m), ring 2:	not used	7.071E+01	---	RAD_SHAPE ( 2)
R017	Outer annular radius (m), ring 3:	not used	0.000E+00	---	RAD_SHAPE ( 3)
R017	Outer annular radius (m), ring 4:	not used	0.000E+00	---	RAD_SHAPE ( 4)
R017	Outer annular radius (m), ring 5:	not used	0.000E+00	---	RAD_SHAPE ( 5)
R017	Outer annular radius (m), ring 6:	not used	0.000E+00	---	RAD_SHAPE ( 6)
R017	Outer annular radius (m), ring 7:	not used	0.000E+00	---	RAD_SHAPE ( 7)
R017	Outer annular radius (m), ring 8:	not used	0.000E+00	---	RAD_SHAPE ( 8)
R017	Outer annular radius (m), ring 9:	not used	0.000E+00	---	RAD_SHAPE ( 9)
R017	Outer annular radius (m), ring 10:	not used	0.000E+00	---	RAD_SHAPE (10)
R017	Outer annular radius (m), ring 11:	not used	0.000E+00	---	RAD_SHAPE (11)
R017	Outer annular radius (m), ring 12:	not used	0.000E+00	---	RAD_SHAPE (12)
R017	Fractions of annular areas within AREA:				
R017	Ring 1	not used	1.000E+00	---	FRACA ( 1)
R017	Ring 2	not used	2.732E-01	---	FRACA ( 2)
R017	Ring 3	not used	0.000E+00	---	FRACA ( 3)
R017	Ring 4	not used	0.000E+00	---	FRACA ( 4)
R017	Ring 5	not used	0.000E+00	---	FRACA ( 5)
R017	Ring 6	not used	0.000E+00	---	FRACA ( 6)
R017	Ring 7	not used	0.000E+00	---	FRACA ( 7)
R017	Ring 8	not used	0.000E+00	---	FRACA ( 8)
R017	Ring 9	not used	0.000E+00	---	FRACA ( 9)
R017	Ring 10	not used	0.000E+00	---	FRACA (10)
R017	Ring 11	not used	0.000E+00	---	FRACA (11)
R017	Ring 12	not used	0.000E+00	---	FRACA (12)
R018	Fruits, vegetables and grain consumption (kg/yr)	1.120E+02	1.600E+02	---	DIET (1)
R018	Leafy vegetable consumption (kg/yr)	2.100E+01	1.400E+01	---	DIET (2)
R018	Milk consumption (L/yr)	2.330E+02	9.200E+01	---	DIET (3)
R018	Meat and poultry consumption (kg/yr)	6.500E+01	6.300E+01	---	DIET (4)
R018	Fish consumption (kg/yr)	9.000E+00	5.400E+00	---	DIET (5)
R018	Other seafood consumption (kg/yr)	0.000E+00	9.000E-01	---	DIET (6)
R018	Soil ingestion rate (g/yr)	1.830E+01	3.650E+01	---	SOIL
R018	Drinking water intake (L/yr)	7.300E+02	5.100E+02	---	DWI
R018	Contamination fraction of drinking water	1.000E+00	1.000E+00	---	FDW
R018	Contamination fraction of household water	not used	1.000E+00	---	FHHW
R018	Contamination fraction of livestock water	1.000E+00	1.000E+00	---	FLW
R018	Contamination fraction of irrigation water	1.000E+00	1.000E+00	---	FIRW
R018	Contamination fraction of aquatic food	1.000E+00	5.000E-01	---	FR9
R018	Contamination fraction of plant food	1.000E+00	-1	---	FPLANT
R018	Contamination fraction of meat	1.000E+00	-1	---	FMEAT
R018	Contamination fraction of milk	1.000E+00	-1	---	FMILK
R019	Livestock fodder intake for meat (kg/day)	2.730E+01	6.800E+01	---	LFIS

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Menu	Parameter	User Input	Default	Used by RESRAD (If different from user input)	Parameter Name
R019	Livestock fodder intake for milk (kg/day)	6.420E+01	5.500E+01	---	LFI6
R019	Livestock water intake for meat (L/day)	5.000E+01	5.000E+01	---	LWI5
R019	Livestock water intake for milk (L/day)	1.600E+02	1.600E+02	---	LWI6
R019	Livestock soil intake (kg/day)	5.000E-01	5.000E-01	---	LSI
R019	Mass loading for foliar deposition (g/m**3)	4.000E-04	1.000E-04	---	MLFD
R019	Depth of soil mixing layer (m)	1.500E-01	1.500E-01	---	DM
R019	Depth of roots (m)	9.000E-01	9.000E-01	---	DROOT
R019	Drinking water fraction from ground water	1.000E+00	1.000E+00	---	FGWDW
R019	Household water fraction from ground water	not used	1.000E+00	---	FGWHH
R019	Livestock water fraction from ground water	1.000E+00	1.000E+00	---	FGWLW
R019	Irrigation fraction from ground water	1.000E+00	1.000E+00	---	FGWIR
R19B	Wet weight crop yield for Non-Leafy (kg/m**2)	1.750E+00	7.000E-01	---	YV(1)
R19B	Wet weight crop yield for Leafy (kg/m**2)	1.500E+00	1.500E+00	---	YV(2)
R19B	Wet weight crop yield for Fodder (kg/m**2)	1.100E+00	1.100E+00	---	YV(3)
R19B	Growing Season for Non-Leafy (years)	1.700E-01	1.700E-01	---	TE(1)
R19B	Growing Season for Leafy (years)	2.500E-01	2.500E-01	---	TE(2)
R19B	Growing Season for Fodder (years)	8.000E-02	8.000E-02	---	TE(3)
R19B	Translocation Factor for Non-Leafy	1.000E-01	1.000E-01	---	TIV(1)
R19B	Translocation Factor for Leafy	1.000E+00	1.000E+00	---	TIV(2)
R19B	Translocation Factor for Fodder	1.000E+00	1.000E+00	---	TIV(3)
R19B	Dry Foliar Interception Fraction for Non-Leafy	2.500E-01	2.500E-01	---	RDRY(1)
R19B	Dry Foliar Interception Fraction for Leafy	2.500E-01	2.500E-01	---	RDRY(2)
R19B	Dry Foliar Interception Fraction for Fodder	2.500E-01	2.500E-01	---	RDRY(3)
R19B	Wet Foliar Interception Fraction for Non-Leafy	2.500E-01	2.500E-01	---	RWET(1)
R19B	Wet Foliar Interception Fraction for Leafy	6.700E-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	1.800E+01	2.000E+01	---	WLAM
C14	C-12 concentration in water (g/cm**3)	not used	2.000E-05	---	C12WTR
C14	C-12 concentration in contaminated soil (g/g)	not used	3.000E-02	---	C12CZ
C14	Fraction of vegetation carbon from soil	not used	2.000E-02	---	CSOIL
C14	Fraction of vegetation carbon from air	not used	9.800E-01	---	CAIR
C14	C-14 evasion layer thickness in soil (m)	not used	3.000E-01	---	DMC
C14	C-14 evasion flux rate from soil (1/sec)	not used	7.000E-07	---	EVSN
C14	C-12 evasion flux rate from soil (1/sec)	not used	1.000E-10	---	REVSN
C14	Fraction of grain in beef cattle feed	not used	8.000E-01	---	AVFG4
C14	Fraction of grain in milk cow feed	not used	2.000E-01	---	AVFG5
STOR	Storage times of contaminated foodstuffs (days):				
STOR	Fruits, non-leafy vegetables, and grain	1.400E+01	1.400E+01	---	STOR_T(1)
STOR	Leafy vegetables	1.000E+00	1.000E+00	---	STOR_T(2)
STOR	Milk	1.000E+00	1.000E+00	---	STOR_T(3)
STOR	Meat and poultry	2.000E+01	2.000E+01	---	STOR_T(4)
STOR	Fish	7.000E+00	7.000E+00	---	STOR_T(5)
STOR	Crustacea and mollusks	7.000E+00	7.000E+00	---	STOR_T(6)
STOR	Well water	1.000E+00	1.000E+00	---	STOR_T(7)
STOR	Surface water	1.000E+00	1.000E+00	---	STOR_T(8)
STOR	Livestock fodder	4.500E+01	4.500E+01	---	STOR_T(9)

### Appendix H39: RESRAD 7.0 Output for Area 3.2 Am-241

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#### Site-Specific Parameter Summary (continued)

Menu	Parameter	User Input	Default	Used by RESRAD (If different from user input)	Parameter Name
R021	Thickness of building foundation (m)	not used	1.500E-01	---	FLOOR1
R021	Bulk density of building foundation (g/cm**3)	not used	2.400E+00	---	DENSFL
R021	Total porosity of the cover material	not used	4.000E-01	---	TPCV
R021	Total porosity of the building foundation	not used	1.000E-01	---	TPFL
R021	Volumetric water content of the cover material	not used	5.000E-02	---	PH2OCV
R021	Volumetric water content of the foundation	not used	3.000E-02	---	PH2OFL
R021	Diffusion coefficient for radon gas (m/sec):				
R021	in cover material	not used	2.000E-06	---	DIFCV
R021	in foundation material	not used	3.000E-07	---	DIFFL
R021	in contaminated zone soil	not used	2.000E-06	---	DIFCZ
R021	Radon vertical dimension of mixing (m)	not used	2.000E+00	---	HMIX
R021	Average building air exchange rate (1/hr)	not used	5.000E-01	---	REXG
R021	Height of the building (room) (m)	not used	2.500E+00	---	HRM
R021	Building interior area factor	not used	0.000E+00	---	FAI
R021	Building depth below ground surface (m)	not used	-1.000E+00	---	DMFL
R021	Emanating power of Rn-222 gas	not used	2.500E-01	---	EMANA (1)
R021	Emanating power of Rn-220 gas	not used	1.500E-01	---	EMANA (2)
TITL	Number of graphical time points	32	---	---	NPTS
TITL	Maximum number of integration points for dose	17	---	---	LYMAX
TITL	Maximum number of integration points for risk	257	---	---	KYMAX

#### Summary of Pathway Selections

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



### Appendix H39: RESRAD 7.0 Output for Area 3.2 Am-241

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 Summary : RESRAD Default Parameters  
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Contaminated Zone Dimensions	Initial Soil Concentrations, pCi/g
Area: 1000.00 square meters	Am-241 1.890E-01
Thickness: 1.00 meters	Cs-137 1.110E-01
Cover Depth: 0.00 meters	

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

t (years):	0.000E+00	1.000E+00	3.000E+00	1.000E+01	3.000E+01	1.000E+02	3.000E+02	1.000E+03
TDOSE(t):	3.292E-01	3.239E-01	3.137E-01	2.813E-01	2.125E-01	1.132E-01	6.606E-02	2.029E-02
M(t):	1.317E-02	1.296E-02	1.255E-02	1.125E-02	8.499E-03	4.528E-03	2.642E-03	8.115E-04

Maximum TDOSE(t): 3.292E-01 mrem/yr at t = 0.000E+00 years

### Appendix H39: RESRAD 7.0 Output for Area 3.2 Am-241

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 Summary : RESRAD Default Parameters  
 File : C:\RESRAD\_FAMILY\RESRAD\7.0\USERFILES\AREA 3.2 AM.RAD

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

Radio- Nuclide	Ground		Inhalation		Radon		Plant		Meat		Milk		Soil	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Am-241	3.268E-03	0.0099	1.208E-03	0.0037	0.000E+00	0.0000	9.173E-02	0.2786	1.179E-03	0.0036	1.810E-04	0.0005	1.145E-02	0.0348
Cs-137	1.425E-01	0.4329	5.044E-08	0.0000	0.000E+00	0.0000	2.918E-02	0.0886	1.703E-02	0.0517	3.138E-02	0.0953	9.135E-05	0.0003
<b>Total</b>	<b>1.458E-01</b>	<b>0.4428</b>	<b>1.209E-03</b>	<b>0.0037</b>	<b>0.000E+00</b>	<b>0.0000</b>	<b>1.209E-01</b>	<b>0.3673</b>	<b>1.821E-02</b>	<b>0.0553</b>	<b>3.156E-02</b>	<b>0.0959</b>	<b>1.154E-02</b>	<b>0.0350</b>

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

Radio- Nuclide	Water		Fish		Radon		Plant		Meat		Milk		All Pathways*	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Am-241	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.090E-01	0.3311
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	2.202E-01	0.6689
<b>Total</b>	<b>0.000E+00</b>	<b>0.0000</b>	<b>0.000E+00</b>	<b>0.0000</b>	<b>0.000E+00</b>	<b>0.0000</b>	<b>0.000E+00</b>	<b>0.0000</b>	<b>0.000E+00</b>	<b>0.0000</b>	<b>0.000E+00</b>	<b>0.0000</b>	<b>3.292E-01</b>	<b>1.0000</b>

\*Sum of all water independent and dependent pathways.

### Appendix H39: RESRAD 7.0 Output for Area 3.2 Am-241

RESRAD, Version 7.0      T½ Limit = 180 days      07/22/2016 11:19 Page 11  
 Summary : RESRAD Default Parameters  
 File : C:\RESRAD\_FAMILY\RESRAD\7.0\USERFILES\AREA 3.2 AM.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  
 Water Independent Pathways (Inhalation excludes radon)

Radio- Nuclide	Ground		Inhalation		Radon		Plant		Meat		Milk		Soil	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Am-241	3.262E-03	0.0101	1.206E-03	0.0037	0.000E+00	0.0000	9.158E-02	0.2827	1.177E-03	0.0036	1.807E-04	0.0006	1.143E-02	0.0353
Cs-137	1.392E-01	0.4298	4.927E-08	0.0000	0.000E+00	0.0000	2.851E-02	0.0880	1.664E-02	0.0514	3.065E-02	0.0946	8.922E-05	0.0003
<b>Total</b>	<b>1.425E-01</b>	<b>0.4398</b>	<b>1.206E-03</b>	<b>0.0037</b>	<b>0.000E+00</b>	<b>0.0000</b>	<b>1.201E-01</b>	<b>0.3707</b>	<b>1.782E-02</b>	<b>0.0550</b>	<b>3.083E-02</b>	<b>0.0952</b>	<b>1.152E-02</b>	<b>0.0356</b>

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  
 Water Dependent Pathways

Radio- Nuclide	Water		Fish		Radon		Plant		Meat		Milk		All Pathways*	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Am-241	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.088E-01	0.3360
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	2.151E-01	0.6640
<b>Total</b>	<b>0.000E+00</b>	<b>0.0000</b>	<b>0.000E+00</b>	<b>0.0000</b>	<b>0.000E+00</b>	<b>0.0000</b>	<b>0.000E+00</b>	<b>0.0000</b>	<b>0.000E+00</b>	<b>0.0000</b>	<b>0.000E+00</b>	<b>0.0000</b>	<b>3.239E-01</b>	<b>1.0000</b>

\*Sum of all water independent and dependent pathways.

### Appendix H39: RESRAD 7.0 Output for Area 3.2 Am-241

RESRAD, Version 7.0      T½ Limit = 180 days      07/22/2016 11:19 Page 12  
 Summary : RESRAD Default Parameters  
 File : C:\RESRAD\_FAMILY\RESRAD\7.0\USERFILES\AREA 3.2 AM.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  
 Water Independent Pathways (Inhalation excludes radon)

Radio- Nuclide	Ground		Inhalation		Radon		Plant		Meat		Milk		Soil	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Am-241	3.252E-03	0.0104	1.202E-03	0.0038	0.000E+00	0.0000	9.127E-02	0.2910	1.173E-03	0.0037	1.801E-04	0.0006	1.139E-02	0.0363
Cs-137	1.328E-01	0.4234	4.700E-08	0.0000	0.000E+00	0.0000	2.720E-02	0.0867	1.587E-02	0.0506	2.924E-02	0.0932	8.513E-05	0.0003
<b>Total</b>	<b>1.361E-01</b>	<b>0.4338</b>	<b>1.202E-03</b>	<b>0.0038</b>	<b>0.000E+00</b>	<b>0.0000</b>	<b>1.185E-01</b>	<b>0.3777</b>	<b>1.705E-02</b>	<b>0.0543</b>	<b>2.942E-02</b>	<b>0.0938</b>	<b>1.147E-02</b>	<b>0.0366</b>

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  
 Water Dependent Pathways

Radio- Nuclide	Water		Fish		Radon		Plant		Meat		Milk		All Pathways*	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Am-241	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.085E-01	0.3458
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	2.052E-01	0.6542
<b>Total</b>	<b>0.000E+00</b>	<b>0.0000</b>	<b>0.000E+00</b>	<b>0.0000</b>	<b>0.000E+00</b>	<b>0.0000</b>	<b>0.000E+00</b>	<b>0.0000</b>	<b>0.000E+00</b>	<b>0.0000</b>	<b>0.000E+00</b>	<b>0.0000</b>	<b>3.137E-01</b>	<b>1.0000</b>

\*Sum of all water independent and dependent pathways.

### Appendix H39: RESRAD 7.0 Output for Area 3.2 Am-241

RESRAD, Version 7.0      T½ Limit = 180 days      07/22/2016 11:19 Page 13  
 Summary : RESRAD Default Parameters  
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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+01 years  
 Water Independent Pathways (Inhalation excludes radon)

Radio- Nuclide	Ground		Inhalation		Radon		Plant		Meat		Milk		Soil	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Am-241	3.214E-03	0.0114	1.188E-03	0.0042	0.000E+00	0.0000	9.020E-02	0.3207	1.159E-03	0.0041	1.780E-04	0.0006	1.126E-02	0.0400
Cs-137	1.127E-01	0.4006	3.987E-08	0.0000	0.000E+00	0.0000	2.307E-02	0.0820	1.347E-02	0.0479	2.481E-02	0.0882	7.221E-05	0.0003
<b>Total</b>	<b>1.159E-01</b>	<b>0.4120</b>	<b>1.188E-03</b>	<b>0.0042</b>	<b>0.000E+00</b>	<b>0.0000</b>	<b>1.133E-01</b>	<b>0.4027</b>	<b>1.462E-02</b>	<b>0.0520</b>	<b>2.498E-02</b>	<b>0.0888</b>	<b>1.133E-02</b>	<b>0.0403</b>

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

Radio- Nuclide	Water		Fish		Radon		Plant		Meat		Milk		All Pathways*	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Am-241	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.072E-01	0.3811
Cs-137	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.741E-01	0.6189
<b>Total</b>	<b>0.000E+00</b>	<b>0.0000</b>	<b>0.000E+00</b>	<b>0.0000</b>	<b>0.000E+00</b>	<b>0.0000</b>	<b>0.000E+00</b>	<b>0.0000</b>	<b>0.000E+00</b>	<b>0.0000</b>	<b>0.000E+00</b>	<b>0.0000</b>	<b>2.813E-01</b>	<b>1.0000</b>

\*Sum of all water independent and dependent pathways.

### Appendix H39: RESRAD 7.0 Output for Area 3.2 Am-241

RESRAD, Version 7.0      T½ Limit = 180 days      07/22/2016 11:19 Page 14  
 Summary : RESRAD Default Parameters  
 File : C:\RESRAD\_FAMILY\RESRAD\7.0\USERFILES\AREA 3.2 AM.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  
 Water Independent Pathways (Inhalation excludes radon)

Radio- Nuclide	Ground		Inhalation		Radon		Plant		Meat		Milk		Soil	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Am-241	3.107E-03	0.0146	1.149E-03	0.0054	0.000E+00	0.0000	8.722E-02	0.4105	1.121E-03	0.0053	1.721E-04	0.0008	1.088E-02	0.0512
Cs-137	7.040E-02	0.3314	2.492E-08	0.0000	0.000E+00	0.0000	1.442E-02	0.0678	8.414E-03	0.0396	1.550E-02	0.0730	4.512E-05	0.0002
<b>Total</b>	<b>7.351E-02</b>	<b>0.3460</b>	<b>1.149E-03</b>	<b>0.0054</b>	<b>0.000E+00</b>	<b>0.0000</b>	<b>1.016E-01</b>	<b>0.4784</b>	<b>9.535E-03</b>	<b>0.0449</b>	<b>1.567E-02</b>	<b>0.0738</b>	<b>1.093E-02</b>	<b>0.0514</b>

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  
 Water Dependent Pathways

Radio- Nuclide	Water		Fish		Radon		Plant		Meat		Milk		All Pathways*	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Am-241	2.278E-05	0.0001	1.383E-08	0.0000	0.000E+00	0.0000	8.813E-06	0.0000	3.474E-07	0.0000	1.626E-08	0.0000	1.037E-01	0.4880
Cs-137	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.088E-01	0.5120
<b>Total</b>	<b>2.278E-05</b>	<b>0.0001</b>	<b>1.383E-08</b>	<b>0.0000</b>	<b>0.000E+00</b>	<b>0.0000</b>	<b>8.813E-06</b>	<b>0.0000</b>	<b>3.474E-07</b>	<b>0.0000</b>	<b>1.626E-08</b>	<b>0.0000</b>	<b>2.125E-01</b>	<b>1.0000</b>

\*Sum of all water independent and dependent pathways.

Appendix H39: RESRAD 7.0 Output for Area 3.2 Am-241

RESRAD, Version 7.0 T½ Limit = 180 days 07/22/2016 11:19 Page 15  
 Summary : RESRAD Default Parameters  
 File : C:\RESRAD\_FAMILY\RESRAD\7.0\USERFILES\AREA 3.2 AM.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  
 Water Independent Pathways (Inhalation excludes radon)

Radio- Nuclide	Ground		Inhalation		Radon		Plant		Meat		Milk		Soil	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Am-241	2.762E-03	0.0244	1.021E-03	0.0090	0.000E+00	0.0000	7.753E-02	0.6850	9.966E-04	0.0088	1.530E-04	0.0014	9.674E-03	0.0855
Cs-137	1.358E-02	0.1200	4.805E-09	0.0000	0.000E+00	0.0000	2.780E-03	0.0246	1.623E-03	0.0143	2.990E-03	0.0264	8.703E-06	0.0001
Total	1.634E-02	0.1444	1.021E-03	0.0090	0.000E+00	0.0000	8.032E-02	0.7095	2.620E-03	0.0231	3.143E-03	0.0278	9.683E-03	0.0855

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  
 Water Dependent Pathways

Radio- Nuclide	Water		Fish		Radon		Plant		Meat		Milk		All Pathways*	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Am-241	5.294E-05	0.0005	3.219E-08	0.0000	0.000E+00	0.0000	2.050E-05	0.0002	8.188E-07	0.0000	3.810E-08	0.0000	9.222E-02	0.8147
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	2.098E-02	0.1853
Total	5.294E-05	0.0005	3.219E-08	0.0000	0.000E+00	0.0000	2.050E-05	0.0002	8.188E-07	0.0000	3.810E-08	0.0000	1.132E-01	1.0000

\*Sum of all water independent and dependent pathways.

Appendix H39: RESRAD 7.0 Output for Area 3.2 Am-241

RESRAD, Version 7.0 T½ Limit = 180 days 07/22/2016 11:19 Page 16  
 Summary : RESRAD Default Parameters  
 File : C:\RESRAD\_FAMILY\RESRAD\7.0\USERFILES\AREA 3.2 AM.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  
 Water Independent Pathways (Inhalation excludes radon)

Radio- Nuclide	Ground		Inhalation		Radon		Plant		Meat		Milk		Soil	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Am-241	1.973E-03	0.0299	7.295E-04	0.0110	0.000E+00	0.0000	5.538E-02	0.8383	7.119E-04	0.0108	1.093E-04	0.0017	6.910E-03	0.1046
Cs-137	1.233E-04	0.0019	4.362E-11	0.0000	0.000E+00	0.0000	2.524E-05	0.0004	1.473E-05	0.0002	2.714E-05	0.0004	7.899E-08	0.0000
Total	2.096E-03	0.0317	7.295E-04	0.0110	0.000E+00	0.0000	5.541E-02	0.8387	7.266E-04	0.0110	1.364E-04	0.0021	6.910E-03	0.1046

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

Radio- Nuclide	Water		Fish		Radon		Plant		Meat		Milk		All Pathways*	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Am-241	3.873E-05	0.0006	2.355E-08	0.0000	0.000E+00	0.0000	1.500E-05	0.0002	5.991E-07	0.0000	2.789E-08	0.0000	6.587E-02	0.9971
Cs-137	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.904E-04	0.0029
Total	3.873E-05	0.0006	2.355E-08	0.0000	0.000E+00	0.0000	1.500E-05	0.0002	5.991E-07	0.0000	2.789E-08	0.0000	6.606E-02	1.0000

\*Sum of all water independent and dependent pathways.



Appendix H39: RESRAD 7.0 Output for Area 3.2 Am-241

RESRAD, Version 7.0 T½ Limit = 180 days 07/22/2016 11:19 Page 17  
 Summary : RESRAD Default Parameters  
 File : C:\RESRAD\_FAMILY\RESRAD\7.0\USERFILES\AREA 3.2 AM.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  
 Water Independent Pathways (Inhalation excludes radon)

Radio- Nuclide	Ground		Inhalation		Radon		Plant		Meat		Milk		Soil	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Am-241	6.077E-04	0.0300	2.247E-04	0.0111	0.000E+00	0.0000	1.706E-02	0.8407	2.193E-04	0.0108	3.366E-05	0.0017	2.128E-03	0.1049
Cs-137	8.781E-12	0.0000	3.107E-18	0.0000	0.000E+00	0.0000	1.798E-12	0.0000	1.049E-12	0.0000	1.933E-12	0.0000	5.628E-15	0.0000
Total	6.077E-04	0.0300	2.247E-04	0.0111	0.000E+00	0.0000	1.706E-02	0.8407	2.193E-04	0.0108	3.366E-05	0.0017	2.128E-03	0.1049

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  
 Water Dependent Pathways

Radio- Nuclide	Water		Fish		Radon		Plant		Meat		Milk		All Pathways*	
	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.	mrem/yr	fract.
Am-241	1.258E-05	0.0006	7.650E-09	0.0000	0.000E+00	0.0000	4.872E-06	0.0002	1.946E-07	0.0000	9.072E-09	0.0000	2.029E-02	1.0000
Cs-137	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	1.357E-11	0.0000
Total	1.258E-05	0.0006	7.650E-09	0.0000	0.000E+00	0.0000	4.872E-06	0.0002	1.946E-07	0.0000	9.072E-09	0.0000	2.029E-02	1.0000

\*Sum of all water independent and dependent pathways.

### Appendix H39: RESRAD 7.0 Output for Area 3.2 Am-241

RESRAD, Version 7.0      T½ Limit = 180 days      07/22/2016 11:19 Page 18  
 Summary : RESRAD Default Parameters  
 File : C:\RESRAD\_FAMILY\RESRAD\7.0\USERFILES\AREA 3.2 AM.RAD

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

0	Parent (i)	Product (j)	Parent and Thread Fraction	DSR(j,t) At Time in Years (mrem/yr)/(pCi/g)							
				0.000E+00	1.000E+00	3.000E+00	1.000E+01	3.000E+01	1.000E+02	3.000E+02	1.000E+03
	Am-241	Am-241	1.000E+00	5.768E-01	5.758E-01	5.739E-01	5.672E-01	5.484E-01	4.875E-01	3.482E-01	1.072E-01
	Am-241	Np-237+D	1.000E+00	1.894E-06	5.720E-06	1.271E-05	3.120E-05	2.234E-04	4.506E-04	3.287E-04	1.061E-04
	Am-241	U-233	1.000E+00	4.823E-14	2.677E-13	1.199E-12	8.595E-12	6.404E-11	7.370E-10	2.342E-09	1.902E-09
	Am-241	Th-229+D	1.000E+00	7.931E-18	1.081E-16	1.183E-15	2.765E-14	5.040E-13	8.429E-12	6.396E-11	2.623E-10
	Am-241	EDSR(j)		5.768E-01	5.758E-01	5.739E-01	5.672E-01	5.486E-01	4.879E-01	3.485E-01	1.073E-01
	OCs-137+D	Cs-137+D	1.000E+00	1.984E+00	1.938E+00	1.849E+00	1.568E+00	9.800E-01	1.890E-01	1.716E-03	1.222E-10

The DSR includes contributions from associated (half-life ≤ 180 days) daughters.

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

0Nuclide (i)	t=	0.000E+00	1.000E+00	3.000E+00	1.000E+01	3.000E+01	1.000E+02	3.000E+02	1.000E+03
Am-241	4.334E+01	4.342E+01	4.356E+01	4.408E+01	4.557E+01	5.124E+01	7.173E+01	2.329E+02	
Cs-137	1.260E+01	1.290E+01	1.352E+01	1.594E+01	2.551E+01	1.323E+02	1.457E+04	2.045E+11	

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

0Nuclide (i)	Initial (pCi/g)	tmin (years)	DSR(i,tmin)	G(i,tmin) (pCi/g)	DSR(i,tmax)	G(i,tmax) (pCi/g)
Am-241	1.890E-01	0.000E+00	5.768E-01	4.334E+01	5.768E-01	4.334E+01
Cs-137	1.110E-01	0.000E+00	1.984E+00	1.260E+01	1.984E+00	1.260E+01

### Appendix H39: RESRAD 7.0 Output for Area 3.2 Am-241

RESRAD, Version 7.0      T½ Limit = 180 days      07/22/2016 11:19 Page 19  
 Summary : RESRAD Default Parameters  
 File : C:\RESRAD\_FAMILY\RESRAD\7.0\USERFILES\AREA 3.2 AM.RAD

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

ONuclide (j)	Parent (i)	THF(i)	DOSE(j,t), mrem/yr							
			t= 0.000E+00	1.000E+00	3.000E+00	1.000E+01	3.000E+01	1.000E+02	3.000E+02	1.000E+03
Am-241	Am-241	1.000E+00	1.090E-01	1.088E-01	1.085E-01	1.072E-01	1.036E-01	9.213E-02	6.581E-02	2.027E-02
ONp-237	Am-241	1.000E+00	3.579E-07	1.081E-06	2.403E-06	5.896E-06	4.222E-05	8.515E-05	6.213E-05	2.005E-05
OU-233	Am-241	1.000E+00	9.116E-15	5.060E-14	2.267E-13	1.624E-12	1.210E-11	1.393E-10	4.427E-10	3.594E-10
OTh-229	Am-241	1.000E+00	1.499E-18	2.042E-17	2.236E-16	5.226E-15	9.525E-14	1.593E-12	1.209E-11	4.957E-11
OCs-137	Cs-137	1.000E+00	2.202E-01	2.151E-01	2.052E-01	1.741E-01	1.088E-01	2.098E-02	1.904E-04	1.357E-11

THF(i) is the thread fraction of the parent nuclide.

Individual Nuclide Soil Concentration  
 Parent Nuclide and Branch Fraction Indicated

ONuclide (j)	Parent (i)	THF(i)	S(j,t), pCi/g							
			t= 0.000E+00	1.000E+00	3.000E+00	1.000E+01	3.000E+01	1.000E+02	3.000E+02	1.000E+03
Am-241	Am-241	1.000E+00	1.890E-01	1.887E-01	1.880E-01	1.858E-01	1.797E-01	1.597E-01	1.141E-01	3.514E-02
ONp-237	Am-241	1.000E+00	0.000E+00	5.920E-08	1.669E-07	4.516E-07	8.072E-07	8.570E-07	6.136E-07	1.890E-07
OU-233	Am-241	1.000E+00	0.000E+00	1.301E-13	1.120E-12	1.071E-11	6.584E-11	2.797E-10	5.368E-10	2.941E-10
OTh-229	Am-241	1.000E+00	0.000E+00	4.117E-18	1.075E-16	3.557E-15	7.178E-14	1.242E-12	9.503E-12	3.715E-11
OCs-137	Cs-137	1.000E+00	1.110E-01	1.084E-01	1.034E-01	8.774E-02	5.483E-02	1.058E-02	9.599E-05	6.838E-12

THF(i) is the thread fraction of the parent nuclide.

ORESCALC.EXE execution time = 0.98 seconds