Table of Contents

Part III: Intake Quantities and Health Risk Factors

Cancer Risk Slope Factors 2
Risk Slope and ETFG for the Ground Pathway 3
Amount of Intake Quantities and Excess Cancer Risks
Time= 0.000E+00 4
Time= 1.000E+00 6
Time= 3.000E+00 8
Time= 1.000E+01 10
Time= 3.000E+01 12
Time= 1.000E+02 14
Time= 3.000E+02 16
Time= 1.000E+03 18

Cancer Risk Slope Factors Summary Table
Risk Library: FGR 13 Morbidity

Menu	Parameter	Current Value	Base Case*	Parameter Name
Sf-1	Ground external radiation slope factors, 1/yr per (pCi/g):			
Sf-1	Cs-137+D	2.55E-06	5.32E-10	SLPF(1,1)
Sf-1	Sr-90+D	1.96E-08	4.82E-10	SLPF(2,1)
Sf-2	Inhalation, slope factors, 1/(pCi):			
Sf-2	Cs-137+D	1.12E-10	1.12E-10	SLPF(1,2)
Sf-2	Sr-90+D	4.33E-10	4.25E-10	SLPF(2,2)
Sf-3	Food ingestion, slope factors, 1/(pCi):			
Sf-3	Cs-137+D	3.74E-11	3.74E-11	SLPF(1,3)
Sf-3	Sr-90+D	9.53E-11	6.88E-11	SLPF(2,3)
Sf-3	Water ingestion, slope factors, 1/(pCi):			
Sf-3	Cs-137+D	3.04E-11	3.04E-11	SLPF(1,4)
Sf-3	Sr-90+D	7.40E-11	5.59E-11	SLPF(2,4)
Sf-3	Soil ingestion, slope factors, 1/(pCi):			
Sf-3	Cs-137+D	3.74E-11	3.74E-11	SLPF(1,5)
Sf-3	Sr-90+D	9.53E-11	6.88E-11	SLPF(2,5)

*Base Case means Default.Lib w/o Associate Nuclide contributions.

Risk Slope and Environmental Transport Factors for the Ground Pathway

Nuclide (i)	Slope(i)*	ETFG(i,t) At Time in Years (dimensionless) 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
Ba-137m	2.690E-06	5.314E-01	5.314E-01	5.314E-01	5.314E-01	5.314E-01	5.314E-01	5.314E-01	5.314E-01
Cs-137	5.320E-10	5.464E-01	5.464E-01	5.464E-01	5.464E-01	5.464E-01	5.464E-01	5.464E-01	5.464E-01
Sr-90	4.820E-10	5.485E-01	5.485E-01	5.485E-01	5.485E-01	5.485E-01	5.485E-01	5.485E-01	5.485E-01
Y-90	1.910E-08	5.349E-01	5.349E-01	5.349E-01	5.349E-01	5.349E-01	5.349E-01	5.349E-01	5.349E-01

* - Units are 1/yr per (pCi/g) at infinite depth and area. Multiplication by ETFG(i,t) converts to site conditions.

Amount of Intake Quantities QINT(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As pCi/yr at t= 0.000E+00 years

Radio-	Water Independent Pathways (Inhalation w/o radon)					Water Dependent Pathways					Total
Nuclide	Inhalation	Plant	Meat	Milk	Soil	Water	Fish	Plant	Meat	Milk	Ingestion*
Cs-137	1.003E-03	6.612E+01	5.782E+00	1.888E+00	5.201E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	7.431E+01
Sr-90	5.765E-03	2.851E+03	5.754E+01	1.709E+01	2.991E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.929E+03

* Sum of all ingestion pathways, i.e. water independent plant, meat, milk, soil
and water-dependent water, fish, plant, meat, milk pathways

Excess Cancer Risks CNRS(i,p,t) for Individual Radionuclides (i) and Pathways (p)
and Fraction of Total Risk at t= 0.000E+00 years

Water Independent Pathways (Inhalation excludes radon)

Radio-	Ground		Inhalation		Plant		Meat		Milk		Soil	
Nuclide	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.
Cs-137	5.851E-07	0.0938	2.429E-12	0.0000	5.349E-08	0.0086	4.677E-09	0.0007	1.527E-09	0.0002	4.208E-10	0.0001
Sr-90	2.405E-08	0.0039	4.986E-11	0.0000	5.423E-06	0.8691	1.095E-07	0.0175	3.251E-08	0.0052	5.687E-09	0.0009
Total	6.091E-07	0.0976	5.229E-11	0.0000	5.477E-06	0.8776	1.142E-07	0.0183	3.404E-08	0.0055	6.108E-09	0.0010

Excess Cancer Risks CNRS(i,p,t) for Individual Radionuclides (i) and Pathways (p)
and Fraction of Total Risk at t= 0.000E+00 years

Water Dependent Pathways

Radio-	Water		Fish		Plant		Meat		Milk		All Pathways**	
Nuclide	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.
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	6.452E-07	0.1034
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	5.595E-06	0.8966
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	6.240E-06	1.0000

** Sum of water independent ground, inhalation, plant, meat, milk, soil
and water dependent water, fish, plant, meat, milk pathways

Total Excess Cancer Risk CNRS(i,p,t)*** for Initially Existent Radionuclides (i) and Pathways (p)
and Fraction of Total Risk at t= 0.000E+00 years

Water Independent Pathways (Inhalation excludes radon)

Radio-	Ground		Inhalation		Radon		Plant		Meat		Milk		Soil	
Nuclide	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.
Cs-137	5.851E-07	0.0938	2.429E-12	0.0000	0.000E+00	0.0000	5.349E-08	0.0086	4.677E-09	0.0007	1.527E-09	0.0002	4.208E-10	0.0001
Sr-90	2.405E-08	0.0039	4.986E-11	0.0000	0.000E+00	0.0000	5.423E-06	0.8691	1.095E-07	0.0175	3.251E-08	0.0052	5.687E-09	0.0009
Total	6.091E-07	0.0976	5.229E-11	0.0000	0.000E+00	0.0000	5.477E-06	0.8776	1.142E-07	0.0183	3.404E-08	0.0055	6.108E-09	0.0010

Total Excess Cancer Risk CNRS(i,p,t)*** for Initially Existent Radionuclides (i) and Pathways (p)
and Fraction of Total Risk at t= 0.000E+00 years

Water Dependent Pathways

Radio-	Water		Fish		Radon		Plant		Meat		Milk		All pathways	
Nuclide	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.
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	6.452E-07	0.1034
Sr-90	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.595E-06	0.8966
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	6.240E-06	1.0000

***CNRSI(i,p,t) includes contribution from decay daughter radionuclides

Amount of Intake Quantities QINT(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As pCi/yr at t= 1.000E+00 years

Radio-	Water Independent Pathways (Inhalation w/o radon)					Water Dependent Pathways					Total
Nuclide	Inhalation	Plant	Meat	Milk	Soil	Water	Fish	Plant	Meat	Milk	Ingestion*
Cs-137	9.797E-04	6.461E+01	5.650E+00	1.845E+00	5.082E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	7.261E+01
Sr-90	5.599E-03	2.770E+03	5.593E+01	1.660E+01	2.904E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.845E+03

* Sum of all ingestion pathways, i.e. water independent plant, meat, milk, soil
and water-dependent water, fish, plant, meat, milk pathways

Excess Cancer Risks CNRS(i,p,t) for Individual Radionuclides (i) and Pathways (p)
and Fraction of Total Risk at t= 1.000E+00 years

Water Independent Pathways (Inhalation excludes radon)

Radio-	Ground		Inhalation		Plant		Meat		Milk		Soil	
Nuclide	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.
Cs-137	5.717E-07	0.0943	2.373E-12	0.0000	5.227E-08	0.0086	4.570E-09	0.0008	1.492E-09	0.0002	4.111E-10	0.0001
Sr-90	2.335E-08	0.0039	4.842E-11	0.0000	5.267E-06	0.8685	1.064E-07	0.0175	3.158E-08	0.0052	5.523E-09	0.0009
Total	5.951E-07	0.0981	5.079E-11	0.0000	5.319E-06	0.8771	1.109E-07	0.0183	3.307E-08	0.0055	5.934E-09	0.0010

Excess Cancer Risks CNRS(i,p,t) for Individual Radionuclides (i) and Pathways (p)
and Fraction of Total Risk at t= 1.000E+00 years

Water Dependent Pathways

Radio-	Water		Fish		Plant		Meat		Milk		All Pathways**	
Nuclide	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.
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	6.305E-07	0.1040
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	5.434E-06	0.8960
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	6.064E-06	1.0000

** Sum of water independent ground, inhalation, plant, meat, milk, soil
and water dependent water, fish, plant, meat, milk pathways

Total Excess Cancer Risk CNRS(i,p,t)*** for Initially Existent Radionuclides (i) and Pathways (p)
and Fraction of Total Risk at t= 1.000E+00 years

Water Independent Pathways (Inhalation excludes radon)

Radio-	Ground		Inhalation		Radon		Plant		Meat		Milk		Soil	
Nuclide	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.
Cs-137	5.717E-07	0.0943	2.373E-12	0.0000	0.000E+00	0.0000	5.227E-08	0.0086	4.570E-09	0.0008	1.492E-09	0.0002	4.111E-10	0.0001
Sr-90	2.335E-08	0.0039	4.842E-11	0.0000	0.000E+00	0.0000	5.267E-06	0.8685	1.064E-07	0.0175	3.158E-08	0.0052	5.523E-09	0.0009
Total	5.951E-07	0.0981	5.079E-11	0.0000	0.000E+00	0.0000	5.319E-06	0.8771	1.109E-07	0.0183	3.307E-08	0.0055	5.934E-09	0.0010

Total Excess Cancer Risk CNRS(i,p,t)*** for Initially Existent Radionuclides (i) and Pathways (p)
and Fraction of Total Risk at t= 1.000E+00 years

Water Dependent Pathways

Radio-	Water		Fish		Radon		Plant		Meat		Milk		All pathways	
Nuclide	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.
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	6.305E-07	0.1040
Sr-90	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.434E-06	0.8960
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	6.064E-06	1.0000

***CNRSI(i,p,t) includes contribution from decay daughter radionuclides

Amount of Intake Quantities QINT(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As pCi/yr at t= 3.000E+00 years

Radio-	Water Independent Pathways (Inhalation w/o radon)					Water Dependent Pathways					Total
Nuclide	Inhalation	Plant	Meat	Milk	Soil	Water	Fish	Plant	Meat	Milk	Ingestion*
Cs-137	9.354E-04	6.169E+01	5.394E+00	1.761E+00	4.852E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	6.933E+01
Sr-90	5.280E-03	2.612E+03	5.275E+01	1.566E+01	2.739E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.683E+03

* Sum of all ingestion pathways, i.e. water independent plant, meat, milk, soil
and water-dependent water, fish, plant, meat, milk pathways

Excess Cancer Risks CNRS(i,p,t) for Individual Radionuclides (i) and Pathways (p)
and Fraction of Total Risk at t= 3.000E+00 years

Water Independent Pathways (Inhalation excludes radon)

Radio-	Ground		Inhalation		Plant		Meat		Milk		Soil	
Nuclide	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.
Cs-137	5.459E-07	0.0953	2.266E-12	0.0000	4.990E-08	0.0087	4.364E-09	0.0008	1.425E-09	0.0002	3.925E-10	0.0001
Sr-90	2.202E-08	0.0038	4.566E-11	0.0000	4.967E-06	0.8674	1.003E-07	0.0175	2.978E-08	0.0052	5.208E-09	0.0009
Total	5.679E-07	0.0992	4.793E-11	0.0000	5.017E-06	0.8761	1.047E-07	0.0183	3.120E-08	0.0054	5.601E-09	0.0010

Excess Cancer Risks CNRS(i,p,t) for Individual Radionuclides (i) and Pathways (p)
and Fraction of Total Risk at t= 3.000E+00 years

Water Dependent Pathways

Radio-	Water		Fish		Plant		Meat		Milk		All Pathways**	
Nuclide	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.
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	6.019E-07	0.1051
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	5.124E-06	0.8949
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	5.726E-06	1.0000

** Sum of water independent ground, inhalation, plant, meat, milk, soil
and water dependent water, fish, plant, meat, milk pathways

Total Excess Cancer Risk CNRS(i,p,t)*** for Initially Existent Radionuclides (i) and Pathways (p)
and Fraction of Total Risk at t= 3.000E+00 years

Water Independent Pathways (Inhalation excludes radon)

Radio-	Ground		Inhalation		Radon		Plant		Meat		Milk		Soil	
Nuclide	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.
Cs-137	5.459E-07	0.0953	2.266E-12	0.0000	0.000E+00	0.0000	4.990E-08	0.0087	4.364E-09	0.0008	1.425E-09	0.0002	3.925E-10	0.0001
Sr-90	2.202E-08	0.0038	4.566E-11	0.0000	0.000E+00	0.0000	4.967E-06	0.8674	1.003E-07	0.0175	2.978E-08	0.0052	5.208E-09	0.0009
Total	5.679E-07	0.0992	4.793E-11	0.0000	0.000E+00	0.0000	5.017E-06	0.8761	1.047E-07	0.0183	3.120E-08	0.0054	5.601E-09	0.0010

Total Excess Cancer Risk CNRS(i,p,t)*** for Initially Existent Radionuclides (i) and Pathways (p)
and Fraction of Total Risk at t= 3.000E+00 years

Water Dependent Pathways

Radio-	Water		Fish		Radon		Plant		Meat		Milk		All pathways	
Nuclide	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.
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	6.019E-07	0.1051
Sr-90	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	5.124E-06	0.8949
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	5.726E-06	1.0000

***CNRSI(i,p,t) includes contribution from decay daughter radionuclides

Amount of Intake Quantities QINT(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As pCi/yr at t= 1.000E+01 years

Radio-	Water Independent Pathways (Inhalation w/o radon)					Water Dependent Pathways					Total
Nuclide	Inhalation	Plant	Meat	Milk	Soil	Water	Fish	Plant	Meat	Milk	Ingestion*
Cs-137	7.955E-04	5.246E+01	4.588E+00	1.498E+00	4.127E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	5.896E+01
Sr-90	4.300E-03	2.127E+03	4.296E+01	1.275E+01	2.231E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.185E+03

* Sum of all ingestion pathways, i.e. water independent plant, meat, milk, soil
and water-dependent water, fish, plant, meat, milk pathways

Excess Cancer Risks CNRS(i,p,t) for Individual Radionuclides (i) and Pathways (p)
and Fraction of Total Risk at t= 1.000E+01 years

Water Independent Pathways (Inhalation excludes radon)

Radio-	Ground		Inhalation		Plant		Meat		Milk		Soil	
Nuclide	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.
Cs-137	4.642E-07	0.0991	1.927E-12	0.0000	4.244E-08	0.0091	3.711E-09	0.0008	1.212E-09	0.0003	3.338E-10	0.0001
Sr-90	1.794E-08	0.0038	3.719E-11	0.0000	4.045E-06	0.8634	8.169E-08	0.0174	2.425E-08	0.0052	4.242E-09	0.0009
Total	4.822E-07	0.1029	3.912E-11	0.0000	4.088E-06	0.8724	8.541E-08	0.0182	2.546E-08	0.0054	4.576E-09	0.0010

Excess Cancer Risks CNRS(i,p,t) for Individual Radionuclides (i) and Pathways (p)
and Fraction of Total Risk at t= 1.000E+01 years

Water Dependent Pathways

Radio-	Water		Fish		Plant		Meat		Milk		All Pathways**	
Nuclide	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.
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	5.119E-07	0.1093
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	4.173E-06	0.8907
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	4.685E-06	1.0000

** Sum of water independent ground, inhalation, plant, meat, milk, soil
and water dependent water, fish, plant, meat, milk pathways

Total Excess Cancer Risk CNRS(i,p,t)*** for Initially Existent Radionuclides (i) and Pathways (p)
and Fraction of Total Risk at t= 1.000E+01 years

Water Independent Pathways (Inhalation excludes radon)

Radio-	Ground		Inhalation		Radon		Plant		Meat		Milk		Soil	
Nuclide	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.
Cs-137	4.642E-07	0.0991	1.927E-12	0.0000	0.000E+00	0.0000	4.244E-08	0.0091	3.711E-09	0.0008	1.212E-09	0.0003	3.338E-10	0.0001
Sr-90	1.794E-08	0.0038	3.719E-11	0.0000	0.000E+00	0.0000	4.045E-06	0.8634	8.169E-08	0.0174	2.425E-08	0.0052	4.242E-09	0.0009
Total	4.822E-07	0.1029	3.912E-11	0.0000	0.000E+00	0.0000	4.088E-06	0.8724	8.541E-08	0.0182	2.546E-08	0.0054	4.576E-09	0.0010

Total Excess Cancer Risk CNRS(i,p,t)*** for Initially Existent Radionuclides (i) and Pathways (p)
and Fraction of Total Risk at t= 1.000E+01 years

Water Dependent Pathways

Radio-	Water		Fish		Radon		Plant		Meat		Milk		All pathways	
Nuclide	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.
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	5.119E-07	0.1093
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	4.173E-06	0.8907
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	4.685E-06	1.0000

***CNRSI(i,p,t) includes contribution from decay daughter radionuclides

Amount of Intake Quantities QINT(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As pCi/yr at t= 3.000E+01 years

Radio-	Water Independent Pathways (Inhalation w/o radon)					Water Dependent Pathways					Total
Nuclide	Inhalation	Plant	Meat	Milk	Soil	Water	Fish	Plant	Meat	Milk	Ingestion*
Cs-137	5.008E-04	3.302E+01	2.888E+00	9.430E-01	2.598E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	3.712E+01
Sr-90	2.392E-03	1.183E+03	2.390E+01	7.095E+00	1.241E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.216E+03

* Sum of all ingestion pathways, i.e. water independent plant, meat, milk, soil
and water-dependent water, fish, plant, meat, milk pathways

Excess Cancer Risks CNRS(i,p,t) for Individual Radionuclides (i) and Pathways (p)
and Fraction of Total Risk at t= 3.000E+01 years

Water Independent Pathways (Inhalation excludes radon)

Radio-	Ground		Inhalation		Plant		Meat		Milk		Soil	
Nuclide	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.
Cs-137	2.922E-07	0.1105	1.213E-12	0.0000	2.672E-08	0.0101	2.336E-09	0.0009	7.628E-10	0.0003	2.102E-10	0.0001
Sr-90	9.980E-09	0.0038	2.069E-11	0.0000	2.251E-06	0.8512	4.545E-08	0.0172	1.349E-08	0.0051	2.360E-09	0.0009
Total	3.022E-07	0.1143	2.190E-11	0.0000	2.277E-06	0.8613	4.779E-08	0.0181	1.426E-08	0.0054	2.570E-09	0.0010

Excess Cancer Risks CNRS(i,p,t) for Individual Radionuclides (i) and Pathways (p)
and Fraction of Total Risk at t= 3.000E+01 years

Water Dependent Pathways

Radio-	Water		Fish		Plant		Meat		Milk		All Pathways**	
Nuclide	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.
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	3.223E-07	0.1219
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	2.322E-06	0.8781
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	2.644E-06	1.0000

** Sum of water independent ground, inhalation, plant, meat, milk, soil
and water dependent water, fish, plant, meat, milk pathways

Total Excess Cancer Risk CNRS(i,p,t)*** for Initially Existent Radionuclides (i) and Pathways (p)
and Fraction of Total Risk at t= 3.000E+01 years

Water Independent Pathways (Inhalation excludes radon)

Radio-	Ground		Inhalation		Radon		Plant		Meat		Milk		Soil	
Nuclide	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.
Cs-137	2.922E-07	0.1105	1.213E-12	0.0000	0.000E+00	0.0000	2.672E-08	0.0101	2.336E-09	0.0009	7.628E-10	0.0003	2.102E-10	0.0001
Sr-90	9.980E-09	0.0038	2.069E-11	0.0000	0.000E+00	0.0000	2.251E-06	0.8512	4.545E-08	0.0172	1.349E-08	0.0051	2.360E-09	0.0009
Total	3.022E-07	0.1143	2.190E-11	0.0000	0.000E+00	0.0000	2.277E-06	0.8613	4.779E-08	0.0181	1.426E-08	0.0054	2.570E-09	0.0010

Total Excess Cancer Risk CNRS(i,p,t)*** for Initially Existent Radionuclides (i) and Pathways (p)
and Fraction of Total Risk at t= 3.000E+01 years

Water Dependent Pathways

Radio-	Water		Fish		Radon		Plant		Meat		Milk		All pathways	
Nuclide	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.
Cs-137	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.223E-07	0.1219
Sr-90	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.322E-06	0.8781
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.644E-06	1.0000

***CNRSI(i,p,t) includes contribution from decay daughter radionuclides

Amount of Intake Quantities QINT(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As pCi/yr at t= 1.000E+02 years

Radio-	Water Independent Pathways (Inhalation w/o radon)					Water Dependent Pathways					Total
Nuclide	Inhalation	Plant	Meat	Milk	Soil	Water	Fish	Plant	Meat	Milk	Ingestion*
Cs-137	9.911E-05	6.536E+00	5.716E-01	1.866E-01	5.142E-02	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	7.346E+00
Sr-90	3.072E-04	1.520E+02	3.070E+00	9.112E-01	1.594E-01	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.561E+02

* Sum of all ingestion pathways, i.e. water independent plant, meat, milk, soil
and water-dependent water, fish, plant, meat, milk pathways

Excess Cancer Risks CNRS(i,p,t) for Individual Radionuclides (i) and Pathways (p)
and Fraction of Total Risk at t= 1.000E+02 years

Water Independent Pathways (Inhalation excludes radon)

Radio-	Ground		Inhalation		Plant		Meat		Milk		Soil	
Nuclide	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.
Cs-137	5.784E-08	0.1598	2.401E-13	0.0000	5.288E-09	0.0146	4.624E-10	0.0013	1.510E-10	0.0004	4.159E-11	0.0001
Sr-90	1.282E-09	0.0035	2.657E-12	0.0000	2.890E-07	0.7985	5.837E-09	0.0161	1.733E-09	0.0048	3.031E-10	0.0008
Total	5.912E-08	0.1633	2.897E-12	0.0000	2.943E-07	0.8131	6.300E-09	0.0174	1.884E-09	0.0052	3.447E-10	0.0010

Excess Cancer Risks CNRS(i,p,t) for Individual Radionuclides (i) and Pathways (p)
and Fraction of Total Risk at t= 1.000E+02 years

Water Dependent Pathways

Radio-	Water		Fish		Plant		Meat		Milk		All Pathways**	
Nuclide	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.
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	6.378E-08	0.1762
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	2.982E-07	0.8238
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	3.620E-07	1.0000

** Sum of water independent ground, inhalation, plant, meat, milk, soil
and water dependent water, fish, plant, meat, milk pathways

Total Excess Cancer Risk CNRS(i,p,t)*** for Initially Existent Radionuclides (i) and Pathways (p)
and Fraction of Total Risk at t= 1.000E+02 years

Water Independent Pathways (Inhalation excludes radon)

Radio-	Ground		Inhalation		Radon		Plant		Meat		Milk		Soil	
Nuclide	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.
Cs-137	5.784E-08	0.1598	2.401E-13	0.0000	0.000E+00	0.0000	5.288E-09	0.0146	4.624E-10	0.0013	1.510E-10	0.0004	4.159E-11	0.0001
Sr-90	1.282E-09	0.0035	2.657E-12	0.0000	0.000E+00	0.0000	2.890E-07	0.7985	5.837E-09	0.0161	1.733E-09	0.0048	3.031E-10	0.0008
Total	5.912E-08	0.1633	2.897E-12	0.0000	0.000E+00	0.0000	2.943E-07	0.8131	6.300E-09	0.0174	1.884E-09	0.0052	3.447E-10	0.0010

Total Excess Cancer Risk CNRS(i,p,t)*** for Initially Existent Radionuclides (i) and Pathways (p)
and Fraction of Total Risk at t= 1.000E+02 years

Water Dependent Pathways

Radio-	Water		Fish		Radon		Plant		Meat		Milk		All pathways	
Nuclide	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.
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	6.378E-08	0.1762
Sr-90	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	2.982E-07	0.8238
Total	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	0.000E+00	0.0000	3.620E-07	1.0000

***CNRSI(i,p,t) includes contribution from decay daughter radionuclides

Amount of Intake Quantities QINT(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As pCi/yr at t= 3.000E+02 years

Radio-	Water Independent Pathways (Inhalation w/o radon)					Water Dependent Pathways					Total
Nuclide	Inhalation	Plant	Meat	Milk	Soil	Water	Fish	Plant	Meat	Milk	Ingestion*
Cs-137	9.686E-07	6.387E-02	5.585E-03	1.824E-03	5.024E-04	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	7.179E-02
Sr-90	8.727E-07	4.317E-01	8.718E-03	2.588E-03	4.527E-04	2.004E-01	1.017E-04	1.578E-02	1.640E-03	8.950E-04	6.623E-01

* Sum of all ingestion pathways, i.e. water independent plant, meat, milk, soil
and water-dependent water, fish, plant, meat, milk pathways

Excess Cancer Risks CNRS(i,p,t) for Individual Radionuclides (i) and Pathways (p)
and Fraction of Total Risk at t= 3.000E+02 years

Water Independent Pathways (Inhalation excludes radon)

Radio-	Ground		Inhalation		Plant		Meat		Milk		Soil	
Nuclide	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.
Cs-137	5.652E-10	0.3047	2.346E-15	0.0000	5.167E-11	0.0279	4.518E-12	0.0024	1.475E-12	0.0008	4.065E-13	0.0002
Sr-90	3.640E-12	0.0020	7.547E-15	0.0000	8.209E-10	0.4426	1.658E-11	0.0089	4.922E-12	0.0027	8.609E-13	0.0005
Total	5.689E-10	0.3067	9.893E-15	0.0000	8.726E-10	0.4704	2.110E-11	0.0114	6.397E-12	0.0034	1.267E-12	0.0007

Excess Cancer Risks CNRS(i,p,t) for Individual Radionuclides (i) and Pathways (p)
and Fraction of Total Risk at t= 3.000E+02 years

Water Dependent Pathways

Radio-	Water		Fish		Plant		Meat		Milk		All Pathways**	
Nuclide	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.
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	6.233E-10	0.3360
Sr-90	3.440E-10	0.1854	2.247E-13	0.0001	3.488E-11	0.0188	3.624E-12	0.0020	1.978E-12	0.0011	1.232E-09	0.6640
Total	3.440E-10	0.1854	2.247E-13	0.0001	3.488E-11	0.0188	3.624E-12	0.0020	1.978E-12	0.0011	1.855E-09	1.0000

** Sum of water independent ground, inhalation, plant, meat, milk, soil
and water dependent water, fish, plant, meat, milk pathways

Total Excess Cancer Risk CNRS(i,p,t)*** for Initially Existent Radionuclides (i) and Pathways (p)
and Fraction of Total Risk at t= 3.000E+02 years

Water Independent Pathways (Inhalation excludes radon)

Radio-	Ground		Inhalation		Radon		Plant		Meat		Milk		Soil	
Nuclide	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.
Cs-137	5.652E-10	0.3047	2.346E-15	0.0000	0.000E+00	0.0000	5.167E-11	0.0279	4.518E-12	0.0024	1.475E-12	0.0008	4.065E-13	0.0002
Sr-90	3.640E-12	0.0020	7.547E-15	0.0000	0.000E+00	0.0000	8.209E-10	0.4426	1.658E-11	0.0089	4.922E-12	0.0027	8.609E-13	0.0005
Total	5.689E-10	0.3067	9.893E-15	0.0000	0.000E+00	0.0000	8.726E-10	0.4704	2.110E-11	0.0114	6.397E-12	0.0034	1.267E-12	0.0007

Total Excess Cancer Risk CNRS(i,p,t)*** for Initially Existent Radionuclides (i) and Pathways (p)
and Fraction of Total Risk at t= 3.000E+02 years

Water Dependent Pathways

Radio-	Water		Fish		Radon		Plant		Meat		Milk		All pathways	
Nuclide	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.
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	6.233E-10	0.3360
Sr-90	3.440E-10	0.1854	2.247E-13	0.0001	0.000E+00	0.0000	3.488E-11	0.0188	3.624E-12	0.0020	1.978E-12	0.0011	1.232E-09	0.6640
Total	3.440E-10	0.1854	2.247E-13	0.0001	0.000E+00	0.0000	3.488E-11	0.0188	3.624E-12	0.0020	1.978E-12	0.0011	1.855E-09	1.0000

***CNRSI(i,p,t) includes contribution from decay daughter radionuclides

Amount of Intake Quantities QINT(i,p,t) for Individual Radionuclides (i) and Pathways (p)
As pCi/yr at t= 1.000E+03 years

Radio-	Water Independent Pathways (Inhalation w/o radon)					Water Dependent Pathways					Total
Nuclide	Inhalation	Plant	Meat	Milk	Soil	Water	Fish	Plant	Meat	Milk	Ingestion*
Cs-137	8.935E-14	5.892E-09	5.152E-10	1.682E-10	4.635E-11	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	6.622E-09
Sr-90	1.066E-15	5.271E-10	1.065E-11	3.160E-12	5.528E-13	3.286E-09	1.667E-12	2.588E-10	2.693E-11	1.468E-11	4.130E-09

* Sum of all ingestion pathways, i.e. water independent plant, meat, milk, soil
and water-dependent water, fish, plant, meat, milk pathways

Excess Cancer Risks CNRS(i,p,t) for Individual Radionuclides (i) and Pathways (p)
and Fraction of Total Risk at t= 1.000E+03 years

Water Independent Pathways (Inhalation excludes radon)

Radio-	Ground		Inhalation		Plant		Meat		Milk		Soil	
Nuclide	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.
Cs-137	5.214E-17	0.8155	2.164E-22	0.0000	4.767E-18	0.0746	4.168E-19	0.0065	1.361E-19	0.0021	3.749E-20	0.0006
Sr-90	4.445E-21	0.0001	9.215E-24	0.0000	1.002E-18	0.0157	2.024E-20	0.0003	6.010E-21	0.0001	1.051E-21	0.0000
Total	5.214E-17	0.8156	2.257E-22	0.0000	5.769E-18	0.0902	4.371E-19	0.0068	1.421E-19	0.0022	3.855E-20	0.0006

Excess Cancer Risks CNRS(i,p,t) for Individual Radionuclides (i) and Pathways (p)
and Fraction of Total Risk at t= 1.000E+03 years

Water Dependent Pathways

Radio-	Water		Fish		Plant		Meat		Milk		All Pathways**	
Nuclide	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.
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	5.750E-17	0.8993
Sr-90	4.829E-18	0.0755	3.156E-21	0.0000	4.899E-19	0.0077	5.097E-20	0.0008	2.779E-20	0.0004	6.435E-18	0.1007
Total	4.829E-18	0.0755	3.156E-21	0.0000	4.899E-19	0.0077	5.097E-20	0.0008	2.779E-20	0.0004	6.393E-17	1.0000

** Sum of water independent ground, inhalation, plant, meat, milk, soil
and water dependent water, fish, plant, meat, milk pathways

Total Excess Cancer Risk CNRS(i,p,t)*** for Initially Existent Radionuclides (i) and Pathways (p)
and Fraction of Total Risk at t= 1.000E+03 years

Water Independent Pathways (Inhalation excludes radon)

Radio-	Ground		Inhalation		Radon		Plant		Meat		Milk		Soil	
Nuclide	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.
Cs-137	5.214E-17	0.8155	2.164E-22	0.0000	0.000E+00	0.0000	4.767E-18	0.0746	4.168E-19	0.0065	1.361E-19	0.0021	3.749E-20	0.0006
Sr-90	4.445E-21	0.0001	9.215E-24	0.0000	0.000E+00	0.0000	1.002E-18	0.0157	2.024E-20	0.0003	6.010E-21	0.0001	1.051E-21	0.0000
Total	5.214E-17	0.8156	2.257E-22	0.0000	0.000E+00	0.0000	5.769E-18	0.0902	4.371E-19	0.0068	1.421E-19	0.0022	3.855E-20	0.0006

Total Excess Cancer Risk CNRS(i,p,t)*** for Initially Existent Radionuclides (i) and Pathways (p)
and Fraction of Total Risk at t= 1.000E+03 years

Water Dependent Pathways

Radio-	Water		Fish		Radon		Plant		Meat		Milk		All pathways	
Nuclide	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.	risk	fract.
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	5.750E-17	0.8993
Sr-90	4.829E-18	0.0755	3.156E-21	0.0000	0.000E+00	0.0000	4.899E-19	0.0077	5.097E-20	0.0008	2.779E-20	0.0004	6.435E-18	0.1007
Total	4.829E-18	0.0755	3.156E-21	0.0000	0.000E+00	0.0000	4.899E-19	0.0077	5.097E-20	0.0008	2.779E-20	0.0004	6.393E-17	1.0000

***CNRSI(i,p,t) includes contribution from decay daughter radionuclides