

Concent : Hematite - GW DSR

File : C:\RESRAD_FAMILY\RESRAD\USERFILES\HEMATITE - GW DSR.RAD

Table of Contents

Part IV: Concentration of Radionuclides

Concentration of radionuclides in different media

Time= 0.000E+00	2
Time= 1.000E+00	4

Concent : Hematite - GW DSR

File : C:\RESRAD_FAMILY\RESRAD\USERFILES\HEMATITE - GW DSR.RAD

Concentration of radionuclides in environmental media
at t = 0.000E+00 years

Radio- Nuclide	Contaminat- ted Zone	Surface Soil*	Air Par- ticulate	Well Water	Surface Water
	pCi/g	pCi/g	pCi/m**3	pCi/L	pCi/L
Ac-227	0.000E+00	0.000E+00	0.000E+00	2.738E-07	4.203E-08
Am-241	1.000E+00	0.000E+00	0.000E+00	1.190E-01	1.828E-02
Np-237	1.000E+00	0.000E+00	0.000E+00	3.966E+01	6.089E+00
Pa-231	0.000E+00	0.000E+00	0.000E+00	1.720E-05	2.641E-06
Pb-210	0.000E+00	0.000E+00	0.000E+00	1.530E-07	2.349E-08
Pu-239	1.000E+00	0.000E+00	0.000E+00	8.332E-01	1.279E-01
Pu-240	1.000E+00	0.000E+00	0.000E+00	8.332E-01	1.279E-01
Ra-226	0.000E+00	0.000E+00	0.000E+00	1.512E-07	2.322E-08
Ra-228	0.000E+00	0.000E+00	0.000E+00	3.662E-20	5.622E-21
Tc-99	1.000E+00	0.000E+00	0.000E+00	9.415E+00	1.446E+00
Th-228	0.000E+00	0.000E+00	0.000E+00	7.241E-18	1.112E-18
Th-229	0.000E+00	0.000E+00	0.000E+00	6.857E-07	1.053E-07
Th-230	0.000E+00	0.000E+00	0.000E+00	5.249E-06	8.059E-07
Th-232	0.000E+00	0.000E+00	0.000E+00	5.560E-18	8.537E-19
U-233	0.000E+00	0.000E+00	0.000E+00	3.260E-05	5.005E-06
U-234	1.000E+00	0.000E+00	0.000E+00	5.707E+00	8.763E-01
U-235	1.000E+00	0.000E+00	0.000E+00	5.707E+00	8.763E-01
U-236	0.000E+00	0.000E+00	0.000E+00	1.618E-07	2.484E-08
U-238	1.000E+00	0.000E+00	0.000E+00	5.707E+00	8.763E-01

*The Surface Soil is the top layer of soil within the user specified mixing zone/depth.

Concentrations in the media occurring in pathways that are suppressed are calculated using the current input parameters, i.e. using parameters appearing in the input screen when the pathways are active.

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Concentration of radionuclides in foodstuff media
at t = 0.000E+00 years*

Radio- Nuclide	Drinking	Nonleafy	Leafy	Fodder	Fodder	Meat	Milk	Fish	Crustacea
	Water	Vegetable	Vegetable	Meat	Milk				
	pCi/L	pCi/kg	pCi/kg	pCi/kg	pCi/kg	pCi/kg	pCi/L	pCi/kg	pCi/kg
Ac-227	2.738E-07	1.662E-08	4.629E-07	2.637E-07	2.637E-07	2.659E-10	6.224E-11	6.221E-07	4.203E-05
Am-241	1.190E-01	7.228E-03	2.013E-01	1.147E-01	1.147E-01	2.890E-04	2.706E-05	5.429E-01	1.828E+01
Np-237	3.966E+01	2.499E+00	6.708E+01	3.828E+01	3.828E+01	1.927E+00	4.508E-02	1.790E+02	2.435E+03
Pa-231	1.720E-05	1.044E-06	2.908E-05	1.657E-05	1.657E-05	4.177E-09	9.581E-09	2.615E-05	2.905E-04
Pb-210	1.530E-07	9.410E-09	2.588E-07	1.475E-07	1.475E-07	5.945E-09	9.689E-09	6.884E-06	2.349E-06
Pu-239	8.332E-01	5.059E-02	1.409E+00	8.026E-01	8.026E-01	4.046E-03	9.376E-05	3.812E+00	1.279E+01
Pu-240	8.332E-01	5.059E-02	1.409E+00	8.026E-01	8.026E-01	4.046E-03	9.376E-05	3.812E+00	1.279E+01
Ra-226	1.512E-07	1.050E-08	2.561E-07	1.468E-07	1.468E-07	7.357E-09	1.720E-09	1.145E-06	5.805E-06
Ra-228	3.662E-20	2.542E-21	6.202E-20	3.556E-20	3.556E-20	1.782E-21	4.165E-22	2.772E-19	1.406E-18
Tc-99	9.415E+00	1.116E+01	1.961E+01	1.762E+01	1.762E+01	5.542E-02	1.147E+00	2.891E+01	7.228E+00
Th-228	7.241E-18	4.396E-19	1.224E-17	6.975E-18	6.975E-18	3.481E-20	4.033E-21	1.004E-16	5.558E-16
Th-229	6.857E-07	4.163E-08	1.159E-06	6.605E-07	6.605E-07	3.296E-09	3.819E-10	9.506E-06	5.264E-05
Th-230	5.249E-06	3.187E-07	8.875E-06	5.056E-06	5.056E-06	2.523E-08	2.924E-09	7.277E-05	4.029E-04
Th-232	5.560E-18	3.376E-19	9.401E-18	5.356E-18	5.356E-18	2.673E-20	3.097E-21	7.709E-17	4.268E-16
U-233	3.260E-05	1.990E-06	5.512E-05	3.141E-05	3.141E-05	2.058E-06	2.223E-06	4.955E-05	3.003E-04
U-234	5.707E+00	3.484E-01	9.650E+00	5.500E+00	5.500E+00	3.603E-01	3.893E-01	8.675E+00	5.258E+01
U-235	5.707E+00	3.484E-01	9.650E+00	5.500E+00	5.500E+00	3.603E-01	3.893E-01	8.675E+00	5.258E+01
U-236	1.618E-07	9.877E-09	2.736E-07	1.559E-07	1.559E-07	1.021E-08	1.103E-08	2.459E-07	1.490E-06
U-238	5.707E+00	3.484E-01	9.650E+00	5.500E+00	5.500E+00	3.603E-01	3.893E-01	8.675E+00	5.258E+01

*Concentrations are at consumption time and include radioactive decay and ingrowth during storage time.

For livestock fodder, consumption time is t minus meat or milk storage time.

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Concentration of radionuclides in environmental media
at t = 1.000E+00 years

Radio- Nuclide	Contaminat- ed Zone	Surface Soil*	Air Par- ticulate	Well Water	Surface Water
	pCi/g	pCi/g	pCi/m**3	pCi/L	pCi/L
Ac-227	3.332E-07	0.000E+00	0.000E+00	9.284E-07	1.425E-07
Am-241	9.984E-01	0.000E+00	0.000E+00	1.189E-01	1.825E-02
Np-237	9.993E-01	0.000E+00	0.000E+00	3.963E+01	6.085E+00
Pa-231	2.116E-05	0.000E+00	0.000E+00	2.895E-05	4.445E-06
Pb-210	2.004E-11	0.000E+00	0.000E+00	1.530E-07	2.349E-08
Pu-239	1.000E+00	0.000E+00	0.000E+00	8.331E-01	1.279E-01
Pu-240	9.999E-01	0.000E+00	0.000E+00	8.331E-01	1.279E-01
Ra-226	1.950E-09	0.000E+00	0.000E+00	1.516E-07	2.328E-08
Ra-228	2.848E-20	0.000E+00	0.000E+00	3.946E-20	6.058E-21
Tc-99	9.998E-01	0.000E+00	0.000E+00	9.413E+00	1.445E+00
Th-228	2.417E-21	0.000E+00	0.000E+00	7.535E-18	1.157E-18
Th-229	2.064E-10	0.000E+00	0.000E+00	6.851E-07	1.052E-07
Th-230	9.001E-06	0.000E+00	0.000E+00	7.976E-06	1.225E-06
Th-232	7.302E-19	0.000E+00	0.000E+00	6.449E-18	9.901E-19
U-233	4.371E-06	0.000E+00	0.000E+00	5.754E-05	8.834E-06
U-234	9.999E-01	0.000E+00	0.000E+00	5.707E+00	8.762E-01
U-235	9.999E-01	0.000E+00	0.000E+00	5.707E+00	8.762E-01
U-236	2.960E-08	0.000E+00	0.000E+00	3.307E-07	5.078E-08
U-238	9.999E-01	0.000E+00	0.000E+00	5.707E+00	8.762E-01

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Radio- Nuclide	Drinking	Nonleafy	Leafy	Fodder	Fodder	Meat	Milk	Fish	Crustacea
	Water	Vegetable	Vegetable	Meat	Milk				
	pCi/L	pCi/kg	pCi/kg	pCi/kg	pCi/kg	pCi/kg	pCi/L	pCi/kg	pCi/kg
Ac-227	9.284E-07	5.654E-08	1.570E-06	8.797E-07	9.232E-07	1.238E-09	2.135E-10	2.097E-06	1.401E-04
Am-241	1.189E-01	7.217E-03	2.010E-01	1.145E-01	1.145E-01	2.886E-04	2.702E-05	5.420E-01	1.825E+01
Np-237	3.963E+01	2.498E+00	6.704E+01	3.825E+01	3.825E+01	1.925E+00	4.505E-02	1.789E+02	2.434E+03
Pa-231	2.925E-05	2.031E-06	4.996E-05	4.050E-05	4.109E-05	4.251E-07	3.939E-08	4.718E-05	5.065E-04
Pb-210	1.530E-07	9.420E-09	2.588E-07	1.475E-07	1.471E-07	5.951E-09	9.686E-09	6.884E-06	2.353E-06
Pu-239	8.331E-01	5.059E-02	1.409E+00	8.026E-01	8.026E-01	4.046E-03	9.376E-05	3.812E+00	1.279E+01
Pu-240	8.331E-01	5.058E-02	1.409E+00	8.026E-01	8.025E-01	4.045E-03	9.375E-05	3.812E+00	1.279E+01
Ra-226	1.517E-07	1.053E-08	2.569E-07	1.477E-07	1.478E-07	7.384E-09	1.725E-09	1.149E-06	5.825E-06
Ra-228	4.082E-20	3.726E-21	7.136E-20	1.293E-19	1.361E-19	3.030E-21	5.448E-22	4.440E-19	2.337E-18
Tc-99	9.413E+00	1.115E+01	1.961E+01	1.762E+01	1.762E+01	5.541E-02	1.147E+00	2.891E+01	7.226E+00
Th-228	7.420E-18	3.690E-19	1.235E-17	6.644E-18	6.582E-18	2.917E-20	4.049E-21	9.371E-17	5.189E-16
Th-229	6.851E-07	4.162E-08	1.158E-06	6.607E-07	6.608E-07	3.316E-09	3.827E-10	9.500E-06	5.260E-05
Th-230	8.109E-06	6.062E-07	1.394E-05	1.344E-05	1.358E-05	2.227E-07	1.436E-08	1.114E-04	6.174E-04
Th-232	6.381E-18	3.452E-19	1.068E-17	7.471E-18	7.605E-18	8.066E-20	6.587E-21	7.937E-17	4.397E-16
U-233	5.794E-05	3.897E-06	9.867E-05	7.217E-05	7.342E-05	4.308E-06	4.043E-06	1.017E-04	7.296E-04
U-234	5.707E+00	3.484E-01	9.649E+00	5.499E+00	5.499E+00	3.603E-01	3.892E-01	8.674E+00	5.257E+01
U-235	5.707E+00	3.484E-01	9.649E+00	5.499E+00	5.499E+00	3.603E-01	3.892E-01	8.674E+00	5.257E+01
U-236	3.303E-07	1.982E-08	5.579E-07	2.923E-07	3.006E-07	2.000E-08	2.240E-08	4.999E-07	3.024E-06
U-238	5.707E+00	3.484E-01	9.649E+00	5.499E+00	5.499E+00	3.603E-01	3.892E-01	8.674E+00	5.257E+01

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