

POLLUTEv10

Version 10.00
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Case 11: Time varying source concentration with background

THE VARIABLE VELOCITY AND/OR CONCENTRATION OPTION HAS BEEN USED. NOTE THAT THE ACCURACY OF THE CALCULATIONS WITH THIS OPTION WILL DEPEND ON THE NUMBER OF SUBLAYERS USED.

Layer Properties

Layer	Thickness	Number of Sublayers	Coefficient of Hydrodynamic Dispersion	Matrix Porosity	Distribution Coefficient	Dry Density
Clay	1.5 m	15	0.00663 cm ² /day	0.37	0 m ³ /kg	1.6 g/cm ³

Boundary Conditions

Finite Mass Top Boundary

Infinite Thickness Bottom Boundary

INITIAL CONCENTRATION PROFILE

Time = 0 year
Flux into Soil = 0 m²/a
Flux into Base = 0 m²/a

Top Depth	Bottom Depth	Concentration
0 m	0.1 m	120 mg/L
0.1 m	0.2 m	120 mg/L
0.2 m	0.3 m	120 mg/L
0.3 m	0.4 m	120 mg/L
0.4 m	0.5 m	120 mg/L
0.5 m	0.6 m	120 mg/L
0.6 m	0.7 m	120 mg/L
0.7 m	0.8 m	120 mg/L
0.8 m	0.9 m	120 mg/L
0.9 m	1 m	120 mg/L
1 m	1.1 m	120 mg/L
1.1 m	1.2 m	120 mg/L
1.2 m	1.3 m	120 mg/L
1.3 m	1.4 m	120 mg/L
1.4 m	1.5 m	120 mg/L

Variation in Properties with Time

Time Periods with the same Source and Velocity

Period	Start Time	No. of Steps	Time Step	Source Conc	Rate of Change	Height of Leachate	Volume Collected
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1	0 year	1	7 year	0 mg/L	0	6 m	0 m/a
2	7 year	1	3 year	-1 mg/L	700	1E15 m	0 m/a
3	10 year	1	3 year	-1 mg/L	0	1E15 m	0 m/a
4	13 year	1	2 year	-1 mg/L	-460	1E15 m	0 m/a
5	15 year	1	4 year	1180 mg/L	0	1E15 m	0 m/a

Period	Start Time	End Time	Proportion Mass	Dispersivity	Base Velocity
1	0 year	7 year	0 m/a	0 m	0 m/a
2	7 year	10 year	0 m/a	0 m	0 m/a
3	10 year	13 year	0 m/a	0 m	0 m/a
4	13 year	15 year	0 m/a	0 m	0 m/a
5	15 year	19 year	0 m/a	0 m	0 m/a

Laplace Transform Parameters

TAU	7
N	20
SIG	0
RNU	2

Calculated Concentrations at Selected Times and Depths

Time year	Depth m	Concentration mg/L
7	0.00000E+00	3.42900E-01
	1.00000E-01	1.09720E+02
	2.00000E-01	1.19929E+02
	3.00000E-01	1.20000E+02
	4.00000E-01	1.20000E+02
	5.00000E-01	1.20000E+02
	6.00000E-01	1.20000E+02
	7.00000E-01	1.20000E+02
	8.00000E-01	1.20000E+02
	9.00000E-01	1.20000E+02
	1.00000E+00	1.20000E+02
	1.10000E+00	1.20000E+02
	1.20000E+00	1.19974E+02
	1.30000E+00	1.15728E+02
1.40000E+00	6.52512E+01	
1.50000E+00	1.07192E+01	
10	0.00000E+00	2.10034E+03
	1.00000E-01	7.68398E+01
	2.00000E-01	1.18159E+02
	3.00000E-01	1.19984E+02
	4.00000E-01	1.20000E+02

	5.00000E-01	1.20000E+02
	6.00000E-01	1.20000E+02
	7.00000E-01	1.20000E+02
	8.00000E-01	1.20000E+02
	9.00000E-01	1.20000E+02
	1.00000E+00	1.20000E+02
	1.10000E+00	1.19994E+02
	1.20000E+00	1.19296E+02
	1.30000E+00	1.07486E+02
	1.40000E+00	5.96600E+01
	1.50000E+00	3.05043E+01
13	0.00000E+00	2.10034E+03
	1.00000E-01	1.93467E+02
	2.00000E-01	1.11655E+02
	3.00000E-01	1.19684E+02
	4.00000E-01	1.19997E+02
	5.00000E-01	1.20000E+02
	6.00000E-01	1.20000E+02
	7.00000E-01	1.20000E+02
	8.00000E-01	1.20000E+02
	9.00000E-01	1.20000E+02
	1.00000E+00	1.19999E+02
	1.10000E+00	1.19883E+02
	1.20000E+00	1.17532E+02
	1.30000E+00	1.00812E+02
	1.40000E+00	6.07104E+01
	1.50000E+00	4.35376E+01
15	0.00000E+00	1.18034E+03
	1.00000E-01	2.80975E+02
	2.00000E-01	1.21170E+02
	3.00000E-01	1.18709E+02
	4.00000E-01	1.19958E+02
	5.00000E-01	1.20000E+02
	6.00000E-01	1.20000E+02
	7.00000E-01	1.20000E+02
	8.00000E-01	1.20000E+02
	9.00000E-01	1.20000E+02
	1.00000E+00	1.19984E+02
	1.10000E+00	1.19603E+02

	1.20000E+00	1.15647E+02
	1.30000E+00	9.70233E+01
	1.40000E+00	6.26014E+01
	1.50000E+00	5.16930E+01
19	0.00000E+00	1.18000E+03
	1.00000E-01	3.58429E+02
	2.00000E-01	1.44175E+02
	3.00000E-01	1.19552E+02
	4.00000E-01	1.19752E+02
	5.00000E-01	1.19990E+02
	6.00000E-01	1.20000E+02
	7.00000E-01	1.20000E+02
	8.00000E-01	1.20000E+02
	9.00000E-01	1.19996E+02
	1.00000E+00	1.19914E+02
	1.10000E+00	1.18942E+02
	1.20000E+00	1.12890E+02
	1.30000E+00	9.35145E+01
	1.40000E+00	6.61394E+01
	1.50000E+00	5.70123E+01

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