

POLLUTEv10

Version 10.00
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Case 14: Primary and Secondary Leachate Collection

THE PASSIVE SINK OPTION HAS BEEN USED. NOTE THE USER IS RESPONSIBLE FOR ENSURING THAT VELOCITY CHANGES ARE CONSISTENT WITH THE PASSIVE SINK.

Layer Properties

Layer	Thickness	Number of Sublayers	Coefficient of Hydrodynamic Dispersion	Matrix Porosity	Distributon Coefficient	Dry Density
Clay	1 m	4	0.02 m ² /a	0.4	0 m ³ /kg	1.5 g/cm ³
Collection System	0.3 m	4	10 m ² /a	0.3	0 m ³ /kg	1.5 g/cm ³
Aquitard	2 m	4	0.02 m ² /a	0.4	0 m ³ /kg	1.5 g/cm ³

Boundary Conditions

Finite Mass Top Boundary

Initial Concentration	1000 mg/L
Rate of increase	0 mg/L/yr
Volume of Leachate Collected	0.29 m/a
Reference height of Leachate	7.5 m

Fixed Outflow Bottom Boundary

Landfill Length	200 m
Landfill Width	1 m
Base Thickness	1 m
Base Porosity	0.3
Base Outflow Velocity	4 m/a

Velocity and Sink Profile

Time Period	Minimum Depth	Maximum Depth	Vertical Velocity	Horizontal Outflow
01	0 m	1 m	0.01 m/a	0 m/a
	1 m	1.3 m	0.01 m/a	6.67 m/a
	1.3 m	3.3 m	0 m/a	0 m/a

Laplace Transform Parameters

TAU	7
N	20
SIG	0

Calculated Concentrations at Selected Times and Depths

Time year	Depth m	Concentration mg/L
10	0.00000E+00	6.58922E+02
	2.50000E-01	5.81802E+02
	5.00000E-01	4.42489E+02
	7.50000E-01	2.80303E+02
	1.00000E+00	1.23093E+02
	1.07500E+00	1.22982E+02
	1.15000E+00	1.22889E+02
	1.22500E+00	1.22814E+02
	1.30000E+00	1.22757E+02
	1.80000E+00	1.87251E+01
	2.30000E+00	1.58735E+00
	2.80000E+00	7.43168E-02
	3.30000E+00	5.16162E-04
25	0.00000E+00	3.62730E+02
	2.50000E-01	3.89070E+02
	5.00000E-01	3.80084E+02
	7.50000E-01	3.36381E+02
	1.00000E+00	2.63152E+02
	1.07500E+00	2.63092E+02
	1.15000E+00	2.63050E+02
	1.22500E+00	2.63026E+02
	1.30000E+00	2.63018E+02
	1.80000E+00	1.24466E+02
	2.30000E+00	4.52495E+01
	2.80000E+00	1.25356E+01
	3.30000E+00	1.33662E+00
50	0.00000E+00	1.36274E+02
	2.50000E-01	1.69784E+02
	5.00000E-01	1.94802E+02
	7.50000E-01	2.08634E+02
	1.00000E+00	2.09748E+02
	1.07500E+00	2.09749E+02
	1.15000E+00	2.09761E+02
	1.22500E+00	2.09785E+02
	1.30000E+00	2.09819E+02

	1.80000E+00	1.62668E+02
	2.30000E+00	1.03954E+02
	2.80000E+00	5.35282E+01
	3.30000E+00	1.59792E+01
100	0.00000E+00	2.01891E+01
	2.50000E-01	3.30958E+01
	5.00000E-01	4.69917E+01
	7.50000E-01	6.13289E+01
	1.00000E+00	7.55291E+01
	1.07500E+00	7.55421E+01
	1.15000E+00	7.55590E+01
	1.22500E+00	7.55797E+01
	1.30000E+00	7.56042E+01
	1.80000E+00	8.45365E+01
	2.30000E+00	7.58381E+01
	2.80000E+00	5.45594E+01
	3.30000E+00	2.63474E+01
150	0.00000E+00	3.30000E+00
	2.50000E-01	7.80955E+00
	5.00000E-01	1.32186E+01
	7.50000E-01	1.94775E+01
	1.00000E+00	2.64878E+01
	1.07500E+00	2.64944E+01
	1.15000E+00	2.65023E+01
	1.22500E+00	2.65115E+01
	1.30000E+00	2.65221E+01
	1.80000E+00	3.45183E+01
	2.30000E+00	3.46861E+01
	2.80000E+00	2.75289E+01
	3.30000E+00	1.49130E+01

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