MIGRATEv10

Version 10.00

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Case 11: Two Landfills

Layer Properties

Layer	Thickness	Sublayers	Dry Density	Porosity	Distribution Coefficient	Half-Life
Layer 1	1 m	2	1.9 g/cm³	0.35	0 mL/g	0 year
Layer 2	2 m	4	1.9 g/cm³	0.4	0 mL/g	0 year

Layer	Vertical Diffusion	Horizontal Diffusion	Vertical Velocity	Horizontal Velocity	Sink Removal	Concentration
Layer 1	0.019 m²/a	0.019 m²/a	0.008 m/a	0 m/a	0 m/a	0 mg/L
Layer 2	0.015 m²/a	0.015 m²/a	0.008 m/a	0 m/a	0 m/a	0 mg/L

Boundary Conditions

Finite Mass Top Boundary

	Cell 1	Cell 2
Offset	150 m	650 m
Surface Width	300 m	600 m
Base Width	280 m	580 m
Initial Concentration	1500 mg/L	1500 mg/L
Source Half-Life	0 year	0 year
Waste Thickness	15 m	25 m
Waste Density	600 kg/m³	600 kg/m³
Percentage of Mass	0.2	0.2
Volume Leachate Collected	0.05 m/a	0.05 m/a
Reference Height of Leachate	0	0

Aquifer Bottom Boundary

Base Thickness	2 m
Base Half-Life	0 year
Base Porosity	0.35
Sink Removal	0 m/a
Outflow Velocity	12 m/a
Dispersion Coefficient	10 m²/a
Base Integration Width	2400 m

Laplace Transform Parameters

TAU	7
N	10
SIG	0
RNU	1

Gauss Integration Parameters

Integration Level	Select
Number of Groups	1
Number of Samples	20
Subinterval Size	0.025
Number of Subintervals	300
Number of Sample Points per Step	20
Total Width of Integration	7.5
Total Number of Integration Points	12000

Group	Step SIze	# of Steps
1	0.025	300

Calculated Concentrations at Selected Depths, Lateral Distances and Times

Time year	Distance m	Depth m	Concentration mg/L
100	0	0.00000E+00	4.01197E+00
		5.00000E-01	2.66457E+01
		1.00000E+00	3.72706E+01
		1.50000E+00	4.10584E+01
		2.00000E+00	3.77389E+01
		2.50000E+00	2.56796E+01
		3.00000E+00	3.78317E-01
100	150	0.00000E+00	9.50318E+02
		5.00000E-01	9.78458E+02
		1.00000E+00	9.67576E+02
		1.50000E+00	8.98774E+02
		2.00000E+00	7.55406E+02
		2.50000E+00	5.02646E+02
		3.00000E+00	4.70136E+01
100	300	0.00000E+00	4.01643E+00
		5.00000E-01	2.70678E+01
		1.00000E+00	3.87519E+01
		1.50000E+00	4.58426E+01
		2.00000E+00	5.16842E+01
		2.50000E+00	6.28975E+01
		3.00000E+00	9.17271E+01
100	350	0.00000E+00	4.82689E+00
		5.00000E-01	3.08734E+01
		1.00000E+00	4.31170E+01
		1.50000E+00	4.96874E+01
		2.00000E+00	5.44144E+01

		2.50000E+00	6.40125E+01
		3.00000E+00	9.05152E+01
100	500	0.00000E+00	1.14265E+03
		5.00000E-01	1.14152E+03
		1.00000E+00	1.10160E+03
		1.50000E+00	1.00368E+03
		2.00000E+00	8.38764E+02
		2.50000E+00	5.78206E+02
		3.00000E+00	1.36924E+02
100	650	0.00000E+00	1.14265E+03
		5.00000E-01	1.14165E+03
		1.00000E+00	1.10209E+03
		1.50000E+00	1.00544E+03
		2.00000E+00	8.44472E+02
		2.50000E+00	5.95067E+02
		3.00000E+00	1.82277E+02
100	800	0.00000E+00	1.14265E+03
		5.00000E-01	1.14175E+03
		1.00000E+00	1.10247E+03
		1.50000E+00	1.00687E+03
		2.00000E+00	8.49339E+02
		2.50000E+00	6.10125E+02
		3.00000E+00	2.24516E+02
100	950	0.00000E+00	4.82304E+00
		5.00000E-01	3.13225E+01
		1.00000E+00	4.48316E+01
		1.50000E+00	5.59237E+01
		2.00000E+00	7.50204E+01
		2.50000E+00	1.26176E+02
		3.00000E+00	2.61354E+02
100	1100	0.00000E+00	-1.74456E-03
		5.00000E-01	6.44360E-01
		1.00000E+00	2.45634E+00
		1.50000E+00	8.91352E+00
		2.00000E+00	2.93893E+01
		2.50000E+00	8.86167E+01
		3.00000E+00	2.44093E+02
100	1200	0.00000E+00	3.45215E-04
		5.00000E-01	5.28676E-01
		1.00000E+00	2.06428E+00
		1.50000E+00	7.73385E+00

		2.00000E+00	2.63198E+01
		2.50000E+00	8.17588E+01
		3.00000E+00	2.31443E+02

Total Mass into Soil	Total Mass into Base	Velocity Transport	Mass in Base -WY/2 to +WY/2
1.78951E+05	2.91000E+05	7.96478E+04	1.31704E+05