

# POLLUTEv10

Version 10.00  
Copyright (c) 2025  
GAEA Technologies Ltd., R.K. Rowe and J.R. Booker

## Case 1: Subtitle D Landfill with constant source concentration

THE DARCY VELOCITY (Flux) THROUGH THE LAYERS  $V_a = 3.9284E-5$  m/a

### Layer Properties

Layer	Thickness	Number of Sublayers	Coefficient of Hydrodynamic Dispersion	Matrix Porosity	Distribution Coefficient	Dry Density
Geomembrane	60 mil	1	$3E-5$ m <sup>2</sup> /a	1	0 cm <sup>3</sup> /g	950 kg/m <sup>3</sup>
Clay Liner	0.9 m	10	0.02 m <sup>2</sup> /a	0.35	0.5 mL/g	1.9 g/cm <sup>3</sup>

### Boundary Conditions

#### Constant Concentration Top Boundary

Source Concentration	1500 µg/L
----------------------	-----------

#### Fixed Outflow Bottom Boundary

Landfill Length	200 m
Landfill Width	0 m
Base Thickness	3 m
Base Porosity	0.3
Base Outflow Velocity	10 m/a

### Laplace Transform Parameters

TAU	7
N	20
SIG	0
RNU	2

### Calculated Concentrations at Selected Times and Depths

Time a	Depth m	Concentration µg/L
10	0.00000E+00	1.50000E+03
	1.52400E-03	6.82293E+02
	9.15240E-02	4.91727E+02
	1.81524E-01	3.36984E+02
	2.71524E-01	2.18951E+02

	3.61524E-01	1.34525E+02
	4.51524E-01	7.79770E+01
	5.41524E-01	4.25418E+01
	6.31524E-01	2.17593E+01
	7.21524E-01	1.02802E+01
	8.11524E-01	4.10668E+00
	9.01524E-01	3.97049E-01
20	0.00000E+00	1.50000E+03
	1.52400E-03	8.25930E+02
	9.15240E-02	6.63562E+02
	1.81524E-01	5.19826E+02
	2.71524E-01	3.96567E+02
	3.61524E-01	2.94175E+02
	4.51524E-01	2.11706E+02
	5.41524E-01	1.47138E+02
	6.31524E-01	9.76772E+01
	7.21524E-01	6.00625E+01
	8.11524E-01	3.08189E+01
	9.01524E-01	6.42977E+00
30	0.00000E+00	1.50000E+03
	1.52400E-03	9.08174E+02
	9.15240E-02	7.63566E+02
	1.81524E-01	6.30866E+02
	2.71524E-01	5.11528E+02
	3.61524E-01	4.06223E+02
	4.51524E-01	3.14839E+02
	5.41524E-01	2.36523E+02
	6.31524E-01	1.69776E+02
	7.21524E-01	1.12564E+02
	8.11524E-01	6.24556E+01
	9.01524E-01	1.67480E+01

**NOTICE**

Although this program has been tested and experience would indicate that it is accurate within the limits given by the assumptions of the theory used, we make no warranty as to workability of this software or any other licensed material. No warranties either expressed or implied (including warranties of fitness) shall apply. No responsibility is assumed for any errors, mistakes or misrepresentations that may occur from the use of this computer program. The user accepts full responsibility for assessing the validity and applicability of the results obtained with this program for any specific case.