Bernoulli

leakage rate through geomembrane liner

average acceleration of gravity = 32.174 feet/s2 Himmelblau.009 9.809 m/s2

note:

rate of leakage through a defect in a geomembrane underlain by a very permeable medium
Bernoulli's equation

hydraulic head on liner 0.45 m
total area 4000 m2

number of defects 1
defect diameter 11 mm defect area 0.95 cm2 9.50E-05 m2

Q/A = 0.6 * defect area * (2 * g * h)^0.5 0.0001694 m3/s

hydraulic head	leak rate m3/s	L/s	1 day m3	1 month m3
0.05	5.64715E-05	0.056471497	4.88	146.37
0.10	7.98628E-05	0.079862757	6.90	207.00
0.15	9.78115E-05	0.097811502	8.45	253.53
0.20	0.000112943	0.112942994	9.76	292.75
0.25	0.000126274	0.126274106	10.91	327.30
0.30	0.000138326	0.138326353	11.95	358.54
0.35	0.00014941	0.149409537	12.91	387.27
0.40	0.000159726	0.159725514	13.80	414.01
0.45	0.000169414	0.169414491	14.64	439.12