

Annexe A - HELP Simul A-2 Ce10Uvpentes33%.txt

TYPE 1 - VERTICAL PERCOLATION LAYER

MATERIAL TEXTURE NUMBER 0

THICKNESS = 3700.00 CM
POROSITY = 0.6000 VOL/VOL
FIELD CAPACITY = 0.2600 VOL/VOL
WILTING POINT = 0.0770 VOL/VOL
INITIAL SOIL WATER CONTENT = 0.1600 VOL/VOL
EFFECTIVE SAT. HYD. COND. = 0.100000005000E-02 CM/SEC

LAYER 3

TYPE 2 - LATERAL DRAINAGE LAYER

MATERIAL TEXTURE NUMBER 1

THICKNESS = 50.00 CM
POROSITY = 0.4170 VOL/VOL
FIELD CAPACITY = 0.0450 VOL/VOL
WILTING POINT = 0.0180 VOL/VOL
INITIAL SOIL WATER CONTENT = 0.4170 VOL/VOL
EFFECTIVE SAT. HYD. COND. = 0.999999978000E-02 CM/SEC
SLOPE = 2.00 PERCENT
DRAINAGE LENGTH = 75.0 METERS

LAYER 4

TYPE 4 - FLEXIBLE MEMBRANE LINER

MATERIAL TEXTURE NUMBER 35

THICKNESS = 0.20 CM
POROSITY = 0.0000 VOL/VOL
FIELD CAPACITY = 0.0000 VOL/VOL
WILTING POINT = 0.0000 VOL/VOL
INITIAL SOIL WATER CONTENT = 0.0000 VOL/VOL
EFFECTIVE SAT. HYD. COND. = 0.199999996000E-12 CM/SEC
FML PINHOLE DENSITY = 0.00 HOLES/HECTARE
FML INSTALLATION DEFECTS = 0.00 HOLES/HECTARE
FML PLACEMENT QUALITY = 2 - EXCELLENT

GENERAL DESIGN AND EVAPORATIVE ZONE DATA

NOTE: SCS RUNOFF CURVE NUMBER WAS COMPUTED FROM DEFAULT
SOIL DATA BASE USING SOIL TEXTURE # 0 WITH BARE
GROUND CONDITIONS, A SURFACE SLOPE OF 33.% AND
A SLOPE LENGTH OF 100. METERS.

SCS RUNOFF CURVE NUMBER = 0.00
FRACTION OF AREA ALLOWING RUNOFF = 100.0 PERCENT
AREA PROJECTED ON HORIZONTAL PLANE = 1.0000 HECTARES
EVAPORATIVE ZONE DEPTH = 14.0 CM
INITIAL WATER IN EVAPORATIVE ZONE = 0.868 CM
UPPER LIMIT OF EVAPORATIVE STORAGE = 6.118 CM
LOWER LIMIT OF EVAPORATIVE STORAGE = 0.336 CM

Annexe A - HELP Simul A-2 Ce10UVpentec33%.txt
 INITIAL SNOW WATER = 0.000 CM
 INITIAL WATER IN LAYER MATERIALS = 613.780 CM
 TOTAL INITIAL WATER = 613.780 CM
 TOTAL SUBSURFACE INFLOW = 0.00 MM/YR

EVAPOTRANSPIRATION AND WEATHER DATA

NOTE: EVAPOTRANSPIRATION DATA WAS OBTAINED FROM
 BERTHIERVILLE QUEBEC

STATION LATITUDE = 46.00 DEGREES
 MAXIMUM LEAF AREA INDEX = 1.00
 START OF GROWING SEASON (JULIAN DATE) = 120
 END OF GROWING SEASON (JULIAN DATE) = 300
 EVAPORATIVE ZONE DEPTH = 14.0 CM
 AVERAGE ANNUAL WIND SPEED = 15.00 KPH
 AVERAGE 1ST QUARTER RELATIVE HUMIDITY = 70.00 %
 AVERAGE 2ND QUARTER RELATIVE HUMIDITY = 66.00 %
 AVERAGE 3RD QUARTER RELATIVE HUMIDITY = 71.00 %
 AVERAGE 4TH QUARTER RELATIVE HUMIDITY = 75.00 %

NOTE: PRECIPITATION DATA FOR BERTHIERVILLE QUEBEC
 WAS ENTERED BY THE USER.

NOTE: TEMPERATURE DATA FOR BERTHIERVILLE QUEBEC
 WAS ENTERED BY THE USER.

NOTE: SOLAR RADIATION DATA FOR BERTHIERVILLE QUEBEC
 WAS ENTERED BY THE USER.

ANNUAL TOTALS FOR YEAR 1

	MM	CU. METERS	PERCENT
PRECIPITATION	1139.20	11391.995	100.00
RUNOFF	164.139	1641.394	14.41
EVAPOTRANSPIRATION	448.023	4480.232	39.33
DRAINAGE COLLECTED FROM LAYER 3	177.9119	1779.119	15.62
PERC./LEAKAGE THROUGH LAYER 4	0.003318	0.033	0.00
AVG. HEAD ON TOP OF LAYER 4	106.0975		
CHANGE IN WATER STORAGE	349.122	3491.222	30.65
SOIL WATER AT START OF YEAR	6219.199	62191.984	

Annexe A - HELP Simul A-2 Ce10UVpentest33%.txt

SOIL WATER AT END OF YEAR	6489.750	64897.504	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	78.570	785.705	6.90
ANNUAL WATER BUDGET BALANCE	-0.0004	-0.004	0.00

ANNUAL TOTALS FOR YEAR 2

	MM	CU. METERS	PERCENT
PRECIPITATION	998.40	9984.002	100.00
RUNOFF	277.656	2776.561	27.81
EVAPOTRANSPIRATION	428.083	4280.831	42.88
DRAINAGE COLLECTED FROM LAYER 3	4.2578	42.578	0.43
PERC./LEAKAGE THROUGH LAYER 4	0.000092	0.001	0.00
AVG. HEAD ON TOP OF LAYER 4	2.5451		
CHANGE IN WATER STORAGE	288.402	2884.022	28.89
SOIL WATER AT START OF YEAR	6489.750	64897.508	
SOIL WATER AT END OF YEAR	6783.966	67839.656	
SNOW WATER AT START OF YEAR	78.570	785.705	7.87
SNOW WATER AT END OF YEAR	72.758	727.577	7.29
ANNUAL WATER BUDGET BALANCE	0.0009	0.009	0.00

ANNUAL TOTALS FOR YEAR 3

	MM	CU. METERS	PERCENT
PRECIPITATION	888.80	8887.999	100.00
RUNOFF	274.226	2742.261	30.85
EVAPOTRANSPIRATION	388.440	3884.398	43.70
DRAINAGE COLLECTED FROM LAYER 3	1.0767	10.767	0.12

PERC./LEAKAGE THROUGH LAYER 4	0.000063	0.001	0.00
AVG. HEAD ON TOP OF LAYER 4	0.6414		
CHANGE IN WATER STORAGE	225.057	2250.572	25.32
SOIL WATER AT START OF YEAR	6783.966	67839.656	
SOIL WATER AT END OF YEAR	7025.414	70254.141	
SNOW WATER AT START OF YEAR	72.758	727.577	8.19
SNOW WATER AT END OF YEAR	56.367	563.668	6.34
ANNUAL WATER BUDGET BALANCE	0.0000	0.000	0.00

ANNUAL TOTALS FOR YEAR 4

	MM	CU. METERS	PERCENT
PRECIPITATION	1090.10	10901.002	100.00
RUNOFF	188.280	1882.801	17.27
EVAPOTRANSPIRATION	449.617	4496.171	41.25
DRAINAGE COLLECTED FROM LAYER 3	0.6592	6.592	0.06
PERC./LEAKAGE THROUGH LAYER 4	0.000063	0.001	0.00
AVG. HEAD ON TOP OF LAYER 4	0.3912		
CHANGE IN WATER STORAGE	451.543	4515.434	41.42
SOIL WATER AT START OF YEAR	7025.414	70254.141	
SOIL WATER AT END OF YEAR	7437.733	74377.336	
SNOW WATER AT START OF YEAR	56.367	563.668	5.17
SNOW WATER AT END OF YEAR	95.590	955.905	8.77
ANNUAL WATER BUDGET BALANCE	0.0003	0.003	0.00

ANNUAL TOTALS FOR YEAR 5

	MM	CU. METERS	PERCENT
PRECIPITATION	1001.50	10014.998	100.00

Annexe A - HELP Simul A-2 Ce10Uvpentes33%.txt

RUNOFF	257.625	2576.252	25.72
EVAPOTRANSPIRATION	450.427	4504.269	44.98
DRAINAGE COLLECTED FROM LAYER 3	0.4716	4.716	0.05
PERC./LEAKAGE THROUGH LAYER 4	0.000063	0.001	0.00
AVG. HEAD ON TOP OF LAYER 4	0.2807		
CHANGE IN WATER STORAGE	292.977	2929.769	29.25
SOIL WATER AT START OF YEAR	7437.733	74377.336	
SOIL WATER AT END OF YEAR	7788.586	77885.859	
SNOW WATER AT START OF YEAR	95.590	955.905	9.54
SNOW WATER AT END OF YEAR	37.715	377.152	3.77
ANNUAL WATER BUDGET BALANCE	-0.0008	-0.008	0.00

ANNUAL TOTALS FOR YEAR 6

	MM	CU. METERS	PERCENT
PRECIPITATION	1039.90	10398.997	100.00
RUNOFF	159.032	1590.323	15.29
EVAPOTRANSPIRATION	447.089	4470.893	42.99
DRAINAGE COLLECTED FROM LAYER 3	0.3648	3.648	0.04
PERC./LEAKAGE THROUGH LAYER 4	0.000063	0.001	0.00
AVG. HEAD ON TOP OF LAYER 4	0.2171		
CHANGE IN WATER STORAGE	433.414	4334.137	41.68
SOIL WATER AT START OF YEAR	7788.586	77885.859	
SOIL WATER AT END OF YEAR	8178.670	81786.703	
SNOW WATER AT START OF YEAR	37.715	377.152	3.63
SNOW WATER AT END OF YEAR	81.044	810.441	7.79
ANNUAL WATER BUDGET BALANCE	-0.0005	-0.005	0.00

Annexe A - HELP Simul A-2 Ce10Uvpentes33%.txt

ANNUAL TOTALS FOR YEAR 7

	MM	CU. METERS	PERCENT
PRECIPITATION	1069.00	10690.000	100.00
RUNOFF	286.840	2868.405	26.83
EVAPOTRANSPIRATION	435.229	4352.289	40.71
DRAINAGE COLLECTED FROM LAYER 3	0.2958	2.958	0.03
PERC./LEAKAGE THROUGH LAYER 4	0.000063	0.001	0.00
AVG. HEAD ON TOP OF LAYER 4	0.1760		
CHANGE IN WATER STORAGE	346.634	3466.342	32.43
SOIL WATER AT START OF YEAR	8178.670	81786.703	
SOIL WATER AT END OF YEAR	8528.086	85280.852	
SNOW WATER AT START OF YEAR	81.044	810.441	7.58
SNOW WATER AT END OF YEAR	78.263	782.632	7.32
ANNUAL WATER BUDGET BALANCE	0.0007	0.007	0.00

ANNUAL TOTALS FOR YEAR 8

	MM	CU. METERS	PERCENT
PRECIPITATION	902.40	9023.998	100.00
RUNOFF	276.800	2768.000	30.67
EVAPOTRANSPIRATION	353.784	3537.843	39.20
DRAINAGE COLLECTED FROM LAYER 3	0.2483	2.483	0.03
PERC./LEAKAGE THROUGH LAYER 4	0.000063	0.001	0.00
AVG. HEAD ON TOP OF LAYER 4	0.1473		
CHANGE IN WATER STORAGE	271.567	2715.667	30.09
SOIL WATER AT START OF YEAR	8528.086	85280.859	
SOIL WATER AT END OF YEAR	8787.890	87878.898	
SNOW WATER AT START OF YEAR	78.263	782.632	8.67
SNOW WATER AT END OF YEAR	90.026	900.263	9.98

ANNUAL WATER BUDGET BALANCE 0.0005 0.005 0.00

ANNUAL TOTALS FOR YEAR 9

	MM	CU. METERS	PERCENT
PRECIPITATION	935.70	9356.997	100.00
RUNOFF	226.337	2263.372	24.19
EVAPOTRANSPIRATION	404.439	4044.385	43.22
DRAINAGE COLLECTED FROM LAYER 3	0.2122	2.122	0.02
PERC./LEAKAGE THROUGH LAYER 4	0.000063	0.001	0.00
AVG. HEAD ON TOP OF LAYER 4	0.1263		
CHANGE IN WATER STORAGE	304.713	3047.125	32.57
SOIL WATER AT START OF YEAR	8787.890	87878.898	
SOIL WATER AT END OF YEAR	9098.546	90985.461	
SNOW WATER AT START OF YEAR	90.026	900.263	9.62
SNOW WATER AT END OF YEAR	84.083	840.826	8.99
ANNUAL WATER BUDGET BALANCE	-0.0008	-0.008	0.00

ANNUAL TOTALS FOR YEAR 10

	MM	CU. METERS	PERCENT
PRECIPITATION	728.90	7289.000	100.00
RUNOFF	246.469	2464.693	33.81
EVAPOTRANSPIRATION	316.860	3168.597	43.47
DRAINAGE COLLECTED FROM LAYER 3	0.1853	1.853	0.03
PERC./LEAKAGE THROUGH LAYER 4	0.000063	0.001	0.00
AVG. HEAD ON TOP OF LAYER 4	0.1102		
CHANGE IN WATER STORAGE	165.385	1653.852	22.69
SOIL WATER AT START OF YEAR	9098.546	90985.461	

Annexe A - HELP Simul A-2 Ce10UVpentest33%.txt

SOIL WATER AT END OF YEAR	9257.024	92570.250	
SNOW WATER AT START OF YEAR	84.083	840.826	11.54
SNOW WATER AT END OF YEAR	90.989	909.892	12.48
ANNUAL WATER BUDGET BALANCE	0.0004	0.004	0.00

ANNUAL TOTALS FOR YEAR 11

	MM	CU. METERS	PERCENT
PRECIPITATION	878.70	8787.000	100.00
RUNOFF	267.170	2671.699	30.41
EVAPOTRANSPIRATION	318.387	3183.873	36.23
DRAINAGE COLLECTED FROM LAYER 3	0.1640	1.640	0.02
PERC./LEAKAGE THROUGH LAYER 4	0.000063	0.001	0.00
AVG. HEAD ON TOP OF LAYER 4	0.0976		
CHANGE IN WATER STORAGE	292.979	2929.787	33.34
SOIL WATER AT START OF YEAR	9257.024	92570.250	
SOIL WATER AT END OF YEAR	9550.570	95505.703	
SNOW WATER AT START OF YEAR	90.989	909.892	10.35
SNOW WATER AT END OF YEAR	90.422	904.222	10.29
ANNUAL WATER BUDGET BALANCE	0.0001	0.001	0.00

ANNUAL TOTALS FOR YEAR 12

	MM	CU. METERS	PERCENT
PRECIPITATION	1002.20	10021.999	100.00
RUNOFF	316.122	3161.223	31.54
EVAPOTRANSPIRATION	374.553	3745.533	37.37
DRAINAGE COLLECTED FROM LAYER 3	20.2875	202.875	2.02

PERC./LEAKAGE THROUGH LAYER 4	0.000428	0.004	0.00
AVG. HEAD ON TOP OF LAYER 4	11.9884		
CHANGE IN WATER STORAGE	291.235	2912.352	29.06
SOIL WATER AT START OF YEAR	9550.570	95505.703	
SOIL WATER AT END OF YEAR	9882.752	98827.523	
SNOW WATER AT START OF YEAR	90.422	904.222	9.02
SNOW WATER AT END OF YEAR	49.475	494.753	4.94
ANNUAL WATER BUDGET BALANCE	0.0011	0.011	0.00

ANNUAL TOTALS FOR YEAR 13

	MM	CU. METERS	PERCENT
PRECIPITATION	763.00	7630.000	100.00
RUNOFF	136.333	1363.330	17.87
EVAPOTRANSPIRATION	371.382	3713.816	48.67
DRAINAGE COLLECTED FROM LAYER 3	257.7457	2577.457	33.78
PERC./LEAKAGE THROUGH LAYER 4	0.004835	0.048	0.00
AVG. HEAD ON TOP OF LAYER 4	153.9300		
CHANGE IN WATER STORAGE	-2.463	-24.629	-0.32
SOIL WATER AT START OF YEAR	9882.752	98827.516	
SOIL WATER AT END OF YEAR	9819.065	98190.656	
SNOW WATER AT START OF YEAR	49.475	494.753	6.48
SNOW WATER AT END OF YEAR	110.698	1106.984	14.51
ANNUAL WATER BUDGET BALANCE	-0.0022	-0.022	0.00

ANNUAL TOTALS FOR YEAR 14

	MM	CU. METERS	PERCENT
PRECIPITATION	1040.70	10407.001	100.00

Annexe A - HELP Simul A-2 Ce10UVpentres33%.txt

RUNOFF	283.553	2835.526	27.25
EVAPOTRANSPIRATION	420.107	4201.066	40.37
DRAINAGE COLLECTED FROM LAYER 3	233.4076	2334.076	22.43
PERC./LEAKAGE THROUGH LAYER 4	0.004378	0.044	0.00
AVG. HEAD ON TOP OF LAYER 4	138.4119		
CHANGE IN WATER STORAGE	103.627	1036.275	9.96
SOIL WATER AT START OF YEAR	9819.065	98190.656	
SOIL WATER AT END OF YEAR	9935.666	99356.664	
SNOW WATER AT START OF YEAR	110.698	1106.984	10.64
SNOW WATER AT END OF YEAR	97.725	977.253	9.39
ANNUAL WATER BUDGET BALANCE	0.0015	0.015	0.00

ANNUAL TOTALS FOR YEAR 15

	MM	CU. METERS	PERCENT
PRECIPITATION	896.00	8960.000	100.00
RUNOFF	260.104	2601.042	29.03
EVAPOTRANSPIRATION	405.379	4053.791	45.24
DRAINAGE COLLECTED FROM LAYER 3	294.8482	2948.482	32.91
PERC./LEAKAGE THROUGH LAYER 4	0.005531	0.055	0.00
AVG. HEAD ON TOP OF LAYER 4	175.8291		
CHANGE IN WATER STORAGE	-64.336	-643.362	-7.18
SOIL WATER AT START OF YEAR	9935.666	99356.664	
SOIL WATER AT END OF YEAR	9867.942	98679.422	
SNOW WATER AT START OF YEAR	97.725	977.253	10.91
SNOW WATER AT END OF YEAR	101.113	1011.128	11.28
ANNUAL WATER BUDGET BALANCE	-0.0008	-0.008	0.00

Annexe A - HELP Simul A-2 Ce10Uvpentes33%.txt

ANNUAL TOTALS FOR YEAR 16

	MM	CU. METERS	PERCENT
PRECIPITATION	1126.30	11263.000	100.00
RUNOFF	304.991	3049.912	27.08
EVAPOTRANSPIRATION	469.946	4699.460	41.72
DRAINAGE COLLECTED FROM LAYER 3	258.1597	2581.597	22.92
PERC./LEAKAGE THROUGH LAYER 4	0.004843	0.048	0.00
AVG. HEAD ON TOP OF LAYER 4	153.0390		
CHANGE IN WATER STORAGE	93.198	931.979	8.27
SOIL WATER AT START OF YEAR	9867.942	98679.422	
SOIL WATER AT END OF YEAR	10023.632	100236.320	
SNOW WATER AT START OF YEAR	101.113	1011.128	8.98
SNOW WATER AT END OF YEAR	38.621	386.210	3.43
ANNUAL WATER BUDGET BALANCE	0.0003	0.003	0.00

ANNUAL TOTALS FOR YEAR 17

	MM	CU. METERS	PERCENT
PRECIPITATION	1027.90	10279.000	100.00
RUNOFF	152.972	1529.718	14.88
EVAPOTRANSPIRATION	402.465	4024.650	39.15
DRAINAGE COLLECTED FROM LAYER 3	442.8589	4428.589	43.08
PERC./LEAKAGE THROUGH LAYER 4	0.008306	0.083	0.00
AVG. HEAD ON TOP OF LAYER 4	263.6310		
CHANGE IN WATER STORAGE	29.596	295.963	2.88
SOIL WATER AT START OF YEAR	10023.632	100236.320	
SOIL WATER AT END OF YEAR	9920.588	99205.883	
SNOW WATER AT START OF YEAR	38.621	386.210	3.76
SNOW WATER AT END OF YEAR	171.261	1712.615	16.66

ANNUAL WATER BUDGET BALANCE -0.0004 -0.004 0.00

ANNUAL TOTALS FOR YEAR 18

	MM	CU. METERS	PERCENT
PRECIPITATION	936.60	9366.001	100.00
RUNOFF	276.249	2762.494	29.49
EVAPOTRANSPIRATION	448.760	4487.600	47.91
DRAINAGE COLLECTED FROM LAYER 3	343.7217	3437.217	36.70
PERC./LEAKAGE THROUGH LAYER 4	0.006447	0.064	0.00
AVG. HEAD ON TOP OF LAYER 4	204.9196		
CHANGE IN WATER STORAGE	-132.138	-1321.381	-14.11
SOIL WATER AT START OF YEAR	9920.588	99205.883	
SOIL WATER AT END OF YEAR	9926.847	99268.469	
SNOW WATER AT START OF YEAR	171.261	1712.615	18.29
SNOW WATER AT END OF YEAR	32.865	328.648	3.51
ANNUAL WATER BUDGET BALANCE	0.0006	0.006	0.00

ANNUAL TOTALS FOR YEAR 19

	MM	CU. METERS	PERCENT
PRECIPITATION	1084.00	10840.001	100.00
RUNOFF	269.768	2697.681	24.89
EVAPOTRANSPIRATION	416.649	4166.487	38.44
DRAINAGE COLLECTED FROM LAYER 3	359.7789	3597.789	33.19
PERC./LEAKAGE THROUGH LAYER 4	0.006749	0.067	0.00
AVG. HEAD ON TOP OF LAYER 4	214.6024		
CHANGE IN WATER STORAGE	37.797	377.972	3.49
SOIL WATER AT START OF YEAR	9926.847	99268.469	

Annexe A - HELP Simul A-2 Ce10UVpentest33%.txt

SOIL WATER AT END OF YEAR	9902.903	99029.031	
SNOW WATER AT START OF YEAR	32.865	328.648	3.03
SNOW WATER AT END OF YEAR	94.605	946.055	8.73
ANNUAL WATER BUDGET BALANCE	0.0004	0.004	0.00

ANNUAL TOTALS FOR YEAR 20

	MM	CU. METERS	PERCENT
PRECIPITATION	1040.10	10400.997	100.00
RUNOFF	336.410	3364.104	32.34
EVAPOTRANSPIRATION	415.389	4153.894	39.94
DRAINAGE COLLECTED FROM LAYER 3	335.9510	3359.510	32.30
PERC./LEAKAGE THROUGH LAYER 4	0.006302	0.063	0.00
AVG. HEAD ON TOP OF LAYER 4	199.0736		
CHANGE IN WATER STORAGE	-47.656	-476.563	-4.58
SOIL WATER AT START OF YEAR	9902.903	99029.031	
SOIL WATER AT END OF YEAR	9857.028	98570.281	
SNOW WATER AT START OF YEAR	94.605	946.055	9.10
SNOW WATER AT END OF YEAR	92.824	928.239	8.92
ANNUAL WATER BUDGET BALANCE	-0.0012	-0.012	0.00

ANNUAL TOTALS FOR YEAR 21

	MM	CU. METERS	PERCENT
PRECIPITATION	927.70	9276.999	100.00
RUNOFF	242.484	2424.837	26.14
EVAPOTRANSPIRATION	403.781	4037.805	43.52
DRAINAGE COLLECTED FROM LAYER 3	225.9153	2259.154	24.35

PERC./LEAKAGE THROUGH LAYER 4	0.004238	0.042	0.00
AVG. HEAD ON TOP OF LAYER 4	134.3987		
CHANGE IN WATER STORAGE	55.516	555.160	5.98
SOIL WATER AT START OF YEAR	9857.028	98570.281	
SOIL WATER AT END OF YEAR	9914.676	99146.758	
SNOW WATER AT START OF YEAR	92.824	928.239	10.01
SNOW WATER AT END OF YEAR	90.692	906.923	9.78
ANNUAL WATER BUDGET BALANCE	0.0001	0.001	0.00

ANNUAL TOTALS FOR YEAR 22

	MM	CU. METERS	PERCENT
PRECIPITATION	892.60	8925.996	100.00
RUNOFF	238.903	2389.026	26.76
EVAPOTRANSPIRATION	397.888	3978.880	44.58
DRAINAGE COLLECTED FROM LAYER 3	368.5194	3685.194	41.29
PERC./LEAKAGE THROUGH LAYER 4	0.006913	0.069	0.00
AVG. HEAD ON TOP OF LAYER 4	219.7658		
CHANGE IN WATER STORAGE	-112.717	-1127.170	-12.63
SOIL WATER AT START OF YEAR	9914.676	99146.758	
SOIL WATER AT END OF YEAR	9832.455	98324.555	
SNOW WATER AT START OF YEAR	90.692	906.923	10.16
SNOW WATER AT END OF YEAR	60.196	601.959	6.74
ANNUAL WATER BUDGET BALANCE	-0.0004	-0.004	0.00

ANNUAL TOTALS FOR YEAR 23

	MM	CU. METERS	PERCENT
PRECIPITATION	828.90	8289.000	100.00

Annexe A - HELP Simul A-2 Ce10Uvpentes33%.txt

RUNOFF	230.253	2302.533	27.78
EVAPOTRANSPIRATION	319.065	3190.654	38.49
DRAINAGE COLLECTED FROM LAYER 3	217.4594	2174.594	26.23
PERC./LEAKAGE THROUGH LAYER 4	0.004079	0.041	0.00
AVG. HEAD ON TOP OF LAYER 4	129.2857		
CHANGE IN WATER STORAGE	62.118	621.179	7.49
SOIL WATER AT START OF YEAR	9832.455	98324.547	
SOIL WATER AT END OF YEAR	9851.139	98511.391	
SNOW WATER AT START OF YEAR	60.196	601.959	7.26
SNOW WATER AT END OF YEAR	103.630	1036.297	12.50
ANNUAL WATER BUDGET BALANCE	-0.0001	-0.001	0.00

ANNUAL TOTALS FOR YEAR 24

	MM	CU. METERS	PERCENT
PRECIPITATION	959.00	9590.000	100.00
RUNOFF	312.228	3122.285	32.56
EVAPOTRANSPIRATION	258.164	2581.635	26.92
DRAINAGE COLLECTED FROM LAYER 3	244.5041	2445.041	25.50
PERC./LEAKAGE THROUGH LAYER 4	0.004587	0.046	0.00
AVG. HEAD ON TOP OF LAYER 4	144.9588		
CHANGE IN WATER STORAGE	144.100	1441.002	15.03
SOIL WATER AT START OF YEAR	9851.139	98511.391	
SOIL WATER AT END OF YEAR	9982.392	99823.914	
SNOW WATER AT START OF YEAR	103.630	1036.297	10.81
SNOW WATER AT END OF YEAR	116.477	1164.774	12.15
ANNUAL WATER BUDGET BALANCE	-0.0009	-0.009	0.00

Annexe A - HELP Simul A-2 Ce10Uvpentes33%.txt

ANNUAL TOTALS FOR YEAR 25

	MM	CU. METERS	PERCENT
PRECIPITATION	959.50	9594.998	100.00
RUNOFF	228.365	2283.646	23.80
EVAPOTRANSPIRATION	437.089	4370.892	45.55
DRAINAGE COLLECTED FROM LAYER 3	401.6436	4016.437	41.86
PERC./LEAKAGE THROUGH LAYER 4	0.007533	0.075	0.00
AVG. HEAD ON TOP OF LAYER 4	239.3424		
CHANGE IN WATER STORAGE	-107.606	-1076.056	-11.21
SOIL WATER AT START OF YEAR	9982.392	99823.914	
SOIL WATER AT END OF YEAR	9878.829	98788.297	
SNOW WATER AT START OF YEAR	116.477	1164.774	12.14
SNOW WATER AT END OF YEAR	112.434	1124.337	11.72
ANNUAL WATER BUDGET BALANCE	0.0004	0.004	0.00

ANNUAL TOTALS FOR YEAR 26

	MM	CU. METERS	PERCENT
PRECIPITATION	938.00	9379.998	100.00
RUNOFF	185.173	1851.731	19.74
EVAPOTRANSPIRATION	445.506	4455.061	47.50
DRAINAGE COLLECTED FROM LAYER 3	310.4402	3104.403	33.10
PERC./LEAKAGE THROUGH LAYER 4	0.005824	0.058	0.00
AVG. HEAD ON TOP OF LAYER 4	184.6443		
CHANGE IN WATER STORAGE	-3.125	-31.254	-0.33
SOIL WATER AT START OF YEAR	9878.829	98788.297	
SOIL WATER AT END OF YEAR	9954.458	99544.578	
SNOW WATER AT START OF YEAR	112.434	1124.337	11.99
SNOW WATER AT END OF YEAR	33.680	336.796	3.59

ANNUAL WATER BUDGET BALANCE -0.0001 -0.001 0.00

ANNUAL TOTALS FOR YEAR 27

	MM	CU. METERS	PERCENT
PRECIPITATION	814.20	8142.002	100.00
RUNOFF	177.260	1772.603	21.77
EVAPOTRANSPIRATION	402.140	4021.397	49.39
DRAINAGE COLLECTED FROM LAYER 3	304.4896	3044.896	37.40
PERC./LEAKAGE THROUGH LAYER 4	0.005712	0.057	0.00
AVG. HEAD ON TOP OF LAYER 4	181.8405		
CHANGE IN WATER STORAGE	-69.694	-696.944	-8.56
SOIL WATER AT START OF YEAR	9954.458	99544.578	
SOIL WATER AT END OF YEAR	9901.117	99011.172	
SNOW WATER AT START OF YEAR	33.680	336.796	4.14
SNOW WATER AT END OF YEAR	17.326	173.261	2.13
ANNUAL WATER BUDGET BALANCE	-0.0008	-0.008	0.00

ANNUAL TOTALS FOR YEAR 28

	MM	CU. METERS	PERCENT
PRECIPITATION	1125.50	11254.999	100.00
RUNOFF	284.724	2847.242	25.30
EVAPOTRANSPIRATION	406.827	4068.273	36.15
DRAINAGE COLLECTED FROM LAYER 3	304.7189	3047.189	27.07
PERC./LEAKAGE THROUGH LAYER 4	0.005716	0.057	0.00
AVG. HEAD ON TOP OF LAYER 4	181.0597		
CHANGE IN WATER STORAGE	129.223	1292.231	11.48
SOIL WATER AT START OF YEAR	9901.117	99011.172	

Annexe A - HELP Simul A-2 Ce10UVpentest33%.txt

SOIL WATER AT END OF YEAR	9934.564	99345.641	
SNOW WATER AT START OF YEAR	17.326	173.261	1.54
SNOW WATER AT END OF YEAR	113.102	1131.024	10.05
ANNUAL WATER BUDGET BALANCE	0.0007	0.007	0.00

ANNUAL TOTALS FOR YEAR 29

	MM	CU. METERS	PERCENT
PRECIPITATION	1168.10	11680.996	100.00
RUNOFF	323.263	3232.625	27.67
EVAPOTRANSPIRATION	485.243	4852.432	41.54
DRAINAGE COLLECTED FROM LAYER 3	337.3623	3373.623	28.88
PERC./LEAKAGE THROUGH LAYER 4	0.006328	0.063	0.00
AVG. HEAD ON TOP OF LAYER 4	200.8507		
CHANGE IN WATER STORAGE	22.226	222.261	1.90
SOIL WATER AT START OF YEAR	9934.564	99345.648	
SOIL WATER AT END OF YEAR	9899.484	98994.836	
SNOW WATER AT START OF YEAR	113.102	1131.024	9.68
SNOW WATER AT END OF YEAR	170.409	1704.093	14.59
ANNUAL WATER BUDGET BALANCE	-0.0008	-0.008	0.00

ANNUAL TOTALS FOR YEAR 30

	MM	CU. METERS	PERCENT
PRECIPITATION	759.80	7598.002	100.00
RUNOFF	292.052	2920.516	38.44
EVAPOTRANSPIRATION	329.453	3294.535	43.36
DRAINAGE COLLECTED FROM LAYER 3	248.7650	2487.650	32.74

PERC./LEAKAGE THROUGH LAYER 4	0.004667	0.047	0.00
AVG. HEAD ON TOP OF LAYER 4	148.0179		
CHANGE IN WATER STORAGE	-110.476	-1104.759	-14.54
SOIL WATER AT START OF YEAR	9899.484	98994.844	
SOIL WATER AT END OF YEAR	9868.241	98682.414	
SNOW WATER AT START OF YEAR	170.409	1704.093	22.43
SNOW WATER AT END OF YEAR	91.176	911.765	12.00
ANNUAL WATER BUDGET BALANCE	0.0014	0.014	0.00

ANNUAL TOTALS FOR YEAR 31

	MM	CU. METERS	PERCENT
PRECIPITATION	922.30	9223.000	100.00
RUNOFF	354.100	3541.003	38.39
EVAPOTRANSPIRATION	330.620	3306.201	35.85
DRAINAGE COLLECTED FROM LAYER 3	246.9350	2469.350	26.77
PERC./LEAKAGE THROUGH LAYER 4	0.004632	0.046	0.00
AVG. HEAD ON TOP OF LAYER 4	146.6838		
CHANGE IN WATER STORAGE	-9.360	-93.596	-1.01
SOIL WATER AT START OF YEAR	9868.241	98682.406	
SOIL WATER AT END OF YEAR	9890.164	98901.633	
SNOW WATER AT START OF YEAR	91.176	911.765	9.89
SNOW WATER AT END OF YEAR	59.894	598.943	6.49
ANNUAL WATER BUDGET BALANCE	-0.0005	-0.005	0.00

ANNUAL TOTALS FOR YEAR 32

	MM	CU. METERS	PERCENT
PRECIPITATION	1116.00	11159.999	100.00

Annexe A - HELP Simul A-2 Ce10Uvpentes33%.txt

RUNOFF	200.212	2002.118	17.94
EVAPOTRANSPIRATION	452.659	4526.592	40.56
DRAINAGE COLLECTED FROM LAYER 3	320.6767	3206.767	28.73
PERC./LEAKAGE THROUGH LAYER 4	0.006016	0.060	0.00
AVG. HEAD ON TOP OF LAYER 4	190.0336		
CHANGE IN WATER STORAGE	142.446	1424.461	12.76
SOIL WATER AT START OF YEAR	9890.164	98901.641	
SOIL WATER AT END OF YEAR	10013.177	100131.773	
SNOW WATER AT START OF YEAR	59.894	598.943	5.37
SNOW WATER AT END OF YEAR	79.328	793.277	7.11
ANNUAL WATER BUDGET BALANCE	0.0001	0.001	0.00

ANNUAL TOTALS FOR YEAR 33

	MM	CU. METERS	PERCENT
PRECIPITATION	931.50	9315.001	100.00
RUNOFF	238.544	2385.445	25.61
EVAPOTRANSPIRATION	337.261	3372.608	36.21
DRAINAGE COLLECTED FROM LAYER 3	422.9903	4229.903	45.41
PERC./LEAKAGE THROUGH LAYER 4	0.007931	0.079	0.00
AVG. HEAD ON TOP OF LAYER 4	251.9031		
CHANGE IN WATER STORAGE	-67.304	-673.041	-7.23
SOIL WATER AT START OF YEAR	10013.177	100131.773	
SOIL WATER AT END OF YEAR	9862.004	98620.039	
SNOW WATER AT START OF YEAR	79.328	793.277	8.52
SNOW WATER AT END OF YEAR	163.197	1631.965	17.52
ANNUAL WATER BUDGET BALANCE	0.0008	0.008	0.00

Annexe A - HELP Simul A-2 Ce10Uvpentes33%.txt

ANNUAL TOTALS FOR YEAR 34

	MM	CU. METERS	PERCENT
PRECIPITATION	970.20	9702.001	100.00
RUNOFF	337.767	3377.668	34.81
EVAPOTRANSPIRATION	386.122	3861.217	39.80
DRAINAGE COLLECTED FROM LAYER 3	286.5585	2865.585	29.54
PERC./LEAKAGE THROUGH LAYER 4	0.005375	0.054	0.00
AVG. HEAD ON TOP OF LAYER 4	170.3521		
CHANGE IN WATER STORAGE	-40.252	-402.517	-4.15
SOIL WATER AT START OF YEAR	9862.004	98620.039	
SOIL WATER AT END OF YEAR	9908.577	99085.773	
SNOW WATER AT START OF YEAR	163.197	1631.965	16.82
SNOW WATER AT END OF YEAR	76.372	763.717	7.87
ANNUAL WATER BUDGET BALANCE	-0.0006	-0.006	0.00

ANNUAL TOTALS FOR YEAR 35

	MM	CU. METERS	PERCENT
PRECIPITATION	1201.70	12016.997	100.00
RUNOFF	216.589	2165.892	18.02
EVAPOTRANSPIRATION	431.194	4311.944	35.88
DRAINAGE COLLECTED FROM LAYER 3	325.2333	3252.333	27.06
PERC./LEAKAGE THROUGH LAYER 4	0.006101	0.061	0.00
AVG. HEAD ON TOP OF LAYER 4	193.8597		
CHANGE IN WATER STORAGE	228.676	2286.760	19.03
SOIL WATER AT START OF YEAR	9908.577	99085.773	
SOIL WATER AT END OF YEAR	10047.693	100476.937	
SNOW WATER AT START OF YEAR	76.372	763.717	6.36
SNOW WATER AT END OF YEAR	165.931	1659.314	13.81

ANNUAL WATER BUDGET BALANCE 0.0007 0.007 0.00

AVERAGE MONTHLY VALUES (MM) FOR YEARS 1 THROUGH 35

	JAN/JUL	FEB/AUG	MAR/SEP	APR/OCT	MAY/NOV	JUN/DEC
PRECIPITATION						
TOTALS	72.81 86.99	61.27 89.11	65.43 83.37	71.68 87.77	76.00 101.49	88.51 89.97
STD. DEVIATIONS	23.22 46.76	22.54 41.48	20.81 36.24	32.92 40.01	31.72 40.73	36.47 24.18
RUNOFF						
TOTALS	0.004 0.000	0.359 0.000	105.383 0.000	142.812 0.000	0.248 2.433	0.000 0.847
STD. DEVIATIONS	0.021 0.000	1.580 0.000	74.695 0.000	96.154 0.000	1.469 6.920	0.000 3.424
EVAPOTRANSPIRATION						
TOTALS	8.580 52.921	8.472 59.781	12.392 44.276	33.348 32.009	59.395 20.723	58.372 9.389
STD. DEVIATIONS	1.438 25.099	1.818 21.343	2.769 16.152	15.278 9.621	19.882 4.504	20.288 2.304
LATERAL DRAINAGE COLLECTED FROM LAYER 3						
TOTALS	25.6080 15.3764	20.5002 16.8639	16.6533 17.5715	12.0388 18.9896	11.7245 18.1211	14.2897 20.8007
STD. DEVIATIONS	19.1095 11.7367	15.9637 13.0463	14.2483 13.7297	11.0978 15.1416	10.4002 13.8246	11.1915 15.7674
PERCOLATION/LEAKAGE THROUGH LAYER 4						
TOTALS	0.0005 0.0003	0.0004 0.0003	0.0003 0.0003	0.0002 0.0004	0.0002 0.0003	0.0003 0.0004
STD. DEVIATIONS	0.0004 0.0002	0.0003 0.0002	0.0003 0.0003	0.0002 0.0003	0.0002 0.0003	0.0002 0.0003
AVERAGES OF MONTHLY AVERAGED DAILY HEADS (CM)						

DAILY AVERAGE HEAD ON TOP OF LAYER 4

Annexe A - HELP Simul A-2 Ce10UVpentes33%.txt

AVERAGES	17.9140	15.7940	11.6593	8.7118	8.2115	10.3417
	10.7691	11.8110	12.7168	13.2997	13.1145	14.5682
STD. DEVIATIONS	13.3459	12.3335	9.9696	8.0291	7.2840	8.0995
	8.2200	9.1372	9.9364	10.6047	10.0051	11.0430

AVERAGE ANNUAL TOTALS & (STD. DEVIATIONS) FOR YEARS		1 THROUGH	35
	MM	CU. METERS	PERCENT
PRECIPITATION	974.41 (118.622)	9744.1	100.00
RUNOFF	252.086 (56.4054)	2520.86	25.871
EVAPOTRANSPIRATION	399.658 (52.0808)	3996.58	41.015
LATERAL DRAINAGE COLLECTED FROM LAYER 3	208.53767 (151.90620)	2085.377	21.40140
PERCOLATION/LEAKAGE THROUGH LAYER 4	0.00393 (0.00283)	0.039	0.00040
AVERAGE HEAD ON TOP OF LAYER 4	124.093 (90.433)		
CHANGE IN WATER STORAGE	114.126 (6.6597)	1141.26	11.712

□

PEAK DAILY VALUES FOR YEARS		1 THROUGH	35
	(MM)	(CU. METERS)	
PRECIPITATION	76.20	762.000	
RUNOFF	125.139	1251.3945	
DRAINAGE COLLECTED FROM LAYER 3	2.37637	23.76373	
PERCOLATION/LEAKAGE THROUGH LAYER 4	0.000043	0.00043	
AVERAGE HEAD ON TOP OF LAYER 4	497.597		
MAXIMUM HEAD ON TOP OF LAYER 4	619.176		
LOCATION OF MAXIMUM HEAD IN LAYER 3 (DISTANCE FROM DRAIN)	30.0 METERS		
SNOW WATER	322.16	3221.5964	

Annexe A - HELP Simul A-2 Ce10UVpentess33%.txt
 MAXIMUM VEG. SOIL WATER (VOL/VOL) 0.4300
 MINIMUM VEG. SOIL WATER (VOL/VOL) 0.0240

*** Maximum heads are computed using McEnroe's equations. ***

Reference: Maximum Saturated Depth over Landfill Liner
 by Bruce M. McEnroe, University of Kansas
 ASCE Journal of Environmental Engineering
 Vol. 119, No. 2, March 1993, pp. 262-270.

□

FINAL WATER STORAGE AT END OF YEAR 35

LAYER	(CM)	(VOL/VOL)
1	1.7312	0.1154
2	981.5382	0.2653
3	13.3602	0.2672
4	0.0000	0.0000
SNOW WATER	16.593	
