

Annexe A - HELP Simul B-2 Celferm-humini26-geo-35ans.txt

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**
**          HYDROLOGIC EVALUATION OF LANDFILL PERFORMANCE          **
**          HELP MODEL VERSION 3.07 (1 NOVEMBER 1997)              **
**          DEVELOPED BY ENVIRONMENTAL LABORATORY                  **
**          USAE WATERWAYS EXPERIMENT STATION                     **
**          FOR USEPA RISK REDUCTION ENGINEERING LABORATORY       **
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PRECIPITATION DATA FILE: C:\HELP3\DATA4.D4
TEMPERATURE DATA FILE:  C:\HELP3\DATA7.D7
SOLAR RADIATION DATA FILE: C:\HELP3\DATA13.D13
EVAPOTRANSPIRATION DATA: C:\HELP3\DATA11.D11
SOIL AND DESIGN DATA FILE: C:\HELP3\DATA10.D10
OUTPUT DATA FILE:       C:\HELP3\RCRA.OUT
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TIME: 19:58 DATE: 5/20/2003

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TITLE: BERTHIERVILLE, QUEBEC

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NOTE: INITIAL MOISTURE CONTENT OF THE LAYERS AND SNOW WATER WERE SPECIFIED BY THE USER.

LAYER 1  
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TYPE 1 - VERTICAL PERCOLATION LAYER
MATERIAL TEXTURE NUMBER 4
THICKNESS = 15.00 CM
POROSITY = 0.4370 VOL/VOL
FIELD CAPACITY = 0.1050 VOL/VOL
WILTING POINT = 0.0470 VOL/VOL
INITIAL SOIL WATER CONTENT = 0.1050 VOL/VOL
EFFECTIVE SAT. HYD. COND. = 0.170000002000E-02 CM/SEC
NOTE: SATURATED HYDRAULIC CONDUCTIVITY IS MULTIPLIED BY 1.80
FOR ROOT CHANNELS IN TOP HALF OF EVAPORATIVE ZONE.
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LAYER 2  
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TYPE 2 - LATERAL DRAINAGE LAYER

MATERIAL TEXTURE NUMBER 43  
THICKNESS = 45.00 CM  
POROSITY = 0.4370 VOL/VOL  
FIELD CAPACITY = 0.0620 VOL/VOL  
WILTING POINT = 0.0240 VOL/VOL  
INITIAL SOIL WATER CONTENT = 0.0620 VOL/VOL  
EFFECTIVE SAT. HYD. COND. = 0.700000022000E-02 CM/SEC  
SLOPE = 2.00 PERCENT  
DRAINAGE LENGTH = 400.0 METERS

LAYER 3  
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TYPE 4 - FLEXIBLE MEMBRANE LINER

MATERIAL TEXTURE NUMBER 37  
THICKNESS = 0.10 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. = 0.199999999000E-10 CM/SEC  
FML PINHOLE DENSITY = 2.00 HOLES/HECTARE  
FML INSTALLATION DEFECTS = 2.50 HOLES/HECTARE  
FML PLACEMENT QUALITY = 3 - GOOD

LAYER 4  
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TYPE 1 - VERTICAL PERCOLATION LAYER

MATERIAL TEXTURE NUMBER 43  
THICKNESS = 60.00 CM  
POROSITY = 0.4370 VOL/VOL  
FIELD CAPACITY = 0.0620 VOL/VOL  
WILTING POINT = 0.0240 VOL/VOL  
INITIAL SOIL WATER CONTENT = 0.0620 VOL/VOL  
EFFECTIVE SAT. HYD. COND. = 0.700000022000E-02 CM/SEC

LAYER 5  
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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 = 0.2600 VOL/VOL  
EFFECTIVE SAT. HYD. COND. = 0.100000005000E-02 CM/SEC

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LAYER 6  
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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 = 0.0527 VOL/VOL  
EFFECTIVE SAT. HYD. COND. = 0.999999978000E-02 CM/SEC  
SLOPE = 2.00 PERCENT  
DRAINAGE LENGTH = 75.0 METERS

LAYER 7  
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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  
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NOTE: SCS RUNOFF CURVE NUMBER WAS COMPUTED FROM DEFAULT  
SOIL DATA BASE USING SOIL TEXTURE # 4 WITH A  
FAIR STAND OF GRASS, A SURFACE SLOPE OF 2.0%  
AND A SLOPE LENGTH OF 100. METERS.

SCS RUNOFF CURVE NUMBER = 58.40  
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 = 1.470 CM  
UPPER LIMIT OF EVAPORATIVE STORAGE = 6.118 CM  
LOWER LIMIT OF EVAPORATIVE STORAGE = 0.658 CM  
INITIAL SNOW WATER = 0.000 CM  
INITIAL WATER IN LAYER MATERIALS = 972.720 CM  
TOTAL INITIAL WATER = 972.720 CM  
TOTAL SUBSURFACE INFLOW = 0.00 MM/YR

EVAPOTRANSPIRATION AND WEATHER DATA  
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NOTE: EVAPOTRANSPIRATION DATA WAS OBTAINED FROM

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 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.

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ANNUAL TOTALS FOR YEAR 1

	MM	CU. METERS	PERCENT
PRECIPITATION	1139.20	11391.995	100.00
RUNOFF	285.498	2854.983	25.06
EVAPOTRANSPIRATION	472.256	4722.562	41.46
DRAINAGE COLLECTED FROM LAYER 2	41.5494	415.494	3.65
PERC./LEAKAGE THROUGH LAYER 3	53.632271	536.323	4.71
AVG. HEAD ON TOP OF LAYER 3	198.8358		
DRAINAGE COLLECTED FROM LAYER 6	1.9084	19.084	0.17
PERC./LEAKAGE THROUGH LAYER 7	0.000068	0.001	0.00
AVG. HEAD ON TOP OF LAYER 7	1.1420		
CHANGE IN WATER STORAGE	337.988	3379.880	29.67
SOIL WATER AT START OF YEAR	9765.386	97653.859	
SOIL WATER AT END OF YEAR	10024.804	100248.031	
SNOW WATER AT START OF YEAR	0.000	0.000	0.00
SNOW WATER AT END OF YEAR	78.570	785.705	6.90

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ANNUAL WATER BUDGET BALANCE                      -0.0008                      -0.008                      0.00

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ANNUAL TOTALS FOR YEAR                      2

	MM	CU. METERS	PERCENT
PRECIPITATION	998.40	9984.002	100.00
RUNOFF	325.267	3252.674	32.58
EVAPOTRANSPIRATION	478.845	4788.446	47.96
DRAINAGE COLLECTED FROM LAYER 2	92.6478	926.478	9.28
PERC./LEAKAGE THROUGH LAYER 3	111.163307	1111.633	11.13
AVG. HEAD ON TOP OF LAYER 3	434.7323		
DRAINAGE COLLECTED FROM LAYER 6	79.0859	790.859	7.92
PERC./LEAKAGE THROUGH LAYER 7	0.001486	0.015	0.00
AVG. HEAD ON TOP OF LAYER 7	46.8999		
CHANGE IN WATER STORAGE	22.553	225.530	2.26
SOIL WATER AT START OF YEAR	10024.804	100248.031	
SOIL WATER AT END OF YEAR	10053.169	100531.695	
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	0.0001	0.001	0.00

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ANNUAL TOTALS FOR YEAR                      3

	MM	CU. METERS	PERCENT
PRECIPITATION	888.80	8887.999	100.00
RUNOFF	310.767	3107.668	34.96
EVAPOTRANSPIRATION	412.129	4121.290	46.37
DRAINAGE COLLECTED FROM LAYER 2	88.4750	884.750	9.95

PERC./LEAKAGE THROUGH LAYER 3	105.023315	1050.233	11.82
AVG. HEAD ON TOP OF LAYER 3	407.2154		
DRAINAGE COLLECTED FROM LAYER 6	106.3172	1063.172	11.96
PERC./LEAKAGE THROUGH LAYER 7	0.001994	0.020	0.00
AVG. HEAD ON TOP OF LAYER 7	63.2801		
CHANGE IN WATER STORAGE	-28.890	-288.901	-3.25
SOIL WATER AT START OF YEAR	10053.169	100531.695	
SOIL WATER AT END OF YEAR	10040.670	100406.703	
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	0.0001	0.001	0.00

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ANNUAL TOTALS FOR YEAR 4

	MM	CU. METERS	PERCENT
PRECIPITATION	1090.10	10901.002	100.00
RUNOFF	343.021	3430.212	31.47
EVAPOTRANSPIRATION	497.077	4970.766	45.60
DRAINAGE COLLECTED FROM LAYER 2	91.9761	919.761	8.44
PERC./LEAKAGE THROUGH LAYER 3	111.968857	1119.689	10.27
AVG. HEAD ON TOP OF LAYER 3	437.1753		
DRAINAGE COLLECTED FROM LAYER 6	108.4874	1084.874	9.95
PERC./LEAKAGE THROUGH LAYER 7	0.002035	0.020	0.00
AVG. HEAD ON TOP OF LAYER 7	64.3646		
CHANGE IN WATER STORAGE	49.537	495.369	4.54
SOIL WATER AT START OF YEAR	10040.670	100406.703	
SOIL WATER AT END OF YEAR	10050.983	100509.836	
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	-0.0001	-0.001	0.00

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ANNUAL TOTALS FOR YEAR 5

	MM	CU. METERS	PERCENT
PRECIPITATION	1001.50	10014.998	100.00
RUNOFF	319.179	3191.790	31.87
EVAPOTRANSPIRATION	524.916	5249.155	52.41
DRAINAGE COLLECTED FROM LAYER 2	96.5802	965.802	9.64
PERC./LEAKAGE THROUGH LAYER 3	117.876915	1178.769	11.77
AVG. HEAD ON TOP OF LAYER 3	465.1259		
DRAINAGE COLLECTED FROM LAYER 6	116.7981	1167.981	11.66
PERC./LEAKAGE THROUGH LAYER 7	0.002191	0.022	0.00
AVG. HEAD ON TOP OF LAYER 7	69.4924		
CHANGE IN WATER STORAGE	-55.975	-559.747	-5.59
SOIL WATER AT START OF YEAR	10050.983	100509.836	
SOIL WATER AT END OF YEAR	10052.884	100528.836	
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	-0.0006	-0.006	0.00

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ANNUAL TOTALS FOR YEAR 6

	MM	CU. METERS	PERCENT
PRECIPITATION	1039.90	10398.997	100.00
RUNOFF	275.211	2752.109	26.47
EVAPOTRANSPIRATION	524.543	5245.425	50.44
DRAINAGE COLLECTED FROM LAYER 2	94.6860	946.860	9.11
PERC./LEAKAGE THROUGH LAYER 3	115.296486	1152.965	11.09
AVG. HEAD ON TOP OF LAYER 3	453.5258		

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DRAINAGE COLLECTED FROM LAYER 6	116.2461	1162.461	11.18
PERC./LEAKAGE THROUGH LAYER 7	0.002181	0.022	0.00
AVG. HEAD ON TOP OF LAYER 7	69.1833		
CHANGE IN WATER STORAGE	29.211	292.112	2.81
SOIL WATER AT START OF YEAR	10052.884	100528.836	
SOIL WATER AT END OF YEAR	10038.767	100387.664	
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	0.0008	0.008	0.00

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ANNUAL TOTALS FOR YEAR 7

	MM	CU. METERS	PERCENT
PRECIPITATION	1069.00	10690.000	100.00
RUNOFF	416.653	4166.527	38.98
EVAPOTRANSPIRATION	457.342	4573.418	42.78
DRAINAGE COLLECTED FROM LAYER 2	83.9319	839.319	7.85
PERC./LEAKAGE THROUGH LAYER 3	100.467621	1004.676	9.40
AVG. HEAD ON TOP OF LAYER 3	386.8959		
DRAINAGE COLLECTED FROM LAYER 6	105.3460	1053.460	9.85
PERC./LEAKAGE THROUGH LAYER 7	0.001976	0.020	0.00
AVG. HEAD ON TOP OF LAYER 7	62.7234		
CHANGE IN WATER STORAGE	5.726	57.255	0.54
SOIL WATER AT START OF YEAR	10038.767	100387.672	
SOIL WATER AT END OF YEAR	10047.273	100472.734	
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	0.0001	0.001	0.00

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ANNUAL TOTALS FOR YEAR 8

	MM	CU. METERS	PERCENT
PRECIPITATION	902.40	9023.998	100.00
RUNOFF	318.647	3186.474	35.31
EVAPOTRANSPIRATION	379.370	3793.695	42.04
DRAINAGE COLLECTED FROM LAYER 2	88.7519	887.519	9.84
PERC./LEAKAGE THROUGH LAYER 3	106.203529	1062.035	11.77
AVG. HEAD ON TOP OF LAYER 3	411.3979		
DRAINAGE COLLECTED FROM LAYER 6	104.4137	1044.137	11.57
PERC./LEAKAGE THROUGH LAYER 7	0.001959	0.020	0.00
AVG. HEAD ON TOP OF LAYER 7	61.9481		
CHANGE IN WATER STORAGE	11.215	112.151	1.24
SOIL WATER AT START OF YEAR	10047.273	100472.734	
SOIL WATER AT END OF YEAR	10046.726	100467.250	
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	0.0002	0.002	0.00

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ANNUAL TOTALS FOR YEAR 9

	MM	CU. METERS	PERCENT
PRECIPITATION	935.70	9356.997	100.00
RUNOFF	290.678	2906.777	31.07
EVAPOTRANSPIRATION	450.664	4506.637	48.16
DRAINAGE COLLECTED FROM LAYER 2	90.8459	908.459	9.71
PERC./LEAKAGE THROUGH LAYER 3	108.103935	1081.039	11.55
AVG. HEAD ON TOP OF LAYER 3	420.9826		
DRAINAGE COLLECTED FROM LAYER 6	108.5868	1085.868	11.60

PERC./LEAKAGE THROUGH LAYER 7	0.002037	0.020	0.00
AVG. HEAD ON TOP OF LAYER 7	64.6165		
CHANGE IN WATER STORAGE	-5.076	-50.755	-0.54
SOIL WATER AT START OF YEAR	10046.726	100467.250	
SOIL WATER AT END OF YEAR	10047.594	100475.937	
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	-0.0009	-0.009	0.00

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ANNUAL TOTALS FOR YEAR 10

	MM	CU. METERS	PERCENT
PRECIPITATION	728.90	7289.000	100.00
RUNOFF	287.649	2876.492	39.46
EVAPOTRANSPIRATION	335.975	3359.754	46.09
DRAINAGE COLLECTED FROM LAYER 2	75.1708	751.708	10.31
PERC./LEAKAGE THROUGH LAYER 3	90.141731	901.417	12.37
AVG. HEAD ON TOP OF LAYER 3	340.7339		
DRAINAGE COLLECTED FROM LAYER 6	100.0780	1000.780	13.73
PERC./LEAKAGE THROUGH LAYER 7	0.001877	0.019	0.00
AVG. HEAD ON TOP OF LAYER 7	59.5788		
CHANGE IN WATER STORAGE	-69.976	-699.756	-9.60
SOIL WATER AT START OF YEAR	10047.594	100475.937	
SOIL WATER AT END OF YEAR	9970.711	99707.117	
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

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ANNUAL TOTALS FOR YEAR 11

	MM	CU. METERS	PERCENT
PRECIPITATION	878.70	8787.000	100.00
RUNOFF	317.639	3176.395	36.15
EVAPOTRANSPIRATION	338.052	3380.521	38.47
DRAINAGE COLLECTED FROM LAYER 2	69.0494	690.494	7.86
PERC./LEAKAGE THROUGH LAYER 3	85.720718	857.207	9.76
AVG. HEAD ON TOP OF LAYER 3	321.5879		
DRAINAGE COLLECTED FROM LAYER 6	78.5344	785.344	8.94
PERC./LEAKAGE THROUGH LAYER 7	0.001473	0.015	0.00
AVG. HEAD ON TOP OF LAYER 7	46.7343		
CHANGE IN WATER STORAGE	75.424	754.237	8.58
SOIL WATER AT START OF YEAR	9970.711	99707.109	
SOIL WATER AT END OF YEAR	10046.701	100467.016	
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	-0.0005	-0.005	0.00

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ANNUAL TOTALS FOR YEAR 12

	MM	CU. METERS	PERCENT
PRECIPITATION	1002.20	10021.999	100.00
RUNOFF	419.164	4191.642	41.82
EVAPOTRANSPIRATION	425.943	4259.425	42.50
DRAINAGE COLLECTED FROM LAYER 2	88.1519	881.519	8.80
PERC./LEAKAGE THROUGH LAYER 3	107.854340	1078.543	10.76
AVG. HEAD ON TOP OF LAYER 3	419.1391		
DRAINAGE COLLECTED FROM LAYER 6	102.2880	1022.880	10.21
PERC./LEAKAGE THROUGH LAYER 7	0.001919	0.019	0.00
AVG. HEAD ON TOP OF LAYER 7	60.6831		

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CHANGE IN WATER STORAGE	-33.348	-333.481	-3.33
SOIL WATER AT START OF YEAR	10046.701	100467.016	
SOIL WATER AT END OF YEAR	10054.300	100543.000	
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	-0.0005	-0.005	0.00

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ANNUAL TOTALS FOR YEAR 13

	MM	CU. METERS	PERCENT
PRECIPITATION	763.00	7630.000	100.00
RUNOFF	178.553	1785.528	23.40
EVAPOTRANSPIRATION	385.657	3856.569	50.54
DRAINAGE COLLECTED FROM LAYER 2	83.7708	837.708	10.98
PERC./LEAKAGE THROUGH LAYER 3	98.863068	988.631	12.96
AVG. HEAD ON TOP OF LAYER 3	379.6232		
DRAINAGE COLLECTED FROM LAYER 6	106.5394	1065.394	13.96
PERC./LEAKAGE THROUGH LAYER 7	0.001999	0.020	0.00
AVG. HEAD ON TOP OF LAYER 7	63.4270		
CHANGE IN WATER STORAGE	8.477	84.775	1.11
SOIL WATER AT START OF YEAR	10054.300	100543.000	
SOIL WATER AT END OF YEAR	10001.555	100015.547	
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	0.0007	0.007	0.00

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ANNUAL TOTALS FOR YEAR 14

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	MM	CU. METERS	PERCENT
PRECIPITATION	1040.70	10407.001	100.00
RUNOFF	384.978	3849.784	36.99
EVAPOTRANSPIRATION	455.328	4553.282	43.75
DRAINAGE COLLECTED FROM LAYER 2	80.2818	802.818	7.71
PERC./LEAKAGE THROUGH LAYER 3	96.968422	969.684	9.32
AVG. HEAD ON TOP OF LAYER 3	371.1457		
DRAINAGE COLLECTED FROM LAYER 6	93.6149	936.149	9.00
PERC./LEAKAGE THROUGH LAYER 7	0.001756	0.018	0.00
AVG. HEAD ON TOP OF LAYER 7	55.7019		
CHANGE IN WATER STORAGE	26.495	264.950	2.55
SOIL WATER AT START OF YEAR	10001.555	100015.547	
SOIL WATER AT END OF YEAR	10041.022	100410.227	
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	0.0001	0.001	0.00

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ANNUAL TOTALS FOR YEAR 15

	MM	CU. METERS	PERCENT
PRECIPITATION	896.00	8960.000	100.00
RUNOFF	272.010	2720.105	30.36
EVAPOTRANSPIRATION	434.691	4346.915	48.51
DRAINAGE COLLECTED FROM LAYER 2	85.8737	858.737	9.58
PERC./LEAKAGE THROUGH LAYER 3	102.290627	1022.906	11.42
AVG. HEAD ON TOP OF LAYER 3	394.9081		
DRAINAGE COLLECTED FROM LAYER 6	101.3639	1013.638	11.31
PERC./LEAKAGE THROUGH LAYER 7	0.001901	0.019	0.00
AVG. HEAD ON TOP OF LAYER 7	60.3234		
CHANGE IN WATER STORAGE	2.058	20.582	0.23

SOIL WATER AT START OF YEAR	10041.022	100410.227	
SOIL WATER AT END OF YEAR	10039.693	100396.930	
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	0.0005	0.005	0.00

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ANNUAL TOTALS FOR YEAR 16

	MM	CU. METERS	PERCENT
PRECIPITATION	1126.30	11263.000	100.00
RUNOFF	486.918	4869.180	43.23
EVAPOTRANSPIRATION	489.685	4896.848	43.48
DRAINAGE COLLECTED FROM LAYER 2	91.3769	913.769	8.11
PERC./LEAKAGE THROUGH LAYER 3	109.955536	1099.555	9.76
AVG. HEAD ON TOP OF LAYER 3	428.2066		
DRAINAGE COLLECTED FROM LAYER 6	107.0073	1070.073	9.50
PERC./LEAKAGE THROUGH LAYER 7	0.002007	0.020	0.00
AVG. HEAD ON TOP OF LAYER 7	63.4807		
CHANGE IN WATER STORAGE	-48.690	-486.896	-4.32
SOIL WATER AT START OF YEAR	10039.693	100396.930	
SOIL WATER AT END OF YEAR	10053.495	100534.953	
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	0.0007	0.007	0.00

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ANNUAL TOTALS FOR YEAR 17

	MM	CU. METERS	PERCENT
PRECIPITATION	1027.90	10279.000	100.00

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RUNOFF	248.323	2483.232	24.16
EVAPOTRANSPIRATION	468.680	4686.804	45.60
DRAINAGE COLLECTED FROM LAYER 2	93.7236	937.236	9.12
PERC./LEAKAGE THROUGH LAYER 3	112.496101	1124.961	10.94
AVG. HEAD ON TOP OF LAYER 3	440.8155		
DRAINAGE COLLECTED FROM LAYER 6	113.0766	1130.766	11.00
PERC./LEAKAGE THROUGH LAYER 7	0.002121	0.021	0.00
AVG. HEAD ON TOP OF LAYER 7	67.2882		
CHANGE IN WATER STORAGE	104.095	1040.949	10.13
SOIL WATER AT START OF YEAR	10053.495	100534.953	
SOIL WATER AT END OF YEAR	10024.950	100249.500	
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	-0.0008	-0.008	0.00

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ANNUAL TOTALS FOR YEAR 18

	MM	CU. METERS	PERCENT
PRECIPITATION	936.60	9366.001	100.00
RUNOFF	339.767	3397.674	36.28
EVAPOTRANSPIRATION	513.684	5136.844	54.85
DRAINAGE COLLECTED FROM LAYER 2	91.9657	919.657	9.82
PERC./LEAKAGE THROUGH LAYER 3	111.954651	1119.547	11.95
AVG. HEAD ON TOP OF LAYER 3	438.4355		
DRAINAGE COLLECTED FROM LAYER 6	110.3235	1103.235	11.78
PERC./LEAKAGE THROUGH LAYER 7	0.002070	0.021	0.00
AVG. HEAD ON TOP OF LAYER 7	65.6466		
CHANGE IN WATER STORAGE	-119.144	-1191.436	-12.72
SOIL WATER AT START OF YEAR	10024.950	100249.500	
SOIL WATER AT END OF YEAR	10044.203	100442.031	

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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

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ANNUAL TOTALS FOR YEAR 19

	MM	CU. METERS	PERCENT
PRECIPITATION	1084.00	10840.001	100.00
RUNOFF	329.988	3299.875	30.44
EVAPOTRANSPIRATION	485.223	4852.234	44.76
DRAINAGE COLLECTED FROM LAYER 2	90.8097	908.097	8.38
PERC./LEAKAGE THROUGH LAYER 3	108.715080	1087.151	10.03
AVG. HEAD ON TOP OF LAYER 3	423.8759		
DRAINAGE COLLECTED FROM LAYER 6	111.9759	1119.759	10.33
PERC./LEAKAGE THROUGH LAYER 7	0.002101	0.021	0.00
AVG. HEAD ON TOP OF LAYER 7	66.6449		
CHANGE IN WATER STORAGE	66.002	660.017	6.09
SOIL WATER AT START OF YEAR	10044.203	100442.031	
SOIL WATER AT END OF YEAR	10048.464	100484.641	
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	-0.0003	-0.003	0.00

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ANNUAL TOTALS FOR YEAR 20

	MM	CU. METERS	PERCENT
PRECIPITATION	1040.10	10400.997	100.00
RUNOFF	395.766	3957.656	38.05



EVAPOTRANSPIRATION	482.453	4824.528	46.39
DRAINAGE COLLECTED FROM LAYER 2	88.9696	889.696	8.55
PERC./LEAKAGE THROUGH LAYER 3	105.831642	1058.316	10.18
AVG. HEAD ON TOP OF LAYER 3	409.6947		
DRAINAGE COLLECTED FROM LAYER 6	107.1841	1071.841	10.31
PERC./LEAKAGE THROUGH LAYER 7	0.002011	0.020	0.00
AVG. HEAD ON TOP OF LAYER 7	63.5924		
CHANGE IN WATER STORAGE	-34.273	-342.734	-3.30
SOIL WATER AT START OF YEAR	10048.464	100484.641	
SOIL WATER AT END OF YEAR	10015.973	100159.719	
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	-0.0010	-0.010	0.00

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ANNUAL TOTALS FOR YEAR 21

	MM	CU. METERS	PERCENT
PRECIPITATION	927.70	9276.999	100.00
RUNOFF	292.333	2923.334	31.51
EVAPOTRANSPIRATION	429.084	4290.844	46.25
DRAINAGE COLLECTED FROM LAYER 2	80.9231	809.231	8.72
PERC./LEAKAGE THROUGH LAYER 3	97.214622	972.146	10.48
AVG. HEAD ON TOP OF LAYER 3	372.4665		
DRAINAGE COLLECTED FROM LAYER 6	98.8737	988.737	10.66
PERC./LEAKAGE THROUGH LAYER 7	0.001855	0.019	0.00
AVG. HEAD ON TOP OF LAYER 7	58.8534		
CHANGE IN WATER STORAGE	26.483	264.829	2.85
SOIL WATER AT START OF YEAR	10015.973	100159.727	
SOIL WATER AT END OF YEAR	10044.588	100445.875	
SNOW WATER AT START OF YEAR	92.824	928.239	10.01

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 SNOW WATER AT END OF YEAR 90.692 906.923 9.78  
 ANNUAL WATER BUDGET BALANCE 0.0006 0.006 0.00

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ANNUAL TOTALS FOR YEAR 22

	MM	CU. METERS	PERCENT
PRECIPITATION	892.60	8925.996	100.00
RUNOFF	310.498	3104.977	34.79
EVAPOTRANSPIRATION	475.318	4753.185	53.25
DRAINAGE COLLECTED FROM LAYER 2	87.3743	873.743	9.79
PERC./LEAKAGE THROUGH LAYER 3	103.875793	1038.758	11.64
AVG. HEAD ON TOP OF LAYER 3	401.9249		
DRAINAGE COLLECTED FROM LAYER 6	104.5758	1045.758	11.72
PERC./LEAKAGE THROUGH LAYER 7	0.001962	0.020	0.00
AVG. HEAD ON TOP OF LAYER 7	62.2219		
CHANGE IN WATER STORAGE	-85.168	-851.683	-9.54
SOIL WATER AT START OF YEAR	10044.588	100445.875	
SOIL WATER AT END OF YEAR	9989.916	99899.156	
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	-0.0003	-0.003	0.00

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ANNUAL TOTALS FOR YEAR 23

	MM	CU. METERS	PERCENT
PRECIPITATION	828.90	8289.000	100.00
RUNOFF	236.122	2361.222	28.49
EVAPOTRANSPIRATION	342.286	3422.855	41.29
DRAINAGE COLLECTED FROM LAYER 2	76.6736	766.736	9.25

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PERC./LEAKAGE THROUGH LAYER 3	92.320290	923.203	11.14
AVG. HEAD ON TOP OF LAYER 3	350.4252		
DRAINAGE COLLECTED FROM LAYER 6	91.4749	914.749	11.04
PERC./LEAKAGE THROUGH LAYER 7	0.001716	0.017	0.00
AVG. HEAD ON TOP OF LAYER 7	54.4481		
CHANGE IN WATER STORAGE	82.341	823.415	9.93
SOIL WATER AT START OF YEAR	9989.916	99899.156	
SOIL WATER AT END OF YEAR	10028.823	100288.234	
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	0.0006	0.006	0.00

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ANNUAL TOTALS FOR YEAR 24

	MM	CU. METERS	PERCENT
PRECIPITATION	959.00	9590.000	100.00
RUNOFF	453.441	4534.406	47.28
EVAPOTRANSPIRATION	290.415	2904.154	30.28
DRAINAGE COLLECTED FROM LAYER 2	88.2981	882.981	9.21
PERC./LEAKAGE THROUGH LAYER 3	105.975014	1059.750	11.05
AVG. HEAD ON TOP OF LAYER 3	410.4087		
DRAINAGE COLLECTED FROM LAYER 6	102.2373	1022.373	10.66
PERC./LEAKAGE THROUGH LAYER 7	0.001918	0.019	0.00
AVG. HEAD ON TOP OF LAYER 7	60.6556		
CHANGE IN WATER STORAGE	24.607	246.074	2.57
SOIL WATER AT START OF YEAR	10028.823	100288.234	
SOIL WATER AT END OF YEAR	10040.583	100405.828	
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	-0.0007	-0.007	0.00

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ANNUAL TOTALS FOR YEAR 25

	MM	CU. METERS	PERCENT
PRECIPITATION	959.50	9594.998	100.00
RUNOFF	262.426	2624.262	27.35
EVAPOTRANSPIRATION	509.554	5095.537	53.11
DRAINAGE COLLECTED FROM LAYER 2	87.7978	877.978	9.15
PERC./LEAKAGE THROUGH LAYER 3	105.339233	1053.392	10.98
AVG. HEAD ON TOP OF LAYER 3	408.5587		
DRAINAGE COLLECTED FROM LAYER 6	105.8247	1058.247	11.03
PERC./LEAKAGE THROUGH LAYER 7	0.001985	0.020	0.00
AVG. HEAD ON TOP OF LAYER 7	62.9847		
CHANGE IN WATER STORAGE	-6.106	-61.056	-0.64
SOIL WATER AT START OF YEAR	10040.583	100405.828	
SOIL WATER AT END OF YEAR	10038.521	100385.211	
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	0.0010	0.010	0.00

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ANNUAL TOTALS FOR YEAR 26

	MM	CU. METERS	PERCENT
PRECIPITATION	938.00	9379.998	100.00
RUNOFF	270.147	2701.475	28.80
EVAPOTRANSPIRATION	521.933	5219.330	55.64
DRAINAGE COLLECTED FROM LAYER 2	93.2625	932.625	9.94
PERC./LEAKAGE THROUGH LAYER 3	112.654312	1126.543	12.01

AVG. HEAD ON TOP OF LAYER 3	441.5859		
DRAINAGE COLLECTED FROM LAYER 6	109.7404	1097.404	11.70
PERC./LEAKAGE THROUGH LAYER 7	0.002059	0.021	0.00
AVG. HEAD ON TOP OF LAYER 7	65.2972		
CHANGE IN WATER STORAGE	-57.086	-570.857	-6.09
SOIL WATER AT START OF YEAR	10038.521	100385.211	
SOIL WATER AT END OF YEAR	10060.189	100601.898	
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

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ANNUAL TOTALS FOR YEAR 27

	MM	CU. METERS	PERCENT
PRECIPITATION	814.20	8142.002	100.00
RUNOFF	207.719	2077.193	25.51
EVAPOTRANSPIRATION	424.958	4249.576	52.19
DRAINAGE COLLECTED FROM LAYER 2	87.9996	879.996	10.81
PERC./LEAKAGE THROUGH LAYER 3	105.778015	1057.780	12.99
AVG. HEAD ON TOP OF LAYER 3	410.7112		
DRAINAGE COLLECTED FROM LAYER 6	108.1628	1081.628	13.28
PERC./LEAKAGE THROUGH LAYER 7	0.002029	0.020	0.00
AVG. HEAD ON TOP OF LAYER 7	64.3875		
CHANGE IN WATER STORAGE	-14.641	-146.412	-1.80
SOIL WATER AT START OF YEAR	10060.189	100601.898	
SOIL WATER AT END OF YEAR	10061.902	100619.023	
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	0.0001	0.001	0.00

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ANNUAL TOTALS FOR YEAR 28

	MM	CU. METERS	PERCENT
PRECIPITATION	1125.50	11254.999	100.00
RUNOFF	393.733	3937.331	34.98
EVAPOTRANSPIRATION	453.401	4534.014	40.28
DRAINAGE COLLECTED FROM LAYER 2	90.2745	902.745	8.02
PERC./LEAKAGE THROUGH LAYER 3	107.802696	1078.027	9.58
AVG. HEAD ON TOP OF LAYER 3	418.7092		
DRAINAGE COLLECTED FROM LAYER 6	108.1971	1081.971	9.61
PERC./LEAKAGE THROUGH LAYER 7	0.002030	0.020	0.00
AVG. HEAD ON TOP OF LAYER 7	64.2006		
CHANGE IN WATER STORAGE	79.893	798.928	7.10
SOIL WATER AT START OF YEAR	10061.902	100619.023	
SOIL WATER AT END OF YEAR	10046.019	100460.187	
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	-0.0011	-0.011	0.00

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ANNUAL TOTALS FOR YEAR 29

	MM	CU. METERS	PERCENT
PRECIPITATION	1168.10	11680.996	100.00
RUNOFF	348.964	3489.639	29.87
EVAPOTRANSPIRATION	561.837	5618.374	48.10
DRAINAGE COLLECTED FROM LAYER 2	91.1927	911.927	7.81
PERC./LEAKAGE THROUGH LAYER 3	110.075630	1100.756	9.42
AVG. HEAD ON TOP OF LAYER 3	429.8398		
DRAINAGE COLLECTED FROM LAYER 6	109.3372	1093.372	9.36

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PERC./LEAKAGE THROUGH LAYER 7	0.002051	0.021	0.00
AVG. HEAD ON TOP OF LAYER 7	65.0552		
CHANGE IN WATER STORAGE	56.767	567.666	4.86
SOIL WATER AT START OF YEAR	10046.019	100460.187	
SOIL WATER AT END OF YEAR	10045.479	100454.781	
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	-0.0003	-0.003	0.00

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ANNUAL TOTALS FOR YEAR 30

	MM	CU. METERS	PERCENT
PRECIPITATION	759.80	7598.002	100.00
RUNOFF	316.854	3168.545	41.70
EVAPOTRANSPIRATION	349.942	3499.415	46.06
DRAINAGE COLLECTED FROM LAYER 2	80.5020	805.020	10.60
PERC./LEAKAGE THROUGH LAYER 3	96.225739	962.257	12.66
AVG. HEAD ON TOP OF LAYER 3	367.9389		
DRAINAGE COLLECTED FROM LAYER 6	101.8263	1018.263	13.40
PERC./LEAKAGE THROUGH LAYER 7	0.001910	0.019	0.00
AVG. HEAD ON TOP OF LAYER 7	60.6203		
CHANGE IN WATER STORAGE	-89.327	-893.268	-11.76
SOIL WATER AT START OF YEAR	10045.479	100454.781	
SOIL WATER AT END OF YEAR	10035.384	100353.844	
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	0.0008	0.008	0.00

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ANNUAL TOTALS FOR YEAR 31

	MM	CU. METERS	PERCENT
PRECIPITATION	922.30	9223.000	100.00
RUNOFF	388.911	3889.111	42.17
EVAPOTRANSPIRATION	360.018	3600.177	39.03
DRAINAGE COLLECTED FROM LAYER 2	89.2974	892.974	9.68
PERC./LEAKAGE THROUGH LAYER 3	107.899544	1078.995	11.70
AVG. HEAD ON TOP OF LAYER 3	420.1737		
DRAINAGE COLLECTED FROM LAYER 6	101.3259	1013.259	10.99
PERC./LEAKAGE THROUGH LAYER 7	0.001901	0.019	0.00
AVG. HEAD ON TOP OF LAYER 7	60.2739		
CHANGE IN WATER STORAGE	-17.252	-172.521	-1.87
SOIL WATER AT START OF YEAR	10035.384	100353.836	
SOIL WATER AT END OF YEAR	10049.414	100494.133	
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	-0.0019	-0.019	0.00

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ANNUAL TOTALS FOR YEAR 32

	MM	CU. METERS	PERCENT
PRECIPITATION	1116.00	11159.999	100.00
RUNOFF	379.453	3794.532	34.00
EVAPOTRANSPIRATION	510.568	5105.679	45.75
DRAINAGE COLLECTED FROM LAYER 2	93.2031	932.031	8.35
PERC./LEAKAGE THROUGH LAYER 3	111.383064	1113.831	9.98
AVG. HEAD ON TOP OF LAYER 3	434.7136		
DRAINAGE COLLECTED FROM LAYER 6	111.6130	1116.130	10.00
PERC./LEAKAGE THROUGH LAYER 7	0.002094	0.021	0.00



AVG. HEAD ON TOP OF LAYER 7	66.2188		
CHANGE IN WATER STORAGE	21.160	211.597	1.90
SOIL WATER AT START OF YEAR	10049.414	100494.141	
SOIL WATER AT END OF YEAR	10051.141	100511.406	
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	0.0009	0.009	0.00

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ANNUAL TOTALS FOR YEAR 33

	MM	CU. METERS	PERCENT
PRECIPITATION	931.50	9315.001	100.00
RUNOFF	305.193	3051.929	32.76
EVAPOTRANSPIRATION	374.778	3747.778	40.23
DRAINAGE COLLECTED FROM LAYER 2	85.7963	857.963	9.21
PERC./LEAKAGE THROUGH LAYER 3	103.329437	1033.294	11.09
AVG. HEAD ON TOP OF LAYER 3	399.6908		
DRAINAGE COLLECTED FROM LAYER 6	105.6431	1056.431	11.34
PERC./LEAKAGE THROUGH LAYER 7	0.001982	0.020	0.00
AVG. HEAD ON TOP OF LAYER 7	62.8820		
CHANGE IN WATER STORAGE	60.087	600.873	6.45
SOIL WATER AT START OF YEAR	10051.141	100511.406	
SOIL WATER AT END OF YEAR	10027.359	100273.594	
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

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ANNUAL TOTALS FOR YEAR 34

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	MM	CU. METERS	PERCENT
PRECIPITATION	970.20	9702.001	100.00
RUNOFF	434.178	4341.775	44.75
EVAPOTRANSPIRATION	422.582	4225.822	43.56
DRAINAGE COLLECTED FROM LAYER 2	85.8024	858.024	8.84
PERC./LEAKAGE THROUGH LAYER 3	103.930565	1039.306	10.71
AVG. HEAD ON TOP OF LAYER 3	402.4334		
DRAINAGE COLLECTED FROM LAYER 6	102.2090	1022.090	10.53
PERC./LEAKAGE THROUGH LAYER 7	0.001917	0.019	0.00
AVG. HEAD ON TOP OF LAYER 7	60.8319		
CHANGE IN WATER STORAGE	-74.572	-745.721	-7.69
SOIL WATER AT START OF YEAR	10027.359	100273.594	
SOIL WATER AT END OF YEAR	10039.612	100396.117	
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	-0.0009	-0.009	0.00

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ANNUAL TOTALS FOR YEAR 35

	MM	CU. METERS	PERCENT
PRECIPITATION	1201.70	12016.997	100.00
RUNOFF	360.044	3600.443	29.96
EVAPOTRANSPIRATION	543.740	5437.405	45.25
DRAINAGE COLLECTED FROM LAYER 2	92.6326	926.326	7.71
PERC./LEAKAGE THROUGH LAYER 3	112.428223	1124.282	9.36
AVG. HEAD ON TOP OF LAYER 3	440.6201		
DRAINAGE COLLECTED FROM LAYER 6	110.9340	1109.340	9.23
PERC./LEAKAGE THROUGH LAYER 7	0.002081	0.021	0.00
AVG. HEAD ON TOP OF LAYER 7	66.0109		
CHANGE IN WATER STORAGE	94.345	943.447	7.85

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SOIL WATER AT START OF YEAR	10039.612	100396.125	
SOIL WATER AT END OF YEAR	10044.397	100443.977	
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	0.0014	0.014	0.00

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AVERAGE MONTHLY VALUES (MM) FOR YEARS 1 THROUGH 35

	JAN/JUL	FEB/AUG	MAR/SEP	APR/OCT	MAY/NOV	JUN/DEC
<u>PRECIPITATION</u>						
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
<u>RUNOFF</u>						
TOTALS	0.029 1.932	0.775 1.358	122.651 3.626	153.506 11.020	0.279 30.161	0.785 2.614
STD. DEVIATIONS	0.174 6.245	2.712 4.605	79.674 12.232	102.936 21.263	1.649 35.911	4.642 6.495
<u>EVAPOTRANSPIRATION</u>						
TOTALS	8.580 62.397	8.472 70.197	12.404 51.289	36.219 35.726	63.850 20.719	65.992 9.382
STD. DEVIATIONS	1.438 30.852	1.818 25.508	2.797 18.515	15.555 8.099	21.193 4.454	24.162 2.298
<u>LATERAL DRAINAGE COLLECTED FROM LAYER 2</u>						
TOTALS	7.0776 7.4956	5.8108 7.6707	5.7881 7.5130	6.0336 8.2273	7.0774 8.4792	6.9355 8.1659
STD. DEVIATIONS	1.3425 1.1491	1.1142 1.0315	1.1158 1.0226	1.2715 0.7550	1.1328 0.6315	1.2179 0.6254
<u>PERCOLATION/LEAKAGE THROUGH LAYER 3</u>						
TOTALS	8.3242 8.9589	6.9386 9.1522	7.0147 9.0819	7.2341 10.0835	8.3608 10.7876	8.2453 9.7255
STD. DEVIATIONS	1.5472	1.3017	1.3175	1.4073	1.1964	1.3569

Annexe A - HELP Simul B-2 Celferm-humini26-geo-35ans.txt  
 1.3761 1.2644 1.3746 1.2082 1.1055 0.8510

LATERAL DRAINAGE COLLECTED FROM LAYER 6

TOTALS	9.3423 7.9984	8.4573 8.1593	9.0019 8.0992	8.3205 8.5737	8.1179 8.5127	7.6609 9.2172
STD. DEVIATIONS	2.3472 1.5089	1.8819 1.5748	1.8187 1.5911	1.5918 1.6827	1.5123 1.6987	1.4405 1.8291

PERCOLATION/LEAKAGE THROUGH LAYER 7

TOTALS	0.0002 0.0002	0.0002 0.0002	0.0002 0.0002	0.0002 0.0002	0.0002 0.0002	0.0001 0.0002
STD. DEVIATIONS	0.0000 0.0000	0.0000 0.0000	0.0000 0.0000	0.0000 0.0000	0.0000 0.0000	0.0000 0.0000

AVERAGES OF MONTHLY AVERAGED DAILY HEADS (CM)

DAILY AVERAGE HEAD ON TOP OF LAYER 3

AVERAGES	37.7672 40.9777	34.0349 41.9916	30.8861 43.2282	33.2822 46.9363	37.8254 52.6053	38.6738 45.0228
STD. DEVIATIONS	7.1636 7.2354	6.4628 6.6786	5.9539 7.5193	7.0212 6.4270	6.1103 6.0815	7.2605 4.5145

DAILY AVERAGE HEAD ON TOP OF LAYER 7

AVERAGES	6.5431 5.6018	6.5027 5.7145	6.3047 5.8615	6.0217 6.0048	5.6856 6.1608	5.5444 6.4554
STD. DEVIATIONS	1.6439 1.0568	1.4450 1.1029	1.2738 1.1515	1.1520 1.1785	1.0592 1.2294	1.0425 1.2810

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AVERAGE ANNUAL TOTALS & (STD. DEVIATIONS) FOR YEARS 1 THROUGH 35

	MM	CU. METERS	PERCENT
PRECIPITATION	974.41 ( 118.622)	9744.1	100.00
RUNOFF	328.734 ( 68.9318)	3287.34	33.737
EVAPOTRANSPIRATION	445.226 ( 67.7740)	4452.26	45.692
LATERAL DRAINAGE COLLECTED FROM LAYER 2	86.27481 ( 9.77253)	862.748	8.85404
PERCOLATION/LEAKAGE THROUGH LAYER 3	103.90744 ( 11.30108)	1039.074	10.66361
AVERAGE HEAD ON TOP	402.693 ( 47.708)		

OF LAYER 3

LATERAL DRAINAGE COLLECTED FROM LAYER 6	101.46145 ( 19.23808)	1014.615	10.41259
PERCOLATION/LEAKAGE THROUGH LAYER 7	0.00190 ( 0.00036)	0.019	0.00020
AVERAGE HEAD ON TOP OF LAYER 7	60.334 ( 11.442)		
CHANGE IN WATER STORAGE	12.713 ( 3.1468)	127.13	1.305

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	PEAK DAILY VALUES FOR YEARS 1 THROUGH 35	
	(MM)	(CU. METERS)
PRECIPITATION	76.20	762.000
RUNOFF	126.910	1269.0986
DRAINAGE COLLECTED FROM LAYER 2	0.30226	3.02257
PERCOLATION/LEAKAGE THROUGH LAYER 3	0.404270	4.04270
AVERAGE HEAD ON TOP OF LAYER 3	599.995	
MAXIMUM HEAD ON TOP OF LAYER 3	953.301	
LOCATION OF MAXIMUM HEAD IN LAYER 2 (DISTANCE FROM DRAIN)	82.1 METERS	
DRAINAGE COLLECTED FROM LAYER 6	0.35818	3.58181
PERCOLATION/LEAKAGE THROUGH LAYER 7	0.000007	0.00007
AVERAGE HEAD ON TOP OF LAYER 7	77.766	
MAXIMUM HEAD ON TOP OF LAYER 7	129.307	
LOCATION OF MAXIMUM HEAD IN LAYER 6 (DISTANCE FROM DRAIN)	12.6 METERS	
SNOW WATER	322.16	3221.5964
MAXIMUM VEG. SOIL WATER (VOL/VOL)		0.4370
MINIMUM VEG. SOIL WATER (VOL/VOL)		0.0470

\*\*\* 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

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FINAL WATER STORAGE AT END OF YEAR 35

LAYER	(CM)	(VOL/VOL)
1	5.5907	0.3727
2	18.1212	0.4027
3	0.0000	0.0000
4	7.9347	0.1322
5	961.9999	0.2600
6	6.9745	0.1395
7	0.0000	0.0000
SNOW WATER	16.593	

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