April 17, 2026
File No. 27226025.00

Mr. Brian Rath, P.E.
Iowa Department of Natural Resources
Land Quality Bureau
6200 Park Avenue
Des Moines, Iowa 50321

Subject: Response to Comments Regarding the Leachate Collection System Evaluation
Anderson Excavating C&D Landfill
Permit No. 78-SDP-04-89

Dear Brian:

SCS Engineers, on behalf of the Anderson Excavating C&D Landfill, is submitting this response to the Iowa Department of Natural Resources comments in correspondence, dated March 6, 2026 (Doc #116350), regarding the Leachate Collection System Evaluation at the Anderson Excavating C&D Landfill dated February 9, 2026 (Doc #116096).

Based on the repairs and observations, the collection system appears to be functioning. However, we have some comments regarding the HELP model inputs that need to be addressed before we concur with the findings.

1. *Layer 3 utilized the standard HELP properties for MSW. However, construction and demolition (C&D) waste is typically less porous and absorbs less liquid. Please clarify your selection of inputs.*

To evaluate the effect of a less porous and less absorbent waste on leachate collection volumes, the MSW waste layer was replaced with representative C&D waste properties. Properties identified through an internet review indicated typical porosity values ranging from 0.3 to 0.45 (vol/vol), field capacity ranging from 0.15 to 0.25 (vol/vol), and wilting point ranging from 0.05 to 0.015 (vol/vol). For conservative modeling purposes, the lowest values for porosity, field capacity, and wilting point were applied. The hydraulic conductivities used in the evaluation are discussed below.

Five new leachate piezometers were installed in May 2025. Observations made during the drilling process indicated that the waste material consisted predominantly of materials that were smaller and degraded as opposed to large and blocky. See **Attachment A** for photos of drilling cuttings observed during the drilling process. Review from internet sources suggests that C&D wastes with elevated fines content typically exhibit hydraulic conductivities on the order of 1.0×10^{-5} cm/s. To maintain a conservative approach, hydraulic conductivities of 1.0×10^{-2} cm/s and 1.0×10^{-3} cm/s were used in the model evaluation. Comparison of soil properties is summarized below in **Table 1**.

Table 1. Soil Properties

Soil Properties (vol/vol)	MSW	C&D
Total Porosity	0.671	0.3
Field Capacity	0.292	0.15
Wilting Point	0.68	0.1
Saturated Hydraulic Conductivity	1.0×10^{-3}	1.0×10^{-3} 1.0×10^{-2}

The C&D HELP models using both hydraulic conductivity values produced collected volumes very comparable to those from the previously submitted MSW HELP model, indicating that porosity and field capacity are not controlling parameters for this simulation, and that the original conclusion remains applicable. The C&D HELP model simulation inputs and outputs are included in **Attachment B**.

2. *Layer 4 utilized the standard HELP properties for Loamy Fine Sand. However, the drainage layer was constructed with brick, which likely has a higher hydraulic conductivity than used in the model. Please clarify your selection of inputs.*

Layer 4 utilized the standard HELP model layer, Loamy Fine Sand. This layer was subsequently modified to incorporate the tested hydraulic conductivity reported in Table A of the November 27, 1996 Construction Observation Report, included as Appendix 5, Attachment 3 of the October 20, 2006 Permit Renewal (Doc #18722). The measured hydraulic conductivity for the crushed concrete and brick layer was 1.1×10^{-3} cm/sec. The results of the permeability tests included in the above-referenced document are included in **Attachment C**.

3. *Layer 5 states that the 'lowest hydraulic conductivity' was used to be conservative. However, using the highest hydraulic conductivity for the liner would be more conservative. Please clarify.*

This demonstration was conducted to evaluate whether the leachate collection system is functioning as designed. The lowest hydraulic conductivity value for the liner layer was used as this would conservatively increase the predicted collected leachate volume.

4. *The report references calculations associated with the October 7, 2025 field work. Please provide the calculations along with documentation of the confirmation observations from the field.*

On October 7, 2025, water was introduced into the leachate collection system through the cleanouts using an on-site fire hydrant and hose to evaluate the system's ability to convey generated leachate to the storage tank. The hose's flow rate was estimated by filling a 32-gallon container and documenting the time required to reach full capacity. It was estimated that the flow from the fire hydrant was approximately 38 gallons per minute.

Pipe and trench volumes were estimated using the as-built geometry of both the pipe and the trench as documented in the Phase 1 and Phase 2 Construction Observation Reports, included as Appendix 5, Attachment 3 and Attachment 4 of the October 20, 2006 Permit Renewal (Doc #18722). Porosity of the trench aggregate was assumed using ¼" to ¾" gravel and a 35% void space. The volume of the trenches was only considered for sections of the leachate collection system with perforated pipe.

The combined volume of solid pipe, perforated pipe, and the trench void space, where applicable, was calculated, and a multiplication factor of 1.5 was applied as a conservative volume estimate. The time to fill and convey water from the cleanouts to the leachate storage tank was calculated using the estimated hose flow rate and volume. Estimated conveyance times for leachate lines routed to the sump area on the east side of the Landfill (Cleanouts 1 & 2) were calculated under the assumption that adjacent pipes and the trenches were unsaturated. Estimated conveyance times for the Phase 1 leachate lines (Cleanouts 3 & 4) that were extended through Phase 2 were only calculated for the sections that lead to MH-1, since conveyance was demonstrated from MH-1 to the storage tank during the leachate system repairs performed in November 2023 (Doc #108441). The estimated volume of water and time necessary to fill the pipe and trench void space, where applicable, and convey water from the cleanouts to the leachate storage tank, and the volume introduced and time from when flow started to when water was visually observed flowing into the tank, are summarized in **Table 2**. A figure illustrating the cleanout locations was included in the Leachate System Evaluation submitted on February 9, 2026 (Doc #116096). A calculation worksheet is included in **Attachment D**.

Table 2. Estimated and Observed Volume and Conveyance Time

Cleanout	Volume (gals)	Time (mins)	Volume Introduced (gals)	Flow Observed (mins)
1	3,500	92	1,330	35
2	3,600	95	Pinched	NA
3	3,000	79	Not Located	NA
4	2,600	68	570	15
5	5,100	134	760	20

NA – Not Applicable, water could not be introduced into the system.
Estimated volumes are rounded to the nearest 100 gallons.

For any further questions or comments regarding this response, please contact Sean Marczewski at (712) 661-9862.

Sincerely,

Sean Marczewski
Senior Project Professional
SCS Engineers

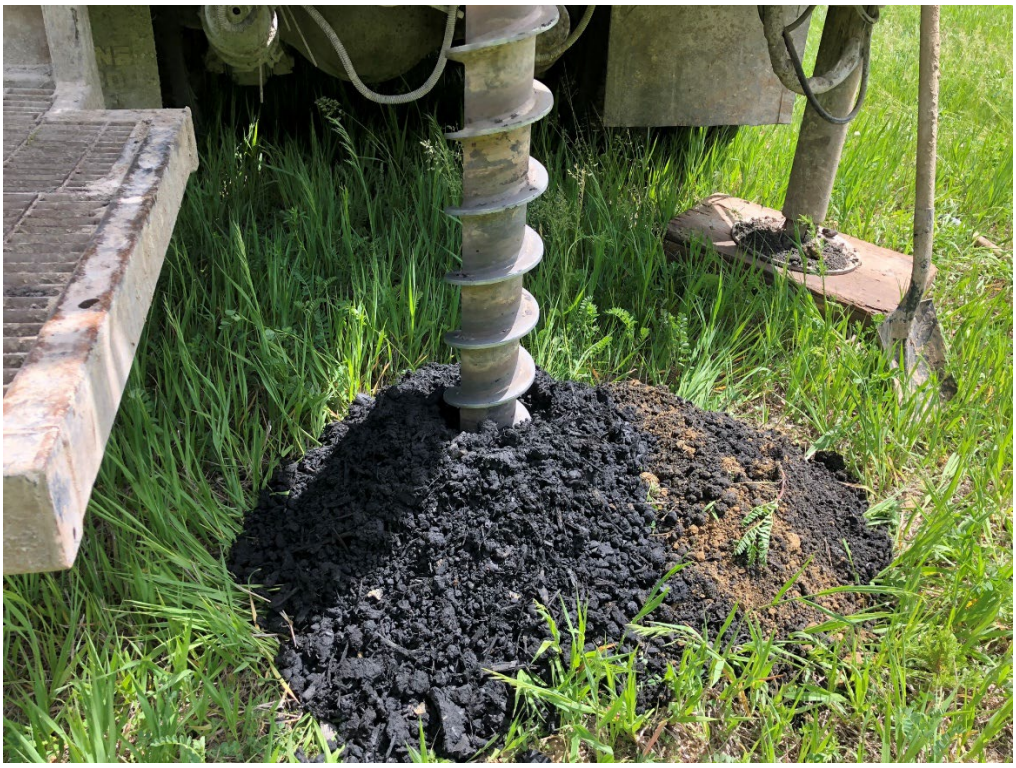
Timothy C. Buelow, P.E.
VP, Senior Project Advisor
SCS Engineers

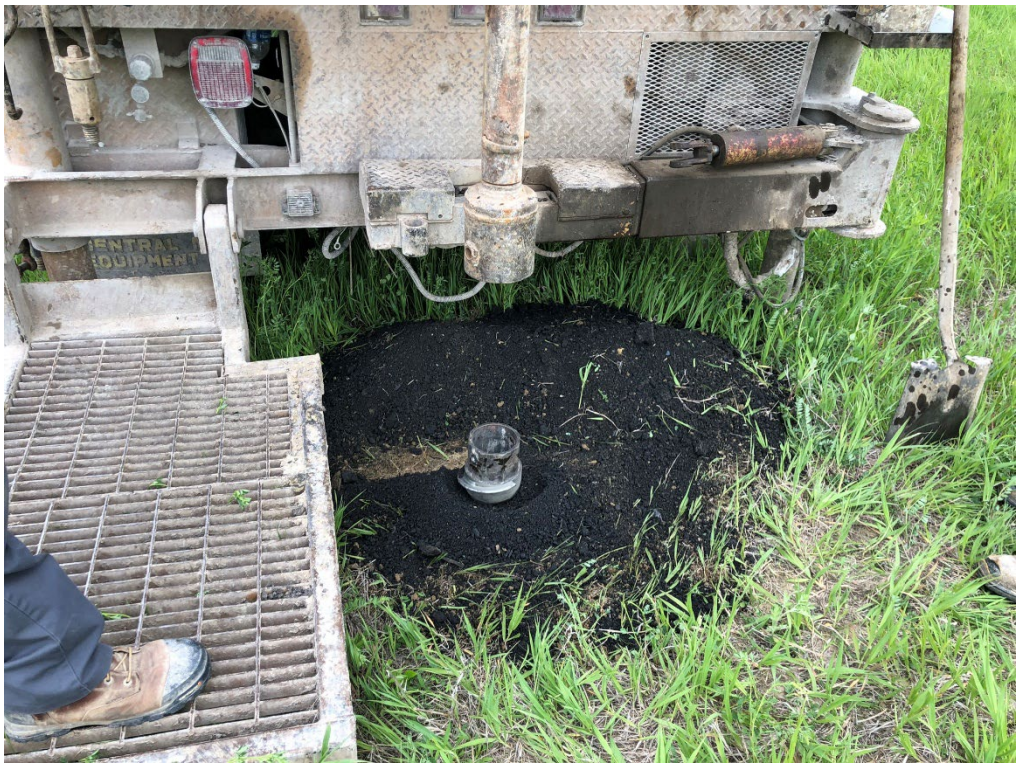
SAM/TCB

Copies: Ms. Virginia Anderson

Attachment A

May 2025 Leachate Piezometer Installation Drilling Cuttings Photos





Attachment B

HELP Model Inputs & Outputs

HYDROLOGIC EVALUATION OF LANDFILL PERFORMANCE
HELP MODEL VERSION 4.0 BETA (2018)
DEVELOPED BY USEPA NATIONAL RISK MANAGEMENT RESEARCH LABORATORY

Title: Anderson Excavating **Simulated On:** 4/8/2026 9:58

Layer 1

Type 1 - Vertical Percolation Layer (Cover Soil)

CL - Clay Loam

Material Texture Number 11

Thickness	=	24	inches
Porosity	=	0.464	vol/vol
Field Capacity	=	0.31	vol/vol
Wilting Point	=	0.187	vol/vol
Initial Soil Water Content	=	0.2953	vol/vol
Effective Sat. Hyd. Conductivity	=	6.40E-05	cm/sec

Layer 2

Type 1 - Vertical Percolation Layer

Vertical Percolation Layer

Material Texture Number 43

Thickness	=	24	inches
Porosity	=	0.427	vol/vol
Field Capacity	=	0.418	vol/vol
Wilting Point	=	0.367	vol/vol
Initial Soil Water Content	=	0.418	vol/vol
Effective Sat. Hyd. Conductivity	=	1.00E-07	cm/sec

Layer 3

Type 1 - Vertical Percolation Layer (Waste)

C&D

Material Texture Number 83

Thickness	=	216	inches
Porosity	=	0.3	vol/vol
Field Capacity	=	0.15	vol/vol
Wilting Point	=	0.05	vol/vol
Initial Soil Water Content	=	0.15	vol/vol
Effective Sat. Hyd. Conductivity	=	1.00E-03	cm/sec

Layer 4

Type 2 - Lateral Drainage Layer
Crushed Brick
Material Texture Number 45

Thickness	=	12	inches
Porosity	=	0.457	vol/vol
Field Capacity	=	0.131	vol/vol
Wilting Point	=	0.058	vol/vol
Initial Soil Water Content	=	0.131	vol/vol
Effective Sat. Hyd. Conductivity	=	1.10E-03	cm/sec
Slope	=	4	%
Drainage Length	=	50	ft

Layer 5
Type 3 - Barrier Soil Liner
Barrier Soil Liner
Material Texture Number 44

Thickness	=	48	inches
Porosity	=	0.427	vol/vol
Field Capacity	=	0.418	vol/vol
Wilting Point	=	0.367	vol/vol
Initial Soil Water Content	=	0.427	vol/vol
Effective Sat. Hyd. Conductivity	=	9.10E-08	cm/sec

Note: Initial moisture content of the layers and snow water were computed as nearly steady-state values by HELP.

General Design and Evaporative Zone Data

SCS Runoff Curve Number	=	87.4	
Fraction of Area Allowing Runoff	=	100	%
Area projected on a horizontal plane	=	2.57	acres
Evaporative Zone Depth	=	24	inches
Initial Water in Evaporative Zone	=	7.086	inches
Upper Limit of Evaporative Storage	=	11.136	inches
Lower Limit of Evaporative Storage	=	4.488	inches
Initial Snow Water	=	0	inches
Initial Water in Layer Materials	=	71.587	inches
Total Initial Water	=	71.587	inches
Total Subsurface Inflow	=	0	inches/year

Note: SCS Runoff Curve Number was calculated by HELP.

Evapotranspiration and Weather Data

Station Latitude	=	41.22	Degrees
Maximum Leaf Area Index	=	4.5	
Start of Growing Season (Julian Date)	=	104	days
End of Growing Season (Julian Date)	=	289	days
Average Wind Speed	=	8	mph
Average 1st Quarter Relative Humidity	=	71	%
Average 2nd Quarter Relative Humidity	=	73	%
Average 3rd Quarter Relative Humidity	=	78	%
Average 4th Quarter Relative Humidity	=	70	%

Note: Evapotranspiration data was obtained for Council Bluffs, Iowa

Normal Mean Monthly Precipitation (inches)

Jan/Jul	Feb/Aug	Mar/Sep	Apr/Oct	May/Nov	Jun/Dec
0.670149	1.030657	1.807893	3.126882	4.509741	5.027056
4.02387	3.792371	3.103839	2.633905	1.831989	1.04441

Note: Precipitation was simulated based on HELP V4 weather simulation for:
Lat/Long: 41.22/-95.78

Normal Mean Monthly Temperature (Degrees Fahrenheit)

Jan/Jul	Feb/Aug	Mar/Sep	Apr/Oct	May/Nov	Jun/Dec
33	34.8	43.4	55.1	67.2	80.6
86.8	81.3	73.9	59.7	45.8	35.8

Note: Temperature was simulated based on HELP V4 weather simulation for:
Lat/Long: 41.22/-95.78
Solar radiation was simulated based on HELP V4 weather simulation for:
Lat/Long: 41.22/-95.78

353		0.00	0.000	0.073	0.2727	0.0004	0.0000	6.72E-04
354		0.00	0.000	0.108	0.2682	0.0004	0.0000	6.33E-04
355		0.14	0.000	0.133	0.2682	0.0004	0.0000	5.55E-04
356		0.13	0.000	0.161	0.2668	0.0001	0.0000	3.70E-04
357		0.26	0.000	0.107	0.2731	0.0002	0.0000	5.46E-04
358		0.44	0.000	0.067	0.2889	0.0004	0.0000	6.24E-04
359		0.00	0.000	0.041	0.2871	0.0003	0.0000	8.52E-04
360	*	0.00	0.000	0.000	0.2871	0.0003	0.0000	4.40E-04
361	*	0.01	0.000	0.007	0.2871	0.0003	0.0000	4.36E-04
362		0.05	0.000	0.048	0.2873	0.0002	0.0000	2.47E-04
363		0.00	0.000	0.036	0.2858	0.0004	0.0000	6.62E-04
364	*	0.00	0.000	0.000	0.2858	0.0004	0.0000	6.35E-04
365	*	0.00	0.000	0.023	0.2849	0.0004	0.0000	7.04E-04

* = Frozen (air or soil)

Annual Totals for Year 1			
	inches	cubic feet	percent
Precipitation	31.73	296,011.6	100.00
Runoff	0.190	1,769.7	0.60
Evapotranspiration	31.242	291,462.9	98.46
Drainage Collected from Layer 4	0.0192	179.3	0.06
Percolation/Leakage through Layer 5	0.631947	5,895.5	1.99
Average Head on Top of Layer 5	0.0106	---	---
Change in Water Storage	-0.3533	-3,295.8	-1.11
Soil Water at Start of Year	71.5865	667,837.8	225.61
Soil Water at End of Year	71.2332	664,542.0	224.50
Snow Water at Start of Year	0.0000	0.0000	0.00
Snow Water at End of Year	0.0000	0.0000	0.00

353	*	0.00	0.000	0.013	0.2495	0.0002	0.0000	6.25E-04
354	*	0.00	0.000	0.015	0.2504	0.0004	0.0000	7.63E-04
355		0.00	0.000	0.000	0.2704	0.0003	0.0000	7.38E-04
356		0.00	0.000	0.043	0.2771	0.0001	0.0000	7.01E-04
357	*	0.00	0.000	0.030	0.2759	0.0001	0.0000	6.67E-04
358		0.00	0.000	0.055	0.2736	0.0004	0.0000	7.56E-04
359		0.00	0.000	0.086	0.2700	0.0001	0.0000	6.93E-04
360		0.00	0.000	0.034	0.2686	0.0001	0.0000	6.65E-04
361		0.00	0.000	0.040	0.2669	0.0004	0.0000	6.61E-04
362		0.00	0.000	0.031	0.2657	0.0004	0.0000	7.17E-04
363	*	0.00	0.000	0.000	0.2657	0.0004	0.0000	7.42E-04
364	*	0.01	0.000	0.008	0.2658	0.0001	0.0000	6.84E-04
365	*	0.00	0.000	0.027	0.2647	0.0001	0.0000	6.75E-04

* = Frozen (air or soil)

Annual Totals for Year 2			
	inches	cubic feet	percent
Precipitation	34.37	320,633.2	100.00
Runoff	1.544	14,400.7	4.49
Evapotranspiration	32.990	307,770.5	95.99
Drainage Collected from Layer 4	0.0008	7.3017	0.00
Percolation/Leakage through Layer 5	0.312231	2,912.8	0.91
Average Head on Top of Layer 5	0.0005	---	---
Change in Water Storage	-0.4779	-4,458.1	-1.39
Soil Water at Start of Year	71.2332	664,542.0	207.26
Soil Water at End of Year	70.7554	660,083.9	205.87
Snow Water at Start of Year	0.0000	0.0000	0.00
Snow Water at End of Year	0.0000	0.0000	0.00

353	*	*	0.00	0.000	0.014	0.2603	0.0000	0.0000	0.00E+00
354	*	*	0.00	0.000	0.018	0.2603	0.0000	0.0000	0.00E+00
355	*	*	0.00	0.000	0.022	0.2603	0.0000	0.0000	0.00E+00
356	*	*	0.08	0.000	0.020	0.2603	0.0000	0.0000	0.00E+00
357	*	*	0.02	0.000	0.000	0.2603	0.0000	0.0000	0.00E+00
358	*	*	0.07	0.000	0.000	0.2603	0.0000	0.0000	0.00E+00
359	*	*	0.07	0.000	0.010	0.2603	0.0000	0.0000	0.00E+00
360		*	0.00	0.000	0.000	0.2603	0.0000	0.0000	0.00E+00
361	*	*	0.00	0.000	0.021	0.2603	0.0000	0.0000	0.00E+00
362		*	0.00	0.282	0.000	0.2702	0.0000	0.0000	0.00E+00
363		*	0.09	0.005	0.026	0.2725	0.0000	0.0000	0.00E+00
364	*	*	0.04	0.000	0.014	0.2725	0.0000	0.0000	0.00E+00
365	*	*	0.00	0.000	0.013	0.2725	0.0000	0.0000	0.00E+00

* = Frozen (air or soil)

Annual Totals for Year 3			
	inches	cubic feet	percent
Precipitation	33.34	311,025.5	100.00
Runoff	0.836	7,799.4	2.51
Evapotranspiration	32.304	301,362.7	96.89
Drainage Collected from Layer 4	0.0001	0.6762	0.00
Percolation/Leakage through Layer 5	0.113262	1,056.6	0.34
Average Head on Top of Layer 5	0.0001	---	---
Change in Water Storage	0.0864	806.0	0.26
Soil Water at Start of Year	70.7554	660,083.9	212.23
Soil Water at End of Year	70.8331	660,808.7	212.46
Snow Water at Start of Year	0.0000	0.0000	0.00
Snow Water at End of Year	0.0087	81.2	0.03

353		*	0.00	0.000	0.000	0.3191	0.0004	0.0000	7.45E-04
354	*	*	0.00	0.000	0.000	0.3191	0.0005	0.0000	7.76E-04
355		*	0.00	0.000	0.000	0.3191	0.0004	0.0000	9.03E-04
356		*	0.00	0.000	0.000	0.3191	0.0002	0.0000	8.43E-04
357	*	*	0.00	0.000	0.000	0.3191	0.0002	0.0000	6.86E-04
358	*	*	0.00	0.000	0.000	0.3191	0.0005	0.0000	8.37E-04
359		*	0.00	0.000	0.000	0.3191	0.0003	0.0000	8.29E-04
360		*	0.00	0.000	0.000	0.3191	0.0002	0.0000	7.16E-04
361	*	*	0.00	0.000	0.000	0.3191	0.0004	0.0000	6.94E-04
362		*	0.00	0.000	0.000	0.3191	0.0004	0.0000	8.34E-04
363		*	0.01	0.000	0.005	0.3193	0.0004	0.0000	8.38E-04
364	*	*	0.10	0.000	0.016	0.3193	0.0002	0.0000	7.70E-04
365		*	0.01	0.008	0.025	0.3219	0.0002	0.0000	7.08E-04

* = Frozen (air or soil)

Annual Totals for Year 4			
	inches	cubic feet	percent
Precipitation	27.61	257,539.8	100.00
Runoff	3.140	29,290.5	11.37
Evapotranspiration	22.894	213,584.4	82.93
Drainage Collected from Layer 4	0.0018	16.8	0.01
Percolation/Leakage through Layer 5	0.266624	2,487.4	0.97
Average Head on Top of Layer 5	0.0010	---	---
Change in Water Storage	1.3035	12,160.7	4.72
Soil Water at Start of Year	70.8331	660,808.7	256.59
Soil Water at End of Year	72.1453	673,050.6	261.34
Snow Water at Start of Year	0.0087	81.2	0.03
Snow Water at End of Year	0.0000	0.0000	0.00

353		0.00	0.000	0.039	0.3214	0.0000	0.0000	0.00E+00
354	*	0.00	0.000	0.000	0.3213	0.0000	0.0000	8.34E-05
355	*	0.00	0.000	0.000	0.3211	0.0001	0.0000	2.23E-04
356	*	0.00	0.000	0.000	0.3210	0.0001	0.0000	3.61E-04
357	*	0.03	0.000	0.003	0.3216	0.0002	0.0000	4.98E-04
358	*	0.34	0.000	0.009	0.3223	0.0002	0.0000	6.33E-04
359		0.08	0.000	0.000	0.3315	0.0003	0.0000	7.66E-04
360	*	0.08	0.000	0.014	0.3322	0.0003	0.0000	8.96E-04
361		0.07	0.000	0.005	0.3439	0.0004	0.0000	1.02E-03
362	*	0.00	0.000	0.001	0.3437	0.0004	0.0000	1.15E-03
363	*	0.00	0.000	0.000	0.3436	0.0005	0.0000	1.27E-03
364	*	0.00	0.000	0.000	0.3434	0.0005	0.0000	1.39E-03
365	*	0.00	0.000	0.000	0.3433	0.0006	0.0000	1.50E-03

* = Frozen (air or soil)

Annual Totals for Year 5			
	inches	cubic feet	percent
Precipitation	28.18	262,886.0	100.00
Runoff	1.255	11,711.0	4.45
Evapotranspiration	25.816	240,836.5	91.61
Drainage Collected from Layer 4	0.0009	8.2032	0.00
Percolation/Leakage through Layer 5	0.324235	3,024.8	1.15
Average Head on Top of Layer 5	0.0006	---	---
Change in Water Storage	0.7831	7,305.5	2.78
Soil Water at Start of Year	72.1453	673,050.6	256.02
Soil Water at End of Year	72.9284	680,356.1	258.80
Snow Water at Start of Year	0.0000	0.0000	0.00
Snow Water at End of Year	0.0000	0.0000	0.00

353		0.00	0.000	0.107	0.3446	0.0158	0.0001	3.10E-03
354		0.00	0.000	0.092	0.3406	0.0117	0.0001	3.10E-03
355		0.00	0.000	0.036	0.3389	0.0070	0.0000	3.10E-03
356	*	0.00	0.000	0.029	0.3375	0.0018	0.0000	2.17E-03
357		0.05	0.000	0.057	0.3371	0.0004	0.0000	1.10E-03
358		0.00	0.000	0.071	0.3339	0.0004	0.0000	9.35E-04
359		0.01	0.000	0.036	0.3327	0.0003	0.0000	6.04E-04
360	*	0.12	0.000	0.028	0.3334	0.0000	0.0000	0.00E+00
361	*	0.00	0.000	0.011	0.3340	0.0000	0.0000	0.00E+00
362		0.00	0.000	0.032	0.3341	0.0000	0.0000	1.86E-05
363		0.06	0.000	0.040	0.3349	0.0000	0.0000	1.42E-04
364		0.11	0.000	0.043	0.3376	0.0001	0.0000	2.80E-04
365		0.00	0.000	0.040	0.3358	0.0002	0.0000	4.18E-04

* = Frozen (air or soil)

Annual Totals for Year 6			
	inches	cubic feet	percent
Precipitation	38.72	361,227.2	100.00
Runoff	2.365	22,067.7	6.11
Evapotranspiration	35.734	333,367.5	92.29
Drainage Collected from Layer 4	0.0113	105.0	0.03
Percolation/Leakage through Layer 5	0.808823	7,545.6	2.09
Average Head on Top of Layer 5	0.0062	---	---
Change in Water Storage	-0.1992	-1,858.7	-0.51
Soil Water at Start of Year	72.9284	680,356.1	188.35
Soil Water at End of Year	72.7291	678,497.4	187.83
Snow Water at Start of Year	0.0000	0.0000	0.00
Snow Water at End of Year	0.0000	0.0000	0.00

353		0.00	0.000	0.055	0.2754	0.0002	0.0000	7.90E-04
354		0.00	0.000	0.086	0.2718	0.0002	0.0000	7.67E-04
355		0.00	0.000	0.069	0.2689	0.0002	0.0000	7.80E-04
356		0.00	0.000	0.065	0.2662	0.0002	0.0000	7.93E-04
357		0.00	0.000	0.066	0.2635	0.0002	0.0000	5.84E-04
358		0.00	0.000	0.024	0.2625	0.0003	0.0000	8.83E-04
359	*	0.00	0.000	0.019	0.2617	0.0003	0.0000	7.80E-04
360	*	0.00	0.000	0.000	0.2617	0.0001	0.0000	7.29E-04
361		0.00	0.000	0.028	0.2605	0.0003	0.0000	6.77E-04
362		0.00	0.000	0.047	0.2585	0.0004	0.0000	7.11E-04
363		0.00	0.000	0.031	0.2573	0.0003	0.0000	8.64E-04
364		0.00	0.000	0.050	0.2552	0.0003	0.0000	7.78E-04
365		0.01	0.000	0.035	0.2542	0.0002	0.0000	7.55E-04

* = Frozen (air or soil)

Annual Totals for Year 7			
	inches	cubic feet	percent
Precipitation	28.07	261,906.9	100.00
Runoff	0.822	7,670.7	2.93
Evapotranspiration	28.538	266,232.4	101.65
Drainage Collected from Layer 4	0.0391	364.5	0.14
Percolation/Leakage through Layer 5	0.887376	8,278.4	3.16
Average Head on Top of Layer 5	0.0215	---	---
Change in Water Storage	-2.2123	-20,639.1	-7.88
Soil Water at Start of Year	72.7291	678,497.4	259.06
Soil Water at End of Year	70.5168	657,858.3	251.18
Snow Water at Start of Year	0.0000	0.0000	0.00
Snow Water at End of Year	0.0000	0.0000	0.00

353	*	0.11	0.000	0.028	0.2522	0.0000	0.0000	0.00E+00
354		0.00	0.000	0.063	0.2520	0.0000	0.0000	0.00E+00
355	*	0.00	0.000	0.000	0.2520	0.0000	0.0000	0.00E+00
356	*	0.03	0.000	0.033	0.2518	0.0000	0.0000	0.00E+00
357	*	0.00	0.000	0.000	0.2518	0.0000	0.0000	0.00E+00
358		0.00	0.000	0.023	0.2508	0.0000	0.0000	0.00E+00
359		0.01	0.000	0.027	0.2500	0.0000	0.0000	0.00E+00
360		0.19	0.000	0.032	0.2567	0.0000	0.0000	0.00E+00
361		0.00	0.000	0.021	0.2558	0.0000	0.0000	0.00E+00
362		0.00	0.000	0.021	0.2549	0.0000	0.0000	0.00E+00
363	*	0.00	0.000	0.020	0.2541	0.0000	0.0000	0.00E+00
364		0.01	0.000	0.025	0.2534	0.0000	0.0000	0.00E+00
365	*	0.61	0.000	0.022	0.2542	0.0000	0.0000	0.00E+00

* = Frozen (air or soil)

Annual Totals for Year 8			
	inches	cubic feet	percent
Precipitation	36.26	338,290.1	100.00
Runoff	1.586	14,796.3	4.37
Evapotranspiration	33.782	315,155.9	93.16
Drainage Collected from Layer 4	0.0002	2.1301	0.00
Percolation/Leakage through Layer 5	0.226550	2,113.5	0.62
Average Head on Top of Layer 5	0.0002	---	---
Change in Water Storage	0.6670	6,222.2	1.84
Soil Water at Start of Year	70.5168	657,858.3	194.47
Soil Water at End of Year	70.6510	659,110.1	194.84
Snow Water at Start of Year	0.0000	0.0000	0.00
Snow Water at End of Year	0.5328	4,970.4	1.47

353	*	*	0.02	0.000	0.015	0.2333	0.0001	0.0000	6.92E-04
354	*	*	0.00	0.000	0.000	0.2333	0.0004	0.0000	7.67E-04
355		*	0.00	0.000	0.000	0.2333	0.0001	0.0000	6.99E-04
356	*	*	0.00	0.000	0.000	0.2333	0.0004	0.0000	6.73E-04
357		*	0.00	0.000	0.000	0.2333	0.0004	0.0000	7.07E-04
358		*	0.00	0.000	0.000	0.2333	0.0004	0.0000	6.88E-04
359		*	0.00	0.000	0.000	0.2333	0.0003	0.0000	8.47E-04
360		*	0.27	0.049	0.009	0.2420	0.0001	0.0000	7.11E-04
361		*	0.00	0.000	0.000	0.2420	0.0001	0.0000	7.08E-04
362		*	0.00	0.000	0.000	0.2420	0.0001	0.0000	7.09E-04
363		*	0.00	0.000	0.000	0.2420	0.0001	0.0000	7.19E-04
364		*	0.02	0.000	0.007	0.2425	0.0002	0.0000	5.74E-04
365		*	0.10	0.001	0.008	0.2464	0.0004	0.0000	6.55E-04

* = Frozen (air or soil)

Annual Totals for Year 9			
	inches	cubic feet	percent
Precipitation	31.91	297,685.6	100.00
Runoff	0.776	7,235.1	2.43
Evapotranspiration	31.610	294,893.8	99.06
Drainage Collected from Layer 4	0.0009	8.5057	0.00
Percolation/Leakage through Layer 5	0.387047	3,610.8	1.21
Average Head on Top of Layer 5	0.0006	---	---
Change in Water Storage	-0.8642	-8,062.6	-2.71
Soil Water at Start of Year	70.6510	659,110.1	221.41
Soil Water at End of Year	70.3195	656,017.9	220.37
Snow Water at Start of Year	0.5328	4,970.4	1.67
Snow Water at End of Year	0.0000	0.0000	0.00

353		0.00	0.000	0.067	0.2946	0.0000	0.0000	0.00E+00
354		0.00	0.000	0.095	0.2905	0.0000	0.0000	0.00E+00
355		0.00	0.000	0.047	0.2883	0.0000	0.0000	0.00E+00
356		0.00	0.000	0.043	0.2864	0.0000	0.0000	0.00E+00
357		0.00	0.000	0.051	0.2841	0.0000	0.0000	0.00E+00
358	*	0.03	0.000	0.027	0.2838	0.0000	0.0000	0.00E+00
359	*	0.02	0.000	0.032	0.2833	0.0000	0.0000	0.00E+00
360		0.00	0.000	0.030	0.2819	0.0000	0.0000	0.00E+00
361		0.00	0.000	0.034	0.2803	0.0000	0.0000	0.00E+00
362		0.00	0.000	0.039	0.2785	0.0000	0.0000	0.00E+00
363	*	0.00	0.000	0.000	0.2783	0.0000	0.0000	0.00E+00
364	*	0.20	0.000	0.011	0.2789	0.0000	0.0000	0.00E+00
365	*	0.22	0.000	0.017	0.2796	0.0000	0.0000	0.00E+00

* = Frozen (air or soil)

Annual Totals for Year 10			
	inches	cubic feet	percent
Precipitation	32.65	304,590.6	100.00
Runoff	2.899	27,047.3	8.88
Evapotranspiration	28.511	265,979.6	87.32
Drainage Collected from Layer 4	0.0001	0.7572	0.00
Percolation/Leakage through Layer 5	0.127192	1,186.6	0.39
Average Head on Top of Layer 5	0.0001	---	---
Change in Water Storage	1.1122	10,376.3	3.41
Soil Water at Start of Year	70.3195	656,017.9	215.38
Soil Water at End of Year	71.0814	663,125.5	217.71
Snow Water at Start of Year	0.0000	0.0000	0.00
Snow Water at End of Year	0.3504	3,268.6	1.07

353		0.00	0.000	0.018	0.2613	0.0002	0.0000	7.59E-04
354	*	0.00	0.000	0.018	0.2606	0.0001	0.0000	7.67E-04
355	*	0.78	0.000	0.012	0.2614	0.0004	0.0000	6.73E-04
356	*	0.00	0.000	0.006	0.2622	0.0003	0.0000	9.09E-04
357	*	0.00	0.000	0.003	0.2630	0.0002	0.0000	8.23E-04
358	*	0.00	0.000	0.010	0.2638	0.0002	0.0000	7.06E-04
359	*	0.00	0.000	0.004	0.2647	0.0004	0.0000	7.37E-04
360	*	0.00	0.000	0.012	0.2655	0.0004	0.0000	8.07E-04
361		0.00	0.000	0.000	0.2884	0.0004	0.0000	6.59E-04
362		0.00	0.000	0.080	0.2876	0.0003	0.0000	8.95E-04
363		0.00	0.000	0.045	0.2858	0.0001	0.0000	7.27E-04
364		0.00	0.000	0.023	0.2848	0.0004	0.0000	6.37E-04
365		0.00	0.000	0.019	0.2840	0.0002	0.0000	8.49E-04

* = Frozen (air or soil)

Annual Totals for Year 11			
	inches	cubic feet	percent
Precipitation	33.23	310,046.5	100.00
Runoff	1.994	18,606.6	6.00
Evapotranspiration	31.023	289,414.0	93.35
Drainage Collected from Layer 4	0.0039	36.2	0.01
Percolation/Leakage through Layer 5	0.410946	3,833.8	1.24
Average Head on Top of Layer 5	0.0022	---	---
Change in Water Storage	-0.1977	-1,844.0	-0.59
Soil Water at Start of Year	71.0814	663,125.5	213.88
Soil Water at End of Year	71.2341	664,550.2	214.34
Snow Water at Start of Year	0.3504	3,268.6	1.05
Snow Water at End of Year	0.0000	0.0000	0.00

353	0.05	0.000	0.074	0.2874	0.0002	0.0000	2.79E-04
354	0.31	0.000	0.089	0.2964	0.0000	0.0000	0.00E+00
355	0.00	0.000	0.043	0.2947	0.0000	0.0000	0.00E+00
356	0.00	0.000	0.068	0.2919	0.0000	0.0000	0.00E+00
357	0.00	0.000	0.098	0.2878	0.0000	0.0000	0.00E+00
358	0.00	0.000	0.131	0.2823	0.0000	0.0000	0.00E+00
359	0.00	0.000	0.171	0.2752	0.0000	0.0000	0.00E+00
360	0.00	0.000	0.193	0.2671	0.0000	0.0000	0.00E+00
361	0.00	0.000	0.076	0.2640	0.0000	0.0000	0.00E+00
362	0.00	0.000	0.054	0.2617	0.0000	0.0000	0.00E+00
363	0.00	0.000	0.051	0.2596	0.0000	0.0000	0.00E+00
364	0.02	0.000	0.054	0.2582	0.0000	0.0000	0.00E+00
365	0.00	0.000	0.034	0.2568	0.0000	0.0000	0.00E+00

* = Frozen (air or soil)

Annual Totals for Year 12			
	inches	cubic feet	percent
Precipitation	32.07	299,205.3	100.00
Runoff	1.452	13,541.7	4.53
Evapotranspiration	31.019	289,378.1	96.72
Drainage Collected from Layer 4	0.0002	1.7866	0.00
Percolation/Leakage through Layer 5	0.207132	1,932.4	0.65
Average Head on Top of Layer 5	0.0002	---	---
Change in Water Storage	-0.6055	-5,648.7	-1.89
Soil Water at Start of Year	71.2341	664,550.2	222.11
Soil Water at End of Year	70.6286	658,901.6	220.22
Snow Water at Start of Year	0.0000	0.0000	0.00
Snow Water at End of Year	0.0000	0.0000	0.00

353		0.02	0.000	0.034	0.3098	0.0003	0.0000	8.20E-04
354		0.06	0.000	0.055	0.3096	0.0003	0.0000	8.12E-04
355	*	0.00	0.000	0.000	0.3095	0.0003	0.0000	8.04E-04
356	*	0.00	0.000	0.000	0.3093	0.0003	0.0000	7.96E-04
357		0.00	0.000	0.037	0.3076	0.0003	0.0000	6.77E-04
358	*	0.00	0.000	0.000	0.3074	0.0002	0.0000	4.54E-04
359	*	0.00	0.000	0.000	0.3072	0.0001	0.0000	2.35E-04
360	*	0.00	0.000	0.000	0.3070	0.0000	0.0000	3.76E-05
361	*	0.00	0.000	0.000	0.3068	0.0000	0.0000	0.00E+00
362	*	0.06	0.000	0.010	0.3075	0.0000	0.0000	0.00E+00
363		0.00	0.000	0.036	0.3072	0.0000	0.0000	0.00E+00
364	*	0.02	0.000	0.016	0.3071	0.0000	0.0000	0.00E+00
365		0.45	0.000	0.042	0.3237	0.0000	0.0000	0.00E+00

* = Frozen (air or soil)

Annual Totals for Year 13			
	inches	cubic feet	percent
Precipitation	38.46	358,809.5	100.00
Runoff	1.628	15,190.4	4.23
Evapotranspiration	34.877	325,372.3	90.68
Drainage Collected from Layer 4	0.0003	2.9899	0.00
Percolation/Leakage through Layer 5	0.275348	2,568.8	0.72
Average Head on Top of Layer 5	0.0003	---	---
Change in Water Storage	1.6802	15,675.1	4.37
Soil Water at Start of Year	70.6286	658,901.6	183.64
Soil Water at End of Year	72.3089	674,576.7	188.00
Snow Water at Start of Year	0.0000	0.0000	0.00
Snow Water at End of Year	0.0000	0.0000	0.00

353	*		0.00	0.000	0.020	0.2334	0.0003	0.0000	6.84E-04
354	*	*	0.00	0.000	0.000	0.2334	0.0004	0.0000	5.94E-04
355	*	*	0.00	0.000	0.000	0.2334	0.0002	0.0000	8.07E-04
356		*	0.00	0.000	0.000	0.2334	0.0001	0.0000	6.47E-04
357		*	0.00	0.000	0.000	0.2334	0.0004	0.0000	7.02E-04
358		*	0.00	0.000	0.000	0.2334	0.0003	0.0000	6.75E-04
359		*	0.00	0.000	0.000	0.2334	0.0003	0.0000	6.31E-04
360	*	*	0.06	0.000	0.028	0.2334	0.0004	0.0000	7.00E-04
361	*	*	0.00	0.000	0.026	0.2334	0.0004	0.0000	6.73E-04
362	*	*	0.00	0.000	0.001	0.2334	0.0004	0.0000	6.37E-04
363		*	0.00	0.000	0.000	0.2334	0.0004	0.0000	6.95E-04
364	*	*	0.00	0.000	0.000	0.2334	0.0003	0.0000	6.19E-04
365	*	*	0.04	0.000	0.013	0.2334	0.0004	0.0000	6.57E-04

* = Frozen (air or soil)

Annual Totals for Year 14			
	inches	cubic feet	percent
Precipitation	34.21	319,189.0	100.00
Runoff	6.082	56,741.5	17.78
Evapotranspiration	29.849	278,460.2	87.24
Drainage Collected from Layer 4	0.0054	50.3	0.02
Percolation/Leakage through Layer 5	0.563732	5,259.1	1.65
Average Head on Top of Layer 5	0.0030	---	---
Change in Water Storage	-2.2855	-21,322.1	-6.68
Soil Water at Start of Year	72.3089	674,576.7	211.34
Soil Water at End of Year	69.9979	653,017.5	204.59
Snow Water at Start of Year	0.0000	0.0000	0.00
Snow Water at End of Year	0.0254	237.1	0.07

353	*		0.20	0.000	0.008	0.2432	0.0004	0.0000	6.97E-04
354	*	*	0.05	0.000	0.015	0.2432	0.0003	0.0000	8.70E-04
355	*	*	0.08	0.000	0.007	0.2432	0.0002	0.0000	7.21E-04
356	*	*	0.00	0.000	0.017	0.2432	0.0002	0.0000	7.33E-04
357	*	*	0.00	0.000	0.000	0.2432	0.0002	0.0000	6.09E-04
358	*	*	0.00	0.000	0.023	0.2432	0.0004	0.0000	7.24E-04
359	*	*	0.00	0.000	0.007	0.2432	0.0004	0.0000	7.54E-04
360	*	*	0.06	0.000	0.009	0.2432	0.0003	0.0000	7.06E-04
361	*	*	0.00	0.000	0.009	0.2432	0.0003	0.0000	6.86E-04
362	*	*	0.00	0.000	0.000	0.2432	0.0004	0.0000	6.98E-04
363	*	*	0.00	0.000	0.019	0.2432	0.0004	0.0000	7.20E-04
364	*	*	0.00	0.000	0.025	0.2432	0.0003	0.0000	7.00E-04
365		*	0.14	0.216	0.000	0.2561	0.0002	0.0000	7.27E-04

* = Frozen (air or soil)

Annual Totals for Year 15			
	inches	cubic feet	percent
Precipitation	33.70	314,408.6	100.00
Runoff	0.924	8,623.1	2.74
Evapotranspiration	31.925	297,830.7	94.73
Drainage Collected from Layer 4	0.0009	7.9960	0.00
Percolation/Leakage through Layer 5	0.322874	3,012.1	0.96
Average Head on Top of Layer 5	0.0006	---	---
Change in Water Storage	0.5290	4,934.7	1.57
Soil Water at Start of Year	69.9979	653,017.5	207.70
Soil Water at End of Year	70.5523	658,189.3	209.34
Snow Water at Start of Year	0.0254	237.1	0.08
Snow Water at End of Year	0.0000	0.0000	0.00

353	*	0.04	0.000	0.033	0.2662	0.0000	0.0000	0.00E+00
354		0.00	0.000	0.009	0.2658	0.0000	0.0000	0.00E+00
355		0.00	0.000	0.009	0.2654	0.0000	0.0000	0.00E+00
356		0.00	0.000	0.018	0.2647	0.0000	0.0000	0.00E+00
357		0.00	0.000	0.011	0.2642	0.0000	0.0000	0.00E+00
358	*	0.00	0.000	0.000	0.2642	0.0000	0.0000	0.00E+00
359	*	0.00	0.000	0.000	0.2642	0.0000	0.0000	0.00E+00
360	*	0.00	0.000	0.000	0.2642	0.0000	0.0000	0.00E+00
361	*	0.00	0.000	0.011	0.2639	0.0000	0.0000	0.00E+00
362		0.00	0.000	0.017	0.2633	0.0000	0.0000	0.00E+00
363		0.00	0.000	0.009	0.2630	0.0000	0.0000	2.14E-05
364		0.01	0.000	0.016	0.2626	0.0000	0.0000	0.00E+00
365	*	0.00	0.000	0.000	0.2626	0.0000	0.0000	0.00E+00

* = Frozen (air or soil)

Annual Totals for Year 16			
	inches	cubic feet	percent
Precipitation	27.73	258,652.6	100.00
Runoff	0.458	4,270.1	1.65
Evapotranspiration	27.108	252,889.6	97.77
Drainage Collected from Layer 4	0.0001	0.6842	0.00
Percolation/Leakage through Layer 5	0.116193	1,084.0	0.42
Average Head on Top of Layer 5	0.0001	---	---
Change in Water Storage	0.0438	408.3	0.16
Soil Water at Start of Year	70.5523	658,189.3	254.47
Soil Water at End of Year	70.5960	658,597.5	254.63
Snow Water at Start of Year	0.0000	0.0000	0.00
Snow Water at End of Year	0.0000	0.0000	0.00

353		*	0.20	0.050	0.039	0.2935	0.0003	0.0000	5.35E-04
354	*	*	0.21	0.000	0.024	0.2935	0.0003	0.0000	5.65E-04
355		*	0.00	0.000	0.000	0.2935	0.0002	0.0000	6.90E-04
356		*	0.00	0.050	0.037	0.2978	0.0001	0.0000	5.65E-04
357		*	0.15	0.033	0.038	0.3012	0.0003	0.0000	5.46E-04
358	*	*	0.00	0.000	0.001	0.3012	0.0003	0.0000	5.77E-04
359	*	*	0.00	0.000	0.000	0.3012	0.0003	0.0000	5.55E-04
360	*	*	0.00	0.000	0.000	0.3012	0.0002	0.0000	6.90E-04
361	*	*	0.00	0.000	0.000	0.3012	0.0001	0.0000	5.83E-04
362	*	*	0.00	0.000	0.000	0.3012	0.0001	0.0000	5.77E-04
363		*	0.00	0.000	0.000	0.3012	0.0001	0.0000	5.61E-04
364	*	*	0.00	0.000	0.000	0.3012	0.0001	0.0000	5.64E-04
365		*	0.00	0.000	0.000	0.3012	0.0001	0.0000	5.38E-04

* = Frozen (air or soil)

Annual Totals for Year 17			
	inches	cubic feet	percent
Precipitation	32.92	307,088.2	100.00
Runoff	3.212	29,967.3	9.76
Evapotranspiration	28.574	266,570.0	86.81
Drainage Collected from Layer 4	0.0001	1.3829	0.00
Percolation/Leakage through Layer 5	0.124989	1,166.0	0.38
Average Head on Top of Layer 5	0.0001	---	---
Change in Water Storage	1.0058	9,383.5	3.06
Soil Water at Start of Year	70.5960	658,597.5	214.47
Soil Water at End of Year	71.6019	667,981.0	217.52
Snow Water at Start of Year	0.0000	0.0000	0.00
Snow Water at End of Year	0.0000	0.0000	0.00

353		*	0.00	0.000	0.000	0.3876	0.0002	0.0000	7.04E-04
354		*	0.02	0.000	0.012	0.3881	0.0004	0.0000	1.02E-03
355		*	0.00	0.000	0.000	0.3881	0.0001	0.0000	8.44E-04
356		*	0.00	0.000	0.000	0.3881	0.0004	0.0000	7.39E-04
357		*	0.00	0.000	0.003	0.3881	0.0003	0.0000	9.87E-04
358	*	*	0.00	0.000	0.000	0.3881	0.0005	0.0000	8.66E-04
359	*	*	0.13	0.000	0.021	0.3881	0.0005	0.0000	8.33E-04
360	*	*	0.04	0.000	0.000	0.3881	0.0005	0.0000	9.29E-04
361	*	*	0.05	0.000	0.026	0.3881	0.0001	0.0000	8.31E-04
362	*	*	0.00	0.000	0.012	0.3881	0.0002	0.0000	8.68E-04
363	*	*	0.00	0.000	0.006	0.3881	0.0002	0.0000	8.32E-04
364	*	*	0.00	0.000	0.003	0.3881	0.0001	0.0000	8.00E-04
365	*	*	0.04	0.000	0.000	0.3881	0.0004	0.0000	7.61E-04

* = Frozen (air or soil)

Annual Totals for Year 18			
	inches	cubic feet	percent
Precipitation	33.46	312,169.0	100.00
Runoff	3.212	29,967.9	9.60
Evapotranspiration	27.602	257,504.7	82.49
Drainage Collected from Layer 4	0.0007	6.7604	0.00
Percolation/Leakage through Layer 5	0.309715	2,889.4	0.93
Average Head on Top of Layer 5	0.0005	---	---
Change in Water Storage	2.3368	21,800.2	6.98
Soil Water at Start of Year	71.6019	667,981.0	213.98
Soil Water at End of Year	73.7484	688,006.4	220.40
Snow Water at Start of Year	0.0000	0.0000	0.00
Snow Water at End of Year	0.1902	1,774.8	0.57

353	*		0.01	0.000	0.000	0.2115	0.0004	0.0000	6.45E-04
354	*		0.00	0.000	0.023	0.2123	0.0004	0.0000	6.13E-04
355	*		0.00	0.000	0.020	0.2131	0.0002	0.0000	7.37E-04
356	*		0.00	0.000	0.017	0.2139	0.0004	0.0000	6.67E-04
357	*		0.03	0.000	0.007	0.2147	0.0003	0.0000	6.36E-04
358	*		0.00	0.000	0.000	0.2156	0.0003	0.0000	5.61E-04
359	*		0.00	0.000	0.021	0.2164	0.0003	0.0000	7.72E-04
360	*		0.00	0.000	0.018	0.2172	0.0002	0.0000	5.72E-04
361	*		0.21	0.000	0.016	0.2180	0.0004	0.0000	6.80E-04
362	*		0.02	0.000	0.013	0.2188	0.0001	0.0000	6.21E-04
363	*		0.00	0.000	0.022	0.2197	0.0001	0.0000	6.06E-04
364	*		0.00	0.000	0.008	0.2205	0.0003	0.0000	5.86E-04
365	*	*	0.00	0.000	0.016	0.2205	0.0004	0.0000	6.19E-04

* = Frozen (air or soil)

Annual Totals for Year 19			
	inches	cubic feet	percent
Precipitation	26.70	249,048.3	100.00
Runoff	2.616	24,402.4	9.80
Evapotranspiration	27.562	257,125.8	103.24
Drainage Collected from Layer 4	0.0038	35.3	0.01
Percolation/Leakage through Layer 5	0.434569	4,054.1	1.63
Average Head on Top of Layer 5	0.0022	---	---
Change in Water Storage	-3.9199	-36,569.3	-14.68
Soil Water at Start of Year	73.7484	688,006.4	276.25
Soil Water at End of Year	69.6798	650,049.6	261.01
Snow Water at Start of Year	0.1902	1,774.8	0.71
Snow Water at End of Year	0.3390	3,162.2	1.27

353		0.00	0.000	0.030	0.2976	0.0002	0.0000	7.01E-04
354		0.00	0.000	0.021	0.2968	0.0001	0.0000	6.64E-04
355	*	0.00	0.000	0.003	0.2968	0.0002	0.0000	7.15E-04
356	*	0.06	0.000	0.006	0.2976	0.0001	0.0000	6.89E-04
357	*	0.08	0.000	0.000	0.2984	0.0001	0.0000	5.99E-04
358		0.00	0.000	0.026	0.3012	0.0004	0.0000	5.95E-04
359	*	0.00	0.000	0.017	0.3004	0.0004	0.0000	8.25E-04
360		0.00	0.000	0.021	0.2996	0.0001	0.0000	3.31E-04
361	*	0.00	0.000	0.000	0.2996	0.0003	0.0000	5.94E-04
362		0.00	0.000	0.027	0.2985	0.0003	0.0000	8.00E-04
363		0.00	0.000	0.028	0.2973	0.0004	0.0000	7.02E-04
364	*	0.00	0.000	0.000	0.2973	0.0003	0.0000	5.94E-04
365		0.00	0.000	0.031	0.2960	0.0002	0.0000	4.94E-04

* = Frozen (air or soil)

Annual Totals for Year 20			
	inches	cubic feet	percent
Precipitation	37.16	346,682.4	100.00
Runoff	2.723	25,405.0	7.33
Evapotranspiration	32.617	304,284.4	87.77
Drainage Collected from Layer 4	0.0010	9.6563	0.00
Percolation/Leakage through Layer 5	0.339095	3,163.4	0.91
Average Head on Top of Layer 5	0.0007	---	---
Change in Water Storage	1.4814	13,819.9	3.99
Soil Water at Start of Year	69.6798	650,049.6	187.51
Soil Water at End of Year	71.5001	667,031.8	192.40
Snow Water at Start of Year	0.3390	3,162.2	0.91
Snow Water at End of Year	0.0000	0.0000	0.00

353		*	0.00	0.000	0.000	0.2493	0.0001	0.0000	4.88E-04
354		*	0.00	0.000	0.000	0.2493	0.0003	0.0000	5.32E-04
355		*	0.00	0.000	0.000	0.2493	0.0003	0.0000	5.69E-04
356		*	0.00	0.000	0.000	0.2493	0.0001	0.0000	5.14E-04
357	*	*	0.00	0.000	0.000	0.2493	0.0002	0.0000	4.89E-04
358	*	*	0.00	0.000	0.000	0.2493	0.0003	0.0000	5.29E-04
359	*	*	0.00	0.000	0.000	0.2493	0.0003	0.0000	5.27E-04
360	*	*	0.02	0.000	0.010	0.2493	0.0003	0.0000	5.22E-04
361	*	*	0.00	0.000	0.012	0.2493	0.0003	0.0000	5.09E-04
362	*	*	0.00	0.000	0.000	0.2493	0.0003	0.0000	5.68E-04
363	*	*	0.00	0.000	0.000	0.2493	0.0003	0.0000	5.48E-04
364	*	*	0.00	0.000	0.000	0.2493	0.0001	0.0000	4.94E-04
365	*	*	0.01	0.000	0.011	0.2493	0.0003	0.0000	5.24E-04

* = Frozen (air or soil)

Annual Totals for Year 21			
	inches	cubic feet	percent
Precipitation	28.88	269,466.2	100.00
Runoff	1.766	16,473.0	6.11
Evapotranspiration	27.993	261,152.9	96.91
Drainage Collected from Layer 4	0.0004	4.0167	0.00
Percolation/Leakage through Layer 5	0.283282	2,642.8	0.98
Average Head on Top of Layer 5	0.0003	---	---
Change in Water Storage	-1.1584	-10,806.5	-4.01
Soil Water at Start of Year	71.5001	667,031.8	247.54
Soil Water at End of Year	70.3418	656,225.3	243.53
Snow Water at Start of Year	0.0000	0.0000	0.00
Snow Water at End of Year	0.0000	0.0000	0.00

353		*	0.00	0.000	0.000	0.2781	0.0000	0.0000	0.00E+00
354		*	0.00	0.000	0.000	0.2781	0.0000	0.0000	0.00E+00
355		*	0.03	0.000	0.020	0.2787	0.0000	0.0000	0.00E+00
356		*	0.07	0.000	0.026	0.2804	0.0000	0.0000	0.00E+00
357		*	0.00	0.000	0.000	0.2804	0.0000	0.0000	0.00E+00
358		*	0.00	0.000	0.000	0.2804	0.0000	0.0000	0.00E+00
359		*	0.00	0.000	0.000	0.2804	0.0000	0.0000	0.00E+00
360			0.00	0.000	0.045	0.2785	0.0000	0.0000	0.00E+00
361			0.00	0.000	0.033	0.2772	0.0001	0.0000	2.91E-04
362			0.00	0.000	0.019	0.2764	0.0000	0.0000	1.24E-07
363	*		0.00	0.000	0.000	0.2764	0.0000	0.0000	0.00E+00
364			0.00	0.000	0.018	0.2756	0.0000	0.0000	0.00E+00
365			0.00	0.000	0.020	0.2748	0.0000	0.0000	0.00E+00

* = Frozen (air or soil)

Annual Totals for Year 22			
	inches	cubic feet	percent
Precipitation	28.98	270,359.2	100.00
Runoff	0.992	9,255.8	3.42
Evapotranspiration	27.370	255,339.5	94.44
Drainage Collected from Layer 4	0.0000	0.3560	0.00
Percolation/Leakage through Layer 5	0.071939	671.1	0.25
Average Head on Top of Layer 5	0.0001	---	---
Change in Water Storage	0.5459	5,092.4	1.88
Soil Water at Start of Year	70.3418	656,225.3	242.72
Soil Water at End of Year	70.8876	661,317.7	244.61
Snow Water at Start of Year	0.0000	0.0000	0.00
Snow Water at End of Year	0.0000	0.0000	0.00

353			0.01	0.000	0.028	0.2330	0.0005	0.0000	8.66E-04
354			0.00	0.000	0.028	0.2319	0.0004	0.0000	7.85E-04
355			0.00	0.000	0.018	0.2311	0.0005	0.0000	8.70E-04
356			0.03	0.000	0.033	0.2309	0.0005	0.0000	8.38E-04
357			0.00	0.000	0.014	0.2303	0.0004	0.0000	7.70E-04
358	*		0.01	0.000	0.008	0.2303	0.0005	0.0000	8.08E-04
359	*		0.24	0.000	0.019	0.2311	0.0005	0.0000	7.89E-04
360	*		0.00	0.000	0.011	0.2319	0.0003	0.0000	9.73E-04
361	*		0.00	0.000	0.006	0.2327	0.0002	0.0000	8.31E-04
362	*	*	0.05	0.000	0.004	0.2327	0.0002	0.0000	6.62E-04
363	*	*	0.00	0.000	0.021	0.2327	0.0005	0.0000	7.56E-04
364	*	*	0.00	0.000	0.027	0.2327	0.0002	0.0000	9.09E-04
365		*	0.00	0.008	0.020	0.2375	0.0004	0.0000	7.86E-04

* = Frozen (air or soil)

Annual Totals for Year 23			
	inches	cubic feet	percent
Precipitation	35.04	326,912.5	100.00
Runoff	3.966	37,000.2	11.32
Evapotranspiration	31.549	294,325.5	90.03
Drainage Collected from Layer 4	0.0030	28.3	0.01
Percolation/Leakage through Layer 5	0.283867	2,648.2	0.81
Average Head on Top of Layer 5	0.0017	---	---
Change in Water Storage	-0.7600	-7,089.7	-2.17
Soil Water at Start of Year	70.8876	661,317.7	202.29
Soil Water at End of Year	70.1277	654,228.0	200.12
Snow Water at Start of Year	0.0000	0.0000	0.00
Snow Water at End of Year	0.0000	0.0000	0.00

353		0.00	0.000	0.053	0.3821	0.0004	0.0000	1.78E-03
354	*	0.17	0.000	0.024	0.3828	0.0004	0.0000	1.36E-03
355	*	0.00	0.000	0.023	0.3835	0.0009	0.0000	2.19E-03
356	*	0.00	0.000	0.019	0.3841	0.0007	0.0000	2.21E-03
357	*	0.00	0.000	0.016	0.3848	0.0006	0.0000	2.10E-03
358	*	0.00	0.000	0.010	0.3847	0.0007	0.0000	2.18E-03
359	*	0.00	0.000	0.000	0.3845	0.0008	0.0000	2.26E-03
360	*	0.00	0.000	0.000	0.3844	0.0009	0.0000	2.32E-03
361		0.01	0.000	0.047	0.3828	0.0008	0.0000	2.16E-03
362		0.00	0.000	0.044	0.3808	0.0008	0.0000	2.27E-03
363		0.00	0.000	0.070	0.3778	0.0008	0.0000	3.01E-03
364		0.00	0.000	0.048	0.3756	0.0012	0.0000	2.32E-03
365		0.00	0.000	0.068	0.3727	0.0004	0.0000	2.26E-03

* = Frozen (air or soil)

Annual Totals for Year 24			
	inches	cubic feet	percent
Precipitation	31.57	294,551.2	100.00
Runoff	2.118	19,761.3	6.71
Evapotranspiration	25.678	239,555.5	81.33
Drainage Collected from Layer 4	0.0003	2.9796	0.00
Percolation/Leakage through Layer 5	0.256511	2,393.0	0.81
Average Head on Top of Layer 5	0.0003	---	---
Change in Water Storage	3.5200	32,838.5	11.15
Soil Water at Start of Year	70.1277	654,228.0	222.11
Soil Water at End of Year	73.6477	687,066.5	233.26
Snow Water at Start of Year	0.0000	0.0000	0.00
Snow Water at End of Year	0.0000	0.0000	0.00

353		*	0.00	0.065	0.000	0.3525	0.0000	0.0000	0.00E+00
354		*	0.18	0.327	0.000	0.3628	0.0000	0.0000	0.00E+00
355		*	0.17	0.043	0.005	0.3680	0.0000	0.0000	0.00E+00
356		*	0.17	0.050	0.005	0.3728	0.0000	0.0000	0.00E+00
357		*	0.00	0.000	0.000	0.3728	0.0000	0.0000	0.00E+00
358		*	0.00	0.000	0.000	0.3728	0.0000	0.0000	0.00E+00
359		*	0.00	0.000	0.000	0.3728	0.0000	0.0000	0.00E+00
360	*	*	0.00	0.000	0.000	0.3728	0.0000	0.0000	0.00E+00
361	*	*	0.00	0.000	0.000	0.3728	0.0000	0.0000	0.00E+00
362	*	*	0.00	0.000	0.000	0.3728	0.0000	0.0000	0.00E+00
363	*	*	0.04	0.000	0.006	0.3728	0.0000	0.0000	0.00E+00
364	*	*	0.00	0.000	0.014	0.3728	0.0000	0.0000	0.00E+00
365	*	*	0.00	0.000	0.016	0.3728	0.0000	0.0000	0.00E+00

* = Frozen (air or soil)

Annual Totals for Year 25			
	inches	cubic feet	percent
Precipitation	29.39	274,159.2	100.00
Runoff	2.700	25,191.2	9.19
Evapotranspiration	26.152	243,972.1	88.99
Drainage Collected from Layer 4	0.0101	94.3	0.03
Percolation/Leakage through Layer 5	0.664187	6,196.3	2.26
Average Head on Top of Layer 5	0.0056	---	---
Change in Water Storage	-0.1388	-1,294.7	-0.47
Soil Water at Start of Year	73.6477	687,066.5	250.61
Soil Water at End of Year	73.5007	685,695.7	250.11
Snow Water at Start of Year	0.0000	0.0000	0.00
Snow Water at End of Year	0.0082	76.1	0.03

353		0.00	0.000	0.016	0.1957	0.0001	0.0000	7.10E-04
354		0.00	0.000	0.015	0.1951	0.0003	0.0000	6.60E-04
355	*	0.07	0.000	0.017	0.1959	0.0004	0.0000	7.02E-04
356	*	0.00	0.000	0.009	0.1967	0.0004	0.0000	7.47E-04
357	*	0.01	0.000	0.031	0.1961	0.0004	0.0000	7.36E-04
358		0.00	0.000	0.016	0.1954	0.0004	0.0000	7.88E-04
359		0.00	0.000	0.016	0.1947	0.0002	0.0000	6.09E-04
360		0.00	0.000	0.016	0.1940	0.0004	0.0000	7.38E-04
361		0.11	0.000	0.038	0.1972	0.0004	0.0000	6.42E-04
362	*	0.00	0.000	0.000	0.1972	0.0004	0.0000	6.60E-04
363	*	0.00	0.000	0.015	0.1966	0.0002	0.0000	8.06E-04
364	*	0.25	0.000	0.012	0.1974	0.0002	0.0000	7.44E-04
365	*	0.11	0.000	0.006	0.1982	0.0002	0.0000	5.28E-04

* = Frozen (air or soil)

Annual Totals for Year 26			
	inches	cubic feet	percent
Precipitation	31.12	290,297.1	100.00
Runoff	0.929	8,669.1	2.99
Evapotranspiration	33.506	312,584.5	107.68
Drainage Collected from Layer 4	0.0211	197.1	0.07
Percolation/Leakage through Layer 5	0.699683	6,527.4	2.25
Average Head on Top of Layer 5	0.0117	---	---
Change in Water Storage	-4.0391	-37,681.1	-12.98
Soil Water at Start of Year	73.5007	685,695.7	236.20
Soil Water at End of Year	69.1615	645,214.1	222.26
Snow Water at Start of Year	0.0082	76.1	0.03
Snow Water at End of Year	0.3083	2,876.6	0.99

353	*	0.18	0.000	0.016	0.2159	0.0003	0.0000	5.99E-04
354	*	0.00	0.000	0.023	0.2167	0.0001	0.0000	5.73E-04
355		0.00	0.000	0.023	0.2199	0.0001	0.0000	5.49E-04
356	*	0.00	0.000	0.000	0.2199	0.0001	0.0000	5.27E-04
357		0.00	0.000	0.003	0.2198	0.0003	0.0000	5.30E-04
358		0.00	0.000	0.005	0.2196	0.0003	0.0000	5.83E-04
359		0.00	0.000	0.003	0.2195	0.0002	0.0000	5.16E-04
360		0.00	0.000	0.009	0.2191	0.0003	0.0000	5.81E-04
361		0.07	0.000	0.044	0.2202	0.0002	0.0000	5.47E-04
362		0.00	0.000	0.024	0.2193	0.0002	0.0000	5.85E-04
363		0.00	0.000	0.016	0.2186	0.0002	0.0000	4.07E-04
364		0.00	0.000	0.003	0.2185	0.0002	0.0000	6.09E-04
365		0.00	0.000	0.003	0.2184	0.0003	0.0000	5.80E-04

* = Frozen (air or soil)

Annual Totals for Year 27			
	inches	cubic feet	percent
Precipitation	28.66	267,414.9	100.00
Runoff	0.576	5,370.1	2.01
Evapotranspiration	27.736	258,756.2	96.76
Drainage Collected from Layer 4	0.0002	1.7851	0.00
Percolation/Leakage through Layer 5	0.217327	2,027.5	0.76
Average Head on Top of Layer 5	0.0002	---	---
Change in Water Storage	0.1350	1,259.3	0.47
Soil Water at Start of Year	69.1615	645,214.1	241.28
Soil Water at End of Year	69.6048	649,350.0	242.82
Snow Water at Start of Year	0.3083	2,876.6	1.08
Snow Water at End of Year	0.0000	0.0000	0.00

353	*	*	0.00	0.000	0.000	0.3556	0.0001	0.0000	7.31E-04
354	*	*	0.00	0.000	0.006	0.3556	0.0004	0.0000	8.68E-04
355	*	*	0.00	0.000	0.000	0.3556	0.0002	0.0000	6.11E-04
356	*	*	0.07	0.000	0.007	0.3556	0.0003	0.0000	9.01E-04
357	*	*	0.12	0.000	0.000	0.3556	0.0001	0.0000	7.67E-04
358		*	0.02	0.634	0.000	0.3655	0.0002	0.0000	7.72E-04
359		*	0.02	0.000	0.013	0.3657	0.0002	0.0000	7.15E-04
360	*	*	0.02	0.000	0.023	0.3657	0.0002	0.0000	8.07E-04
361		*	0.07	0.006	0.024	0.3675	0.0002	0.0000	6.05E-04
362		*	0.00	0.000	0.000	0.3675	0.0004	0.0000	7.88E-04
363		*	0.00	0.000	0.002	0.3675	0.0004	0.0000	7.91E-04
364	*	*	0.00	0.000	0.000	0.3675	0.0003	0.0000	7.66E-04
365		*	0.00	0.000	0.000	0.3675	0.0001	0.0000	7.28E-04

* = Frozen (air or soil)

Annual Totals for Year 28			
	inches	cubic feet	percent
Precipitation	33.27	310,340.3	100.00
Runoff	2.571	23,981.6	7.73
Evapotranspiration	26.723	249,297.5	80.33
Drainage Collected from Layer 4	0.0019	17.8	0.01
Percolation/Leakage through Layer 5	0.342082	3,191.3	1.03
Average Head on Top of Layer 5	0.0011	---	---
Change in Water Storage	3.6287	33,852.1	10.91
Soil Water at Start of Year	69.6048	649,350.0	209.24
Soil Water at End of Year	73.2334	683,202.2	220.15
Snow Water at Start of Year	0.0000	0.0000	0.00
Snow Water at End of Year	0.0000	0.0000	0.00

353	*	*	0.01	0.000	0.007	0.4463	0.0004	0.0000	1.09E-03
354	*	*	0.00	0.000	0.000	0.4463	0.0005	0.0000	1.21E-03
355	*	*	0.14	0.000	0.013	0.4463	0.0005	0.0000	1.36E-03
356	*	*	0.00	0.000	0.013	0.4463	0.0006	0.0000	2.01E-03
357		*	0.00	0.052	0.021	0.4482	0.0004	0.0000	1.36E-03
358	*	*	0.00	0.000	0.000	0.4482	0.0009	0.0000	2.24E-03
359		*	0.00	0.000	0.000	0.4482	0.0006	0.0000	2.10E-03
360		*	0.04	0.006	0.008	0.4493	0.0008	0.0000	2.24E-03
361		*	0.05	0.013	0.008	0.4507	0.0005	0.0000	2.20E-03
362		*	0.00	0.000	0.000	0.4507	0.0012	0.0000	3.10E-03
363	*	*	0.00	0.000	0.000	0.4507	0.0009	0.0000	2.23E-03
364	*	*	0.09	0.000	0.021	0.4507	0.0007	0.0000	3.07E-03
365	*	*	0.05	0.000	0.000	0.4507	0.0013	0.0000	2.32E-03

* = Frozen (air or soil)

Annual Totals for Year 29			
	inches	cubic feet	percent
Precipitation	44.63	416,334.4	100.00
Runoff	5.512	51,422.2	12.35
Evapotranspiration	36.136	337,113.6	80.97
Drainage Collected from Layer 4	0.0232	216.2	0.05
Percolation/Leakage through Layer 5	0.646280	6,029.2	1.45
Average Head on Top of Layer 5	0.0128	---	---
Change in Water Storage	2.3103	21,553.3	5.18
Soil Water at Start of Year	73.2334	683,202.2	164.10
Soil Water at End of Year	75.4193	703,593.8	169.00
Snow Water at Start of Year	0.0000	0.0000	0.00
Snow Water at End of Year	0.1245	1,161.7	0.28

353		*	0.13	0.181	0.000	0.3629	0.0000	0.0000	0.00E+00
354		*	0.00	0.000	0.000	0.3629	0.0000	0.0000	0.00E+00
355		*	0.14	0.022	0.013	0.3673	0.0000	0.0000	0.00E+00
356		*	0.00	0.000	0.000	0.3673	0.0000	0.0000	0.00E+00
357		*	0.00	0.000	0.000	0.3673	0.0000	0.0000	0.00E+00
358		*	0.00	0.000	0.000	0.3673	0.0000	0.0000	0.00E+00
359		*	0.00	0.000	0.000	0.3673	0.0000	0.0000	0.00E+00
360		*	0.05	0.000	0.011	0.3688	0.0000	0.0000	0.00E+00
361		*	0.00	0.000	0.004	0.3689	0.0000	0.0000	0.00E+00
362			0.00	0.000	0.093	0.3648	0.0005	0.0000	1.35E-03
363			0.00	0.000	0.122	0.3596	0.0005	0.0000	1.33E-03
364			0.00	0.000	0.060	0.3569	0.0005	0.0000	1.31E-03
365	*		0.00	0.000	0.025	0.3556	0.0005	0.0000	1.29E-03

* = Frozen (air or soil)

Annual Totals for Year 30			
	inches	cubic feet	percent
Precipitation	34.05	317,701.9	100.00
Runoff	3.309	30,873.6	9.72
Evapotranspiration	32.515	303,339.3	95.48
Drainage Collected from Layer 4	0.0130	121.6	0.04
Percolation/Leakage through Layer 5	0.720378	6,720.5	2.12
Average Head on Top of Layer 5	0.0072	---	---
Change in Water Storage	-2.5032	-23,353.0	-7.35
Soil Water at Start of Year	75.4193	703,593.8	221.46
Soil Water at End of Year	73.0405	681,402.5	214.48
Snow Water at Start of Year	0.1245	1,161.7	0.37
Snow Water at End of Year	0.0000	0.0000	0.00

Average Annual Totals Summary

Title: Anderson Excavating
Simulated on: 4/8/2026 10:01

	Average Annual Totals for Years 1 - 30*			
	(inches)	[std dev]	(cubic feet)	(percent)
Precipitation	32.60	[3.93]	304,154.4	100.00
Runoff	2.138	[1.409]	19,950.1	6.56
Evapotranspiration	30.031	[3.298]	280,163.8	92.11
Subprofile1				
Lateral drainage collected from Layer 4	0.0055	[0.0092]	51.0	0.02
Percolation/leakage through Layer 5	0.379181	[0.222322]	3,537.4	1.16
Average Head on Top of Layer 5	0.0031	[0.005]	---	---
Water storage				
Change in water storage	0.0485	[1.8426]	452.2	0.15

* Note: Average inches are converted to volume based on the user-specified area.

Peak Values Summary

Title: Anderson Excavating
Simulated on: 4/8/2026 10:01

	Peak Values for Years 1 - 30*		
	(inches)		(cubic feet)
Precipitation	3.29		30,694.7
Runoff	1.581		14,751.2
Subprofile1			
Drainage collected from Layer 4	0.0003		2.6285
Percolation/leakage through Layer 5	0.003099		28.9
Average head on Layer 5	0.0566		---
Maximum head on Layer 5	0.1108		---
Location of maximum head in Layer 4	0.95	(feet from drain)	
Other Parameters			
Snow water	2.6786		24,988.8
Maximum vegetation soil water	0.4640	(vol/vol)	
Minimum vegetation soil water	0.1870	(vol/vol)	

Final Water Storage in Landfill Profile at End of Simulation Period

Title: Anderson Excavating
Simulated on: 4/8/2026 10:02
Simulation period: 30 years

	Final Water Storage	
Layer	(inches)	(vol/vol)
1	8.5352	0.3556
2	10.0373	0.4182
3	32.4000	0.1500
4	1.5720	0.1310
5	20.4960	0.4270
Snow water	0.0000	---

HYDROLOGIC EVALUATION OF LANDFILL PERFORMANCE
HELP MODEL VERSION 4.0 BETA (2018)
DEVELOPED BY USEPA NATIONAL RISK MANAGEMENT RESEARCH LABORATORY

Title: Anderson Excavating **Simulated On:** 4/8/2026 9:45

Layer 1

Type 1 - Vertical Percolation Layer (Cover Soil)

CL - Clay Loam

Material Texture Number 11

Thickness	=	24	inches
Porosity	=	0.464	vol/vol
Field Capacity	=	0.31	vol/vol
Wilting Point	=	0.187	vol/vol
Initial Soil Water Content	=	0.2953	vol/vol
Effective Sat. Hyd. Conductivity	=	6.40E-05	cm/sec

Layer 2

Type 1 - Vertical Percolation Layer

Vertical Percolation Layer

Material Texture Number 43

Thickness	=	24	inches
Porosity	=	0.427	vol/vol
Field Capacity	=	0.418	vol/vol
Wilting Point	=	0.367	vol/vol
Initial Soil Water Content	=	0.418	vol/vol
Effective Sat. Hyd. Conductivity	=	1.00E-07	cm/sec

Layer 3

Type 1 - Vertical Percolation Layer (Waste)

C&D

Material Texture Number 83

Thickness	=	216	inches
Porosity	=	0.3	vol/vol
Field Capacity	=	0.15	vol/vol
Wilting Point	=	0.05	vol/vol
Initial Soil Water Content	=	0.15	vol/vol
Effective Sat. Hyd. Conductivity	=	1.00E-02	cm/sec

Layer 4

Type 2 - Lateral Drainage Layer
Crushed Brick
Material Texture Number 45

Thickness	=	12	inches
Porosity	=	0.457	vol/vol
Field Capacity	=	0.131	vol/vol
Wilting Point	=	0.058	vol/vol
Initial Soil Water Content	=	0.131	vol/vol
Effective Sat. Hyd. Conductivity	=	1.10E-03	cm/sec
Slope	=	4	%
Drainage Length	=	50	ft

Layer 5
Type 3 - Barrier Soil Liner
Barrier Soil Liner
Material Texture Number 44

Thickness	=	48	inches
Porosity	=	0.427	vol/vol
Field Capacity	=	0.418	vol/vol
Wilting Point	=	0.367	vol/vol
Initial Soil Water Content	=	0.427	vol/vol
Effective Sat. Hyd. Conductivity	=	9.10E-08	cm/sec

Note: Initial moisture content of the layers and snow water were computed as nearly steady-state values by HELP.

General Design and Evaporative Zone Data

SCS Runoff Curve Number	=	87.4	
Fraction of Area Allowing Runoff	=	100	%
Area projected on a horizontal plane	=	2.57	acres
Evaporative Zone Depth	=	24	inches
Initial Water in Evaporative Zone	=	7.086	inches
Upper Limit of Evaporative Storage	=	11.136	inches
Lower Limit of Evaporative Storage	=	4.488	inches
Initial Snow Water	=	0	inches
Initial Water in Layer Materials	=	71.587	inches
Total Initial Water	=	71.587	inches
Total Subsurface Inflow	=	0	inches/year

Note: SCS Runoff Curve Number was calculated by HELP.

Evapotranspiration and Weather Data

Station Latitude	=	41.22	Degrees
Maximum Leaf Area Index	=	4.5	
Start of Growing Season (Julian Date)	=	104	days
End of Growing Season (Julian Date)	=	289	days
Average Wind Speed	=	8	mph
Average 1st Quarter Relative Humidity	=	71	%
Average 2nd Quarter Relative Humidity	=	73	%
Average 3rd Quarter Relative Humidity	=	78	%
Average 4th Quarter Relative Humidity	=	70	%

Note: Evapotranspiration data was obtained for Council Bluffs, Iowa

Normal Mean Monthly Precipitation (inches)

Jan/Jul	Feb/Aug	Mar/Sep	Apr/Oct	May/Nov	Jun/Dec
0.670149	1.030657	1.807893	3.126882	4.509741	5.027056
4.02387	3.792371	3.103839	2.633905	1.831989	1.04441

Note: Precipitation was simulated based on HELP V4 weather simulation for:
Lat/Long: 41.22/-95.78

Normal Mean Monthly Temperature (Degrees Fahrenheit)

Jan/Jul	Feb/Aug	Mar/Sep	Apr/Oct	May/Nov	Jun/Dec
33	34.8	43.4	55.1	67.2	80.6
86.8	81.3	73.9	59.7	45.8	35.8

Note: Temperature was simulated based on HELP V4 weather simulation for:
Lat/Long: 41.22/-95.78
Solar radiation was simulated based on HELP V4 weather simulation for:
Lat/Long: 41.22/-95.78

353		0.00	0.000	0.073	0.2727	0.0004	0.0000	6.72E-04
354		0.00	0.000	0.108	0.2682	0.0004	0.0000	6.33E-04
355		0.14	0.000	0.133	0.2682	0.0004	0.0000	5.55E-04
356		0.13	0.000	0.161	0.2668	0.0001	0.0000	3.70E-04
357		0.26	0.000	0.107	0.2731	0.0002	0.0000	5.46E-04
358		0.44	0.000	0.067	0.2889	0.0004	0.0000	6.24E-04
359		0.00	0.000	0.041	0.2871	0.0003	0.0000	8.52E-04
360	*	0.00	0.000	0.000	0.2871	0.0003	0.0000	4.40E-04
361	*	0.01	0.000	0.007	0.2871	0.0003	0.0000	4.36E-04
362		0.05	0.000	0.048	0.2873	0.0002	0.0000	2.47E-04
363		0.00	0.000	0.036	0.2858	0.0004	0.0000	6.62E-04
364	*	0.00	0.000	0.000	0.2858	0.0004	0.0000	6.35E-04
365	*	0.00	0.000	0.023	0.2849	0.0004	0.0000	7.04E-04

* = Frozen (air or soil)

Annual Totals for Year 1			
	inches	cubic feet	percent
Precipitation	31.73	296,011.6	100.00
Runoff	0.190	1,769.7	0.60
Evapotranspiration	31.242	291,462.9	98.46
Drainage Collected from Layer 4	0.0192	179.3	0.06
Percolation/Leakage through Layer 5	0.631947	5,895.5	1.99
Average Head on Top of Layer 5	0.0106	---	---
Change in Water Storage	-0.3533	-3,295.8	-1.11
Soil Water at Start of Year	71.5865	667,837.8	225.61
Soil Water at End of Year	71.2332	664,542.0	224.50
Snow Water at Start of Year	0.0000	0.0000	0.00
Snow Water at End of Year	0.0000	0.0000	0.00

353	*	0.00	0.000	0.013	0.2495	0.0002	0.0000	6.25E-04
354	*	0.00	0.000	0.015	0.2504	0.0004	0.0000	7.63E-04
355		0.00	0.000	0.000	0.2704	0.0003	0.0000	7.38E-04
356		0.00	0.000	0.043	0.2771	0.0001	0.0000	7.01E-04
357	*	0.00	0.000	0.030	0.2759	0.0001	0.0000	6.67E-04
358		0.00	0.000	0.055	0.2736	0.0004	0.0000	7.56E-04
359		0.00	0.000	0.086	0.2700	0.0001	0.0000	6.93E-04
360		0.00	0.000	0.034	0.2686	0.0001	0.0000	6.65E-04
361		0.00	0.000	0.040	0.2669	0.0004	0.0000	6.61E-04
362		0.00	0.000	0.031	0.2657	0.0004	0.0000	7.17E-04
363	*	0.00	0.000	0.000	0.2657	0.0004	0.0000	7.42E-04
364	*	0.01	0.000	0.008	0.2658	0.0001	0.0000	6.84E-04
365	*	0.00	0.000	0.027	0.2647	0.0001	0.0000	6.75E-04

* = Frozen (air or soil)

Annual Totals for Year 2			
	inches	cubic feet	percent
Precipitation	34.37	320,633.2	100.00
Runoff	1.544	14,400.7	4.49
Evapotranspiration	32.990	307,770.5	95.99
Drainage Collected from Layer 4	0.0008	7.3017	0.00
Percolation/Leakage through Layer 5	0.312231	2,912.8	0.91
Average Head on Top of Layer 5	0.0005	---	---
Change in Water Storage	-0.4779	-4,458.1	-1.39
Soil Water at Start of Year	71.2332	664,542.0	207.26
Soil Water at End of Year	70.7554	660,083.9	205.87
Snow Water at Start of Year	0.0000	0.0000	0.00
Snow Water at End of Year	0.0000	0.0000	0.00

353	*	*	0.00	0.000	0.014	0.2603	0.0000	0.0000	0.00E+00
354	*	*	0.00	0.000	0.018	0.2603	0.0000	0.0000	0.00E+00
355	*	*	0.00	0.000	0.022	0.2603	0.0000	0.0000	0.00E+00
356	*	*	0.08	0.000	0.020	0.2603	0.0000	0.0000	0.00E+00
357	*	*	0.02	0.000	0.000	0.2603	0.0000	0.0000	0.00E+00
358	*	*	0.07	0.000	0.000	0.2603	0.0000	0.0000	0.00E+00
359	*	*	0.07	0.000	0.010	0.2603	0.0000	0.0000	0.00E+00
360		*	0.00	0.000	0.000	0.2603	0.0000	0.0000	0.00E+00
361	*	*	0.00	0.000	0.021	0.2603	0.0000	0.0000	0.00E+00
362		*	0.00	0.282	0.000	0.2702	0.0000	0.0000	0.00E+00
363		*	0.09	0.005	0.026	0.2725	0.0000	0.0000	0.00E+00
364	*	*	0.04	0.000	0.014	0.2725	0.0000	0.0000	0.00E+00
365	*	*	0.00	0.000	0.013	0.2725	0.0000	0.0000	0.00E+00

* = Frozen (air or soil)

Annual Totals for Year 3			
	inches	cubic feet	percent
Precipitation	33.34	311,025.5	100.00
Runoff	0.836	7,799.4	2.51
Evapotranspiration	32.304	301,362.7	96.89
Drainage Collected from Layer 4	0.0001	0.6762	0.00
Percolation/Leakage through Layer 5	0.113262	1,056.6	0.34
Average Head on Top of Layer 5	0.0001	---	---
Change in Water Storage	0.0864	806.0	0.26
Soil Water at Start of Year	70.7554	660,083.9	212.23
Soil Water at End of Year	70.8331	660,808.7	212.46
Snow Water at Start of Year	0.0000	0.0000	0.00
Snow Water at End of Year	0.0087	81.2	0.03

353		*	0.00	0.000	0.000	0.3191	0.0004	0.0000	7.45E-04
354	*	*	0.00	0.000	0.000	0.3191	0.0005	0.0000	7.76E-04
355		*	0.00	0.000	0.000	0.3191	0.0004	0.0000	9.03E-04
356		*	0.00	0.000	0.000	0.3191	0.0002	0.0000	8.43E-04
357	*	*	0.00	0.000	0.000	0.3191	0.0002	0.0000	6.86E-04
358	*	*	0.00	0.000	0.000	0.3191	0.0005	0.0000	8.37E-04
359		*	0.00	0.000	0.000	0.3191	0.0003	0.0000	8.29E-04
360		*	0.00	0.000	0.000	0.3191	0.0002	0.0000	7.16E-04
361	*	*	0.00	0.000	0.000	0.3191	0.0004	0.0000	6.94E-04
362		*	0.00	0.000	0.000	0.3191	0.0004	0.0000	8.34E-04
363		*	0.01	0.000	0.005	0.3193	0.0004	0.0000	8.38E-04
364	*	*	0.10	0.000	0.016	0.3193	0.0002	0.0000	7.70E-04
365		*	0.01	0.008	0.025	0.3219	0.0002	0.0000	7.08E-04

* = Frozen (air or soil)

Annual Totals for Year 4			
	inches	cubic feet	percent
Precipitation	27.61	257,539.8	100.00
Runoff	3.140	29,290.5	11.37
Evapotranspiration	22.894	213,584.4	82.93
Drainage Collected from Layer 4	0.0018	16.8	0.01
Percolation/Leakage through Layer 5	0.266624	2,487.4	0.97
Average Head on Top of Layer 5	0.0010	---	---
Change in Water Storage	1.3035	12,160.7	4.72
Soil Water at Start of Year	70.8331	660,808.7	256.59
Soil Water at End of Year	72.1453	673,050.6	261.34
Snow Water at Start of Year	0.0087	81.2	0.03
Snow Water at End of Year	0.0000	0.0000	0.00

353		0.00	0.000	0.039	0.3214	0.0000	0.0000	0.00E+00
354	*	0.00	0.000	0.000	0.3213	0.0000	0.0000	8.34E-05
355	*	0.00	0.000	0.000	0.3211	0.0001	0.0000	2.23E-04
356	*	0.00	0.000	0.000	0.3210	0.0001	0.0000	3.61E-04
357	*	0.03	0.000	0.003	0.3216	0.0002	0.0000	4.98E-04
358	*	0.34	0.000	0.009	0.3223	0.0002	0.0000	6.33E-04
359		0.08	0.000	0.000	0.3315	0.0003	0.0000	7.66E-04
360	*	0.08	0.000	0.014	0.3322	0.0003	0.0000	8.96E-04
361		0.07	0.000	0.005	0.3439	0.0004	0.0000	1.02E-03
362	*	0.00	0.000	0.001	0.3437	0.0004	0.0000	1.15E-03
363	*	0.00	0.000	0.000	0.3436	0.0005	0.0000	1.27E-03
364	*	0.00	0.000	0.000	0.3434	0.0005	0.0000	1.39E-03
365	*	0.00	0.000	0.000	0.3433	0.0006	0.0000	1.50E-03

* = Frozen (air or soil)

Annual Totals for Year 5			
	inches	cubic feet	percent
Precipitation	28.18	262,886.0	100.00
Runoff	1.255	11,711.0	4.45
Evapotranspiration	25.816	240,836.5	91.61
Drainage Collected from Layer 4	0.0009	8.2032	0.00
Percolation/Leakage through Layer 5	0.324235	3,024.8	1.15
Average Head on Top of Layer 5	0.0006	---	---
Change in Water Storage	0.7831	7,305.5	2.78
Soil Water at Start of Year	72.1453	673,050.6	256.02
Soil Water at End of Year	72.9284	680,356.1	258.80
Snow Water at Start of Year	0.0000	0.0000	0.00
Snow Water at End of Year	0.0000	0.0000	0.00

353		0.00	0.000	0.107	0.3446	0.0158	0.0001	3.10E-03
354		0.00	0.000	0.092	0.3406	0.0117	0.0001	3.10E-03
355		0.00	0.000	0.036	0.3389	0.0070	0.0000	3.10E-03
356	*	0.00	0.000	0.029	0.3375	0.0018	0.0000	2.17E-03
357		0.05	0.000	0.057	0.3371	0.0004	0.0000	1.10E-03
358		0.00	0.000	0.071	0.3339	0.0004	0.0000	9.35E-04
359		0.01	0.000	0.036	0.3327	0.0003	0.0000	6.04E-04
360	*	0.12	0.000	0.028	0.3334	0.0000	0.0000	0.00E+00
361	*	0.00	0.000	0.011	0.3340	0.0000	0.0000	0.00E+00
362		0.00	0.000	0.032	0.3341	0.0000	0.0000	1.86E-05
363		0.06	0.000	0.040	0.3349	0.0000	0.0000	1.42E-04
364		0.11	0.000	0.043	0.3376	0.0001	0.0000	2.80E-04
365		0.00	0.000	0.040	0.3358	0.0002	0.0000	4.18E-04

* = Frozen (air or soil)

Annual Totals for Year 6			
	inches	cubic feet	percent
Precipitation	38.72	361,227.2	100.00
Runoff	2.365	22,067.7	6.11
Evapotranspiration	35.734	333,367.5	92.29
Drainage Collected from Layer 4	0.0113	105.0	0.03
Percolation/Leakage through Layer 5	0.808823	7,545.6	2.09
Average Head on Top of Layer 5	0.0062	---	---
Change in Water Storage	-0.1992	-1,858.7	-0.51
Soil Water at Start of Year	72.9284	680,356.1	188.35
Soil Water at End of Year	72.7291	678,497.4	187.83
Snow Water at Start of Year	0.0000	0.0000	0.00
Snow Water at End of Year	0.0000	0.0000	0.00

353		0.00	0.000	0.055	0.2754	0.0002	0.0000	7.90E-04
354		0.00	0.000	0.086	0.2718	0.0002	0.0000	7.67E-04
355		0.00	0.000	0.069	0.2689	0.0002	0.0000	7.80E-04
356		0.00	0.000	0.065	0.2662	0.0002	0.0000	7.93E-04
357		0.00	0.000	0.066	0.2635	0.0002	0.0000	5.84E-04
358		0.00	0.000	0.024	0.2625	0.0003	0.0000	8.83E-04
359	*	0.00	0.000	0.019	0.2617	0.0003	0.0000	7.80E-04
360	*	0.00	0.000	0.000	0.2617	0.0001	0.0000	7.29E-04
361		0.00	0.000	0.028	0.2605	0.0003	0.0000	6.77E-04
362		0.00	0.000	0.047	0.2585	0.0004	0.0000	7.11E-04
363		0.00	0.000	0.031	0.2573	0.0003	0.0000	8.64E-04
364		0.00	0.000	0.050	0.2552	0.0003	0.0000	7.78E-04
365		0.01	0.000	0.035	0.2542	0.0002	0.0000	7.55E-04

* = Frozen (air or soil)

Annual Totals for Year 7			
	inches	cubic feet	percent
Precipitation	28.07	261,906.9	100.00
Runoff	0.822	7,670.7	2.93
Evapotranspiration	28.538	266,232.4	101.65
Drainage Collected from Layer 4	0.0391	364.5	0.14
Percolation/Leakage through Layer 5	0.887376	8,278.4	3.16
Average Head on Top of Layer 5	0.0215	---	---
Change in Water Storage	-2.2123	-20,639.1	-7.88
Soil Water at Start of Year	72.7291	678,497.4	259.06
Soil Water at End of Year	70.5168	657,858.3	251.18
Snow Water at Start of Year	0.0000	0.0000	0.00
Snow Water at End of Year	0.0000	0.0000	0.00

353	*	0.11	0.000	0.028	0.2522	0.0000	0.0000	0.00E+00
354		0.00	0.000	0.063	0.2520	0.0000	0.0000	0.00E+00
355	*	0.00	0.000	0.000	0.2520	0.0000	0.0000	0.00E+00
356	*	0.03	0.000	0.033	0.2518	0.0000	0.0000	0.00E+00
357	*	0.00	0.000	0.000	0.2518	0.0000	0.0000	0.00E+00
358		0.00	0.000	0.023	0.2508	0.0000	0.0000	0.00E+00
359		0.01	0.000	0.027	0.2500	0.0000	0.0000	0.00E+00
360		0.19	0.000	0.032	0.2567	0.0000	0.0000	0.00E+00
361		0.00	0.000	0.021	0.2558	0.0000	0.0000	0.00E+00
362		0.00	0.000	0.021	0.2549	0.0000	0.0000	0.00E+00
363	*	0.00	0.000	0.020	0.2541	0.0000	0.0000	0.00E+00
364		0.01	0.000	0.025	0.2534	0.0000	0.0000	0.00E+00
365	*	0.61	0.000	0.022	0.2542	0.0000	0.0000	0.00E+00

* = Frozen (air or soil)

Annual Totals for Year 8			
	inches	cubic feet	percent
Precipitation	36.26	338,290.1	100.00
Runoff	1.586	14,796.3	4.37
Evapotranspiration	33.782	315,155.9	93.16
Drainage Collected from Layer 4	0.0002	2.1301	0.00
Percolation/Leakage through Layer 5	0.226550	2,113.5	0.62
Average Head on Top of Layer 5	0.0002	---	---
Change in Water Storage	0.6670	6,222.2	1.84
Soil Water at Start of Year	70.5168	657,858.3	194.47
Soil Water at End of Year	70.6510	659,110.1	194.84
Snow Water at Start of Year	0.0000	0.0000	0.00
Snow Water at End of Year	0.5328	4,970.4	1.47

353	*	*	0.02	0.000	0.015	0.2333	0.0001	0.0000	6.92E-04
354	*	*	0.00	0.000	0.000	0.2333	0.0004	0.0000	7.67E-04
355		*	0.00	0.000	0.000	0.2333	0.0001	0.0000	6.99E-04
356	*	*	0.00	0.000	0.000	0.2333	0.0004	0.0000	6.73E-04
357		*	0.00	0.000	0.000	0.2333	0.0004	0.0000	7.07E-04
358		*	0.00	0.000	0.000	0.2333	0.0004	0.0000	6.88E-04
359		*	0.00	0.000	0.000	0.2333	0.0003	0.0000	8.47E-04
360		*	0.27	0.049	0.009	0.2420	0.0001	0.0000	7.11E-04
361		*	0.00	0.000	0.000	0.2420	0.0001	0.0000	7.08E-04
362		*	0.00	0.000	0.000	0.2420	0.0001	0.0000	7.09E-04
363		*	0.00	0.000	0.000	0.2420	0.0001	0.0000	7.19E-04
364		*	0.02	0.000	0.007	0.2425	0.0002	0.0000	5.74E-04
365		*	0.10	0.001	0.008	0.2464	0.0004	0.0000	6.55E-04

* = Frozen (air or soil)

Annual Totals for Year 9			
	inches	cubic feet	percent
Precipitation	31.91	297,685.6	100.00
Runoff	0.776	7,235.1	2.43
Evapotranspiration	31.610	294,893.8	99.06
Drainage Collected from Layer 4	0.0009	8.5057	0.00
Percolation/Leakage through Layer 5	0.387047	3,610.8	1.21
Average Head on Top of Layer 5	0.0006	---	---
Change in Water Storage	-0.8642	-8,062.6	-2.71
Soil Water at Start of Year	70.6510	659,110.1	221.41
Soil Water at End of Year	70.3195	656,017.9	220.37
Snow Water at Start of Year	0.5328	4,970.4	1.67
Snow Water at End of Year	0.0000	0.0000	0.00

353		0.00	0.000	0.067	0.2946	0.0000	0.0000	0.00E+00
354		0.00	0.000	0.095	0.2905	0.0000	0.0000	0.00E+00
355		0.00	0.000	0.047	0.2883	0.0000	0.0000	0.00E+00
356		0.00	0.000	0.043	0.2864	0.0000	0.0000	0.00E+00
357		0.00	0.000	0.051	0.2841	0.0000	0.0000	0.00E+00
358	*	0.03	0.000	0.027	0.2838	0.0000	0.0000	0.00E+00
359	*	0.02	0.000	0.032	0.2833	0.0000	0.0000	0.00E+00
360		0.00	0.000	0.030	0.2819	0.0000	0.0000	0.00E+00
361		0.00	0.000	0.034	0.2803	0.0000	0.0000	0.00E+00
362		0.00	0.000	0.039	0.2785	0.0000	0.0000	0.00E+00
363	*	0.00	0.000	0.000	0.2783	0.0000	0.0000	0.00E+00
364	*	0.20	0.000	0.011	0.2789	0.0000	0.0000	0.00E+00
365	*	0.22	0.000	0.017	0.2796	0.0000	0.0000	0.00E+00

* = Frozen (air or soil)

Annual Totals for Year 10			
	inches	cubic feet	percent
Precipitation	32.65	304,590.6	100.00
Runoff	2.899	27,047.3	8.88
Evapotranspiration	28.511	265,979.6	87.32
Drainage Collected from Layer 4	0.0001	0.7572	0.00
Percolation/Leakage through Layer 5	0.127192	1,186.6	0.39
Average Head on Top of Layer 5	0.0001	---	---
Change in Water Storage	1.1122	10,376.3	3.41
Soil Water at Start of Year	70.3195	656,017.9	215.38
Soil Water at End of Year	71.0814	663,125.5	217.71
Snow Water at Start of Year	0.0000	0.0000	0.00
Snow Water at End of Year	0.3504	3,268.6	1.07

353		0.00	0.000	0.018	0.2613	0.0002	0.0000	7.59E-04
354	*	0.00	0.000	0.018	0.2606	0.0001	0.0000	7.67E-04
355	*	0.78	0.000	0.012	0.2614	0.0004	0.0000	6.73E-04
356	*	0.00	0.000	0.006	0.2622	0.0003	0.0000	9.09E-04
357	*	0.00	0.000	0.003	0.2630	0.0002	0.0000	8.23E-04
358	*	0.00	0.000	0.010	0.2638	0.0002	0.0000	7.06E-04
359	*	0.00	0.000	0.004	0.2647	0.0004	0.0000	7.37E-04
360	*	0.00	0.000	0.012	0.2655	0.0004	0.0000	8.07E-04
361		0.00	0.000	0.000	0.2884	0.0004	0.0000	6.59E-04
362		0.00	0.000	0.080	0.2876	0.0003	0.0000	8.95E-04
363		0.00	0.000	0.045	0.2858	0.0001	0.0000	7.27E-04
364		0.00	0.000	0.023	0.2848	0.0004	0.0000	6.37E-04
365		0.00	0.000	0.019	0.2840	0.0002	0.0000	8.49E-04

* = Frozen (air or soil)

Annual Totals for Year 11			
	inches	cubic feet	percent
Precipitation	33.23	310,046.5	100.00
Runoff	1.994	18,606.6	6.00
Evapotranspiration	31.023	289,414.0	93.35
Drainage Collected from Layer 4	0.0039	36.2	0.01
Percolation/Leakage through Layer 5	0.410946	3,833.8	1.24
Average Head on Top of Layer 5	0.0022	---	---
Change in Water Storage	-0.1977	-1,844.0	-0.59
Soil Water at Start of Year	71.0814	663,125.5	213.88
Soil Water at End of Year	71.2341	664,550.2	214.34
Snow Water at Start of Year	0.3504	3,268.6	1.05
Snow Water at End of Year	0.0000	0.0000	0.00

353	0.05	0.000	0.074	0.2874	0.0002	0.0000	2.79E-04
354	0.31	0.000	0.089	0.2964	0.0000	0.0000	0.00E+00
355	0.00	0.000	0.043	0.2947	0.0000	0.0000	0.00E+00
356	0.00	0.000	0.068	0.2919	0.0000	0.0000	0.00E+00
357	0.00	0.000	0.098	0.2878	0.0000	0.0000	0.00E+00
358	0.00	0.000	0.131	0.2823	0.0000	0.0000	0.00E+00
359	0.00	0.000	0.171	0.2752	0.0000	0.0000	0.00E+00
360	0.00	0.000	0.193	0.2671	0.0000	0.0000	0.00E+00
361	0.00	0.000	0.076	0.2640	0.0000	0.0000	0.00E+00
362	0.00	0.000	0.054	0.2617	0.0000	0.0000	0.00E+00
363	0.00	0.000	0.051	0.2596	0.0000	0.0000	0.00E+00
364	0.02	0.000	0.054	0.2582	0.0000	0.0000	0.00E+00
365	0.00	0.000	0.034	0.2568	0.0000	0.0000	0.00E+00

* = Frozen (air or soil)

Annual Totals for Year 12			
	inches	cubic feet	percent
Precipitation	32.07	299,205.3	100.00
Runoff	1.452	13,541.7	4.53
Evapotranspiration	31.019	289,378.1	96.72
Drainage Collected from Layer 4	0.0002	1.7866	0.00
Percolation/Leakage through Layer 5	0.207132	1,932.4	0.65
Average Head on Top of Layer 5	0.0002	---	---
Change in Water Storage	-0.6055	-5,648.7	-1.89
Soil Water at Start of Year	71.2341	664,550.2	222.11
Soil Water at End of Year	70.6286	658,901.6	220.22
Snow Water at Start of Year	0.0000	0.0000	0.00
Snow Water at End of Year	0.0000	0.0000	0.00

353		0.02	0.000	0.034	0.3098	0.0003	0.0000	8.20E-04
354		0.06	0.000	0.055	0.3096	0.0003	0.0000	8.12E-04
355	*	0.00	0.000	0.000	0.3095	0.0003	0.0000	8.04E-04
356	*	0.00	0.000	0.000	0.3093	0.0003	0.0000	7.96E-04
357		0.00	0.000	0.037	0.3076	0.0003	0.0000	6.77E-04
358	*	0.00	0.000	0.000	0.3074	0.0002	0.0000	4.54E-04
359	*	0.00	0.000	0.000	0.3072	0.0001	0.0000	2.35E-04
360	*	0.00	0.000	0.000	0.3070	0.0000	0.0000	3.76E-05
361	*	0.00	0.000	0.000	0.3068	0.0000	0.0000	0.00E+00
362	*	0.06	0.000	0.010	0.3075	0.0000	0.0000	0.00E+00
363		0.00	0.000	0.036	0.3072	0.0000	0.0000	0.00E+00
364	*	0.02	0.000	0.016	0.3071	0.0000	0.0000	0.00E+00
365		0.45	0.000	0.042	0.3237	0.0000	0.0000	0.00E+00

* = Frozen (air or soil)

Annual Totals for Year 13			
	inches	cubic feet	percent
Precipitation	38.46	358,809.5	100.00
Runoff	1.628	15,190.4	4.23
Evapotranspiration	34.877	325,372.3	90.68
Drainage Collected from Layer 4	0.0003	2.9899	0.00
Percolation/Leakage through Layer 5	0.275348	2,568.8	0.72
Average Head on Top of Layer 5	0.0003	---	---
Change in Water Storage	1.6802	15,675.1	4.37
Soil Water at Start of Year	70.6286	658,901.6	183.64
Soil Water at End of Year	72.3089	674,576.7	188.00
Snow Water at Start of Year	0.0000	0.0000	0.00
Snow Water at End of Year	0.0000	0.0000	0.00

353	*		0.00	0.000	0.020	0.2334	0.0003	0.0000	6.84E-04
354	*	*	0.00	0.000	0.000	0.2334	0.0004	0.0000	5.94E-04
355	*	*	0.00	0.000	0.000	0.2334	0.0002	0.0000	8.07E-04
356		*	0.00	0.000	0.000	0.2334	0.0001	0.0000	6.47E-04
357		*	0.00	0.000	0.000	0.2334	0.0004	0.0000	7.02E-04
358		*	0.00	0.000	0.000	0.2334	0.0003	0.0000	6.75E-04
359		*	0.00	0.000	0.000	0.2334	0.0003	0.0000	6.31E-04
360	*	*	0.06	0.000	0.028	0.2334	0.0004	0.0000	7.00E-04
361	*	*	0.00	0.000	0.026	0.2334	0.0004	0.0000	6.73E-04
362	*	*	0.00	0.000	0.001	0.2334	0.0004	0.0000	6.37E-04
363		*	0.00	0.000	0.000	0.2334	0.0004	0.0000	6.95E-04
364	*	*	0.00	0.000	0.000	0.2334	0.0003	0.0000	6.19E-04
365	*	*	0.04	0.000	0.013	0.2334	0.0004	0.0000	6.57E-04

* = Frozen (air or soil)

Annual Totals for Year 14			
	inches	cubic feet	percent
Precipitation	34.21	319,189.0	100.00
Runoff	6.082	56,741.5	17.78
Evapotranspiration	29.849	278,460.2	87.24
Drainage Collected from Layer 4	0.0054	50.3	0.02
Percolation/Leakage through Layer 5	0.563732	5,259.1	1.65
Average Head on Top of Layer 5	0.0030	---	---
Change in Water Storage	-2.2855	-21,322.1	-6.68
Soil Water at Start of Year	72.3089	674,576.7	211.34
Soil Water at End of Year	69.9979	653,017.5	204.59
Snow Water at Start of Year	0.0000	0.0000	0.00
Snow Water at End of Year	0.0254	237.1	0.07

353	*		0.20	0.000	0.008	0.2432	0.0004	0.0000	6.97E-04
354	*	*	0.05	0.000	0.015	0.2432	0.0003	0.0000	8.70E-04
355	*	*	0.08	0.000	0.007	0.2432	0.0002	0.0000	7.21E-04
356	*	*	0.00	0.000	0.017	0.2432	0.0002	0.0000	7.33E-04
357	*	*	0.00	0.000	0.000	0.2432	0.0002	0.0000	6.09E-04
358	*	*	0.00	0.000	0.023	0.2432	0.0004	0.0000	7.24E-04
359	*	*	0.00	0.000	0.007	0.2432	0.0004	0.0000	7.54E-04
360	*	*	0.06	0.000	0.009	0.2432	0.0003	0.0000	7.06E-04
361	*	*	0.00	0.000	0.009	0.2432	0.0003	0.0000	6.86E-04
362	*	*	0.00	0.000	0.000	0.2432	0.0004	0.0000	6.98E-04
363	*	*	0.00	0.000	0.019	0.2432	0.0004	0.0000	7.20E-04
364	*	*	0.00	0.000	0.025	0.2432	0.0003	0.0000	7.00E-04
365		*	0.14	0.216	0.000	0.2561	0.0002	0.0000	7.27E-04

* = Frozen (air or soil)

Annual Totals for Year 15			
	inches	cubic feet	percent
Precipitation	33.70	314,408.6	100.00
Runoff	0.924	8,623.1	2.74
Evapotranspiration	31.925	297,830.7	94.73
Drainage Collected from Layer 4	0.0009	7.9960	0.00
Percolation/Leakage through Layer 5	0.322874	3,012.1	0.96
Average Head on Top of Layer 5	0.0006	---	---
Change in Water Storage	0.5290	4,934.7	1.57
Soil Water at Start of Year	69.9979	653,017.5	207.70
Soil Water at End of Year	70.5523	658,189.3	209.34
Snow Water at Start of Year	0.0254	237.1	0.08
Snow Water at End of Year	0.0000	0.0000	0.00

353	*	0.04	0.000	0.033	0.2662	0.0000	0.0000	0.00E+00
354		0.00	0.000	0.009	0.2658	0.0000	0.0000	0.00E+00
355		0.00	0.000	0.009	0.2654	0.0000	0.0000	0.00E+00
356		0.00	0.000	0.018	0.2647	0.0000	0.0000	0.00E+00
357		0.00	0.000	0.011	0.2642	0.0000	0.0000	0.00E+00
358	*	0.00	0.000	0.000	0.2642	0.0000	0.0000	0.00E+00
359	*	0.00	0.000	0.000	0.2642	0.0000	0.0000	0.00E+00
360	*	0.00	0.000	0.000	0.2642	0.0000	0.0000	0.00E+00
361	*	0.00	0.000	0.011	0.2639	0.0000	0.0000	0.00E+00
362		0.00	0.000	0.017	0.2633	0.0000	0.0000	0.00E+00
363		0.00	0.000	0.009	0.2630	0.0000	0.0000	2.14E-05
364		0.01	0.000	0.016	0.2626	0.0000	0.0000	0.00E+00
365	*	0.00	0.000	0.000	0.2626	0.0000	0.0000	0.00E+00

* = Frozen (air or soil)

Annual Totals for Year 16			
	inches	cubic feet	percent
Precipitation	27.73	258,652.6	100.00
Runoff	0.458	4,270.1	1.65
Evapotranspiration	27.108	252,889.6	97.77
Drainage Collected from Layer 4	0.0001	0.6842	0.00
Percolation/Leakage through Layer 5	0.116193	1,084.0	0.42
Average Head on Top of Layer 5	0.0001	---	---
Change in Water Storage	0.0438	408.3	0.16
Soil Water at Start of Year	70.5523	658,189.3	254.47
Soil Water at End of Year	70.5960	658,597.5	254.63
Snow Water at Start of Year	0.0000	0.0000	0.00
Snow Water at End of Year	0.0000	0.0000	0.00

353		*	0.20	0.050	0.039	0.2935	0.0003	0.0000	5.35E-04
354	*	*	0.21	0.000	0.024	0.2935	0.0003	0.0000	5.65E-04
355		*	0.00	0.000	0.000	0.2935	0.0002	0.0000	6.90E-04
356		*	0.00	0.050	0.037	0.2978	0.0001	0.0000	5.65E-04
357		*	0.15	0.033	0.038	0.3012	0.0003	0.0000	5.46E-04
358	*	*	0.00	0.000	0.001	0.3012	0.0003	0.0000	5.77E-04
359	*	*	0.00	0.000	0.000	0.3012	0.0003	0.0000	5.55E-04
360	*	*	0.00	0.000	0.000	0.3012	0.0002	0.0000	6.90E-04
361	*	*	0.00	0.000	0.000	0.3012	0.0001	0.0000	5.83E-04
362	*	*	0.00	0.000	0.000	0.3012	0.0001	0.0000	5.77E-04
363		*	0.00	0.000	0.000	0.3012	0.0001	0.0000	5.61E-04
364	*	*	0.00	0.000	0.000	0.3012	0.0001	0.0000	5.64E-04
365		*	0.00	0.000	0.000	0.3012	0.0001	0.0000	5.38E-04

* = Frozen (air or soil)

Annual Totals for Year 17			
	inches	cubic feet	percent
Precipitation	32.92	307,088.2	100.00
Runoff	3.212	29,967.3	9.76
Evapotranspiration	28.574	266,570.0	86.81
Drainage Collected from Layer 4	0.0001	1.3829	0.00
Percolation/Leakage through Layer 5	0.124989	1,166.0	0.38
Average Head on Top of Layer 5	0.0001	---	---
Change in Water Storage	1.0058	9,383.5	3.06
Soil Water at Start of Year	70.5960	658,597.5	214.47
Soil Water at End of Year	71.6019	667,981.0	217.52
Snow Water at Start of Year	0.0000	0.0000	0.00
Snow Water at End of Year	0.0000	0.0000	0.00

353		*	0.00	0.000	0.000	0.3876	0.0002	0.0000	7.04E-04
354		*	0.02	0.000	0.012	0.3881	0.0004	0.0000	1.02E-03
355		*	0.00	0.000	0.000	0.3881	0.0001	0.0000	8.44E-04
356		*	0.00	0.000	0.000	0.3881	0.0004	0.0000	7.39E-04
357		*	0.00	0.000	0.003	0.3881	0.0003	0.0000	9.87E-04
358	*	*	0.00	0.000	0.000	0.3881	0.0005	0.0000	8.66E-04
359	*	*	0.13	0.000	0.021	0.3881	0.0005	0.0000	8.33E-04
360	*	*	0.04	0.000	0.000	0.3881	0.0005	0.0000	9.29E-04
361	*	*	0.05	0.000	0.026	0.3881	0.0001	0.0000	8.31E-04
362	*	*	0.00	0.000	0.012	0.3881	0.0002	0.0000	8.68E-04
363	*	*	0.00	0.000	0.006	0.3881	0.0002	0.0000	8.32E-04
364	*	*	0.00	0.000	0.003	0.3881	0.0001	0.0000	8.00E-04
365	*	*	0.04	0.000	0.000	0.3881	0.0004	0.0000	7.61E-04

* = Frozen (air or soil)

Annual Totals for Year 18			
	inches	cubic feet	percent
Precipitation	33.46	312,169.0	100.00
Runoff	3.212	29,967.9	9.60
Evapotranspiration	27.602	257,504.7	82.49
Drainage Collected from Layer 4	0.0007	6.7604	0.00
Percolation/Leakage through Layer 5	0.309715	2,889.4	0.93
Average Head on Top of Layer 5	0.0005	---	---
Change in Water Storage	2.3368	21,800.2	6.98
Soil Water at Start of Year	71.6019	667,981.0	213.98
Soil Water at End of Year	73.7484	688,006.4	220.40
Snow Water at Start of Year	0.0000	0.0000	0.00
Snow Water at End of Year	0.1902	1,774.8	0.57

353	*		0.01	0.000	0.000	0.2115	0.0004	0.0000	6.45E-04
354	*		0.00	0.000	0.023	0.2123	0.0004	0.0000	6.13E-04
355	*		0.00	0.000	0.020	0.2131	0.0002	0.0000	7.37E-04
356	*		0.00	0.000	0.017	0.2139	0.0004	0.0000	6.67E-04
357	*		0.03	0.000	0.007	0.2147	0.0003	0.0000	6.36E-04
358	*		0.00	0.000	0.000	0.2156	0.0003	0.0000	5.61E-04
359	*		0.00	0.000	0.021	0.2164	0.0003	0.0000	7.72E-04
360	*		0.00	0.000	0.018	0.2172	0.0002	0.0000	5.72E-04
361	*		0.21	0.000	0.016	0.2180	0.0004	0.0000	6.80E-04
362	*		0.02	0.000	0.013	0.2188	0.0001	0.0000	6.21E-04
363	*		0.00	0.000	0.022	0.2197	0.0001	0.0000	6.06E-04
364	*		0.00	0.000	0.008	0.2205	0.0003	0.0000	5.86E-04
365	*	*	0.00	0.000	0.016	0.2205	0.0004	0.0000	6.19E-04

* = Frozen (air or soil)

Annual Totals for Year 19			
	inches	cubic feet	percent
Precipitation	26.70	249,048.3	100.00
Runoff	2.616	24,402.4	9.80
Evapotranspiration	27.562	257,125.8	103.24
Drainage Collected from Layer 4	0.0038	35.3	0.01
Percolation/Leakage through Layer 5	0.434569	4,054.1	1.63
Average Head on Top of Layer 5	0.0022	---	---
Change in Water Storage	-3.9199	-36,569.3	-14.68
Soil Water at Start of Year	73.7484	688,006.4	276.25
Soil Water at End of Year	69.6798	650,049.6	261.01
Snow Water at Start of Year	0.1902	1,774.8	0.71
Snow Water at End of Year	0.3390	3,162.2	1.27

353		0.00	0.000	0.030	0.2976	0.0002	0.0000	7.01E-04
354		0.00	0.000	0.021	0.2968	0.0001	0.0000	6.64E-04
355	*	0.00	0.000	0.003	0.2968	0.0002	0.0000	7.15E-04
356	*	0.06	0.000	0.006	0.2976	0.0001	0.0000	6.89E-04
357	*	0.08	0.000	0.000	0.2984	0.0001	0.0000	5.99E-04
358		0.00	0.000	0.026	0.3012	0.0004	0.0000	5.95E-04
359	*	0.00	0.000	0.017	0.3004	0.0004	0.0000	8.25E-04
360		0.00	0.000	0.021	0.2996	0.0001	0.0000	3.31E-04
361	*	0.00	0.000	0.000	0.2996	0.0003	0.0000	5.94E-04
362		0.00	0.000	0.027	0.2985	0.0003	0.0000	8.00E-04
363		0.00	0.000	0.028	0.2973	0.0004	0.0000	7.02E-04
364	*	0.00	0.000	0.000	0.2973	0.0003	0.0000	5.94E-04
365		0.00	0.000	0.031	0.2960	0.0002	0.0000	4.94E-04

* = Frozen (air or soil)

Annual Totals for Year 20			
	inches	cubic feet	percent
Precipitation	37.16	346,682.4	100.00
Runoff	2.723	25,405.0	7.33
Evapotranspiration	32.617	304,284.4	87.77
Drainage Collected from Layer 4	0.0010	9.6563	0.00
Percolation/Leakage through Layer 5	0.339095	3,163.4	0.91
Average Head on Top of Layer 5	0.0007	---	---
Change in Water Storage	1.4814	13,819.9	3.99
Soil Water at Start of Year	69.6798	650,049.6	187.51
Soil Water at End of Year	71.5001	667,031.8	192.40
Snow Water at Start of Year	0.3390	3,162.2	0.91
Snow Water at End of Year	0.0000	0.0000	0.00

353		*	0.00	0.000	0.000	0.2493	0.0001	0.0000	4.88E-04
354		*	0.00	0.000	0.000	0.2493	0.0003	0.0000	5.32E-04
355		*	0.00	0.000	0.000	0.2493	0.0003	0.0000	5.69E-04
356		*	0.00	0.000	0.000	0.2493	0.0001	0.0000	5.14E-04
357	*	*	0.00	0.000	0.000	0.2493	0.0002	0.0000	4.89E-04
358	*	*	0.00	0.000	0.000	0.2493	0.0003	0.0000	5.29E-04
359	*	*	0.00	0.000	0.000	0.2493	0.0003	0.0000	5.27E-04
360	*	*	0.02	0.000	0.010	0.2493	0.0003	0.0000	5.22E-04
361	*	*	0.00	0.000	0.012	0.2493	0.0003	0.0000	5.09E-04
362	*	*	0.00	0.000	0.000	0.2493	0.0003	0.0000	5.68E-04
363	*	*	0.00	0.000	0.000	0.2493	0.0003	0.0000	5.48E-04
364	*	*	0.00	0.000	0.000	0.2493	0.0001	0.0000	4.94E-04
365	*	*	0.01	0.000	0.011	0.2493	0.0003	0.0000	5.24E-04

* = Frozen (air or soil)

Annual Totals for Year 21			
	inches	cubic feet	percent
Precipitation	28.88	269,466.2	100.00
Runoff	1.766	16,473.0	6.11
Evapotranspiration	27.993	261,152.9	96.91
Drainage Collected from Layer 4	0.0004	4.0167	0.00
Percolation/Leakage through Layer 5	0.283282	2,642.8	0.98
Average Head on Top of Layer 5	0.0003	---	---
Change in Water Storage	-1.1584	-10,806.5	-4.01
Soil Water at Start of Year	71.5001	667,031.8	247.54
Soil Water at End of Year	70.3418	656,225.3	243.53
Snow Water at Start of Year	0.0000	0.0000	0.00
Snow Water at End of Year	0.0000	0.0000	0.00

353		*	0.00	0.000	0.000	0.2781	0.0000	0.0000	0.00E+00
354		*	0.00	0.000	0.000	0.2781	0.0000	0.0000	0.00E+00
355		*	0.03	0.000	0.020	0.2787	0.0000	0.0000	0.00E+00
356		*	0.07	0.000	0.026	0.2804	0.0000	0.0000	0.00E+00
357		*	0.00	0.000	0.000	0.2804	0.0000	0.0000	0.00E+00
358		*	0.00	0.000	0.000	0.2804	0.0000	0.0000	0.00E+00
359		*	0.00	0.000	0.000	0.2804	0.0000	0.0000	0.00E+00
360			0.00	0.000	0.045	0.2785	0.0000	0.0000	0.00E+00
361			0.00	0.000	0.033	0.2772	0.0001	0.0000	2.91E-04
362			0.00	0.000	0.019	0.2764	0.0000	0.0000	1.24E-07
363	*		0.00	0.000	0.000	0.2764	0.0000	0.0000	0.00E+00
364			0.00	0.000	0.018	0.2756	0.0000	0.0000	0.00E+00
365			0.00	0.000	0.020	0.2748	0.0000	0.0000	0.00E+00

* = Frozen (air or soil)

Annual Totals for Year 22			
	inches	cubic feet	percent
Precipitation	28.98	270,359.2	100.00
Runoff	0.992	9,255.8	3.42
Evapotranspiration	27.370	255,339.5	94.44
Drainage Collected from Layer 4	0.0000	0.3560	0.00
Percolation/Leakage through Layer 5	0.071939	671.1	0.25
Average Head on Top of Layer 5	0.0001	---	---
Change in Water Storage	0.5459	5,092.4	1.88
Soil Water at Start of Year	70.3418	656,225.3	242.72
Soil Water at End of Year	70.8876	661,317.7	244.61
Snow Water at Start of Year	0.0000	0.0000	0.00
Snow Water at End of Year	0.0000	0.0000	0.00

353			0.01	0.000	0.028	0.2330	0.0005	0.0000	8.66E-04
354			0.00	0.000	0.028	0.2319	0.0004	0.0000	7.85E-04
355			0.00	0.000	0.018	0.2311	0.0005	0.0000	8.70E-04
356			0.03	0.000	0.033	0.2309	0.0005	0.0000	8.38E-04
357			0.00	0.000	0.014	0.2303	0.0004	0.0000	7.70E-04
358	*		0.01	0.000	0.008	0.2303	0.0005	0.0000	8.08E-04
359	*		0.24	0.000	0.019	0.2311	0.0005	0.0000	7.89E-04
360	*		0.00	0.000	0.011	0.2319	0.0003	0.0000	9.73E-04
361	*		0.00	0.000	0.006	0.2327	0.0002	0.0000	8.31E-04
362	*	*	0.05	0.000	0.004	0.2327	0.0002	0.0000	6.62E-04
363	*	*	0.00	0.000	0.021	0.2327	0.0005	0.0000	7.56E-04
364	*	*	0.00	0.000	0.027	0.2327	0.0002	0.0000	9.09E-04
365		*	0.00	0.008	0.020	0.2375	0.0004	0.0000	7.86E-04

* = Frozen (air or soil)

Annual Totals for Year 23			
	inches	cubic feet	percent
Precipitation	35.04	326,912.5	100.00
Runoff	3.966	37,000.2	11.32
Evapotranspiration	31.549	294,325.5	90.03
Drainage Collected from Layer 4	0.0030	28.3	0.01
Percolation/Leakage through Layer 5	0.283867	2,648.2	0.81
Average Head on Top of Layer 5	0.0017	---	---
Change in Water Storage	-0.7600	-7,089.7	-2.17
Soil Water at Start of Year	70.8876	661,317.7	202.29
Soil Water at End of Year	70.1277	654,228.0	200.12
Snow Water at Start of Year	0.0000	0.0000	0.00
Snow Water at End of Year	0.0000	0.0000	0.00

353		0.00	0.000	0.053	0.3821	0.0004	0.0000	1.78E-03
354	*	0.17	0.000	0.024	0.3828	0.0004	0.0000	1.36E-03
355	*	0.00	0.000	0.023	0.3835	0.0009	0.0000	2.19E-03
356	*	0.00	0.000	0.019	0.3841	0.0007	0.0000	2.21E-03
357	*	0.00	0.000	0.016	0.3848	0.0006	0.0000	2.10E-03
358	*	0.00	0.000	0.010	0.3847	0.0007	0.0000	2.18E-03
359	*	0.00	0.000	0.000	0.3845	0.0008	0.0000	2.26E-03
360	*	0.00	0.000	0.000	0.3844	0.0009	0.0000	2.32E-03
361		0.01	0.000	0.047	0.3828	0.0008	0.0000	2.16E-03
362		0.00	0.000	0.044	0.3808	0.0008	0.0000	2.27E-03
363		0.00	0.000	0.070	0.3778	0.0008	0.0000	3.01E-03
364		0.00	0.000	0.048	0.3756	0.0012	0.0000	2.32E-03
365		0.00	0.000	0.068	0.3727	0.0004	0.0000	2.26E-03

* = Frozen (air or soil)

Annual Totals for Year 24			
	inches	cubic feet	percent
Precipitation	31.57	294,551.2	100.00
Runoff	2.118	19,761.3	6.71
Evapotranspiration	25.678	239,555.5	81.33
Drainage Collected from Layer 4	0.0003	2.9796	0.00
Percolation/Leakage through Layer 5	0.256511	2,393.0	0.81
Average Head on Top of Layer 5	0.0003	---	---
Change in Water Storage	3.5200	32,838.5	11.15
Soil Water at Start of Year	70.1277	654,228.0	222.11
Soil Water at End of Year	73.6477	687,066.5	233.26
Snow Water at Start of Year	0.0000	0.0000	0.00
Snow Water at End of Year	0.0000	0.0000	0.00

353		*	0.00	0.065	0.000	0.3525	0.0000	0.0000	0.00E+00
354		*	0.18	0.327	0.000	0.3628	0.0000	0.0000	0.00E+00
355		*	0.17	0.043	0.005	0.3680	0.0000	0.0000	0.00E+00
356		*	0.17	0.050	0.005	0.3728	0.0000	0.0000	0.00E+00
357		*	0.00	0.000	0.000	0.3728	0.0000	0.0000	0.00E+00
358		*	0.00	0.000	0.000	0.3728	0.0000	0.0000	0.00E+00
359		*	0.00	0.000	0.000	0.3728	0.0000	0.0000	0.00E+00
360	*	*	0.00	0.000	0.000	0.3728	0.0000	0.0000	0.00E+00
361	*	*	0.00	0.000	0.000	0.3728	0.0000	0.0000	0.00E+00
362	*	*	0.00	0.000	0.000	0.3728	0.0000	0.0000	0.00E+00
363	*	*	0.04	0.000	0.006	0.3728	0.0000	0.0000	0.00E+00
364	*	*	0.00	0.000	0.014	0.3728	0.0000	0.0000	0.00E+00
365	*	*	0.00	0.000	0.016	0.3728	0.0000	0.0000	0.00E+00

* = Frozen (air or soil)

Annual Totals for Year 25			
	inches	cubic feet	percent
Precipitation	29.39	274,159.2	100.00
Runoff	2.700	25,191.2	9.19
Evapotranspiration	26.152	243,972.1	88.99
Drainage Collected from Layer 4	0.0101	94.3	0.03
Percolation/Leakage through Layer 5	0.664187	6,196.3	2.26
Average Head on Top of Layer 5	0.0056	---	---
Change in Water Storage	-0.1388	-1,294.7	-0.47
Soil Water at Start of Year	73.6477	687,066.5	250.61
Soil Water at End of Year	73.5007	685,695.7	250.11
Snow Water at Start of Year	0.0000	0.0000	0.00
Snow Water at End of Year	0.0082	76.1	0.03

353		0.00	0.000	0.016	0.1957	0.0001	0.0000	7.10E-04
354		0.00	0.000	0.015	0.1951	0.0003	0.0000	6.60E-04
355	*	0.07	0.000	0.017	0.1959	0.0004	0.0000	7.02E-04
356	*	0.00	0.000	0.009	0.1967	0.0004	0.0000	7.47E-04
357	*	0.01	0.000	0.031	0.1961	0.0004	0.0000	7.36E-04
358		0.00	0.000	0.016	0.1954	0.0004	0.0000	7.88E-04
359		0.00	0.000	0.016	0.1947	0.0002	0.0000	6.09E-04
360		0.00	0.000	0.016	0.1940	0.0004	0.0000	7.38E-04
361		0.11	0.000	0.038	0.1972	0.0004	0.0000	6.42E-04
362	*	0.00	0.000	0.000	0.1972	0.0004	0.0000	6.60E-04
363	*	0.00	0.000	0.015	0.1966	0.0002	0.0000	8.06E-04
364	*	0.25	0.000	0.012	0.1974	0.0002	0.0000	7.44E-04
365	*	0.11	0.000	0.006	0.1982	0.0002	0.0000	5.28E-04

* = Frozen (air or soil)

Annual Totals for Year 26			
	inches	cubic feet	percent
Precipitation	31.12	290,297.1	100.00
Runoff	0.929	8,669.1	2.99
Evapotranspiration	33.506	312,584.5	107.68
Drainage Collected from Layer 4	0.0211	197.1	0.07
Percolation/Leakage through Layer 5	0.699683	6,527.4	2.25
Average Head on Top of Layer 5	0.0117	---	---
Change in Water Storage	-4.0391	-37,681.1	-12.98
Soil Water at Start of Year	73.5007	685,695.7	236.20
Soil Water at End of Year	69.1615	645,214.1	222.26
Snow Water at Start of Year	0.0082	76.1	0.03
Snow Water at End of Year	0.3083	2,876.6	0.99

353	*	0.18	0.000	0.016	0.2159	0.0003	0.0000	5.99E-04
354	*	0.00	0.000	0.023	0.2167	0.0001	0.0000	5.73E-04
355		0.00	0.000	0.023	0.2199	0.0001	0.0000	5.49E-04
356	*	0.00	0.000	0.000	0.2199	0.0001	0.0000	5.27E-04
357		0.00	0.000	0.003	0.2198	0.0003	0.0000	5.30E-04
358		0.00	0.000	0.005	0.2196	0.0003	0.0000	5.83E-04
359		0.00	0.000	0.003	0.2195	0.0002	0.0000	5.16E-04
360		0.00	0.000	0.009	0.2191	0.0003	0.0000	5.81E-04
361		0.07	0.000	0.044	0.2202	0.0002	0.0000	5.47E-04
362		0.00	0.000	0.024	0.2193	0.0002	0.0000	5.85E-04
363		0.00	0.000	0.016	0.2186	0.0002	0.0000	4.07E-04
364		0.00	0.000	0.003	0.2185	0.0002	0.0000	6.09E-04
365		0.00	0.000	0.003	0.2184	0.0003	0.0000	5.80E-04

* = Frozen (air or soil)

Annual Totals for Year 27			
	inches	cubic feet	percent
Precipitation	28.66	267,414.9	100.00
Runoff	0.576	5,370.1	2.01
Evapotranspiration	27.736	258,756.2	96.76
Drainage Collected from Layer 4	0.0002	1.7851	0.00
Percolation/Leakage through Layer 5	0.217327	2,027.5	0.76
Average Head on Top of Layer 5	0.0002	---	---
Change in Water Storage	0.1350	1,259.3	0.47
Soil Water at Start of Year	69.1615	645,214.1	241.28
Soil Water at End of Year	69.6048	649,350.0	242.82
Snow Water at Start of Year	0.3083	2,876.6	1.08
Snow Water at End of Year	0.0000	0.0000	0.00

353	*	*	0.00	0.000	0.000	0.3556	0.0001	0.0000	7.31E-04
354	*	*	0.00	0.000	0.006	0.3556	0.0004	0.0000	8.68E-04
355	*	*	0.00	0.000	0.000	0.3556	0.0002	0.0000	6.11E-04
356	*	*	0.07	0.000	0.007	0.3556	0.0003	0.0000	9.01E-04
357	*	*	0.12	0.000	0.000	0.3556	0.0001	0.0000	7.67E-04
358		*	0.02	0.634	0.000	0.3655	0.0002	0.0000	7.72E-04
359		*	0.02	0.000	0.013	0.3657	0.0002	0.0000	7.15E-04
360	*	*	0.02	0.000	0.023	0.3657	0.0002	0.0000	8.07E-04
361		*	0.07	0.006	0.024	0.3675	0.0002	0.0000	6.05E-04
362		*	0.00	0.000	0.000	0.3675	0.0004	0.0000	7.88E-04
363		*	0.00	0.000	0.002	0.3675	0.0004	0.0000	7.91E-04
364	*	*	0.00	0.000	0.000	0.3675	0.0003	0.0000	7.66E-04
365		*	0.00	0.000	0.000	0.3675	0.0001	0.0000	7.28E-04

* = Frozen (air or soil)

Annual Totals for Year 28			
	inches	cubic feet	percent
Precipitation	33.27	310,340.3	100.00
Runoff	2.571	23,981.6	7.73
Evapotranspiration	26.723	249,297.5	80.33
Drainage Collected from Layer 4	0.0019	17.8	0.01
Percolation/Leakage through Layer 5	0.342082	3,191.3	1.03
Average Head on Top of Layer 5	0.0011	---	---
Change in Water Storage	3.6287	33,852.1	10.91
Soil Water at Start of Year	69.6048	649,350.0	209.24
Soil Water at End of Year	73.2334	683,202.2	220.15
Snow Water at Start of Year	0.0000	0.0000	0.00
Snow Water at End of Year	0.0000	0.0000	0.00

353	*	*	0.01	0.000	0.007	0.4463	0.0004	0.0000	1.09E-03
354	*	*	0.00	0.000	0.000	0.4463	0.0005	0.0000	1.21E-03
355	*	*	0.14	0.000	0.013	0.4463	0.0005	0.0000	1.36E-03
356	*	*	0.00	0.000	0.013	0.4463	0.0006	0.0000	2.01E-03
357		*	0.00	0.052	0.021	0.4482	0.0004	0.0000	1.36E-03
358	*	*	0.00	0.000	0.000	0.4482	0.0009	0.0000	2.24E-03
359		*	0.00	0.000	0.000	0.4482	0.0006	0.0000	2.10E-03
360		*	0.04	0.006	0.008	0.4493	0.0008	0.0000	2.24E-03
361		*	0.05	0.013	0.008	0.4507	0.0005	0.0000	2.20E-03
362		*	0.00	0.000	0.000	0.4507	0.0012	0.0000	3.10E-03
363	*	*	0.00	0.000	0.000	0.4507	0.0009	0.0000	2.23E-03
364	*	*	0.09	0.000	0.021	0.4507	0.0007	0.0000	3.07E-03
365	*	*	0.05	0.000	0.000	0.4507	0.0013	0.0000	2.32E-03

* = Frozen (air or soil)

Annual Totals for Year 29			
	inches	cubic feet	percent
Precipitation	44.63	416,334.4	100.00
Runoff	5.512	51,422.2	12.35
Evapotranspiration	36.136	337,113.6	80.97
Drainage Collected from Layer 4	0.0232	216.2	0.05
Percolation/Leakage through Layer 5	0.646280	6,029.2	1.45
Average Head on Top of Layer 5	0.0128	---	---
Change in Water Storage	2.3103	21,553.3	5.18
Soil Water at Start of Year	73.2334	683,202.2	164.10
Soil Water at End of Year	75.4193	703,593.8	169.00
Snow Water at Start of Year	0.0000	0.0000	0.00
Snow Water at End of Year	0.1245	1,161.7	0.28

353		*	0.13	0.181	0.000	0.3629	0.0000	0.0000	0.00E+00
354		*	0.00	0.000	0.000	0.3629	0.0000	0.0000	0.00E+00
355		*	0.14	0.022	0.013	0.3673	0.0000	0.0000	0.00E+00
356		*	0.00	0.000	0.000	0.3673	0.0000	0.0000	0.00E+00
357		*	0.00	0.000	0.000	0.3673	0.0000	0.0000	0.00E+00
358		*	0.00	0.000	0.000	0.3673	0.0000	0.0000	0.00E+00
359		*	0.00	0.000	0.000	0.3673	0.0000	0.0000	0.00E+00
360		*	0.05	0.000	0.011	0.3688	0.0000	0.0000	0.00E+00
361		*	0.00	0.000	0.004	0.3689	0.0000	0.0000	0.00E+00
362			0.00	0.000	0.093	0.3648	0.0005	0.0000	1.35E-03
363			0.00	0.000	0.122	0.3596	0.0005	0.0000	1.33E-03
364			0.00	0.000	0.060	0.3569	0.0005	0.0000	1.31E-03
365	*		0.00	0.000	0.025	0.3556	0.0005	0.0000	1.29E-03

* = Frozen (air or soil)

Annual Totals for Year 30			
	inches	cubic feet	percent
Precipitation	34.05	317,701.9	100.00
Runoff	3.309	30,873.6	9.72
Evapotranspiration	32.515	303,339.3	95.48
Drainage Collected from Layer 4	0.0130	121.6	0.04
Percolation/Leakage through Layer 5	0.720378	6,720.5	2.12
Average Head on Top of Layer 5	0.0072	---	---
Change in Water Storage	-2.5032	-23,353.0	-7.35
Soil Water at Start of Year	75.4193	703,593.8	221.46
Soil Water at End of Year	73.0405	681,402.5	214.48
Snow Water at Start of Year	0.1245	1,161.7	0.37
Snow Water at End of Year	0.0000	0.0000	0.00

Average Annual Totals Summary

Title: Anderson Excavating
Simulated on: 4/8/2026 9:47

	Average Annual Totals for Years 1 - 30*			
	(inches)	[std dev]	(cubic feet)	(percent)
Precipitation	32.60	[3.93]	304,154.4	100.00
Runoff	2.138	[1.409]	19,950.1	6.56
Evapotranspiration	30.031	[3.298]	280,163.8	92.11
Subprofile1				
Lateral drainage collected from Layer 4	0.0055	[0.0092]	51.0	0.02
Percolation/leakage through Layer 5	0.379181	[0.222322]	3,537.4	1.16
Average Head on Top of Layer 5	0.0031	[0.005]	---	---
Water storage				
Change in water storage	0.0485	[1.8426]	452.2	0.15

* Note: Average inches are converted to volume based on the user-specified area.

Peak Values Summary

Title: Anderson Excavating
Simulated on: 4/8/2026 9:48

	Peak Values for Years 1 - 30*		
	(inches)		(cubic feet)
Precipitation	3.29		30,694.7
Runoff	1.581		14,751.2
Subprofile1			
Drainage collected from Layer 4	0.0003		2.6285
Percolation/leakage through Layer 5	0.003099		28.9
Average head on Layer 5	0.0566		---
Maximum head on Layer 5	0.1108		---
Location of maximum head in Layer 4	0.95	(feet from drain)	
Other Parameters			
Snow water	2.6786		24,988.8
Maximum vegetation soil water	0.4640	(vol/vol)	
Minimum vegetation soil water	0.1870	(vol/vol)	

Final Water Storage in Landfill Profile at End of Simulation Period

Title: Anderson Excavating
Simulated on: 4/8/2026 9:48
Simulation period: 30 years

	Final Water Storage	
Layer	(inches)	(vol/vol)
1	8.5352	0.3556
2	10.0373	0.4182
3	32.4000	0.1500
4	1.5720	0.1310
5	20.4960	0.4270
Snow water	0.0000	---

Attachment C

1996 Construction Observation Report: Permeability Test Results

ALLENDER BUTZKE ENGINEERS INC.
GEOTECHNICAL • ENVIRONMENTAL • CONSTRUCTION Q.C.

Barker Environmental Services
1300 Cummings Rd. Suite 201
Des Moines, IA 50315
Attn: Mr. Tracy Lamar

November 8, 1996

RE: Laboratory Soil Analysis
AW C & D Landfill
Council Bluffs, Iowa
PN 961575

Dear Mr. Lamar:

Enclosed are the results of Standard Proctor compaction and permeability tests performed on four soil samples submitted from the AW C & D Landfill. The soils submitted consisted of bulk disturbed samples delivered in October 1996.

The Standard Proctor (ASTM -D698) tests were conducted on representative soil of Sample "B" and the Sample "A and C" mixture to evaluate compaction characteristics. Results of the Standard Proctor tests are presented on the enclosed Figure Nos. 1 and 2.

Permeability characteristics of the soil liner sample mixtures were evaluated by conducting falling head permeability tests on soil remolded near or slightly above the optimum moisture content and compacted to near 95 percent of the determined maximum dry density. The remolded samples were 6 inches in length and the permeability tests were conducted by passing water through the soil samples under water heads ranging from 6 to 10 feet. A constant head permeability test was conducted on 6 inches of the crushed concrete/brick drainage layer material compacted to a density which would be typical for a moderately compacted granular material. Permeability tests were conducted by passing water through the soil sample under a head of 1.5 feet. The results of the permeability tests are provided on the following Table A.

TABLE A

Sample Designation	Moisture Content (percent)	Dry Density (pcf)	Coefficient of Permeability (cm\sec)	Percent Compaction
Loess/10% Bentonite Cake	17.7	100.7	3.1×10^{-7}	95.0*
Loess/40% Bentonite Cake	21.3	94.3	2.0×10^{-7}	94.1**
Clay/Bentonite Mixture	17.4	103.2	8.8×10^{-8}	94.5
Crushed Concrete/Brick	12.8	110.6	1.1×10^{-3}	--

* Based on 1-point Proctor of 10% mixture OMC=18% Maximum Dry Density=106pcf
** Assumes Standard Proctor results for 40% mixture similar to 30% mixture

Attachment D

Calculations Worksheet

Calculation Inputs

Pipe Dimension: 4-inch diameter

Pipe Volume: 0.0873 ft^3/foot (0.653 gallons/foot)

Trench Dimensions: 24"x18"

Trench Volume: 3 ft^3/foot (22.442 gallons/foot)

Trench Void Space: 35%

Trench Void Space Volume: 1.05 ft^3/foot (7.855 gallons/foot)

Trench Voice Space Volume Excluding Embedded Pipe: 0.9627 ft^3/foot (7.201 gallons/foot)

Hose Flow Rate: 38 gallons/minute

Cleanout	Solid Pipe Length (feet)	Solid Pipe Volume (gallons)	Perforated Pipe Length (feet)	Perforated Pipe Volume (gallons)	Trench Length (feet)	Trench Volume (gallons)	Multiplication Factor	Total Volume (gallons)
1	472	314.2	244	164.6	244	1858.9	1.5	3,507
2	502	336.6	252	164.6	252	1921.7	1.5	3,634
3	296	194.5	218	142.1	218	1662.5	1.5	2,999
4	260	169.8	186	121.4	186	1418.5	1.5	2,565
5	132	86.2	401	261.8	401	3067.1	1.5	5,123