FIGURE 1: 30 TAC §210.24(b)

TABLE 1

WATER BALANCE EXAMPLE

(All Units are Inches of Water per Acre of Irrigated Area)

	a	b	Ri	c	d			e	f	g
Month	Average Precipi-tation	Average Runoff	Average Infil-trated Rainfall	Evapo-transpi-ration	Required Leaching	Total Water Needs (5)+(6)	Effluent Needed in Root Zone (7)-(4)	Evapo-ration from Reservoir Surface	Effluent to be Applied to Land (8)/K	Consumption from Reservoir (9) + (10)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Jan.	2.11	0.40	1.71	0.80	0.00	0.80	0.00	0.02	0.00	0.02
Feb.	2.43	0.57	1.86	1.20	0.00	1.20	0.00	0.01	0.00	0.01
Mar.	2.02	0.36	1.66	2.80	0.20	3.00	1.34	0.09	1.58	1.67
Apr.	3.19	1.03	2.16	3.40	0.22	3.62	1.46	0.05	1.72	1.77
May	4.19	1.74	2.45	6.10	0.64	6.74	4.29	0.10	5.05	5.15
June	3.30	1.10	2.20	6.50	0.76	7.26	5.06	0.20	5.95	6.15
July	2.20	0.45	1.75	6.70	0.87	7.57	5.82	0.34	6.85	7.19
Aug.	2.12	0.41	1.71	4.60	0.51	5.11	3.40	0.34	4.00	4.34
Sept.	3.58	1.30	2.28	5.10	0.50	5.60	3.32	0.19	3.91	4.10
Oct.	3.09	0.96	2.13	4.10	0.35	4.45	2.32	0.14	2.73	2.87
Nov.	2.23	0.46	1.77	2.10	0.06	2.16	0.39	0.07	0.46	0.53
Dec.	2.34	0.52	1.82	1.00	0.00	1.00	0.00	0.03	0.00	0.03
	32.80	9.30	23.50	44.40	4.11	48.51	27.40	1.58	32.25	33.83

Table 1 Footnotes

a. Up-to date rainfall and evaporation data sets are available from the Texas Natural Resources Information System.

b. Runoff should be determined by an acceptable method such as the Soil Conservation Service method found in SCS Technical Releases No. 55. For calculation purposes only, a CN value of 74 was assumed for good pasture with Class "C" soils.

c. Suggested source of values is the "Bulletin 6019, Consumptive Use of Water by Major Crops in Texas", Texas Board of Water Engineers.

d. In low rainfall areas, this is the required leaching to avoid salinity build-up in the soil where:

$$L = \frac{Ce}{C1-Ce}(E - Ri)$$

Ri = Infiltrated rainfall

Ce = Electrical conductivity of effluent

C1 = Maximum Allowable Conductivity of Soil Solution (Table 3)

E = Evapotranspiration

For calculation purposes only, Ce is measured to be 1.5 millimhos/cm @ 25° and C1 is 10.0 (Bermuda Grass)

e. Net evaporation from reservoir surface. For the purpose of calculation, an assumption must be made as to the ratio of irrigated land area to reservoir surface area. For this example problem, the necessary reservoir area was assumed to be 17% of the irrigated area. If, after all calculations are made, the reservoir dimensions do not seem reasonable, then a new assumption must be made and the calculations repeated. Values in column (9) are adjusted to be inches per irrigated acre.

f. K is the irrigation efficiency which for this example is taken to be 0.85.

g. The total of this column together with the expected annual volume of effluent will determine the acreage of irrigated land required.