TENNESSEE VALLEY AUTHORITY

Division of Health and Safety
Environmental Hygiene Branch

EFFECT OF STREAM POLLUTION ON WATER RESOURCES

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Area 8 - Clinch River Watershed--This area contains the highest percentage of cities discharging untreated sewage to surface streams of any watershed in the Valley. The streams in the headwaters of this region are heavily polluted during low-flow periods. Few of the numerous small mining communities of this area have any degree of treatment and, in the few instances where treatment has been provided, the degree is inadequate.

Tazewell and North Tazewell (Virginia), as well as Saint Paul, Norton, Appalachia, Big Stone Gap, Pennington Gap, and LaFollette, in addition to numerous smaller communities, do not provide any degree of treatment. Richlands provides only a token degree of treatment.

Below Norris Reservoir, the degree of treatment is much more satisfactory. Clinton and Kingston have both recently completed primary treatment plants, while Lake City has had primary treatment for a longer period. Norris uses secondary treatment, while the Oak Ridge area is serviced by several treatment plants which provide either primary or secondary treatment.

Industrial wastes problems in the headwater areas are caused mostly by the use of water for coal washing operations. Coal fines are carried into the streams. Two industries at Clinton (1950 population equivalent of 5,200) are planning to take advantage of the municipal system to eliminate pollution of the Clinch River at that point.

Table 9 indicates the degree of waste treatment provided in 1955 and the predicted treatment for 1975. Plate A10 shows the various interrelationships of water uses in Area 8.

Area 9 - Holston River Watershed--This area has had a number of serious pollution problems, both from municipal and industrial sources. Considering the magnitude of the problem, excellent results have been obtained in eliminating untreated sewage from the surface streams of this area. Considerable progress has also been attained in reducing or treating industrial wastes, but a number of serious problems remain in this field.

TABLE 9

STATUS OF MUNICIPAL SEWAGE TREATMENT IN THE TENNESSEE VALLEY

Area 8 - Clinch River Watershed

Location	Receiving Stream	Dilution Available cfs	1955 Conditions				1975 Conditions			
			Connected Pop.	cfs/100 PE	Present Treatment	PE to Stream	Connected Pop.	cfs/100 PE	Indicated Treatment	PE to Stream
Kingston, Tenn.	Clinch R.	----	2,880	----	Pri.[1]	1,920	3,960	----	Pri.	2,640
Oak Ridge (East), Tenn.	Clinch R.	----	14,100	----	Sec.	1,410	17,800	----	Sec.	1,780
Oak Ridge (West), Tenn.	Poplar Ck.	----	16,500	----	Pri.	11,000	20,900	----	Sec.	2,090
Clinton, Tenn.	Clinch R.	----	5,760	----	Pri.	3,840	8,190	----	Pri.	5,460
Norris, Tenn.	Buffalo Ck.	----	1,120	----	Sec.	112	1,580	----	Sec.	158
Lake City, Tenn.	Coal Ck.	<1.	1,980	<0.05	Pri.	1,320	2,970	<0.03	Sec.	297
LaFollette, Tenn.	Big Ck.	<1.	6,300	<0.01	None	6,300	8,370	<0.01	Sec.	837
Pennington Gap, Va.	N. Powell R.	10.	2,070	0.48	None	2,070	1,710	0.54	Sec.	171
Big Stone Gap, Va.	Powell R.	7.	4,860	0.14	None	4,860	5,220	0.13	Sec.	522
Appalachia, Va.	Powell R.	5.	3,060	0.16	None	3,060	2,610	0.19	Sec.	261
Stonega, Va.	Callahan Ck.	----	1,350	----	None	1,350	1,440	----	Sec.	144
Roda-Osaka, Va.	Mud Lick Ck.	----	1,800	----	None	1,800	1,890	----	Sec.	189
Wise, Va.	Bear Ck.	----	1,530	----	None	1,530	1,980	----	Sec.	198
Norton, Va.	Guest R.	<1.	4,050	<0.02	None	4,050	4,140	<0.02	Sec.	414

TABLE 9 (Continued)

STATUS OF MUNICIPAL SEWAGE TREATMENT IN THE TENNESSEE VALLEY

Area 8 - Clinch River Watershed

Location	Receiving Stream	Dilution Available cfs	1955 Conditions				1975 Conditions			
			Connected Pop.	cfs/100 PE	Present Treatment	PE to Stream	Connected Pop.	cfs/100 PE	Indicated Treatment	PE to Stream
St. Paul, Va.	Clinch R.	57.	1,170	4.87	None	1,170	1,440	3.96	Pri.	960
Dante, Va.	Lick Ck.	----	2,160	----	None	2,160	1,800	----	Sec.	180
Richlands, Va.	Clinch R.	15.	5,040	0.30	None	5,040	8,100	0.18	Sec.	810
Cedar Bluff, Va.	Clinch R.	----	1,080	----	None	1,080	1,710	----	Pri.	1,140
Tazewell, Va.	Town Br.[2]	6.	2,070	0.30	None	2,070	2,520	0.24	Sec.	252
			78,880			56,142	98,330			18,503

[1] Installed 1957.

[2] Probable future point of discharge, Clinch River.