

**9 VAC 25-430-20. State water quality goals.**

A. Present policy and existing situation. The overall water quality goal of the state is to insure that surface and groundwaters are maintained at the highest possible levels that are economically feasible. The SWCB carries out this policy by instituting programs that upgrade the quality levels of waters in which the water quality standards are violated, and that maintain existing levels where the quality is higher than the minimum standards.<sup>6</sup> At least once each three-year period, the SWCB conducts public hearings for the purpose of receiving comments on applicable water quality standards and, as appropriate, modifying and adopting revised standards.<sup>7</sup> When applied to the Roanoke River Basin, these goals call for water quality in the streams and reservoirs which is adequate for public water supplies, for recreational activities, and for the protection and propagation of fish and aquatic life.<sup>8</sup>

State adopted water quality goals can be met by regulating and controlling the quantities of pollutants discharged into surface and groundwaters. The National Pollutant Discharge Elimination System (NPDES) provides a procedure which regulates quantities of pollutants, including materials toxic to fish and aquatic life, being discharged from municipal sewerage and industrial wastewater outfalls, i.e., quantities of point source pollutants. These limits of pollutant levels and resulting wastewater treatment requirements may be modified periodically as required by federal or state statute.<sup>9</sup>

B. Mathematical analysis of the basin. Analysis of a basin such as the Roanoke for required waste treatment levels is best accomplished by subdividing it into a series of segments, determined on the basis of water quality and hydrologic characteristics. These segments are classified as either effluent limitation or water quality, according to the degree of treatment necessary for attainment of established water quality goals.<sup>10</sup> Effluent limitation segments are those in which the water quality goals will be met after municipal facilities have "secondary treatment" level capabilities, and industrial facilities have "best practicable technology" (BPT) in their treatment plants. Water quality segments are those requiring treatment levels higher than the foregoing levels in order to meet the standards.<sup>11</sup> In the consultant's report, segments were classified "Effluent" if streams receive only minor discharges, have no known water quality problems, and along which no population or industrial growth is anticipated. BPT will be sufficient to comply with state and EPA regulations. BPT is a technical term defined in P.L. 92-500 and generally defines national

minimum level of treatment for various industries. Segments with existing or anticipated water quality problems were classified "effluent limitation." BPT will be sufficient to correct these problems in the near future, although rapid growth may require a higher degree of treatment at a later date.

The exact treatment levels required of each discharger in a water quality segment are determined using a wasteload allocation system. This allocation is based on biological, chemical and hydrologic characteristics of the stream segment, and on the economic aspects of the segment watershed area.

Presented in Table 1 are the segment classifications for the waters of the Roanoke basin. Since the classification system is functionally dependent upon waste flows, levels of treatment, and growth, it follows that some streams will be reclassified in the future as conditions change. It should be pointed out that implementation of the goals of BAT by 1983 and zero discharge by 1985 could completely change the classification system. Secondary treatment, BPT and stream assimilation capacities were used as the foundation for the formulation of wasteload allocations. Based on these requirements, total loadings with respect to the major constituents (BOD<sub>5</sub>, suspended solids, nitrogen, and phosphorus) were generated for each existing and potential discharger depending upon the treatment levels which were deemed necessary to meet water quality standards. In segments with two or more dischargers three methodologies were examined. The equal treatment method was used in this river basin plan for areas with existing and future multiple dischargers.

1. Equal treatment: all dischargers provide equal treatment, i.e., the same removal efficiency of 90% or better for BOD<sub>5</sub> and suspended solids.

2. Equal effluent: all dischargers provide the same effluent concentrations, i.e., 30 mg/l or less for BOD<sub>5</sub> and suspended solids.

3. Population equivalent: industrial waste and other dischargers converted to population equivalent, i.e., 240 mg/l of BOD<sub>5</sub> and suspended solids for raw waste concentrations.

Presented in Tables 2 and 3 are the wasteload allocations for significant dischargers in the basin. Although BOD<sub>5</sub> is the only constituent for which allocations are established, other major components are presented as suggested NPDES permit numbers in the consultant's report.

It must be stressed that these numbers represent only a preliminary evaluation based on limited data and should be further investigated with detailed field data especially in areas where higher than secondary levels of treatment have been suggested.

For the Roanoke River basin, the segments were analyzed using the TVA flat water equation corrected for stream slope.<sup>12</sup> This mathematical formula yields the number of pounds per day of five-day biochemical oxygen demand (BOD<sub>5</sub>) which can be discharged. The TVA flat water equation was utilized for stream water quality analysis and for allowable amounts of wastewater discharges in this basin. This formula was selected because its parameters require less extensive field data than do other equations, such as Streeter-Phelps. Given the comparatively limited amounts of data for much of the Roanoke Basin area, the use of the TVA equation presently appears to be the most expeditious approach for stream water quality analysis. As more data becomes available, alternative methods of analysis can be considered, and in future updates of this plan, the appropriate action items can be amended to reflect use of these other equations and methods of analysis. Depending on the scope of either the data collection efforts or the analysis, such alternative analyses can be applied either to the entire basin or to specific portions of it. Further discussion on the TVA equation and its capabilities and limitations are found on page 944 through 949 of the Volume V-A report and a discussion of wasteload allocations for the basin is given on page 210.

C. Board actions to meet water quality goals. The following board actions will be taken:

1. Adopt the segment classifications given in the basin planning report to amend those given in the State Continuing Planning Process 1973-74,<sup>13,14</sup> and

2. Utilize the TVA flat water equation to determine the total assimilation capacity of each stream segment, and assure that these assimilation capacities are not exceeded by discharge levels allowed under the NPDES Program; and

3. Direct that the mathematical analyses of the water quality segments in this basin be continued as additional data becomes available.

<sup>6</sup> Commonwealth of Virginia, State Water Control Law, § 62.1-44.2; § 62.1-44.36.

<sup>7</sup> P. L. 92-500, Section 303(c).

<sup>8</sup> SWCB, Water Quality Standards §§ 1.01, 1.03 through 1.06, 2.01, 2.02, 4.02, 4.03.

<sup>9</sup> P. L. 92-500, Section 402.

<sup>10</sup> Hayes, Seay, Mattern & Mattern, Roanoke River Basin Comprehensive Water Resources Plan, Volume V-A, pp. 183-227; 944-1130.

<sup>11</sup> P. L. 92- 500, Sections 301 and 302.

<sup>12</sup> Hayes, Seay, Mattern & Mattern, Roanoke River Basin Comprehensive Water Resources Plan, Volume V-A, pp. 945-949.

<sup>13</sup> Ibid, pp. 204-209.

<sup>14</sup> SWCB, 1973-74 Continuing Water Quality Planning Process, p. 1-8.

## TABLE 1

### STREAM SEGMENT CLASSIFICATION

#### ROANOKE RIVER BASIN WATER QUALITY MANAGEMENT PLAN

Classification	Segment Description
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E All tributaries to the Roanoke River not previously classified in this WQMA.

WQMA V

E Roanoke River and all tributaries in this WQMA.

WQMA VI

WQ Ash Camp Creek.

EL Twittys Creek.

E Roanoke Creek to include all tributaries not previously classified in this WQMA.

WQMA VII

WQ Banister River from confluence of Polecat Creek to confluences of Dan and Banister Rivers (River only).

EL Dan River from confluence Miry Creek to backwaters of Kerr Reservoir (River Only).

WQ Kerr Reservoir.

WQ Little Bluestone Creek.

WQ Butcher Creek.

WQ Flat Creek.

E All tributaries to Kerr Reservoir, Dan River and Banister River not previously classified in this

E Roanoke River from confluence Clover Creek to headwaters of Kerr Reservoir.

E All tributaries to the Roanoke River in this WQMA not previously classified.

WQMA VIII

E Hyco River from the NC-VA. State Line to its confluence with the Dan River to include all tributaries.

WQMA IX

E Banister River through this WQMA.

- EL Georges Creek.
- EL Cherrystone Creek.
- E All tributaries to Banister River not previously classified in this WQMA.

WQMA X

- E Dan River from the NC-VA State Line to one mile above the confluence of Sandy River (River only).
- E Sandy River to include all tributaries.
- WQ Dan River from one mile above confluence of Sandy River to NC-VA Line.
- E Dan River from NC-VA line to confluence Miry Creek.
- E All tributaries to the Dan River in Virginia not previously classified in this WQMA.

WQMA XII

- E Smith River from its headwaters to Philpott Dam.
- WQ Smith River from Philpott Dam to the NC-VA State Line.
- EL Marrowbone Creek.
- EL Leatherwood Creek.
- E All tributaries to the Smith River not previously classified in this WQMA.

WQMA XIII

- E North Mayo River from its headwaters to the NC-VA State Line to include all tributaries.

WQMA XIV

- E Headwaters South Mayo River to confluence North Fork South Mayo River.
- EL South Mayo River from confluence with North Fork to NC-VA Line.
- E All tributaries of the South Mayo River not previously classified in this WQMA.

WQMA XV

- E All streams in this WQMA.

Source: Hayes, Seay, Mattern & Mattern

TABLE 2.  
 WASTELOAD ALLOCATIONS FOR SIGNIFICANT DISCHARGES FOR SELECTED ALTERNATIVE  
 ROANOKE RIVER BASIN WATER QUALITY MANAGEMENT PLAN

Water Quality Management					303(e) Wasteload Allocation
Area (WQMA)	Study Area Name	Discharger	Stream Name	Segment Classification	BOD <sub>5</sub> lbs/day
WQMA IV	Appomattox	Appomattox STP	Falling R.	EL	100.0
WQMA IV	Brookneal	Brookneal STP and Burlington Ind. – Brookneal	Roanoke R.	EL	1381.20
WQMA IV	Rustburg	Rustburg STP	Molleys Cr.	WQ	17.94
WQMA VI	Drakes Branch	Drakes Branch and Burlington Ind. - Drakes Branch	Twittys Cr.	EL	27.82
WQMA VI	Keysville	Keysville and Virginia Crafts	Ash Camp Cr.	WQ	48.00 <sup>1</sup>

WQMA VII	Clarksville-	Chase City Regional STP	Little Blue	WQ	32.52
	Chase City-		Stone Cr.		<u>N/A</u> <sup>1</sup>
	Boydton	Boydton	Coleman Creek	EL	N/A <sup>1</sup>
		Clarksville STP	Kerr Reservoir	WQ	131.00
		Burlington Industries – Clarksville	Kerr Reservoir	WQ	1,793.00
WQMA VII	South Boston-	South Boston STP	Dan R.	WQ	1854.00
	Halifax-	Halifax STP, Halifax Cotton Mills, Burlington Ind. – Halifax and Scottsburg STP	Banister R.	WQ	584.84
	Scottsburg- Clover	Clover	Clover Cr.	EL	8.76
WQMA VII	South Hill- Lacrosse- Brodnax	South Hill, Lacrosse and Brodnax	Flat Cr.	WQ	N/A <sup>1</sup>
WQMA VII	Virgilina	Virgilina	X-Trib. To Wolfpit Run	EL	13.00



WQMA IX	Chatham-	Chatham	Cherrystone	EL	125.22
	Gretna	Gretna	Cr.		
			Georges Cr.	EL	100.00
WQMA X	Dan River	Danville and U.S. Gypsum	Dan R.	WQ	4407.00
		Dan River, Inc.	WILL DISCHARGE PROCESS WATER TO THE CITY OF DANVILLE STP.		
WQMA XII	Smith R.	Henry County PSA-Upper Smith R.	Smith R.	WQ	567.00
		SRP			
		Collinsville STP	CONNECTED TO UPPER SMITH R. STP		
			CONNECTED TO UPPER SMITH R. STP		
		Fieldcrest Mills			
		E.I. duPont	Smith R.	WQ	503.00
		Martinsville STP	Smith R.	WQ	1500.00
Henry County PSA-Lower Smith R.	Smith R.	WQ	567.00		
		STP			
WQMA XIV	Stuart-Patrick	Stuart STP	S. Mayo R.	EL	141.90
	Springs	United Elastic Patrick Springs	S. Mayo R.	EL	8.38

WQMA XIV	NONE	United Elastic Woolwine	Smith R.	EL	192.00
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Notes:

1 - See Table 3

TABLE 3  
 WASTELOAD ALLOCATION FOR DISCHARGERS WITH TIERED PERMITS  
 ROANOKE RIVER BASIN WATER QUALITY MANAGEMENT PLAN

Water Quality Management Area		Study Area		Flow (mgd)	Effluent				Total Kjeldahl Nitrogen (mg/l)
(WQMA)	Name	Discharger	Months		D.O. (mg/l)	CBOD5 (lbs/day)	BOD5 (mg/l)	Ammonia (mg/l)	
WQMA VI	Keysville	Keysville	Jan. - Feb.	0.250	3.0		23.0	10.0	
			Mar. – Nov.	0.250	3.0		23.0	2.0	
			Dec.	0.250	3.0		23.0	10.0	
WQMA VII	South Hill-	South Hill	Jan. - Feb.	1.000	6.5	250.00	30.0	20.0	
			Lacrosse-	March	1.000	6.5	250.00	30.0	5.0
	Brodnax			Apr. – May	1.000	6.5	83.00	10.0	1.0
				June – Sept.	1.000	6.5	75.00	9.0	1.0
				Oct.	1.000	6.5	83.00	10.0	1.0
				Nov.	1.000	6.5	142.00	17.0	5.0
				Dec.	1.000	6.5	250.00	30.0	20.0
WQMA VII	Clarksville-	Boydton	May-Nov	0.360	5.0	39.1	13.0 <sup>1</sup>	3.0	
			Chase City-	Dec-Apr.	0.360	5.0	75.1		25.0 <sup>1</sup>

Boydton

<u>WQMA VII</u>	<u>Clarksville-</u>	<u>Chase City</u>	<u>May-Nov</u>	<u>0.600</u>	<u>6.0</u>	<u>65.04</u>	<u>13.0<sup>1</sup></u>	<u>1.8</u>	<u>4.2</u>
	<u>Chase City-</u>		<u>Dec-Apr.</u>	<u>0.600</u>	<u>7.0</u>	<u>125.22</u>	<u>25.0<sup>1</sup></u>	<u>3.4</u>	<u>8.8</u>
	<u>Boydton</u>								

Notes:

<sup>1</sup> - CBOD<sub>5</sub> (CBOD<sub>5</sub>/BOD<sub>5</sub> = 25/30)

**9 VAC 25-430-30. Municipal and industrial wastes.**

A. Regional service areas. Regional sewerage service areas identified in this basin are shown on Plate 1, and the corresponding sewerage system and treatment works data are presented in Table 4.<sup>15</sup> The Greater Roanoke Metropolitan Area is one of these service areas, and is also included in an areawide water quality management plan as authorized by Section 208 of P.L. 92-500. This "208" Plan provides a further detailed water quality management strategy for this basin's headwaters area.<sup>16</sup>

Of the 22 study areas identified, 11 are to have secondary treatment plants, and eight others are to have treatment levels higher than secondary. For the remaining three areas, nonconventional treatment methods, such as land disposal, are recommended.

B. Wastewater treatment plants. Industrial and municipal wastewater discharge locations in the basin watershed area are given in Table 5 and are shown on Plate 2.<sup>17</sup> Raw water sources are also shown on Plate 2. Table 5 indicates if these individual discharges are in one of the regional service areas listed in Table 4, and whether it is to be connected to a regional service area facility. The wasteload allocation process described in the preceding section takes into account these isolated dischargers as well as those located in the regional service areas.

Section 201 of P.L. 92-500 authorizes grants for construction of municipal sewage treatment works and associated sewage interceptor facilities. This grant program consists of three steps. Step I is the planning and feasibility phase, Step II is the design phase and Step III is the actual construction of the facility. The status of the facilities grant as of May 1976 for facilities within the sewerage service area is given in Table 4 and for facilities outside the sewerage service area in Table 5.

Grants for sewerage systems and treatment works that have not been considered in any grant program of any fiscal year through 1976 are to be considered for Step I grants in fiscal year 1977. Table 6 shows the sewerage system and treatment works projects which are expected to be constructed within the Roanoke River Basin in fiscal year 1977 based on the statewide priority points.

C. Policies for point source discharges. Population and industrial output of many of the sewerage service areas are expected to grow, giving rise to needs for increased capacity for waste treatment, either by traditional methods or by such alternatives as waste recycling or waste source control. In 1971, the SWCB established the following policy regarding allowable wastewater flow and discharge:

1. When the average flow influent to a sewage treatment works for any consecutive three-month period reaches 80% of the SWCB approved design capacity, the owner shall submit to the board, within 90 days, an analysis of projected loadings, and shall submit proposed plans for increasing the treatment works capacity, including proposed methods of financing, unless the owner can demonstrate, in writing to the satisfaction of the board or its staff, that an increase in treatment capacity is not required at that time.
2. When the average flow influent to a sewage treatment works for any consecutive three-month period reaches 95% of the SWCB approved design capacity, the jurisdictions using this plant shall terminate the issuance of permits which allow start of construction of projects in the affected area, and shall submit a plant expansion program to the board for its review and approval before granting any additional such permits.<sup>18</sup>

D. Board actions for point source discharges. The following board actions will be taken:

1. Issue discharge permits consistent with projected area growth and development plans;
2. Continue the waste treatment facility construction grants program to achieve or maintain the required wastewater treatment levels;
3. Issue and enforce discharge certificates to those communities, industrial firms, and institutions isolated from the designated sewerage system service areas or not connecting to any central facility, or both;
4. Require, whenever practicable, owners that generate future wastewater loads within the service areas to discharge to the appropriate sewerage service area;
5. Issue state certificates for proposed zero discharge systems; and
6. Consider and evaluate cost effective nonconventional proposals for service and wastewater treatment.<sup>19</sup>

<sup>15</sup> Hayes, Seay, Mattern & Mattern, Roanoke River Basin Comprehensive Water Resources Plan, Volume V-A, pp. 8-45; 331-814.

<sup>16</sup> Moore, Gardner & Associates, 208 Areawide Wastewater Management Plan, Summary Report, pp. 6-2 through 6-20; Appendix 5, pp. 1-34.

<sup>17</sup> Hayes, Seay, Mattern & Mattern, Roanoke River Basin Comprehensive Water Resources Plan, Volume V-A, pp. 4-8, 47-84; 197-112; 1131-1172.

<sup>18</sup> Commonwealth of Virginia, State Water Control Law (§§ 62.1-44.2 et seq. of the Code of Virginia), Policy for Sewage Treatment Plant Loadings, adopted May 12, 1971, effective June 23, 1971.

<sup>19</sup> Hayes, Seay, Mattern & Mattern, Roanoke River Basin Comprehensive Water Resources Plan, Volume V-A, Rustburg Study Area, p. 26 Virgilina Study Area, pp. 32-33; Pamplin City Study Area, p. 28

PLATE 1  
ROANOKE RIVER BASIN  
STREAM SEGMENT CLASSIFICATION

TABLE 4  
 SEWERAGE SERVICE AREAS.

SSA <sup>1</sup>	Municipality	Receiving Stream Classification <sup>2</sup>	NPDES Limits <sup>3</sup>			Status of Applicable <sup>4</sup> Section 201 Programs May 1976
			Flow (mgd)	BOD <sub>5</sub> (lbs/day)	SS (lbs/day)	
K	Appomattox	EL	0.170	42.55	42.55	
		EL	0.054	*9.48/13.45	27.12	
BB	Bassett		Not Applicable <sup>5</sup>			To be served by Henry County Regional Plant
X	Brodnax		Not Applicable <sup>5</sup>			To be served by South Hill
J	Brookneal	EL	0.078	31	31	No grant application yet submitted
		EL	0.082	33	33	
M	Charlotte C.H.		Required permit to be issued <sup>6</sup>			Continue use of existing community septic tank system; to be rated for grant in Fiscal Year 1977
U	Chase City	WQ	0.1	*30/50	*30/50	No grant application yet submitted
		WQ	0.28	112	112	



Z	Chatham	EL	0.45	113	113	
V	Clarksville	WQ	0.35	380	292	No grant application yet submitted
Q	Clover		0.35	8.76	8.76	
BB	Collinsville		Not Applicable <sup>5</sup>			STP to be abandoned and area served by Henry County Regional Plant
AA	Danville (2 plants)	WQ	24.0	4203	4203	Construction completed in Spring 1976
		WQ	15.0	2127	3735	
N	Drakes Branch	EL	0.0575	75	58	Step I to be submitted Fiscal Year 1976
BB	Filedale		Not Applicable <sup>5</sup>			To be served by Henry County Regional Plant
Y	Gretna	EL	0.230	58	58	
R	Halifax	WQ	0.300	75	75	

BB	Henry County	WQ	4.0	564	1001	
	PSA					
	Upper Smith					
	R. STP					
Not Shown	Henry County	WQ	4.0	567	1001	
	PSA					
	Lower Smith					
	R. STP					
P	Keysville	WQ	0.25	**	62	
X	LaCrosse	WQ	0.072	29	29	To be served by South Hill
		WQ	0.04	16	16	
BB	Martinsville	EL	8.0	1500	2002	
G	Motley		Not Applicable <sup>5</sup>			Continue use of individual septic tanks
L	Pamplin City		Not Applicable <sup>5</sup>			No grant application yet submitted
CC	Patrick Springs		Not Applicable <sup>5</sup>			Continue use of individual septic tanks

H	Rustburg	WQ	0.156	62	62	Step III submitted; construction to begin Summer 1976
S	Scottsburg		Not Applicable <sup>5</sup>			To be served by South Boston; Step I for connection to be submitted Fiscal Year 1976
R	South Boston	EL	1.3	1410	1410	Construction completed in December 1976
X	South Hill	E	1.00	**	251.33	
BB	Stanleytown					To be served by Henry County Regional Plant
CC	Stuart		Required Permit to be Issued <sup>6</sup>			Construction completed March 1976
			(0.30	130	47.5	
F	Timberlake		Not Applicable <sup>5</sup>			To be served by Lynchburg in James River Basin
T	Virgilina		Not Applicable <sup>5</sup>			No grant application yet submitted

1. Sewerage Service Areas (SSA) shown on Plate I

2. Effluent Limiting (EL) or Water Quality (WQ)
3. For existing sewage treatment facility
4. For new sewage treatment facility
5. No existing or future sewage treatment planned, wastes to be transferred to other sewerage service areas
6. No existing discharge but new sewage treatment plant is under construction or planned

\* Seasonal NPDES loading: April to September/October to March

\*\* See Table 3

# Step III construction grant funded

Source: Hayes, Seay, Mattern & Mattern

TABLE 5  
 WASTEWATER POINT DISCHARGERS

Waste	Wastewater	Waste	Wastewater
Source	Point	Source	Point
<u>Number</u>	<u>Discharger</u>	<u>Number</u>	<u>Discharger</u>
<u>APPOMATTOX COUNTY</u>		<u>HALIFAX COUNTY</u>	
240*#@	Appomattox Country Club	260*#@	Mac's Washer
241	Town of Appomattox	261*#@	Sydnor Junior Elementary School
242*	Maude's Restaurant	262*#@	Meadville Elementary School
		263*#@	Clay's Mill Elementary School

CAMPBELL COUNTY

		264*#@	Southern Mobile Homes
231&#@	Yellow Branch Elementary School	265*#@	Scottsburg Elementary School
232*	Rustburg High School	266*#@	Carson Anderson Car Wash
233*	Rustburg Sanitation	267*	Lakewood Trailer Park
234*#	Field Unit #9	268*	Crabtree Trailer Park
235*#@	William Camp High School	269	Vulcan Materials
236	Town of Brookneal #1	270*	South Boston Speedway
237	Town of Brookneal #2	271*	J.P. Stevens
238*	Universal Electric	272	City of South Boston
239#	Burlington Industries	273*	Oak Hill Subdivision
		274*	Fordland

CHARLOTTE COUNTY

		275*	Highland Hills Subdivision
243*#@	J.H. Jeffress Elementary School	276*	Love Shop Mobile Home
244*#@	Phenix Elementary School	277*	C.D. Ragland Car Wash
245*#@	Bacon District Elementary School	278*#	Burlington Industries
246*#@	Reynolds Laundry	279#	Burlington Industries
247*#@	Phenix Car Wash	280	Town of Halifax
248*#@	Kyanite Mining	281*	Sinai Elementary School
249*	Randolph Henry High School	282*	Hightower Trailer Court
250*	Central Elementary School	283#	Halifax Cotton Mill
251*	Central Junior High School	284*#@	Birchland Park Laundry & Store
252*	Charlotte City Sewage	285*#@	Tucker's Trailer Court
253#@	Virginia Crafts	286*	Hillcrest Motel
254	Town of Keysville	287*	Banner Warehouse
255#	Burlington Industries	288*#@	Chester Springs Elementary School
256*	Town of Drakes Branch	289*#@	S. of Dan Elementary School
257*#@	Spaulding Box Factory	290*#@	Chester Springs Academy

258\*#@ Cardinal Homes 291\* Virgilina Elementary School

MECKLENBURG COUNTY

292\*#@ Kieffer Yancey's Restaurant

293\*#@ Newton's Trailer Park

294\*#@ Little Buffalo Exxon

295\* Lighthouse Motel

296 Town of Clarksville

297\*# Burlington Industries (Clarksville)

298# Burlington Industries (Clarksville)

299\*#@ Marifield Apartments & Trailer Park

300\*#@ Hopkins Car Wash

301\*#@ Occoneechee State Park

302\*#@ Bluestone Junior High School

303\*#@ Bluestone Senior High School

304 Town of Chase City

306\* Virginia Home, Inc.

307 Town of Boynton

308\*#@ Correction Field Unit #4

309\*#@ Buckhorn Primary School

310\*#@ South Hill Motel & Restaurant

316 Town of South Hill

318\*#@ LaCrosse Primary School

320\*#@ Parker Oil Company

HENRY COUNTY

116\*#@ State Road Camp #28

117\*#@ J.D. Rea Laundry

118\*@ Spencer Court Subdivision

119\*@ G.W. Carver High School

120\*@ Carver Estates

121\* Greenbrier

122\*#@ Plasters Trailer Court

123\* Ridgeway Elementary School

124\* Drewry Mason High School

125\* Ridgeway Trailer Park

126\* Henry County Plywood

127\*@ Penn's Trailer Park

128\* Cravely Furniture

129\* Countryside Trailer Park

130\* Ponderosa Trailer Park

131 City of Martinsville

132\* Town House Motel

133\* Eastwood Subdivision

134# Bassett Walker Knitting Company

135-7# E.I. duPont

138\* Holiday Inn

PITTSYLVANIA COUNTY

183\*#@ Tunstall High School

140\* Virginia Carolina Truck

184\*#@      Carriage Hill Trailer Court      141      Henry County PSA

PITTSYLVANIA COUNTY

HENRY COUNTY

185*#@	City View Forest Park	142	Fieldcrest Mills
186*#@	Faith Home Inc.	143*	Riverside Shopping Center
187*	Westover Mobile Homes	144*	Martin Processing
188*#@	C & W Mobile Home Court	145*	Stanley Furniture
189	Dan River Mills	146*	Travel Lodge
191	City of Danville	147*	Bassett High School
192#	U.S. Gypsum Company	148*	J.D. Bassett #1
193	Lorillard, Inc.	149*	J.D. Bassett #2
194	Goodyear Tire & Rubber Company	150*	Bassett Chair Company
195	Corning Glass Works	151*	Bassett Furniture Plant
196*#@	Lakewood Exxon Truck	152*	Bassett Office Building
197*	Baptist Tabernacle	153*	Bassett Superior Line & Table Plant
198*#@	Danville Airport	154*	Bassett Mirror
199*#@	Hughes Memorial Home	155*	Bassett Stanleytown
200*#@	Dan River High School	156*#@	Stone Hollow Subdivision
201*#	Chatham High School	157*	Lakeview Trailer Park
202	Town of Chatham	158*@	Fairways Acres
203*#@	Field Unit #15	159*@	Patrick Henry Land Investment Corp.
204*#@	Union Hall Elementary School	161*#@	Moran's Trailer Court
205*#@	Star Paper Tube	162*#@	Longview Trailer Park
206*#@	Southern Railway Diesel Shop	163*#@	Green Acres Trailer Park
207*#@	Smith Douglas Fertilizer	164*#@	Beechwood
208*#@	Whitehead Trailer Park	165*	People Car Wash

209	Town of Gretna	166*	Piedmont Car Wash
210*#@	Mt. Airy Elementary School	167*#@	Moose Lodge
211*	Betterton Car Wash	168*#@	Atkins Construction Co. Sub.
212*#@	Vulcan Materials	169*	Reed Water Company
213*	Zimmerman's Laundry	170*	Winns Laundry
214*	Dibrell Brothers	171*	Patrick Henry Country Club
215*#@	Alderson's Trailer Court	172*#@	Serwood Manor Apartments
216*#@	Dodson's Trailer Park	173*	Martinsville Water Plant
217*	Smith Mountain Lake Picnic	174*	Laurel Park
218#	Klopman Mills	176*#@	Camp Branch Hills
219#	Freeman Chemicals	178*#@	Passadena Knolls Subdivision
219-A	Dibrell Brothers	179*#@	Pigg City, Inc.
219-B	Disston Tool Company	180*#@	Mt. Olivet School
		181*#@	Leatherwood Elementary School
		182*#@	Campbell Elementary School

PATRICK COUNTY

104*#@	Joe Alkins
105*@	United Elastic
106*#@	Groundhog Mountain, Inc.
108	Town of Stuart
109*	Patrick City High School
110*	United Elastic Company
111*	Patrick Memorial Hospital
112	United Elastic
113*	East Hampton Rub. Thr.
114*	Carnation
115*	Panill Knitting

\* Minor dischargers (less than 50,000 gallons per day)



# No provision to tie into sewerage service area

@ Not inside sewerage service area boundaries

Source: Virginia State Water Control Board

PLATE 2

ROANOKE RIVER BASIN

POINT DISCHARGE AND WATER WITHDRAWAL LOCATIONS

SOLID WASTE DISPOSAL SITES

TABLE 6  
 FISCAL YEAR 1977 CONSTRUCTION GRANT PRIORITIES

Project	*Population Served	Statewide	Remarks
		Priority Points	
Brodnax	750	2.69	Served by South Hill Regional STP not currently financed
Brookneal, Town of Sewage Treatment Plant w/ Collection System	1,282	4.60	
Charlotte Court House	350	2.69	Present consideration in Keysville- Drakes Branch, Step I borderline health hazard
Clover	406	2.00	
Danville, City of Infiltration/Inflow Evaluation And Correction	71,541	4.30	Extensive Infiltration/Inflow Problems
Gretna, Town of Upgrade Treatment	1,390	11.30	

Pamplin, Town of	286	2.00	
Sewage Treatment Plant w/ Collection System			
Ridgeway, Town of	2,836	2.69	
Interceptor and Collector			Connect to Henry County Regional Plant
Virgilina	320	2.00	
Volens	200	2.00	

\* Based on 1980 population projection

Source: State Water Control Board

**9 VAC 25-430-60. Amendments to the plan.**

The following amendment was adopted by the board by Letter Ballot No. 4418 on July 31, 1978:

Town of Appomattox: The plan's recommendation was amended to reflect the findings of a detailed stream analysis of Falling River. The modified Streeter-Phelps model, utilizing actual field data, resulted in a wasteload allocation of 100 lbs/day BOD<sub>5</sub> as opposed to the originally recommended 56 lbs/day for the EL segment. A treatment efficiency of 90% and an effluent dissolved oxygen content of 7 mg/l would be required for the 0.500 MGD designed facility.

The following amendments were adopted by the board at its September 25, 1979, meeting:

Town of Chatham: The plan's recommended alternative was amended to reflect the findings of a detailed stream analysis of Cherrystone Creek. The TVA model, utilizing actual field data, yielded a wasteload allocation of 125 lbs/day BOD<sub>5</sub> as opposed to the originally recommended 71 lbs/day for the EL segment. A treatment efficiency of 87.5% and an effluent dissolved oxygen content of 7 mg/l would be required for the 0.54 MGD designed facility.

Town of Gretna: The plan's recommended alternative was amended to reflect the findings of a detailed stream analysis of Georges Creek. The TVA model, utilizing actual field data, resulted in a wasteload allocation of 100 lb/day BOD<sub>5</sub> as opposed to the originally recommended 41 lbs/day for the EL segment. A treatment efficiency of 87.5% and an effluent dissolved oxygen content of 5 mg/l would be required for the 0.38 MGD designed facility.

The following amendments were adopted by the board at its December 6, 1982, meeting:

Town of Clover: The plan recommended that the town be served by the City of South Boston STP. The town's engineers determined that a treatment plant located on Clover Creek to be the most cost effective treatment system. A Streeter-Phelps model, utilizing actual field data from the EL segment, resulted in a wasteload allocation of 8.80 lbs/day BOD<sub>5</sub>. A treatment efficiency of 87.5% and an effluent dissolved oxygen content of 5 mg/l would be required for the 0.035 MGD designed facility.

Town of Halifax: The plan recommended that the town be served by the City of South Boston STP. The 201 Facility Plan for the town found the most cost effective alternative was to construct a wastewater treatment facility located at the confluence of Toots Creek and the Banister River. The plan's recommended alternative was amended to reflect the findings of a detailed stream analysis of the Banister. The TVA model, utilizing actual field data for design capacity of 0.300 MGD. The plan was amended to reflect the WQ segment, yielded a wasteload allocation of 75.1 lbs/day BOD<sub>5</sub>. A treatment efficiency of 87.5% and an effluent dissolved oxygen content of 3 mg/l would be required for the 0.300 MGD designed facility.

Town of Keysville: The plan recommended that the town be served by a facility located on Ash Camp Creek, a WQ segment, with the findings of a detailed stream analysis of the creek. A Streeter-Phelps model, utilizing actual field data, yielded effluent limitations for a tiered permit shown in Tables 2 and 3 in 9 VAC 24-430-20. An effluent dissolved oxygen content of 5 mg/l would be required for the 0.250 MGD designed facility.

The Town of South Hill: The plan recommended that the town be served by a facility located on Flat Creek, a WQ segment, with a design capacity of 1.600 MGD. The plan was amended to reflect the findings of a detailed stream analysis of the creek. A Streeter-Phelps model utilizing actual field data, yielded the effluent limitations for a tiered permit shown in Table 3 in 9 VAC 25-430-20. An effluent dissolved oxygen content of 6.5 mg/l would be required for the 1.000 MGD designed facility.

The following amendment was adopted by the board at its September 22, 1986, meeting:

Smith River: The 1982 amended plan established a BOD<sub>5</sub> wasteload allocation of 1,637 lbs/day for the upper Smith River segment and 1,500 lbs/day for the lower segment. The Smith River from Philpott Dam to the VA-NC state line was reclassified as WQ. An instream monitoring program was also required.

Since 1982 certain growth patterns in southern Henry County necessitated further study. Martinsville City and Henry County conducted a monitoring program utilizing 205(j) funding from the SWCB. As a result of this effort a revision to the BOD<sub>5</sub> wasteload allocations was made with a reduction in the upper Smith River segment to 1,070 lbs/day and an increase in the lower segment to 2,067 lbs/day (see Table 2 in 9 VAC 25-430-20). The following provisions were also part of the 1986 amendment:

- Construct a new 4 MGD waste treatment facility to be located near Ridgeway, Virginia, with discharge to the Smith River and institute an instream monitoring program.
  
- Construct a new wastewater diversion facility to carry wastewater from the City of Martinsville to the newly constructed Henry County Public Service Authority facility near Ridgeway (Lower Smith River STP).

- Retain the existing Henry County Public Service Authority facility at Koehler at 4.0 MGD.
  
- Construct a new wastewater diversion facility to carry wastewater from the City of Martinsville to the existing authority facility at Koehler.
  
- Retain the existing Martinsville STP with future expansion to 8.0 MGD.

The amendment noted that the establishment of an instream monitoring program was particularly important due to the lack of a verified water quality model. Data generated from the monitoring program could be used in the verification of a water quality model at a later date.

The following amendments were adopted by the board at its October 1, 1998 meeting:

Burlington Industries-Clarksville: The plan's recommendation was amended to reflect the findings of a detailed analysis of Kerr Reservoir. A EUTRO-5 model, utilizing actual field data, yielded wasteload allocations shown in Table 2 in 9 VAC 25-430-20.

Town of Clarksville: The plan's recommendation was amended to reflect the findings of a detailed analysis of Kerr Reservoir. A EUTRO-5 model utilizing actual field data, yielded wasteload allocations shown in Table 2 in 9 VAC 25-430-20.

Town of Boydton: The plan recommended that the town be served by a 0.200 MGD facility located on Coleman Creek. The plan was amended December 6, 1982 to reflect the findings of a detailed stream analysis of the creek. A Streeter-Phelps model, utilizing actual field data from the EL segment, yielded effluent limitations for a tiered permit for the 0.145 MGD designed facility. The Streeter-Phelps model used for the analysis leading to the December 6, 1982 plan amendment was updated in 1997 to reflect an increased flow of 0.360 mgd. The revised model yielded the effluent limitations for a tiered permit shown in Table 3 in 9 VAC 25-430-20.

The following amendments were adopted by the board at its (date to be filled in) meeting:

Town of Chase City: The plan's recommended alternative was amended to reflect the findings of a detailed stream analysis of Little Bluestone Creek. A Streeter-Phelps model, utilizing actual field data from the WQ segment, yielded effluent limitations for a tiered permit for the 0.6 mgd facility. The revised model yielded the effluent limits for a tiered permit shown in Table 3 in 9 VAC 25-430-20.