

Ohio River Valley Water Sanitation Commission

1980 STATUS OF WASTEWATER FACILITIES

ORSANCO COMPACT AREA

.

February, 1981

Ohio River Valley Water Sanitation Commission 414 Walnut Street Cincinnati, Ohio 45202 Price - \$3.00

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INTRODUCTION

BACKGROUND AND OBJECTIVES

The 1980 survey of wastewater facilities in the ORSANCO Compact area utilized revised data-collection and evaluation techniques developed in close cooperation with the respective state agencies and U. S. EPA. These state agencies supplied the data upon which the survey was based. The survey's revised format and method ensured substantively more accurate results than those reported in recent years. Similar procedures will be followed in future annual updates of the status list.

Data on wastewater treatment facilities are collected to gauge the extent to which the signatory states are meeting their commitment under Article I of the compact, which pledges "... faithful cooperation in the control of future pollution in and abatement of existing pollution from rivers, streams, and water in the Ohio River Basin "The data provide a regular and timely compilation of wastewater control facilities discharging to surface waters within the compact area and serve as a record of both accomplishments and needs for the installation and upgrading of such facilities. The information collected is maintained in ORSANCO's data processing center and includes physical, operational, and institutional data, as well as information about major improvements under way.

Following the 1978 survey, a revision of procedures was initiated to clarify the project's objectives and to strengthen the cogency of the data. The 1979 survey was not conducted pending the results of the project review.

The primary modification incorporated into the 1980 program was a change in data set for each facility. In addition, the ORSANCO staff assumed a more active role in assisting state personnel in the update, in order to lessen the state staff time required to complete the project and to provide consistency in categorizing facilities.

Historically, the information resulting from the survey has been summarized for state-by-state comparison and included in the commission's annual report to

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the governors of the signatory states. The survey data are also available by request. The following report presents and analyzes the data in greater detail than provided in the commission's annual report. The problems encountered in the course of the survey are summarized, and improvements suggested for subsequent annual updates. Possible additional use of the data in administration of state programs is explored.

METHOD

The 1980 survey results are based on existing data from previous updates revised through searches of state files and interviews with state personnel. Reporting on most cases was accomplished through ORSANCO staff visits to regional field offices of the states' water quality management agencies.

Appendix A contains the project's instructional guide and coding key, which define the data requested for each facility surveyed. Each state received a copy of these guides and a listing of facilities reported in 1978. After appropriate review time, the states were contacted to determine the best method to perform the survey. The survey method of update used for each state and field office was as follows:

State	Field Office	Method of Update
IL	Champaign (central) Marion (south)	Telephone Telephone
IN	Indianapolis (home office)	Mail (municipal facilities) Staff visit (industrial facilities)
КY	Columbus (south) Earlington (west) Erlanger (north) Frankfort (central) London (southeast) Morehead (east)	Staff visit Staff visit Staff visit Staff visit Staff visit Staff visit
NY	Albany (home office)	Mail
ОН	Bowling Green (northwest) Columbus (central) Dayton (southwest) Twinsburg (northeast)	Staff visit Staff visit Staff visit Staff visit
PA	Meadville (northwest) Pittsburgh (southwest) Williamsport (central)	Mail Staff visit Mail
VA	Abingdon (southwest) Roanoke (west)	Staff visit Staff visit
WV	Charleston (home office)	Staff visit

The facility data were coded and entered on preprinted report forms and

forwarded to data processing for further handling and summary. A copy of the report form is included in Appendix A.

The following facilities were not included in the 1980 status list survey:

- Facilities not discharging to surface waters (sink hole, underground injection, land application discharges);
- Privately owned domestic sewage treatment facilities (mobile home parks, camping facility package plants, etc.) and industrial facilities of 40,000 gallons per day or less;
- Industrial facilities requiring temperature adjustment only (non-contact cooling water);
- Industrial facilities supporting the coal industry (mine drainage, coal preparation).

RESULTS

Each comprehensive state summary of the survey results includes data on facility needs, type of treatment provided, and status of related projects in the basin. The summaries (Appendix B) were constructed to allow an overall analysis of the status of wastewater treatment and to provide a basis for selecting areas of further study.

SUMMARY OF TREATMENT PROVIDED

The level of treatment provided by compact area facilities in 1980 is summarized in Table 1. In total, 1,595 publicly owned facilities were tallied. These facilities serve an aggregate population of 13,362,984. The basinwide totals of individual levels of treatment provided by publicly owned facilities are as follows:

Level of Treatment	Number	Percentage of Total	Population	of Total
Less than reliable secondary	215	13	1,956,142	15
Secondary	1,145	72	10,302,160	77
Advanced	235	15	1,104,682	8
Total	1,595	100	13, 362, 984	100

The survey identified a total of 776 industrial facilities in the basin, about one-half the number of publicly owned facilities.

SUMMARY OF FACILITY NEEDS

Needs for improved or additional municipal and industrial facilities are summarized in Tables 2 and 3. Of the 1,595 existing municipal facilities, 731 or 46 percent require either increased treatment or a combination of increased treatment and capacity. In addition, 143 or approximately 9 percent of the municipal facilities were judged by state regulatory personnel as needing complete replacement.

Totals for municipal facility needs shown in Table 2 are as follows:

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TABLE 1. TREATMENT PROVIDED

	II	IN	KY	XN	110	<u>PA</u>	VN	MV	TOTAL
Municipal Faciliti	1								
Less than Reliable Secondary	16	19	17	7	55	30	30	41	215
Population	33,619	177, 187	501, 559	16,489	481,556	227,259	99,753	418,720	1,956,142
Secondary	53	213	264	8	292	181	16	118	1,145
Population	230,456	1,868,620	1, 126, 290	83, 569	3, 302, 682	2,913,652	57,055	719,836	10, 302, 160
Advanced	21	56	65	1	11	11	4	9	235
Population	107,986	260, 372	259, 913	4,029	312,565	113, 109	13,099	33,609	1, 104, 682
Total	06	288	346	16	418	222	50	165	1,595
Population	372,061	2, 306, 179	1, 887, 762	104,087	4,096,803	3, 254, 020	169,907	1, 172, 165	13, 362, 984
Industrial Facilit	les ² 10	138	72	21	177	192	33	133	776

'Does not include privately owned facilities designed for or treating 40,000 gal/day or less

Facilities designed for or treating 40,000 gal/day or less Facilities designed for temperature adjustment only Facilities related to the coal-mining and -processing industry ²Does not include:

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TABLE 2. MUNICIPAL WASTEWATER FACILITY NEEDS

disting Facilities	11	NI	KX	XN	HO	PA	VA	MV	TOTAL
Needs Increase treatment to secondary.	13	15	10	9	33	19	19	39	154
Increase treatment to advanced	33	136	11	5	170	11	8	30	468
Increase in capacity only	9	23	21	0	35	16	1	10	109
Replacement	1	0	56	0	51	17	2	5	143
Total Facilities with Needs	56	174	164	6	289	63	35	84	874
No Needs Identified	34	114	182	1	129	159	15	81	721
Total Existing Facilities	90	288	346	16	418	222	50	165	1,595
ew Facilities (treatment not currently provide	(pa								
Secondary Treatment	3	30	17	0	31	29	5	78	193
Advanced Treatment	4	53	5	0	62	1	1	24	150
Total New Facilities	7	83	22	0	93	30	9	102	343

¹Does not include privately owned facilities designed for or treating 40,000 gal/day or less 2 Includes facilities needing additional treatment and capacity

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TABLE 3. INDUSTRIAL WASTEWATER FACILITY NEEDS

Existing Facilities ¹	TT	IN	KX	XN	HO	Vd	VA	NM	TOTAL
Needs									
Increase treatment only	1	19	5	5	37	22	0	14	103
Increase capacity only	1	1	2	0	5	2	2	0	13
Increase treatment and capacity	0	1	2	0	9	1	0	2	18
Replacement	01	6	1	0	6	2	1	1	16
Total Facilities with Needs	2	24	10	5	51	38	3	17	150
No Needs Identified	œ	114	62	16	126	154	30	116	626
Total Existing Facilities	10	138 '	72	21	177	192	33	133	776
New Facilities (treatment not currently provided) 1	0	4	9	0	5	2	3	3	23

Facilities designed for or treating 40,000 gal/day or less Facilities designed for temperature adjustment only Facilities related to the coal-mining and -processing industry 1 Does not include:

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	Number of	Percentage
Needs	Facilities	of Total
Existing Facilities		
No needs identified	721	45
Increased treatment to secondary ¹	154	10
Increase treatment to advanced ¹	468	29
Increase capacity only	109	7
Replacement	143	9
Total	1,595	100
New Facilities (no current treatment)		
Secondary	193	56
Advanced	150	_44
Total	343	100

Includes facilities needing additional treatment capacity

Needs	Number of Facilities	Percentage of Total
Existing Facilities		
No needs identified	626	81
Increase treatment only	103	13
Increase capacity only	13	2
Increase treatment and capacity	18	2
Replacement	16	2
Total	776	100
New Facilities (no current treatment)	23	

SUMMARY OF WASTEWATER FACILITY PROJECTS

The 1980 survey revealed a total of 917 municipal and 79 industrial wastewater facility projects under study, design or construction. Of all municipal projects, however, over 60 percent (573) are in the initial or study phase of development, with only 15 percent (135) in construction. In contrast, approximately 25 percent (20) of all industrial projects are currently in study, while 56 percent (44) are under construction.

A state-by-state tally of the status of wastewater facility projects is shown in Table 4 and summarized as follows:

Phase of Project	Number o Municipal	f Projects Industrial	Percentag Municipal	e of Total Industrial
Studies (Step I) ¹	573	20	62	25
Design (Step II)	209	15	23	19
Construction (Step III)	135	44	15	56
Total	917	79	100	100
Project Needed No action taken	224	52		
Project NeededPreliminary action taken	171	41		

¹Includes facilities which have no identified needs.

PROJECTS
FACILITY
WAS TEWATER
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STATUS
4.
TABLE

Phase of Froject IL NI NI		:	IN L	11.11	ATA	no	VQ	VII	I.I.I	TOTAT
$ \begin{array}{c cccc} \mbox{motorpar tacturates} \\ \mbox{studies (Step II)} & \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ $	Phase of Project	T	IN	<u>KX</u>	N	핑	FA	VA	2 M	TOTAL
	muncipal racilities									
	Studies (Step I) ¹	9	112	98	З	202	19	25	108	573
Construction (Step III) 18 51 30 0 14 5 2 15 135 TOTAL 53 224 152 7 258 35 29 159 917 Project NeededNo action taken 8 30 71 1 46 34 6 28 224 Project NeededNo action taken 8 30 71 2 108 25 6 3 171 Project NeededNo action taken 8 30 71 2 108 25 6 3 171 Rudues 7 2 1 2 108 25 6 3 171 Studies 0 1 2 1 9 3 3 1 20 Studies 0 2 1 3 6 0 2 25 1 20 Studies 0 2 1 3 6 0 2 25 25 1 20 TotAL 0 1 2 <td< td=""><td>Design (Step II)</td><td>29</td><td>61</td><td>24</td><td>4</td><td>42</td><td>11</td><td>2</td><td>36</td><td>209</td></td<>	Design (Step II)	29	61	24	4	42	11	2	36	209
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	Construction (Step III)	18	51	30	01	14	5	7	15	135
Project NeededNo action taken8307114634628224Project NeededPreliminary Action461721082563171TakenTaken461721082563171Industrial FacilitiesTaken0121933120Studies0211136021515Construction0211136021544TOTAL0792261741479Project NeededNo action taken010511561341Taken	TOTAL	53	224	152	7	258	35	29	159	917
Project NeededPreliminary Action 4 6 17 2 108 25 6 3 171 Industrial Facilities Taken 0 1 2 108 25 6 3 171 Industrial Facilities $Taken$ 0 1 2 1 9 3 1 20 Studies 0 1 2 1 1 3 6 0 2 2 10 2 </td <td>Drotoct NoodedNo action taken</td> <td>α</td> <td>30</td> <td>11</td> <td>L</td> <td>797</td> <td>78</td> <td>9</td> <td>28</td> <td>224</td>	Drotoct NoodedNo action taken	α	30	11	L	797	78	9	28	224
Industrial Facilities 0 1 2 1 9 3 1 20 Studies 0 2 1 1 3 6 0 2 15 Designs 0 2 1 1 3 6 0 2 15 Designs 0 4 6 0 14 8 1 11 TOTAL 0 7 9 2 26 17 4 14 79 Project NeededNo action taken 0 10 5 1 15 17 0 4 52 Project NeededPreliminary Action 2 10 2 2 15 6 1 3 41	Project NeededPreliminary Action Taken	4	9	17	2	108	25	9	e	171
Industrial Facilities 0 1 2 1 9 3 3 1 20 Studies 0 2 1 1 3 6 0 2 15 Studies 0 2 1 1 3 6 0 2 15 Designs 0 4 6 0 14 8 1 11 44 Construction 0 7 9 2 26 17 4 14 79 Project NeededNo action taken 0 10 5 1 15 17 0 4 52 Project NeededPreliminary Action 2 10 2 2 52 6 1 3 41										
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	Industrial Facilities									
Designs 0 2 1 1 3 6 0 2 15 Construction $\underline{0}$ $\underline{4}$ $\underline{6}$ $\underline{0}$ $\underline{14}$ $\underline{8}$ $\underline{1}$ $\underline{11}$ $\underline{44}$ TOTAL 0 7 9 2 26 17 4 14 79 Project NeededNo action taken 0 10 5 1 15 17 0 4 52 Project NeededPreliminary Action 2 10 2 2 15 6 1 3 41	Studies	0	1	2	1	6	3	e	1	20
Construction 0 4 6 0 14 8 1 11 44 TOTAL 0 7 9 2 26 17 4 14 79 Project NeededNo action taken 0 10 5 1 15 17 0 4 52 Project NeededPreliminary Action 2 10 2 2 15 6 1 3 41	Designs	0	2	1	1	3	9	0	2	15
TOTAL 0 7 9 2 26 17 4 14 79 Project NeededNo action taken 0 10 5 1 15 17 0 4 52 Project NeededPreliminary Action 2 10 2 2 15 6 1 3 41	Construction	0	4	9	0	14	∞	-1	11	44
Project NeededNo action taken0105115170452Project NeededPreliminary Action21022102541Taken	TOTAL	0	L	6	2	26	17	4	14	62
Project NeededPreliminary Action 2 10 2 2 15 6 1 3 41 Taken	Project NeededNo action taken	0	10	2	1	15	17	0	4	52
	Project NeededPreliminary Action Taken	3	10	2	2	15	9	1	ę	41

¹Includes projects which have no identified needs

CONCLUSIONS

OVERVIEW

The profile of wastewater treatment facilities in the ORSANCO district indicates substantial progress in achieving a minimum of reliable secondary treatment for all facilities. An average of 13 plants in 100 require upgrading to secondary level of treatment or higher.

On the other hand, needs have been identified for 55 percent of existing municipal plants, primarily because of requirements for treatment levels more stringent than secondary. Recently promulgated regulations which intensify the scrutiny given to advanced waste treatment projects and the dwindling supply of federal grant dollars will make it extremely difficult for the states to meet these requirements.

The status of industrial facility needs is more favorable. While the basin's industries do not have the benefit of federal grant programs, that disadvantage is apparently offset by the ability to proceed with improvements without associated delays.

This point is further illustrated by the status of projects in the basin. Over 60 percent of the ongoing municipal wastewater facility projects are currently under study, while 15 percent are in construction. Of industrial projects, 56 percent are under construction.

The survey required a number of judgments by the individual reviewers, and the data should be viewed accordingly. To assure that such judgments were as consistent as possible, the ORSANCO staff worked directly with state personnel in most cases.

Judgments required most frequently included:

- Determining whether a facility should be either renovated or replaced;
- Determining whether an increase in plant capacity was required in cases where there was a significant collection system infiltration/ inflow (I/I) problem (The 1980 survey considered I/I to be

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associated with a facility's tributary collection system and not a problem requiring plant expansion);

- Defining a plant's existing or needed treatment in terms of levels, i.e., less than secondary, secondary, advanced, or non-conventional treatment;
- 4. Assigning a tributary population to municipal facilities. Where tributary populations were not available, 1970 community census records were used. If census records were not available, population was estimated on the basis of one person per 100 gallons of the facility's estimated, or measured, flow.

RECOMMENDATIONS

The following recommendations have been formulated to meet needs and problems observed during the survey. Included are proposals for improvements to the program's data base and data management and suggestions for state use of the data in administration of water pollution control programs.

Data Base

Coal Facilities--Personnel of the major coal-producing states have indicated that the status of coal-related facilities would be extremely difficult to ascertain because of its dynamic nature. Pollution control requirements for coal-related facilities are being met to the extent that, if such facilities were included, a distorted picture of the overall status of industrial waste treatment would result. Coal facilities were, therefore, not included in the survey.

<u>Recommendation</u>: Include in the 1981 survey coal preparation plants with average wastewater discharges greater than 40,000 gallons/day. Many of these facilities are permanent installations and employ highly sophisticated treatment techniques.

Infiltration/Inflow (I/I)--A number of municipal facilities appeared to have significant infiltration/flow into the tributary collection system. In most cases, I/I was treated as a collection system problem and not as a facility need.

<u>Recommendation</u>: Because of the apparent magnitude of I/I problems within the basin and their effect on adequacy of wastewater treatment, an additional data item is recommended for 1981.

Code		Name		E	Intry
300	Significant	Infiltration/Inflow	Problem	0	- No
				1	- Yes

The objective of including this additional information item in the 1981 survey is to quantify this apparently major problem.

Data Management

The software package used to update, sort, and summarize the survey data was originally developed approximately ten years ago and has since experienced several programming modifications. Poor documentation of much of the software, however, has rendered the package extremely difficult to use.

Difficulties in attempting to utilize the existing software package and deadlines imposed on the project led to abandonment of much of the existing programming and the development of new programming to serve the project's immediate needs. The following recommendation therefore is designed to improve long-range management of survey data:

Recommendation: Rewrite the existing data processing software packages in 1981 to provide:

- greater flexibility in adding to, deleting from, and modifying individual data records;
- a singular key information item from which all other information would be ancillary, thereby simplifying the data-sorting process;
- greater flexibility in analysis of the data.

Potential Utility of Program to State Wastewater Management Efforts

Several state personnel involved with the survey effort have expressed interest in exploring options for using the survey data to assist in administration of their programs. Specifically, such information could be utilized by field office staff to maintain a current at-a-glance accounting of facilities to establish inspection priorities. Space is provided on the ORSANCO preprinted data sheets for such special notes.

<u>Recommendation</u>: Forward to state field offices copies of their responses and associated summaries, along with a copy of the project's final report for their records. Explore with members of the commission's Technical Advisory Committee and/or field office staff ways in which this project may be of administrative assistance to the states' management activities.

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APPENDICES

APPENDIX A: INSTRUCTIONAL GUIDE AND CODING KEY DEFINITIONS

PREPRINTED REPORT FORM

APPENDIX B: STATE SURVEY SUMMARIES

APPENDIX A

INSTRUCTIONAL GUIDE AND CODING KEY DEFINITIONS

General Instructions

- Two sets of lists are enclosed. To indicate revisions, please add or change numbers in appropriate columns (in pencil or pen) to update the information (as of July, 1980). New community or industrial entries may be added at the bottom of the appropriate local basin listing.
- Privately owned domestic facilities (such as mobile home parks, residences, state and federally owned facilities) and industrial facilities, less than 40,000 gal/day should be omitted.

Coding Key

Data Item	Code	Entry	Remarks
Type facility	07 05	Domestic Industrial	Facility should be classified according to the nature of the owner. A facility treating primarily domestic wastes should be classified as industrial if it is industrially owned. A facility treating primarily industrial waste should be classified as domestic if it is publicly owned.
Name of			20 characters or less
- Plant - Tributary co - Plant owner	mmunity		Name of the plant or the subordinate community (where a plant services more than one community) or the owner of a facility (when a community or owner has more than one facility)
State or NPDES I	D		Optional entry at the state's discretion
County			Three-digit code for county location (See attached)

Coding Key			
Data Item	Code	Entry	Remarks
Local Basin			Two-digit code for the local basin location of a facility. This column is printed if the overall listing is arranged by county or by alphabet only. Enter this column if your printout is <u>not</u> arranged by local basin. A list of the basin codes is attached.
Treatment Facility	0 1 2 3 4 5 6 7	None Primary or less Intermediate Secondary Tertiary Closed system Non-conventional, meets requirements Non-conventional, does not meet re- quirements	This item describes the level of treatment currently provided. Codes 6 & 7 generally pertain to industrial facilities (where the type of treat- ment cannot be conventionally de- scribed).
Treatment Facility Required	0 1 2 3 4 5 6	None Primary or less Intermediate Secondary Tertiary Closed system Non-conventional	The level of treatment which is needed for a facility is entered in this column. In some instances, particularly where a facility is under study, a best guess may be appropriate. Items 5 and 6 generally pertain to industrial facilities.
Facility Needs	0 1 2 3 4	None New facility Increase capacity Increase treatment level Increase capacity and level of treatment	This item is intended to summarize the overall facility needs. Enter "0" if no work is necessary, or if a moderate amount of renovation is indicated that does not change the level of treatment. In the case where a facility needs extensive renovations, it can be considered as a new facility (entry "1"). As in data items (300) a judgment call may be necessary in some instances where something needs to be done, but it has not yet been specifically determined.

Coding Key

Data Item

Code Entry

Phase of Improvements

None required 0 1 No action Action initiated 2 3 In study (Step 1) 4 In design (Step 2) 5 In construction (Step 3) * 6 Construction recently completed, in operation

If needs (data item 320) have been identified, but no action has been taken by the owner, enter "1"; if initial actions have been taken (for example, a municipal facility owner has applied for a Step 1 grant, but there has been no award as yet), enter "2." A municipal facility awaiting a Step 2 or 3 grant should be indicated as in Step 1 (entry "3") or Step 2 (entry "4"), respectively.

Remarks

Enter the total number of communities (separate political entities) served by the facility.

If the entry under data item 111 is a tributary community, then the name of the regional plant is entered here. In the case where the entry under data item 111 is a plant and it is one of several owned by an entity, enter here that entity which owns this facility.

Enter the population tributary to the facility (or tributary community) as indicated in column data item 111. Express in terms of three significant digits/power of 10 (ex. 3000 = 300/1).

*Not entered in 1980 update. This data item, which will serve to quantify facilities completed each year, will be included in subsequent surveys.

Number of Municipalities and/or Entities Served

Entity or Facility Providing Treatment

Plant or Tributary Community Population



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APPENDIX B

STATE SURVEY SUMMARIES

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KENT	UCKY		•••	•	•••	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	25
NEW	YORK	•••	•••		•••	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	27
OHIO		•••	•••	•		•	•		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•		29
PENN	SYLV	ANI	IA.	•	• •	•	•		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•		31
VIRG	INIA	• • •		•	• •	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•		•	•	•	•	•	33
WEST	VIR	GIN	IIA	١.			•		•	•	•	•	•	•	•	•	•	•	•			•		•	•	•	•	•			•		•		35

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	FACILITIES	POPULAT	ION
I EXISTING FACILITIES			
TOTAL	. 06	372062.	
NO IDENTIFIED NEEDS	34	133479.	
IMPROVEMENTS NEEDED	56	238583.	
A. FACILITIES NEEDING INCREASED TREATMENT LEVEL	31	151651.	
1. UPGRAGE TO SECONDARY TREATMENT	Ð		10881.
SECCNDARY UPGRADES UNDER CONSTRUCTION	0		0.
2. UPGRAGE TO TERTIARY TREATMENT	23		140769.
TERTIARY UPGRADES UNDER CONSTRUCTION	10		104129.
B. FACILITIES NEEDING INCREASED CAPACITY	1	.6011	
1. FACILITIES WITH SECONDARY TREATMENT	0		•0
EXPANSION PROJECTS UNDER CONSTRUCTION	0		.0
2. FACILITIES WITH TERTIARY TREATMENT	3		. 6011
EXPANSION PROJECTS UNDER CONSTRUCTION	0		.0
C. FACILITIES NEEDING INCREASED TREATMENT + CAP.	15	55222.	
1. UPGRACE TO SECGNDARY + EXPANC	5		16327.
PROJECTS UNDER CONSTRUCTION	2		1698.
2. UPGRADE TO TERTIARY + EXPAND	10		38894.
PROJECTS UNCER CONSTRUCTION	4		13179.
C. FACILITIES NEEDING REPLACEMENT	1	.49455	
1. CURRENTLY WITH SECONDARY TREATMENT OR LESS	1		23999.
REPLACEMENTS UNDER CONSTRUCTION	1		1619.
2. CURRENTLY WITH TERTIARY TREATMENT	0		.0
REPLACEMENTS UNCER CONSTRUCTION	0		.0
II NEW FACILITIES			
TOTAL	1	3320.	
A. SECCNDARY TREATMENT RECUIRED	3		1819.
NEW FACILITIES UNDER CCNSTRUCTION	1		500.
B. TERTIARY FREATMENT RECUIRED	*		1500.
NEW FACILITIES UNDER CONSTRUCTION	0		.0

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FACILITIES

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STATUS OF MASTEWATER FACILITIES 1980 SURVEY TALLY FOR ILLINCIS PAGE TWD

SUMMARY OF TYPE OF TREATMENT

NC TREATMENT	1	3320.	0
LESS THAN RELIABLE SECONDARY TREATMENT	16	33619.	U
RELIABLE SECCNDARY TREATMENT	53	230456.	U
TERTIARY TREATMENT	21	107986.	1
NONCONVENTIONAL TRT. MEETING REGUIREMENTS	0	0.	1
NCNCONVENTIONAL TRT. NGT MEETING REQUIREMENTS	0	•0	2
SUMMARY CF PHASE OF PRCJECT			
NCNE (NO PROJECT)	• 32	131517.	8
VC ACTION	8	27614.	U
ACTION INITIATED	4	4661.	2
STEP CNE	9	31989.	U
STEP THO	29	58471.	U
STEP THREE	18	121127.	0
CCNSTRUCTION CCMPLETE	0	0.	U

STATUS OF MASTEMATER FACILITIES 1980 SURVEY

TALLY FOR INCIANA SUMMARY CF FACILITY NEECS	
	FACILITI
I EXISTING FACILITIES	
TOTAL	288
NO IDENTIFIED NEECS	114
IMPROVEMENTS NEEDED	174
A. FACILITIES NEEDING INCREASEC TREATMENT LEVEL	127
1. UPGRACE TO SECONDARY TREATPENT	
SECCNDARY UPGRADES UNGER CONSTRUCTION	
2. UPGRADE TO TERTIARY TREATMENT	1
TERTIARY UPGRADES UNDER CONSTRUCTION	
B. FACILITIES NEEDING INCREASED CAPACITY	23
1. FACILITIES WITH SECONDARY TREATMENT	
EXPANSIGN PROJECTS UNDER CONSTRUCTION	
2. FACILITIES WITH TERTIARY TREATMENT	
EXPANSION PROJECTS UNDER CONSTRUCTION	
C. FACILITIES NEEDING INCREASED TREATMENT + CAP.	54
1. UPGRAGE TO SECONDARY + EXPAND	
PROJECTS UNDER CONSTRUCTION	
2. LPGRADE TC TERTIARY + EXPAND	-
PROJECTS UNDER CONSTRUCTION	
C. FACILITIES NEECING REPLACEMENT	0
1. CURRENTLY WITH SECONDARY TREATMENT OR LESS	
REPLACEPENTS UNDER CONSTRUCTION	
2. CLRREWTLY MITH TERTIARY TREATMENT	
REPLACEPENTS UNGER CCNSTRUCTION	
II NEW FACILITIES	
TOTAL	83
A. SECCHDARY TREATMENT REQUIRED	
MEM FACILITIES UNDER CONSTRUCTION	
B. TERTIARY TREATMENT RECUIRED	
NEW FACILITIES UNDER CONSTRUCTION	

CIPAL	POPULATION	FACILITIES
	2306163.	138
	459048.	114
	1847133.	24
	716944.	19
10	236382.	0
1	5739.	0
117	480566.	0
23	123898.	0
	214697.	1
18	192377.	0
	46319.	U
5	22319.	0
0	0.	0
	915504.	1
5	44554.	0
2	16269.	0
19	810949.	0
1	787039.	O
,	.0	c
0	0.	0
0	.0	0
0	.0	U
0	•0	0
	55566.	*
30	21622.	0
2	1413.	0
53	33943.	*
13	9854.	

PAGE TWC STATUS OF MASTEMATER FACILITIES 1980 SURVEY TALLY FOR INDIANA

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SUMMARY OF TYPE OF TREATMENT

MC TREATMENT	83	55566.	4
LESS THAN RELIABLE SECONCARY TREATMENT	61	177187.	0
RELIABLE SECCACARY TREATMENT	213	1868620.	2
TERTIARY TRE "MENT	56	260372.	2
NGNCONVENTIONAL TRT. MEETING REGUIREMENTS	0	.0	1C8
NONCONVENTIONAL TRT. NOT MEETING RECUIREMENTS	0	0.	26
NCNE (NO PROJECT)	111	451336.	115
NG ACTIGN	30	24328.	10
ACTICH INITIATED	9	31112.	10
STEP CNE	112	559746.	1
SIEP THC	19	364705.	2
STEP THREE	15	950533.	*
CCNSTRUCTION CCMPLETE	0	0.	U

CCNSTRUCTION CCMPLETE

STATUS OF WASTEWATER FACILITIES 1980 SURVEY		
TALLY FOR KENTUCKY PAGE ONE		
	MUNICIPAL	POPULATION
L EXISTING FACILITIES		
TOTAL	346	1887741.
NO IDENTIFIEC NEEDS	182	855939.
IMPRCVEMENTS NEEDED	164	1031823.
A. FACILITIES NEEDING INCREASED TREATMENT LEVEL	60	537869.
1. UPGRADE TO SECONDARY TREATPENT	*	411
SECGNDARY UPGRACES UNDER CONSTRUCTION	1	
2. UPGRACE TO TERTIARY TREATMENT	56	12:
TERTIARY UPGRADES UNDER CONSTRUCTION	0	
B. FACILITIES NEEDING INCREASED CAPACITY	21	107636.
1. FACILITIES WITH SECONCARY IREATMENT	18	42
EXPANSICN PROJECTS UNGER CONSTRUCTION	2	F
2. FACILITIES WITH TERTIARY TREATMENT	F	64
EXPANSION PROJECTS LNDER CCNSTRUCTION	0	
C. FACILITIES NEEDING INCREASED TREATMENT + CAP.	21	148301.
1. UPGRACE TO SECONDARY + EXPANC	9	43
PRCJECTS UNDER CONSTRUCTION	2	30
2. UPGRACE TO TERTIARY + EXPAND	12	104
PROJECTS UNDER CONSTRUCTION	3	24
D. FACILITIES NEEDING REPLACEVENT	56	238022.
1. CLRRENTLY WITH SECONDARY TREATMENT CR LESS	56	236
REPLACEMENTS UNDER CONSTRUCTION	14	6
2. CURRENTLY WITH TERTIARY TREATMENT	0	
REPLACEMENTS UNDER CCNSTRUCTICN	0	
II NEW FACILITIES		
TOTAL	22	236882.
A. SECCNDARY TREATMENT RECUIRED	11	231
MEN FACILITIES UNDER CONSTRUCTION	*	
B. TERTIARY TREATMENT REQUIRED	\$	
MEN FACILITIES UNDER CONSTRUCTION	*	2

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STATUS OF MASTEMATER FACILITIES 1980 SURVEY TALLY FOR KENTUCKY PAGE THO

SUMMARY OF TYPE OF TREATMENT

MC TREATMENT	22	236882.	9
LESS THAN RELIABLE SECONCARY TREATMENT	17	501559.	5
RELIABLE SECONDARY TREATMENT	264	1126290.	8
TERTLARY TREATMENT	65	259913.	5
NGNGONVENTIONAL TRT. MEETING REGUIREMENTS	0	0.	14
NCNCONVENTIONAL TRT. NCT MEETING RECUTREMENTS	0	.0	8
SUMMARY OF PHASE CF PRGJECT			
NGNE (NC PRGJECT)	128	579273.	62
NG ACTIGN	11	115596.	5
ACTION INITIATED	11	494992.	2
STEP CNE	86	416321.	2
STEP TWC	24	362799.	1
STEP THREE	30	155674.	9
CONSTRUCTION COMPLETE	0	0.	0

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SURVEY	
1980	EDS
FACILITIES	NEN YCRK
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	FACILITIES	POPULATION	FACILITIE	2 L
L EXISTING FACILITIES				
TOTAL	16	104089.	21	
NO ICENTIFIED NEEDS	1	48539.	16	
IMPRCVEMENTS MEEDED	6	55549.	5	
A. FACILITIES NEEDING INCREASED TREATMENT LEVEL	-	16549.	5	
1. UPGRACE TO SECONDARY TREATMENT	9	13149.	0	0
SECONDARY UPGRADES UNDER CONSTRUCTION	0	0.	0	0
2. UPGRADE TO TERTIARY TREATMENT	2	3399.	0	0
TERTIARY UPGRADES UNDER CONSTRUCTION	0	0.	0	0
B. FACILITIES NEEDING INCREASEC CAPACITY	0	•0	0	
1. FACILITIES MITH SECCNCARY TREATMENT	0	0.	0	0
EXPANSICN PRGJECTS UNCER CONSTRUCTION	0	0.		0
2. FACILITIES WITH TERTIARY TREATMENT	0	0.	0	0
EXPANSION PROJECTS UNCER CONSTRUCTION	0	0.	0	0
C. FACILITIES NEEDING INCREASED TREATMENT + CAP.	1	38999.	U	
1. UPGRADE TO SECCNDARY + EXPANC	0	0.	0	0
PROJECTS UNDER CONSTRUCTION	0	0.	0	0
2. UPGRADE TO TERTIARY + EXPAND	1	38599.	0	0
PROJECTS UNCER CONSTRUCTION	0	0.	0	0
C. FACILITIES NEEDING REPLACEMENT	0	••	O	
1. CURRENTLY WITH SECONCARY TREATMENT OR LESS	0	0.	0	0
REPLACEMENTS UNDER CONSTRUCTION	0	.0	0	0
2. CURRENTLY WITH TERTIARY TREATMENT	. 0	0.	0	0
REPLACEMENTS UNDER CONSTRUCTION	0	0.	0	0
II NEW FACILITIES				
TGTAL	0	.0	0	
A. SECCNDARY TREATMENT REGUIRED	0	0.	0	0
NEW FACILITIES UNDER CONSTRUCTION	0	.0		0
8. TERTIARY TREATMENT RECUIRED	0	.0	5	0
NEW FACILITIES UNDER CONSTRUCTION	0	-0		C

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STATUS OF WASTEWATER FACILITIES 1980 SURVEY Tally for New York Page Tho

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SUMMARY CF TYPE CF TREATMENT

NG TRÉATMENT	0	0.	0
LESS THAN RELIABLE SECCNDARY TREATMENT	1	16489.	0
RELIABLE SECONDARY TREATMENT	80	83569.	0
TERTLARY TREATMENT	1	4029.	C
NCNCONVENTIONAL TRT. MEETING REGUIREMENTS	0	0.	16
NCNCONVENTIONAL TRT. NCT MEETING RECUIREMENTS	0	0.	2
SUMMARY CF PHASE CF PRCJECT			
NONE (NC PRUJECT)	9	. 45199.	16
NG ACTION	1	1499.	1
ACTION INITIATED	2	6339.	2
STEP CNE	3	6269.	1
STEP TWC	*	44773.	1
STEP THREE	0	0.	U
CCNSTRUCTION COMPLETE	0	0.	0

SUMMARY OF FACILITY NEEDS			
	MUNICIPAL	POPULATION	INDUSTRIAL FACILITIES
I EXISTING FACILITIES			
TOTAL	418	4096772.	177
NO IDENTIFIED NEEDS	129	1032548.	126
IMPRCVEMENTS NEEDED	289	3064252.	51
A. FACILITIES NEEDING INCREASED TREATMENT LEVEL	**	1112739.	37
1. UPGRADE TO SECONDARY TREATMENT	1	8309.	1
SECONDARY UPGRACES UNDER CONSTRUCTION	0	.0	0
2. UPGRADE TO TERTIARY TREATMENT	63	1104429.	1
TERTIARY UPGRADES UNDER CONSTRUCTION	2	186999.	0
B. FACILITIES NEEDING INCREASED CAPACITY	35	234458.	s
1. FACILITIES WITH SECONDARY TREATMENT	32	223758.	1
EXPANSION PROJECTS UNDER CONSTRUCTION		2799.	0
2. FACILITIES WITH TERTIARY TREATMENT	3	10699.	1
EXPANSION PROJECTS UNDER CONSTRUCTION	0	0.	0
C. FACILITIES NEEDING INCREASED TREATMENT + CAP.	159	1501039.	9
I. UPGRACE TO SECONDARY + EXPANC	32	407439.	0
PROJECTS UNDER CCNSTRUCTICN	1	7189.	0
2. UPGRADE TO TERTIARY + EXPANC	121	1093606.	1
PROJECTS UNGER CONSTRUCTION	+	-61664	0
C. FACILITIES NEECING REPLACEMENT	15	216060.	3
1. CURRENTLY WITH SECONDARY TREATMENT OR LESS	46	202290.	2
REPLACEMENTS UNDER CONSTRUCTION	0	0.	2
2. CURRENTLY WITH TERTIARY TREATMENT	5	13769.	0
REPLACEMENTS UNDER CONSTRUCTION	0	0.	0
II NEW FACILITIES			
TOTAL	66	243340.	\$
A. SECCADARY TREATMENT RECUIRED	31	174671.	2
NEW FACILITIES UNDER CONSTRUCTION	1	.0	1
B. TERTIARY TREATMENT REGUIRED	62	68668.	
NEW FACILITIES UNDER CONSTRUCTION	\$	18507.	1

STATUS OF MASTEMATER FACILITIES 1980 SURVEY

STATUS OF WASTEWATER FACILITIES 1980 SURVEY Tally for Omio Page Two

SUMMARY OF TYPE OF TREATMENT

NC TREATMENT	63	243340.	5
LESS THAN RELIABLE SECONDARY TREATMENT	55	481556.	3
RELIABLE SECONDARY TREATMENT	292	3302682.	13
TERTIARY TREATMENT	11	312565.	1
NONCONVENTIONAL TRT. MEETING REQUIREMENTS	0	.0	112
NONCONVENTIONAL TRT. NCT PEETING REQUIREMENTS	o	••	42
SUMMARY OF PHASE OF PRCJECT			
NCNE (NO PROJECT)	63	713344.	126
ND ACTION	46	66661.	15
ACTION INITIATED	108	252752.	15
STEP ONE	202	2546618.	6
STEP TWO	42	498966.	3
STEP THREE	14	258817.	14
CCNSTRUCTION COMPLETE	9	3015.	O

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SURVEY	
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FACILITIES	FACILITY NE
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	FACILITIES	POPULATION	INDUSTRIAL FACILITIES
I EXISTING FACILITIES			
TOTAL	222	3254003.	192
NO IDENTIFIED NEEDS	159	2747866.	154
IMPRCVEMENTS NEEDED	63	506162.	38
A. FACILITIES NEEDING INCREASEC TREATMENT LEVEL	15	198532.	22
1. UPGRADE TU SECONDARY TREATMENT	12	185262.	2
SECCNDARY UPGRADES UNDER CONSTRUCTION	2	70849.	0
2. UPGRADE TO TERTIARY TREATMENT	3	13269.	1
TERTIARY UPGRACES UNDER CONSTRUCTION	0	0.	0
B. FACILITIES NEEDING INCREASED CAPACITY	16	107984.	2
1. FACILITIES WITH SECONDARY TREATMENT	15	107484.	0
EXPANSION PROJECTS UNDER CONSTRUCTION	0	0.	0
2. FACILITIES MITH TERTIARY TREATMENT	1	500.	0
EXPANSION PROJECTS UNDER CONSTRUCTION	0	0.	0
C. FACILITIES NEEDING INCREASED TREATMENT + CAP.	15	166993.	1
1. UPGRACE TO SECONDARY + EXPAND	1	20043.	0
PRCJECTS UNDER CONSTRUCTION	0	0.	0
2. UPGRADE TC TERTIARY + EXPAND	80	146949.	0
PROJECTS UNDER CONSTRUCTION	3	72939.	0
D. FACILITIES NEEDING REPLACEMENT	11	32652.	1
1. CURRENTLY WITH SECONDARY TREATMENT CR LESS	11	32652.	1
REPLACEMENTS UNDER CONSTRUCTION	0	.0	0
2. CURRENTLY WITH TERTIARY TREATMENT	0	0.	0
REPLACEMENTS UNDER CONSTRUCTION	0	0.	0
II NEW FACILITIES			
TOTAL	30	67867.	2
A. SECONDARY TREATMENT RECUTRED	59	67021.	1
NEW FACILITIES UNDER CONSTRUCTION	0	0.	0
8. TERTIANY TREATMENT RECUIRED	1	646.	1
NEW FACILITIES UNDER CONSTRUCTION	0	0.	0

STATUS OF WASTEWATER FACILITIES 1980 SURVEY Tally for Pennsylvannia Page Two

SUMMARY OF TYPE OF TREATMENT

NO TREATMENT	30	67867.	2
LESS THAN RELIABLE SECONDARY TREATMENT	30	227259.	*
RELIABLE SECONDARY TREATMENT	181	2913652.	43
TERTIARY TREATMENT	11	113109.	1
NGNCONVENTIONAL TRT. MEETING REQUIREMENTS	0	0.	114
NONCONVENTIONAL TRT. NCT MEETING REGUIREMENTS	0	•0	30
SUMMARY OF PHASE OF PROJECT			
NCNE (NG PROJECT)	158	2740326.	154
ND ACTION	34	75845.	11
ACTION INITIATED	25	225925.	9
STEP ONE	19	104019.	8
STEP TWO	11	31990.	9
STEP THREE	\$	143789.	•
CCNSTRUCTION COMPLETE	0	•0	U

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PAGE CNE
F FACILITY REECS
SUMMARY OF

	MUNICIPAL	NOTIN THOM	INDUSTRIA	
				2
T CA131130 FAULTITES				
TOTAL	50	169909.	33	
NO IDENTIFIED NEEDS	15	52855.	30	
IMPRCVEMENTS NEEDED	35	117053.	3	
A. FACILITIES NEEDING INCREASED TREATMENT LEVEL	3	8969.	0	
1. UPGRACE TO SECONDARY TREATMENT	2	426		0
SECCNDARY UPGRADES UNCER CONSTRUCTION	0			0
2. UPGRADE TO TERTIARY TREATMENT	1	469		0
TERTIARY UPGRADES UNCER CONSTRUCTION	0			0
B. FACILITIES NEEDING INCREASED CAPACITY	1	725.	2	
1. FACILITIES WITH SECONDARY TREATMENT	1	12		-
EXPANSION PROJECTS UNCER CONSTRUCTION	0			-
2. FACILITIES WITH TEATIARY TREATMENT	0			•
EXPANSION PROJECTS UNCER CONSTRUCTION	0			0
C. FACILITIES NEEDING INCREASEC TREATMENT + CAP.	54	72008.	U	
1. UPGRADE TO SECONCARY + EXPAND	11	22581		0
PROJECTS UNDER CONSTRUCTION	0			0
2. LPGRADE TO TERTIARY + EXPAND	1	1465		0
PROJECTS UNDER CONSTRUCTION	2	2426		U
C. FACILITIES NEEDING REPLACEMENT	1	35349.	1	
1. CLRRENTLY WITH SECCNCARY TREATPENT OR LESS	1	35156		0
REPLACEMENTS UNDER CONSTRUCTION	0			0
2. CURRENTLY WITH TERTIARY TREATMENT	0			0
REPLACEMENTS UNDER CCMSTRUCTION	0			0
II NEW FACILITIES				
TOTAL	9	6299.	E	
A. SECONDARY TREATMENT REGULAED	5	519		~
MEN FACILITIES UNDER CONSTRUCTION	0			0
B. FEATIARY TREATMENT REGUIRED	-	50(-
NEW FACILITIES UNDER CONSTRUCTION	0			0

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STATUS OF MASTEWATER FACILITIES 1980 SURVEY Tally FCR VIRGINIA PAGE TWO

SUMMARY OF TYPE CF TREATMENT

NC TREATMENT	9	6299.	3
LESS THAN RELIABLE SECONDARY TREATMENT.	30	99753.	3
RELIABLE SECCNDARY TREATMENT	16	57055.	4
TERTLARY TREATMENT	4	13099.	U
NONCONVENTIONAL TRT. MEETING REGUIREMENTS	0	0.	24
NONCONVENTIONAL TRT. NCT MEETING REGUIREMENTS	0	0-	2
SUMMARY OF PHASE OF PROJECT			
NOME (NC PROJECT)	15	52855.	31
NC ACTION	9	17569.	0
ACTION INITIATED	9	3964 -	1
STEP CNE	25	10008.	3
STEP TWD	2	7539.	o
STEP THREE	2	24269.	1
CONSTRUCTION COMPLETE	0	•0	0

TALLY FCR WEST VIRGINIA PAGE ONE SUMMARY OF FACILITY NEEDS			
	MUNICIPAL	POPULATION	FACILITIES
I EXISTING FACILITIES			
TOTAL	165	1172158.	133
NO IDENTIFIED NEEDS	81	481570.	116
IMPROVEMENTS NEEDED	48	690596.	11
A. FACILITIES NEEDING INCREASED TREATMENT LEVEL	5	32749.	14
1. UPGRADE TO SECONDARY TREATMENT	2	1499.	1
SECCNDARY UPGRADES UNDER CONSTRUCTION	0	0.	1
2. UPGRADE TO TERTIARY TREATMENT	1	25249.	0
TERTIARY UPGRADES UNDER CONSTRUCTION	0	0.	0
B. FACILITIES NEEDING INCREASED CAPACITY	10	38719.	o
L. FACILITIES WITH SECONDARY TREATMENT	6	36719.	0
EXPANSION PROJECTS UNDER CONSTRUCTION	0	0.	0
2. FACILITIES MITH TERTIARY TREATMENT	1	1999.	0
EXPANSION PROJECTS UNDER CONSTRUCTION	0	0.	0
C. FACILITIES NEECING INCREASED TREATMENT + CAP.	40	580128.	2
L. UPGRADE TO SECCNDARY + EXPANC	37	409888.	0
PROJECTS UNDER CONSTRUCTION	*	193799.	0
2. UPGRADE TO TERTIARY + EXPAND	27	170241.	0
PROJECTS UNDER CONSTRUCTION	2	10299.	0
D. FACILITIES NEEDING REPLACEMENT	\$	38999.	1
I. CURRENILY WITH SECCHDARY TREATMENT OR LESS	5	38595	1
REPLACEMENTS UNDER CONSTRUCTION	E .	29999.	1
2. CLRRENTLY WITH TERTIARY TREATMENT	0	0.	0
REPLACEMENTS UNDER CONSTRUCTION	0	0.	0
II NEW FACILITIES			
TOTAL	102	241754.	3
A. SECONDARY TREATMENT REGUIRED	78	177145.	1
NEN FACILITIES UNDER CONSTRUCTION	5	10449.	-
B. TERTLARY TREATMENT REGUIRED	54	64609.	2
NEW FACILITIES UNCER CONSTRUCTION	1	11999.	2

STATUS OF MASTEWATER FACILITIES 1980 SURVEY TALLY FCR MEST VIRGINIA PAGE TWD

SUMMARY OF ITYPE OF TREATMENT

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NC TREATMENT	102	241754.	E
LESS THAN RELIABLE SECONDARY TREATMENT	15	418720.	11
RELIABLE SECONDARY TREATMENT	118	719836.	28
TERTIARY TREATMENT	9	33609.	5
NONCONVENTIONAL TRT. MEETING REGUIREMENTS	0	•0	12
NONCONVENTIONAL TRT. NOT PEETING REQUIREMENTS	0	0.	11
SUMMARY GF PMASE GF PRCJECT			
VONE (NC PROJECT)	11	475500.	115
NC ACTION	28	92795.	*
ACTION INITIATED	3	9669.	3
STEP ONE	108	412279.	1
STEP TWO	36	167129.	2
STEP THREE	15	256549.	11
CONSTRUCTION COMPLETE	0	.0	U