(A SUMMARY)

proceedings

OF THE
STATE AND INTERSTATE
WATER POLLUTION CONTROL ADMINISTRATORS
IN JOINT MEETING WITH
THE CONFERENCE OF
STATE SANITARY ENGINEERS

MAY 21, 1962

U. S. DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE
PUBLIC HEALTH SERVICE

(A SUMMARY)

proceedings

OF THE

STATE AND INTERSTATE

WATER POLLUTION CONTROL ADMINISTRATORS

IN JOINT MEETING WITH

THE CONFERENCE OF

STATE SANITARY ENGINEERS

MAY 21, 1962

U. S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
Public Health Service
Division of Water Supply and Pollution Control
Washington 25, D. C.

C O N T E N T S

Page

Welcome -- Dr. R. J. Anderson 3

Federal Water Pollution Control Program
J. M. Quigley 5

Water Pollution Control Operations
G. E. McCallum. 17

Advanced Waste Treatment
B. B. Berger 21

Enforcement Program and Policies
Murray Stein 24

Does Water Pollution Control Practice Follow Recommendations 1 and 2 of 1960 National Conference on Water Pollution?
M. P. Adams 29

Recent Trends in State Organizations and Legislation
C. M. Everts, Jr. 41

APPENDIX

Laboratory Control of Municipal Sewage Treatment Works
David H. Howells (Delivered May 22, 1962) 45

OPENING REMARKS

By

Dr. Robert J. Anderson
Chief, Bureau of State Services
Public Health Service
U. S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

(The Joint Meeting of the State and Interstate Water Pollution Control Administrators and the Conference of State Sanitary Engineers was opened by Chairman Blucher Poole, Technical Secretary, Indiana Stream Pollution Control Board, in Washington on May 21, 1962. The first speaker was introduced by Chairman Poole.)

DR. ANDERSON: Were Dr. Terry not in Geneva, he would welcome the State and Interstate Water Pollution Control Administrators and the Conference of State Sanitary Engineers. He is out of town because of official business with the World Health Organization.

I am sure that those of you who have had a chance to talk to Dr. Terry know of his great interest in water pollution control and in the whole area of environmental health. He has said repeatedly that this is an area in which he feels we need to move forward rapidly.

He also is very much impressed with both the legal and the traditional relationship that exists in this program -- the cooperative relationship between State agencies, interstate agencies, and the Public Health Service.

When the Secretary delegated to him the operational authority, he wanted us to move vigorously ahead but within the context of the State-Federal relationship.

One of the things which hinders us, in addition to money, is the lack of trained people. This probably is going to be one of the more critical determinants for advances in the future.

Now, we are very fortunate, I think, in the water area, in that in the last year -- and in future years -- we are entering the field of support of training in educational institutions, as well as the traditional short-course type of training we have given.

Now training is one aspect, and education is another aspect of recruitment. Another aspect that plagues many of us, of course, is that of having attractive job opportunities for the people after they are educated. No one can quibble with the attractiveness of the work opportunities that we have, but when we look at the salaries that workers get in our program I think we can see that here is an area that needs considerable attention. Otherwise, we will not compete with outer space and we will not compete with atomic energy as an attractive field for youngsters.

We -- the Public Health Service -- want to do everything that we can to develop people for work in the field of environmental health and for work in the field of water pollution control.

I shall conclude my remarks for Dr. Terry and introduce to you Assistant Secretary James Quigley, who is the Secretary's personal representative in relation to the responsibilities that the Secretary and the Department have under the Water Pollution Control Act. Mr. Quigley.

FEDERAL WATER POLLUTION CONTROL PROGRAM

By

James M. Quigley, Assistant Secretary
U. S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

MR. QUIGLEY: Thank you, Dr. Anderson. That this meeting got off to a delayed start, I think, was partly my fault. One of the chores I was supposed to perform earlier this morning was to extend greetings to a visiting group of Japanese Governors, and unfortunately too many Washington rickshas got in their way and they had trouble with our traffic problem and they didn't get here as scheduled at a quarter after nine.

Gentlemen, I have two roles here today. The first is rather ceremonial. I welcome you to Washington on behalf of Secretary Ribicoff and on behalf of the Department of Health, Education, and Welfare.

My second role is more of a workaday nature. I am to report to you on what the New Frontier is doing, has done, and plans to do in the area of water pollution control.

As you know and as Dr. Anderson has indicated, our Department is engaged in many Federal-State programs. We are involved in education, in vocational rehabilitation, in child welfare. But in no program do we feel closer to the States than in the field of public health and particularly in the field of sanitary engineering. The reason, of course, is obvious--old acquaintance.

You in the States and our people in the Public Health Service have worked together for a long time. You have met and have solved many problems in the past, and I detect no loss of confidence here today that you will be able to meet whatever problems may lie in the future.

Now let me speak about my second role as one very greatly concerned with the success of our Government's water pollution control program.

When you held your annual meeting last year, a series of amendments to the Water Pollution Control Act of 1956 were then being considered before the Congress of the United States. These amendments were later passed, and as you know Public Law 87-88 was signed into law by President Kennedy on July 20 of last year.

The original Blatnik Bill, the Water Pollution Control Act of 1956, consisted primarily of three provisions -- law enforcement, research, and the Federal aid to cities in construction of sewage treatment facilities. There were, of course, as you know other provisions in the bill, but basically these three elements -- enforcement, research, and aid -- were the heart of the Blatnik Bill, and when they were enacted into law in 1956, whether we realized it or not, I think they marked a new era in water pollution control, a new era to be characterized by greater enforcement, greater research, and greater aid from the Federal Government to the States and to cities of this country to help meet the problems of water pollution.

When Public Law 87-88 came out of the Congress, a year ago, each of these three basic elements of enforcement, research, and aid was expanded and strengthened. We were given virtually twice as much money to make available to the States to assist them in construction efforts. We were given much broader authority for research, and our enforcement powers and jurisdiction were both increased.

These changes in the 1956 act, I would point out, were very much a part of the Administration's 1961 legislative program. I recall, because I was pretty much involved in it -- and I suspect even you who might not have been directly involved -- recall that during the 1960 campaign Candidate Kennedy described water pollution as a national disgrace, endangering health, limiting our country's business opportunities, and destroying recreation. In the very best tradition of American political campaigning, he criticized the previous Administration for not doing more and called for a more effective and more aggressive Federal program.

Now, after Candidate Kennedy became President Kennedy he quickly demonstrated that what he had to say about water pollution matters was not just so much campaign talk. As one of the first acts of his new Administration he formally asked the Congress for new legislation, and as we have seen, he got it. Since then, I hasten to add, despite all of the other problems on the President's mind and on the President's desk, his interest in the problem of water pollution control has not waned.

It was Public Law 87-88, signed by the President last July, which brought me directly into the administration of a water pollution control program. As you know, the 1961 amendments transferred responsibility for this program from the Office of the Surgeon General to the Office of the Secretary of Health, Education, and Welfare.

Now, after a period of considerable study a procedure was set up within our Department whereby the day-to-day administration of the program was assigned back to the Public Health Service, with the Office of the Secretary maintaining supervisory responsibility and chairmanship of the President's Advisory Board for Water Pollution Control.

As Assistant Secretary of the Department, I was named by Secretary Ribicoff to represent him in overseeing the program and in acting as Chairman of the President's Water Pollution Control Advisory Board.

Now, it was 10 months ago that President Kennedy signed the bill, and it has been some six months since we set up our present administrative arrangement within the Department. These are both very short periods, but I think despite this you are entitled to some kind of an interim report on what we have done, what we have accomplished, and some indication of what we hope to do and where we hope to go.

Let me try to make such a report in this way. First, let's look at what has happened in the construction of municipal treatment works.

For a long time we have been woefully underspending in building facilities to treat municipal waste. During the early 1950's construction averaged somewhere around $200 million a year. After the passage of the 1956 Federal Act this average rose to somewhere in the neighborhood of $350 million per year. This is a considerable improvement; nevertheless, far less than should be spent, far less than should be done.

Now, what was not done during the 1950's and in previous years has left us with a two-fold problem here in the 1960's. We must build to take care of our expanding population and our expanding industry, and at the same time overcome the enormous backlog in construction which was allowed to accumulate in the past. To do this our cities must spend something like $600 million a year throughout the coming decade, and our industries must also spend for water pollution control facilities at approximately the same rate.

I think all of us in this Administration are delighted at the response which the cities have made to the new legislation. President Kennedy, for example, was able to report to the Congress in February of this year that there is visible progress in the effort to control water pollution, resulting from the expanded legislation passed by the Congress in 1961. Last year, the President's report continued, construction was begun on more waste treatment plants than ever before in our history, 30 percent above the calender year 1960 level.

Now, this was good news that the President reported in February, and I can now report even better news, and that is, to date, in 1962 construction is running 15 percent above what it was in 1961.

Even as I give this good news I would point out that we are not yet building at the necessary rate of $600 million, but I think there is some indication that we are moving in the right direction, that we are moving at the right pace, and there is every possibility that we will approach and reach that goal.

Now, in the field of research I clearly recognize that I am a layman in the company of experts. You, rather than I, must assess what progress we are making, and you must tell us where we ought to be going and what we ought to be doing. I can, however, report these things:

One specific program now under way is the advanced waste treatment research program, which is directed towards finding practical methods for complete water renovation.

A seminar on this particular program was held in Cincinnati just last week, and it showed some very interesting progress in the field.

647742 O - 62 - 2

Within the Public Health Service, two other research activities are worthy of notice. One is the program under which we have increased ability to support universities and private research. This research has grown over the years from three grants back in the year 1947, amounting to a total of $57,000, to a program large enough so that in just the first quarter of this year we were able to award some 51 grants, with a total value of more than $800,000.

Forty-five of these awards were made to 33 colleges and universities, 4 were made to private research organizations, and one each was awarded to a consulting firm and to a local health department.

The other point that I would bring to your attention is the fact that during the coming year the Federal Government will begin a new program to expand our regional laboratory facilities.

All of you know water problems are not constant from one part of the country to another or from one river basin to another. This is the reason why this Administration strongly supported the idea, and the concept, of the development of regional laboratories, and this is why it is now moving to get these regional laboratories into being and functioning.

Now, what has happened under the new law in the field of enforcement? One must look at the enforcement picture in perspective to see what has been accomplished.

Since the Federal program started under the Water Pollution Control Act of 1956, enforcement actions have involved some 18 localities, 250 municipalities, and a like number of industries. Schedules for remedial action to clean up the water involve calling for a half billion dollars' worth of construction and will abate pollution in 5,000 miles of major streams. And in using these figures I do not take into account two of the enforcement actions which have been taken so far under the new provisions of the 1961 amendments, which permit Federal enforcement actions in intrastate situations.

One of these actions you are all aware of, or at least generally aware, was in the matter of the pollution of the Detroit River as it flows into Lake Erie. Another was in the matter of the Puget Sound area in the State of Washington.

As in the administration of any law, the attitude of the administrator may be every bit as important, or perhaps more important, than the words of the law that are spelled out in the legislation, and, maybe, it would be well for me to make clear what the attitude of this administrator and this Administration is on the matter of enforcement.

I am a lawyer, and to this lawyer's mind -- and I dare say in the presence of many engineers "to this lawyer's mind" -- the key to effective water pollution control is enforcement. Research is necessary; grants for construction are helpful; but unless they are accompanied by a vigorous enforcement program the job, in my judgement, is never going to get done the way it must be done.

Now, for me to say this is not to suggest that our Department is ready, willing, or anxious to start enforcement proceedings all over this land. It is a big country. It is a big map, and I would suggest in fact that such a"buckshot" approach to enforcement is just the opposite of an effective approach. But I would like to make it clear that we are ready to act whenever or wherever we are invited to do so. Yes, I said "invited," and I use that word advisedly.

In the two intrastate proceedings begun under last year's amendment to which I have already had reference we acted in both cases upon the invitation of governors. Governor Rosellini invited us into the Puget Sound area, and into the Detroit River area Michigan's Governor Swainson extended the invitation. There is no reason to assume that other governors, many of them acting upon the recommendation of the very people here in this room, will not invite us into their State, to have us throw the full weight of the Federal Government behind the State's efforts to clean up its waters. When we are so invited, we will respond to the best of our ability.

But let me make something clear. While I use the word "invitation" deliberately, you should be warned that I define it rather broadly. We might, for example, consider ourselves invited to start an enforcement action in your area without ever receiving a communication on the engraved stationery of the Governor of your State. We might on occasion consider ourselves invited if we heard nothing from your State, especially when that lack of communication was matched by an equal lack of State action to meet a long-standing pollution problem of major proportion.

So that there can be no misunderstanding, let me state it clearly. The best way to keep us out of your State is to get that pollution out of your water. If you can't and want us to help, we will be happy to try. If you don't we may be forced to try even though you don't want us to.

You might not believe it, but it is a fact that I happen to be a firm believer in States' rights. I also happen to believe with equal firmness, however, in States' responsibilities, and to put it frankly too many States have not faced up to their responsibilities in the matter of water pollution control. This is understandable. Water pollution problems are often problems that are not easy to solve, and when solutions are found they are often expensive to implement.

We recognize that there are grave economic and political pressures for inaction in this area. Congress recognized these facts of life when it passed the Federal Act in 1956 and recognized it even more clearly when it adopted the 1961 amendments.

Because the States in too many instances have not met their responsibilities in the field of water pollution control, Congress has imposed upon us in this Department greater responsibilities in this area. We intend to meet these responsibilities which Congress has given us, but I assure you we intend to meet them in a completely responsible manner.

Having said that, let me hasten to add that what Congress has done has not eliminated your responsibilities in this area. By and large the job is still yours to do, and unless you do it this nation will not obtain what President Kennedy has described as the country's goal for water; to have sufficient water, sufficiently clean, at the right place and at the right time.

This is not just a worthwhile goal. I submit it as an essential goal, and to attain this goal we are convinced that there must be much more research, much more construction, and much more enforcement. To attain this goal there must be action in each of these areas at every level of our government, and to attain this goal there must be effective, cooperative action between the States and the Federal Government.

We -- in the Department of Health, Education, and Welfare -- in the Public Health Service -- at the Federal level of government -- are ready and willing to do our part. We believe that Congress has given us the necessary tools to do the job -- the laws, the resources, the money, the enforcement powers, and above all something Congress didn't give us that we have. We have the determination.

We believe that if you will match to the best of your ability these resources and this determination that working together we can do the job that should be done, that we will do the job that must be done, because as a matter of this nation's survival this country must have clean water.

DISCUSSION

CHAIRMAN POOLE: Thank you very much, Mr. Quigley. I hope you can stay for just a few more minutes while I throw this open for questions or discussion. I know that a good many people in this room have been waiting to hear some of the things they have heard from you today. I certainly want to commend you for a concise and straightforward presentation of not only the program but the policies of HEW in connection with the water pollution control program.

I now throw the meeting open for questions or discussion. Mr. Wisniewski.

MR. WISNIEWSKI (Wisconsin): I believe Public Law 660 will need some additional amendments if you are going to make progress. I don't agree that the figures quoted on past construction as compared to construction after the passage of the 1956 Act are comparable.

I had occasion to examine problems in the State of Wisconsin recently, and for 1960 we had some $10 million worth of construction, which was defined as treatment in accordance with Federal law -- interceptors, outfalls, and treatment plants. Actual treatment costs for treatment plants, new construction and additions, of that figure amounted to $2,800,000. The rest was for sewers. We are finding that about one-third of the grant money is going to finance interceptors and outfalls.

Our figures prior to 1956 showed somewhere in the neighborhood of 2-1/2 million dollars worth of construction, which was strictly construction for treatment plants, not including interceptors. So I think some changes will have to be made. And we compared our losses to the streams in terms of effluent. In 1949 some 220,000 pounds of b.o.d. were discharged to surface waters and in 1954 201,000, so we made about a 10 percent reduction between '49 and '54. In 1961 the discharge is 206,000, so we have gone back 5,000 pounds. We have lost ground.

We find that our enforcement program in Wisconsin is somewhat geared to the grant-in-aid program, construction grant-in-aid program, and as a result it is limited primarily because of the amounts of money available for construction grant-in-aid. And you will find, too, that at the Federal level your enforcement program is going to be limited by the availability of grant-in-aid money. Either take away grant-in-aid money entirely or increase it tremendously and then change the definitions, so that the money is spent strictly for facilities that provide treatment, so that there is no money going for intercepting sewers or outfall sewers.

MR. QUIGLEY: I don't know that I will comment on that. I have a suspicion that you could get 49 or 50 different arguments on that around this table.

I think the basic role of the Federal Government in this program is to be as helpful as we possibly can.

Speaking generally, despite the very incident that you had in your State, which could argue for a limitation on the Federal grants to strictly sewage disposal plants, I have a feeling, without knowing whereof I speak, that if I went around this table there would be those who thought the fact that this money is available for interceptors and outfalls was the best thing that ever happened.

I think of necessity we ought to keep the Federal activity flexible and let the States decide where and how they can best and most wisely and prudently spend their money.

I would ask isn't there any way within your own administration of the program locally how you can decide which of the various ways the money could be spent, which has the greatest merit and greatest worth, and re-arrange your orders of priority so that if in your judgement plants are what you need you see to it this is where your share of the Federal dollars tend to concentrate?

As a general proposition, I think the broader we write this need language and the more discretion we leave to the States to solve their own problems the better off we are. This is not to say that we don't need more. I have never been in a program yet where you couldn't have used more, but I have never been in a program yet where you could have all you could use, and I don't suppose we are ever going to reach that either.

Any other comment or questions in the five or ten minutes I still have here?

MR. M. P. ADAMS (Michigan): Mr. Quigley and I have met on several occasions.

MR. QUIGLEY: Always happy ones.

MR. ADAMS: There is nothing you have said this morning that is not true. That I know.

I am going to say more in my paper, but Mr. Quigley has spoken of the importance of the attitude of the Administration and the administrator toward this program as being as much or equally important as the law itself which Congress has enacted.

I put to him this question. Based on your legal counsel's criticism, if you please, of Section 8 (g) in your Act, where it says finally after you have made your tests, you have made your surveys, and we come to the final day after the hearing board has been convened, and it says the court, giving due consideration to the practicability and to the physical and economic feasibility of securing abatement of any pollution, who shall have jurisdiction to enter judgement, the orders enforcing such judgement as the public interest and equities of the case may require? Our counsel says our law is more effective than yours.

MR. QUIGLEY: Mr. Adams, I can't speak with authority on the Michigan law. It may be a much better law than the one we have to administer. All I know is we have the one we have. It is not a perfect act. As a member of Congress I never voted for a perfect bill, and I never expect to have the responsibility of administering it.

Without knowing the terms of the Michigan law, I don't know whether yours is more progressive and ours is more retrogressive or not, but frankly I think the provisions that Congress wrote into this Act are sound and reasonable, and I wouldn't want anything else.

We have to move in this area, and we are going to move. People may scream to high heaven and say we are arbitrary, that we are prejudging the cases, that we are acting without knowing what the facts are. This simply in the final analysis cannot be true. Initially we may act without knowing the details of the pollution problem in depth, but if we don't act we can never find out what the details are. Ultimately, if a community or if an industry is doing a reasonably good job it has nothing to fear from us and it has nothing to fear from the administration of this Act.

So what we have to do and what we are going to do is to work with the municipalities, to work with the States, to work with industries, to come up with a workable, equitable, and reasonable solution. If we don't, if we try to be arbitrary, I don't think we are going to be in this business very long. I think what we have to do is to work with, and "work with" is a two-way street. The municipalities and industries have to be at least willing to come part of the distance on their own. This we hope we can force them to do, and the reason we think we can force them to do it is because basically we are only going to move on those cases where we think the facts justify it and where the solutions are practical and feasible. This is not to say that we are going to move initially in every case like this, but after we get into it and we make our study and make our investigations if we find we don't have a case we are not going to proceed on that. I have a feeling that in a goodly percentage of these cases, the overwhelming percentage of those cases, our initial impression or initial suspicion is probably going to be verified.

The experience under the Act since 1956 has demonstrated that with few exceptions when the facts are laid out and the municipalities and industries are forced to face up to them in public at public conference they are ready to take the necessary corrective action.

I can't be mad at a company, because if I were representing a paper company and the board of directors called me in and said, "What about this?" and I said, "I have read the Act and I think you are going to have to do it," I would point out that you do it now or do it three years from now and just figure what the interest is on $2,000,000, if that is what it is going to cost. As a lawyer for the paper company, if I can delay this thing for two years I more than justify my retainer several times over just by the interest I have saved my client. I know how these things are. I have represented clients and engaged in such dilatory tactics. This is part of the game. I recognize the rules, but just because we are going to be delayed, just because we are going to be hamstrung doesn't mean we are going to quit.

We are going to press forward on good cases, where we have reasonable and workable solutions, the kind that we are confident that if the days come when we have to go to the mat -- and by the "mat" I mean the Federal courts -- the judge is going to say on the basis of the evidence and the record I think the proposal of cousel for the Federal Government is eminently fair and workable, and I am going to direct the polluters to take the action required, I think this is the way it should be done and I think this is the way it will work. But if we go in as a result of our investigation and study and find we don't have enough to back up the case, we will back out. We are not going to be so dedicated to the cause or so guilty of pride of authorship that we are going to be afraid to back away from a case if when we get into it we find the facts aren't there.

So you may have a better law in Michigan and this law may have to be improved, but I think it is a pretty good act, and I think if we work under it and work with it we can and will accomplish an awful lot in this area in the next few years.

If it turns out as the gentleman from Wisconsin indicated that we need additional amendments, I don't think there is going to be any reluctance in this Department or Administration to go back to the Congress and say, "You passed the basic Act in '56 and you amended it four years later. We thought you did a good job in '60, but it needs additional amendments, and this is what we are recommending." We hope we don't have to do this. I don't think we will. I think if we work with this Act real hard and real vigorously we are going to accomplish an awful lot without the need for any supplemental legislation for some time to come.

MR. D. F. METZLER (Kansas): I think we would make a mistake if we didn't ask the question I am about to ask, for it seems to me that in this area the Assistant Secretary is eminently qualified to give us an answer.

You recall that a great deal of the support for the amendments in the Act last time came from fish and wildlife interests and conservationists. I would like to ask Mr. Quigley what kind of readings he gets from this group, about how the program has been going during this year or so of experience that we have had under the new amendments.

MR. QUIGLEY: Frankly, I think it is impossible for me or for anybody to answer the question as to how somebody else feels about something. This is like people saying, "Why are the doctors opposed to medical care for the aged?" I don't know. Go ask the doctors.

I think in answer to your question you would have to ask the conservationists to get a full, frank, and honest answer.

From my point of view, from where I stand, and from what I have observed, the conservationists have some doubts and misgivings, not about the law but about the manner in which we have set up the administration of the law within the Department. They may be right. I don't know. I am willing to admit that if you read any textbook on government organization and government administration that what we have here is -- there is a lady in here so I can't use the expression, but it is that kind of arrangement.

I think despite that, despite the fact it does violence to basic concepts of what is good government administration, that it can work. I think it will work, and I think to date it has worked.

I think to date the conservationists have publicly and privately indicated that as of the moment their attitude is one of watchful waiting. They are willing to give this thing a reasonable chance to function, and if they are satisfied that it is doing a job I expect and anticipate they will publicly give us a pat on the back. On the other hand, if they are satisfied that the amendments didn't go far enough or the administrative arrangement that Secretary Ribicoff initiated didn't let it function to its fullest, I think and expect they will blast us publicly.

I think from our point of view the responsibility is ours to do the job under the Act as it is now written and under the administrative arrangement that is now in existence. If we do, I think the conservationists will publicly and enthusiastically applaud us. And I think they should. If we don't, I think they will vociferously blast us, and I think they should.

MR. SMALLHORST (Texas): I don't particularly have a question. It is merely a comment.

I agree, and I think most of us will, that there is an area where undoubtedly Federal enforcement powers in the water pollution field are indicated. I do get a little bit concerned at times about the implication being made that the States are not taking action on the enforcement field, and this is indicated in the report listing the number of court actions that States have taken over a period of years and indicating that therefore not much is being done. But they talk about the hearings that have been made under Public Law 660 and the amount of accomplishments that have been made.

I think actually if you consider the conference stage as an enforcement action that this is simply routine procedure in the States to get your attorney general and your other people and go down and talk and lay it on the line, and you get something done in almost every case. I think more recognition should be given to the conference stage of the State activity in the enforcement.

MR. QUIGLEY: Well, I agree with you completely. I frankly don't know who conceived of the conference concept in this particular area. Everybody comes in and talks. There is no cross examination. There is no confronting your accusers. There are none of the traditional safeguards, rules of evidence, hearsay. Anybody is free to say everything and anything, and yet despite the violence this does to what I learned in law school, using the pragmatic test it seems to work and works very effectively and very well.

I think the secret is that while it has a semi-resemblance to a legal proceeding, actually its effectiveness arises from focusing public attention on the problem.

647742 O - 62 - 3

There is a desire, an urge, for a municipality or mayor or city council or an industry to come into that conference and say the problem isn't as bad as you people say it is, or that it was bad six months ago but look at what we have done since.

This is fine with me. I agree with you that the number of times you go to court is not the final test of how vigorous your enforcement program is. It is, however, some evidence, and if you have never been to court, I'd be curious to check back and see how many conferences there have been that have really been effective and where the follow-up has occurred. I would suspect there might be some correlation. I don't know. Maybe not.

I think the very fact that we indicate we are ready to go to court if we have to is probably the best assurance we have that we won't be going to court very often, but if anybody wants to test us we are willing to have anybody call our bluff. If you call our bluff and we don't follow through, it will be because of the reason that I indicated earlier -- that on sober second thought and review of the whole record we decided we just didn't have a case that would stand up in court. In that case, being good lawyers we don't go to court. We settle out of court; maybe not well from our client's point of view, but we nevertheless settle.

I agree with you that court cases is not an accurate indication of how effective a job a State or the Federal Government is doing. However, despite this I am willing to come back and say that in the judgement of this administrator and in the judgement of many of my colleagues, or former colleagues in the Congress of the United States, for a variety of reasons some of which I hinted in my opening remarks many States have not done the job that they ought to be doing or thejob they could do in this field.

We hope they will. We hope we can help them. We hope we can work with them to do a better job. We hope, if necessary, that we can force them into doing a better job, because we can't do it all. I don't think Congress intended that, but it intended us to help the States do a better job. In those instances where the States won't, I think then the responsibility reverts to us, and we will do our best to carry out that responsibility in what I hope will be a completely responsible manner.

WATER POLLUTION CONTROL OPERATIONS: LEGISLATION AND ACTIVITIES OF OTHER FEDERAL AGENCIES

By
Gordon E. McCallum, Chief
Division of Water Supply and Pollution Control
U. S. Department of Health, Education, and Welfare
Public Health Service

For a good many years -- we have been coming together at meetings such as this -- to talk about our joint programs. I do not believe, however, we have ever met before -- when the climate of opinion was more favorable to us than now. All of us today -- you in your State and Interstate agencies -- and we in the Federal service are not only being encouraged to go forward with our program -- we are being pushed to move faster.

There is no single reason for this. The Senate Select Committee and the National Conference on Water Pollution were of great help; so have been the educational activities but above all is the solid record of accomplishments for which so many of you have been responsible. I expect water pollution control will get further help later this week, when President Kennedy holds his White House Conference on Conservation. This Conference will identify those of us in the field of water resource management as full partners in the Nation's recreational programs. It will also, I am sure, make it abundantly clear that we are now a long way removed from the single-purpose health objectives which once motivated our efforts.

You have asked me -- among other things -- to mention Federal legislation and to discuss the activities of other Federal agencies. I am not sure but that an equally important story of the past year -- excepting the passage of Public Law 87-88 -- is not to be found out in the States and in the river basins rather than here in Washington.

One of the key amendments to the Federal Water Pollution Control Act last year was the increase in Federal grants to the States and to interstate agencies. It was important because this was a further affirmation by Congress that water pollution control is to be a joint Federal-State effort. In the past six years, Federal grants have helped increase the amount of State funding from about $4 million in 1956 to over $9 million this year. From 1960 to 1961, water pollution control budgets showed substantial increases in 33 States.

Extra funds and more public support and good leadership and administration have all combined in the past year to build a pretty substantial record of progress. Let me give you just a few examples - by no means complete -- not necessarily the most significant but important because these are the facts that make our National program.

California has undertaken the most far reaching development program that has ever taken place. Kansas, New York, Ohio and others are developing larger staffs to deal with river basin matters. Iowa is making a special study of the Cedar River to determine causes of tastes and odors. The Mississippi Board of Water Commissioners and the Louisiana Department of Public Works have joined the Soil Conservation Service to conduct comprehensive studies of the Big Black and other river basins. Delaware and New Jersey are applying their increased program grant funds to study the Delaware River Estuary.

The West Virginia Water Resources Commission, in cooperation with the State's Reclamation Agency, is developing a program for rehabilitation of strip mine areas. Alabama is equipping and staffing a new laboratory. Maryland is undertaking a long study of the effect of waste disposal in the Chesapeake Bay area. Rhode Island is embarked on a professional recruiting program. The New Jersey Division of Fish and Game is working with a PHS grant to study fish kills -- particularly as they may be related to chemical and oil pollution and to insecticides and mosquito abatement programs. Tennessee's Game and Fish Commission -- also with the help of a PHS grant -- is establishing a new type of fish surveillance program.

A list such as this could go on a very long time, and when we are through talking about the activities of the States, we could then go on and speak for another long time of what the interstate agencies are doing. But perhaps I have made my point -- that water pollution control is a national effort and when we talk about Federal legislation and Federal programs, we are necessarily telling only a part of the story.

You have asked me to mention Federal legislation. There is not much pending affecting our field -- and predictions are that little will be enacted.

The legislation now in Congress which is perhaps of most interest to you is the proposed Water Resources Planning Act, entitled S. 2246. This -- an Administration bill -- would implement a recommendation of the Senate Select Committee. It calls for comprehensive water resources development and management for each major river basin. It would establish a Water Resources Council to be composed of the heads of four agencies. Three of these would be the major construction agencies -- Interior, Agriculture, and Army -- and the fourth would be Health, Education, and Welfare. The Act to be administered by the Department of the Interior would set up a 10-year program of financial assistance to the States to help them in developing comprehensive water resource plans. The amounts of the grants would be five million dollars annually.

Joint hearings have been held by the Senate Interior Committee and the Committee on Public Works.

Construction of highways, land clearing for urban development, timber harvesting and other land uses have greatly intensified the long-

standing problem of siltation and sedimentation. Our Water Pollution Control Advisory Board has gone on record approving the principle of S. 2767 introduced by Senator Metcalf of Montana. This bill, which is pending before the Senate Committee on Public Works, would require the Secretary of Interior to approve all surveys, plans, estimates, and specifications for the Federal-aid highway system.

I know you are interested in the Public Works bills (sometimes called anti-recession or capital improvement.) H. R. 10113 by Representative Blatnik and S. 2817 by Senators Humphrey and McCarthy -- known as the Public Works Coordination and Acceleration Act -- were introduced on February 7. The President transmitted recommendations for standby authority to accelerate capital expenditure programs on February 19.

Major differences are that the bills submitted on February 7 proposed an Office of Public Works and Coordination to administer the Act, while the President's proposals would focus administration in the Housing and Home Finance Agency. Both proposals authorize the expenditure of two billion dollars. The House has held hearings on H. R. 10113 and H. R. 10318 but the Committee has not yet reported the bill. The Senate has reported a bill (S. 2965) with amendments.

While these events have been going on in the Congress - let me report some of the more important activities of the Federal agencies. One of the most significant -- and of special interest to us -- has been the redrafting of the basic policy document used by the Federal government in determining cost-benefit ratios on Federal construction projects. The President has just signed the new document -- replacing the well-known Budget Bureau Circular A-47 -- which has been in use for some time. HEW along with the three construction agencies, Agriculture, Army, and Interior -- served on the special Cabinet Committee which developed the new evaluation standards.

The Federal construction agencies have proposed one and one-half billion dollars for new water resource developments beginning in fiscal year 1963. Such structures will have a profound effect on water quality -- making it imperative that all of us -- in our several capacities -- do everything we can -- to assure that the plans take quality needs into account.

During the past three years, we have prepared reports on water supply or flow control needs for the construction agencies on 97 projects. These will result in an estimated 25 million dollars worth of annual benefits in the form of water storage for municipal and industrial supplies and for stream flow regulation for quality control. We are presently preparing reports on 78 additional projects and have committed assistance to another 131.

There is much to be gained from this work. One example is in the Red River Basin. Its waters carry a great load of salt from both man-made and natural sources. The salt originating in the semi-arid western reaches of the basin degrades water even in the eastern portion where rainfall is plentiful. We have investigated these sources and the Corps of Engineers is developing plans to control the natural pollution. A series of eleven impoundments will be constructed in southeast Oklahoma to be used initially to dilute the salt concentration. The Corps of Engineers in the meantime is proposing structures to the west to cut off the flow of natural salt waters, while the States are moving to control the man-made brine pollution from oil fields. Dilution water will be provided from the eastern reservoirs until the control measures become effective; they will then be used to supply municipal and industrial needs as the economy of the region expands.

In the Lehigh Valley of the Delaware River Basin, the Corps of Engineers, Resources for the Future, and the Public Health Service are supporting a group of Harvard scientists in another interesting project. It involves the application of the latest systems analysis techniques to water resources problems. The group is utilizing synthetic hydrology and advanced mathmatical techniques in conjunction with the most modern computers available.

For some time we have participated with the Corps of Engineers in preparing a plan for water resource development in the Potomac Valley. Just recently, the Corps released some preliminary statements on the plan. Favored at present is the construction of 16 major impoundments and some 400 small watershed structures.

In his conservation message on March 1, the President proposed an Institute of Water Research in which all water resource agencies would participate. This Institute would be established in the Department of the Interior. The President proposed that the Institute conduct basic research on surface and ground waters. Programs would be directed to such specific problems as desalination of water, improving water quality (in our own field), flood forecasting, and prevention of evaporation.

And here, gentlemen, ends my inventory of Federal activities and Federal legislation in our field. It is a long inventory, if it is because of what I mentioned at the outset -- a new public awareness of our water resources needs. An awareness -- that without any question -- is beginning to be reflected here in Washington -- just as it is in your own State Capitals.

Water resource development presently involves about ten billion dollars a year. This is big business -- one of the biggest businesses in our country -- and I am convinced it will be even bigger. Whether we like it or not -- we or some other public servant is going to grow with it.

ADVANCED WASTE TREATMENT

By

B. B. Berger
Director of Water Supply and Pollution Control
Robert A. Taft Sanitary Engineering Center
Cincinnati, Ohio

I welcome this assignment to tell you about our program for two reasons. The first is that we haven't hitherto had the opportunity to tell you about this program. although I am sure many of you have heard about it. The second is that the program itself has excited a great deal of interest in quarters that are not normally oriented to problems of waste treatment.

The program is now about two years old. We have just completed a summary report on the first year and a half of operation. If you haven't received a copy of this report, you should receive it within the next few weeks. We are going to broadcast it very widely.

In the short time allotted to me I would like to tell you about this program, what it is, why it got started, how we go about operating it, and where we hope to go.

By "Advanced Waste Treatment" we refer to the development of methods for separating or destroying dissolved impurities in waste effluents that are essentially invulnerable to biological attack, the type of attack we associate with the secondary treatment plant and the stream.

There is specific legislative authorization for this work. Public Law 87-88, passed in 1960, directs the Secretary of the Department of Health, Education, and Welfare "to develop practical methods for removing the maximum amount of physical, chemical, and biological pollutants," and these are the exact words, "to restore and maintain a maximum quantity of the nation's waters at a quality suitable for repeated re-use." This is the basis for our advanced waste treatment research program.

This program was established because we are concerned about the numbers, kinds, and the quantities of such refractory materials that are reaching our water sources. We know they are reaching it mainly because they kill fish, they taint fish flesh, they provide nutrients for troublesome algae, they increase the cost of water treatment and they penetrate the water treatment plant. We cannot say at this time that there is any health hazard associated with these materials, but there may well be. We are of course, very alert to this possibility.

Occasionally we are able to isolate and identify chemicals of industrial origin in water. Over the years we have identified som 50 or 60 such compounds in our water resources. While ABS is the most common, perhaps the most spectacular was the benzene derivative that we found in the Mississippi River at New Orleans and traced back a thousand miles to St. Louis where it had originated some 20 days before. The structure of the compound was exactly the same in New Orleans as it was in St. Louis. We assume there may be present 100 or more compounds of this kind for every one we can identify.

I might say at this point that our procedures for isolating these materials in water are very crude. Our procedures for identifying them are even more crude.

The problem of separating persistent dissolved impurities is essentially a problem of the future but it is actually already with us. This was pointed up at hearings held several years ago in Chicago to consider the city's request for additional water from Lake Michigan to dilute its waste effluent. The city was asked at that time why it did not return its treated waste to Lake Michigan where the water originated, rather than send it down to the Gulf of Mexico.

In the ensuing discussion it became quite clear that even with the best waste treatment procedures we have now, there is no guarantee that the undesirable impurities in the sewage would be removed, destroyed, or rendered innocuous.

The need for further research on purifications was stressed. Our program responds to that need.

When we started this program we decided at the very outset that we would give primary emphasis to physical chemical methods of separation of impurities. Accordingly, we brought together a number of outstanding physical chemists, all of whom had had some experience in the water field. We gave them this charge: Let your minds wander over the entire field of physical chemistry and come up with separation procedures that you think we should investigate in our program. They came up with such procedures as adsorption processes, foaming, distillation, freezing, ion exchange, solvent extraction, electrodialysis, hydration, and many others.

Now the fact is that none of these is really new to our field. None, however, has been sufficiently explored to determine its applicability to our problems of waste treatment. This is the objective of our advanced waste treatment program.

We have at the present time some 10 laboratory projects under way. We are investigating modified adsorption processes, freezing, foaming, ion exchange, and electrodialysis. We have made desk-top analysis in depth of many other separation procedures, most recently hydration and distillation. Further laboratory studies will be undertaken whenever these are justified by hope of feasibility.

We hope that within the next year or two one or more of these processes will approach the pilot phase. As a matter of fact, we have entered into preliminary negotiation with a treatment plant in the City of Cleveland to use one of their activated sludge cells to study the foaming process.

I might say that as part of advanced waste treatment research we are examining the problem of ultimate disposal of the highly concentrated sludges that will result from application of processes of interest. You cannot separate the sludge disposal from advanced waste treatment.

Mr. Quigley mentioned the seminar we had last week on advanced waste treatment research. This seminar was a two-day seminar, and the purpose of it was to permit an exchange of ideas between those in our field of sanitary engineering and those in the industrial laboratories who wish to get into the field of advanced waste treatment research. We had originally hoped to hold the meeting down to about 75 persons, to promote active participation. It got a bit out of hand and we had an attendance of about 225, 60 percent of whom were representatives of industry and industrial laboratories.

In summary, I would like to say that we use the term "advanced waste treatment research" in referring to the program I have outlined. We are aware of the possibility that the methods that may be found effective in waste cleansing may, with more intensive application, be useful in wastewater renovation. We have in the advanced waste treatment research program, therefore, the possibility that we might develop a system for the complete renovation of waste water to permit the water to be recycled repeatedly through the community for all uses, including drinking water. This is an ultimate hope. The immediate objective is waste cleansing. Thank you.

CHAIRMAN POOLE: I am going to call on Murray Stein now to elaborate.

647742 O - 62 - 4

ENFORCEMENT PROGRAM AND POLICIES

By

Murray Stein, Enforcement Branch
Division of Water Supply and Pollution Control

Any elaboration will be redundant, and I won't answer the questions Secretary Quigley raised.

As you might know, I am a lawyer, but a lot of you might not know in reference to what Quigley said that when I went through the Army I also was a sergeant, and I know how those German mayors felt, because at one time in my long Army career -- and it did last for four years -- I was assigned to Carlisle Barracks to give an introduction course to people coming in for the medical administrative corps, about two weeks.

The colonal called me in and said, "You know, I don't think you have the proper attitude toward the new officers. I think you better get a change of assignment." So he sent me to Camp Crowder. I had learned.

The Federal Enforcement Program I think is familiar to a good many of you by now. Over the years we have had cases involving about half the States, 24, and the District of Columbia. I think in a sense we have had a fear of the unknown, but as many of you have become familiar with the procedure I think that fear has largely dissipated.

In my experience the enforcement procedures have not injured any single State program. As a matter of fact, in many cases I think they have stimulated and improved the State programs. I would like to say too that going over these cases we can see that the procedure does work and achieves considerable results.

I think the conference technique, which was probably the brainchild of Milton P. Adams, is one that has proved most effective, and as Mr. Quigley said we measure our success by the number of cases solved at the conference level and not by going to court.

He is also correct in saying that I don't like to go to court; but I have a good strong ethical, religious, and moral background, and I see my duty. If I have to go to court I don't shirk it.

The first case we had was oil well pollution in Corney Creek, Arkansas, and Louisiana. As many of you know, that problem has been materially solved. The river has been restored in large measure and the fish are beginning to return.

We had the case of the Big Blue River between Nebraska and Kansas. Remedial works have been installed in all the communities there and the problem was solved. This involved about ten communities.

In the St. Joseph, Missouri area, this was one case as many of you know where we had to go to court. However, the people of St. Joseph have passed a bond issue and financing is being arranged. I have just met with the engineer last week, and the work at St. Joseph is progressing.

In Omaha there was just a conference. The bond issue was passed last Tuesday, and the financing has been completed. The work at Omaha will go forward.

I might say Mr. Cleary and I arranged to go to the ASC meeting in Omaha last Monday about six months ago, not knowing that the bond issue would come up. For some reason or other we both got on TV, and to the glory of the people of Omaha, despite our appearance, they passed that bond issue three to one.

The Potomac River in the Washington Metropolitan Area is on the way to a clean-up. As a matter of fact, you may have glanced at the editorial in THE WASHINGTON POST today referring to that. We believe by 1966 the nuisances will be eliminated. Game fish very well may return, and the health hazards in the Washington Metropolitan Area will be largely eliminated.

In the Kansas City Metropolitan Area financing has been arranged. It is still just a question of whether Kansas City, Kansas, or Kansas City, Msssouri, are going to overcome the difficult problems of being neighbors, being in different States, and get together with the joint plan, or whether they are going to go ahead on their own.

In the St. Louis Metropolitan Area, St. Louis is holding a very large bond issue this fall or winter. On the east side of the river, where the situation was a little more complex, because there are 19 different communities and many industries, there has been considerable progress of interest. Alton, Illinois has recently arranged financing, and the east side looks like it is moving, too.

At the Animas River, where we had uranium pollution, the radiation in the river has been materially reduced down to one micromicrocurie, and the toxic wastes which created a biological desert in that river have been eliminated. Fishlife and biota are back to normal, and that stream is restored to all former uses.

Sioux City, Iowa, has arranged for financing as a result of a conference and hearing procedures.

On the lower Columbia River, the pulp and paper mills have put in remedial facilities, and the Mayor of Portland has arranged for financing for remedial measures.

On the Bear River we are still at the conference stage, but at the last meeting we saw a breakthrough. The States and we are in agreement, and I am sure that case will be brought to an equitable and reasonable solution in the very near future.

We do have one case in the North Fork of the Holston River where we don't see the light of day yet. This involves a soda ash mill. The question is whether there is a reasonable method of treatment for the alternative is the closing of the mill. This is the first time we have had that situation. I think that will have to be explored very carefully.

On Raritan Bay, New York and New Jersey have a study in progress. This involves a rather large study, with a full-time crew and a laboratory.

On the North Platte River we have established a time schedule, and the parties have agreed to adhere to that.

On Puget Sound we have had a conference and have had a rather large study inaugurated.

The Upper Columbia River conference has not been called yet, but this like many other conferences is at its initial stage. We are receiving resistance from several contributors of waste to the Puget Sound area.

In the Clinton, Iowa, area a recent time schedule for remedial action was established, and all parties agreed to adhere to that remedial action.

On the Detroit River, involving an infinitely complex place, a study has been established. We are having a laboratory set up and are proceeding with that.

We have just finished a conference on the Colorado River. This involves seven States. To give you an idea of the magnitude -- 1400 miles of stream and 60 tributaries, 1400 miles of main stream!

About 60 percent of the uranium milling production of the United States is located in the Colorado Valley. Pollution in the streams has been reduced in the Colorado Valley in all but a couple of isolated cases down to one micromicrocurie per liter. That is about one-third of the micromicrocuries which recently came out in the recommended drinking water standards. We still have a problem with irrigation return flows.

To lead into what I think the enforcement procedures can do, I would like to very briefly read what the representative of the Department of the Interior said at this conference. He said:

"The Bureau of Reclamation, representing the Secretary of Interior, is the custodian of the Colorado River. Therefore, Reclamation assumes the responsibility in taking the lead in managing the river's precious supplies. We shall work iwth other agencies to carry out every type of conservation activity within reason, and in doing this we are alert to the need of keeping the Colorado River free from contamination. The once muddy Colorado River has been desilted by Lake Mead and other reservoirs. As intensity of use increases, constant vigilance by all of us will be needed to keep it usable. We must expect, however, that in the lower reaches of the river increased salinity will follow this more intensive use. Our program must therefore be one of realism and in harmony with the diversified uses to which the river is put."

I think this brings us to one of our major points.

Not only has the enforcement activity to my mind been effective in cleaning up streams, but it has also been effective in establishing a firm legal base for water pollution control agencies, both State and Federal. We have been recognized as one of the four major agencies proposed. At the recent AEC meeting, devoted to water pollution control, we were treated rather sharply and not as orphan children. In other words, I think we have come of age, and I think that the enforcement program as well as the other aspects of this program have created this.

I think you will find a reflection of this in proposals before your State legislature, where I think the movement has somewhat abated to take water pollution control away from your agencies and into a general water resources program.

What are we doing in our own Federal enforcement action and in our policies, other than what Mr. Quigley pointed out?

As you know, the Secretary's office intimately and directly decides what case we enter into, and when and where we make the next move, However, we in our proceedings intend to proceed in a reasonable manner. As you know, we just proceed on evidence, and if it can't be proved we don't go ahead with the allegation.

Mr. A. H. Neill of Washington commented about Hanford. He said his State had not had a problem with Hanford in terms of exchange of information. There are a few problems, but he felt they could be resolved, he said.

Mr. R. J. Boston of Georgia wanted to know from Mr. Stein how you make a municipality that has reached its bonded indebtedness accomplish something about water pollution. Mr. Stein responded by quoting Federal Judge Duncan in the St. Joseph case: "I will not arrest the entire city of St. Joseph and put them in jail, nor will I put a padlock on the city hall but I certainly can dip into your till."

In reply to a question from Mr. B. J. McMorrow of Hawaii, Mr. Stein said that "before we can go into Hawaii or any of those island waters, it would require the request of the Governor."

In response to a question from Mr. Metzler, Mr. Stein said that the enforcement branch's list of summaries of possible actions was a tentative list only, designed to be of interest to States, but more especially to be helpful to scientists and technicians in the Taft Center in scheduling their work-load. The list had no necessary relationship to future enforcement action.

AFTERNOON SESSION

At the afternoon session Mr. Richard S. Green, Chief of the Data Branch, disclosed that the Division was getting ready to try out, on a pilot run basis a "Federal-interstate-State-and local" water quality network that he, Blucher Poole and Dave Lee had been discussing for about a year. Such a network must be comprehensive, flexible, and simple. Who will coordinate the activity and what kind of mechanical computers will be needed to handle this large and complicated problem remain to be decided.

DOES WATER POLLUTION CONTROL PRACTICE FOLLOW RECOMMENDATIONS 1 AND 2 OF THE 1960 NATIONAL CONFERENCE ON WATER POLLUTION?

By
Milton P. Adams
Executive Secretary
Michigan Water Resources Commission

Mr. Chairman and gentlemen of the Conference, you have been very gracious in listening to me once or twice today, and I will try not to take any more of your time than necessary. You can call me out of order any time.

When your Chairman put to me a problem he thought might be interesting to this group, I inquired around a little bit and said, "Let's go back to that 1960 Conference. It is quite significant in a number of particulars."

I appreciate appearing before this combined group, which I have addressed and written letters to and canvassed polls of opinion on during these years.

This is a very significant meeting we have here, with blue bloods, hybrids, and mongrels meeting together.

On this matter of water pollution control, in the record of your 1960 conference at Atlanta the last paragraph of Resolution 4 said:

> "Resolved, that in those States where the responsibility for water supply and water pollution control now rests in independent agencies, that positive action be taken to initiate legislation which would give the State Health agency full responsibility for the control of public water supplies and water pollution control programs, to protect the public health of the State."

So I went to my chairman, Dr. Heustis, and said, "How about this? Is this what you want?"

"Oh no. We do want the Water Resources Commission working on these problems."

As I said, I have had to make up these three categories. I think a number of us are in the mongrel class. Poole and Klassen and a number of others are sort of the hybrid, in between, and the rest of you boys in the Public Health Service are the blue bloods of the group, but we have all got this job to do.

Thanks to you, Mr. Chairman, and members of the Steering Committee, the Administrators meet again, this time in joint session with the Conference of State Sanitary Engineers. Both the Administrators and the Conference have made their separate presentations to the Congressional committees when H. R. 3610, H. R. 4036, H. R. 6441, and S. 120 were pending. This covers the 1959 to 1961 period, which culminated with Public Law 87-88, the amendment to Public Law 660 of 1956. It is not what we wanted in all particulars, but everything considered we have little of which to complain.

I should say at this point I believe Mr. Blatnik grabbed you all in a weak moment when a majority said, "Well, if the governor approved or if the commission approved, then the Federal Government might move in."

It is of first importance from here on out that all Administrators pull together in the months and years to come. Such meetings as this should contribute to a common understanding of problems to be faced and solved whether your boss is a health officer, a director of conservation, an interdepartmental commission, or a separate State or interstate agency.

The challenge we all face today, more than ever before, is to produce results. Better jobs and quicker ones are the order of the day. Members of Congress, or their aides, have either by implication or direct statement told me during the past two years, "This is your chance to show what you Administrators can do. We'll provide more money for sewage plant grants, more for State programs, more for research, and if this doesn't get results we'll see that the Federal Government takes over the enforcement function. If the Public Health Service or a separate office in the Department of Health, Education, and Welfare does not hold up the Federal end, there are other departments what will." All of which is pretty clear and to the point. It has moved me to suggest, as the title assigned "Is Water Pollution Control Practice in your State Following Recommendations No. 1 and 2 of the National Conference on Water Pollution? If not, Why Not?" On conclusion of my brief statement, your discussion of the subject should keep us going right up to the bell.

For the "scripture" of my prepared text, I have chosen to go back to two more of the 30 recommendations coming out of the National Conference on Water Pollution. This was held here in Washington, December 12-14, 1960. Most of you were there. In any event, you have all seen and read the Surgeon General's blue book entitled "Clean Water-A Challenge to the Nation."

Let me quote the first two recommendations from page 38:

> "1. That the conference express its conviction that the goal of pollution abatement is to protect

and enhance the capacity of the water resource to serve the widest possible range of human needs, and that this goal can be approached only by accepting the positive policy of keeping waters as clean as possible, as opposed to the negative policy of attempting to use the full capacity of water for waste assimilation.

"2. The adoption of a national credo, to be given as wide and consistent publicity as is feasible. The content of the credo would be:

(a) Users of water do not have an inherent right to pollute;

(b) Users of public waters have a responsibility for returning them as nearly clean as is technically possible; and

(c) Prevention is just as important as control of pollution."

Supporting and explanatory detail found in other conference recommendations seem to be summed up in the two above quotes. Challenges are thrown to State legislatures, State health officers, State and interstate administrators, cities and industries, and Federal agencies as well.

The timing of this conference was significant. To some it was just the "Veto Conference". Its planning and execution did stem from President Eisenhower's veto message on H.R. 3610 to Congress in February 1960--this despite the fact that members of the Water Pollution Control Advisory Board had urged the Surgeon General to follow up his Air Pollution Conference of 1958 promptly with another one on water pollution.

I won't forget Fred Heinz' statement in one of those meetings, who was a fellow member at the time. He said that water pollution is so much more important than air pollution and it is in every State and parts of all States.

The Conference came too late in the Eisenhower Administration to move public thinking in the direction desired by the President. It did make a useful springboard from which the new Administration could take off. Both Representative John Blatnik and Senator Robert S. Kerr came through with bills they had promised at an opening banquet session--H.R. 4036 was followed by H.R. 6441. Among others, S. 120 appeared in the Senate. P.L. 87-88 was signed and implementing appropriations were passed before the 1961 summer adjournment of Congress.

During the past few months, as you all know, Secretary Ribicoff has responded to our Governor Swainson's request for Federal assistance to aid in solving our Detroit River-Lake Erie problem. He was second only to Governor Rosellini at Olympia, Washington, in seeking Federal help made available in the amended Act.

Our conference was opened March 27-28 in Detroit. It is now in recess pending the collection of further field data and information. Federal enforcement funds for this purpose are already being spent on a two and one-half year program and report. It is expected to cost more than a half million dollars. When completed the Section 8 enforcement conference recommendations will be completed and the State's water pollution control agency will presumably have the opportunity to try again. If the wishes of certain State officials are followed, however, the State agencies will "pass" and compliance will become thereafter a continuing Federal function in Michigan waters, if that Governor approves.

I have wondered at times whether this was just a bad break for us in Michigan or whether our plight today was due to failure to have observed during the past twenty-five years what now appears since 1960 as Conference recommendation No. 7. This would have committed us "to formally recognize the recreation value of our water resources as a full partner with domestic, industrial and agricultural values in water quality management policies and programs" within Lake Erie. The situation which placed pressures upon our Governor that prompted his call for Federal assistance stems from posting of Sterling State Park Beach near Monroe as unsafe for swimming. This action was recommended by State Health Commissioner Heustis last August in the interest of public health protection. From a number of standpoints this frontage has not been susceptible of protection required to meet the ever increasingly higher standards of recent years for health and safety of natural swimming waters.

Going back now to the December 1960 National Conference, those of you attending the closing session will recall the standing vote by which the extension of Federal enforcement authority was rejected. State and interstate Administrators will recall the several reports of my canvass of their opinions on this and other Federal legislative proposals during the 1959-1961 period. Similarly, Conference recommendations 8, 9, 10, and 11 have to do with State, interstate, and Federal responsibilities for water pollution control and enforcement. These give no hint or encouragement of the changes in Section 8 of Public Law 660 which have subsequently taken place.

But the present National Administration meant business. Starting with Representative Blatnik, then a majority of his Subcommittee, then the House Public Works Committee, then the Senate, followed by a House-Senate conference report, and finally President Kennedy gave us P.L. 87-88, and the amended form of P.L. 660, which we now have.

Federal enforcement activity within intrastate water can start with the request of a Governor. He may or may not choose to consult with his State's pollution control agency before taking action. Other and broader avenues of Federal entry exist where interstate injuries are involved.

The April 9, 1962, report of the March 1, 2, 1962, meeting of the Water Pollution Control Advisory Board made by Executive Secretary Robert C. Ayers to Secretary Ribicoff, Department of Health, Education, and Welfare, has just been reviewed. It would seem to indicate a continuing division of member opinion in that body as how best to handle the Federal responsibilities in the enforcement and other activity areas. So apparently we are all on trial, Federal agencies as well as state.

Without belaboring the subject further, Mr. Chairman, it seems to me that session will best serve our joint interests if my remarks are terminated at this point in favor of testimonials, if you please, on how well we are doing since the National Conference. If we are not following Recommendations 1 and 2, what stands in the way of doing so? In other words, if not, why not?

DISCUSSION

CHAIRMAN POOLE: Now, by way of starting this discussion -- and fortunately this is one time when getting ill helped me out a little bit, is that I missed that December conference. I don't believe I could have subscribed literally to Items 1 or 2 had I been here. I am sure I would have been in a minority. But I read this thing over on the plane yesterday afternoon, and I can pick out four or five of the other recommendations of the Conference, none of which sounds as if they expected anybody to keep water as clean as it could be kept.

I hope I didn't misunderstand Mr. Quigley this morning during his remarks or when some question was put to him about this matter of reasonableness. I thought he indicated that it was the policy of HEW to take that into consideration and that any of their actions were going to be tempered by what the situation was with respect to the local demands, how reasonable the situation was, et cetera.

MR. KLASSEN: Illinois I would like a clarification of the present Public Health Service policy on this, whether they consider the assimilation theory or whether they are shooting for in interstate waters as high a degree of treatment as is technically possible. I think that is something that we all ought to know. Maybe the enforcement agency could speak to that.

CHAIRMAN POOLE: Mr. Stein, do you want to tackle that one?

MR. STEIN: We can tell you what we do. Firstly, as you know, we have to apply the law, and under the law in interstate waters they have to be clean enough so they will not endanger health or welfare. I don't know whether this means the assimilation policy in relation to our enforcement activities or not.

I don't think you can handle this unless you get down to specific cases.

Some of you may have been out in Omaha last week, where some manufacturers who were putting out some equipment for secondary treatment works just didn't like the notion, as they said, of the Federal Government accepting primary treatment for the Missouri River towns. They wondered why we didn't require secondary treatment. It was pointed out to them that in the enforcement field we make no recommendation for any kind of treatment. What we talked about, as many of you will recall, is adequate treatment, but we listed the water uses that were interfered with, and we indicated that the kind of treatment that was necessary would be up to the States because they had to go to the States for a permit. We would rely on sound American engineering, with registered engineers, who for the most part designed these plants, to get rid of it and the States would come up with a permit.

The States indicated that they approved primary treatment but that the States would evaluate it after the primary treatment was in.

In other words, in enforcement all we are interested in is to reduce pollution so it will not endanger health or welfare.

Now we come to the next point. Another feature of our Act is the low flow augmentation feature. The question comes up: Where do we make low flow augmentation available? I don't know that this has been solidified into general policy yet, but it has been the thinking of the technical services branch and as far as I know the Department that we would require reasonable treatment to be effectuated before low flow augmentation is available. In other words, the statute says it is not to be substituted for treatment at the source.

I think in those two areas this is as far as our guidelines have gone. I think this is a generalized question where policy in the nation is evolving, and we certainly would like to hear from the States.

MR. KLASSEN: You didn't answer my question, though, Mr. Poole. I don't want to belabor the point, Murray, but you said you couldn't answer it without a specific question so I will ask you a specific question. You said not to endanger health and welfare. Let's take the Mississippi River, not taking any State in this situation. Is it the aim of the Public Health Service to make the Mississippi River safe for swimming? If not, then where does your theory of protecting the health and welfare fit in? I think this is a very important question, because if you are attempting to make the waters safe for aquatic recreation we go down one road. If you are permitting assimilation of wastes without that particular criteria we have to look at it another way.

I think that we in the States, speaking for Illinois and the Mississippi--you know what situation we are talking about--we would like to know. I think we all should know, and I wouldn't quarrel with either way you answer it.

MR. STEIN: The question here resolves itself down to the fact whether the use of the Mississippi River for swimming is a legitimate use of those waters. I don't know that the Federal Government is prepared to answer that question unilaterally. We are working on that with the States.

Now, there are many, many other factors here. Let me switch to the Missouri, if I may, Clarence, for a second, because we have had more experience with that.

We have had many, many of the States saying that the Mississippi River was not safe to swim in from a safety factor. This had nothing

to do with the quality of the water in the Missouri. However, we do know with the advent of dams the character of the Missouri River changed. It still may not be safe in the opinion of some for swimming. However, our experience--and I think of the evidence at the hearings and at the conference showed abundantly that the Missouri River was in fact used extensively for swimming. This is something that Robert Moses pointed out in New York when he was told to post the beaches of New York "Polluted. No Swimming." He said, "We don't have the police to keep the kids out."

If the river in fact is used for those purposes the States or the local authorities do not keep the people out, then I think we have to face it de facto that the river is used for swimming, that everyone recognizes that is a legitimate use of the river, and we try to protect it for those purposes. If, on the other hand, it can be determined that the river is not used for swimming, we go the other direction.

I don't think I am ducking your question. This is a very, very difficult area that must be determined by the States and by the interstate agencies and the Federal Government.

I will give you my personal opinion on this. On the Missouri and the Mississippi River and those places out there, we know the pull and the demand for recreation. On the Missouri, for example, we are talking about an 8-state park. All the population is concentrated, at least west of the rivers, toward those rivers. There is going to be a tremendous push for recreational use of the Mississippi and Missouri Rivers and the Potomac River.

I think if we take the alternative and produce artificial lakes at the cost of thousands and thousands of dollars an acre and have people in the metropolitan areas having to drive hundreds of miles and spend hours and days to get there that it isn't going to be as attractive as using the rivers which are right here and going to be used for these purposes.

I think with the population growth in the country--and again I am speaking personally--that the large rivers in the metropolitan areas are going to face an inexorable drive to full recreational use, including swimming. The people in Detroit know this is one of the problems there. One of the big problems happened when they closed Sterling Beach State Park below the city of Detroit. There is a lot of water there. The question is whether people in the metropolitan areas are willing to travel hundreds of miles, and this is something I think that we just have to face up to realistically.

MR. R. J. BOSTON (Georgia): May I pose a question to Murray, sir, in connection with this? Where he states that it would be up to the States to determine reasonable treatment in protecting the uses of the stream, how much support shall we expect from his agency in requiring

primary and secondary treatment in the case of a Federal installation where we think they should have the full treatment versus only primary by the Federal agency?

MR. STEIN: If it is at all reasonable, sir. If you want a further answer to that, I know we lawyers think possibly a little differently than the engineers. In a case of this sort, when we talk about primary rights and responsibilities of the States, we believe the States should make the judgment on these matters. We sit here--and I don't want to put this as an appellate court, but we sit here, and unless the State makes a judgment which is arbitrary and capricious, and if the State makes a judgment at all reasonable we will support the State in the clean up of that Federal reservation, to the maximum extent of our ability.

MR. BOSTON: Sir, we have made that determination, which we do not think is unreasonable, capricious, or immaterial. The determination has been made that secondary treatment should be provided. The question is as to who will prevail. The installation is now engaged in the primary treatment aspect.

CHAIRMAN POOLE: I think I would commend that question back to you and your regional office and the manager of the installation, and if you can't get a satisfactory agreement there you come on up the line.

I was a little surprised that nobody jumped up when he enunciated this policy--maybe I am putting words in his mouth here--with respect to figuring low flow augmentation benefits. If I followed him correctly, he said that the thinking at the moment is that you do not figure low. flow augumentation benefits until you pass the stage of complete treatment. In case nobody else is going to register an objection to that, I want to register one. I understand if that policy were carried out literally, that is, as of today, with all the dams and reservoirs that are being considered for the Missouri and Ohio, there would be no low flow augmentation benefits considered in connection with any of them.

My personal conviction is that the low flow augmentation benefits should be considered after the treatment has been installed which is required to satisfy the situation that exists today.

MR. PICKARD: I didn't feel I needed to register that complaint at this particular spot because I have already registered it when they had some hearings on the Ohio River, and there are some people in this audience that were present at that presentation.

Secondly, I ask a question with respect to whether or not they were considering temperature in the pollution picture when they refused to do any low flow augmentation and the legitimate use downstream calls for a cooler water. Are they in fact going to augment at that stage for temperature control? I don't have the answer to that one yet either.

Thirdly, it seemed to me it is up to the States basically to decide what it takes to protect downstream users on the legitimate usage of the stream. That we are attempting to do.

Now, if some other industry comes in that requires a higher quality water simply from a financial standpoint of not wanting to treat water beyond the limits that it takes to protect that stream, then it seems to me for economy reasons there should be some thought given on the part of the Federal Government to depressed areas for low flow augmentation in order to attract that industry there, rather than have the State go back and say to the municipality, "If we are going to augment this you are going to have to put on complete treatment."

This is a wide, broad area we have no answer for. I registered this complaint once before and I don't have any answer yet.

CHAIRMAN POOLE: Is Keith Krause in the room? Come up to the mike, Keith.

MR. KRAUSE: Of course, this is a new thing that we are dealing with here.

I should like to first point out that the Act in itself indicates that this is a flow regulation matter that is involved, and it could be not all augmentation but it could be retardation and certainly might include the detention aspects of storage of water for what quality improvement and management facility that might provide.

On the matter of computing benefits and the starting point for doing so, I can assure you that this has come in for a great deal of thought and consideration. I know also that that aspect of the policy is not always acceptable to the people who may be involved in it. However, first of all, I think it has to be a policy that is perfectly compatible with the law itself, and of course it states that it has to be adequate treatment, that it is not a substitute for treatment, and when you involve these things you come into a delicate area, to say the least.

For the purpose of continuing to stimulate treatment as our first goal, it seems to us as of this time that it is necessary to set up the area for which benefits are computed at a relatively high level. Otherwise, you in fact may be substituting dilution water for treatment. I think this is an important aspect of the Act itself, that we must be careful not to further subsidize treatment in this manner. There, we have tentatively set as our operating level secondary treatment. Of course, we are testing and we will continue to test for a while to see what the effects of this may be. We feel actually the results here may be greater than if we chose it at some other level.

We like to view this water which is made available through the storage process as an interim measure, as a secondary corner of defense, to bring about improved water quality in those conditions where it is unlikely to be brought about through ordinary treatment processes. We save this as a reserve, something to fall back on.

We feel also that if we utilize this immediately we may not have it to fall back on and we will soon find ourselves in approximately the same place as we are in some places today with respect to treatment.

We believe that our first effort should be to get treatment at the highest possible degree compatible with the uses in the stream and compatible with the legitimate purposes that that stream serves. For this reason we believe that the policy upon which we have based our benefits, computed the benefits, should be approximately in the secondary level. I say "approximately" because I believe that it should entail the biological control. I think this is something that is nearly at the level in which technically and economically we can achieve with the knowledge we have today and where this is necessary as a part of meeting the water uses, that this be established as a base for making such computations.

This is not necessarily a requirement for construction. We believe that this will encourage through the use of this the construction of treatment facilities at both the industrial and municipal level.

CHAIRMAN POOLE: I am going to recognize Ed Cleary.

MR. CLEARY: First, I want to compliment Murray Stein on the adroit and competent way in which he has been handling some questions. My congratulations to you, Murray.

A thought that occurred to me in reading this thing--and I share your view, Blucher. Let me just quote it:

"As opposed to the negative policy of attempting to use the full capacity of water for waste assimilation---"

I think that's what you are stumbling over. At least I am. If you accept this thesis that you are not going to utilize waste assimilation capacity, then I think we might ask ourselves what is the purpose of conducting comprehensive surveys, because the object of a comprehensive survey is to determine cost and benefits, so we are going through a lot of mish-mash here on economic studies, if this is going to be the policy.

The question then is not a matter of making comprehensive surveys; the question is get as much treatment as you can to keep the water as pristine as possible. At least that's the way I read this.

Now we come to the matter of low flow augmentation. I can't help but view it as being a complete recognition of the classical sanitary engineering philosophy that there is a matter of assimilative capacity that must be considered in the design of these various works. On the one hand we talk about low flow augmentation; on the other hand we would be talking or subscribing to a statement of policy wherein you wouldn't recognize waste assimilation at all.

I was out in the Missouri Basin last week and was very much interested in visiting the flow control center of the entire Missouri Basin, and my questions there dealt with how were determinations made with regard to the release of water. This is one of the things that I discovered: that in 1955-56, I believe, the Missouri Basin Interagency Committee entertained, at the request of the State of Missouri, the addition of 2,000 second-feet for the control of taste and odors. The statement then went on, as published in the bulletin called ADEQUACY OF FLOWS, that despite this 2,000 second-feet there was no improvement in taste and odor in Kansas City and St. Louis.

Well, considering a thousand second-feet of water is worth a million and a half dollars, that is pretty expensive water running down the river, and no results from it. It occurs to me there is another example wherein we are not considering low flow augmentation.

In its essence, the problem really is one of getting back to the source of taste and odors and stopping it right there, and this brings me to the next point, which is all this discussion of waste assimilative capacity.

I am not at all sure that those of us who use our streams for esthetic purposes or fishing and swimming and just to look at give a darn about the b.o.d. or the stream. What we are interested in is what we can see, obvious pollution, and we put our minds to clearing up obvious pollution. Some of these more exotic questions as to the amount of assimilative capacity and b.o.d. and a few other esoteric parameters might not weigh so importantly. It is what people see and smell that arouses them from their apathy.

To conclude, if this is accepted as a philosophy, to utilize the full capacity, not utilize some capacity--I don't say it should be the full for waste assimilation, but if that is the policy then I think we better stop spending millions of dollars for comprehensive surveys and for making benefit and cost-ratio studies.

CHAIRMAN POOLE: I think this is a good place to terminate this. Thank you, Ed.

We are a little behind schedule now. The next man on the program is Cy Everts, who is going to attempt to bring us up to date on what has been going on at the State level with respect to legislation, organizational shifts, et cetera.

RECENT TRENDS IN STATE ORGANIZATIONS AND LEGISLATION

By
C. M. Everts, Jr.
Director, Division of Sanitation and Engineering
Oregon State Board of Health

Mr. Chairman, I am certainly pleased to hear Mr. Poole say that I am going to attempt to do this, because after listening to all the very learned discussions here this morning, led by those representatives present who are members of the legal profession, frankly I don't know what I am going to do up here talking about this business. As a matter of fact, I feel somewhat like one of the gentlemen who were pacing nervously back and forth in the waiting room of the maternity hospital and quite concerned about the impending deliveries, and one of them stopped in the middle of his pacing and said, "This is sure a terrible time to have a youngster. We are on our vacation."

The other man looked at him and shook his head and said, "You think you got troubles. We have been on our honeymoon."

One thing that has concerned me a little bit in some of the discussions I have heard here and in other places is that it has appeared that the States are not fulfilling their obligations in the field of water pollution control. It is certainly true there may be some who are not as well advanced as others, but the recent review that I have made of legislation which has been adopted in the last two years and legislation which was on the books before that time seems to indicate to me that while the processes may be slow that certainly some rather significant advances have been made and are being made, and that as defects in legislation are discovered they are being remedied by some States.

I heard this morning too that we are not having water pollution control activities transferred away from health departments at the rate we formerly did, but in a review of the agencies that now have the responsibility for water pollution control and also an examination of the legislation that was adopted in the last year or so it certainly seems that reorganization of State government and apparently the desire of the legislature or certain people in the States have caused several transfers to be made in the last year or so.

At the present time the tally stands that the State health agencies that have comprehensive water pollution control programs number six. Those that have limited water pollution control powers are twelve. Those that have minimum--and I am referring to State health agencies--water pollution control powers are two.

There are 19 States in which they have independent agencies having comprehensive water pollution control powers. There are another

10 where statutory agencies have policy making determinations that are established within boards of health, that have water pollution control comprehensive powers. So in spite of the fact that the boards of health staffs are doing the work, the people that are determining policy and carrying on the administration of the acts add another 10 to the group. Then there is one independent agency outside of a State health department that does not have comprehensive powers.

I think the significant legislation that has been adopted in the last year or so deals primarily with what I would call remedial legislation, the sort of thing that more clearly defines what people mean when they talk about waters of the State, what they mean when they talk about pollution, the conduct of hearings--and apparently these are things that were not in the acts when they were originally adopted and many, many amendments have been made in those areas.

I think one State to which I would like to direct your attention has provided for a water pollution control advisory committee to the water pollution commission. This was the State of Minnesota, and so if you are interested in learning a little bit more about that, as I am, and you don't find very much in the law that will give you an idea of how the State intends to use these people, I am sure the people from Minnesota here will be glad to discuss it with you.

A number of States have adopted laws relating to the control of pollution on specific waters, and I don't know what Dave Lee has got in the Peace River in Florida, but if you pollute that stream you can be fined $10,000 or be imprisoned for six months, and not only that but you are liable for payment of all the costs, first to the State Board of Health for tracing the source of pollution and next to the Game and Fresh Water Fish Commission for destroying the stream as a suitable habitat for fish and for restocking it. So if you are in Florida I would take a very careful look at the Peace River.

I think underground water is being given a little more consideration in recent years. I notice several States have passed specific acts on that, the more recent one being in Texas, where the State Board of Water Engineers has been authorized to prevent pollution of underground waters by registering water well drillers.

The laws relating to pollution by a specific substance--out of the seven States that have adopted statutes, six of them relate to the dumping or disposal of garbage and refuse in the waters of the State. This has been a little bit odd to me, because I thought most States would have laws of that sort, but interestingly enough six of the seven did relate to the disposal of refuse.

About six States have had some transfers of responsibilities, some of which has been due to the reorganization of the State Government, which I indicated earlier. There has been a separation of responsibility

in some States. For example, Texas now has a Water Pollution Control Board, with the Director of the Division of Water Pollution Control for the State Board of Health being the Executive Secretary.

In the State of New York the Water Pollution Control Board was abolished and its functions divided between the new Water Resources Commission, which has the responsibility for the classification of waters and the adoption of standards, and to the State Department of Health for the abatement and prevention of pollution.

In the State of West Virginia, water pollution control has been made a responsibility of the Water Resources Board, with the Director of the Division of Sanitary Engineering of the State Department of Health responsible for field investigations and assuming part of the abatement proceedings with the College of Engineering at West Virginia University responsible for research and field studies.

There are three States in which water pollution was made a part of one of the major departments. This occurred in California, Connecticut, and New Hampshire.

For those of you who may be resting on your laurels, I would like to point out that in the States of California and West Virginia the legislature has created interim committees who are to study this matter of water pollution control during this year, and possibly last year, and are to report to the 1963 session of the legislature.

More and more States are beginning to provide financial assistance to municipalities for the construction of sewage treatment works and in one instance, at least, the maintenance and operation of sewage treatment plants.

There are eight States with programs for grants. Two more are proposed at the present sessions of the legislature. Three have loan programs, one for construction, two for planning. One has provisions for guaranteeing the principal and interest payments on bonds. Another State is proposing such legislation, and one State now purchases bonds that cannot be sold on the open market.

I think of interest is that the State of New York in their legislation is not only able to provide construction grants but also make a grant to municipalities in the amount of one-third of the amount expended by that municipality for the operation and maintenance of its sewage treatment works, and they can also provide a grant to municipalities to cover the entire cost of the preparation of comprehensive studies and reports on future and present collection, treatment, and disposal of sewage.

The State of Pennsylvania also contributes toward the cost of operating and maintaining, replacing, and other expenses related to sewage treatment plants.

Massachusetts now has a proposal before its legislature which would provide grants in the amount of 20 percent of the cost of construction.

New Jersey also has a similar proposal.

There are a number of States that provide financial assistance to industries. One State has an exemption on local taxes, three have rapid amortization, and three provide for exemption of taxes on a State basis.

Now, I think one item which members of both the Conference of State Sanitary Engineers and the Water Pollution Administrators will be interested in is the number of States who have in the past few years adopted statutes relating to the discharge of raw sewage and garbage from recreational water craft. There are 12 States that now have laws of general State-wide application. There are 4 States that have laws limited to specific areas, and 3 States that now have laws under consideration during the current sessions of their legislatures. These laws will apply in most States to make it unlawful to discharge sewage and other waste in public waters unless treatment is provided. A few of these States that have laws on the books require the toilets on recreational water craft to be sealed or otherwise rendered inoperative, and several of the States just have some general laws covering refuse, rubbish and debris.

In summary, I think that the significant developments in legislation have been in the area of financial assistance to political subdivisions and to industries, the disposal of waste from marine water craft, and the remedial legislation that has been adopted to correct deficiencies in State laws.

Thank you, Mr. Chairman.

CHAIRMAN POOLE: Thank you, Cy. Does anybody have any questions?

MR. WISNIEWSKI: I would like to suggest that he clarify the statement about Connecticut. There may have been some changes in the water pollution control law. The water pollution in Connecticut is exactly the same as it was before. It remains with the Water Resources Commission and the State Department of Health. Even though there has been some sort of a merger of the various agencies, the agencies are autonomous under themselves, and the administration is exactly the same as it was before.

MR. EVERTS: I was referring to the Department of Agriculture, Conservation and Natural Resources, which has been created I think in 1959, and then the Water Resources Commission related to that governmental reorganization.

CHAIRMAN POOLE: Any other questions or suggestions?

(Whereupon, at 3:05 p.m., the meeting recessed, following which the meeting continued in executive session.)

APPENDIX

LABORATORY CONTROL
of
MUNICIPAL SEWAGE TREATMENT WORKS

David Howells, Chief, Construction Grants Branch
Division of Water Supply and Pollution Control, Public Health Service

There has been a marked increase in sewage treatment works construction during the past few years. The upward trend has continued into the present year which promises record expenditures of nearly $600 million. Construction activity must be sustained at this level throughout the next decade to provide the facilities necessary to abate pollution from municipal wastes.

A ten year construction program of this magnitude will involve the expenditure of $6 billion in Federal, State and local funds and will impose substantial responsibility upon regulatory agencies and communities for the protection of this investment through proper operation and maintenance of the completed projects.

In determining the desirability of projects for Federal financial aid, consideration must be given by the Secretary to the adequacy of the provisions made or proposed by the applicant for assuring proper and efficient operation and maintenance of the treatment works after completion of construction. In order to supplement the limited information provided by the applicants as a basis for these determinations, a survey of operation and maintenance costs was undertaken in 1958 in cooperation with the State water pollution control agencies. Questionnaires were distributed to 750 municipal sewage treatment plants which the State agencies considered to be well operated. There was a 70% return on the questionnaires with some 200 of the completed applications discarded because of inadequate data. Information on operation and maintenance costs and laboratory control from 321 communities have been subjected to analysis. The cost data were reported in the February 1961 issue of the Journal of the Water Pollution Control Federation. The information on laboratory control practice is the basis for this presentation to you today.

We believe that some degree of laboratory control is required in all sewage treatment plants if the operator is to know what the plant and its operating units are accomplishing and the effect of the plant effluent on the receiving waters. Laboratory results reflect the operating conditions in the plant and indicate impending difficulties in plant operation.

Our findings on current laboratory practices are not encouraging. This is underscored by the fact that the plants were all considered to be well-operated by the State water pollution control agencies. The

laboratory practices for primary sewage treatment plants, trickling filter plants, and activated sewage treatment plants are shown on Exhibits I - III. The deficiencies in laboratory control that these findings disclose are well illustrated by Exhibit III which shows that approximately half of the activated sludge plants, regardless of size, do not routinely run a simple Imhoff cone test for settleable solids. Less than half of the plants up to 5 M.G.D. in capacity conduct analyses for suspended solids more frequently than once a week. The findings on other laboratory analysis are similar.

After considering this matter at some length, we conclude that we could best contribute to this problem by bringing these deficiencies to the attention of the Conference of State Sanitary Engineers and State and Interstate Water Pollution Control Administrators with the expectation that recommendations for improved laboratory control from these groups could be useful in upgrading sewage treatment plant operation. We arranged for Dr. William D. Hatfield to serve as a consultant in the development of the following recommendations which we submit to you for your consideration in the development of recommended minimum standards for laboratory control for sewage treatment plant operation. These are graphically illustrated by Exhibits IV and V.

MINIMUM RECOMMENDATIONS FOR LABORATORY CONTROL

MUNICIPAL SEWAGE TREATMENT WORKS

The following recommendations for laboratory control of sewage treatment plants are based primarily on Dr. Hatfield's long experience. These recommendations are minimum proposals. The suggested tests are intended to deal with a normal sewage with no unusual industrial wastes or raw sewage pumping problems. A sewage flow of 100 gallons per capita per day was chosen to establish a relationship between plant capacity and population. In addition to the standard tests, Dr. Hatfield described several techniques that are used by operators as aids to plant control. These are included for your information.

We felt that consideration must be given to the amount of time a community could support to make these tests and operate and maintain the treatment plant. By doing this we hope to avoid recommendations that would place an undue burden on a community. These suggestions on time required for operation of the various size plants are based on studies of existing practice by Dr. Hatfield and ourselves and are submitted for your consideration with the caution that the number of operators or laborers may need to be increased because of local conditions.

PLANT CAPACITY 0.25M.G.D.

In a plant of this size the operator should set up an Imhoff Cone settling test once or twice a week using grab samples. The grab samples

should be taken at a time of representative flow. The methylene-blue stability test should be run five days a week (Mondays through Fridays). Satisfactory operation of small activated sludge plants requires mixed liquor settling tests daily and a colorimetric dissolved oxygen test occasionally.

Very small communities seldom can afford more than a half-time or, at best, a single full-time operator at the plant during the normal five day work week. A minimum of one or two hours should be provided on Saturdays, Sundays, and holidays for sludge pumping, equipment inspection, and minimum operational attendance. Most of the operator's time will be required for routine operation of sludge pumping and equipment maintenance, but he should find time to perform minimum tests and keep records. Two hours per week should be sufficient for these tests and record keeping at primary plants. Perhaps five hours a week will be required at secondary treatment plants.

PLANT CAPACITY 0.5M.G.D.

For a plant of this size (other than activated sludge) it will probably require about five hours a week to keep records and run the Imhoff Cone and methylene-blue stability test daily Monday through Friday, colorimetric pH of raw sewage occasionally, and total solids and pH of the digested sludge occasionally or when the sludge is drawn to beds.

In an activated sludge treatment plant the time required would increase to eight hours a week. Imhoff cones, methylene-blue stability, mixed liquor dissolved oxygen (colorimetrically) and sludge blanket measurements in primary and secondary settling tanks should be run daily. Analyses for pH and total solids should be run occasionally on digested sludge when sludge is drawn.

A community of this size should be able to afford one full-time operator and one half-time laborer. With an activated sludge plant, the laborer should be full-time.

PLANT CAPACITY 1.M.G.D.

A 1.M.G.D. plant should have six hours per week supervision, two operators, and one laborer.

For primary and trickling filter plants approximately 15 hours a week will be needed for record keeping and laboratory tests. The Imhoff Cone and methylene-blue stability tests should be run daily, BOD's and suspended solids once a week or preferably twice a week. The test for

pH and total solids on sludge are required only when digested sludge is drawn or when difficulties with the digester are experienced or anticipated. It is suggested that the samples for BOD and suspended solids determinations be three hour composites taken at 11:00 a.m., 12:00 noon, and 1:00 p.m. rather than grab samples.

For activated sludge plants the time required for record keeping and testing would increase to approximately 20 hours per week so that sufficient time is allowed for daily testing of sludge blankets in the primary and final tanks, mixed liquor settling and D.O. (colorimetric). The BOD's should be run twice a week and suspended solids on raw, mixed liquor and final effluent once a week all on 3 hour composites taken at 11:00 a.m. through 1:00 p.m.

PLANT CAPACITY 5.M.G.D.

A 5.M.G.D. plant should have 24 hour operation with a superintendent, 4 operators, 1 maintenance man, and 1 laborer.

Imhoff Cone and methylene-blue stability tests should be run 7 days a week and D.O's and pH of sewage or effluent 5 days a week. The pH, volatile acids, and total and volatile solids tests should be run when sludges are drawn. If digesters are heavily loaded, volatile acids and solids loadings should be determined as often as necessary to control the digesters. BOD's and suspended solids of raw sewage and effluents should be run 3 times a week on 24 hour composite samples. Approximately 40 hours per week should be devoted to records and laboratory control.

For activated sludge plants we would suggest adding 1 chemist and 1 additional laborer to the staff. Daily records should be kept on all plant operations. Tests for BOD, suspended solids, and methylene-blue stability or nitrates should be run 5 days a week on 24 hour composites. Mixed liquor settling, mixed liquor D.O. (colorimetric), and sludge blanket measurements should be run daily on each shift. The pH, total and volatile solids and volatile acids should be run when sludges are drawn or as needed to control digester operation.

PLANT CAPACITY 10 M.G.D.

A 10 M.G.D. plant should have a superintendent, a chemist, six operators, a maintenance man, and two laborers.

The Imhoff Cone, methylene-blue stability, D.O. and test for pH of the raw sewage or effluent should be run daily. The BOD and suspended solids test should be run five times a week, Monday through Friday. Sludge analyses should be made as regularly as conditions require.

For control of an activated sludge plant, the sludge blanket measurement, mixed liquor settling, and colorimetric D.O. should be run by the

operator on each shift, and mixed liquor solids should be run in the laboratory in conjunction with the BOD's and suspended solids test.

A plant of this size should be completely staffed and conduct all tests needed for operation and industrial wastes studies.

REMARKS ON LABORATORY ANALYSES

These recommendations are minimal proposals. The number of operators or laborers may need to be increased because of local conditions and pumping requirements, Industrial wastes may increase the laboratory analyses required.

Where sludge digester capacity is limited, pH, volatile acids, and alkalinity should be run as often as necessary to control digester operation. The CO_2 content of the gas is a very good indicator.

The Imhoff cone test is very easy to run and gives the operator such a good visual indication of plant operation that it is recommended as daily routine in all but the smallest plants. The M.B. stability test is recommended for trickling filters and even activated sludge because of its simplicity and its indication of nitrates in the final effluent.

The frequency of determinations for BOD's and suspended solids on raw sewage, and final effluent is increased progressively from once or twice a week for 1.OM.G.D. plants to 5 days a week for 10 M.G.D. plants.

For activated sludge control we recommend frequent tests for depths of sludge blanket, not only in final settling tanks, but also in primary tanks. This may be done with a 1 1/4 aluminum tube with a glass window on the lower end and a flash light bulb set 1 inch below the glass window. The bulb should be protected against breakage when hitting mechanisms or the bottom of the tank. The flash light battery is attached at the upper end of the tube. At 6 volts there is no shorting and no danger. Viewed down through the tube the light disappears when it enters the sludge blanket. This may be used with equal success to control sludge pumping from primary tanks or return and wasting of sludge from activated sludge final settling tanks.

For controlling dissolved oxygen in the mixed liquor, the operator may be taught to collect the sample (fixed by copper sulfate solution) settle and syphon off a clear sample into a 4-ounce bottle, add manganous sulfate, alkali, and acid and to compare the yellow iodine color with color standards made with $K_2C_2O_7$ and $CdCl_2$; 0,).5, 1.0, 4.0, and 6.0 mg/l. This is a control test not a laboratory titration, but is sufficient for control.

The mixed liquor settling test is also made by the operator who should note the volume settled at both the 5 minute and the 30 minute interval. If the sludge volume index is 100 or less the 5 minute settling will be about twice the 30 minute settling. As the sludge volume index rises above 100 the 5 minute settling will be delayed so that the volume is considerable above twice the 30 minute volume.

REMARKS ON RECORDS

A good set of records should be kept at even the smallest sewage treatment plant. However, the number of items kept daily, weekly or occasionally will increase with the size of the plant. Only a minimum of records can be kept by an operator who spends only part time daily at the very small plant. Some suggestions for records to be kept at larger plants follow.

A monthly records sheet should be maintained and should contain columns for notations regarding (1) weather and wind direction in case of odor problems, (2) sewage flows (which may be by meter, hours of pump operation, depth of flow in conduit, dosing counter or any data which will indicate the volume of flow), and the by-passing record, (3) amount of coarse solids handled i.e., grit, screenings, dried sludge from beds or sludge hauled from digester, (4) primary and secondary tank clean up, hours hosing or skimming and/or maintenance, measurement of sludge blanket by "electric peeker," (5) trickling filter maintenance, nozzles cleaned, dosing or recirculating pump operation, etc., humus sludge pumped to primary tanks, (6) activated sludge operation, air volume and blower operation, volume of sludge return and waste, sludge blankets, mixed liquor settling and suspended solids, D.O.'s, (7) Sludge digestion, records of sludge pumping by gallons or by hours of pump operation for raw sludge, recirculation or transfer of digested sludge, gas mixing, supernatent withdrawal, and final sludge to beds or filters. With filters and incineration, records on these operations are necessary, (8) laboratory records which should contain space for suspended solids, Imhoff cone solids in smaller plants, mixed liquor settleable solids in activated sludge plants, total and volatile solids in raw, digested and mixed liquor and supernatent from digesters, (9) There should be space for occasional tests such as pH, alkalinity, nitrates, volatile acids, ORP, heavey metals, etc.

Many plants try to get all this information on one large blueprint type of sheet. Others prefer to break up the monthly sheets into separate sheets for preliminary and primary treatment, sludge handling, trickling

filters, including final tanks, activated sludge and laboratory records.

It is obvious that small plants will not keep such records as are indicated above. However, even the smallest plant should have a record book showing certain basic facts and a small plant operator can thus show what he does in the few hours a day which he should spend at the plant.

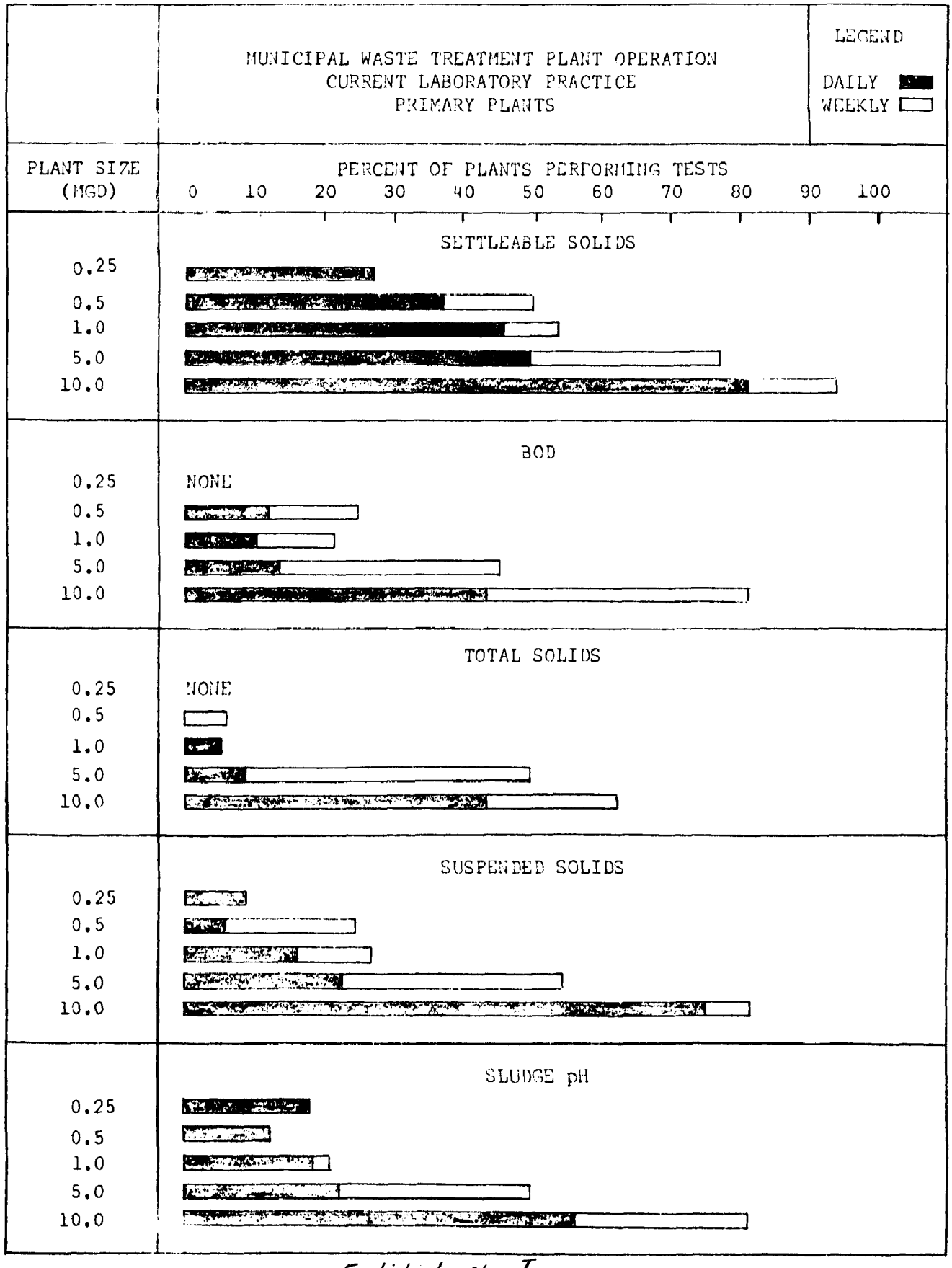
MUNICIPAL WASTE TREATMENT PLANT OPERATION
CURRENT LABORATORY PRACTICE
PRIMARY PLANTS
LEGEND
DAILY
WEEKLY
PLANT SIZE (MGD)
PERCENT OF PLANTS PERFORMING TESTS
0 10 20 30 40 50 60 70 80 90 100
SETTLEABLE SOLIDS
0.25
0.5
1.0
5.0
10.0
BOD
0.25
NONE
0.5
1.0
5.0
10.0
TOTAL SOLIDS
0.25
NONE
0.5
1.0
5.0
10.0
SUSPENDED SOLIDS
0.25
0.5
1.0
5.0
10.0
SLUDGE pH
0.25
0.5
1.0
5.0
10.0

Exhibit No. I

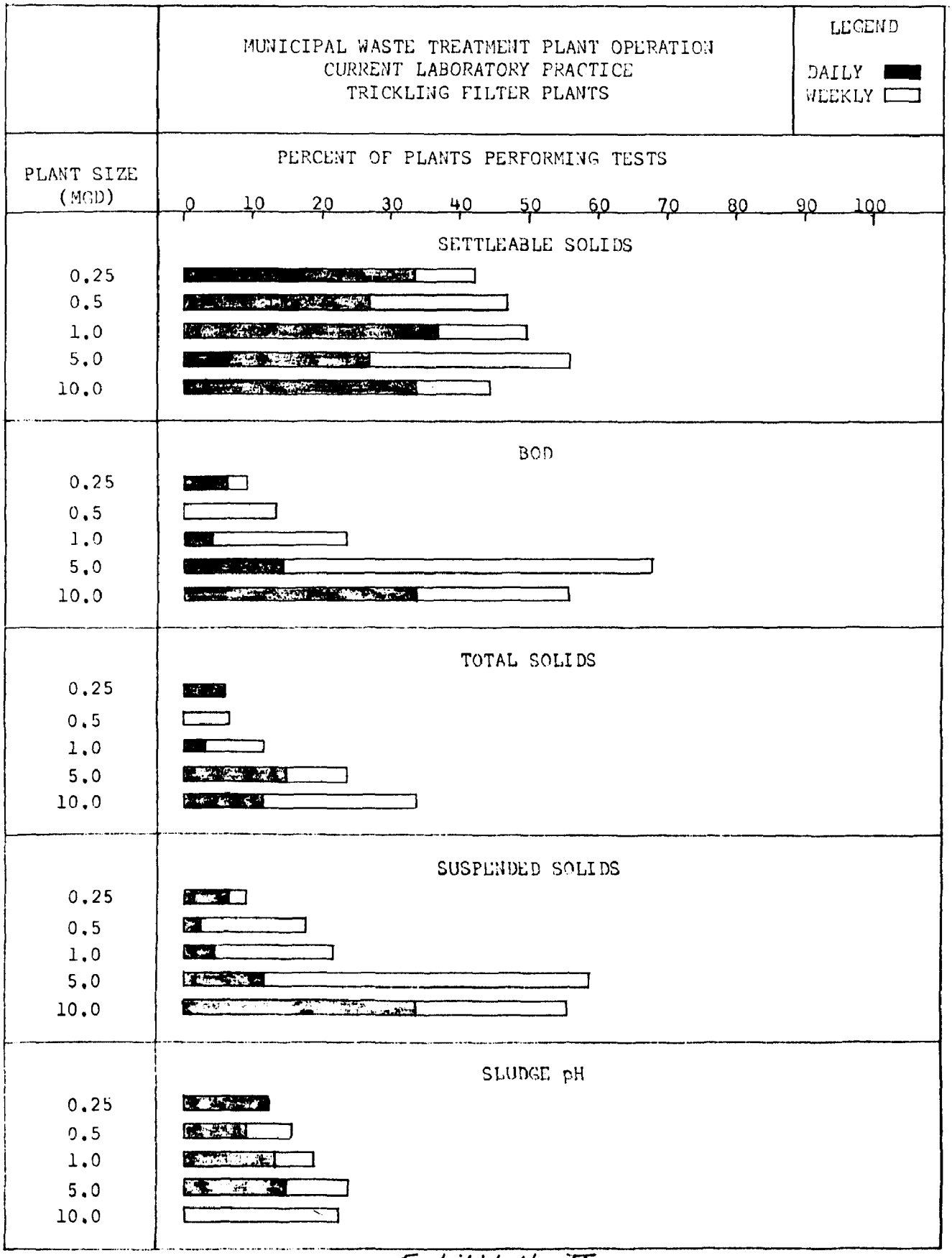

Exhibit No. II

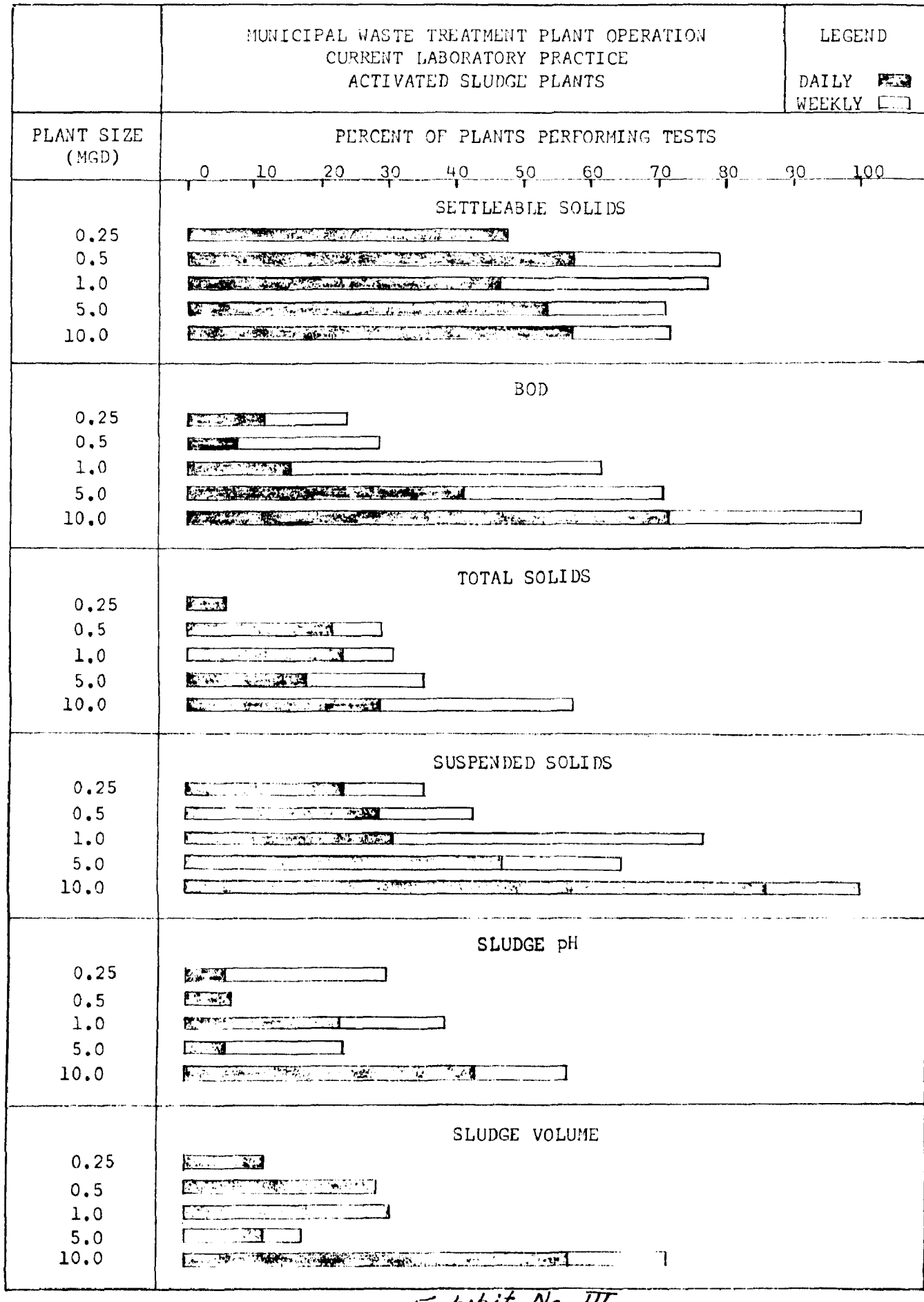

Exhibit No. III

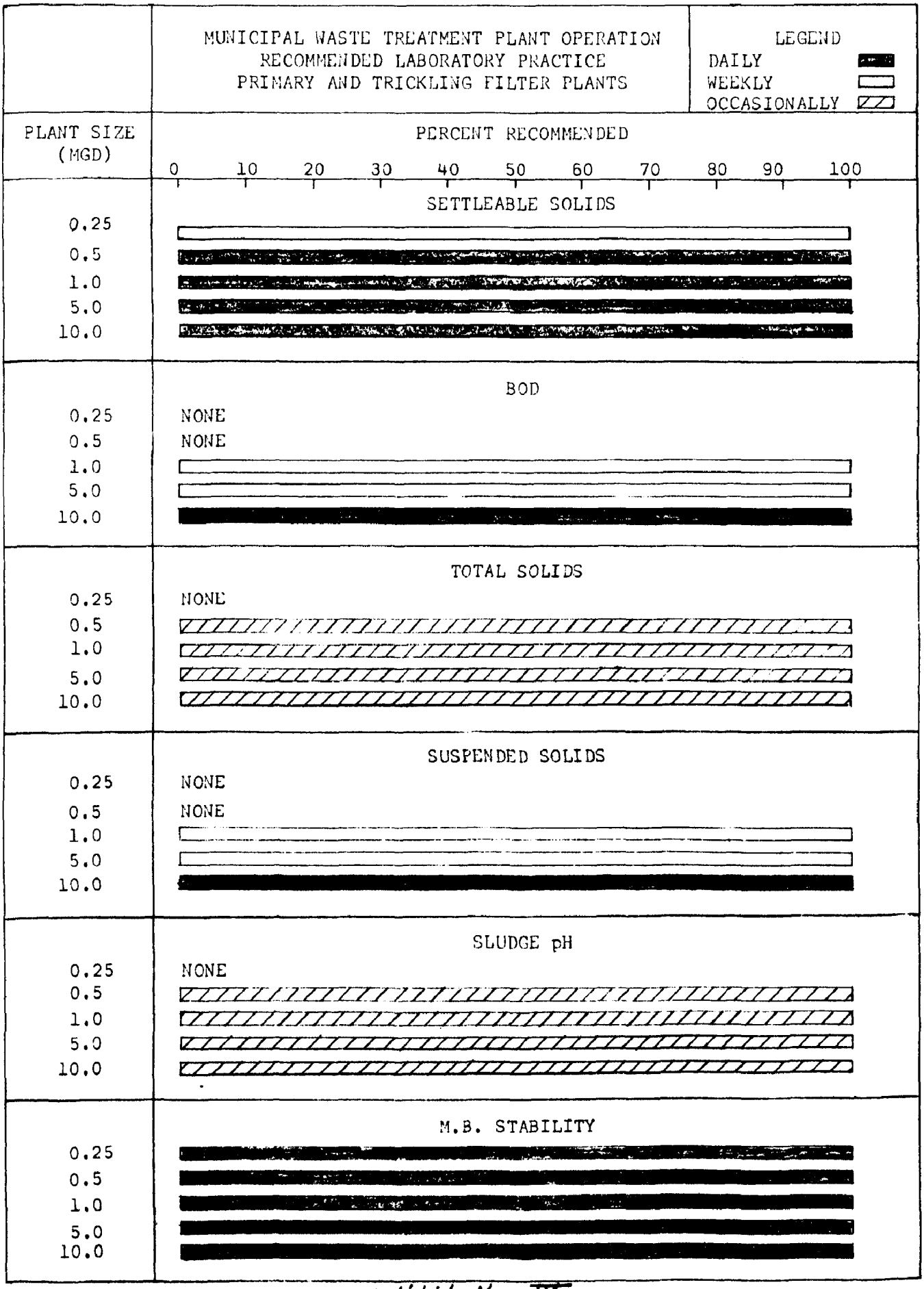

Exhibit No. IV

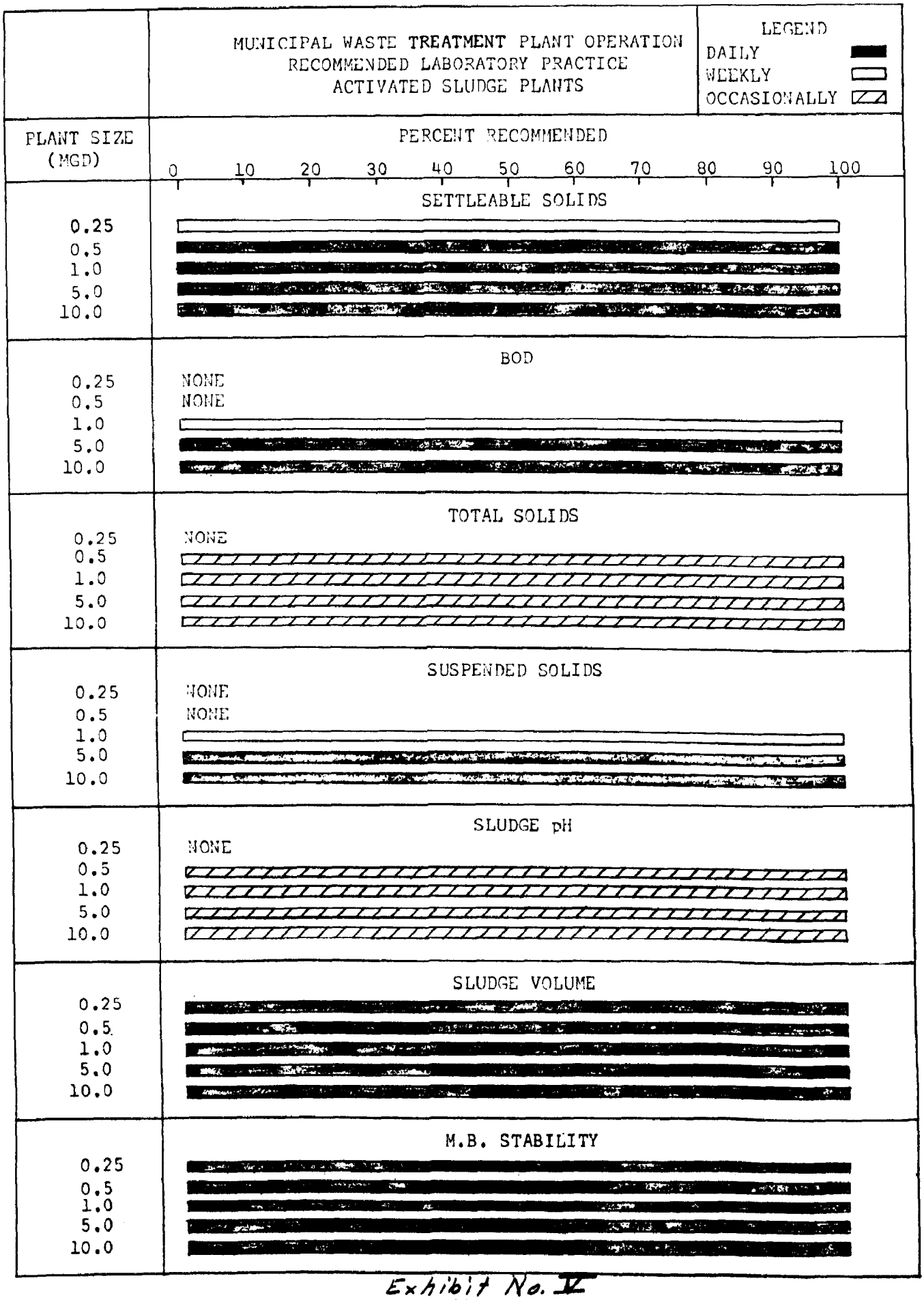

Exhibit No. V

U. S. GOVERNMENT PRINTING OFFICE: 1962 O - 647742