

- (c) Liability for loss of or damage to cargo;
- (d) Liability to third parties for property damage;
- (e) Liability for removal of wreck, et cetera.

It should be particularly noted that the Associations cover also any legal liability resulting from oil pollution.

LIABILITY IN CASE OF FAULT AND LIMITATION OF LIABILITY

In the usual case, the shipowner is liable only when fault is either proved or is self-evident and therefore admitted, and in all but the exceptional case, the shipowner is entitled to limit the amount of any such liability in respect of these claims.

The fact that international maritime law in general contains these two elements, namely, fault as the basis of liability, and the right to limit such liability in the absence of privity, is one of the main considerations upon which the assessment of P. & I. premiums is based.

As has already been indicated, all the members of a P. & I. association included in the London and Scandinavian group share mutually in the payment of claims incurred by one of their fellow members. As a group, the associations protect themselves by excess loss reinsurance coverage on the world insurance markets to the maximum amount obtainable; my colleague, Mr. Miller, will explain the details of these arrangements. Should a claim exceed the amount of this reinsurance protection, then it would fall back on the group for payment; but the group covers members of the participating associations against liabilities even beyond the reinsurance obtainable, only because of the extreme remoteness of the possibility of such an event, since to exceed the reinsurance protection, the claims would have to exceed the amount to which a shipowner could normally limit the amount of his liability under the existing laws of the world's maritime nations.

It is precisely because the law of every maritime country provides for a reasonable figure to which a shipowner can normally limit his liability, and because liability is generally based on the concept of negligence or fault on the part of the shipowner, that the cost to the shipowner—and ultimately, therefore, to the consumer of the goods carried by the shipowner—of the insurance of his liabilities can be kept to a reasonable figure, and that the traditional insurers of this liability, the P. & I. associations, can offer unlimited insurance coverage for the exceptional cases where it is needed.

It is because section 19(e) of H.R. 1400 violates these two fundamental principles of shipowners' liability insurance—negligence as the basis of liability and the right to limit any such liability in the absence of the owners' privity—that we earnestly ask you to reconsider certain aspects of this legislation.

UNLIMITED LIABILITY UNINSURABLE

If unlimited liability were imposed on the shipowner by such legislation, it would be uninsurable as such.

I do not believe that the directors of the P. & I. associations forming the London group would accept such unlimited liability. They would surely consider that the risk would be too great, and that, furthermore,

it offended against the principle of mutuality in that all members would be asked to share in an absolute and unlimited risk assumed, in practice only by shipowners trading to and from the United States. The group would have to restrict its coverage to an amount for which it could reasonably burden its own resources, supplemented by its reinsurances. This figure overall is perhaps between \$10 million and \$15 million, with respect to each vessel involved in any single accident. My colleague, Mr. Miller, will give evidence on this point.

The position, therefore, would be that shipowners would be uninsured in respect of liabilities in excess of, say, \$10 million to \$15 million. It is possible that the shipowning subsidiary companies of the major oil companies might be able to assume liability for claims exceeding such a sum; quite frankly, I doubt it. But it is certain that the independent shipowning companies could not do this, and consequently, they would be unable to trade to and from the United States, unless they were prepared to do so partially uninsured.

I would like to point out that at the present time the P. & I. associations customarily give guarantees, in U.S. dollars, for any amounts demanded in order to avoid the judicial seizure of their members' vessels in legal proceedings brought in the United States in respect of liabilities insured against. If H.R. 14000 were to be enacted in its present form, this facility would be limited to providing a guarantee for an amount no greater than the amount of the restricted coverage which the associations would then be willing to provide.

The fact that legal liabilities are based on the concept of fault is a most important factor both in the cost of liability insurance and the amount of coverage which can be provided. Section 19(e) of H.R. 14000, which would impose absolute liability, without fault, save only when the spillage was caused by an act of God, would lead to a very heavy burden of increased cost to shipowners trading with your country, with all the concomitant disruptive effects on such trade.

LIABILITY WITHOUT FAULT PATENTLY UNFAIR

Moreover, I should like to point out that it is patently unfair that H.R. 14000 would impose absolute and unlimited liability on a shipowner to the U.S. Government, because certain circumstances could arise where the owner whose ship was the source of the oil pollution, while being absolutely innocent in respect of the damage, would nevertheless be liable for it, without any adequate right of recovery against the party at fault.

For example:

(a) A properly anchored tanker may be damaged in collision by another vessel. The cleaning up expenses might involve a catastrophic sum if the tanker was a large one. In these circumstances, the tanker owner would be compelled to pay the cost of the cleanup to the U.S. Government, but he would have a right of recovery from the offending ship only to the extent of that vessel's limit of liability. Under the present U.S. legislation this might be virtually nothing—a situation which could not arise if the United States were to adopt legislation along the lines of the Brussels Limitation of Liability Convention of 1957.

(b) Another example concerns oil pollution as the result of an act of war, and I do not think I need demonstrate the unfairness of imposing liability on an innocent shipowner in such circumstances.

INTERNATIONAL EFFORT TO FIND SOLUTION

You will observe that so far my evidence has been solely concerned with criticism of H.R. 14000 in its present form. I now come to the question of proposing remedies for a situation which has not only given concern to the U.S. Government, but also other governments, particularly the British Government, since the matter under consideration was highlighted by the unfortunate *Torrey Canyon* disaster last year. After that incident, the British Government immediately took action through the International Maritime Consultative Organization, commonly known as IMCO, which, as you are aware, is an agency of the United Nations on which the U.S. Government, as well as many others, is represented. IMCO decided that the proper body to investigate the position, particularly so far as concerns insurance and the legal questions, was the Comité Maritime International, known as the CMI, an organization composed of the national maritime law associations of some 29 nations, which has been instrumental in achieving a considerable degree of uniformity in international maritime law. The CMI promptly set up an international subcommittee under the chairmanship of Lord Devlin, whose reputation as a leading authority on maritime law is, I feel certain, well known to many of you.

The present position is that a working group of the subcommittee, under Lord Devlin's leadership, has made certain positive recommendations, and the full subcommittee is meeting on May 2 and 3 to consider these recommendations, which may be summarized as follows:

- (1) A reversal of the burden of proof; that is, a requirement that the shipowner be liable for damages resulting from oil spillage unless he can affirmatively prove that it was caused without his fault;

- (2) An increase in the limit of liability, within the structure of the 1957 Brussels Convention on Limitation;

- (3) The recognition of the right of governments to recover the cost of protective measures to prevent or minimize the effects of pollution, following a spillage, as well as the cleaning up costs.

These recommendations would necessitate substantial changes in the present system of international maritime law. I should point out, in particular, that it is the legal opinion in many countries that as the law presently stands there is grave doubt in many cases as to whether any government has the right to recover such costs. The protection and indemnity associations for whom I speak support these proposals and earnestly hope that the U.S. Government will give consideration to delaying any legislation until IMCO has made its recommendations to the respective governments. Unilateral legislation in a matter of this sort by any one government cannot assist the endeavors of IMCO to reach a conclusion acceptable internationally.

PRESENT LAW INADEQUATE

Although these recommendations, as I have said, would result in substantial changes in the law, they would nevertheless preserve the

two essential principles of liability based on the concept of negligence and the right of limitation of that liability, where there is no privity. The P. & I. associations support the recommendations because they accept that, as the law now stands, the position of governments in regard to oil pollution is not really satisfactory. They must be given the right to recover costs reasonably incurred by them in preventing or mitigating the damage caused by pollution—and the costs recoverable must not be unduly limited, but must be such as to give adequate protection save only in the quite exceptional case.

The assumption of an additional risk of this nature would, as I have earlier pointed out, result in higher premiums, but it would nevertheless be insurable.

Before I conclude my statement, there is one point upon which I think I should comment.

EVIDENCE OF FINANCIAL CAPABILITY

You have heard testimony of the representatives of the American Petroleum Institute about evidence of financial capability. I am authorized to say that so far as the P. & I. associations are concerned, the only evidence of financial capability which an owner would be able to provide would be production of a normal certificate of entry in one of the associations; such a certificate of entry would be subject to all the rules of the association, and there could be no question of ever waiving the defenses open under the terms of such policies. You will hear from my colleague, Mr. Miller, that a similar situation exists so far as the open market policies are concerned.

I would like to thank you once again for the opportunity to speak to you today. I hope what I have said has been clear, but of course if there are any questions you would like to ask me, I will only be too happy to answer them to the best of my ability.

Mr. WRIGHT (presiding). Mr. Shearer, your testimony has been quite comprehensive and extremely helpful to the committee. There is one other thing you have introduced for our consideration, the juxtaposition we would find ourselves in with respect to the law if we were to enact legislation as proposed in the bill.

POSSIBLE EFFECT ON NATION'S FOREIGN TRADE NOTED

Additionally, you have introduced an element which perhaps had escaped our basic consideration in our earnest attempt to abate pollution, that being what effect it might conceivably have upon the foreign trade of the United States.

RIGHT OF GOVERNMENTS TO RECOVER COSTS

Now, as I understand it, assuming that we feel we should go ahead with legislation of some sort, do you believe, from the standpoint of that segment of the insurance industry which deals with maritime insurance, it is an acceptable proposition that governments have a right to recover such costs as may be reasonably be incurred, but that there should be a limitation and that the question of liability without fault is a wholly unacceptable one?

Mr. SHEARER. That would be the position, sir. A limit of liability is absolutely essential, as you have already heard from Mr. Casey in the shipowning industry. The P. & I. associations whom I represent, particularly my own one, is very well represented on C.M.I., that is the Comité Maritime International, and we certainly accept it; but with these large tankers there must be some new legislation allowing the governments to take over this job.

Yesterday and today, some of your colleagues on the committee expressed their conviction that there must be a central authority, and I think it would be true to say that the magnitude of this problem is such that no independent commercial organization, as we know it today, is capable of dealing with the problem such as faced us in the *Torrey Canyon* and the unfortunate case in Puerto Rico recently.

The organization which I represent have at their disposal specialists who are able to deal with the normal liability case which has arisen and which does arise.

We have had many cases of oil spilling in the last 10 years. None of them have been anything like the magnitude of the *Torrey Canyon*. There have been cases of cleaning up marinas, shall we say, 600 or 700 tons of oil spilled out, a job which can be done fairly quickly and reasonably cheaply.

The *Torrey Canyon* faced us with a position which I do not think anybody admitted until it happened, and it is essential that governments do have that right, that there must be a limit of liability; and, also, Mr. Chairman, let me point out that the provisions in 19(e) which suggest that a ship which is at anchor should be responsible for the incident, with no right of recovery from the other ship, under the present U.S. legislation, is very unfair, because it is not the ship that is at anchor that has caused the pollution, but another ship that has run into it.

SUNKEN VESSELS

Mr. WRIGHT. On another matter, the Navy recently certified that there are some 104 identifiable tankers lying on the bottom of the sea around the coastline of the United States. Most of these were sunk during World War II. Nobody knows with certainty when the bulkheads may rust through and release certain oils.

Yesterday I read in the newspaper of an unidentifiable oil, an unidentifiable source, that has spilled up on the beaches at Waikiki. By coincidence, I had been there less than a week before.

Similarly, by coincidence, I had visited the battleships *Arizona* and *Oregon*, where those battleships were sunk on December 7, 1941. It was speculated by some that either that ship or some other ship sunk by Japanese bombs might have been the cause of the belated release of the oil slick that appeared in the waters of Waikiki.

That kind of situation, of course, is a bit strange, but it is possible.

You are telling me, as I understand it, your groups for whom you speak do, as a customary practice, provide recovery in this type of liability for shipowners, for oceangoing vessels.

RECENT CASES OF PAYMENTS TO GOVERNMENTS TO ACT

Mr. SHEARER. That is absolutely correct, Mr. Chairman, and it also might interest you to know that in two cases within my knowledge

in the last year, where we have been faced with a possibility of an oil pollution, we have actually paid two governments to get rid of the offending ships.

In both of these cases, the ships exploded in midocean, but there was a potential danger. In the first one, the French Navy sank the vessel, and in the second case, the British Navy sent out the nuclear submarine to get rid of it and we paid the cost of that amount to the government as a substitute expense in mitigation of possible damages.

There is no question that the association would not only assume, as they do now, the liability to pay the third parties in third-party claims, but also any liability toward the government which might be enacted in national or international legislation, provided the ship-owners had some limit of liability.

Mr. WRIGHT. You heard the testimony earlier this afternoon?

Mr. SHEARER. And my colleagues mentioned something here, provided it is based on fault. There must be a fault on the offending party to make someone absolutely liable against the concept of ship-owners' liability.

Mr. WRIGHT. You have heard the testimony given the committee earlier today by Mr. Checket, speaking in behalf of the petroleum industry. Were you in the committee room?

Mr. SHEARER. Yes.

MANDATORY INSURANCE

Mr. WRIGHT. In your judgment as an insurer, do you regard a program such as recommended in that testimony to be workable and feasible and practical?

Mr. SHEARER. What Mr. Checket is, in fact, saying in his testimony, he has recommended to you a committee system of compulsory insurance. It is certainly possible to have a system of compulsory insurance as exists, I think, as you, yourself, mentioned, with motor cars. You cannot drive, certainly in Europe, without compulsory insurance, and you might be able to have a similar system trading to and from the United States.

Mr. WRIGHT. You feel that this would be a workable program that the insurers would have no problem providing insurance under such a system?

Mr. SHEARER. Mr. Chairman, I have pointed out in my evidence that an insurance policy as such, or a certificate of liability is only a policy of insurance, and there are always available to the insurer certain defenses, and they are very rarely invoked. But one of the most obvious ones I would draw to your attention would be wilful misconduct.

If I have a cargo on board, shall we say, and I deliberately throw it overboard, I am not covered. If, for instance, I have a ship and I deliberately sink it for the purpose of getting my insurance money, I am not covered. But, in all normal foreseeable cases, a certificate of insurance would be satisfactory evidence. It is only the rare case, such as envisioned now, where it would not work feasibly.

Mr. BLATNIK. (presiding). I do want to say this, Mr. Shearer, that it has been most helpful, not only helpful but a most interesting statement.

CHANGES IN INTERNATIONAL LAW REQUIRED

Now you state on page 8 of your testimony, in the second paragraph, beginning with "These recommendations would necessitate substantial changes in the present system of international maritime law." You state further along, "that it is the legal opinion in many countries that as the law presently stands there is grave doubt in many cases as to whether any government has the right to recover such costs."

I am very surprised and just a little disappointed in some of the staff work that has been done by those in the legal part of the Department of Interior that helped to draw up this legislation, or these proposals.

It would be our thought, certainly, that there should be some double-checking with the people experienced in this extremely complicated field of maritime law and especially international maritime law.

We are deeply indebted for your thoughtful presentation and a presentation based on obviously considerable international experience.

I do want to emphasize that you have made a very, very important contribution and we shall explore this in much greater detail and see that we do come up with language that will be realistic and pertinent and practical in its application.

Mr. SHEARER. The question of the change of law which would be recommended by the committee, said that it is doubtful that the law as it stands, it is no more doubtful than in the case of the *Torrey Canyon*, and with the extent and the right of the British Government to recover is a question which has given lawyers in many countries very, very considerable food for thought. And this paragraph which I put in here was put in at the suggestion of one of my senior partners, Mr. Miller, who is not only a partner of the firm, but he is also the vice president of the Comité Maritime International, and before I came here Monday I discussed this very point with him, and he said not only in Britain but also in France, and many other countries, the position is very, very unclear; and any recommendation by the Devlin committee on this point would clarify the international law, not only the national law in this respect, because the convention would be put forward, which was accepted by the signatory countries and would make the position absolutely clear, which it is not at present.

Mr. EDMONDSON. Has testimony already been given? I was out of the committee for a few moments. Has any testimony been given as to when the Devlin committee report would be available to this committee?

Mr. SHEARER. You will see in my statement, sir, that they meet on May 2 and 3.

Mr. EDMONDSON. You mentioned May 2 and May 3, I believe, is the report expected to be forthcoming immediately after May 3?

Mr. SHEARER. It is going to be considered by the CMI on the 2d and 3d of May, but I understand that IMCO is not meeting to consider those recommendations until the autumn.

Mr. EDMONDSON. I see.

Mr. SHEARER. But the actual recommendation which I have set out in this document here, they are the recommendations; but they will be made public around the 2d and 3d of May.

In a way, I have made them public today in front of this committee.

Mr. BLATNIK. That is all I have, thank you.

Mr. WRIGHT. You mentioned the serious question with respect to certain countries. Does that include the United States, do you know?

Mr. SHEARER. Do you mean are they represented on IMCO? I do not understand you.

Yes, they are represented, but I am not quite sure whether I have your question in mind.

It has been pointed out to me, sir, that there are people from your own State Department on the IMCO committee.

Mr. WRIGHT. The question in your statement submitted on page 8, where you say it is the opinion of many countries that as the law presently stands there is grave doubt as to whether any government has the right to recover such costs.

To your knowledge, is that being held in legal circles in the United States?

Mr. SHEARER. I do not know the answer to that question immediately, but I can find out on the spot from my advisers.

I am advised by the lawyers who are here with me today, the position of the United States is much the same as in England; but it is grave doubt as to whether protective measures, such as were used by the British Government, the cost of bombing, et cetera, will ever be recovered.

Mr. WRIGHT. Thank you.

Mr. BLATNIK. Thank you very much.

Mr. SHEARER. I should also mention the two cases which I mentioned earlier, the French and British Governments.

In one case, the French Government performed the task without being asked, and we paid them immediately; in the other case, we particularly requested, first of all, the American Navy to try to help us, and then the British Navy, and then the Portuguese, and then the British Navy finally did the job.

Mr. WRIGHT (presiding). Mr. McCarthy, do you have any questions?

Mr. MCCARTHY. Thank you.

Mr. Shearer, I found your statement very interesting. Actually, I read it this morning on the Associated Press wire. You would be interested to know that you topped one of five Americans, out of 200 million, who might be a President of the United States. Your statement was carried ahead of Governor Rockefeller.

SHOULD CONGRESS WAIT FOR INTERNATIONAL BODY TO ACT?

Do I understand you correctly to say that we should not do anything until next autumn? Is that when the IMCO report comes out?

Mr. SHEARER. I can understand, sir; your view that you want to do something as quickly as possible.

Mr. MCCARTHY. I did not say that.

Mr. SHEARER. I am sorry if I misunderstood you. I think the view of other maritime countries would be to express the hope that in the same way that the British Government did not rush into legislation

after the *Torrey Canyon*, that the U.S. Government might see their way to do nothing on this particular point until the organization, on which their own Government is represented, has made their recommendations; and it would be hoped that the recommendations that they would make would be acceptable to your Government and all other governments.

Mr. McCARTHY. We also have other responsibilities. I mean, I can see our State Department is represented on that committee, but we have the people of the United States to think about. Here we have this latest incident in Hawaii, the very day that we opened these hearings.

We asked Great Britain not to do anything about any panic legislation after the *Torrey Canyon* incident. Now we have this. You ask us to wait. Then we will have another incident, and we will ask somebody else to wait; and it seems to me somebody has to break this cycle. And to do so, we must have a pioneering effort in law to establish the principle, and I think most members of this committee accepted, before you sort of disillusioned us, that a government of a nation has a right to clean up a spill and to assess the cost on the person who is responsible.

We have had adequate legal opinion that preceded the introduction of these bills, that this is a sound principle and I do not see any reason for us waiting. I think eventually this country, and every other nation affected is going to come to this position just to protect themselves; and allied with this is the point that you make, that there should be a ceiling on the liability.

Well, the *Torrey Canyon* is just a rowboat compared to some of these huge ships that are being built, I understand, in Japan; so that if anything, it seems to me that the liability, the potential for damage is increasing rather than decreasing.

I do not see how this committee can just wait around until next autumn when we would get a report. I think we have waited long enough. We wanted to do something at the time of the *Torrey Canyon*, and people said wait, wait, and now you are saying to wait.

I think that someone ought to act, and this committee has a responsibility to 200 million Americans, and people do want action. They are criticizing us for waiting and waiting and waiting. They say, why don't we do something; and now you say don't do anything at all until autumn.

Mr. SHEARER. Mr. McCarthy, I do appreciate the result of this particular position now in Puerto Rico and the other one down in the Caribbean, and the latest one in Hawaii. There is tremendous pressure upon the U.S. administration to do something. There are two things which could be done in this respect.

Either the U.S. Government, via its representative on IMCO, could, as I see it, tell IMCO that unless something was done sooner than the autumn, you would act unilaterally, which might have an effect on them; and if it did not have an effect on them, I can see that you would wish to act.

The second point you raise is the question of the increasing liability on these enormous tankers.

Now, I think my colleague, Mr. Peter Miller, will explain to you that it is just because this liability is increasing that the world insurance market available for coverage is decreasing.

Now, it is of no use in our opinion of the United States putting a provision in the bill which makes a shipowner absolutely liable without limit for something, if there is no chance of insurance coverage not being available, and therefore, the U.S. Government not being able to recover that cost.

What we submit is that the U.S. Government, if it cannot wait for the IMCO recommendation, enact this bill in some form.

Mr. McCARTHY. What was that?

THREE POINTS STRESSED

Mr. SHEARER. That it enact this bill in some form so as to preserve for the shipowner a right of limitation in some amount, and that amount should not be greater than the amount of world insurance coverage available.

Secondly, in this legislation certain items are tied up so as to make sure that it is the person who is responsible who pays for the claim and not the person who happens to physically emit, or the ship that emits the cargo.

Third, that the position of liability with fault should be preserved.

Mr. McCARTHY. I think those three points are clearly constructive, and I would hope that we can take those very seriously into consideration. I certainly will.

Thank you very much.

Mr. BLATNIK (presiding). Mr. Peter Miller, your testimony will follow, I understand, this.

Mr. MILLER. Mr. Chairman, sir, gentlemen:

I think that you have been so kind to Mr. Shearer and myself, particularly on the question of time, that I could perhaps assist by putting my statement into the record and perhaps quickly paraphrasing it to you, if I may.

Mr. BLATNIK. You may, and it would be very much appreciated.

Your statement will appear at this point in the record in its entirety. (Prepared statement of Peter N. Miller follows:)

STATEMENT OF PETER N. MILLER

Mr. CHAIRMAN AND GENTLEMEN, my name is Peter N. Miller. I am a Director of Thos. R. Miller and Son Insurance Limited of London. My firm has been brokers at Lloyds for nearly seventy years and I personally am an Underwriting Member of Lloyds. My firm has always been responsible for placing the Reinsurances for the London Group of Protection and Indemnity Associations (including the Scandinavian Associations) to which my colleague Mr. J. Shearer has referred. For the last ten years these reinsurances have been my personal responsibility.

I thank you, Mr. Chairman and Gentlemen, for your kindness in allowing me to give testimony to you; this testimony is in support of that already given by Mr. Shearer and in elaboration of certain points made by him. Mr. Shearer spoke on behalf of the Associations. I speak on behalf of the Reinsurance Underwriters, the other major parties to the insurance of Shipowners' liabilities.

REINSURANCE EXPLAINED

First, I would like to tell you briefly how the reinsurance of the London Group is arranged. I receive instructions each year from the Group (since the contract is arranged on an annual basis, like most insurance contracts) and these include the instruction to obtain the maximum amount of coverage using all available markets. The actual placing of the contract then takes my

firm about two to three months to negotiate and complete, since we have to place the risk in London in the provincial markets of the United Kingdom, the European and American markets, those of the Far East and any others available and willing to accept part of the risk. I am thus able to be definite when I say that my firm obtains the maximum amount of coverage possible.

The figure at the present time is approximately \$50,000,000, each vessel, any one accident. The Contract is placed in excess of a retention by the Group; this retention varies, but basically the Group takes all claims other than those in the major catastrophe class. Thus, by the cooperation between the Group and the Insurance markets of the world which it is my job to arrange, the shipowner is protected to the maximum possible degree.

UNLIMITED LIABILITY UNINSURABLE

It is not possible for commercial Underwriters to write policies of insurance for this type of risk without a limit on their total coverage. I must therefore say on behalf of underwriters that the proposal of H.R. 14000 to introduce unlimited liability presents them with an impossible situation. Unlimited liability for oil pollution, is as such, uninsurable.

NEGLIGENCE AS BASIS OF LIABILITY

In order to elaborate on the protection which *would* be available, I must for one moment turn to a subject mentioned by Mr. Shearer, namely the importance of the concept of negligence as the basis of liability. Underwriters in many countries are very often unwilling to write Shipowner Liability insurance for several reasons. For example: (1) the underwriters whom I ask to underwrite the liabilities, are already committed as underwriters of the physical hull and cargo. They may therefore be unwilling to expose themselves to further financial commitments on the same venture; (2) they also dislike the long period of delay before settlement of liability claims is reached. Working as they do on an annual or triennial basis, the possibility of claims being outstanding for as long as ten years has a bearing on the "line" they are prepared to write on such risks.

When it is possible to persuade underwriters to accept part of the reinsurance contract, the most important considerations in their minds in assessing the cost are the amount to which a shipowner can, in normal circumstances, limit his liability under the existing law, and the fact that such liability is based on fault or negligence.

REASONS FOR MAXIMUM LIMIT

It was these two facts which were uppermost in Underwriters' minds when, as instructed by the London Group, I approached them to discuss the matter of oil pollution in the last few months. Two points emerged; any alteration in the existing laws on limitation, or liability based on negligence would severely restrict the amount of coverage obtainable and would severely increase its cost. I have most carefully discussed the matter with the leading underwriters of this type of risk, and while only a placing can show the exact position, it was their unanimous opinion that the maximum limit would be in the region of \$10-\$15 million each accident each vessel. Let me summarize the reasons again:

(i) The sweeping away of the normal underwriting criteria for such risks, namely, negligence as the basis for liability and the right to limit such liability to a reasonable figure in the absence of privity.

(ii) The heavy involvement in the other interests affected by a major casualty, namely the ship and cargo.

(iii) The heavy involvement by way of the reinsurance I already place on other liabilities stemming from the same casualty, e.g. removal of wrecks, etc.

(iv) The fact that their commitment is calculated on an "each vessel, each accident" basis. Thus they could have a large loss on the policy many times over in each year.

What I have already said, puts fairly, I hope, the objections of underwriters to the proposed legislation. I cannot presume to suggest alternatives beyond what Mr. Shearer has said, which is supported in principle by underwriters.

FINANCIAL RESPONSIBILITY

Finally, I turn to financial responsibility; here the attitude of the British Market (where 90% of liability risks are underwritten) is the same as that of the Protection and Indemnity Associations. They are quite prepared that policies

issued by them are used as evidence of proper insurance. Perhaps I need not remind you of the record of my market in honouring its obligations in your country from San Francisco in 1906 to Hurricane Betsy in 1965, or that massive dollar funds are maintained in your country to meet dollar liabilities. Underwriters at Lloyds and other British Underwriters have already paid claims totaling several hundred million dollars on account of Hurricane Betsy alone. But it would be quite impossible for underwriters to guarantee wholesale the financial responsibility of every assured, or to surrender in advance possible defences under a policy, in the very rare circumstances when such defences have to be invoked.

Finally, I wish to thank you again for your kindness in allowing a foreigner such as myself to appear before you. I realize that I have put forward only objections; but I wish to associate myself and my underwriters with the positive suggestions put forward by Mr. Shearer.

Mr. MILLER. Thank you, sir.

As I explained in the testimony, I am a director of a firm, Thomas R. Miller & Son. We have placed for many years the reinsurance for the London Group, which Mr. Shearer has mentioned. Thus, it is that Mr. Shearer is speaking on behalf of the associations and I am speaking on behalf of the other half of the party to the insurance of shipowners' legal liability; namely, reinsuring underwriters.

UNLIMITED LIABILITY UNINSURABLE

I explained in the testimony how those reinsurance arrangements work, but the point I want to bring out on behalf of underwriters is simply this. They have the greatest sympathy for what you are trying to do, but H.R. 14000, as it stands, presents them with an impossible situation because unlimited liability for oil pollution is, as such, uninsurable. It is very difficult sometimes to persuade underwriters to insure, to underwrite shipowners' legal liabilities, because they are already so very heavily committed on the other part of the venture, like the ship and its cargo.

But when one can persuade them to underwrite these risks, two things are foremost in their minds: can they say to themselves, can the shipowner limit his liability and his liability based on fault?

AMOUNT OF COVERAGE OBTAINABLE FOR OIL POLLUTION

I have most carefully discussed the matter with the reinsuring underwriters in London, to try to get some idea of the amount of coverage for oil pollution which could be commercially obtainable, and I have come to the conclusion this figure would be between \$10 million and \$15 million. That is for each accident, each vessel.

If I may quickly say why it is about this figure and not more, it is because you would be sweeping away under the proposed legislation the normal underwriting criteria for these risks which are negligence, as the basis for liability, and the right to limit such liability to a reasonable figure in the absence of privity, the heavy involvement in the other parts of the venture, and also the heavy involvement by way of the normal reinsurances on the other liabilities which would stem from the same casualty, such as the removal of the wreck and this is particularly borne out where, supposing there were a liability on the shipowner in the Puerto Rican incident, not only would the underwriter be faced with the cost of legal liability for oil spillage, but the cost for the removal of the wreck.

I do not presume, sir, to suggest alternatives beyond what Mr. Shearer has said, but what he has said is entirely supported in principle by underwriters and underwriters of the world.

FINANCIAL RESPONSIBILITY

Only one other point I would like to make and that is official responsibility.

The British markets are quite prepared that policies issued by them are used as evidence of proper insurance, and perhaps I need not remind you of the record of my market in honoring its obligations in your country, from San Francisco to Hurricane Betsy, or that massive dollar funds are maintained in your country to meet dollar liabilities.

Underwriters at Lloyd's and other underwriters have paid claims totaling hundreds of millions of dollars on account of Hurricane Betsy. It would be impossible for commercial underwriters to guarantee wholesale the financial responsibility of every assured or to render in advance possible defenses under a policy in the very rare circumstances when such defenses have to be invoked, for example, when a criminal shipowner sinks his ship deliberately.

This is a good example, Mr. Shearer gave you.

I have nothing further to add. I am very pleased to answer any questions, and finally I thank you again in allowing foreigners, such as myself, to appear before you.

Mr. BLATNIK. Any questions, Mr. McCarthy?

Mr. MCCARTHY. Thank you, Mr. Chairman; and thank you, Mr. Miller.

INSURANCE OF \$10 TO \$15 MILLION FOR OIL SPILL LIABILITY

Now, you say that your conversations with your colleagues in the industry would indicate that you might be able to insure up to between \$10 million and \$15 million against liabilities incurred in an oil spill. Is that what you say?

Mr. MILLER. Not quite, sir. To be precise, \$10 million to \$15 million each accident, each vessel. This is a rather important consideration, because you could have 20 oil spills in a year, and this is why I am saying \$10 million to \$15 million on each of those occasions could, in my opinion, be insured.

It is a very volatile market which was hit by such catastrophes as *Torrey Canyon* and all of this, and may well contract; but that is the figure at the present time.

Mr. MCCARTHY. I am pleased to hear you say that, because I noticed that Mr. Checket gave us an overall maximum limit of \$8 million. I am glad to see that the British are willing to go several millions higher.

Mr. MILLER. Congressman, could I comment on that?

Mr. MCCARTHY. Well, I wish you would.

Mr. MILLER. It may appear at first sight that the two are contradictory. I do not think so. Mr. Checket, I think, is saying \$8 million is a reasonably sufficient fund for anything that can happen, could be obtainable at reasonable cost. I am saying something different, making a different point. I am merely saying what is technically possible.

Well, \$15 million coverage could be bought by some people, but it would be obviously much more expensive than \$8 million.

Mr. McCARTHY. Well, Mobil Oil Co. could afford that, I am sure.

Let me make one other point. With the bigger ships coming in, and you are more familiar than I am with the *Torrey Canyon* disaster and the cost involved, do you envision, with the larger ships that we could conceivably have damages up to \$15 million resulting from a disaster with one of these huge ships?

Mr. MILLER. Congressman, this is, I think, only a personal opinion, but this is something which will be answered by the scientists, obviously, with the bigger ships, with the 200,000 tonners coming to my country at the present time. If they strand there, if there was a loss of oil and a lot of damage; and it could cause millions of dollars worth of damage, but I would have thought, purely guesswork, that given the scientist, the chemist, they can produce countermeasures in the oil industry and there would be little risk of going over a figure of \$15 million.

Certainly, as an underwriter, I would hope not.

Mr. McCARTHY. So that \$15 million is really probably the limit at least, as we can see now, in terms of any potential damage; and the problem would not even really even reach near that, is that what you are saying?

Mr. MILLER. That is my personal guess, sir, but again it can be no more than a guess.

OIL SPILLAGE FORMERLY NO RISK

In the past, oil spillage was no risk. It was a tiny percentage of ship-owner liability claims, and suddenly we had the *Torrey Canyon*. My firm, and Mr. Shearer's firm, had paid literally hundreds of claims for oil spillage previously, that is previous to the *Torrey Canyon* incident, of a relatively small nature; and then suddenly we had *Torrey Canyon*.

What I might say would just be a guess.

TORREY CANYON CLAIMS

Mr. McCARTHY. I wonder if we have in the record the total volume of claims that were paid out as a result of the *Torrey Canyon*? Do you know that figure?

Mr. MILLER. The claims, sir, have not yet been codified or settled. It is a very uncertain figure.

Mr. McCARTHY. Would you care to estimate what it might be, roughly, give us a range?

Mr. MILLER. I think my colleague, Mr. Shearer, is better qualified than I am on that point, to give you an answer.

Mr. SHEARER. So far as the *Torrey Canyon* is concerned, there have been very, very wide estimates as to what the claims are.

You may remember reading in the papers last year that, most unfortunately, from the owners' point of view, the vessel put in to Singapore, where the British Government had a writ issued for her arrest, and she was thereupon arrested, and the amount of security put up was in the neighborhood of \$3 million. Now, this vessel is a large vessel and is able to limit liability in certain jurisdictions, but not in

others, to an amount not exceeding about £1.2 million, and in dollars that would be about \$3 million.

I suppose under the new rate, the devalued pound, it would be a little bit more.

There are two questions from Congressman McCarthy—what is the amount involved in the *Torrey Canyon* incident? If you include the cost of the bombing and all that sort of operation, well, then, it is supposedly thought to be in the neighborhood of £3 million for the British Government, but it is also reported that the French Government has other rather small claims.

One would not have thought that the total amount of expense involved, as opposed to the liability of the ship, was in the neighborhood of more than £4 million. I am sorry I cannot be more definite in that, but the position is extremely vague.

Mr. McCARTHY. Did you say £4 million?

Mr. SHEARER. £4 million would be, shall we say, the U.S. equivalent of \$9 million. That is an absolute maximum figure so far as is known.

Mr. McCARTHY. Thank you very much.

Thank you, Mr. Chairman.

Mr. BLATNIK. Mr. Shearer and Mr. Miller, we thank you both very much. Have a safe trip back to London.

Mr. SHEARER. Thank you very much, gentlemen, for allowing us to come over here.

Mr. BLATNIK. Thank you, gentlemen.

Our next witness is Mr. James F. Wright, executive director, Delaware Water Basin Commission.

THE "WATER QUALITY IMPROVEMENT ACT OF 1968"

STATEMENT OF JAMES F. WRIGHT, EXECUTIVE DIRECTOR, DELAWARE RIVER BASIN COMMISSION

Mr. WRIGHT. Mr. Chairman, members of the committee, I know that your patience has been somewhat extended today, and I will just briefly summarize my remarks.

Mr. BLATNIK. Do you have a prepared statement?

Mr. WRIGHT. Yes.

Mr. BLATNIK. That will appear in the record in its entirety at this point, and you may summarize it.

(The prepared statement of James F. Wright follows:)

STATEMENT OF JAMES F. WRIGHT

Mr. Chairman and members of the committee, I am James F. Wright, executive director of the Delaware River Basin Commission, a four-State-Federal agency for the management and development of water resources within the Delaware watershed. One of its major functions is water pollution control. We have already established standards and implementing regulations under our compact and under the existing Federal legislation to begin positive action for sweeping improvements.

GENERAL ENDORSEMENT

The opportunity to comment on legislation to amend the Federal Water Pollution Control Act (H.R. 15907 and the companion Senate version S. 3206) is very much appreciated. Before remarking on specific provisions in the proposal, I would like to inform the committee that the Delaware River Basin Commission

endorses the legislation generally and its intent. This legislation seeks to break loose the necessary construction projects for pollution control purposes delayed because of inadequacy of Federal financing. We are encouraged by this effort. We believe that with certain modifications it can provide a way to do the job without disrupting the financial commitments of the Federal Government, of the States and of the localities.

We have estimated that the overall clean-up job in the Delaware River Basin has a capital cost of around \$500 million. About \$300 million of this total is for municipal sewage treatment. Of this latter amount, the Federal Government would contribute 55 percent, or \$165 million. So you see, we have a substantial interest in anything that will break up the financial log jam that now confronts this program.

Because this legislation is so important, it is essential that it be as good as possible. Proposed clauses which could operate to confuse or delay the massive clean-up effort that lies ahead should be identified and corrected. With this in mind, I would like to suggest certain points referenced to H.R. 15907 which I feel may operate to the disadvantage of all parties if the Congress does not undertake corrective measures or clarification at this time.

The bill would provide three forms of financial support for local projects:

(1) Annual payments for local debt service on bonds issued to finance the Federal share;

(2) Federal guarantees of local debt service on any obligations issued to finance a project, including the local share; and

(3) Thirdly, an annual Federal subsidy to assure that the local borrowing cost on the *non-Federal* share will retain a favorable differential of one percentage point or one-fourth of the net effective interest rate, whichever is less, as compared with Federal borrowing cost.

This third form of aid is apparently provided to offset the provisions of section (f) (3) of the bill which would abolish the traditional tax exemption of any local revenue bonds secured by revenues of a project which is aided under the act. It is quite understandable that the Federal Government should not want the new legislation to result indirectly in tax-exempt Federal borrowing which has long been contrary to Federal policy.

TAX EXEMPT BOND ISSUE SHOULD NOT BE RAISED HERE

Unfortunately, the bill goes further and would abolish the tax exemption of local borrowing for the *local* share which has long been a keystone of local financing. This is an unfortunate introduction of a controversial policy proposal of the Treasury regarding the tax exemption of municipal bonds generally, which the Congress has thus far never accepted.

The provision of the bill for a debt service subsidy to maintain a differential in favor of local borrowing is unlikely to be adequate to offset higher interest rates. Most importantly, it will not avoid embroiling the whole clean waters program in the issue of taxable and tax-exempt municipal bonds. It may well be asked why this particular program should be burdened with that issue when no other municipal financing, with or without Federal aid, has the same or any comparable disadvantage.

The municipal bond market provides highly specialized financial support for all kinds of State and local public benefits, plus improvements. It operates on the smallest of profit and has characteristics that make it difficult to compete with Federal and corporate bonds. As compared with Federal bonds, it has few attractions other than the income tax immunity that appeals to enterprising investors. As of the first of this year, State and local bonds were paying interest of about 4.31 percent. This compares to 5.18 percent for long-term Federal bonds and around 6.45 percent for corporate bonds. If the income tax immunity is abolished, many fiscal analysts believe that the municipal bond market, as we know it, would no longer exist.

I mention these considerations without any intention of entering the issue of taxable versus tax-exempt securities. The point is that this is much too complicated a matter of public policy to introduce through the back door of a program intended to assist and stimulate solutions of the water pollution problem. Other urgent and expanding public programs, such as housing and education, will have an impact on the municipal bond market. The issue of tax exemption is equally relevant to these other programs and for the same reasons.

Therefore, it seems logical that the issue of tax exemption be considered by the Congress as a matter of general policy, rather than as one part of a pollution bill. To do otherwise might be self-defeating to a large extent, since a taxable municipal security will hardly be able to compete for the favor of investors as against tax-exempt municipal securities issued for other purposes, regardless of the rate differential or other Federal subsidy implied by the bill.

LEGAL LIMITATIONS ON INTEREST RATES

It is also important to note that if municipal bonds were to be made taxable, the higher interest rates would exceed the legal interest rate limit set by State law. The four Delaware Basin States have legal limitations of either 5 or 6 percent. Our own commission's limitation is 6 percent.

REFINANCING CUTOFF

On page 2, line 3, section (c) would end the refinancing authorization set up in the 1966 law. We think this is unwise and unnecessary. States that have shown the initiative that was encouraged by this refinancing arrangement should not now be penalized. Retention of the refinancing provisions would continue the national goal of abating pollution as quickly as possible.

POPULATION-SMSA REQUIREMENT

On page 5, line 21, the bill requires that the Secretary, prior to entering into any contract, must determine that the treatment works will serve an area with 125,000 people or more, or a standard metropolitan statistical area as defined by the Bureau of the Budget. The Secretary is then given latitude to use judgment when he finds it not reasonably possible for such works to serve *all* of a standard metropolitan statistical area. A very literal interpretation of this could restrict the development of regional systems to a point which I do not believe you wish to see happen. The standard statistical areas are rather large and frequently include several good-sized cities and many autonomous suburban and rural communities as well as many scattered industrial plants. This provision should be modified to permit the development of regional systems which might incorporate large amounts of industrial wastes, together with smaller amounts of municipal waste, since there will be circumstances arising whereby the most effective method of treating the wastes in certain sections within a metropolitan area could be best handled at the time by a subregional system.

You may wish to consider, instead of speaking of an area of 125,000 people, to add "*or an area producing wastes with a population equivalent of 125,000 people.*" This would enable the creation of regional complexes that combine large industrial wastes with lesser municipal loads in an efficient manner. The principle is not new. It has been done before under the earlier grant programs to a limited extent, but the Clean Water Restoration Act of 1966 offered us the prospect of engaging this on a scale heretofore not possible. Such a promise should not now be restricted inadvertently by language which would focus the effort almost completely upon the large metropolitan systems.

ELIGIBILITY FOR AREAS OF SEASONAL POPULATION

One further point concerning size of population in the affected area. Recreation and reservoir areas very much need protection from water quality impairment, but most such areas have small, year-round populations. I suggest that this section of the bill be changed so as to include areas with a *seasonal*, as well as permanent, population in excess of 125,000 persons. Pollution control around the 1000-square-mile impact region of the Delaware Water Gap National Recreation Area, for example, will be handled as a single unified system. The permanent year-round population of this region is now about 80,000. However, in the summer, after the National recreation area is in operation, this population will swell to more than 300,000.

RESERVE FUND

On page 6, lines 21 through 24, the bill reads, "(ii) A reserve to meet, to the greatest extent possible, expansion or replacement requirements of the treatment works service area." Literally interpreted, this could mean building growth capability into a system for as much as 50 to 100 years, the life of most interceptors

and collecting sewers. However, the life of waste treatment plants usually ranges from 20 to 30 years, the period which would be included within the contract prerogatives of the Secretary. Is it the intent that these major trunk sewers and interceptors be laid down in the case of regional systems with capacities estimated to be sufficient to handle loads 50 or 100 years hence? If this is the intent, it should be pointed out that we are asking the present generation to prepay capital construction that will not be used except by their grandchildren and great-grandchildren. I suggest that the congressional intent on this issue be definitely expressed in the committee report as a guide to executive administration of the act.

INTERSTATE AGENCY APPROVAL

Page 7, line 5, subsection (D). May I suggest that this paragraph be amended to include the *approval, where appropriate, of interstate water pollution control agencies*, as well as the State water pollution control agency. This would conform it better with the following subsection (e) whenever "such works are part of an effective river basin pollution control plan or management program."

PLANT DESIGN AND OPERATION REQUIREMENT

Page 8, lines 17 through 20 requires that the design and operating plant or treatment works be adequate, in the judgment of the Secretary, to insure the maximum efficiency of operation. Again the intent of the Congress should be indicated in the committee report. I am sure that a detailed and duplicatory Federal review of State and interstate design clearances is not intended. It is wholly appropriate that objective site selection and construction and operating criteria, acceptable to both the Federal and State pollution control agencies, be jointly developed and followed in the design and construction of plants and systems.

These, however, should be applied in detail by the first-line reviewing agency. They should not be the subject of a tedious and prolonged second or third review by central authority, which is tremendously short of manpower to handle this job. A form of quality control can be followed here.

OPERATOR CERTIFICATION

Page 9, line 1, et seq., requires initiation of an effective statewide treatment works operator certification program approved by the Secretary by 1970. We think this is good, and would respectfully suggest that while the plan of certification might be established by that time, the development and training of an adequate supply of operators may not be capable of early accomplishment. I suggest that the committee may wish to note that this will have to be a developmental effort, and between now and 1970 it may not be possible to produce the full number of qualified operators that will be needed as this program develops completely.

We do not have comments on the remaining amendments which appear to be largely a matter of corrective detail, rather than substantive additions. Again, I would like to express my appreciation for this opportunity to talk with you on this matter.

Thank you.

THE "WATER QUALITY IMPROVEMENT ACT OF 1968" GENERAL ENDORSEMENT

Mr. WRIGHT. First, I would like to say I do appreciate very much the opportunity to comment on this legislation, and I would like to inform the committee that the general Delaware River Basin Commission does endorse this legislation in general terms and intent.

We estimate our own overall cleanup job in the Delaware Basin has a capital cost of around \$500 million, about \$300 million of this would be from municipal sewage treatment, and of this amount, a Federal contribution in the amount of 55 percent would be some \$165 million.

I think we can establish a substantial interest that will break up the financial logjam that is now holding up so much of the work.

TAX-EXEMPT BOND ISSUE SHOULD NOT BE RAISED HERE

The section 3(f) of the bill as now before you would abolish the traditional tax exemption of any local revenue bonds secured by revenues of a project which is aided under the Act.

We quite understand that the Federal Government does not want new legislation to result indirectly in tax-exempt Federal borrowing, which has long been contrary to Federal policy.

The present bill goes further and abolishes the tax exemption for the local borrowing which has been a keystone of local financing.

We feel this is an unfortunate introduction of a controversial policy proposal regarding tax exemption of municipal bonds generally which the Congress has thus far never accepted.

We would point out that provision of the bill for a debt service subsidy to maintain a differential in favor of local borrowing is unlikely to be adequate to offset higher interest rates.

The municipal bond market is a highly specialized financial market. It operates in a very small margin of profit. It has characteristics that make it difficult to compete with Federal and corporate bonds, and, as compared with Federal bonds, it has few attractions.

As of the first of this year, State and local bonds are paying about 4.3 percent. This compares to 5.2 percent for the long-term Federal bonds, and around 6.5 percent for corporate bonds.

If the income tax immunity is abolished, the municipal bond market would no longer exist. I mention these without any intention of entering the issue of taxable versus nontaxable securities. This is a much broader public policy question, and I do not propose to get into it at this time.

I would simply suggest that, as a matter of general policy, this would appear to be an introduction of a very important change into one area of the municipal market which would operate to the disservice if the water pollution control program.

I think that if the municipal bonds locally issued for the local share and for the State share can be continued to be taxexempt, that a great deal of this problem would be avoided.

LEGAL LIMITATIONS ON INTEREST RATES

I might just add that the four Delaware Basin States have legal limitations of 5 percent or 6 percent. Our own limitation is 6 percent.

I believe that without the tax exemption all of these would be exceeded in the market as it now stands, and that is before the heavy entry of investment.

PREFINANCING CUTOFF

My next point is that page 2, line 3, section (c) would terminate the present financing authorization set up in the 1966 law. We think this is unwise and unnecessary, in that States, which have shown the initiative that was encouraged by this financing, should not now be penalized and retention of the present financing should continue. I do not feel that these are mutually exclusive.

POPULATION-SMSA REQUIREMENT

On page 5, line 21, the bill requires that the Secretary, prior to entering into any contract, must determine that the treatment works will serve an area of 125,000 people or more or the standard metropolitan statistical area, as defined by the Bureau of the Budget.

Literally interpreted, this might restrict the development of regional systems. The metropolitan standard statistical areas are quite large. They include large cities and many autonomous suburban and rural communities and scattered industrial plants.

Since there will be circumstances arising whereby the most effective method of treating the waste in certain circumstances within the metropolitan area could best be handled by a subregional system, I suggest you may want to consider, instead of speaking of an area with 125,000 people, a phrase along the line of ordinary producing waste with a population equivalent of 125,000 people. This would enable the creation of regional complexes, confine large industrial waste with lesser municipal loads.

I would cite the fact that this has been done to a limited extent under the earlier grant programs, the opportunity of engaging in it on a larger scale should not be foreclosed inadvertently at this time.

One other point with respect to this. Recreation reservoir areas very much need protection, but most of these have small year-round populations.

I suggest this section of the bill be changed also to include areas with a seasonal as well as permanent population in excess of 125,000 people.

As an example, the Delaware Water Gap National Recreation Area at present has a permanent population of about 80,000. During the peak operations this figure would swell to 300,000 for four months, and then drop off. It is during that period it will need regional protection and will need a massive system.

The rest of my remarks I will skip at this time and, knowing that they will be inserted into the record, I would like to thank you for the opportunity to make these points before your committee.

Mr. BLATNIK. Thank you very much, Mr. Wright. You made some very practical points, and they have to be given consideration, and they shall be given consideration.

Any further questions?

Mr. McCarthy?

Mr. MCCARTHY. I just want to thank you, Mr. Wright.

Mr. BLATNIK. Thank you very much, Mr. Wright.

We will recognize our colleague, Representative Henry S. Reuss, of Wisconsin.

STATEMENT OF HON. HENRY S. REUSS, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF WISCONSIN

Mr. REUSS. Mr. Chairman, I appreciate the opportunity to appear before the Public Works Committee in support of H.R. 15907, the Water Quality Improvement Act of 1968. Your committee has labored long, hard, and successfully to gain a high priority for clean water

programs among Federal programs. Both the Water Quality Act of 1965, Public Law 89-234, and the Clean Water Restoration Act of 1966, Public Law 89-753, evidence your committee's diligence in seeking legislation to control water pollution.

NEED FOR LEGISLATION

The Water Quality Improvement Act of 1968, under consideration here today, is a necessary addition to the 1965 and 1966 acts.

This bill fulfills the promise of the sizable, but quite necessary, authorizations placed on the statute books in the 1966 act. In the new subsection 8(j) proposed there, the total cost of waste treatment plants and interceptor sewers would be financed by bonds. Federal assistance to a waste treatment project would not be paid by a lump sum grant as in the past, but by a series of annual payments over the term of the bond issue. These payments would cover the interest and amortization of principal costs on the Federal portion of the project.

By stretching Federal payments over a period of years, the number of projects fully aided by Federal funds could be increased tenfold or better.

We all know the problem of obtaining appropriations to match the increasing authorizations of the many progressive social measures which Congress enacted in the 89th Congress—not only to obtain clean water, but to better education, to build housing and other urban facilities as well.

In water pollution control, however, the budget restraint has been particularly severe. The heart of the Clean Waters Restoration Act of 1966 was a sizable stepup in the authorization for waste treatment facilities construction grants from \$150 million in fiscal 1967 to \$450 million in fiscal 1968 and to \$700 million in fiscal 1969. Budgetary restraint, however, has caused only \$203 million of the \$450 million fiscal 1968 authorization to be appropriated, and only \$225 million of the \$700 million fiscal 1969 appropriation to be requested by the President.

In short, the intent of this committee and of the Congress to see a threefold increase in waste treatment construction this fiscal year and nearly a fivefold increase next fiscal year, over the amount of construction in fiscal 1967, has been nullified.

The scarcity of Federal funds has created consternation in state water pollution control agencies and local sewerage commissions across the nation.

Pursuant to the Water Quality Act of 1965, high water quality standards have been set and approved in over half of the 50 States. To meet these standards, new waste treatment plants must be built, existing facilities must be improved, thousands of miles of interceptor sewers must be laid. Yet the Federal funds promised by the 1966 act to help finance this construction have not been forthcoming.

FACILITIES NEEDS IN WISCONSIN

In my own State of Wisconsin, the backlog of \$30 million of waste treatment facility construction awaiting Federal assistance when the 1966 act was passed has increased over the past year and a half to \$45 million. That's right—at this time the State of Wisconsin has applica-

tions on file for \$45 million of waste treatment facility construction eligible for Federal grants. Approximately \$23 million of Federal waste treatment facility construction grant funds are being requested to help finance this construction. Most Wisconsin projects are currently eligible for 50 percent Federal grants, though some projects in regional planning areas are eligible for 55-percent grants.

In this fiscal year, 1968, Wisconsin will receive approximately \$4 million in Federal waste treatment facility construction grant funds. One million dollars will be used to reimburse communities for past construction work, and \$3 million of Federal funds to meet \$23 million of applications for Federal money. The applications outstrip the Federal money nearly eight times.

In order that the Federal grant money may go further, top priority Wisconsin projects will this year receive 20 percent Federal financing, instead of the 50 percent or in some cases 55 percent, Federal financing which would be paid if sufficient Federal funds were available.

Even on this watered-down, 20-percent-payment basis, only one-third of the Wisconsin backlog will receive Federal funds this year.

In Milwaukee, a city which has done an extraordinary job over the years of treating its sewage, the 11-year-old Federal waste treatment facility grant program has brought little relief to the overburdened Milwaukee taxpayer. In early years, Milwaukee qualified for only small grants because of the series of low ceilings on maximum grants. Since July 1, 1967, when the 1966 act became effective, Milwaukee has received only a fraction of its Federal share because of small appropriations.

From 1956 to date, the Metropolitan Milwaukee Sewerage Commission has undertaken \$128 million in waste treatment facility projects eligible for Federal assistance. It has received less than \$4 million in Federal assistance. Since July 1, 1967, Milwaukee has made application for \$12 million worth of waste treatment construction projects. It is entitled to \$6.6 million in Federal grants, 55 percent. It will receive \$2.4 million, 20 percent. Some other amounts may later be reimbursed.

Mr. Chairman, I am sure that the Wisconsin and Milwaukee figures which I have recited do not surprise your committee. For it is this very shortage of Federal funds which your committee labored to overcome 2 years ago, when it helped enact the unprecedented increase in construction grant authorizations in the Clean Waters Restoration Act of 1966. The plain fact is that the intent of your committee has been defeated by the budget squeeze.

BILL A CREATIVE SOLUTION

By financing the Federal share of waste treatment projects through bond issues, H.R. 15907 provides a creative solution for stretching scarce Federal dollars.

The Secretary of the Interior has said that this new financing program will allow the Federal Government to commit the full \$700 million authorization in fiscal 1969.

I see nothing wrong with financing capital expenditures through borrowing, though the long-term cost is, of course, higher. The total

cost of waste treatment facilities was financed by borrowing before Federal grants were begun in 1956; and the local share is still being financed by borrowing in most cases. In 1965, the State of Wisconsin, moreover, instituted a similar aid program for helping localities finance waste treatment facilities.

The bill would certainly boost antipollution efforts in Wisconsin. Assuming that Wisconsin would continue to receive the same share of funds under the new bill as it is presently receiving, it would receive \$14 million in Federal assistance next year. This payment would go a substantial way in eliminating the \$45 million backlog of applications.

To live up to the commitment which it made to the localities in 1966, Congress should enact the Water Quality Improvement Act of 1968. It is both a moral and a practical necessity that it be enacted.

Let me close by commenting briefly on two other aspects of this bill.

First, I wholeheartedly support the Federal guarantee of the local share of bond issues financing waste treatment facilities and the Federal payment of interest subsidies to reduce the net effective interest rate on the local share of such bond issues to a rate comparable to rates on tax-exempt municipal bonds. These provisions are found in section 2 of the bill.

They assure that the new financing approach will not unduly flood the municipal bond market with new bond issues financing waste treatment facilities.

I have watched the municipal bond market closely in recent years because of my interest in abolishing the municipal industrial development bond—the tax-exempt municipal bond used to finance private, profitmaking industrial plants and commercial facilities. Last year, the issuance of \$1.3 billion of these bonds caused interest rates in the municipal market to climb to a then record 4.44 percent. These high interest rates added unduly to the cost of all public facilities financed by municipal bonds—schools, roads, hospitals, waste treatment facilities.

With the great demand for more and better public facilities in this Nation financed by municipal bonds, it would be highly irresponsible for the Federal Government to encourage the issuance of an additional half billion dollars of tax-exempt bond issues in the next year to finance the construction of waste treatment facilities. The inevitable result would be higher cost for all public facilities.

The enactment of this bill would have the opposite effect. It would actually take some of the pressure off the municipal bond market by federally guaranteeing some bonds which under the existing act would be floated as municipal bonds. This would be a healthy development.

Thus, I see the Federal guarantee and subsidy provisions as an essential feature of this legislation.

PREFINANCING CUTOFF RELAY

Second, I should propose a technical amendment in section 2(c) of the bill. As the section is now written it would cut off as of July 1, 1968, the authority to reimburse localities which went ahead with

the construction of waste treatment plants before receiving a Federal grant. Any waste treatment facility which was not under construction by next July 1 would be no longer eligible for reimbursement.

In Wisconsin all projects financed since June 30, 1966, have been proceeding under the reimbursement provision. Many projects have now been approved by the State of Wisconsin or are nearing approval under this provision. But in a substantial number of these projects, construction cannot as a practical matter be begun before July 1, 1968, the proposed cutoff date. The result will be that a number of Wisconsin projects which will not be reached for several years if a full Federal grant must be given, will have to be delayed. I am sure there are similar situations in other States.

Thus, to clear the pipeline I propose that the cutoff date on reimbursement be extended from July 1, 1968 to January 1, 1969.

This would allow communities with advanced plans for waste treatment facilities to begin construction rather than suffer a 2- or 3-year delay.

Mr. Chairman, in order not to lose the momentum given to the drive for clean water of the 89th Congress, the 90th Congress should enact this legislation.

Mr. BLATNIK. Thank you very much.

There are no further witnesses for today, and the hearings are now adjourned until 10 o'clock tomorrow morning.

(Whereupon, at 5:55 p.m., the subcommittee recessed, to reconvene at 10 a.m., Thursday, April 25, 1968.)

FEDERAL WATER POLLUTION CONTROL ACT AMENDMENTS—1968

THURSDAY, APRIL 25, 1968

HOUSE OF REPRESENTATIVES,
COMMITTEE ON PUBLIC WORKS,
Washington, D.C.

The committee met, pursuant to recess, at 10:14 a.m., in room 2167, Rayburn Building, Hon. John A. Blatnik, presiding.

Mr. BLATNIK. The House Public Works Committee will please come to order.

We resume hearings on sundry bills as already recorded in the previous proceedings of the past 2 days, various proposals to amend the Federal Water Pollution Control Act.

We have had some excellent testimony and have gone into several important areas pertaining to water pollution. Substantial improvements and new efforts seem to be not only desirable but highly recommended to make more effective this large broad-scale national joint effort in water pollution.

We have as our first witness this morning Mrs. Donald E. Clusen of Green Bay, Wis.

Mrs. Clusen, I understand you are due to catch a plane around noon.

Mrs. Clusen is the director of the U.S. League of Women Voters. Would you please proceed. I note you do have a prepared statement, so you may proceed at will, either read your statement or summarize, or depart from it as you wish.

STATEMENT OF MRS. DONALD E. CLUSEN, DIRECTOR, LEAGUE OF WOMEN VOTERS OF THE UNITED STATES

Mrs. CLUSEN. Thank you, Congressman. We appreciate the opportunity and the courtesies extended to us.

I have a longer statement which I would like to request permission to have entered in the record, and I am going to summarize what is in this statement.

Mr. BLATNIK. The full statement will appear at this point in the record.

(The statement referred to follows:)

STATEMENT BY MRS. DONALD E. CLUSEN, DIRECTOR, LEAGUE OF WOMEN VOTERS OF THE UNITED STATES

I am Mrs. Donald E. Clusen of Green Bay, Wisconsin, an elected Director of the League of Women Voters of the United States and the Chairman of the Committee on Water Resources. I am appearing this morning as the spokesman for

the more than 145,000 members organized in over 1200 local Leagues in the 50 states, the Commonwealth of Puerto Rico, and the District of Columbia.

Since my first opportunity to represent the League of Women Voters before this committee in 1966, our members—in their home communities and in their states—have continued their work for stronger laws, for better enforcement, and for additional financing to mitigate water problems.

As many of you know, League stands are the outgrowth of study, discussion, and consensus by League members in local meetings. Leagues have agreed upon the principle of shared financial responsibility in water resources development. For this reason, the League of Women Voters prefers to see local governments make a strong effort to bear the cost of good waste management; and League members often back this preference by hard work to pass local sewer and treatment facility bond issues. We encourage state assistance to lower jurisdictions. Since 1960, we have steadily supported federal grants for sewage facility construction. League members are convinced that construction of municipal secondary treatment plants must go on at an accelerated rate.

WATER QUALITY IMPROVEMENT ACT OF 1968

The League of Women Voters of the United States agrees with the aim of H.R. 15907 to provide a practical method of financing the federal share of treatment facility construction costs during the current period of financial stringency. We are well aware that parts of the bill are meeting strong opposition from spokesmen for local and state officials. We anticipate modifications by this committee.

REASONS FOR SUPPORT OF H.R. 15907

Money is the main problem

Meeting the cost of building and improving treatment plants far overshadows other difficulties in cutting down water pollution from city sewage.

The Congress, guided by this committee, set \$700 million as the amount the federal government needs to spend in fiscal 1969 to stimulate adequate investment by state and local governments. Through the leadership of this committee, the incentive feature of the construction grant program was retained and re-emphasized. If the full authorization had been appropriated, the League would have favored continuing the present grant program unchanged. After all, the removal of the dollar ceiling and the higher percentage of project cost offered by the federal government in the Clean Water Restoration Act went into effect less than a year ago.

But, in reality, these increases never materialized. Although 23 states, Puerto Rico, and the Virgin Islands have passed legislation authorizing a state share of 25 to 30 percent, the \$203 million appropriated for the construction grant program has been so inadequate that the incentive offered by the Clean Water Restoration Act has been almost no incentive at all. Only states able to undertake prepayment of the federal share in expectation of reimbursement can get leverage out of the promise implicit in the percentages of the Clean Water Restoration Act. State legislatures that met after the President's budget was sent to Congress in 1967 had scant reason to authorize appropriation of matching state funds.

The state Leagues tell us of the bitter feeling among officials and citizens who worked for passage of state legislation authorizing state matching grants. When help is offered, expectations are raised; when help is snatched away, people cannot avoid feeling betrayed.

Under present circumstances, we do not expect the Appropriations Committees to appropriate the \$700 million authorized for fiscal 1969 or even the \$450 million we wanted for the present fiscal year. The League, therefore, supports installment payments of the federal share. We do this in the hope that the Appropriation Subcommittees will regard with favor—

the relatively small additional amount (above the \$225 million for the continuing grant program) needed to pay the 1969 installment of the federal share of principal and interest under the contract system;

the large amount of treatment facility construction that could be generated if states utilize this contract method for their larger projects.

Success from standard setting depends on construction

Setting standards to meet the requirements of the Secretary of Interior does not reduce pollution. The enforceable plan to achieve those standards will not

in itself clean up the water. Only if the timetable in the enforceable plan is adhered to will standard setting bring about stream cleanup. To meet the timetable, interceptor sewers and treatment plants must be enlarged, improved, and new ones constructed on schedule. If some sizeable physical improvements move forward rapidly, enforcement of standards will be encouraged. If standards are not enforced, the entire standard setting operation will be no more than a paper exercise.

Metropolitan areas need special attention

The League fully supports the provision in H.R. 15907 that limits the contract method to all or parts of standard metropolitan areas or to large population centers. We favor earmarking the larger share of the authorized amount for contractual obligations with standard metropolitan statistical areas or large cities.

The construction grant program was begun to help towns and small cities. States decide to whom the state allocation of federal construction grant funds shall go—and in what percentage of project costs. Some states spread their allocations thinly, small percentages to many recipients. Prior to 1966, the dollar ceiling on project grants made extremely large projects ineligible for aid proportionate to their cost. During the time the construction grant program has been in effect, the disproportion between the income of some center cities and the needs they must fill has become glaringly clear.

To bring about substantial reduction of the vast amounts of pollution many big cities discharge into their waterways, we favor channeling federal and state funds into metropolitan areas for at least the three years of the present authorizations.

Utility-type financing is desirable

The League supports the requirement that the local public body having jurisdiction over the treatment works be required, as a condition for contract aid, to establish a system of charges to repay the capital costs and pay the operating and maintenance costs over the life of the project. We think businesslike financing, with service charges related to the cost of supplying the service, is desirable. We are glad to see that the requirement is left flexible, for we think the end may be achieved in different ways in different cities and states. Where domestic sewage service is included in water charges or in special millage rates on the tax bill, for example, it may be satisfactory to continue these methods of collecting service charges.

User charges will grow more important as industries attach to public sewer lines in increasing numbers. We think adequate rates based on quality and quantity of sewage should be charged for waste water service, as charges are made in relation to services rendered by other utilities.

Operation of treatment plants needs improvement

League members' work for local and state bond issues makes them eager to have the large investment in treatment facilities produce the best possible results. We are well aware that many treatment plants have never done as well as expected and that many are overloaded. Our members have been dismayed to discover the low qualifications of operators in some expensive plants. The League, therefore, fully supports the provision in H.R. 15907 that in order to make use of the contract method of federal aid, a state must develop a statewide plan to improve the efficiency of all constructed treatment works and must establish an effective statewide program for certification of treatment plant operators. We think an important function of grants-in-aid is to encourage the recipient level to upgrade performance.

Estuary values merit study

The League supports funding a comprehensive study of estuaries. We are concerned about the values of these areas where salt and fresh water come together and about the values of the surrounding wetlands. Choices must be made between alternative uses. It is important that these be informed choices. The report of study outlined in this bill will help supply the information decision-makers will need.

RESERVATIONS AND QUESTIONS ABOUT H.R. 15907

Although the League will support H.R. 15907 for the reasons just given, we have reservations and questions about some of the proposed provisions and language in the bill.

On advancing the cut-off for eligibility for reimbursement

Our chief objection is to the change in the date which shortens the time during which construction must be started if a plant is to qualify for reimbursement through later federal repayment of the federal share of project cost. According to Sec. 8(c) of P.L. 660, as amended, the federal share of costs could be repaid for projects on which construction began between July 1, 1966 and July 1, 1971, and which met other requirements for federal assistance but were constructed without such assistance. Reimbursement was to come from later federal monies allotted to the state under the construction grant program. Reimbursement was to be in the amount the project would have received if it had been approved for a grant and adequate funds had been available.

P.L. 660 says clearly that the provision for reimbursement of state and local funds used for such a project prior to July 1, 1971, should not be construed " * * to constitute a commitment or obligation of the United States to provide funds to make or pay any grant for such a project." Nevertheless, to get control of the mounting pollution problem, it seemed desirable that states with financial resources undertake prepayment of the federal share. States that altered their laws to permit repayment on plants begun before mid-1971 were lavishly complimented for doing so.

Prefinancing has become a major feature of the pollution abatement programs of some states. Now it is proposed to change the rules less than eighteen months after the Clean Water Restoration Act amendments became law.

In recent years, great efforts have been made to devise programs and supply funds to encourage state support for pollution abatement. Cooperation between state and federal levels will not be advanced by this proposal to change the 1971 date to 1968 and thus narrow by more than half the period during which construction would be eligible for federal reimbursement if all other necessary conditions had been met.

The League *opposes* shortening the period of eligibility for reimbursement. In view of the lead time necessary before treatment plant construction could be started and of the changes in state laws necessary before prepayment could be used, there must be many plants planned, with bonds approved in recent referenda, that will not be underway by July 1968 yet expected to have federal reimbursement because they would be under construction before July 1971. To preserve harmony with the states and to strengthen state and local faith in the reliability of the federal construction grant program, we think such plants should receive the help for which they are eligible under the amendments made in 1966 by the Clean Water Restoration Act.

On reimbursement under the contract method

Although the League supported reimbursement in 1966, reasoning that states and localities able to move ahead on pollution abatement should be encouraged to do so without delay, we have always been uneasy about the assumption that a state could rely on eventually receiving a federal share equal to the money the state invested in pollution abatement facilities. Since periodic installment payments of the federal share of capital and interest charges will be contractual arrangements, we assume that no question of prepayment will arise under the new method of stimulating waste treatment facility construction up to the level authorized by law. In the long run the contractual obligation should be a more reliable guarantee of reimbursement than the provision in Sec. 8(c) of the present law.

On long-term effects of installment financing

We do not want to say that a system of installment payments should become the procedure for many types of federal aid to states and local jurisdictions. Nor do we want to say that it should be the pattern used for federal support for water pollution abatement incentives after 1971. Contracts obligating the federal government to installment payments might limit the government's freedom of choice in spending its income, much as installment debts constrict the disposal income of an individual or family.

The League *has no position* on long term financing by the contract method. We are in favor of using it for funds now authorized, in order to break the construction backlog building up because of uncertainty about federal aid. Further study and discussion of the effects of this method well before the time of consideration of post-1971 authorizations might give a better basis for long term decisions. We suggest that provision be made for such a study by the staff of this committee.

On judging the adequacy of design and operating plan for treatment works

As much as anyone else, League members want maximum efficiency for their investment. We are somewhat dubious, however, about the amount of reviewing that might be required under Sec. 2(g) (1) which provides that " * * design and operating plan for treatment works shall be adequate, in the judgement of the Secretary, to insure the maximum efficiency in operation." Sec. 2(f) (d) requires approval of the plans by the responsible state agency. Is both federal and state review of plans for treatment plants contemplated? Or would the Secretary's staff develop criteria which the states would be required to use as yardsticks? With trained people in short supply, is dual review the best use of limited personnel? Is it the best use of limited funds? Is some clarification of intent needed here?

On income tax liability on treatment facility bonds

The League has no position on whether income from bonds for construction under the contract system should be taxable or tax free to the buyer. We know that exemption from income tax on federal borrowing is contrary to federal policy. We do not know whether making taxable that part of the bonds which constitutes the local share would be the first step toward destroying the tax exempt nature of other municipal bonds, as state and local officials suggest. Nor do we consider ourselves equipped to foresee the effect federally guaranteed bonds might have on the municipal bond market under either circumstance.

Need *taxability* vs. *tax exemption* as an issue of public policy be coupled with this authorization of a program to stimulate state and local investment in the water pollution control program? What proportion of local governments will be able to assume the federal as well as the local share of bonded indebtedness for sewage facilities along with their other obligations? Fortunately, all but three state legislatures meet in the odd-numbered years. They will soon be able to consider changes in state statutes to facilitate use of the contract method of sewage facility financing by local bodies.

LAKE, MINE, AND OIL POLLUTION CONTROL BILLS

The League agrees with the objectives of S. 2760 and H.R. 14000 to improve U.S. ability to overcome pollution in lakes and in streams affected by acid mine drainage. The League also agrees with the objectives of H.R. 15906, H.R. 15928, H.R. 16015, H.R. 16163, H.R. 14000, and S. 2760 to strengthen the oil pollution control program and include it as part of the overall federal water pollution control program.

To the list of grants and contracts authorized by the Federal Water Pollution Control Act the League *supports* adding grants for research and development on (a) prevention, removal, and control of natural and man-made pollution in small lakes and (b) feasible and practical techniques of eliminating or controlling acid or other mine water pollution.

The League *supports* rewording of the definition of discharge to eliminate " * * * grossly negligent or willful * * *" and to include all ways in which oil and related materials can get into the water in quantity.

The League *supports* making owners and operators of shore installations responsible, along with owners and operators of all vessels, for amelioration of the effects of discharged oil of any kind or in any form.

REASONS FOR SUPPORT

Early in 1967, local Leagues reported on their study of financial incentives to industry to abate water pollution. These reports said clearly and strongly that League members think control of wastes is one of the costs of doing business. Therefore, we maintain that all who discharge oil and similar wastes should be responsible for full costs of cleanup.

League members also expressed enthusiasm for federal support of research for new and effective ways of halting pollution. League in many states are well aware of how vulnerable lakes are to eutrophication. While certain protective steps that can be taken are well known, understanding of the enrichment process is inadequate. Improvement of methods for nutrient removal is expected to require large scale demonstration projects.

While continued fundamental and applied research on acid mine drainage will undoubtedly be needed, the time seems to have come for demonstration

projects that encompass a whole watershed. Leagues that have repeatedly supported stronger state controls to keep acid mine drainage from spreading to clean streams know that the largest part of the problem is checking seepage from abandoned and inoperative mines on privately owned land.

RESERVATIONS AND QUESTIONS

On timeliness of authorization

Pollution control programs already in effect are suffering from funding acknowledged to be inadequate in the reports of the Appropriation Committees. Does it seem possible that funds can be obtained for new pollution control programs, however worthwhile their aims?

H.R. 15907, in proposals for revision of Sections 5 and 6 of P.L. 660, includes research and demonstration projects for lake and acid mine water pollution in the \$65 million authorization for research, demonstration, investigations, training, and information. This amount is the same as that now authorized for fiscal year 1969. S. 2760 and H.R. 14000, however, propose to authorize \$15 million to carry out one or more acid mine drainage projects to demonstrate engineering and economic feasibility of various abatement techniques when applied on a watershed or drainage basin scale.

The League stand has always been that laws should be applied. Legislation lulls the public into a false sense that something has been accomplished. Public attention turns elsewhere. We question whether funds for a program should be authorized if they will not be appropriated in the near future.

The same question does not arise in connection with the proposal in H.R. 15906, S. 2760, and similar bills that authorize a revolving fund to pay for cleanup of oil spills if the owner or operator of a vessel or shore installation fails to remove discharged oil immediately. Creation of the funds is coupled with the provisions through which money expended from it will be recovered from those causing the pollution.

On the percentage of the federal share

A requirement that the state pay not less than 25 percent of actual costs of acid mine drainage projects is made a prerequisite for federal participation, according to S. 2760, and H.R. 14000. The League is glad to see a requirement for state funds included in the proposal. We do not oppose the 75/25 ratio for a demonstration project.

However, when the League of Women Voters was developing its support for better coordination at the federal level, League members deplored the differences in proportion of contributions and in required repayment under programs handled by different federal agencies. "Shopping around" for the maximum amount of aid seemed undesirable to League members because (a) it encourages delay in solving the problem for which federal aid is sought and (b) it encourages choosing the solution for which most financial aid can be obtained. League members became convinced that variations in the amount of aid which can be offered under different programs distorted decision-making, reduced maximum benefits from the federal investment, and are one factor in heightened inter-agency competition.

In recent years we have seen some tendency to limit federal aid to 50 percent in a number of water programs, except where supplementation was provided for areas of great economic distress. Housing and Urban Development Act authorized grants to local public bodies to finance up to 50 percent of the cost of basic public water and sewer facilities (though not "treatment works" as defined in the Federal Water Pollution Control Act). For rural communities, the Rural Water and Sanitations Facilities Act. offered up to 50 percent of construction, land easement, rights of way, and water rights costs necessary for construction and operation of rural water supply and sanitation systems. The Public Works and Economic Development Act also authorized 50 percent aid for needed public works in economically distressed areas, plus supplementation.

The League would like to see this 50 percent line held as demonstration and pilot operations move into full national programs.

THE "WATER QUALITY IMPROVEMENT ACT OF 1968"

Mrs. CLUSEN. Turning first to the Water Quality Improvement Act of 1968, the League of Women Voters of the United States agrees with the aim of H.R. 15907 to provide a practical method of financing the

Federal share of treatment facility construction costs during the current period of financial stringency. We are well aware that parts of the bill are meeting strong opposition from spokesmen for local and State officials. We anticipate modification by this committee.

Our reasons for support of H.R. 15907 are as follows:

MONEY THE MAIN PROBLEM

Money is the main problem. Meeting the cost of building and improving treatment plants far overshadows other difficulties in cutting down water pollution from city sewage.

If the full authorization had been appropriated, the league would have favored continuing the present grant program unchanged. After all, the removal of the dollar ceiling and the higher percentage of project cost offered by the Federal Government in the Clean Water Restoration Act went into effect less than a year ago.

But, in reality, these increases never materialized. Although 23 States, Puerto Rico, and the Virgin Islands have passed legislation authorizing a State share of 25 to 30 percent, the \$203 million appropriated for the construction grant program has been so inadequate that the incentive offered by the Clean Water Restoration Act has been almost no incentive at all.

Under present circumstances, we do not expect the Appropriations Committees to appropriate the \$700 million authorized for fiscal 1969 or even the \$450 million we wanted for the present fiscal year. The league, therefore, supports installment payments of the Federal share. We do this in the hope that the Appropriation Subcommittee will regard with favor upon the relatively small additional amount, above the \$225 million for the continuing grant program, needed to pay the 1969 installment of the Federal share of principal and interest under the contract system; and the large amount of treatment facility construction that could be generated if States utilize this contract method for their larger projects.

CONSTRUCTION NECESSARY TO STANDARDS ACHIEVEMENT

We think success from standard setting depends on construction. Only if the timetable in an enforceable plan is adhered to will standard setting bring about stream cleanup. To meet the timetable, interceptor sewers and treatment plants must be enlarged, improved, and new ones constructed on schedule. If some sizable physical improvements move forward rapidly, enforcement of standards will be encouraged. If standards are not enforced, the entire standard setting operation will be no more than a paper exercise.

POPULATION—SMSA REQUIREMENT

Secondly, the league fully supports the provision in H.R. 15907 that limits the contract method to all or parts of standard metropolitan areas or to large population centers.

The construction grant program was begun to help towns and small cities. States decide to whom the State allocation of Federal construction grant funds shall go—and in what percentage of project costs. Some States spread their allocations thinly, small percentages to many recipients. Prior to 1966, the dollar ceiling on project grants made ex-

tremely large projects ineligible for aid proportionate to their cost. During the time the construction grant program has been in effect, the disproportion between the income of some center cities and the needs they must fill has become glaringly clear.

To bring about substantial reduction of the vast amounts of pollution many big cities discharge into their waterways, we favor channeling Federal and State funds into metropolitan areas for at least the 3 years of the present authorizations.

USER CHARGES

Third, the league supports the requirement that the local public body having jurisdiction over the treatment works be required, as a condition for contract aid, to establish a system of charges to repay the capital costs and pay the operating and maintenance costs over the life of the project. We think businesslike financing, with service charges related to the cost of supplying the service, is desirable. We are glad to see that the requirement is left flexible, for we think the end may be achieved in different ways in different cities and States. Where domestic sewage service is included in water charges or in special millage rates on the tax bill, for example, it may be satisfactory to continue these methods of collecting service charges.

DESIGN AND OPERATION OF PLANTS—OPERATOR CERTIFICATION

Fourth, we are well aware that many treatment plants have never done as well as expected and that many are overloaded. Our members have been dismayed to discover the low qualifications of operators in some expensive plants. The league, therefore, fully supports the provision in H.R. 15907 that in order to make use of the contract method of Federal aid, a State must develop a statewide plan to improve the efficiency of all constructed treatment works and must establish an effective statewide program for certification of treatment plant operators. We think an important function of grants-in-aid is to encourage the recipient level to upgrade performance.

ESTUARY STUDY

Lastly, the league supports funding a comprehensive study of estuaries. We are concerned about the values of these areas where salt and fresh water come together and about the values of the surrounding wetlands. Choices must be made between alternative uses. It is important that these be informed choices. The report of study outlined in this bill will help supply the information decisionmakers will need.

RESERVATIONS

Although the league will support H.R. 15907 for the reasons just given, we have reservations and questions about some of the proposed provisions and language in the bill.

PREFINANCING CUTOFF

First of all, our chief objection is to the change in the date which shortens the time during which construction must be started if a plant

is to qualify for reimbursement through later Federal repayment of the Federal share of project cost. According to Public Law 660, the Federal share of costs could be repaid for projects on which construction began between July 1, 1966, and July 1, 1971, and which met other requirements for Federal assistance but were constructed without such assistance. We think it unwise to change the rules less than 18 months after the Clean Water Restoration Act amendments became law.

In recent years, great efforts have been made to devise programs and supply funds to encourage State support for pollution abatement. Cooperation between State and Federal levels will not be advanced by this proposal to change the 1971 date to 1968 and thus narrow by more than half the period during which construction would be eligible for Federal reimbursement if all other necessary conditions had been met.

The league opposes shortening the period of eligibility for reimbursement. In view of the leadtime necessary before treatment plant construction could be started and of the changes in State laws necessary before prepayment could be used, there must be many plants planned, with bonds approved in recent referendums, that will not be underway by July 1968 yet expected to have Federal reimbursement because they would be under construction before July 1971. To preserve harmony with the States and to strengthen State and local faith in the reliability of the Federal construction grant program, we think such plants should receive the help for which they are eligible under the amendments made in 1966 by the Clean Water Restoration Act.

LEAGUE NOT COMMITTED TO LONG-TERM CONTRACTS AS PATTERN OF FEDERAL FINANCING

We do not want to say that a system of installment payments should become the procedure for many types of Federal aid to States and local jurisdictions. Nor do we want to say that it should be the pattern used for Federal support for water pollution abatement incentives after 1971. Contracts obligating the Federal Government to installment payments might limit the Government's freedom of choice in spending its income, much as installment debts constrict the disposal income of an individual or family.

The league has no position on long-term financing by the contract method. We are in favor of using it for funds now authorized, in order to break the construction backlog building up because of uncertainty about Federal aid. Further study and discussion of the effects of this method well before the time of consideration of post-1971 authorizations might give a better basis for long-term decisions. We suggest that provision be made for such a study by the staff of this committee.

TWO LEVEL APPROVAL OF PLANT DESIGN AND OPERATION PLANS

As much as anyone else, league members want maximum efficiency for their investment. We are somewhat dubious, however, about the amount of reviewing that might be required under section 2(g)(1) which provides that "* * * design and operating plan for treatment

works shall be adequate, in the judgment of the Secretary, to insure the maximum efficiency in operation." Section 2(f) (d) requires approval of the plans by the responsible State agency. Is both Federal and State review of plans for treatment plants contemplated? Or would the Secretary's staff develop criteria which the States would be required to use as yardsticks? With trained people in short supply, is dual review the best use of limited personnel? Is is the best use of limited funds? Is some clarification of intent needed here?

NO POSITION ON TAXABLE STATUS OF BONDS

The league has no position on whether income from bonds for construction under the contract system should be taxable or tax free to the buyer.

There are two questions: Need taxability versus tax exemption as an issue of public policy be coupled with this authorization of a program to stimulate State and local investment in the water pollution control program? What proportion of local governments will be able to assume the Federal as well as the local share of bonded indebtedness for sewage facilities along with their other obligations?

LAKE-MINE-OIL AND HAZARDOUS SUBSTANCE LEGISLATION

Turning now to the lake, mine, and oil pollution control bills, the league agrees with the objectives of S. 2760 and H.R. 14000 to improve U.S. ability to overcome pollution in lakes and in streams affected by acid mine drainage. The league also agrees with the objectives of H.R. 15906, H.R. 15928, H.R. 16015, H.R. 16163, H.R. 14000, and S. 2760 to strengthen the oil pollution control program and include it as part of the overall Federal water pollution control program.

To the list of grants and contracts authorized by the Federal Water Pollution Control Act the league supports adding grants for research and development on (a) prevention, removal, and control of natural and man-made pollution in small lakes and (b) feasible and practical techniques of eliminating or controlling acid or other mine water pollution.

The league supports rewording of the definition of discharge to eliminate " * * * grossly negligent or willful * * *" and to include all ways in which oil and related materials can get into the water in quantity.

The league supports making owners and operators of shore installations responsible, along with owners and operators of all vessels, for amelioration of the effects of discharged oil of any kind or in any form.

Early in 1967, local leagues reported on their study of financial incentives to industry to abate water pollution. These reports said clearly and strongly that league members think control of wastes is one of the costs of doing business. Therefore, we maintain that all who discharge oil and similar wastes should be responsible for full costs of cleanup.

League members also expressed enthusiasm for Federal support of research for new and effective ways of halting pollution. Leagues in many States are well aware of how vulnerable lakes are to eutrophication. While certain protective steps that can be taken are well known,

understanding of the enrichment process is inadequate. Improvement of methods for nutrient removal is expected to require large-scale demonstration projects.

While continued fundamental and applied research on acid mine drainage will undoubtedly be needed, the time seems to have come for demonstration projects that encompass a whole watershed. Leagues that have repeatedly supported stronger State controls to keep acid mine drainage from spreading to clean streams know that the largest part of the problem is checking seepage from abandoned and inoperative mines on privately owned land.

On these bills also we have some reservations and questions.

DOUBTS CONCERNING ADEQUATE APPROPRIATIONS FOR NEW PROGRAMS

Pollution control programs already in effect are suffering from funding acknowledged to be inadequate in the reports of the Appropriation Committees. Does it seem possible that funds can be obtained for new pollution control programs, however worthwhile their aims?

H.R. 15907, in proposals for revision of sections 5 and 6 of Public Law 660, includes research and demonstration projects for lake and acid mine water pollution in the \$65 million authorization for research, demonstration, investigations, training, and information. This amount is the same as that now authorized for fiscal year 1969. S. 2760 and H.R. 14000, however, propose to authorize \$15 million to carry out one or more acid mine drainage projects to demonstrate engineering and economic feasibility of various abatement techniques when applied on a watershed or drainage basin scale.

The league stand has always been that laws should be applied. Legislation lulls the public into a false sense that something has been accomplished. Public attention turns elsewhere. We question whether funds for a program should be authorized if they will not be appropriated in the near future.

REVOLVING FUND FOR OIL AND HAZARDOUS SUBSTANCE CLEANUP

The same question does not arise in connection with the proposal in H.R. 15906, S. 2760, and similar bills that authorize a revolving fund to pay for cleanup of oil spills if the owner or operator of a vessel or shore installation fails to remove discharged oil immediately. Creation of the fund is coupled with the provisions through which money expended from it will be recovered from those causing the pollution.

FEDERAL SHARE OF MINE AREA DEMONSTRATION PROJECTS

Our second concern relates to the percentage of the Federal share. A requirement that the State pay not less than 25 percent of actual costs of acid mine drainage projects is made a prerequisite for Federal participation, according to S. 2760, and H.R. 14000. The league is glad to see a requirement for State funds included in the proposal. We do not oppose the 75 to 25 ratio for a demonstration project.

However, when the League of Women Voters was developing its support for better coordination at the Federal level, league members deplored the differences in proportion of contributions and in required

repayment under programs handled by different Federal agencies. "Shopping around" for the maximum amount of aid seemed undesirable to league members because (a) it encourages delay in solving the problem for which Federal aid is sought and (b) it encourages choosing the solution for which most financial aid can be obtained. League members became convinced that variations in the amount of aid which can be offered under different programs distorted decisionmaking, reduced maximum benefits from the Federal investment, and are one factor in heightened interagency competition.

In recent years we have seen some tendency to limit Federal aid to 50 percent in a number of water programs, except where supplementation was provided for areas of great economic distress. Housing and Urban Development Act authorized public water and sewer facilities. For rural communities, the Rural Water and Sanitations Facilities Act offered up to 50 percent of construction, land easement, rights-of-way, and water rights costs necessary for construction and operation of rural water supply and sanitation systems. The Public Works and Economic Development Act also authorized 50-percent aid for needed public works in economically distressed areas, plus supplementation.

The league would like to see this 50-percent line held as demonstration and pilot operations move into full national programs.

I think that is the gist of what we wish to say to you today, and we do appreciate the opportunity to do it and the leadership of this committee.

If there is anything that you would like for me to respond to, I would be glad to do so.

Mr. BLATNIK. I would like to compliment you and your staff of associates working with you for a very orderly and logical statement and the very fine manner of presentation you made this morning.

You submit several recommendations on behalf of the League of Women Voters of the United States. I am also frankly relieved that you do not attempt to know all the answers and as arbitrary as some witnesses have been, with all respect to their deep conviction and sincerity.

In addition to recommendations you call attention to certain areas where you are not taking particular decision one way or the other. But you do suggest they require more study by the staff.

You raise some very thoughtful and very legitimate questions that ought to be looked into a little more thoroughly by the staff which we intend to do before we come up with the final judgment and have it written into legislative language.

I do not have any further questions. Any questions from members of the committee, any comments?

Mr. Clausen.

Mr. CLAUSEN. Thank you, Mr. Chairman.

Once again I want to welcome my almost namesake before this committee. I think that she has misspelled her name. And I am saying that facetiously?

But once again, Mrs. Clusen, you have given to the committee a clear demonstration of your independent thinking on behalf of the League of Women Voters. I am assuming that all of these recommendations have been filtered up upon the study groups that the league has around the country.

Mrs. CLUSEN. Yes. These are at least all based upon broad general discussions to which we have discussed and to which we apply the specific legislation in determining whether it follows within the criteria which they have established for us through discussion, yes.

Mr. CLAUSEN. I am particularly impressed, Mr. Chairman, with the sensitivity and the understanding that is demonstrated in this testimony by the witness in recognizing the problems that we on this committee face as far as the fiscal position.

Again it demonstrates the fact that you are presenting something that is reasonable, something that is realistic. And again you have made a great contribution to the work that we are trying to carry on in finding the right answer, hopefully and in realistic terms, one that can go forward with an understanding by people throughout the country to realize certainly that the implementation of a law has as much value as just the passage of the law.

So once again we are deeply indebted to you, Mrs. Clusen.

Mrs. CLUSEN. Thank you, Congressman.

Mr. BLATNIK. Congressman Denney.

Mr. DENNEY. Mrs. Clusen, I want to add my compliments to the other committee members for the work the league has done on this program.

As you so aptly stated, this is a real problem in the United States. And I think we must stand up and face this problem.

I want also to tell you that out of my State of Nebraska, we rely very heavily upon the Nebraska League of Women Voters, because they study these problems and they realize the legislative process.

RURAL AREA DEVELOPMENT

The only problem that concerns me is the recommendations made on page 4:

To bring about substantial reduction of the vast amounts of pollution many big cities discharge into their waterways, we favor channeling Federal and State funds into metropolitan areas for at least the three years of the present authorizations.

I recognize the original Federal water pollution control bill was aimed to help the small cities and the rural areas, and possibly it is the thought of the league that we should balance out the scale. But I still feel we are making tremendous progress in the rural areas and in our long-range program that we are relieving some of the metropolitan areas of their impacted areas, and we will probably have to continue to take citizens out in the rural areas. So would you have any objection if we continued the grant-in-aid programs in the rural areas and try and work out something more in line with the needs of the big cities at this time?

Mrs. CLUSEN. Decidedly not. I think this is the very reason why we support this part of it, is because we think it does balance out as a counterpart.

And is it not also within the scope of the legislation for the committee in some way to define metropolitan areas almost in any way it desires?

Mr. DENNEY. It defines metropolitan areas 125,000. We have two cities in our State that reach that. We are vitally concerned about the

other program. We have done a tremendous job out there in sewage treatment plants, and we do not want to stop the program.

Mrs. CLUSEN. We certainly agree with you.

Mr. CLAUSEN. Will the gentleman yield?

Mr. DENNEY. Yes.

Mr. CLAUSEN. Following that line of comment, there is one thing that we in the committee are very much concerned about, and I think many Members of Congress have expressed their concern over what I think are dangerous population trends toward urbanization in the country. And we feel there might be an opportunity through this legislation to reverse a part of this trend. And that is the one area of your testimony that I might have a little bit concern about, and that is whether or not we should be advancing the opportunity for just the urban areas to improve their sewage treatment works, possibly at the expense of the rural areas. And if I drew the trends for the next decade in this country somewhere along the line, we have got to move away from the megalopolis trends, and hopefully redistribute the population throughout the country, because we know we have 70 percent of the people living on 1 percent of the land.

This is not a very good balance by any standard. Would you see any reason why we should not take whatever opportunities we might have legislatively, such as this vehicle, to improve the ability of small communities to have the necessary facilities—and this of course requires funding—in order to permit them to accommodate industry, hopefully to decentralize part of this country?

Mrs. CLUSEN. I certainly do agree with your basic philosophy. And I am very interested in your statement that this could perhaps be used as a method of decentralization. I confess that we had not thought of it.

Of course you know the league would have preferred the grants-in-aid program as it was if full appropriation could have been done. And I think this would have done exactly what you would most like to see done in rural and urban areas.

But failing that, it seems to us that under this method this might be a way of balancing out what has happened in the grants-in-aid program. But certainly we are in agreement with your philosophy about this. Certainly in defining what areas are covered by this, we know the committee will exercise its best judgment on what is needed most.

Thank you.

Mr. BLATNIK. Thank you very much, Mrs. Clusen.

Mrs. CLUSEN. Thank you.

Mr. BLATNIK. Next we have a representative from the National Association of Counties, Mr. Bill Basford of Jacksonville, Fla., accompanied by our good friend C. D. Ward, executive director, from the Washington office.

Mr. Ward, would you want to give any preliminaries?

STATEMENT OF WILLIAM BASFORD, JACKSONVILLE, FLA., NATIONAL ASSOCIATION OF COUNTIES, ACCOMPANIED BY C. D. WARD, GENERAL COUNSEL

Mr. WARD. My name is C. D. Ward, and I am general counsel for the National Association of Counties. I am accompanied by our wit-

ness, Commissioner Bill Basford of Duval County. Mr. Basford has the distinction of holding two offices at the same time which perhaps he can articulate before you at this time.

Mr. BASFORD. I am very, very pleased to have this opportunity to be here on something that is very, very near and dear to me.

I have been wrestling with it on the local level for quite some time. I was a member of the legislature in 1963 and we had a Select Committee on Water Resources to make a study in regard to some of the very things that are facing you right now.

We found in Florida approximately 16 million gallons per day of raw human waste was being dumped into our rivers and streams. This did not take into account industrial waste and did not account for the farm problem or poisons or pesticides.

The shocking thing was that here I was, house member from Duval County, and found that out of this 16 million gallons, Jacksonville was dumping 15.2 million gallons a day of this total amount from our municipality. This followed through the next term, I was on the conservation committee again, and I found the problem of such a magnitude that I ran for county commissioner then. And I know Mr. Clausen understands my problem as a former commissioner himself.

We have attacked this on our local level and I want you to know that my message includes that, that we too are aware and are working hard on this and we are participating.

Duval County itself has undertaken a project which over the next 5 or 10 years, out of local funds, will probably equal the total amount of your annual appropriation from Congress to the Water Pollution Control Administration.

So we are all trying to become partners in this thing, and we are very, very delighted that the programs that you present to us on the basis of self-help, encouraging self-help.

But you go into a community such as ours, which exceeds a half million people, and I found as county commissioner that we have over 109 independent water and sewer systems throughout our community, not counting the Jacksonville municipal system. And we faced something not too long back, we found out we had no regulatory powers over rates, water standards, and this thing which really gave the commission an effective opportunity to protect the public and to have some control.

So we went to the legislature for a special act to give us this power, set up health standards, and to spend moneys to regulate, and this sort of thing.

Well, immediately our companies started raising their rates in anticipation of future control. Many of them were bought up by outside interests. I read with some alarm that the president of a large national and international utility company, which is one of the owners in our area, the president made a speech in which he said very boastfully, encouraging apparently businessmen to go into communities and buy these systems, that the profit was not in operating the system but the profit was in selling them back to municipalities at future larger dollars, particularly after they had been able to inflate their rate base and cost of replacement though engineering reports and this sort of thing.

Jacksonville and Duval County, and I will explain that, we have consolidated our governments recently. And I will be a councilman in the new consolidated government and it is going to be faced with purchasing these antiquated, worn-out smaller systems at very, very big dollars in the near future.

This is where you have been so helpful to us because when we undertook our new program a couple of years ago, we had been able to receive some assistance from the Federal Government to help us go. We have a master sewer program where our county and city had cooperated through the same engineers to bring about something, and so now we are truthfully undertaking the purpose and the principle and the philosophy behind this act which you have previously passed and are now considering amendments.

There are some communities which do not have this problem. Congressman Cramer's home community of Pinellas, back in 1927 started working on this. And now they have a completely municipally owned county-wide water and sewer system.

I was using your name, Congressman Cramer. I hope you do not mind. I said your community started back in 1927 and 1928 working on this municipal county water and sewer countywide system.

Today, my mission is to represent the National Association of Counties, and I am not officially speaking for the League of Cities at this time.

Mr. CRAMER. Mr. Chairman, I was hoping to have the opportunity of welcoming Bill Basford before the committee. But, as he does in his business, I was called to an urgent telephone call. I do want to welcome you before the committee.

(Mr. Edmondson assumes the chair.)

Mr. CRAMER. I understood you were appearing. I am particularly proud that you are appearing on behalf of the National Association of Counties.

Having been a county attorney myself for a couple of years, I will be very much interested in what you have to say.

Mr. BASFORD. I am sure you were on the phone at the time. I was trying to point out that I was proud that in my statement that your country was one that undertook to meet this problem many years ago, and it worked along on it, and I sure wish Duval had been able to pay for its systems at the dollar values that your community did.

I am sure while you were county attorney you were involved in this actively and contributed very much to it. I am very happy about that.

Our statement is several pages long, but the first two or three pages are somewhat window dressing, and to also point out some programs we have undertaken in cooperation with our membership counties of over 3,000 throughout the country.

If you like, I will skip over to the second paragraph on page 3 and cover it from there.

(The prepared statement of Mr. Basford follows:)

STATEMENT BY WILLIAM BASFORD, COUNTY COMMISSIONER, DUVAL COUNTY, FLORIDA; CHAIRMAN, COMMITTEE ON AIR AND WATER POLLUTION CONTROL, NATIONAL ASSOCIATION OF COUNTIES

Chairman, Members of the Committee, my name is William Basford, County Commissioner, Duval County, Florida. I am Chairman of the National Association of Counties, Committee on Air and Water Pollution Control, and represent our nation's 3,000 county government's here today.

This Committee is, of course, very familiar with the increasing role of county government in water pollution control. We have, in the past advised this Committee on the special activities of our Association in trying to encourage and assist counties to initiate, improve or expand their own water pollution control programs.

In many areas, counties are in the forefront of new developments in water pollution control. This is evidenced by the fact that over half of the grants made in the first seven months of 1967 for the development of advanced water treatment methods were made to county governments.

Because sewage collection and treatment is recognized as an area-wide problem which should be solved on an area-wide basis, the National Association of Counties (NACO) has developed a water pollution control program designed to help counties across the nation undertake effective sewage collection and treatment programs. The project funded in part by a demonstration grant from the Federal Water Pollution Control Administration involved the publication of a Guide for Public Officials called *A Community Action Program for Water Pollution Control*. The Guide explains how counties can help in the fight against water pollution. Its primary purpose is to show counties, which are presently hamstrung by inadequate state legislative authority, how to secure enabling legislation which will permit them to provide sewage collection and treatment services. The Guide also shows counties how they can plan and develop countrywide programs, how to finance them, where to turn for financial and technical assistance, and how to secure community support for sewage treatment programs.

During the past two years NACO has been conducting a series of state clean water institutes in cooperation with state associations of counties and interested state organizations to stimulate state action programs for water pollution control and to help the county governments in their respective states secure the necessary enabling legislation which will permit them to provide sewage treatment services and facilities.

Many of our state clean water institutes led to the eventual passage of state enabling legislation permitting all of the county governments to provide sewage treatment facilities in all areas of the county requiring service. The Association of Oregon Counties secured passage of a County Service District Law enabling counties to provide sewage collection services in areas outside cities. The Maryland Legislature passed a bill authorizing the governing board of each county in the state to develop comprehensive plans for water supply and sewerage systems throughout the county, including areas within municipalities. This bill gives counties full responsibility for providing sewage collection and treatment facilities in all areas requiring service and many projects are under way.

To date, NACO has conducted clean water institutes in 35 states and will conclude the project by July 1 of this year. We envision the continued expansion of county programs for sewage treatment and water pollution control and look forward to more counties in more states participating in programs and projects supported by F.W.P.C.A. and related grant projects.

We feel that our Association's concern for and commitment to an effective nationwide water pollution control effort is very evident. It is therefore particularly difficult for us to question any approach which would provide us with additional financial assistance to combat water pollution.

However, it is not possible for us to endorse the financing proposal contained in H.R. 15907. The heart of the issue is that such action could establish a principle and a precedent which would jeopardize the tax exempt feature of state and local government bonds. If these bonds could retain their tax exempt feature, it would be most likely that we could endorse the proposal.

We appreciate the well-intentioned motivation for this proposal and we certainly do not see it as an effort on the part of any of the authors to jeopardize or attack the exemption. Rather we see it as an attempt, through new financial arrangements to meet what is indeed a very severe crisis. However, we are compelled to spell out our reservations. In effect what the proposal is doing is requiring the local governments to assume not only their share of the bonded indebtedness for water pollution control facilities, but that of the Federal Government as well. If counties had the same ability to raise their debt limitation as does the Federal Government, one aspect of the problem would not be so difficult. Unfortunately, not only must counties get approval from the state to raise often unrealistically debt limits, but sometimes a state constitutional amendment is required. Since we must operate under this restricted financial limitation, we are faced with the problem of assigning priorities to the many pressing needs of our counties. Water pollution control, of course, ranks among the most press-

ing needs in thousands of areas. However, the suggested procedure would preclude many counties from proceeding to deal with other problems within the community. They would be lacking in the necessary debt authority for other public purpose projects. One could say that the option is still with the county and if they did not desire to assign such a high priority to water pollution control, they need not do so. However, by virtue of the fact that some local governments will be able to receive straight grants, (\$225 million requested for fiscal 1969), such communities won't be confronted with such a problem, while others will.

Perhaps the most vexing problem is the overall effect upon the tax exempt feature of our bonds. It is our contention the exemption is a constitutional one and not statutorily granted. Consequently, the question is raised as to whether local governments can waive the constitutional right of the holder of a state and local government bond to receive the interest from the bond, exempt from Federal taxation. If we accept an affirmative answer to that question, then we could find ourselves disavowing our position as to the constitutional exemption!

There are other problems connected with the proposal which we understand will be brought out in other testimony. We do not wish to appear to be entirely negative and would now like to turn to what we propose as alternatives.

We believe there are two approaches that this Committee should consider in order to meet local government's serious difficulties with the present legislation. Either approach, would, we think, remove the grave difficulties we have with the bill.

The first approach would provide that the Secretary's contract authority would be limited to the federal financial share of the project.

The present bill, for example, provides that if a water pollution control facility is to cost \$1,000,000, and the Federal grant is to be 30%, the entire \$1,000,000 is secured by the sale of federally-guaranteed taxable bonds issued by the state or local government. The Federal Government will pay the principal and interest on \$300,000 plus the subsidy to the local government to compensate for the higher interest rates necessary because the issue is not tax exempt.

Our proposal would require state or local governments to issue only \$300,000 in federally-guaranteed, taxable bonds, the entire amount of principal and interest to be paid by the Federal Government. In effect the state or local government would be a conduit for the Federal Government. However, for bookkeeping purposes, the bonded indebtedness would be that of the state and local government.

Under this proposal, the state or local government would be free to raise its own share of the project cost, i.e. \$700,000, any way they choose, most likely, of course, by issuing their regular tax exempt bonds. There would be no need for the Federal Government to subsidize the interest rates of the local government share. The principal, and the lower interest rates on tax exempt bonds in the amount of \$700,000 would be the obligations of the local government. The full faith and credit of the local government would guarantee this portion of the bond.

We believe this proposal would accomplish everything the Administration has advocated. It would guarantee an increased effort by both federal and local government in the vital area of water pollution control, it would not add to the national debt, and the Federal Government would not be guaranteeing tax exempt bonds.

Our second alternative proposal is made with the realization of this nation's serious fiscal problems, but with the fervent hope that soon it would be possible for Congress to consider it.

REVENUE BOND FINANCING

We would propose that a national fund be created by the Federal Government and that monies for this fund be obtained by the issuance of a new type of Treasury obligation that might be called a Federal Revenue Bond. These bonds would be secured by the revenue from two sources. The first, and initially by far the largest, source would be the annual congressional appropriation from Congress. The second revenue source would be the annual principal and interest payments by cities, counties, and states into the fund.

BORROWING BY CONTRACT

A city or county that by its own volition (or as the result of a court order) desiring to build a sewerage treatment plant would then be able to borrow the

total amount needed for the plant from this fund. In exchange, the city or county would enter into a contract with the fund agreeing to pay back the principal and interest on the amount they borrowed. This is based on the assumption that the Federal Government would continue to put up a portion of the money as its part of the national obligation to clean up streams. In effect, we are substituting direct annual appropriations for a new type of revenue bond financing.

ADVANTAGES OF THE PLAN

1. From the point of view of the Treasury, this type of bond financing should be preferable to the present arrangement. Bonds sold by the Federal Government to provide funds for the program *would be taxable* by the Federal Government. This would, of course, also include the portion of the funds repayable by the city or county.

2. This plan would also remove a very great strain on local government financing in the municipal bond market. As you know, our cities, counties, and states are going increasingly to the municipal bond market for schools, airports, and a host of public purposes. This proposal would tend to remove a very significant portion of these demands from the municipal bond market which is already greatly strained.

3. From the point of view of localities, we feel that in many places this would be a giant step forward because it would apparently bypass state and local restrictions in most places which require a referendum and which are prohibited in many cases because such communities are at or near their constitutional and statutory debt limits.

I have appreciated the opportunity of presenting our views and I will be pleased to try and answer any questions you might have.

THE "WATER QUALITY IMPROVEMENT ACT OF 1968"

Mr. BASFORD. We feel that our association's concern for and commitment to an effective nationwide water pollution control effort is very evident. It is therefore particularly difficult for us to question any approach which would provide us with additional financial assistance to combat water pollution.

However, it is not possible to us to endorse the financial proposal contained in H.R. 15907. The heart of the issue is that such action could establish a principle and a precedent which would jeopardize the tax-exempt feature of State and local government bonds. If these bonds could retain their tax-exempt feature, it would be most likely that we could endorse the proposal.

PURPOSE OF PROPOSAL APPRECIATED

We appreciate the well-intentioned motivation for this proposal and we certainly do not see it as an effort on the part of any of the authors to jeopardize or attack the exemption. Rather we see it as an attempt, through new financial arrangements to meet what is indeed a very severe crisis. However, we are compelled to spell out our reservations. In effect what the proposal is doing is requiring the local governments to assume not only their share of the bonded indebtedness for water pollution control facilities, but that of the Federal Government as well. If counties had the same ability to raise their debt limitation as does the Federal Government, one aspect of the problem would not be so difficult. Unfortunately, not only must counties get approval from the State to raise often unrealistically debt limits, but sometimes a State constitutional amendment is required.

Since we must operate under this restricted financial limitation, we are faced with the problem of assigning priorities to the many press-

ing needs of our counties. Water pollution control, of course, ranks among the most pressing needs in thousands of areas. I might mention here that in a recent poll in our community, checking on individuals opinions on issues of primary importance, the latest one I saw listed pollution along with education, second only to Vietnam.

COUNTY DEBT LIMITS

However, the suggested procedure would preclude many counties from proceeding to deal with other problems within the community. They would be lacking in the necessary debt authority for other public purpose projects. One could say that the option is still with the county and if they did not desire to assign such a high priority to water pollution control, they need not do so. However, by virtue of the fact that some local governments will be able to receive straight grants, \$225 million requests for fiscal 1969, such communities won't be confronted with such a problem while others will.

TAXABLE STATUS OF BONDS

Perhaps the most vexing problem is the overall effect upon the tax exempt feature of our bonds. It is our contention the exemption is a constitutional one and not statutorily granted. Consequently, the question is raised as to whether local governments can waive the constitutional right of the holder of a State and local government bond to receive the interest from the bond, exempt from Federal taxation. If we accept an affirmative answer to that question, then we could find ourselves disavowing our position as to the constitutional exemption.

There are other problems connected with the proposal which we understand will be brought out in other testimony. We do not wish to appear to be entirely negative and would now like to turn to what we propose as alternatives.

TWO ALTERNATIVE APPROACHES

We believe there are two approaches that this committee should consider in order to meet local government's serious difficulties with the present legislation. Either approach, would, we think, remove the grave difficulties we have with the bill.

(1) Limit contract authority to Federal share

The first approach would provide that the Secretary's contract authority would be limited to the Federal financial share of the project.

The present bill, for example, provides that if a water pollution control facility is to cost \$1 million, and the Federal grant is to be 30 percent, the entire \$1 million is secured by the sale of federally guaranteed taxable bonds issued by the State or local government. The Federal Government will pay the principal and interest on \$300,000 plus the subsidy to the local government to compensate for the higher interest rates necessary because the issue is not tax exempt.

Our proposal would require State or local governments to issue only \$300,000 in federally guaranteed, taxable bonds, the entire amount of principal and interest to be paid by the Federal Government. In effect

the State or local government would be a conduit for the Federal Government. However, for bookkeeping purposes, the bonded indebtedness would be that of the State and local government.

Under this proposal, the State or local government would be free to raise its own share of the project cost; that is, \$700,000, any way they choose, most likely, of course, by issuing their regular tax-exempt bonds. There would be no need for the Federal Government to subsidize the interest rates of the local government share. The principal, and the lower interest rates on tax exempt bonds in the amount of \$700,000 would be the obligations of the local government. The full faith and credit of the local government would guarantee this portion of the bond.

We believe this proposal would accomplish everything the administration has advocated. It would guarantee an increased effort by both Federal and local government in the vital area of water pollution control, it would not add to the national debt, and the Federal Government would not be guaranteeing tax-exempt bonds.

(2) *Federal revenue bonds*

Our second alternative proposal is made with the realization of this Nation's serious fiscal problems, but with the fervent hope that soon it would be possible for Congress to consider it.

We would propose that a national fund be created by the Federal Government and that moneys for this fund be obtained by the issuance of a new type of Treasury obligation that might be called a Federal Revenue Bond. These bonds would be secured by the revenue from two sources. The first, and initially by far the largest, source would be the annual congressional appropriation from Congress. The second revenue source would be the annual principal and interest payments by cities, counties, and States into the fund.

A city or county that by its volition—or as the result of a court order—desiring to build a sewerage treatment plant from this fund. In exchange, the city or county would enter into a contract with the fund agreeing to pay back the principal and interest on the amount they borrowed. This is based on the assumption that the Federal Government would continue to put up a portion of the money as its part of the national obligation to clean up streams. In effect, we are substituting direct annual appropriations for a new type of revenue bond financing.

Advantages of the plan. 1. From the point of view of the Treasury, this type of bond financing should be preferable to the present arrangement. Bonds sold by the Federal Government to provide funds for the program would be taxable by the Federal Government. This would, of course, also include the portion of the funds repayable by the city or county.

2. This plan would also remove a very great strain on local government financing in the municipal bond market. As you know, our cities, counties, and States are going increasingly to the municipal bond market for schools, airports, and a host of public purposes. This proposal would tend to remove a very significant portion of these demands from the municipal bond market which is already greatly strained.

3. From the point of view of localities, we feel that in many places this would be a giant step forward because it would apparently bypass

State and local restrictions in most places which require a referendum and which are prohibited in many cases because such communities are at or near their constitutional and statutory debt limits.

I appreciated the opportunity of presenting our views, and I will be pleased to answer any questions that I may.

Mr. EDMONDSON. I would like to compliment you on a very fine statement. I do not blame you folks for fighting for this tax-exempt bond. I think it is very vital to local government.

I think you have made a very persuasive and effective argument for it.

I would yield further questions to our senior Republican member of the committee.

Mr. BASFORD. A man I admire very much.

Mr. CRAMER. Thank you very much, particularly for the latter comment.

Mr. BASFORD. That is from a Democrat, by the way.

Mr. CRAMER. Doubly thank you.

INTEREST RATE

I do think you have made a very interesting contribution. What limitations do you have in Duval on the interest rate to be charged for your bond issue?

Mr. BASFORD. We have not had any problems as far as limitation on the interest rate. The latest bonds that we issued were for this motor vehicle safety provision for our automobile inspections and the net bid that was awarded on that the other day was \$1.2 million and was 4.80069, which we thought was very favorable.

Mr. CRAMER. What statutory limitation do you have, if any?

Mr. BASFORD. I cannot tell you. I do not know. I do not recall.

DEBT LIMITATION

Mr. CRAMER. What is your debt limitation? You mentioned that on page 4.

Mr. BASFORD. I was speaking generally for the National Association of Counties there; because in some instances they have—other States are different from Florida. We have a constitutional prohibition against our full faith and credit behind our bonds. Ordinarily we are either provided for authority through statute or we get statute referendum, and it would be limited to whatever is provided there.

USER CHARGES

Mr. CRAMER. Generally your water user-type charges are to be repaid, right?

Mr. BASFORD. We have a problem in communities, I think, throughout. Some communities provide free services in sewers, particularly most time the water is paid for. We are encouraging at home, for instance our Jacksonville municipality has not been charging, and they keep telling people they have got free garbage and free sewer service. We know this is not true. You do not get your bread free in a grocery store. It is either going to come out of an ad valorem tax or another source of revenue.

We are advocating that we concur wholeheartedly that you are right in putting into this act to bring about service charges for these facilities. We certainly agree.

GRANTS VERSUS BOND APPROACH

Mr. CRAMER. On page 4 you discuss straight grants versus the bond-issue approach under this bill. As the bill is drafted, the entire \$700 million could be used for bond issue purposes. So actually this could be a hidden way to do away with all grants for sewage treatment and substitute bond issues.

What would be your reaction to that?

Mr. BASFORD. I mentioned in the statement that we would like to see the grants continued as much as within, you know, that it is financially possible on the part of Congress and the Federal Government.

We are suggesting that this would certainly encourage more self-help and more local participation financially. And I am not sure that I could speak on behalf of the association in regard to their policy. I do not think they would want me to say that I would concur that you should do away with the grants.

CONSTITUTIONAL BASIS OR TAX EXEMPTION

Mr. CRAMER. I think you make a very interesting point on whether or not the tax exemption of a city bond is a constitutional right, or whether it could be revoked statutorily through this procedure. It has always been my impression that this has been a constitutional right.

Mr. BASFORD. Thank you, sir. We concur with that.

Mr. CRAMER. And that local communities should not be hamstrung or hampered by Federal legislation restricting their issuing of tax-exempt bonds.

Mr. BASFORD. That is right.

Mr. CRAMER. And I think this question of whether it is a constitutional right ought to be given some very exhaustive legal research by this committee before even giving any consideration to it on tax-exempt bonds.

USER CHARGE REQUIREMENT AND RESERVE FUND

Mr. EDMONDSON. Would the gentleman yield for a question relating to this bill on the requirement for user charges?

Mr. CRAMER. Yes.

Mr. EDMONDSON. Did I understand that the witness said he accepted the language of H.R. 15907 on that subject which appears on page 6?

Mr. BASFORD. Yes, sir. I read it. And the only thing I disagree with is I think the part which allows the Secretary to waive, that should be taken out. I think it should be required. I do not think that is the—I do not believe the philosophy of the act overall is consistent with allowing these moneys to be provided to a system that is not passing the cost of operation and expensing of it back to the customer.

This is very inconsistent with my personal economic philosophy at least.

Mr. EDMONDSON. Do you believe the National Association of Counties would go along with this authority for the Secretary to determine "that the appropriate local public body having jurisdiction over the treatment works has established or agreed to establish (i) a system of charges for the treatment works service area which will be adequate to enable it to be operated in a businesslike manner capable of amortizing treatment works costs together with operation and maintenance costs, and (ii) a reserve to meet, to the greatest extent possible, expansion or replacement requirements of the treatment works service area."

Do you believe the National Association of Counties would be prepared to accept that double requirement by the Secretary?

Mr. WARD. Mr. Edmondson, we would certainly prefer not to have to accept that. As you know, we accept an awful lot of things to get Federal money. This might have to be one of them; but we would prefer not to have that stringent requirement built into the bill itself.

Mr. EDMONDSON. Well, I have spoken to the second part of it, but it is a package proposition.

Mr. BASFORD. I concur personally, because I realize that one of the problems Congress has is turning loose tax dollars to local officials and local people without proper controls to see these things are honestly applied to the purpose for which it is intended. As C. D. said, I am sure local government would not prefer to go quite this far in the bill. If this is the price of getting good proper pollution abatement and to provide sewer treatment facilities at this early date, yes. As an individual I would concur and as a county commissioner. I cannot say this would be the position or philosophy of the National Association.

Mr. WARD. From official policy of the National Association of Counties, we do desire to have as much flexibility in receiving these Federal funds as possible. And we would prefer that this type of structure not be built into the bill.

Mr. EDMONDSON. Thank you.

Mr. CRAMER. On that point, of course, we have had considerable testimony in opposition.

Mr. BASFORD. I am sure you have.

Mr. CRAMER. To the whole proposition of the Federal Government saying that if you are going to use Federal money, and you pay 30 percent Federal, for instance, it is going to be 70 percent local, because of the 30 percent Federal Government tells them they have to use user charges and user charge has to be sufficient to include also future maintenance and improvements. And so we have had a lot of opposition to that from the standpoint that a lot of the communities do not use that method in the first place.

Mr. BASFORD. I think that our obligation as public officials, both yours and mine, goes to this extent, that we in appropriating moneys from the public Treasury so to speak have a responsibility to see that we do not get all screwed up on this—who pays for what? I do not think it is fair for me to receive sewer services at my house and have Joe Doakes down the street paying it out of his business establishment by ad valorem taxes.

I concur with you wholeheartedly on that.

Mr. CRAMER. If you can make that decision locally, finé. I do not want the Federal Government dictating that for each community must be the condition.

Mr. BASFORD. Our new philosophy in the new government is that user charges will be paid.

FEDERAL REVENUE BONDS

Mr. CRAMER. I just have one other question due to the time problem. You make a very interesting observation on page 7 in your alternative plan, paragraph 1, advantages of plan, second sentence:

Bonds sold by the Federal Government to provide funds for the program would be taxable by the Federal Government.

In other words, I gather it is your observation that if they like this nonexempt bond approach, let the Federal Government go into it, not force the local communities into it. That is the point you are making, is it not?

Mr. BASFORD. Yes, sir.

Mr. CRAMER. I just do not think the Treasury would go for that. I think they would change their mind about the tax.

Mr. EDMONDSON. The gentleman from Texas.

POLLUTION FROM FEDERAL INSTALLATIONS

Mr. ROBERTS. I have one question that would relate to the pollution contributed to our problem down there by the Federal Government. What about your defense establishments and so on? What percentage are they contributing in the polluting, and what are they paying for?

Mr. BASFORD. Yes, sir. This is an interesting point. We have been assured continuously, particularly during our legislative hearings when I was in the legislature that our local military establishments have very modern up-to-date treatment facilities. Recently our water and air pollution control commission cited these establishments. We found that two of them were very, very offensive—the Naval Air Station, and also we have these carriers based at Mayport, you know, which do not treat their facilities. And they are working on a plan now whereby there may be some system of transferring this effluent and waste to a ground establishment from these ships.

They are completely trying to cooperate; but, yes, sir, there is a tremendous amount being contributed by them in our particular community, but I did not want to get too involved in just my local problems because I am supposed to be representing 3,000 other governments here today. I want to try to represent them here too.

Mr. ROBERTS. I think in many cases, Mr. Chairman, the Federal Government has contributed to the pollution without any effort to control its own waste. I wanted to bring that point out.

Mr. BASFORD. Thank you, Congressman Roberts.

RETIREMENT OF CLARENCE DOANE

Mr. EDMONDSON. Before I recognize the next member for questions—and there are several other questions—I would like to take this

opportunity as one I appreciate having a chance to exercise to call the attention of the members of the committee to the fact that one of our ablest and most effective members of the committee organization, the gentleman who has handled our Government Printing Office problems for about 15 years, Mr. Clarence Doane, is preparing to leave the committee. And I think that his contribution to the reports and to the documents of this committee has been one that seldom has been noted or appreciated, but very deeply appreciated by all of us on the committee.

I know I speak for all the members of the committee when I say that I think he has played a very important role in seeing that the output of this committee is an excellent one in terms of printed material that comes out.

I want to wish Clarence and also his lovely wife Hilda many happy years in retirement. We hope that you will keep an eye on our printing and give us a fatherly bit of advice now and then even in retirement, because we value very much his work and his judgment and his effectiveness. [Applause.]

Mr. DOANE. Thank you very much. I sincerely appreciate that.

Mr. EDMONDSON. Mr. Cramer wants to join in the remarks.

Mr. CRAMER. I wish you many happy years in retirement and I hope you make a lot of holes-in-one.

Mr. DOANE. I am still shooting for them.

Mr. CRAMER. I appreciate very much the very fine work you have done in a very difficult field. I am sorry you are leaving. We are losing a very good man.

Mr. DOANE. I am sorry too. There comes a time.

Mr. EDMONDSON. We are going to miss you. We want you to know that. We appreciate you very much.

Mr. DOANE. I know that. Thank you.

Mr. EDMONDSON. Mr. Clausen.

Mr. CLAUSEN. Before I go into any questioning, I too want to amplify and commend the chairman for acknowledging the great service of this very fine gentleman, because I know that every member of the committee has observed him in his own quiet way working diligently and efficiently as a public servant could and is most appreciative of the fact that you have taken this time to record these remarks on the record during a very historic piece of legislation.

I thank the chairman for taking the time to acknowledge his great services.

Mr. DOANE. Thank you again.

DEBT FINANCING BILL AS VEHICLE TO ASSIST SMALLER COMMUNITIES

Mr. CLAUSEN. Mr. Basford, as you know, I am a member of fraternity of local government officials in California. We call them members of the board of supervisors. And I welcome your testimony very much.

Now, as most of the committee members know, and the people that have been present during the hearings, they are aware of the fact that the country needs to reverse itself on population patterns, and I think you were in the room when the previous witness heard my comments in this regard. I would like to have both you and Mr. Ward, if you will, give to this committee so that it will be placed on the record—

and frankly I would like to ask that if you would like to revise and extend afterward, I would ask that the Chair give you an opportunity to extend your remarks into the record at this point. And this relates of course to using this vehicle, this legislative vehicle we have before us now as an opportunity to permit the smaller communities in America and maximum opportunity to permit them to accommodate industry, hopefully to decentralize this country and provide for freedom of economic opportunity throughout the entire Nation, instead of continuing with this trend toward major urbanization, and in effect developing this megalopolis area that I think is costing fantastic sums of money because of this current method of financing.

And I wonder if you would direct—both of you—direct some of your remarks toward what I am trying to accomplish. I would like to have your point of view.

Mr. BASFORD. I would rather let Mr. Ward speak on this for the official policy of the association because I tend to get back to my personal philosophy too often on these things.

Mr. WARD. Thank you. Mr. Clausen, I would bring the committee's attention to the formation of a new group called the Town and Country Alliance which is composed of about 100 associations throughout Washington—labor, business, governments, and so forth, and it has as its purpose the development and formation of a policy to bring about a balanced urbanization in the country and try to formulate various programs—water pollution control, transportation, jobs, housing, and so forth, which can do just what you are talking about. One of the most startling facts we have come across is the fact that Paul Holsocker (?) indicated that if we are to maintain just the present level of the population in the ghettos today there has to be a top migration each year of 500,000 people just to stay where we are. The migration now is only 50,000. But the problem of devoting your attention to the core of the central city is not going to be the solution as we see it. There has to be a balance and we think we have to use every mechanism possible to bring this about. We are not trying to say we are trying to wrest Federal resources from one area to another area but to bring a standard into perspective.

Mr. CLAUSEN. Is it not true that this particular piece of legislation, would not this give us an opportunity to diversify the economy to broaden the economic base and in effect open the opportunity for many of the rural sections of this country to participate in a maximum economic growth? Do you see this as a possible vehicle to start to redirect this trend?

Mr. WARD. First of all, we wouldn't seek anything that would take away the emphasis that this particular program has on some of the very big cities where there is a fantastic need. Like Commissioner Basford says, they are going to be accepting in the next several years the total equivalent authorization for the entire Federal Government. But I think that any program should be considered, in the light of a balanced organization solely. I couldn't comment as to the figures of how it should be redeveloped or redefined or what percentages should be given.

Mr. CLAUSEN. This last question I would like to direct to you, Mr. Basford, in your capacity as a county official and I would like to have your viewpoint of it.

Mr. BASFORD. I will have to give you a different background. I called an areawide conference in regard to this matter back in October or November of 1967 because in Jacksonville we are not just involved in what our problem is in one county, in Duval County, because the St. John's River basin starts way down at St. Augustine and it has interstate aspects now. So we met our commissioners and both city officials and county officials and we were having a survey of all sections, even with the county just south of us, and we agreed to cooperate in our pollution control and the sharing of information, and the Jacksonville, Duval County Planning Board now serves three other counties. These are our stepbrothers and little brothers all around us there. So anything that would help them would also help us solve our complex urban problems by giving them assistance and making their places equally desirable to live in. They know that through transportation and other things that if they benefit we also benefit. In many places we have formed area groups of businessmen, of political leaders, and others not to deal with just one county or one municipality but with the whole area.

I do think, to answer your question, that this might be one of the ways—this vehicle might be one of the ways to accomplish your desired purpose and I think all of our purposes. We all feel that way.

Mr. CLAUSEN. Mr. Basford, I want to thank you for an excellent statement.

Mr. BLATNIK. Mr. Schwengel.

Mr. SCHWENGEL. I too wish to commend you for a fine statement and I think we will benefit from your testimony.

Mr. BASFORD. Thank you, sir. We hope to do a lot of business on our cross-State barge canal.

Mr. BLATNIK. Thank you, gentlemen.

The next witness is Mr. Jesse Calhoon of the AFL-CIO Maritime Committee. We are glad to welcome you before the committee, gentlemen.

OIL POLLUTION CONTROL

STATEMENT OF JESSE M. CALHOON, PRESIDENT, NATIONAL MARINE ENGINEERS' BENEFICIAL ASSOCIATION (AFL-CIO); ACCOMPANIED BY HOYT HADDOCK, EXECUTIVE DIRECTOR

Mr. CALHOON. Thank you, Mr. Chairman. I am Jesse M. Calhoon, president, National Marine Engineers' Beneficial Association (AFL-CIO), and I am accompanied by Hoyt Haddock, executive director of the AFL-CIO Maritime Committee.

At the outset, I wish to state on behalf of National Marine Engineers Beneficial Association (AFL-CIO), the union I am privileged to represent as president, and the AFL-CIO Maritime Committee, composed of the National Marine Engineers Association, the International Organization of Masters, Mates, and Pilots, the National Maritime Union, the International Association of Longshoremen, Great Lakes Seamen Local 5000 of the United Steelworkers of America, American Radio Association, and the Industrial Union of Marine and Shipbuilders Workers of America, that we recognize the many problems which are created by oil pollution of our navigable waters.

ADEQUATE LEGISLATION SUPPORTED

Needless to say, as representatives of seamen both licensed and unlicensed, we are aware of the need for adequate legislation in this area and will continue to support all reasonable efforts to eliminate or minimize the serious hazards created by oil pollution.

BILL WOULD SUBJECT SEAMAN WITHOUT FAULT TO CRIMINAL PENALTIES

We are concerned, however, that S. 2760, adopted by the Senate and now under consideration by the House, makes it a crime for any licensed officer or other seamen who may "discharge or permit the discharge of oil," and this goes to even one drop of oil, without the normal and usual requirement that such conduct be either grossly negligent or willful. Licensed officers are also subjected, under this proposed legislation, to the revocation or suspension of their licenses if they "discharge or permit the discharge of oil," again without the requirement that such conduct be grossly negligent or willful.

It should be observed that the Oil Pollution Act of 1924 recognized the principle that an essential element of the commission of the crime of "discharge" of oil is willful intent to commit the proscribed conduct or gross negligence. The 1924 act defined the term "discharge" as "any grossly negligent, or willful spilling, leaking, pumping, pouring, emitting or emptying of oil * * *" S. 2760 would eliminate such elements of willfulness or gross negligence.

The effect of the proposed legislation is that if a licensed officer or other seaman causes or permits the discharge of oil (absent a finding of certain exonerating emergency conditions) he is guilty of a crime despite the fact that he may be wholly without fault, despite the fact that the equipment aboard the vessel may be latently defective, unreliable, or obsolescent and despite the fact that the officer or other seamen may take all reasonable steps to prevent oil discharge. And, gentlemen, practically, every vessel in the world is built to discharge oil. They are designed that way.

We are certain that the Congress would not wish to impose such an intolerable burden on American maritime officers and other seamen who have a long history of loyal and dedicated service aboard vessels of the American merchant marine.

A brief analysis of the oil pollution control provisions of S. 2760 is in order.

The definition of "discharge."

Section 19(a) (7) of S. 2760 defines "discharge" as:

Any spilling, leaking, pumping, pouring, emitting, emptying or dumping oil.

Section 2(3) of the Oil Pollution Act of 1924 defines "discharge" as:

Any grossly negligent or willful spilling, leaking, pumping, pouring, emitting or emptying of oil.

The 1924 act definition thus differs in two respects from S. 2760 in that the former includes the qualifications "grossly negligent, or willful" and in that it does not include "dumping."

The report of the Senate Committee on Public Works (90th Congress, first session, report No. 9017) states that the terms "grossly negligent or willful" were eliminated because—

The question of liability is better left to the penalty provisions of the legislation. (P. 22).

The crime of "discharge."

Section 19(b) of S. 2760 defines the crime of "discharge" as follows:

Except in case of emergency imperiling life or property, or unavoidable accident, collision, or stranding, and except as otherwise permitted by regulations prescribed by the Secretary under this section, it is unlawful to discharge or permit the discharge of oil by any method, means, or manner into or upon the navigable waters of the United States or adjoining shorelines of the United States.

The 1924 act, section 3(a), provides:

Except in case of emergency imperiling life or property, or unavoidable accident, collision, or stranding, and except as otherwise permitted by regulations prescribed by the Secretary as hereinafter authorized, it is unlawful for any person to discharge or permit the discharge from any boat or vessel of oil by any method, means, or manner into or upon the navigable waters of the United States, and adjoining shorelines of the United States.

The only substantial difference between the two provisions is that the 1924 act makes it unlawful "for any person" to discharge, whereas S. 2760 eliminates the words "for any person." However, the elimination by S. 2760 of the terms "grossly negligent, or willful" from the definition of the word "discharge" would necessarily mean that under section 19(b) it is unlawful to discharge oil (except in case of emergency, imperiling life or property, or unavoidable accident, collision, or stranding) even where the conduct is neither grossly negligent or willful.

The Senate committee report on S. 2760 makes it perfectly clear that the intention of section 19(b) is to make the discharge of oil unlawful "regardless of fault." The report states as to 19(b):

The bill would make it unlawful for anyone to discharge oil into the waters . . . regardless of fault. The amended 1924 Act now prohibits only grossly negligent and willful discharges of oil. The bill, like the 1924 act, recognizes that there are exceptions to this general prohibition which should be recognized in applying a criminal statute. These are cases of emergency where life or property are involved, other than the property of the vessel or shore installation, or cases of unavoidable accident, collision, or stranding. Thus, the test under the bill is whether the vessel or shore installation discharged the oil and, if it did, whether the discharge was excusable under one of those exceptions. If the discharge did not come under one of the exceptions, then the discharge is unlawful.

REVOCATION OR SUSPENSION OF OFFICERS' LICENSES BY THE COAST GUARD FOR "DISCHARGE"

Not only would it be unlawful under S. 2760 for licensed officers or other seamen to "discharge" oil regardless of fault or negligence but the U.S. Coast Guard under section 19(g) may—

suspend or revoke a license issued to the master or other licensed officer of any vessel found violating the provisions of subsection (b) in this section.

The 1924 act authorizes the revocation or suspension of the licenses of ships' officers whose conduct in discharging or permitting the discharge of oil was either grossly negligent or willful. The effect of S. 2760 is not only to make unlawful the nonnegligent and nonwillful discharge of oil by a licensed officer or other seaman, but also to impose the additional penalty of revocation or suspension of licenses for such nonnegligent or nonwillful conduct.

CRIMINAL PENALTIES FOR "DISCHARGE"

Section 19(c) of S. 2760 provides for the punishment upon conviction of any owner or operator "or any employee thereof" for willful violation of the prohibition against discharging oil by a fine not exceeding \$2,500 and/or imprisonment not exceeding 1 year.

Under the 1924 act, section 4(a)—"Any person who violates section 3(a) of this act"—was subject to the same criminal penalties. However, as has already been noted, the criminal act there was based on either willfulness or gross negligence.

The Senate committee report on section 19(c) of S. 2760 specifically states that the criminal penalties could be applied to the "* * * master, officer, or other employee on board the vessel or an employee or agent working on or in a shore installation * * *." (P. 23.)

S. 2760 DISCRIMINATES AGAINST SEAMEN

There is nothing in the history of the application or enforcement of the 1924 Oil Pollution Act or in any of the studies or reports of Congress or of any agencies concerned with the problem of oil pollution that would warrant this extraordinary punishment of the officers and other personnel of vessels.

It is not suggested so far as we have been able to ascertain that there has been a pattern of flagrant disregard by such personnel of the requirements to avoid oil pollution of the waters. Shipowners and operators who may be responsible for causing oil pollution would under S. 2760 suffer certain financial penalties and costs and possibly imprisonment but there is nothing in S. 2760 which would exclude them from continuing in the operation of their business. On the other hand, offending licensed officers and other seamen, whether or not their conduct is negligent or willful, would be subject to the penalty of having their licenses or papers revoked or suspended, thus effectively depriving them of their means of earning a livelihood and also irrevocably blasting their seafaring careers.

This discriminatory approach of S. 2760 against seaman is compounded by the fact that under that bill an employee of a shipowner or operator working on a shore installation who may violate the prohibition against pollution by discharge of oil, even if convicted would not be deprived of his opportunity to continue working in the same capacity. Since such employee is not subject to Coast Guard regulation, as are seamen, he would not be subject to a revocation or suspension of license as would seamen. This is really placing the seamen in double jeopardy. Nor can it be gainsaid that the discharge of oil by shoreside installations can be more dangerous to the health and welfare of metropolitan communities and adjoining busy waterborne traffic than isolated instances of oil discharge from a vessel at sea.

The license of a marine officer and the papers of other seamen are legally indispensable to their employment as such. The temporary or permanent revocation of that license or papers outlaws such a person from the maritime officers' service. What appalls us is the very thought that the career of a licensed marine officer or other seamen with an otherwise splendid background of accomplishment and achievement in the service of the American merchant marine may be destroyed upon

a finding, as is permitted under S. 2760, that he "discharged or permitted the discharge of oil" where such conduct was neither negligent nor willful, and may have been caused by orders of the Federal Government.

POOR EQUIPMENT A MAJOR CAUSE FOR DISCHARGES

There are countless situations where a discharge of oil could occur with no negligence or willfulness on the part of a ship's licensed officer. The primary cause for such discharges is faulty or inadequate equipment installed or continued in operation by the shipowners and operators. And in many instances, the malfunctioning of such equipment is latent and cannot readily be discovered by the responsible ship's personnel.

I am not suggesting that ship's personnel be relieved from the consequences of negligent or wrongful discharge of their duties. I, and the labor organizations which constitute the AFL-CIO Maritime Committee, do however urge that before maritime personnel aboard a vessel in the American merchant marine are deprived of their jobs as seamen, under time-honored rules of equity and justice they must be found guilty of either gross negligence or willful intent to commit the prohibited conduct. American seamen including those who have made their career as licensed marine officers are entitled to no less under our enlightened system of justice.

While, as we have already stated, we recognize that the deliberate and willful discharge of oil by ship's personnel should be appropriately dealt with, it is our view that the remedies provided by the action of the U.S. Coast Guard in respect to such personnel is more than sufficient. The criminal penalties applicable under section 19(c) of S. 2760 should not be applied to such personnel. The suggested criminal penalties up to \$2,500 fine and/or a year in jail for seamen whose income, unlike that of the shipowners and operators, is solely derived from their salaried employment in the merchant marine would, in our opinion, constitute the kind of cruel and unusual punishment which is abhorrent to any civilized society. The ultimate sufferers from the imposition of such harsh criminal penalties would be the wives and children of these seamen whose very economic existence in practically every instance depends wholly on the employment of the head of the family.

Mr. Chairman, I think Mr. Haddock has some further statements.

Mr. HADDOCK. Mr. Chairman, I would just supplement Mr. Calhoon's remarks briefly.

AMERICAN MERCHANT MARINE 80 PERCENT OBSOLETE

First of all, the committee should know that 80 percent of the American merchant marine is currently obsolete. Yet the licensed officers and certificated seamen are required to operate these ships. The fact that they are obsolete in itself sets forth conditions which could very well permit contamination of coastal and inland waters over which merchant seamen obviously could have no control. We think this needs to be taken into consideration with respect to this kind of legislation.

In discussing this earlier, Mr. Calhoon observed that nearly all of the spillage of this oil that comes to the public's attention, that is the

large amounts of oil that are spilt, almost invariably come from American-owned foreign-flag ships—ships which are not operated by American personnel, if you will. We think this question ought to be well in the minds of this committee.

Also, it seems to us that this is a good place for the Congress to at least set the tenor to indicate that people who operate equipment are not responsible for the failures of that equipment. Certainly, insofar as seamen are concerned, they pay particular attention to the equipment they operate because their lives depend upon it. However, as pointed out with respect to the obsolescence of the equipment, there are other built-in features of equipment over which they have no control or no knowledge. Latent obsolescence of equipment or latent defects which show up in equipment obviously merchant seamen can't be responsible for. Yet in the past the tendency has always been to blame the man and not the equipment. We should certainly like to see this committee reverse this trend and put the onus where it should be.

INLAND WATERWAYS EQUIPMENT NOT REGULATED FOR SAFETY

Now a very large segment of our transportation system, the inland waterways equipment is the only segment of our transportation system that is not regulated for safety. Neither the personnel nor the equipment are covered under safety regulations. Certainly this is perhaps the most vulnerable section of our entire industry when it comes to the question of polluting or endangering lives. Some of you are familiar with equipment knocking out bridges and disrupting other forms of transportation endangering entire water supplies of various cities or, if you will, endangering the entire lives of large cities on our rivers and inland waterways through the failure of equipment or failure to have competent personnel on the ships. It doesn't make any difference how competent the personnel is on the ship. If you don't have safe equipment you have a gap in your safety insofar as the public is concerned. You must have safe equipment and safe workmen going together to make this possible.

Mr. BLATNIK. Mr. Schwengel.

Mr. SCHWENGEL. Mr. Chairman, at this point I would like to ask whether or not there is anything in your agreements or contracts with the owners of the ships equipment about standards so that your men would not be required to man these ships which are dangerous and inadequate and do not meet certain standards.

Mr. HADDOCK. All of the maritime unions have clauses in their contracts dealing with safety conditions, and there are many instances where seamen simply refuse to sail on vessels because they consider them unsafe. However, there are many conditions that would be shown up through Coast Guard inspection of vessels that are not now inspected if they were required to be inspected such as the inland waterways. Obviously the average seaman is not an expert in safety. While he may know his job in the particular equipment he works with, the overall hull and configurations and placement of machinery, and so forth, are quite technical engineering problems and require expert people to deal with it. And this is one of the reasons of course why the Coast Guard is required to inspect our deep sea vessels and one of the reasons why they should be required to inspect our inland ves-

sels, also. There is a quirk in the law here that has brought about this situation. These vessels were covered by law while they were steam vessels, but they are no longer steam vessels. They are now diesel vessels or gas vessels or turbine vessels, so that they are no longer inspected for safety.

Mr. BLATNIK. The gentleman from Nebraska has a question.

ACT NOT CRIMINAL IN ABSENCE OF INTENT

Mr. DENNEY. I agree with you gentlemen. I think that we are talking around the bush here: I, as a former prosecutor, and I would like the record to show I object to this kind of language for two reasons. I do not think any act is criminal unless it is done with intent to cause harm or is done intentionally. Secondly, I believe the way this law is written that you are referring to the Senate bill and not this H.R. 15906; that it places the burden upon the accused to prove he is innocent, and that is not true in America.

Mr. CALHOON. Mr. Congressman, it is even worse than that. Under subsection (g) it says:

The Commandant of the Coast Guard may subject to the provisions of section 4450 of the Revised Statutes, as amended (46 U.S.C. 239), suspend or revoke a license issued to the master or other licensed officer of any vessel found violating the provisions of subsection (b) of this section.

Subsection (b) merely says:

Except in case of emergency imperiling life or property, or unavoidable accident, collision, or stranding, and except as otherwise permitted by regulations prescribed by the Secretary under this section, it is unlawful to discharge or permit the discharge of oil by any method. . . .

One drop of oil you lose your license and no proof whether the equipment broke down or not.

Mr. DENNEY. Mr. Chairman, I want the record to show that I absolutely disavow that provision in this law as I do not think it is enforceable because I think you must set forth the criminal intent if you are going to have a criminal penalty.

Mr. BLATNIK. Well I think Mr. Haddock and Mr. Calhoon have made a very strong case, for amendment of this bill. It seems to me to be discriminatory on its face not only against the personnel of the ship but also against American seamen as opposed to the seamen on these other vessels who would not be subject to licensing by our own Coast Guard, if I understand the situation on these foreign flag ships.

Mr. CALHOON. That is absolutely correct, Mr. Chairman.

Mr. BLATNIK. I think it is one item you can be quite sure will be worked over very thoroughly by this committee, gentlemen.

Mr. McCarthy.

Mr. MCCARTHY. Mr. Chairman, I wonder if I could ask Mr. Haddock a question. Regardless of where the fault is placed you still have a tremendous problem here and the present law is not working. Now you have said, Mr. Haddock, that we should put the onus where it should be. Now, we have got to tackle this. Where do you suggest we move if it is not to the seamen?

SHIP DESIGN

Mr. CALHOON. May I address myself to that. I think the onus should be beginning on the American ships with the design of the ships.

Every American ship and every foreign ship—every ship in the world is so designed that in case there is an oil spillage or leakage in any ship it goes overboard. Equipment on the ships are so designed—we'll take heat transfer agents, lube oil coolers, they are so designed that if the tube ruptures or breaks and there is a leakage, there is oil leaking into the water and not water leaking into the oil. All of the overflows, all of the spill valves in the ship are on the outboard side of the ship. So if there is any spillage it goes into the water and not in the ship. So a big problem could be overcome in ship design. Every tank on a ship, and you take an average freight ship runs 25 to 50 fuel tanks—not because a ship needs this many fuel tanks—it is because they take the inaccessible, unusable space in small inaccessible and cut up areas and make this the fuel tanks. Each one of these fuel tanks has an independent overflow. Everyone of these fuel tanks should come to the common overflow and the common overflow should go into the spill tank. Instead of spilling into oceans and waters, it could go into the tank.

Mr. McCARTHY. Could existing ships be modified to take care of the two things you said?

Mr. CALHOON. Yes, existing ships could be modified. Every ship is designed that oil tanks are next or adjacent to the water and this doesn't necessarily have to be so.

Mr. McCARTHY. Would you repeat that?

Mr. CALHOON. Every ship is designed so that there are oil tanks adjacent to the skin of the ship next to the water. So if there is any rupture in the skin of the ship you get contamination and pollution. This does not necessarily have to be so. The fresh water tanks, the drinking water on the ships by law is prohibited from being in contact with the skin of the ship, but there is no such law on the oil tanks. As I said before, they are just utilizing the unusable space in the dry cargo ships for the oil capacity.

INSPECTION

Mr. McCARTHY. Mr. Haddock talked about inspection. You say when they were steam vessels they were inspected and they are not inspected at all now.

Mr. HADDOCK. Basically this is true of our inland watercraft. These are the craft operating on the rivers and inland waterways referring to the Mississippi, the Ohio, the Arkansas, Columbia, all of these rivers. The equipment has changed from steam to diesel primarily and they are not subject to Coast Guard inspection. We have been trying for the past 20 years to get this done and we just don't get it done.

Mr. McCARTHY. I am inclined to agree with the gentleman from Nebraska. We really do not want to hang the seamen from the yardarm when the ships are really built to let the oil flow into the water because the tanks next to the skin are constructed in such a way that any overflow goes into the water rather than into a spill area as Mr. Calhoon says.

Mr. DENNEY. Will the gentleman yield? I also am concerned, Mr. McCarthy, that here we are considering criminal acts and criminal penalties in the Public Works Subcommittee on Rivers and Harbors and I do not think we have jurisdiction to do that. I think any criminal action and criminal penalties should go through the Judiciary

Committee. We are going to get into real trouble with this kind of legislation. We are just conglomerating up everything the other body sent over. I think we should get very careful consideration to setting up criminal conduct and penalties when we are trying to set up ways and means to stop water pollution.

Mr. McCARTHY. Yes, I think you have a point there. But this committee has the jurisdiction and the power to enact legislation that will abate pollution, and we pass laws that require shore installations—steel plants, paper plants, and all the rest to have adequate pollution abatement equipment. But, as has been just brought out here by Mr. Haddock and Mr. Calhoon, there is nothing which requires that these ships be designed and constructed and operated in such a way as to abate pollution.

It is just the opposite. I think the way they are made and have been made for years the whole idea is to, well if you get too much oil let it go into the water, and here we are proposing to hang the seamen when we are not doing what I think we should go to the source and do something to require that these ships be built and operated in such a way that the oil does not flow into the water.

Mr. HADDOCK. Exactly, Mr. Chairman. I want to thank also Congressman Denney for calling attention to the fact that the bill introduced by the distinguished chairman of the committee, Mr. George Fallon, of Maryland, does not contain these onerous provisions in it which come from the Senate. We are grateful for that and we hope that the action of the committee will be on that bill by substitution at least.

SEAMAN POWERLESS

Just to emphasize what Mr. Calhoon said about the design of these ships, many of these ships that are in operation today are steel-riveted ships, and a rivet on any ship—with a ship 10 years old you are going to have leakage around a rivet I don't care who designs it. And wherever there is a rivet that enters one of these tanks you are going to have seepage around that rivet. Well now, there is literally nothing an officer or crew member can do about these things. If a plate gets a crack in it, here again there is literally nothing a member of the crew or an officer can do about this other than report it to the company. Unfortunately, there are too many instances where the officers of a ship make requisitions for repairs to a ship which are not carried out. And this is another area that is very ticklish with respect to the officers and seamen on the ship. We have a lot of problems over that.

Mr. DENNEY. Mr. Haddock, my interest in this being from Nebraska—I am not a navy man from Nebraska, you see—but I did travel all over the South Pacific as a marine during World War II and I know what you are speaking about is true because I have seen this happen.

Mr. McCARTHY. Mr. Haddock, it appears from what you just said that some of these ships are literally oozing oil while they are plying the trade routes.

Mr. HADDOCK. Yes, some of them are.

Mr. McCARTHY. And here we have a bill passed by the other body that would make a seaman literally lose his license and even go to jail for something that he could not control.

Mr. HADDOCK. Has no control over whatever.

Mr. CALHOON. I would like to address myself to one question you raised a little while ago about what to do about the pollution. Apparently from the hearings on the Senate side and the frustration of not being able to pin a liability onto a foreign-flag shipowner was the motivation for putting these onerous penalties into the bill. But where there has been large spillage in this country in the last few years has all been by foreign-flag operators, and as soon as that ship leaves you have nothing to get ahold to. I would suggest to the committee that that oil which is polluting the waters of our coasts and streams belongs to somebody, and cannot a liability be placed on the owner of the oil?

Mr. BLATNIK. Mr. Schwengel.

Mr. SCHWENGEL. Mr. Chairman, I think we have had some very interesting and valuable testimony here. Mr. Calhoon, I would like to ask a question about a statement you made. I think you added to your script on page 8 where it reads: "that he 'discharged or permitted the discharge of oil' where such conduct was neither negligent or willful." And added "may have been caused by the Federal Government."

Mr. CALHOON. Yes, sir.

Mr. SCHWENGEL. Will you explain how that may have been caused by the Federal Government.

MSTS DIRECTIVE

Mr. CALHOON. It was brought to my attention no later than yesterday that the Military Sea Transport Service which operates vessels for the military service by civilian crews has put out a directive ordering the chief engineer not to be aboard when the ship was bunkered and taking on fuel. Now the ships' officers and crews through long tradition have taken the bunkering of the ship as one of the most important and careful jobs and it was always under the supervision of the chief engineer. This directive took the supervision away from the chief engineer and gave it to the junior officer who has not had the experience in bunkering that a chief has. And it was solely to prevent the payment of overtime and so stated.

Mr. SCHWENGEL. And in the process probably increased the hazard—

Mr. CALHOON. Yes, sir.

Mr. SCHWENGEL. Or opportunity for violation that if the bill left as it is would be an additional responsibility of the seaman.

Mr. CALHOON. That is correct, sir.

Mr. SCHWENGEL. Mr. Chairman, that is an important point and a very valuable suggestion made on that point. That is all I have.

Mr. BLATNIK. Thank you very much, gentlemen, for your extensive and helpful testimony based on years of experience.

The next witness is Capt. Robert Wilcox of the Maryland Port Authority.

OIL POLLUTION CONTROL

STATEMENT OF CAPT. ROBERT WILCOX, U.S. COAST GUARD (RETIRED), DIRECTOR, PORT OPERATIONS, MARYLAND PORT AUTHORITY

Mr. BLATNIK. Captain, I notice you have a prepared statement and you have heard a lot of the previous testimony. Would you want to

read the whole statement? We are hopeful of finishing all the witnesses including you. We could have your full statement appear in the record at this point and avoid any repetition or duplication of what has already been amply covered. Would you, in your own judgment, call attention to the areas of particular importance you want to bring up, or would you prefer to read the whole statement?

Captain WILCOX. Thank you, Mr. Chairman. The first part of the statement I think gives background information and it is not necessary to read it here. But it may be of interest to the committee members to learn how we are handling oil pollution in Baltimore.

OIL POLLUTION HANDLING IN BALTIMORE HARBOR

Mr. BLATNIK. Yes, that we would like to learn.

Captain WILCOX. I will start at the bottom of page 1.

The authority is actively engaged in removing debris and oil pollution from Baltimore Harbor. We are trying to keep that harbor as clean as possible, and through the foresight of my predecessor, Captain Kabernagel, coupled with the approval and backing of the commissioners and executive director of the Maryland Port Authority, we now have modern facilities and equipment for efficiently removing oil and floating debris from the harbor waters.

As part of the system, we have a specially designed oil skimmer which was acquired late in 1962 at a cost of over \$80,000 [exhibiting photograph]. This vessel has proven most effective in oil removal. However, it will not handle gasoline, kerosene, or diesel oil; nor can it be used in seas higher than 2 feet. We also own and operate a \$25,000 debris recovery vessel equipped with a hydraulic front-end loader for removing solid floating debris [exhibiting photograph]. By strewing straw or sawdust on the oil, this boat can also be used in oil recovery operations in calm water. These two units along with companion retaining booms, small craft, trucks, and trained personnel, coupled with the debris-removal boat owned by the Corps of Engineers, give Baltimore a harbor cleanup capability equal to any in the United States.

It must be clearly understood that the oil removal facilities in Baltimore were designed for the work in this harbor. Here they have been most satisfactory. However, our facilities cannot be effectively used in the open waters of Chesapeake Bay except in ideal weather conditions, and I would not think of using them in an open sea operation.

During the past 5 years personnel from my department investigated 41 oil spills; 26 of these were caused by shore installations and 15 were caused by vessels. Of the 41 investigated spills, our oil skimmer was activated and was successful in removing the oil pollution in 19 cases. In the 22 cases where the skimmer was not activated, it was because the spill did not warrant the deployment of our forces, or it was so situated that it could not be attacked by our floating equipment, or it was gasoline or kerosene.

Out of the 19 instances where the oil recovery barge was activated, we were able to determine the identity of the vessel or shore installation which caused the spill in 11 cases. The owner or operator of the vessel or shore installation was then billed for our cleanup services, and in no case did he refuse to pay. We charge \$100 an hour for this service. Between 1963 and 1968 we have collected a total of \$11,742.

Neither the Baltimore city ordinances nor the port authority make any distinction between an oil spill in the harbor caused by a vessel or by a shore installation. The offender is treated the same in each instance. However, since Federal authorities are on scene in each case, the port authority has never taken punitive action against any offender, even though we could do so either by an invocation of the city ordinances or the State laws concerning unlawful discharge of oil.

It is interesting to note that in most cases of a spill caused by a shore installation, the owner or operator will report the spill to us and request our cleanup services. All our investigated spills have been caused by either acts of God or by accident. We have had no case of a willful violation of the oil pollution statutes. In many, but not all, instances, the owners or operators cooperate fully with us in not only reporting the case but actively assisting in shoreside cleanup operations. Where we do enjoy such excellent cooperation, we give him a thank-you letter after we receive payment for our bill, and send copies to the Coast Guard and to the Corps of Engineers, in the event such letter would serve to ameliorate the punitive action which will be taken on the case.

Since I received an invitation to attend his hearing on Monday, April 22, I have not had an opportunity to recommend and obtain an official port authority position on these bills, H.R. 15907, 15906, S. 2760, or to coordinate our position with that of the Maryland State Department of Water Resources. The following comments therefore solely reflect my own personal opinion based on many years of experience in the Coast Guard as well as recent experience with the Maryland Port Authority in the enforcement of Federal, State, and municipal oil pollution statutes.

I will not comment on the provisions of H.R. 15907 or the provisions of S. 2760 insofar as the provisions of that act pertain to matters other than pollution control.

REQUIREMENT FOR CLEANUP IN OPEN WATERS NOT REALISTIC

Although I am in full accord with the principle that the person responsible for an oil spillage should also be held responsible for cleaning it up, I find fault with the wording of H.R. 15906 and S. 2760 requiring the owner or operator of a vessel from which oil is discharged into the contiguous zone or upon the navigable waters of the United States, to remove such discharged oil or be held liable to the United States for the full costs of such removal in the event the owner and operator fails to remove the oil.

The technology for removing oil from the sea has not yet advanced to the point where this is a realistic requirement. In my opinion we cannot at this time successfully and economically remove oil from the open sea or unsheltered waters, and the attempts which have been made to do so have been so costly that there is a question in my mind whether or not the costs incurred in these efforts have not been greater than the cost of repairing the damage done if the oil had been left alone. By the way, the owners, I would assume, would be subject to suit by property owners for damage by oil in addition to these other claims.

LIABILITY WITHOUT FAULT

Further, the requirement of these provisions as now written is applicable in all instances except where the discharge was due to an act of God. I do not believe it just, in a case of a collision to penalize the owner or operator of a vessel not at fault, for the discharge of any oil which might occur as a consequence of the collision. Yet, as I interpret the provisions of these acts, this could be the case.

In certain situations, however, it would be practicable for the owner or operator of a vessel or shore installation to remove oil discharged into or upon navigable waters, and here I cite the example of our cleanup efforts in Baltimore Harbor as a practical method of oil removal at reasonable cost.

In my opinion we need to strike a reasonable balance between a situation such as we have in Baltimore on a routine basis and a situation where there is a gross spillage on the open sea or unsheltered waters where it is impractical to remove the oil and where any and all efforts to do so will result in astronomical costs.

Now, Mr. Chairman, it is very easy to criticize and find fault. I sat down and tried to write some alternate wording. I found it more difficult than I expected. I have a suggestion here and I am not very proud of it, but I will read it.

SUGGESTED OPTION OF CLEANUP COST PAYMENT OR LIABILITY FOR DAMAGES

As a suggestion, could you not so word the statutes as to give the owner or operator of a vessel or shore installation, responsible and at fault for an oil spill, and I emphasize that, the option of either paying the cleanup costs or being held liable for the damages resulting from the spill, with the Government filing suit in behalf of all claimants? Even in this situation due regard should be given to the national interests of the United States. Specifically, I have in mind our merchant marine. In our zeal to control oil pollution, we must avoid any action which would further weaken this vital segment of our national economy.

PUBLIC VESSELS AND SHORE INSTALLATIONS

I note that the definition of public vessel or public shore installation includes United States and State owned. If municipally owned vessels and shore installations are not considered to be "State owned," I request that the definition be extended to include them also, since one of our more recent oil spills in Baltimore Harbor was caused by a broken fuel line in a city school some five miles distant from the waterfront.

UNIFORM PENALTY PROVISIONS

It is recommended that the penalty provisions in both bills be made uniform. In this regard I prefer the wording set forth in H.R. 15906 to the wording contained in S. 2760, except I am in full agreement with the latter in the application of penalties to shore installations.

RECOMMEND PASSAGE OF H.R. 15906 AND S. 2760 AFTER MODIFICATION

Subject to the foregoing comments, I consider the provisions of H.R. 15906 and S. 2760 to be sound and just, and I would recommend passage of the bills after modification.

Mr. McCARTHY. Thank you very much, Captain.

Mr. Chairman.

Mr. BLATNIK. I was going to say, Captain, it is a very fine and good statement. I would be interested in seeing the operation of your clean-up machinery. May I ask one question?

DISPOSAL OF OIL AND REFUSE

What do you do with the oil, sawdust, straw, and soaked oil and all this gooey debris that you collect in the harbor? How do you dispose of it?

Captain WILCOX. We have a cargo tank in our skimmer. It has a rather small capacity, but it has a capability of discharging the oil from the cargo tank. In other words, if we had a situation where we had a spillage exceeding the capacity of this cargo tank, all we would need was another tank barge to discharge into. We have had a problem of disposing of oil that we collect and we are working on that. It used to be that people would pay to take the oil and now we have to pay to get somebody to take the oil off our hands. The port retriever here has a front-end loader on it (exhibiting photograph). We have a system of little scows and we can dump any debris right into the little scows that are towed into position. The scows are then towed into a pier and they have a crane truck that lifts the scows onto the bed of the truck and converts the truck into a dump truck and the debris is taken to the city dump and dumped and the truck comes back and the process is repeated.

Mr. BLATNIK. Is it burned in the dump?

Captain WILCOX. It is a city dump and I believe it is.

Mr. BLATNIK. I agree with you it is a real problem.

Mr. Schwengel.

Mr. SCHWENGEL. Would it not be possible to refine the oil?

Captain WILCOX. Yes, it could be. In a gross spill you will be able to recover quite a bit of the oil, but we have, you might say, small spills and I would think it would be rather costly. All we are interested in is getting that oil off our hands at no cost to the Port Authority if we can do so. Now the company that uses it, I think they just burn it. I don't believe they refine it. Incidentally, from say 100 gallons of liquid we have picked up 95 gallons of oil to 5 gallons of water.

Mr. SCHWENGEL. Well I think that is a very excellent operation, an experience many more people could benefit from.

Mr. MCCARTHY. Thank you very much, Captain, for your very valuable contribution.

Our next witness is Vice Adm. James A. Hirschfield, U.S. Coast Guard (retired), president of Lake Carrier's Association, accompanied by Alexander B. Hawes, American Waterways Operators, Inc.

VESSEL POLLUTION CONTROL

STATEMENT OF VICE ADM. JAMES A. HIRSHFIELD, U.S. COAST GUARD (RETIRED), PRESIDENT, LAKE CARRIERS ASSOCIATION, ACCOMPANIED BY SCOTT HAWES, AMERICAN WATERWAYS OPERATORS, INC.

Mr. BLATNIK. Admiral Hirshfield is a good friend of the committee of many years in the Coast Guard and has an outstanding place in the

record. It is a pleasure to see you this morning. We appreciate very much your standing by all morning long during the hearings of the committee. The hearings have gone a little bit longer than we have expected, but I would say it is a pleasure that in 2½ days we are accumulating a volume of testimony which I think will be one of the most impressive hearings that the committee has held and will be one of the most impressive and informative hearings yet compiled, and much of it based on practical experience in some extremely difficult areas. You will be contributing to this hearing in connection with the ships, both foreign and domestic carriers, that use the large inland body of water called the Great Lakes.

Will you please proceed.

Admiral HIRSHFIELD. Mr. Chairman, I am going to skip some of this statement in the interest of saving some time.

PECULIAR DESIGN OF GREAT LAKES VESSELS

First of all, I would like to let it be understood that our vessels have their own peculiarities, vessels that are not found in the ordinary seagoing vessel.

Of course, the Great Lakes, as you gentlemen know, is the largest fresh water body in the world. It has got about 95,000 square miles in it. They are international waters. They have been declared so by treaties. And the design of the vessel, as I indicated, is peculiar to the Great Lakes. From the smallest to the largest they are of similar construction with the bridgehouse forward and nothing until you get to the aft end where the machinery is. The intermediate portion; that is, between these two houses, is devoted to the carriage of cargo and primarily, as a matter of fact entirely bulk cargoes of iron ore, coal, limestone, grain, and some petroleum products are the trade of the lakes.

Our Great Lakes vessel industry is most anxious that the water quality of the Great Lakes be preserved. I am speaking now, Mr. Chairman, purely as to the pollution by commercial vessels.

SEWAGE TREATMENT FACILITIES ON VESSELS

Every new vessel constructed on the Great Lakes since World War II, and nearly every major conversion since that time, has included some type of sewage treatment facility. By 1960, a system called the Bio-Gest, through private research and at considerable expense, had been developed. This system is based on a bacteriological and oxygen process and actually digests wastes. This Bio-Gest tank is about 10 feet by 8 feet by 4 feet and occupies some 320 cubic feet of vessel space not including piping.

In 1964 this system was considerably improved so that today our operators have considered it a highly efficient unit. However, it has been impossible to obtain approval of the Bio-Gest system, or any other system, by the U.S. Public Health Service. That is, the effluent that comes from these systems.

There have been 75 waste treatment systems on 41 vessels at a cost of about \$15,000 a vessel. This meant an initial expenditure for each vessel just to purchase the equipment of from \$30,000 to \$45,000—this was the installation cost—the equipment costs \$30,000 to \$45,000 when it was bought.

NO RESOLUTION OF WASTE DISCHARGE REGULATION QUESTION

Immediately prior to the opening of the St. Lawrence Seaway, the Public Health Service, in cooperation with the several Great Lakes States, the Canadian health department and vessel operators, initiated a Great Lakes study project. The result was amendment of the Interstate Quarantine Regulations to prohibit vessels from discharging sewage, ballast, or bilge water within certain delineated areas around water intake cribs in the lakes and rivers. Unfortunately, from a vessel operator's viewpoint, the two most important aspects of the study project were not resolved, namely, the promulgation of standards for treatment of vessel overboard waste discharges and the development of treatment systems for shipboard installation necessary to meet those standards.

I point this out merely to illustrate the feeling of frustration which has been experienced by vessel owners in endeavoring to learn just what steps should be taken to control overboard waste discharges. Thus remedial measures on commercial vessels, whose numbers have decreased in a like period; that is, there are fewer vessels now which are operating as against the increasing discharges that come from municipalities.

LEGISLATIVE PROPOSALS

Then I would like to go to page 7, gentlemen, and tell you what our proposals are here. But first of all I think we have a figure which is rather interesting, and that is at no one time are there more than 14,000 seamen on the Great Lakes which is an average of about one seaman for every 6.8 square miles. So we are submitting a draft of some legislation which embraces four points and these are as follows.

DEVELOPMENT PROGRAM

First: It would seem that insofar as commercial vessels are concerned, enforcement of water quality standards should not be achieved punitively through the imposition of prohibitions and penalties. Initially, suitable waste treatment systems for shipboard installation must be developed. Manufacturers have come up with many devices, such as chemical toilets, et cetera, but these are, at best, only temporary and stopgap measures. What is needed are type accepted, practical shipboard waste treatment systems which, once installed, will assure the owner that his vessel is in compliance with applicable regulations. We earnestly urge that an accelerated program be initiated directed toward development of improved low-cost techniques for control and treatment of vessel overboard waste discharges. Under the Clean Air Act in connection with air pollution control, such a program has already been initiated.

Although the Department of the Interior is responsible for administering the Federal Water Pollution Control Act, as amended, we believe the Department of Transportation to be the agency most knowledgeable in the field of requirements for vessel construction and related navigational problems. Such an allocation of authority should not only produce greater efficiency but would be productive of greater economies since the problem is not one merely of prescribing stand-

ards but designing equipment suitable for shipboard installation. This ultimately must be the responsibility of naval architects, many of whom are employed by the Department of Transportation, that is, Coast Guard, but none to my knowledge by the Department of the Interior. That department may set the standards but only the Department of Transportation can design the equipment.

Hence, we recommend that the responsibility for the necessary development program be delegated to the Department of Transportation and that that agency be given authority to certify the acceptance of devices and waste treatment systems for shipboard installation.

FEDERAL PREEMPTION OF FIELD

Second: Once a vessel operator has installed a suitable shipboard waste treatment system, type accepted by the Secretary of Transportation and certified as capable of meeting applicable Federal water quality standards, the vessel should be immune from all State and local laws regulating pollution. The proper functioning of the waste treatment system can be readily determined from inspections conducted by the Coast Guard. Enforcement thus becomes a relatively simple process since commercial vessels are already subject to periodic Coast Guard inspection.

SIMILAR CANADIAN REGULATIONS NEEDED

Third: Insofar as the Great Lakes are concerned, it must be emphasized again that we share these waters with Canada. In areas such as the St. Marys, St. Clair, and Detroit Rivers, we have the paradoxical situation now where vessels, while in American waters, are required to close their heads when within 3 miles of certain water intake cribs, but no such requirement is imposed in Canadian waters even though, in many instances, the intake cribs are located virtually on the international boundary line. Moreover, we believe that Canadian, as well as overseas flag vessels anywhere on the Great Lakes, should be subject to the same regulations and controls as our own vessels. Therefore, we urge that, before any regulations or requirements are placed in force by the United States on the Great Lakes, assurances be obtained from Canada that essentially similar regulations will be made applicable to Canadian waters.

REGULATIONS SHOULD COVER GARBAGE AND REFUSE DISPOSAL

Fourth: With respect to the promulgation of Federal regulations, they should include, in addition to the treatment of overboard waste discharges, garbage, and refuse disposal. Such regulations should be uniform throughout the Great Lakes and should preempt the field. We recognize that the Water Pollution Control Act places primary responsibility for preventing and controlling water pollution in the States, but this is because of the vast concern over cities and shore-based industry. Vessels calling at a multitude of ports cannot possibly comply with growing plethora of local regulations and requirements. The need for uniformity is the fundamental cornerstone upon which the maritime law of the United States and the exclusive admiralty jurisdiction of the Federal Courts are based.

CONTROL OF BALLAST WATER DISCHARGES ON GREAT LAKES NOT NECESSARY

In regulating vessels there may be good reason to control the discharge of ballast water from vessels inbound to the Great Lakes from foreign ports outside the North American continent, but we see no necessity for regulating the discharge of ballast water from Great Lakes vessels. Typical Great Lakes cargo vessels employ no dual service ballast tanks, the water ballast spaces being devoted entirely to ballasting purposes. Since these vessels operate exclusively within the Great Lakes, the possibility of contamination occurring from ballast water discharges is minimal.

On the Great Lakes the ballasting of a vessel is intricately connected with the carrying of cargo, particularly the self-unloading type vessel which is equipped with a large conveyor boom on deck. Any restrictions or curtailments on the right to take on or discharge ballast water could jeopardize the safety of the vessel. Anyone promulgating regulations in this area must be extremely knowledgeable concerning marine safety. Presumably with the enforcement of all applicable pollution regulations, it should make no difference within the Great Lakes themselves whether or not a vessel discharges or takes on ballast water, provided it does not have dual service ballast tanks.

Mr. Chairman, there is more to this, but I am going to skip some more. We have drafted, as I said, a proposal which would take care of these points.

I thank you very much.

(The complete statement follows:)

STATEMENT OF LAKE CARRIERS' ASSOCIATION, PRESENTED BY VICE ADM. JAMES A. HIRSHFIELD, U.S. COAST GUARD, RETIRED, PRESIDENT

I am Vice Admiral James A. Hirshfield, United States Coast Guard, Retired, President of Lake Carriers' Association. Our Association is an organization consisting of 22 vessel companies owning and operating on the Great Lakes in the aggregate 207 bulk cargo vessels comprising 97% of the Great Lakes fleet under United States flag. These vessels have a total trip carrying capacity in excess of 2,740,000 gross tons and transport in excess of 95% of the total bulk commodity commerce of the Great Lakes which moves by American flag vessels. Therefore, it can be readily seen that our interest is the Great Lakes.

THE GREAT LAKES

For the better understanding of our Great Lakes ships and their operation, I would like to note briefly some of the peculiarities of the Great Lakes; peculiarities which have not counterpart elsewhere in the world and which are, we believe, deserving of special consideration in the framing of legislation, particularly when such an all-embracing subject as water pollution is involved.

First of all, the Great Lakes chain constitutes the largest body of fresh water in the world, the water area aggregating 95,160 square miles. These waters are shared with Canada inasmuch as, with the exception of Lake Michigan, the international boundary line between the two countries runs approximately along the axis of each lake from a point about 100 miles from the head of Lake Superior to the foot of Lake Ontario, and in the St. Lawrence River to the mouth of the St. Regis, 66 miles above Montreal. Of the total water area of the Great Lakes, 34,210 miles lie within the Dominion of Canada. Of the total shoreline of the Great Lakes, over 8,300 miles, about 4,300 miles are in Canada.

The Great Lakes are truly international waters, and they have been declared to be so by treaty. The ports of the Great Lakes are served not only by American

and Canadian vessels but by the vessels of all of the major maritime nations of the world. Nevertheless, nearly 90% of the lake commerce consists of the movement of bulk commodities such as iron ore, coal, grain and limestone and this fact has led to the development of a uniform type of vessel, both American and Canadian, specifically adapted to the handling of bulk cargo.

PECULIAR DESIGN OF GREAT LAKES VESSELS

The design of the Great Lakes bulk cargo ship is peculiar to the Great Lakes. These ships, from the smallest to the largest, are in general of similar construction with bridge and deck crew houses in the forward end, the engine and boiler spaces being in the after end, together with the engineers' crew house. The intermediate portion of the ship, devoted entirely to cargo, is provided with athwartships hatches permitting the entire deck to be thrown open to the reception or discharge of cargo. The ships have double bottoms for the carriage exclusively of water ballast and for safety in the event of bottom damage. They are also equipped with side tanks which, in addition to the purposes served by the double bottoms, gives the cross-section of the cargo hold a hopper shape that facilitates cargo handling. These construction features of the typical great Lakes ship become extremely important when water pollution control methods and measures are considered.

The Great Lakes vessel industry is most anxious that the water quality of the Great Lakes be preserved. It is very often necessary for Great Lakes vessels to use water directly from the lakes for their water supply, both potable and for boiler use. Lake Carriers' Association first expressed its concern over pollution as early as 1914, when a Sanitation Committee was created within the Association and directives were sent to the vessels informing the masters as to the specific areas to be avoided in replenishing water supplies and not to take on potable water within 15 miles of any large city. The function of delineating areas from which potable water supplies may be safely obtained has long since been taken over by the Public Health Service.

SEWAGE TREATMENT FACILITIES ON VESSELS

Every new vessel constructed on the Great Lakes since World War II, and nearly every major conversion since that time, has included some type of sewage treatment facility. The original type of unit first installed on vessels was based on the septic tank principle with chlorination in the final stage. By 1960 the Bio-Gest system, through private research and at considerable expense, had been developed. This system is based on a bacteriological and oxygen process and actually digests wastes. A Bio-Gest tank is about 10' x 8' x 4' and occupies some 320 cubic feet of vessel space, not including the necessary piping. Because of the particular construction of Great Lakes vessels, with both a forward and after house, at least two tanks are required on each vessel, and some vessels have installed three.

In 1964 the Bio-Gest system, through further private research and development, was considerably improved, so that today vessel operators consider it to be a highly efficient unit. Nevertheless, it has been impossible to obtain approval of the Bio-Gest system, or any other system, by the United States Public Health Service. The difficulty in approving such a system is that there are no official standards or criteria for waste treating facilities.

Despite the fact that there are no official standards or criteria to guide vessel operators, they have voluntarily installed some 75 waste treatment units on 41 vessels at a cost of about \$15,000 per unit, not including the cost of piping and installation. This meant an initial expenditure for each vessel, just to purchase the equipment, of from \$30,000 to \$45,000 depending on whether two or three units were installed.

NO RESOLUTION OF WASTE DISCHARGE REGULATION QUESTION

Immediately prior to the opening of the St. Lawrence Seaway, the Public Health Service, in cooperation with the several Great Lakes States, the Canadian Health Department and vessel operators, initiated a Great Lakes study project. The result was amendment of the Interstate Quarantine Regulations to prohibit vessels from discharging sewage, ballast or bilge water within certain delineated areas around water intake cribs in the lakes and rivers. Unfortunately, from a

vessel operator's viewpoint, the two most important aspects of the study project were not resolved, namely, the promulgation of standards for treatment of vessel overboard waste discharges and the development of treatment systems for shipboard installation necessary to meet those standards.

I point this out merely to illustrate the feeling of frustration which has been experienced by vessel owners in endeavoring to learn just what steps should be taken to control overboard waste discharges. This feeling of frustration is further aggravated by the fact that the pollution caused by municipalities and shoreside industry preponderates and has greatly increased over the years. Thus remedial measures on commercial vessels, whose numbers have decreased in a like period, will be of little avail until the vast pollution of cities and shoreside industry has been greatly reduced. It is evident from the number of commercial vessels involved, American, Canadian and foreign, that at no time are there more than about 14,000 seamen personnel scattered throughout the entire Great Lakes, which comprises 95,160 square miles of water surface. This is an average of approximately one seaman for every 6.8 square miles. Accordingly, in going ahead with any program for commercial vessels, the problem should be kept in proper perspective.

LEGISLATIVE PROPOSALS

In the interest thereof, I am submitting for your consideration draft legislation embracing a four-point program for commercial vessels. These four points are:

DEVELOPMENT PROGRAM

First: It would seem that insofar as commercial vessels are concerned, enforcement of water quality standards should not be achieved punitively through the imposition of prohibitions and penalties. Initially, suitable waste treatment systems for shipboard installation must be developed. Manufacturers have come up with many devices, such as chemical toilets, etc., but these are, at best, only temporary and stopgap measures. What is needed are type accepted, practical shipboard waste treatment systems which, once installed, will assure the owner that his vessel is in compliance with applicable regulations. We earnestly urge that an accelerated program be initiated directed toward development of improved low-cost techniques for control and treatment of vessel overboard waste discharges. Under the Clean Air Act in connection with air pollution control, such a program has already been initiated.

Although the Department of the Interior is responsible for administering the Federal Water Pollution Control Act, as amended, we believe the Department of Transportation to be the agency most knowledgeable in the field of requirements for vessel construction and related navigational problems. Such an allocation of authority should not only produce greater efficiency but would be productive of greater economies since the problem is not one merely of prescribing standards but designing equipment suitable for shipboard installation. This ultimately must be the responsibility of naval architects, many of whom are employed by the Department of Transportation, i.e., Coast Guard, but none to my knowledge by the Department of Interior. That department may set the standards but only the Department of Transportation can design the equipment.

Hence, we recommend that the responsibility for the necessary development program be delegated to the Department of Transportation and that that agency be given authority to certify the acceptance of devices and waste treatment systems for shipboard installation.

FEDERAL PREEMPTION OF FIELD

Second: Once a vessel operator has installed a suitable shipboard waste treatment system, type accepted by the Secretary of Transportation and certified as capable of meeting applicable federal water quality standards, the vessel should be immune from all state and local laws regulating pollution. The proper functioning of the waste treatment system can be readily determined from inspections conducted by the Coast Guard. Enforcement thus becomes a relatively simple process since commercial vessels are already subject to periodic Coast Guard inspection.

Third: Insofar as the Great Lakes are concerned, it must be emphasized again that we share these waters with Canada. In areas such as the St. Marys, St. Clair and Detroit Rivers, we have the paradoxical situation now where vessels,

while in American waters, are required to close their heads when within three miles of certain water *intake cribs*, but no such requirement is imposed in Canadian waters even though, in many instances, the intake cribs are located virtually on the international boundary line. Moreover, we believe that Canadian, as well as overseas flag vessels anywhere on the Great Lakes, should be subject to the same regulations and controls as our own vessels. Therefore, we urge that, before any regulations or requirements are placed in force by the United States on the Great Lakes, assurances be obtained from Canada that essentially similar regulations will be made applicable to Canadian waters.

REGULATIONS SHOULD COVER GARBAGE AND REFUSE DISPOSAL

Fourth: With respect to the promulgation of federal regulations, they should include, in addition to the treatment of overboard waste discharges, garbage and refuse disposal. Such regulations should be uniform throughout the Great Lakes and should preempt the field. We recognize that the Water Pollution Control Act places primary responsibility for preventing and controlling water pollution in the states, but this is because of the vast concern over cities and shore-based industry. Vessels calling at a multitude of ports cannot possibly comply with growing plethora of local regulations and requirements. The need for uniformity is the fundamental cornerstone upon which the maritime law of the United States and the exclusive admiralty jurisdiction of the Federal Courts are based.

CONTROL OF BALLAST WATER DISCHARGES ON GREAT LAKES NOT NECESSARY

In regulating vessels there may be good reason to control the discharge of ballast water from vessels inbound to the Great Lakes from foreign ports outside the North American continent, but we see no necessity for regulating the discharge of ballast water from Great Lakes vessels. Typical Great Lakes cargo vessels employ no dual service ballast tanks, the water ballast spaces being devoted entirely to ballasting purposes. Since these vessels operate exclusively with the Great Lakes, the possibility of contamination occurring from ballast water discharges is minimal.

On the Great Lakes the ballasting of a vessel is intricately connected with the carrying of cargo, particularly the self-unloading type vessel which is equipped with a large conveyor boom on deck. Any restrictions or curtailments on the right to take on or discharge ballast water could jeopardize the safety of the vessel. Anyone promulgating regulations in this area must be extremely knowledgeable concerning marine safety. Presumably with the enforcement of all applicable pollution regulations, it should make no difference within the Great Lakes themselves whether or not a vessel discharges or takes on ballast water, provided it does not have dual service ballast tanks.

This, then, is the four-point program we propose, namely:

1. An accelerated program looking toward the development of practical, low-cost waste treatment systems suitable for shipboard installation. Systems developed through the program should be type accepted by the Department of Transportation and certified as meeting applicable water quality standards before installation on any vessel;
2. Vessels equipped with type accepted waste treatment systems should be immune from all state and local laws regulating pollution;
3. Federal regulations governing vessel overboard waste discharges should be made effective on the Great Lakes only after assurances have been obtained from Canada that substantially similar regulations will be made applicable to Canadian waters; and
4. Uniform federal regulations should be promulgated governing treatment of overboard waste discharges, garbage and refuse disposal. These regulations should be based upon practical technological considerations indicated by the development program and have reasonable compliance schedules.

The program we propose is, of course, intended to be limited to commercial vessels. We express no view concerning pleasure craft other than to say that perhaps they might be more susceptible to state regulation or, at least, cooperative federal-state regulation. For this reason, we believe pleasure craft should be treated separately.

Since it appears to us absolutely essential that exclusive federal jurisdiction be maintained with respect to commercial vessels, we set forth in the form of an attachment to this statement draft legislation dealing exclusively with commercial vessels and which vessels we would define as "all documented vessels of the United States and foreign vessels temporarily using the navigable waters of the United States".

We earnestly urge that legislation, substantially in the form we propose, be adopted so that insofar as the Great Lakes, at least, are concerned, the orderly elimination of commercial vessels as a source of pollution can become a fait accompli.

April 25, 1968.

[H.R. —, 90th Cong., second sess.]

A BILL To amend the Federal Water Pollution Control Act, as amended, to control pollution from vessels within the navigable waters of the United States

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the Federal Water Pollution Control Act (70 Stat. 498), as amended, is amended—

(a) by redesignating section 11 as section 12, and renumbering succeeding sections; and

(b) by inserting after section 10 a new section to read as follows:

"CONTROL OF POLLUTION FROM VESSELS USING THE NAVIGABLE WATERS OF THE
UNITED STATES

"SEC. 11(a). The Secretary shall give special emphasis to research and development into new and improved methods having industry-wide application, for the treatment and control of vessel overboard waste discharges. In furtherance of such research and development, he shall request the Secretary of Transportation to—

"(1) Conduct an accelerated research program directed toward development of improved low cost techniques and systems for treatment of vessel overboard waste discharges and for removal of potential pollutants therefrom.

"(2) Provide for federal grants to public or nonprofit agencies, institutions and organizations and to individuals and contract with public or private agencies, institutions or persons for payment of part of the cost of acquiring, constructing, or otherwise securing for research and development purposes new or improved devices or methods having industry-wide application for the treatment and control of vessel overboard waste discharges.

"(3) Certify from time to time to the Secretary such vessel overboard waste discharge treatment systems as the Secretary of Transportation has type accepted after determining such systems are suitable for shipboard installation and the effluent from which meets reasonable water quality standards. Any manufacturer of a waste treatment system for shipboard installation may request the Secretary of Transportation to type accept such system and certify its suitability to the Secretary. Type acceptance and certification of such system shall be on such terms and conditions and for such period as the Secretary of Transportation deems appropriate. The manufacturer shall perform such tests as the Secretary of Transportation may require. Whenever the Secretary of Transportation determines that the system will provide treatment of overboard waste discharges in accordance with applicable standards, and the system is deemed satisfactory from a safety standpoint, the Secretary of Transportation shall type accept the system and certify its suitability to the Secretary.

"(b) The Secretary, after taking into consideration the type of waste treatment systems certified by the Secretary of Transportation to be suitable for shipboard installation, and after taking into consideration technological feasibility, economic costs, the types of vessels, their operative patterns and such other factors as he deems appropriate, shall prescribe in the Federal Register—

"(1) Regulations establishing standards for the control and treatment of overboard waste discharges from any vessel or class of vessels into the navigable waters of the United States. The Secretary shall prescribe standards that apply to the extent feasible uniformly to each class of vessel under similar circumstances. Such regulations shall prescribe reasonable schedules of compliance after taking into consideration the cost of compliance

and the availability of the required waste treatment systems. The schedules for compliance shall distinguish between new and existing vessels.

"(2) Regulations governing the discharge of ballast and bilge water into the navigable waters of the United States by tank vessel, vessels having dual service ballast tanks and all vessels on international voyages.

"(3) Regulations governing the discharge from any vessel of litter, sludge, garbage, or other substances of any kind or description, other than oil or dredge spoil, which originates on board a vessel or which is transported thereon into the navigable waters of the United States. Where the Secretary of the Army acting through the Chief of Engineers determines, after the effective date of any regulations issued under this paragraph, that the discharge of such substances from a vessel may constitute a potential obstruction to navigation, a permit to discharge such substances shall be issued solely by the Secretary of the Army or his designee in accordance with existing authorities and consistent with such regulations.

"(c) Regulations to carry out the provisions of this section shall prohibit discharges in quantities, under conditions and at times and locations deemed appropriate by the Secretary after taking into consideration the deleterious effect of such discharges on the public health, recreation and fish and wild life, provided that with respect to ballast water such prohibitions shall relate solely to tank vessels, vessels having dual service ballast tanks and vessels on international voyages.

"(d) Regulations to carry out the provisions of this section :

"(1) may exempt classes of vessels from all or part of a regulation for such periods of time and under such conditions as the Secretary deems appropriate.

"(2) shall apply to vessels owned and operated by the United States unless the Secretary of Defense finds that compliance would not be in the interest of national security.

"(e) Before any regulations under this section are issued, the Secretary shall consult with the Secretary of State; the Secretary of Health, Education, and Welfare; the Secretary of Transportation; the Secretary of Defense; the Secretary of Commerce; other interested Federal agencies; and industries affected. The Secretary shall also correlate any regulations issued under this section with efforts to control or eliminate other sources of pollution under this Act and other provisions of law. After regulations are issued, the Secretary shall afford all interested persons and public and private agencies and organizations a reasonable opportunity to comment thereon before they become effective. With respect to the Great Lakes and their connecting and tributary waters as far east as Montreal, any regulations promulgated pursuant to this section shall not become effective until such time as the Secretary of State shall have received assurances from the government of Canada of the adoption of substantially similar regulations upon such lakes and waters within the territorial jurisdiction of Canada.

"(f) After the effective date of any regulation issued hereunder, it shall be unlawful for any vessel subject to such regulations and not equipped with an approved type accepted overboard waste treatment system to make any overboard waste discharges into the navigable waters of the United States except in accordance with such regulations, but neither this section nor any regulation promulgated thereunder shall be construed as prohibiting the discharge of ballast water by other than tank vessels, vessels having dual service ballast tanks or vessels on international voyages. No state or any political subdivision thereof shall adopt or attempt to enforce any standard relating to the control or treatment of vessel overboard waste discharges. No state or any political subdivision thereof shall require certification, inspection or any other approval relating to the control or treatment of vessel overboard waste discharges.

"(g) Any person who knowingly violates the provisions of this section or any regulations issued thereunder shall, upon conviction, be punished by a fine not exceeding \$2,500 or by imprisonment not exceeding one year, or both.

"(h) Any vessel violating the provisions of this section or any regulations issued thereunder shall be liable for a penalty of not more than \$10,000. Clearance of a vessel liable for this penalty from a port of the United States may be withheld until the penalty is paid or until a bond or other surety satisfactory to the Secretary is posted. The penalty shall constitute a lien on the vessel which may be recovered by action in rem in the district court of the United States for any district within which the vessel may be found. This penalty shall not apply

to a vessel owned and operated by the United States, or a State, or, except where such vessel is engaged in commercial activities, a foreign nation.

"(i) Anyone authorized by the Secretary to enforce the provisions of this section may (1) board and inspect any vessel within the navigable waters of the United States, except a vessel owned and operated by the United States or, except where such vessel is engaged in commercial activities, a foreign nation, to insure compliance with the provisions of this section, (2) with or without a warrant arrest any person who violates the provisions of this section or any regulation issued thereunder in his presence or view, and (3) execute any warrant or other process issued by an officer or court of competent jurisdiction.

"(j) The provisions of this section shall be enforced by employees of the Secretary of the Interior and by personnel of the Secretary of the Department in which the Coast Guard is operating, and the Secretary may utilize by agreement with or without reimbursement law enforcement officers or other personnel and facilities or other Federal agencies to carry out the provisions of this section, including the enforcement thereof.

"(k) As used in this section—

"(1) the term 'person' includes an individual, company, partnership, corporation, or association who is the owner, charterer, operator, master, officer, or employee of a vessel, and any individual on board such vessel, but does not include a person on board a vessel owned or operated by the United States or, except where such vessel is engaged in commercial activities, a foreign nation.

"(2) the term 'United States' includes the Commonwealth of Puerto Rico, Guam, American Samoa, and the Virgin Islands.

"(3) the term 'discharge' includes spilling, leaking, dumping, pumping, pouring, emitting, emptying, throwing, or depositing.

"(4) the term 'overboard waste discharge' includes wastes from sanitary facilities on board vessels, such as toilets, wash basins, and laundries, and other contaminated waters.

"(5) the term 'manufacturer' means any individual, corporation, partnership, or association engaged in the manufacturing or assembling of a device to treat or control overboard waste discharges from vessels, or in the importation of such device for resale, or who acts for or is under the control of any such individual or organization in connection with the distribution of such device, but shall not include any dealer of such device.

"(6) the term 'international voyage' means a voyage from a port outside of the United States to a port in the United States, except that vessels solely navigating on the Great Lakes arriving in a United States Great Lakes port from a port in Canada west of a straight line drawn from Cap des Rosiers to West Point, Anticosti Island and on the north side of Anticosti Island, the 63rd meridian, shall not be deemed to be on an international voyage.

"(7) the term 'vessel' means a documented vessel of the United States and a foreign vessel temporarily using the navigable waters of the United States.

"(1) In the case of Guam actions arising under this section shall be brought in the district court of Guam, and in the case of the Virgin Islands such actions shall be brought in the district court of the Virgin Islands. In the case of American Samoa such actions shall be brought in the district court of the United States for the district of Hawaii and such court shall have jurisdiction of such actions.

Mr. BLATNIK. Admiral, as usual you have brought some very practical and realistic recommendations based on years in not only the operation of watercraft but also in design and construction. We might have a little problem with starting to break up the water pollution function between the Department of Transportation and the Water Pollution Control Administration now under the Department of the Interior, although I can very well the merit of your proposition that in the complicated design of ship structure, which is a lot different from a building on land, where you scarcely have a straight line in your whole operation, that there ought to be, certainly, some consultation or guidance by naval architects and naval design engineers as well as the pollution experts.

Admiral HIRSCHFIELD. Mr. Chairman, I think if the quality standards are set and then the equipment design to meet it, all the Department of the Interior or the water pollution people would have to do in my view would be simply to meet these standards and the certification of the equipment as capable of doing that, and as for fitting aboard a ship in a good manner would be up to the Department of Transportation.

Mr. BLATNIK. Yes. So the standards would still be set by the respective States and the Water Pollution Control agency in the Interior and Department of Transportation would simply see to the design of the ship and the pollution control would be of the efficiency to comply with the standards set by the agency. You have a very good point there.

Admiral HIRSCHFIELD. My only point is, Mr. Chairman, it would be the hope that the standards set by the Water Pollution Control Administration would be a single standard; that once this equipment were approved, would meet anywhere.

Mr. BLATNIK. Mr. Schwengel.

Mr. SCHWENGEL. Mr. Chairman, I would also join the chairman in saying you made a very good statement today and I followed it very closely. I note the document attached has not yet been introduced.

Admiral HIRSCHFIELD. No, sir.

Mr. SCHWENGEL. Have you worked this out with others recognizing this problem or is this entirely the recommendation of the Coast Guard?

Admiral HIRSCHFIELD. Mr. Schwengel, this is a thing that was worked out by our people. This does not apply to small boats—only to commercial vessels, and quite frankly only insofar as Great Lakes vessels are concerned.

Mr. SCHWENGEL. Just Great Lakes vessels. Thank you.

Mr. BLATNIK. Thank you very much, Admiral.

The next witness is Mr. Jerry D. Maxa, sales manager, Koehler-Dayton, Inc., Dayton, Ohio.

You may proceed, Mr. Maxa.

VESSEL POLLUTION CONTROL

STATEMENT OF J. D. MAXA, GENERAL SALES MANAGER, KOEHLER-DAYTON, INC., ACCOMPANIED BY WILLIAM SMYERS, CHIEF RESEARCH ENGINEER, NEW BRITAIN MACHINE CO.

Mr. MAXA. Mr. Chairman, I have a prepared statement which has been submitted to the clerk.

Mr. BLATNIK. Please give your names to the reporter.

Mr. MAXA. Mr. Chairman and members of the committee, my name is Jerry Maxa, general sales manager of Koehler-Dayton, Inc., of Dayton, Ohio. Koehler-Dayton is a subsidiary of the New Britain Machine Co. of New Britain, Conn. With me is Mr. William Smyers, chief research engineer of New Britain Machine Co.

We appreciate the opportunity to address this committee and sincerely hope that you will consider our statement interesting and meaningful. We are here to address ourselves to the subject of water pollution from watercraft.

NEED FOR FAIR AND UNIFORM REGULATIONS

Koehler-Dayton considers water pollution to be an immediate and important subject. Water pollution does exist. Pleasure boats and commercial vessels do contribute to the problem, although in a substantially less significant manner than some quarters lead us to believe. We do feel that both the pleasure boat and commercial vessel operators are thoroughly confused and disenchanted with the "hodgepodge" of State and local regulations that confront them today. Furthermore, manufacturers of sewage treatment equipment are confronted with the same dilemma. Therefore, we do encourage enactment of legislation that will prescribe establishment of fair and uniform regulations to control pollution from vessels within the navigable waters of the United States.

There has been considerable debate and much has been written about the pros and cons of the four general classes of pollution control devices; namely, holding tanks, recirculating toilets, incinerators, and treatment devices. The fact remains—and on this most experts do agree—that none of these—at this time—represents the perfect solution. Therefore, we suggest that the regulations to be established make provision for each, and thereby provide the incentive for continued research and development to advance the state of the art.

RELATIVE MERITS OF RECIRCULATING TOILET AND MACERATOR/CHLORINATOR DEVICES

Being a manufacturer of both recirculating toilets and macerator/chlorinator treatment devices permits us to offer an unbiased opinion as to the relative merits of each.

Recirculating toilets, such as we supply for commercial jet liners as the Boeing 727, McDonnell-Douglas DC-9 and DC-8 (60 series), Lockheed C-5 military transport, and a host of corporate aircraft, and for the new high-speed trains soon to go into service, are essentially holding tanks that, by means of a motorized pump and filter assembly, recirculate a solution of water, deodorizing chemical, and sewage. Contrary to popular belief, there is no maceration or grinding of the sewage. The filter prevents the appearance of unsightly solids from entering the bowl during the flush cycle. The tanks vary in capacity—usually about 15 gallons—they are initially charged with about three gallons of water plus 15 or so ounces of a chemical which serves as a deodorant, disinfectant, and coloring agent—usually blue. This solution mixes with the sewage as it is added to the tank. It is this solution of sewage, water, and chemical that is used to flush the bowl.

Based on our experience developing recirculating toilet systems, we attempted to promote this concept to the boating industry. The resistance we encountered prompted us to redirect our efforts toward development of a sewage treatment device that could be used in conjunction with existing marine toilets, and thereby provide for safe overboard discharge.

The primary objections we encountered were:

(1) Need for frequent servicing—on the average between 3 to 5 days before the color and odor of the sewage solution became offensive.

I would like to point out here on the aircraft servicing this is done on a daily program basis with very sophisticated equipment.

(2) Lack of shoreside facilities.

(3) Restrictive capacity—When the tank became filled the unit was no longer usable.

(4) Cost—Due to fact existing toilets were eliminated.

It should be noted a recirculating toilet can be equipped with self-pumpout capability. While this eases the servicing problem for the boater, it doesn't help the pollution problem because the sewage from a recirculating toilet is not properly treated for overboard discharge. Here again I might interject that this is taking place within our Nation today.

Development of a treatment device that could be used with the half million or so existing marine toilets; namely, a macerator/chlorinator that would meet the requirements prescribed by the National Sanitation Foundation and the American Boat and Yacht Council and would pass the test program of the Yacht Safety Bureau has involved considerable time and expense.

Such a unit must macerate the sewage to a fine particule size so that no identifiable solids can be discharged, and more importantly, that the chemical treatment assures a reduction in coliform bacteria to level below 240 MPN per 100 MI, and this is considered by public health authorities to be an acceptable limit.

Extensive in-house testing has provided evidence that the Carlson Mark VI macerator/chlorinator typically reduces the B.O.D. of the influent by two-thirds. Navy testing at Annapolis indicated comparable results.

We are prepared to cooperate with any regulatory or testing agency to verify these findings, and thereby hopefully remove the onus which has been placed on the macerator/chlorinator in some quarters.

Another criticism that has been leveled at the macerator/chlorinator is that it does not remove or reduce nutrients—that is, nitrates and phosphates. This is true. However, neither do the vast majority of municipal and industrial sewage disposal plants, nor will they for many years to come.

Therefore it appears totally unfair to prevent the boater from discharging properly treated sewage into waters that receive effluent from municipal and industrial treatment plants on the basis that the nutrients are not removed. Admittedly, there are a few experimental plants in the country today that are attacking the problem of nutrient removal, but their installation universally is a long time off. In the meantime, given the opportunity and with continued research, the macerator/chlorinator manufacturers may find the solution to nutrient removal.

Another deterrent to effective shoreside disposal of sewage from boats are the marinas and docks remotely located from sewage disposal plants whose septic systems, if they have them, would be unable to handle the additional load of sewage from boats.

A new safety feature not mentioned in most reports, but is specified in the previously referenced standards; namely, NSF and ABYC, is the so-called fail-safe. This means that the macerator/chlorinator when out of disinfecting chemical would automatically prevent the

discharge of any untreated sewage. It would also give the user a positive indication, either visual or audible, that the device is nonoperative.

Working in cooperation with the Naval Ship Engineering Center, Naval Ship Research Development Center, the Army Corps of Engineers, and the Coast Guard has led to the development—at private expense—of the Mark 10 sewage treatment system for small ships and vessels. It has been tested successfully at the Marine Engineering Laboratory at Annapolis, and meets the requirements of military specification MIL-S-24201. Installations have been made and are currently being made on small naval ships.

The commercial marine industry—shipbuilders, operators of tugboats, barges, tankers, etc.—have all exhibited enthusiastic interest in doing their share in water pollution abatement. Even though several operators have made installation of the Mark 10 system, there is a growing hesitancy by this industry to take positive action now, for fear that future regulations may obsolete their investment.

We cannot assume the role of spokesman for the marine industry, but based on our contact with many of its members it appears that they are generally opposed to holding tanks, not only because of installation and servicing problems, but the hazard to safety due to gas formation in the tanks. Many have indicated, however, that they are prepared to make the expenditure to start combating water pollution now by installing treatment systems in existing vessels, provided they be given assurance that Government regulations to be established will not obsolete their effort and investment.

Obviously we are in no position, nor have we the authority to make such a guarantee. We, therefore, respectfully urge that the committee consider legislation which would assure that macerator/chlorinator treatment systems which meet the recommended standards of control set forth in the "Handbook of Sanitation and Vessel Construction," Public Health Service 1965, and are installed prior to the issuance of regulations to be established, would not be subject to removal or replacement.

PAPER ON WATER POLLUTION BY SEWAGE FROM WATERCRAFT

Now, Mr. Chairman, as I mentioned at the outset, Mr. William Smyers, chief research engineer of New Britain, is with me and prepared, with your indulgence, to briefly define, in layman's language, three technical terms that are used by many but understood by few.

Mr. BLATNIK. Is there an additional document here describing macerator/chlorinator production? Could we put this in the record at this point in its entirety and, Mr. Smyers, if you have any pertinent points, to give them attention, because we will consult with technical people in the pollution control agency and certainly double check back with both of you men, if necessary. But there has been a call for a quorum and there are four more witnesses still waiting. So submit the statement in its entirety rather than give us a long academic and technical chemical and engineering dissertation at this point. We certainly shall go over it as much as we understand it.

Mr. SMYERS. Mr. Chairman, I wonder if I might read a little bit on page 3 which I think has a bearing and a little more.

Mr. BLATNIK. Well, the full text will appear in the record.

Mr. MAXA. I think the only point of Mr. Smyers and I think the only point our report makes is from our contact with the industry it is a little bit misrepresentative of the facts, and this is what we are hopefully pointing out. What we encounter in our contact with vessel operators in this subject of nutrients, people up and down the Mississippi River and Ohio River, all these commercial operators are saying from their interpretation of certain reports that this is going to go the way of holding tanks. There are so many people whose opinion is based on certain reports on the subject of nutrients and that is why they are going to have to put in holding tanks. This nutrient business is a problem of a sewage disposal tank. All we are trying to point out is the calling off—

Mr. SCHWENGEL. I think you got a real good point here. We are pressed for time. If you are sufficiently interested and can arrange a schedule, maybe you could care to stay around. I would like to hear some of this testimony.

Mr. SMYERS. Later this afternoon or when?

Mr. SCHWENGEL. I do not know what the schedule is. Do we plan to meet this afternoon at 2? Do we have permission?

Mr. BLATNIK. We have the permission to meet.

As I understand it, you expect better performance from the small compact unit you have on pleasure craft and boats.

Mr. SMYERS. That is right. If you prohibit the macerator/chlorinator and say you must use the holding tanks, the boat either dumps the nutrients into the lake or pumps it at a dock through the sewage system and back into the lake again. The other point is the macerator/chlorinators developed are reducing the B.O.D. much better than the municipal systems in use because most of the systems in use are only primary systems these days.

Mr. BLATNIK. Thank you, gentlemen. The document will be incorporated into the record.

(The document referred to follows:)

WATER POLLUTION BY SEWAGE FROM WATERCRAFT . . . ANOTHER VIEWPOINT

The issue of Water Pollution by wastes from watercraft has recently become a controversial subject. Some reports have exaggerated and some have belittled the effect of such pollution. It is probably fair to say in any case, that even if the present degree of pollution from watercraft is insignificant compared to pollution from other sources, this type of pollution can cause an undesirable situation in local areas and if not controlled could in time become a significant part of the total water pollution situation, especially if industries and municipalities are successful in their efforts to curtail the pollution they themselves contribute. Therefore, let's support the basic philosophy to taking steps to require that wastes from watercraft shall be controlled but let's be realistic and let's be fair to the various sectors of the community involved:

1. Let's not pass laws just to trade one type of pollution for another of equal severity or merely to change the time or place of the pollution.
2. Let's not discriminate by limiting a particular type of pollution by one sector of the community until it is at least technically feasible and thus foreseeable that other sectors of the community can, in the not too distant future, be required to similarly limit that same type of pollution.
3. Let's be ready to change in response to changing pollution hazards and in response to advancing waste treatment technology.
4. Let's try to stipulate performance requirements that are meaningful.

To discuss the specifics of this subject it is probably best to have a general understanding of some of the terms used by technical personnel who work in the field of sewage disposal:

COLIFORM COUNT

Coliform bacteria live in the human intestinal tract. Literally billions of these bacteria generally are present in a single human stool. The number of these bacteria present in 100 milliliters (a little less than $\frac{1}{2}$ cup) of water is used as a general indication of the probable hazard of dangerous bacteria in the water. The influence to municipal sewage plants may have typical counts of millions per 100 ml.

Water for swimming is generally kept under the range of 50 to 1000 per 100 ml. Drinking water is generally kept at an average less than one per 100 ml.

B.O.D.

Biochemical Oxygen Demand is a measure primarily of the amount of organic matter present. It is stated in terms of how much oxygen would be consumed in converting the organic matter to a more oxidized state by natural processes such as bacterial action. The hydrogen (H) and carbon (C) in organic matter is typically converted to water (H_2O) and carbon dioxide (CO_2) in these processes. The average sewage waste per person seems to have a B.O.D. in the neighborhood of .17 lbs. (about 77,000 milligrams) of oxygen per day. In most municipal systems the organic matter is diluted with about 100 gallons (378 liters) of water per person per day so that influents to municipal sewage systems are typically in the range of 200 mg. B.O.D./LITER.

Waste with a high B.O.D. dumped into a lake depletes the oxygen in the water of the lake, thereby suffocating fish and natural life in the water.

NUTRIENTS

The word "nutrients" has a particular meaning to waste treatment specialists. It means a group of chemicals, primarily various phosphates and nitrates, often the same chemicals widely used in fertilizers for farming. These "nutrients" are present in human waste. They become hazardous when dumped in natural waterways because they tend to over-stimulate the growth of algae in the waterway eventually filling the waterway with a green scum, and upsetting the balance of natural life in the water.

Most of the controversy regarding waste disposal from watercraft nowadays centers on the question of macerator-chlorinators which chop the waste, treat it chemically, and then dump it back into the water, vs. holding tanks which retain the waste until the boat arrives at a dock-side pump-out station which can transfer the waste to a municipal or other sewage system.

Both systems have disadvantages: Macerator-chlorinators require significant electrical power, and require that chemicals be added to the system periodically. Holding tanks require that the boat owner make periodic trips to special docks presently in sparse, if any existence, in order to empty his tank (and pay a pump-out fee) before it becomes too full or becomes too rancid to be tolerated on his boat.

Unfortunately, early models of macerator-chlorinators and some present models didn't chop waste particles fine enough nor treat them strongly enough and publicized information to this effect has left the wrong impression with many people.

There is at least one present-day model macerator-chlorinator (the Carlson Mark 6,) which not only does an excellent job of reducing coliform count to an acceptable level, but also obtains about $\frac{2}{3}$ reduction in B.O.D.!

This B.O.D. reduction is about twice as good as most sewage plants in existence. Why? Most sewage plants are presently only primary treatment systems, and they only reduce the influent B.O.D. by about $\frac{1}{3}$.

There are many secondary treatment systems in existence, which can obtain B.O.D. reductions of around 90%. Hopefully, over the next 5 to 10 years, more and more municipalities will convert to such systems. In the meantime, however, it seems only logical to make sure that local regulations take into account the type of municipal systems dumping into the waterways in question. If primary treatment sewage systems with only $\frac{1}{3}$ B.O.D. reduction are going to be dumping into a particular waterway for the next few years, then certainly it is folly to require the use of holding tanks and to prohibit macerator-chlorinators on that waterway for that period of time, because the waste from the holding tanks after pump-out will at best go through the municipal system and return to the waterway with its B.O.D. reduction by only $\frac{1}{3}$, whereas with a good macerator-chlorinator the B.O.D. could be reduced by $\frac{2}{3}$ right on the boat.

It is important in this regard not to get confused regarding B.O.D. *concentrations*. A pound of B.O.D. is a pound of B.O.D. If you take a certain amount of solid organic matter, enough to have a B.O.D. of one pound and throw it into a lake, eventually one pound of oxygen will have to be absorbed from the lake. It does not matter whether you mix the organic matter with one gallon of water or with 100 gallons of water or with no water at all before dumping it in; it still is going to use up one pound of oxygen and the lake "doesn't care" which you do.

Understandably, some workers in the waste disposal field are used to thinking of municipal sewage systems where the daily waste from one human is mixed with about 100 gallons of water before it arrives at the sewage plant.

A hand pump boat toilet conversely may use only one to three gallons of water to flush the same amount of waste, so the B.O.D. concentrations from the boat without a treatment device may be typically 30 to 100 times as high in terms of mg. B.O.D. *per liter* of effluent. Some of those workers are dismayed at these higher concentrations and think that somehow or other boats have "more" potential pollution than other sources. It is not so, and it is important therefore, that meaningful terms such as "% reduction in B.O.D." be used in boat water-pollution regulations rather than concentration figures such as milligrams of B.O.D. per liter of effluent.

Nutrients (remember Phosphates and Nitrates) are another stumbling block to logical regulations. Nobody wants their lakes full of algae so they say, let's not allow macerator-chlorinators on our lake since macerator-chlorinators do not reduce nutrients. This is a fairly logical approach provided that there are, or soon will be, no sewage systems at all dumping into the lake.

But if some sewage treatment systems, particularly the system servicing the dock-side pump-out station eventually return to the lake, this approach is futile! Why? Because even secondary sewage treatment systems do not reduce nutrients! Therefore, you do not help the algae situation by requiring holding tanks which are pumped out into a municipal system, if the effluent from that municipal system eventually feeds back into the lake. Nutrients, as found in sewage effluents, are primarily in a dissolved condition. So far, there do not seem to be any good commercially available, and economically feasible, systems available for removal of nutrients from municipal sewage. Many experts are working hard on experimental and pilot plants for removing nutrients, but until such systems are at least firmly on the horizon from a commercial standpoint, we should not discriminate against the boat owner by requiring that he dump his nutrients into the lake by way of a holding tank, a pumpout station, and a municipal sewage system.

From all the foregoing, we can summarize that modern macerator-chlorinators can do a better job in most cases than holding tanks (the cases where dock-side pump-out sewage goes through at best, a primary treatment municipal system before being returned to the waterway.) In many other cases where the dock-side pump-out would go through a secondary treatment system, they can do almost as good a job as the holding tank, (B.O.D. reduction, of $\frac{2}{3}$ as compared to $\frac{1}{10}$. . . both systems pass nutrients.) Holding tanks logically might be allowed, and macerator-chlorinators prohibited on water bodies where no municipal sewage treatment plant effluents at all are permitted.

A word of caution: Free use of typical numerical values for various items have been used throughout this report. Characteristically, the many variables involved in waste treatment cause large scatter in data that is obtained, so that it is not unusual to find individual pieces of data several times as big or several times smaller than the figures mentioned.

Waste treatment in general, is a dynamic field these days. Important advances have been made recently and more will undoubtedly be made in the near future. We hope laws and regulations will be flexible enough to keep pace with the advancements in technology, yet fair in their requirements of boat owners, fishermen, swimmers, marina operators, industries, and municipalities.

WILLIAM H. SMYERS, JR.,
Chief Research Engineer,
The New Britain Machine Co.,
New Britain, Conn.

(Congressman Olsen indicated he will submit a statement for the record at this point. His statement follows:)

**STATEMENT BY CONGRESSMAN ARNOLD OLSEN, A U.S. REPRESENTATIVE IN CONGRESS
FROM THE STATE OF MONTANA**

Mr. Chairman, I appreciate having this opportunity to testify here today in behalf of this important amendment.

All of us know that as time progresses our water resources will become a more and more precious commodity. There has been a great deal of public support for improving and perfecting the Federal Water Pollution Control Act which became law in 1956. I believe the Congress and the press of this country have done an outstanding job in informing all of our citizens of the need for immediate action to reverse the trend toward more and more pollution in our waters.

Public demand led to a strengthening of this Act in the 1961 amendments and in the Water Quality Act of 1965 and the Clean Water Restoration Act of 1966. I am pleased that the states and Federal government have moved quickly to implement this legislation.

I come from a state where citizens are confronted with plentiful water supplies in some areas and a shortage of water in others. In areas where water is plentiful and pure the people of Montana appreciate its value and are united behind efforts to maintain the strictest possible water quality controls. And, in areas where there is a shortage of water, the eagerness to conserve and make the best use of our water is equally strong.

Perhaps our citizens are fortunate in having had the opportunity to look around the country to areas in which there has been increasing industrial pollution on the one hand and rapidly increasing population on the other. They have heard the reports from many parts of our Nation where water consumption has had to be rationed. They have witnessed the slow progress of scientists searching for a way to make the abundant waters of our oceans fit for consumption and they know that no practical solution has been found. As the race continues between an adequate, clean water supply and a growing population, we hear an increasing number of dire predictions of a severe water shortage in the years ahead.

And here today we are engaged in a different, though related race. We have made tremendous strides in the industrial and technological development of this Nation but, unfortunately, we have not kept pace in our efforts to control water pollution, a by-product of our rapid industrial advancement. A beginning has been made on all levels of government but all of us know the distance we must go to overcome the damage which has already been done. Today I know I am representing the people of my District and State when I ask my colleagues on this Committee to support these amendments and to redouble our efforts to assure all of our citizens an adequate, pure supply of water, our most important natural resource.

I fully support this amendment to authorize research and demonstration programs for the control of lake pollution, control and prevent mine water drainage and the prevention of water pollution by oil.

Finally, I am hopeful these demonstration and research projects will effectively combine intensified research with intensified industrial efforts to effectively control the sources of pollution in our lakes and streams.

Mr. McCARTHY. The next witness is Mr. Robert Canham, of the Water Pollution Control Federation.

**STATEMENT OF ROBERT A. CANHAM, ASSISTANT SECRETARY AND
EDITOR, WATER POLLUTION CONTROL FEDERATION**

Mr. CANHAM. Thank you, Mr. Chairman.

This statement is made on behalf of the 39 Federal Member Associations in the United States and Puerto Rico. These organizations and others represent approximately 45,000 persons directly concerned with the promotion, management, design, construction, and operation of facilities for the control of water pollution through the proper collection and treatment of domestic and industrial waste waters. The federation is vitally interested in all programs concerning the advancement of knowledge of water pollution control technology, and the

provision and proper operation of the facilities for accomplishing these objectives. It recognizes that these efforts include research, planning, regulation, as well as the formal and informal instruction of those working in the field.

The federation has a worldwide reputation as the primary disseminator of technical information in the field through its periodicals and special publications.

The federation's statement of policy last approved by the board of control during its annual conference in October 1967 is appended and made a part of this statement. Even a cursory view will indicate the federation's deep concern with the proper approach to water pollution control problems.

This statement is directed toward certain of the bills before the committee as follows:

THE "WATER QUALITY IMPROVEMENT ACT OF 1968"—H.R. 15907

This bill makes a frontal attack on the inadequacies of the present Federal Water Pollution Control program. Even though the Federal Water Pollution Control Act of 1965 provided for a productive program, the financial support for that program has not been forthcoming and has reduced the rate of municipal water pollution control plant construction much below that anticipated by the act. H.R. 15907 aims to correct this deficiency by longtime Federal financing of the Federal Government's share to overcome the current restrictions on the financial support essential to the success of the program.

In deleting the reimbursement part of the construction financing in the 1966 act, it is apparent that the present bill creates a hardship on those communities that have proceeded under the promise of reimbursement. Other communities that have been encouraged to proceed would then be confused further. These uncertainties and changes would add to the overall tendency toward retarding the program instead of providing acceleration.

Some of the provisions of this bill fit into the existing framework of financing. For example, charges made to the users of a treatment works have been established by many communities, including that authorized by the Congress in 1954 for the District of Columbia. Such service charges have been found to place the treatment facilities on a utility financing basis, providing funds not only for necessary capital improvements but also for proper operation and maintenance of the system. This is sound financing and it is helping many cities and sanitary authorities provide proper drainage service for their citizens. It is emphasized that there are other sound and well-established methods of local financing. It also is pointed out that it is desirable for local financing methods to continue to be choices of each municipality.

While municipal bonds relieved of their tax-exempt status may be responsible for a higher repayment cost to the municipality, the faith and credit of the Federal Government will tend to offset this, and, hopefully, the final result will not be more expensive to the municipality. However, it seems to reduce greatly the possibility of accelerating construction rates of water pollution control works, and could be another factor contributing to a retarded construction rate. It would seem well to consider the removal of these provisions and leave such a basic change to tax legislation.

Estuary study

The requirements of this bill are in line with the Federal Water Pollution Control Act and they bring into focus the special problems of tidal estuaries. It is pointed out, however, that if control efforts are concentrated on the major sources of deleterious contributions to estuaries, that is, pollution control in the freshwater streams feeding the estuaries, surface runoff, and its attendant problems, ground water contributing to estuaries and undesirable discharges from sources such as vessels, that the condition of estuaries would be so markedly improved that this need for this type study would be diminished greatly.

Plant design and operation—operator certification

Finally, the bill would require that the owner of a water pollution control facility operate it to obtain maximum efficiency and that each State participating in the plan would bring its plant operating surveillance to a proper level and engage in a program of plant operator certification. These requirements strike at the heart of plant operating needs and the Water Pollution Control Federation has made major contributions to these efforts. For this reason, the federation endorses these provisions with great enthusiasm.

By the sheer size of the water pollution control problem, it seems virtually impossible for it to be primarily a Federal program. For this reason, the Federation hopes that maximum use will always be made of the State technical staffs who have worked with this problem devotedly for many years. Full support of the efforts of all States will pay off handsomely in returns for effective control of water pollution in the United States.

S. 2760

Lake pollution control provision

The intent of subsection (h) of section 5 providing for developing and demonstrating new or improved methods of water pollution control agrees with the general intent of the Water Pollution Control Federation's objectives except that this section of the bill restricts the effort to pollution problems in lakes. It can be pointed out that much of the problem in lakes is caused by the components of the water discharged into them from streams. Therefore it can be argued that if the streams are properly handled there would not be a need to emphasize lake pollution to a discriminatory degree. This is not altogether true in the literal sense because of pollutional and/or nutritional additions from surface runoff in a lake watershed, and there are other factors of course. However, it emphasizes the need to consider the overall problem including source, carrier, and receiver, rather than to fragment an effort with concentrated emphasis on one segment even though that segment may not be the weakest or strongest link in the chain.

This organization believes that pollution problems including eutrophication should receive great attention but that the source and streams should receive great attention also. It further believes that lakes that are not already in serious condition can be protected with stronger emphasis directed toward the objective of higher water quality of the water entering lakes which we believe is the underlying intent of the basic act.

Acid and other mine water pollution control

The acid mine drainage problem is unique and has defied practical solution for many years. Therefore it appears reasonable to violate the generalization discussed above and continue special efforts toward the correction of this special problem. In the general intent this organization supports this portion of the bill.

Oil pollution control

The overall objective of the oil pollution part of the bill to reduce oil pollution in navigable waters and along shorelines is endorsed. It has been pointed out by many that a control program such as this depends on all sources. Therefore, it is important that control of oil discharges from all foreign vessels be obtained.

WASTE TREATMENT PLANT OPERATION—H.R. 16044

The Water Pollution Control Federation is dedicated to the improvement of operation of waste treatment plants as specifically covered in points 3, 5, 6, 7, and 9, of its Statement of Policy. The intent of these points includes: (1) direct responsibility for obtaining the maximum effectiveness of existing and new plants as designed (2) the encouragement of adequate financing and the use of the most practical means of financing (3) the development of new and more effective methods of treatment (4) adequate public and administrative support which will result in continuous efforts to maintain full staffs in treatment works, and (5) the strong support of mandatory certification of operating personnel so that maximum effectiveness of treatment facilities can be realized.

It is believed that the intent of H.R. 16044 fits in general certain of the objectives of this organization although the statement of policy is designed to encourage broad efforts to take advantage of all opportunities to improve treatment efficiencies. H.R. 16044 in its selection of chemical treatment methods tends to discriminate against other approaches such as biological and physical methods, in which areas much development work is well underway and in use.

If the provisions of the bill were broadened to encourage assistance for all approaches toward more efficient methods of treatment it would agree more closely with the intent of the federation's statement of policy, as well as meeting the water quality standards.

Subsection (h) of section 5 of S. 2760 makes provision for procedures to investigate and demonstrate improved methods of treatment without specifications as to the method of approach. It appears that in this respect both H.R. 16044 and S. 2760 are attempting to reach the same objective but with differing emphasis on the time frame of reference and S. 2760 is limited to lake pollution. It is believed that the objectives of this part of S. 2760 have not as yet been achieved.

THE OIL AND HAZARDOUS SUBSTANCE POLLUTION CONTROL ACT OF 1968—
H.R. 15906

Since the intent of the bill agrees with that in the oil pollution control section of S. 2760, the comments remain the same as for S. 2760 above; i.e., general support.

VESSEL POLLUTION CONTROL—H.R. 7234, H.R. 13923, H.R. 16207

In recognition of the continuing and growing problems created by discharges from vessels additional correction efforts are needed. Therefore, without qualifying the details of the bill this organization supports its intent.

You have the appreciation of the federation for the privilege of submitting this statement. We stand ready to amplify these remarks or answer questions within our field of activity at any time.

Mr. McCARTHY. Thank you, Mr. Canham, for that very comprehensive analysis of the bills before us. It makes an excellent summary, and we appreciate your thoughtful consideration of these bills and views of your organization have certainly been a major contributor to the war on pollution representing 45,000 people. So on behalf of the committee I want to thank you very much.

(The statement of policy on water pollution control referred to follows:)

STATEMENT OF POLICY ON WATER POLLUTION CONTROL, IN THE UNITED STATES—
ADOPTED BY THE BOARD OF CONTROL OF THE WATER POLLUTION CONTROL FEDERATION, OCTOBER 8, 1967

(This Statement of Policy was adopted originally in 1960. Since then, revisions have been made to keep abreast of expansion and changes in the water pollution control field.)

Pollution of the Nation's inland surface waters, coastal waters, and groundwaters is a continuing threat to the national health, aesthetic enjoyment, safety, and economic welfare. National survival, in terms of future urban, industrial, and commercial growth and prosperity, dictates the protection of all water resources from any acts, such as the discharging of harmful substances which cause unreasonable impairment of water quality and adversely affect their highest level of usefulness. While considerable progress has been made in pollution control by municipalities and industries, many water resources are being degraded, impaired, and damaged by such discharges and acts, and they will be further adversely affected by the degree and pattern of population growth, industrial processing, commercial expansion, chemical usages, agricultural developments, and other technological advancements.

The Water Pollution Control Federation is pledged to provide leadership and guidance to all constructive efforts which contribute to the control of water pollution. Its pledge is summarized by the following points.

1. The discharge of all wastewater into the waters of the Nation must be controlled.

2. The objectives of water pollution control must include preservation of high quality waters for protection of public health; for industrial, agricultural, and recreational uses; for fish and wildlife propagation; and for the maintenance of an aesthetically desirable environment.

3. The responsibilities for the adequate treatment and control of wastewater must be assumed individually and jointly by industry and local, state, interstate, and federal governments.

4. The administration of water pollution control must be firm and effective and should remain in the hands of state and interstate water pollution control agencies. Regulatory agencies must be supported by adequate budgets and fully staffed by competent engineers, scientists, and other personnel.

5. Federal, state, and local laws and practices must reflect the changing needs in order to obtain and maintain the most economical and effective means for financing the construction, operation, and maintenance of wastewater treatment works.

6. The public must be made fully aware of the consequences of water pollution and the costs of its control. Only in this way can the public be prepared to sponsor and support sound water pollution control measures.

7. Basic and applied research by competent personnel must be encouraged by broad efforts to develop new knowledge that will solve water pollution problems.

8. Wastewater represents an increasing fraction of the Nation's total water resources and should be reclaimed for beneficial reuse. To this end the development and application of methods for wastewater reclamation must be accelerated.

9. Mandatory certification or licensing of adequately trained and properly compensated personnel must be encouraged as a requirement for maximum effectiveness of treatment facilities.

The Water Pollution Control Federation was established in 1928 as a non-profit, technical membership organization. Its objectives are to advance the fundamental and practical knowledge of all aspects of water pollution control by the dissemination of technical knowledge through publications, technical conferences, improvement of the professional status of those engaged in the field, promotion of public understanding and participation, and encouragement of the adoption and implementation of sound regulations aimed toward effective water pollution control.

The more than 16,000 member-subscribers in more than 79 countries throughout the world receive the JOURNAL and HIGHLIGHTS on a monthly basis. Member associations represent Australia, Canada, Germany, India, Israel, Japan, Mexico, The Netherlands, New Zealand, Puerto Rico, Sweden, Switzerland, United Kingdom, Venezuela, and all of the 50 United States.

Publishers of:

Journal Water Pollution Control Federation

Quarterly Research Supplement to Journal Water Pollution Control Federation

Highlights

Manuals of Practice

Operator Training Aids

Proceedings of the 3rd International Conference on Water Pollution Research

Other Special Publications

For further information contact: Water Pollution Control Federation, 3900 Wisconsin Ave., Washington, D.C. 20016—Telephone: (202) 362-4100.

STATEMENTS FOR THE RECORD

Mr. McCARTHY. We have for the record here a statement by our colleague, the Honorable Seymour Halpern.

For the record, a letter from the Sport Fishing Institute dated April 22, 1968, signed by Philip A. Douglas, executive secretary.

For the record, a covering letter from the Honorable Silvio O. Conte dated April 22, 1968, with attached documents.

For the record, a letter from the State of Colorado Department of Public Health signed by Frank Rozich, technical secretary, Water Pollution Control Commission, dated April 22, 1968.

For the record, a covering letter from the Consulting Engineers Council of New York State, Inc., signed by Harold E. Rist, C.E.C., president, dated April 18, 1968, with accompanying document.

For the record, a letter from the Missouri Water Pollution Board, signed by Jack K. Smith, executive secretary, dated April 23, 1968.

For the record, a covering letter from the Honorable Sam Steiger dated April 24, 1968, with accompanying letter bearing the letterhead of the City of Phoenix, Ariz., dated April 22, 1968.

Finally for the record, a letter from Hon. John M. Zwach dated April 22, 1968.

(The documents referred to above follow:)

STATEMENT OF HON. SEYMOUR HALPERN, A REPRESENTATIVE IN CONGRESS FROM
THE STATE OF NEW YORK

OIL POLLUTION CONTROL

Mr. Chairman and members of this distinguished Committee, the fouling of our seas and shores by oil from sinking tankers is a problem that can brook no further delay. We in Congress have an obligation to provide immediately for effective machinery and ready procedures to combat oil pollution as quickly as potential disasters appear.

There can be no excuse for waiting until catastrophe strikes, and tons of thick, black, stinking sludge cover hundreds of miles of our vacation beaches, kill our coastal wildlife and disrupt our fishing industry. We have already been shown ample proof of the hazard on the coast of England, and Puerto Rico.

Last January, I was proud to have joined with my able colleague from Massachusetts, Mr. Keith, in introducing the original bill, H.R. 14852, to fight the oil pollution menace. Since then, the Administration has responded with proposals of its own, which of course, I welcome. However, I again joined with Mr. Keith in introducing our present bill, H.R. 16559, which goes even further, and greatly strengthens the Administration's proposals.

We have sought to stiffen the Administration bill in two ways. First, we feel that the delegation of authority from the Secretary of the Interior to the Coast Guard for the physical handling of pollution countermeasures should be specifically spelled out.

While such intent is stated by the Administration bill, and while it is quite likely that the necessary arrangements may be made between the two agencies, under the terms of H.R. 15906 as written, we still feel that the more precise language offered in our bill is useful.

The second, and more important, change we are urging is to expand the area in which the Secretary may take action to prevent or ameliorate oil pollution disasters.

The Administration proposal would confer jurisdiction within the contiguous zone, which, at maximum, represents a 12-mile ribbon around our coastline.

Inasmuch as time and tide, and I would add wind and wave, wait for no man, it seems imperative to expand the area within which the Secretary may act. This is accomplished in our bill by allowing such action in cases of discharges on the high seas outside the contiguous zone, "if such matter may adversely affect the navigable waters of the United States or the waters of the contiguous zone, or if such matter threatens damage to valuable resources on or above the Continental Shelf."

We must expect that circumstances will sometimes dictate that action be taken at distances greater than 12 miles from our beaches. Conditions of storm, or simply prevailing currents might make a discharge some distance beyond the 12 mile zone as great an ecological threat as a discharge within the contiguous zone. The 12 mile limit of the contiguous zone is an arbitrary figure which has little relationship to the potential damage caused by an oil slick. The legislation which the Congress approves should provide the flexibility to deal with this fact.

With these changes, Mr. Chairman, the proposal before your committee will become a more effective tool in the work providing a wholesome, livable environment. This Committee has already performed a yeoman task in dealing with previous encroachments upon environmental quality. I commend you for your efforts.

I will not take the time of this Committee to relate the incidents which have occurred in recent years which point up the need for this legislation. You will hear mentioned frequently during this hearing the *Torrey Canyon*, the *Ocean Eagle*, and others. The tragic loss of wildlife and the extensive loss of tourist dollars will be detailed too, I am sure. I feel, however, that this Committee is aware of the need for this legislation and is seeking only to find the language which best meets the problems posed by oil pollution.

In the past the degradation and pollution of portions of the environment has coincided with the intensive use of that portions. In the case of the oceans we appear ready to break with that established pattern. Now, we stand an excellent chance of seriously degrading the seas before we come to understand the values, the secrets and the resources which they contain. Our capabilities for destruction now exceed our abilities to utilize the ocean.

I urge prompt action to insure that those capabilities for destruction are not allowed free rein.

Mr. Chairman, I request of the Committee prompt and favorable action to reduce the threat of oil pollution to the ocean area.

SPORT FISHING INSTITUTE,
THE NATIONAL NON-PROFIT FISH CONSERVATION ORGANIZATION,
Washington, D.C., April 22, 1968.

Re H.R. 15907 "To amend the Federal Water Pollution Control Act, as amended, relating to the construction of waste treatment works, and to the conduct of Water Pollution Control Research, and for other purposes."

HON. GEORGE H. FALLON,
*Chairman, House Committee on Public Works,
Capitol Building, Washington, D.C.*

DEAR MR. CHAIRMAN: The Sport Fishing Institute regrets not being able to personally present this testimony. We have been vitally concerned, however, with the enactment of the Clean Water Restoration Act of 1966 which did establish a four year matching grant construction program of some \$3.4 billion in authorization to aid the major municipalities and metropolitan areas finance their sewage treatment facilities, at least to the secondary treatment stage. We were grossly disappointed by the subsequent Congressional action which only appropriated \$203 million for the current fiscal year instead of the \$450 million as established by P.L. 89-753, later amended on your strong insistence to \$225 million.

Mr. Chairman, we can see nothing but trouble and frustration ahead if the Federal Government does not assume a strong and extremely active leadership role in helping the Nation get up on its feet in cleaning up the tremendous backlog of needed waste treatment construction as well as keep up with the present and plan adequately for the future. We are already encountering new forms of pollution, such as that caused by the newer greatly enlarged electric generating power stations, both fossil and nuclear fueled, wherein tremendous volumes of water are heated up as high as 143° F! If we don't catch up or at least keep abreast with the treatment of much of our industrial, municipal, and human wastes it may well be that, we are writing off all of our aquatic natural resources. Our Board of Directors have been greatly concerned with the apathy of the Congress in meeting its authorization obligations through proper appropriations in this restoration program. They passed unanimously the following resolution:

APPROPRIATIONS FOR RESTORATION OF CLEAN WATER

Whereas the Congress did pass the Clean Water Restoration Act of 1966 (P.L. 89-753) authorizing waste-treatment plant Construction Grants-in-Aid to the states totalling \$3.6 billion over a five-year period with the first year's authorization amounting to \$450 million for fiscal year 1968; and

Whereas the Administration has requested only \$203 million in its fiscal year 1968 budget for the entire United States, which is less than half the minimum amount needed in fiscal year 1968, and the City of New York, alone, would legally qualify for about \$90 million in justifiable federal aid matching grants for construction of needed waste treatment plans during fiscal year 1968, thereby utilizing nearly half of all the federal funds that would be available under the Administration's reduced funding proposals:

Now, therefore, be it

Resolved, That the Board of Directors of the Sport Fishing Institute, assembled in regular Annual Meeting this 18th day of May, 1967, at Louisville, Kentucky, do herewith urge the Appropriations Committees of both the House of Representatives and the Senate and all Members of the Congress to take whatever action is needed to add sufficient funds to the Administration's requested budget in order to provide the full \$450 million authorized for appropriation in fiscal year 1968 and which are badly needed to meet the funding schedule already determined by the Congress to be the minimum that will be needed to get the country started on a significant nationwide Clean Water program.

S. 3206 does envision a realistic approach to the problem—funding. By setting up 30 year interest-free loans available to the Standard Metropolitan Statistical areas and those population areas of at least 125,000 the contractual obligations could be more easily met by that public agency, which needs this federal money so desperately. I will not belabor the point of this need. The Nation is pretty well informed on the tremendous task ahead of it. The cities have the very disrupting problem of; separating storm and sanitary sewers; developing the essential technology and sophistication of methods to handle the myriad of chemicals now being introduced into our waters as waste effluents; treating the tremendous amounts of waste caused by an ever-expanding human population; and too, solving the aforementioned problems involving thermal pollution.

Mr. Chairman, it behooves this government to step in and take hold of the reins and guide the efforts of the United States toward these solutions and to maintain ceaseless vigilance over all of our waste discharges. The five steps that would be authorized in H.R. 15907 to fund the financial requirements of the borrowing municipalities, and other areas eligible to receive such funds, would provide a ways and means of alleviating much of the funding burden that is so painfully evident to our own government in the Vietnam situation.

We have seen estimates of the cost of making our waterways clean again amount to \$20 billion. The \$3.4 billion that had been set up to be spent through fiscal year 1971 must be appropriated to enable us to see the light of day in this tremendous task ahead of us. Too, we appreciate the extension of time allotted for the estuarine study as covered by the Section 5(a) amendment, as well as the provisions for research and training that are contained in Section 6. In Section 5(c) (3) may we suggest the word *conservation* to replace "preservation," so that part (3) reads: "Recommendations for comprehensive national program for the conservation study, use, and development of estuaries of the nation, and the respective responsibility which should be assumed by Federal, State, and local governments and by public and private interests." The word "preservation" to us means more of the sanctuary connotation that could mean such areas would remain inviolate to any human visitation. We feel that conservation, which provides for a wise use program of our renewable natural resources, is by far the better designation in this situation.

The Sport Fishing Institute wishes to go on record as solidly behind the intent and purposes of H.R. 15907 as being in the greatest public interest to America, with consideration given our suggestions, noted above, as strengthening measures.

Sincerely,

PHILIP A. DOUGLAS,
Executive Secretary.

POSITION OF MASSACHUSETTS DIVISION OF WATER POLLUTION CONTROL ON THE
"WATER QUALITY IMPROVEMENT ACT OF 1968"

CONGRESS OF THE UNITED STATES,
HOUSE OF REPRESENTATIVES,
Washington, D.C., April 22, 1968.

HON. GEORGE H. FALLON,
Chairman, House Committee on Public Works,
Washington, D.C.

DEAR CHAIRMAN FALLON: Enclosed is a copy of a letter and statement I received from the Director of the Massachusetts Division of Water Pollution Control expressing his opposition to several features of H.R. 15907, which I understand is scheduled for hearings this week.

Mr. McMahon has requested that I forward his position to you and requests that it be given every consideration by the Committee.

With my very best wishes, I am

Cordially yours,

SILVIO O. CONTE,
Member of Congress.

[Enclosures.]

THE COMMONWEALTH OF MASSACHUSETTS,
WATER RESOURCES COMMISSION,
Boston, April 15, 1968.

CONGRESSMAN SILVIO O. CONTE,
*House Office Building,
Washington, D.C.*

DEAR CONGRESSMAN CONTE: In recognition of your interest and desire to see a continuing and progressive water pollution control program in Massachusetts I am calling your attention to two proposed bills to amend the Federal Water Pollution Control Act. These bills are HR 15907 and S 3206 and are virtually similar.

An analysis of HR 15907 is enclosed for your information and interest. This bill in our opinion has many disturbing features which will adversely affect the timely construction of waste treatment facilities in the Commonwealth and completely disrupt the implementation schedules already promulgated as required by the Federal Water Quality Act of 1965.

In order to properly convey our concern over the ramifications of these bills I would suggest contacting the following prior to April 25, 1968:

Congressman George A. Fallon, Chairman,
House Committee on Public Works,
2165 Rayburn Building,
Washington, D.C. 20034; and
Honorable Edmund S. Muskie, Chairman,
Senate Subcommittee on Air and Water Pollution Control,
New Senate Office Building,
Washington, D.C. 20510.

HR 15907 has been analyzed by representatives of the Connecticut Water Resources Commission, the New England Interstate Water Pollution Control Commission and other neighboring States with general concurrence as to the serious potential problems that may occur by passage of this pending legislation in its present form.

We would be most appreciative of any assistance or advice that you can provide on this matter in order to provide the proper legislative direction for solving the water pollution problem on a unified, equitable and efficient basis.

Very truly yours,

THOMAS C. McMAHON,
Director.

APRIL 12, 1968.

EVALUATION OF PROPOSED AMENDMENTS TO THE FEDERAL WATER POLLUTION CONTROL ACT

This evaluation is written in order to express the Massachusetts Divisions of Water Pollution Control's concern with HR 15907 and S 3206, similar bills to amend the Federal Water Pollution Control Act presently being considered by the Congress of the United States.

These bills would authorize the Secretary of the Interior to:

1. Enter into contracts with local public bodies to allow the United States to make payments on the portion of principal and interest costs to cover the applicable Federal share of contribution costs of eligible waste treatment works over a period not to exceed 30 years;
2. make payments on the non-Federal share which would reduce the net effective interest rate to States and localities to a rate reasonably comparable to rates on tax-exempt municipal bonds;
3. provide that, before entering into contracts for each project under this new subsection, the Secretary must first satisfy himself that the project serves either all of a standard metropolitan statistical area, as defined by the Bureau of the Budget, or an area of 125,000 people or more, or a portion of a standard metropolitan statistical area. The Secretary must also be assured that a local public body having jurisdiction over the project has or will establish a system of charges designed to amortize the cost of the project and the cost of operating and maintaining the project over its life and to provide a necessary reserve fund;
4. amend Section 8(d) of the Act. The amendments would continue the current level of appropriation authorizations for construction grants for

fiscal years 1969, 1970 and 1971. It would also authorize appropriations for an indefinite number of fiscal years to liquidate contracts under the new Section 8(f);

5. provide that the aggregate amount of contracts in any one year shall not exceed 10 percent of the aggregate principal sum available for such contracts in any one State;

These bills would also:

6. Amend the reimbursement provision in the Act added in 1966. This provision would allow a State to proceed with their approved project and be reimbursed up to the normal Federal share if Federal funds become available at a later date. The proposal would cut this authority off as of July 1, 1968;

7. Require the State to initiate an effective operator certification program approved by the Secretary by July 1, 1970. They would also require the State to develop by July 1, 1969, an approvable statewide plan to improve the efficiency of treatment works constructed prior to July 1, 1968, and operating since that date. These last two features are conditions for assistance for the grant and contract program;

8. Extend the general research, demonstration training and information authorities beyond June 30, 1969 and consolidate the comprehensive estuaries study provision of the Act.

In order to properly evaluate the ramifications of this bill, a brief review of the Massachusetts program should be made.

Since the passage of the Federal Water Quality Act of 1965 and the Clean Waters Restoration Act of 1966, the Commonwealth of Massachusetts enacted one of the most comprehensive water pollution control programs in the nation, featuring a \$150 million State Grants Program, a new Division of Water Pollution Control in the Department of Natural Resources, two industrial waste treatment tax incentive laws, one million dollars a year for research and training, and broad authority for enforcing the provisions of the Clean Waters Act. Water Quality Standards have been adopted and approved for the entire State, and the Division has instituted and scheduled an aggressive and comprehensive waste treatment construction program tailored to the financial support authorized by the Clean Waters Restoration Act. Following cut-backs in Federal appropriations in FY 1968, a pre-financing clause was passed by the Massachusetts Legislature to allow us to advance the Federal share on eligible projects in order to preserve the integrity of the schedules set forth in our implementation program.

This pending Federal legislation (HR 15907) and (S 3206) appears to offer several serious deficiencies that would certainly delay and conceivably cripple the efforts of the Commonwealth's water pollution abatement program. Several of these are enumerated as follows:

1. Under HR 15907 and S 3206 the Federal reimbursement provisions are discontinued July 1, 1968. To maintain the present Federal grant appropriations and at the same time eliminate the reimbursement provision will reduce the level of construction far below what is required in the State's implementation schedule and serve to lengthen the time period for water quality enhancement of our rivers and streams.

2. The larger communities will be at a disadvantage under the contract provisions because of the method of reimbursement using non-tax exempt bonds contrasted with a smaller community that may receive grants. This constitutes a serious problem as to the equitability between large and small community financing. The appropriation levels are also not specified in the Act and therefore makes it difficult to plan for specified projects on a year-to-year basis.

3. The fact that no state may get more than 10 percent of the total amount of available funds for contracts obviously is disproportionate as the magnitude of State problems vary considerably, and there is no assurance that the more serious problems will be rectified on a priority basis. The earlier method of allocations on a population and income basis with State priority schedules certainly appears to be a better approach.

4. The section providing for the local public body to establish a necessary reserve fund is not allowable under the Massachusetts General Laws.

5. The State would certainly agree an operator certification program is a necessary ingredient to an effective water quality control program. At the

present time there is a bill for a mandatory Operator Certification Program in the Massachusetts House of Representatives. The effective date for this however is July 1, 1971, which, in our opinion is the earliest we can promote an effective certification program which will include re-training existing operators and instituting a one-year school for inducing new personnel in the operation of waste treatment plant programs.

6. Under the presently anticipated grants for FY 1969 there is some \$225 million authorized for construction grants. HR 15907 proposes a research and development program for \$125 million a year on a continuing basis. It certainly would appear that the proportionate amounts for construction grants for waste treatment facilities compared to the amounts being proposed for research is grossly imbalanced. Our State recognizes the needs for continuation of the on-going research and demonstration program but not at a level that is almost 60 percent of the authorized construction levels.

7. The proposed legislation would eliminate the provision in the existing Act that one of the Federal regional water pollution control laboratories shall be located in the Northeastern area of the United States. It is our understanding that under the present Act, the site for this laboratory was selected and the final plans prepared for the laboratory to be located in the Boston area.

8. The bills do not recommend how much money will be authorized for construction grants or for contracts making it impossible for the States to plan projects in advance and, of course as earlier mentioned, destroys the present implementation schedules required by the Federal Water Quality Act of 1965.

We would offer the alternative of continuation of the program proposed in the Federal Water Quality Act of 1965 and the Clean Waters Restoration Act of 1966 with increased authorizations for construction grants as a far more suitable method for attacking water pollution in a broad, equitable and efficient manner. Alteration of the financial methods of assistance to communities can only negate many of the good features of our State program and rescind many of the progressive provisions of earlier amendments to the Federal Water Pollution Control Act.

As a person extremely interested in the Massachusetts program any assistance or advice that you can provide on this matter will be greatly appreciated.

THOMAS C. McMAHON,
Director.

STATE OF COLORADO DEPARTMENT OF PUBLIC HEALTH,
4210 East 11th Avenue, Denver, Colo., April 22, 1968.

COMMITTEE ON PUBLIC WORKS,
Congress of the United States, House of Representatives, Rayburn House Office Building, Washington, D.C.

GENTLEMEN: Colorado wishes to lend its support to H.R. 16044 "A Bill to Amend the Federal Water Pollution Control Act to Authorize Certain Grants for Assisting in Improved Operation of Waste Treatment Plants". Many communities in Colorado are presently planning the construction of metropolitan waste treatment facilities or the improvement of present treatment facilities, consequently they are reluctant to spend monies on present facilities until they know how these facilities will fit into a long-range plan. As a result, they are not getting the best in operational efficiency from these existing treatment plants. We feel that H.R. 16044 would provide the stimulus for upgrading the performance of existing plants, thereby achieving measurable improvements in water quality, substantially in advance of the time when treatment plant modifications or additions can be constructed to attain the full degree of performance that may be required. We also feel that the assistance to communities offered under this bill would encourage these communities to explore the use of proven new methods of treatment with which to achieve a substantial improvement of their effluent quality. We therefore encourage your support of this bill.

Very truly yours,

FRANK ROZICH, P.E.,
Technical Secretary,
Water Pollution Control Commission.

CONSULTING ENGINEERS COUNCIL OF NEW YORK STATE, INC.,
Glens Falls, N.Y., April 18, 1968.

Re: H.R. 15907; Senate 3206.

HON. ROBERT E. JONES,
Congressman, The House Office Building,
Washington, D.C.

DEAR SIR: The two Bills referred to above propose: "To amend the Federal Water Pollution Control Act, as amended relating to the construction of waste treatment works, and to the conduct of water pollution control research and for other purposes".

New York State has moved ahead rapidly in the field of water pollution abatement and has already established a number of working procedures based on the existing federal statutes with state statutes coordinated to the present federal law. It is, therefore, unfortunate that this amendment which may be beneficial in some states, has a serious determining effect on the continuance of New York State's Pure Waters Program.

Attached for your review is a statement of the provisions which would affect our State adversely.

We feel that the proposed statute can be revised so as to complement and improve the existing Federal Statute without injury to New York State's ongoing pollution abatement program. Your assistance in making these revisions is earnestly solicited.

Very truly yours,

HAROLD E. RIST, C.E.C.,
President.

[Enclosure.]

INFORMATION CONCERNING FEDERAL PROGRAM

The President recently announced publicly, and the Secretary of the Interior presented to the Speaker of the House of Representatives, a Federal program proposing to substantially change the existing construction grants program authorized under the Federal Water Pollution Control Act, PL89-753, as amended.

HR15907 was introduced on March 12, 1968 for enactment. The more important provisions of this Bill, as regards municipal projects in New York State, are as follows:

(a) Projects on which construction is initiated *after July 1, 1968* would no longer be eligible for reimbursement to the full Federal share of 50 or 55%.

(b) The Department of the Interior would contract with municipalities, or plant service areas, over 125,000 in population (Standard Metropolitan Statistical Area as defined by the Federal Bureau of the Budget) for the 55% Federal share. This share would be paid annually by debt service payments (principal and interest), and would guarantee the non-Federal share. The municipality's bonding arrangements would be specified and subject to approval. *Bonds would not be tax exempt.* One State could not receive more than 10% of the national appropriation, and there is no assurance that New York State could qualify for the maximum 10%. The FY-69 appropriation for this debt service contract provision is proposed at \$475 million. Since the average rate for *only* the City of New York appears to average \$50 million or more annually, it appears that the plan and the programmed annual funding will not provide sufficient funds for State of New York projects.

(c) A sewer use charge is required which "will be adequate to enable it to be operated in a businesslike manner capable of amortizing *treatment works costs*, together with *operation and maintenance costs*, and a reserve to meet to the greatest extent possible, *expansion or replacement requirements* of the treatment works service area". Italics added for emphasis.

(d) For municipalities under 125,000 population, the existing grant program would still be applicable (with the exception of the reimbursement clause), with an FY-69 proposed appropriation of only \$225 million, or only \$16,839,000 for State of New York projects. For FY-69, for Federal financing to the full Federal share of 50 or 55% programmed State of New York projects could use more than the total national amount of \$225,000,000, instead of only \$16,839,000.

(e) Because of the lack of available funds, it appears that strict adherence to a priority system will be required by the Federal government. The consequences on the State of New York Pure Waters Program are obvious.

The Senate Bill 3206 has been introduced also, and is identical with the House Bill 15907. Hearings on the Senate Bill are scheduled to be held on April 9, 10 and 11. Note these days. Hearings on the House Bill are tentatively scheduled for April 23, 24 and 25.

MISSOURI WATER POLLUTION BOARD,
THE DEPARTMENT OF PUBLIC HEALTH AND WELFARE,
Jefferson City, Mo., April 23, 1968.

GEORGE H. FALLON,
Chairman, Committee on Public Works, Congress of the United States, Rayburn House Office Building, Washington, D.C.:

I have reviewed H.R. 16044 which was introduced in the House of Representatives on March 19, 1968. I wish to express my personal opinion of this bill. Our Board has not had an opportunity to discuss the merits of the bill. The Board will meet on May 16, 1968 and it will be presented to them at that time. Since hearings will be held April 23-25 I felt that it was advisable to give you my personal views on the bill.

I think the bill has merit and there is a need to emphasize the importance of improving the operation of existing waste treatment facilities. This bill certainly would encourage improved operation and it is believed that a great deal of pollution abatement can be achieved through enactment of this legislation.

Thank you for the opportunity to present my views.

JACK K. SMITH,
Executive Secretary, Missouri Water Pollution Board.

POSITION OF THE CITY OF PHOENIX, ARIZONA ON THE "WATER QUALITY IMPROVEMENT ACT OF 1968"

CONGRESS OF THE UNITED STATES,
HOUSE OF REPRESENTATIVES,
Washington, D.C., April 24, 1968.

HON. GEORGE H. FALLON
*Chairman, House Public Works Committee,
U.S. House of Representatives, Washington, D.C.*

DEAR CHAIRMAN FALLON: Enclosed is a letter just received from the Mayor of the City of Phoenix regarding HR 15907. I understand that hearings are scheduled to start tomorrow.

The points he made are very pertinent, it appears. Certaining the financing section comments, I hope, will be considered closely.

It would be appreciated if HR 15907 could be considered in light of the statements made by the Honorable Milt Graham. Thank you for your consideration in this matter.

Sincerely,

SAM STEIGER.

CITY OF PHOENIX,
OFFICE OF THE MAYOR,
Phoenix, Ariz., April 22, 1968.

HON. SAM STEIGER,
*Congress of the United States,
House of Representatives, Washington, D.C.*

DEAR SAM: The City of Phoenix has reviewed copies of HR-15907 and its companion bill S-3206 recently introduced in the 90th Congress. We are concerned about several provisions in these Bills which we would like to bring to your attention. It is our understanding that the Senate Sub-Committee on Air and Water Pollution Control has conducted hearings on S-3206 on April 9, 10, and 11, 1968 and that hearings on HR-15907 are scheduled for April 25, 1968.

HR-15907 would amend the Federal Water Pollution Control Act in several ways and while the intentions are to be commended in general, the methods used to accomplish the purposes are not consistent with the interests of the City of Phoenix.

Certain proposed Amednments would enable the Secretary of the Interior to enter into contracts with municipalities for the purpose of making a Federal

Water Pollution Control Act Grant on the basis of a 30-year payback instead of a one-time payment. This plan has been given much prior publicity and it is heralded as a means to achieve more mileage out of Federal Grant money, thereby placing the Pollution Control Program on schedule. Federal Funds used to pay off 30-year contractual obligations would be limited to 10 percent of a State's allocation and would apply only to those that serve 125,000 people or more.

In order to qualify for this grant, however, the local public body must establish a system of sewer service charges to recover operation and maintenance costs, a reserve, and plant amortization costs. While this method is used in many of the nation's cities and it can be shown to be a sound method of financing, it certainly is not the *only* sound method of financing. We believe that the method of financing such programs is, and should continue to be, a local problem and decision. Furthermore, it is our opinion that such a control is not needed. The establishment and imposition of State water quality standards, approved by the Secretary, is adequate control to assure continued efficient plant operation.

We are greatly concerned that the Bill would eliminate the tax exemption feature on municipal bonds issued for waste treatment purposes. This provision seems to contradict the intent of accelerating the pollution abatement program, in that it will result in a higher cost to municipalities and make less money available.

Section 5, of H.R. 15907, concerns itself with comprehensive studies of estuaries. These studies would determine the effects of pollution on almost the total environment and resources of estuarine zones of the United States, including fish and wildlife, sport and commercial fishing, recreation, water supply and water power, and exploitation of mineral resources and fossil fuels, land and industrial development, navigation, flood and erosion control and other uses. In our opinion, the "effects of pollution" on most of these disciplines is adequately known. The extensive studies, however, appear to go far beyond the scope of a "Pollution Control" Bill. There is general agreement that the funding of pollution abatement programs in the United States is inadequate, and the "in depth" studies proposed by this Bill would weaken this effort from the standpoint of funds alone. If pollution were non-existent in the country's estuaries, the development and exploitation of the potential of estuaries would still be a complex problem. We believe, however, that this program is not within the scope or objectives of pollution control efforts.

It appears that this proposed pollution legislation makes things too complicated and has too many strings tied to its provisions. This tends to confuse the program and will further slow down efforts to construct needed projects. Therefore, we feel that this proposed legislation should not be enacted and the present law retained and given an opportunity to be carried out effectively.

Very truly yours,

Milt
MILT GRAHAM,
Mayor.

CONGRESS OF THE UNITED STATES,
HOUSE OF REPRESENTATIVES,
Washington, D.C., April 22, 1968.

HON. GEORGE H. FALLON,
*Chairman, Committee on Public Works,
Rayburn Building.*

DEAR MR. CHAIRMAN: As the author of H.R. 13407, which is a companion bill to H.R. 12759, I have a great deal of interest in the immediate passage of this legislation.

Of the 100,000 lakes in our Nation, Minnesota has over 14,000 of ten acres or more in size. These lakes are and can be a great resource in the future of our Nation and my own State.

As you know, lakes are not self cleaning, and, following each rain tons of debris or fertilizer may be washed into these lakes, only to settle to the bottom. Further decomposition on the bottom tends to make the lakes shallow, thus leading to a warming of the water temperature. Additional food nutrients and

warmer conditions provide the most lush of growing conditions for aquatic vegetation. This leads to the further growth of the problem, and a magnification of the settlement problem as such plants also decay and may settle to the bottom. This increased vegetation tends to deplete the lake of the vital oxygen needed by the more sporty and desirable of our fish species.

We have little time left to learn the most efficient methods of preserving and cleaning such lakes if we are to make these resources available to an ever larger and more mobile population. This bill authorizes several experimental tests using public and private resources on public lakes to test and develop those recommendations to keep our lakes clean and healthy.

Therefore, I urge favorable action by your Committee on this legislation.

Sincerely yours,

JOHN M. ZWACH,
Congressman.

Mr. McCARTHY. The committee will stand adjourned until 2 p.m. (Whereupon, at 1 o'clock p.m., the committee recessed to reconvene at 2 p.m., same day.)

AFTERNOON SESSION

Mr. BLATNIK. The House Public Works Committee will please come to order, resuming public hearings on various bills which are already listed in the record, suggesting amendments and additions to the Federal Water Pollution Control Act.

We have my friend and respected colleague from California, Congressman Charles M. Teague who has twice given up his—would you call it—batting order, to yield to those who come from some distance to be here.

Congressman, we appreciate your usual courtesy and kindness and consideration of others, and we appreciate your coming back again at the convenience of the committee.

Do you have a prepared statement, Congressman?

You may proceed as you wish.

OIL POLLUTION CONTROL

STATEMENT OF HON. CHARLES M. TEAGUE, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF CALIFORNIA

Mr. TEAGUE. Thank you very much, Mr. Chairman.

I have submitted for the record a written statement covering several points. I will highlight those points, and I do request permission that my complete statement will be included as part of the printed record.

Mr. BLATNIK. Without objection, so ordered.

(Prepared statement follows:)

TESTIMONY BY CHARLES M. TEAGUE, A U.S. REPRESENTATIVE IN CONGRESS FROM THE STATE OF CALIFORNIA

Mr. Chairman, Members of the Committee, thank you for providing me with an opportunity to testify on the subject of oil pollution and measures relating to the control and disposal of oil pollutants. I am particularly grateful for this opportunity since the District I represent in California has approximately two hundred miles of shoreline which will be affected by this legislation. There is very active off-shore oil exploration and production in progress along that shoreline.

It is my considered belief that two Bills presently before the Committee, H.R. 15906 and the Senate passed Bill, S. 2760, should be considered together and

eventually modified and combined into one "Oil Pollution and Hazardous Substance Control Act". Most important is the inclusion of a "trust fund or insurance" section.

THREE AREAS OF LAW

Unfortunately, in their present forms neither of these pieces of proposed legislation adequately addresses itself to the complex issues which must be considered before comprehensive guidelines and areas of responsibility can be set forth. Not the least of the complex issues which must first be reconciled is the fact that there are three different areas of Law which bear heavily on the establishment of liabilities and the enforcement of legal decisions: International Law, Admiralty Law, and Statutory and Common Law.

As far as International Law is concerned, the United States is a signatory to the Convention for the Prevention of the Pollution of Seas by Oil and the Convention for the Contiguous Zone. Both Conventions affect the discharge of oil and the associated liabilities.

Admiralty Law is of particular concern in light of the Limitations of Liability Act of 1851, as amended. This Act was passed at a time when Congress was attempting to encourage the development of United States maritime commercial activities. Its provisions regarding liability are somewhat permissive and are contrary to the intent of oil pollution legislation being considered by this Committee.

Lastly, and equally important, is normal Statutory and Common Law, which outlines three types of liability (based on negligence) having a profound effect on the effectiveness of oil pollution laws.

Any Bill which is agreed upon by the Committee must insure compatibility between these three areas of Law. Otherwise, when it comes time to decide Oil Pollution cases, the Courts may have their hands tied because of contradictory legal concepts. As an example, under Admiralty Law the community which suffers from damages caused by oil discharged from a vessel must wait for higher priority liens to be adjusted before it can collect damages. Since a Seaman's wages are first priority, and both H.R. 15906 and S. 2760 limit liability to the value of the vessel (to actions in rem) then there may never be any money left to pay for losses incurred by the *community*—or residents and property owners thereof.

LIMITATION OF LIABILITY

This points up another issue, which should be resolved by the Committee. Since these Bills are designed to assist communities which may suffer damage from pollution by oil or other matter, then it seems that the intent of the law would be overshadowed by the limitation of liability which accompanies actions in rem. It is my contention that actions in personum should not be precluded from the options available to potential plaintiffs. *Therefore, I hope that the Committee Bill will clearly indicate that liens can be recovered either by actions against the ship or against the owner.*

GEOGRAPHICAL CONSIDERATION

Another matter of equal or possibly greater concern is the insufficient geographical area covered by either Bill. S. 2760 simply applies to incidents occurring within the 3 mile limit. And, since there are now Federally leased off-shore drilling sites in operation beyond 5 miles from the shoreline of Santa Barbara County and Ventura County, California, the Senate Bill would be ineffective when dealing with incidents occurring beyond 3 miles from the shoreline. As for H.R. 15906, since it only deals with the contiguous zone, (that area between 3 and 12 miles out) rights to collect for damages suffered within the 3 mile limit are ill defined and possibly non-existent. *I hope that the Committee clearly specifies a zone which extends 50 miles from the shore.*

These considerations are in addition to the fact that H.R. 15906 does not have any provision for removing oil which was discharged into the contiguous zone and has drifted into the territorial waters. Also, the fact that H.R. 15906 does not clearly include off-shore drilling facilities when it is assigning liability for oil discharges, again points to the need for a carefully drafted Committee Bill which protects shoreline communities and owners of real and personal property therein or nearby.

PROPERTY PROTECTION

With over 600 million dollars worth of recent off-shore oil leases let off the coast of Santa Barbara and Ventura Counties, California, it is especially worrisome that there is absolutely no provision for protecting shorelines and public and private property against oil pollution occurring from drilling facilities located beyond the 3 mile limit. And, even if shorelines were protected, there is no provision in either Bill regarding the inclusion of boats, marinas, other sea-side structures and homes as part of the shoreline definition or adjacent areas which could very well be damaged. Many shoreline communities, like Santa Barbara, depend on tourist trade and resort income for a substantial portion of their yearly earnings. Therefore, it is vitally important that such property rights be protected under the Law.

ACTS OF GOD

Another issue which must be resolved concerns the recovery of losses due to damages from oil pollution which have occurred as a result of an Act of God. Although both Bills correctly do not attempt to place liability on those not responsible where there is an Act of God, neither do they provide for damages or for any measures to remove oil or other matter which has been discharged as a result of an Act of God. In the same vein, there is no provision for removal of the damaging agent when the source of the oil pollution cannot be identified or in other instances when owners or operators are not responsible by Law. Thus, I urge that a section covering this particular issue be included in the Committee's Bill. The section might read as follows: Should the owner or operator of a vessel, shore installation or offshore drilling facility not be required by Law to act, as in the case of a derelict ship or Acts of God, or the source of pollution cannot be identified, the Secretary shall remove such oil or matter or arrange for its removal. Funds for this purpose should be derived from a percentage of Federal oil revenues set aside in a trust fund. The amount of this fund should be determined by the Secretary.

ADDITIONAL ISSUES

In a further review of H.R. 15906 and S. 2760, I discovered that:

1. Both Bills attempt to avoid the limitations of Liability Act of 1851;
2. There is no provision in either Bill to cope with damages resulting from materials (i.e., detergents, etc.) used to remove the oil and other matter;
3. There are no provisions allowing victimized parties to remove pollutants and later be compensated therefor prior to action taken by the Secretary or prior to action taken by the responsible owners or operators; and
4. Since there will be more than one Federal agency affected by this Act, it may be appropriate for the President of the United States to administer the Act instead of the Secretary of the Interior.

CONCLUSION

In conclusion I believe that an "Oil Pollution and Hazardous Substance Control Act" must be enacted and it must be effective. It must contain measures designed to cope with factors referred to in my testimony. Since I believe that H.R. 15906 and S. 2760 do not go far enough in protecting the coastal communities in my District or, for that matter, throughout the nation, I appeal to the Members of this Committee to develop legislation which *will* guarantee protection of our Nation's shorelines.

Mr. TEAGUE. I am particularly interested in this problem because my congressional district in California contains almost 200 miles of shoreline along the Pacific Ocean.

I have a somewhat unique position and responsibility, perhaps. My two principal counties—although now I recently have, until the election at least, part of Los Angeles County—but my two principal counties are Ventura and Santa Barbara.

Very recently the Secretary of Interior, I think quite properly and with what I consider to be reasonable restrictions, has granted leases for exploration and oil drilling, primarily off the coast of Santa Barbara County. It is my recollection that the oil companies have invested

or committed themselves to the tune of some \$600 million for drilling in this area, hoping to recover oil from a pool which many geologists consider to be the best untapped source of oil in this country.

As I say, most of these explorations and drillings now in process are off the coast of Santa Barbara County. Santa Barbara County is an area certainly including the city of Santa Barbara which is beautiful and which has comparatively little industry and which depends a lot for its income and economy on resort travel and homes for retired persons.

The service—or servicing, perhaps I should say, portions of the oil industry lie in Ventura County, also in my district.

The ships which go out to the drilling sites, the oil well supply companies, all this sort of business is in Ventura County. I am sure you all will understand that this presents the Congressmen representing both of these districts with some problem.

Santa Barbara County, understandably, wants to protect the beauty of its shoreline. Ventura County wants to profit again, understandably, from the prosperity of oil development.

I think all of this can be resolved to the mutual satisfaction of my constituents of both counties. And I think the Secretary of Interior has laid down very reasonable restrictions on drilling.

However, we still are faced with the possibility of serious oil pollution. Hopefully, of course, it will not occur. I do not envy this committee its responsibility of trying to do what I know you are trying to do, come up with reasonable legislation which will be fair to the oil industry and also will protect the people along the shore from potential pollution from oil escapes.

As I understand it—let me first say I have just gotten back, a day or two ago, from California, and I asked Mr. Eric Silberstein, from my office, to research this problem very carefully, and he came up with some problems I had not realized existed. I am sure you and your staff do.

LEGAL PROBLEMS

I will mention them for the record. One that you might be involved with—three areas of law: international, admiralty, statutory and common law.

One thing that concerns me is the Liability Act of 1851 which, as I understand it, places a limit on liability to actions in rem, which of course means that if a ship or an oil rig should become faulty and cause pollution, the action by those injured would be limited to the value of the ship or the oil rig or device.

Furthermore there is a lien provision, as I am told, giving maybe quite properly, or placing a limitation on total liability and giving lien holders, the employees, the first lien.

One thing I would hope this committee would consider is going beyond limiting actions to in rem and authorize them in personem so the owners of the oil rigs involved also could be sued in the event of liability.

GEOGRAPHICAL LIMITATION

One other thing that concerns me in the bills that I have seen, that we have studied, is what seems to me to be an insufficient consideration of the geographical problems.

Without going into detail—it is covered in my statement but we do have in Santa Barbara, off the coast, drilling going on beyond the 12-mile limit. Now, if a well, a drilling device, a rig, should become faulty and dump oil into the ocean, it could easily come in and ruin the shoreline along Santa Barbara from an area beyond the 12-mile limit.

I would hope, if it is legally possible—I am not prepared to discuss whether it is—that this committee would consider not limiting liability under such legislation as you may approve to certainly not the 3-mile limit and not even the 12-mile limit.

ACTS OF GOD

One thing that concerns me even more, and I do not know how much this committee has considered this problem, is the damage resulting from acts of God. Now, as you all know, of course, we have earthquakes in California. The normal earthquake does no damage, to speak of, to the coast. You might have a tidal wave, and perhaps there is minor injury.

Now, I am not proposing that the oil companies, or those shipping oil, be held responsible for acts of God. But I would like to point out that should these wells develop, as they are expected to, and we should have—probably will—oil lines running from several miles out in the ocean into refineries on the coast, should these oil lines, no matter how well built, and beyond the point of negligence on the part of the owners thereof, should they break as a result of an earthquake or some other act of God, and the shoreline of beautiful Santa Barbara be polluted and damaged, it seems to me that there is a reasonable remedy. That would be, and I would hope this committee would give careful consideration to it, the establishment of a trust or insurance fund to be administered by the Secretary of the Interior and to be accumulated at some reasonable rate out of the very considerable royalty revenues being received, and to be received by the Federal Government.

This might be a million dollars a year. It is in a trust fund. It is not going to be spent unless it is needed. But it would fill this vacuum which seems to me might exist in the event of a terribly serious damage situation to the coast line for which the companies themselves, the operators, should not and cannot, it seems to me, be held responsible.

I would hope the committee would give consideration to these points I have mentioned, reasonably briefly, and which are expanded upon to some extent in the written statement I have filed with the committee.

Thank you very much, Mr. Chairman.

Mr. BLATNIK. Congressman, we thank you.

From your background of experience, you are very directly and vitally affected and at times perhaps even threatened, as you indicate.

You raised some very valid points, and the legislation needs to be given very careful consideration. It is going to be a tough problem.

Mr. TEAGUE. It certainly is. It is most tough and complex.

May I ask this: No. 1, Am I correct in assuming that you will not be marking this bill up tomorrow or next week in its final form? Is that a fair assumption?

Mr. BLATNIK. There is a big wad to chew, several wads—a lot of chewing and digesting to do.

Mr. TEAGUE. We will draft some suggested amendments to cover these points that I feel are important and submit them to the committee, and I hope they will be considered.

Mr. BLATNIK. They certainly shall be.

We appreciate the specific suggestions very much.

Mr. TEAGUE. Thank you, Mr. Chairman.

Mr. BLATNIK. We now get to our panel of conservationists.

It is a pleasure to see you all. We are pleased with the progress that has been made. And out of that we get inspiration to realize how much more can be done which years ago was unthinkable. We could not think about it or talk about it. It seemed that far out of reach.

STATEMENT OF CONSERVATION PANEL ON WATER POLLUTION, COMPOSED OF DR. SPENCER M. SMITH, JR., SECRETARY, CITIZENS COMMITTEE ON NATURAL RESOURCES; WILLIAM E. TOWELL, EXECUTIVE VICE PRESIDENT, AMERICAN FORESTRY ASSOCIATION; LOUIS CLAPPER, CHIEF, CONSERVATION EDUCATION DIVISION, NATIONAL WILDLIFE FEDERATION; JOHN L. HALL, EXECUTIVE DIRECTOR, THE WILDERNESS SOCIETY; JOSEPH W. PENFOLD, CONSERVATION DIRECTOR, THE IZAAK WALTON LEAGUE OF AMERICA; C. R. GUTERMUTH, VICE PRESIDENT, WILDLIFE MANAGEMENT INSTITUTE; AND LLOYD TUPLING, WASHINGTON REPRESENTATIVE, SIERRA CLUB

Dr. SMITH. Mr. Chairman, the panel is before you today. We have discussed with the staff, and in order to conserve your time and also be helpful, we have provided—

Mr. BLATNIK. Dr. Smith, just for routine preliminaries, and for the benefit of the reporter here, would you give your full name and title, so we will have it in the record, and identify each one of your panelists?

Dr. SMITH. I am Spencer M. Smith, Jr., the secretary of the Citizens Committee on Natural Resources.

The list which you have will provide the reporter our names and will be in the order in which we present our statements.

Now we have written statements, which will be filed, and I think have been filed with the committee.

Our 5-minute oral statements will try not to repeat each other, and will be drawn in part from the written statement which we understand will be included in full in the record.

Mr. BLATNIK. Yes. It will be included in full and in the sequence which you arranged for and have so instructed the reporter.

Dr. SMITH. Mr. Towell.

(Prepared statement of William E. Towell follows:)

**STATEMENT OF WILLIAM E. TOWELL, EXECUTIVE VICE PRESIDENT
THE AMERICAN FORESTRY ASSOCIATION**

S. 2760

Acid and other mine water pollution control

Both purposes of this Act are desirable and needed. Acid mine drainage is a serious problem in many areas. I have seen whole watersheds unfit for fishing and other water recreation because of strip-mine pollution. In Missouri, we

were particularly concerned about abandoned mines where the present owners had no responsibility. The idea of study and demonstration projects is good if it leads to some actual cleanup work. States should be willing to pay a part of the costs even for demonstration projects and 25% seems like a fair amount.

Oil pollution control

Oil pollution is extremely detrimental to fish and wildlife. Waterfowl in particular have been harmed by oil spills. Many instances of oil spillage have been intentional or the result of carelessness or negligence and a law "with teeth in it" to discourage such waste is needed.

"Acts of God" should not absolve vessels or installations of all responsibility for their accidents. We need a national plan for dealing with such emergencies near our coast lines and on our navigable waters.

The idea of a revolving fund to finance cleanup activities might work but it also could be a limiting factor on how much could be done even in an emergency. Earmarking of funds might assure some money but it could be insufficient when the need is greatest.

In Section 19(h), I wonder why the Secretary should be authorized to issue regulations permitting the discharge of oil? But, I presume it is necessary to delineate maximum tolerances as a matter of practicality.

The provision on federal agency responsibility is good as the government should "get its own house in order" before getting tough with others.

H.R. 15906

Oil and hazardous substances pollution control

This bill is practically the same as S. 2760 with respect to oil pollution. One improvement is the section dealing with "other matter" which may constitute an imminent or substantial hazard to public health or welfare.

Enforcement provisions seem to be stronger and perhaps better.

The Section requiring the Secretary to establish water quality and conservative objectives and standards on removing oil discharges seems very desirable.

H.R. 15906 is preferable to S. 2760 on oil pollution but it still doesn't provide for accidental spills which could be the most damaging of all.

H.R. 15907

Waste treatment works debt financing

This is a major piece of legislation on many aspects of water pollution control. It duplicates parts of other bills and substantially amends the Federal Water Pollution Control Act.

Its major feature is the change in federal procedure of financing municipal treatment plants. It seems practical as this is how modern day financing is done and should stimulate greater municipal action. Three years should prove it either valuable or unworkable.

I like the guidelines in Section (f) (2), that (1) there be reasonable assurance of repayment, (2) that there is enough money available to do the job, and (3) the obligation bears a reasonable interest rate.

As a tax payer I agree that interest on obligations for waste treatment installations, financed partly by federal money, should not be tax exempt, but this may slow down sale of bonds. Federal guarantee of loans, however, should make them attractive.

Other provisions of H.R. 15907 should encourage better regional watershed and large metropolitan area planning. We have attempted to do the pollution control job piecemeal for too long. Requirements for 125,000 person units, comprehensive planning and pay-as-you-go financing should speed up sewage treatment development. By all means every approved project should have state approval, conform to better quality standards, meet overall state needs, cover a maximum feasible area and be consistent with a river basin pollution control plan if there is one.

The 10% limitation of fund allotment to any one state should help distribute the federal money, but there should continue to be some additional incentive to the state that is doing the most for itself. I am glad to see the emphasis on adequacy of design and encouragement of statewide planning.

The authorizing amounts for construction grants are much more realistic than appropriations have been in recent years. I do not know if they are ade-

quate but it is a step in the right direction. If Congress has the foresight to authorize these increases, I hope it also will have the courage to appropriate the full amounts when they are approved.

Although \$100 million seems somewhat inadequate as compared to the total proposed authorizations, it is good thinking to guarantee some grants to the smaller municipalities. Otherwise the larger, wealthier cities could gobble up all the funds.

Estuary Study

I will comment on the Comprehensive Estuaries Study only briefly by saying that estuaries are extremely important for recreational, fish and wildlife and esthetic purposes and deserve more attention. This proposal in H.R. 15907 may duplicate other legislation already near passage or reports already in process of preparation by the Federal Water Pollution Control Administration. In any event we should have a national program for estuarine study, use, preservation and development, but would question whether \$1 million dollars for fiscal years 1969 and 1970 is adequate for that job.

Research and Demonstrations

Section 6 should strengthen the research and demonstration features of the Water Pollution Control Act, which is all to the good. Training of technicians and public awareness of pollution problems both are needed in larger degrees. From the conservationists viewpoint, deterioration of our lakes, through both natural causes and artificial pollution is a very serious problem as is the prevalence of combined storm and sanitary sewer systems that play such havoc during periods of heavy runoff. Both are deserving of much greater attention than they have received in the past.

WASTE TREATMENT WORKS CONSTRUCTION

Mr. TOWELL. Mr. Chairman, I consider it a real privilege to be lead-off speaker for this distinguished panel.

For purposes of identification, I might point out that I was a former member of the Federal Water Pollution Control Advisory Board.

My statement in full has been submitted, and I would like to talk briefly on what we consider an extremely important phase of the Federal water pollution control program, and that is construction grants.

I think this is the area in which work actually is being done. It is where water pollution control begins to be effective on the ground, and therefore it becomes one of the most important parts of the whole water pollution control effort.

It is significant, I think, that since the Federal Government came into the construction grant program, that this stimulus has resulted in work being done by the towns and cities at a ratio of about 5 to 1, or I think now at least 4 to 1, local money is being expended by towns and cities in order to qualify for these Federal grants. So it is doing a tremendous job.

There have been evidence to show that much more could be spent if it were available. I recall a few years back when the accelerated public works funds were suddenly made available for this type of work, all that was there was immediately used up, and there was still a backlog of work that could have been accomplished.

And, as you know, and as the entire Congress knows, we are falling far behind the schedule which you, yourselves, the Congress, has established to catch up on the sewage treatment works that are needed.

The present authorization calls for construction grants far in excess of that which is now being appropriated. For example, this fiscal

year some \$203 million were appropriated, and under the authorization it was \$450 million, this was considered minimum. Under the bill you have before you only \$225 million has been recommended, yet the authorization calls for \$700 million again as the minimum necessary to do the job.

Now I cannot answer for the Congress whether we can afford this or not, but speaking from the conservation standpoint, it is a must. This is one type of conservation activity that we cannot continue to ignore and to put off. This is perhaps not the place to do it, but my plea is that current authorizations or future authorizations, whatever they may be, be appropriated in full.

This is the minimum that we feel is necessary from the conservation standpoint.

The new bills before you, which would establish a contract authority for financing municipal grants, seems like a very good step in the right direction. A couple of years ago, while serving as a member of the Water Pollution Control Board, we recommended this as the way in which more effective use of Federal funds might be made by cities in constructing these sewage treatment works, guarantee of loans, payment of the Federal share over a contract period, guarantee of interest, payment of interest, seems like a very practical, very logical way in which the municipal grants can be financed. And I think it will go far toward helping the towns and cities to do a better job in utilization of Federal funds.

The guidelines—I do not need to repeat them for you. I have reviewed them quite carefully, and I think they are good. I believe that with the guidelines that have been established in the legislation, I am speaking now particularly of H.R. 15907, I think that these would assure the Federal Government of good compliance on the part of the municipalities.

I would support the non-tax-exempt feature for these securities, the bonds that would be issued under Federal loans. I think with public money being used for this purpose and with a guarantee of all of the loans on both the part of the State and the Federal Government, that we cannot afford to deprive the Federal Government of additional tax revenue that the non-tax-exempt feature would—that the tax-exempt feature would get.

Two other points. The 10-percent limitation to any one State is, I feel, desirable, because some of the more wealthy States could use up a tremendous amount of the money; but with the 10-percent limitation they still get a big share, and I think it is still enough to recognize those who are doing the most for themselves.

On the other side of the coin, I feel that a \$100 million authorization strictly for the smaller towns will keep them into the picture so that more wealthy communities, the big cities, will not use up all the funds.

I support this bill, Mr. Chairman. I am sure all the conservationists do, too, and again would urge, if we can get the appropriations as contained in this bill, if we can get the authorizations, I hope that Congress will have the courage also to make the full appropriations.

Mr. BLATNIK. Thank you very much.

Mr. Clapper.

LAKE POLLUTION CONTROL

Mr. CLAPPER. Mr. Chairman, I think my first appearance before this committee was about 10 years ago, and certainly we have been pleased at the increased interest that has developed since that time. We think your committee and the subcommittee headed by Mr. Jones in Government operations have done outstanding jobs in alerting the public to this.

I would like to limit my comments to the control of eutrophication, the lake problem.

We would like to comment specifically on the provisions in both H.R. 15907 and S. 2760, which would authorize the development and demonstration of new or improved methods for the prevention, removal, and control of natural or manmade pollution in lakes, including the undesirable effects of nutrients and vegetation.

Lakes, both natural and manmade, are among man's most valuable natural resources. From the utilitarian point of view, they provide sources of water supply for municipal, industrial, agricultural, and navigational purposes. From the recreational point of view, they offer magnificent opportunities for fishing, hunting, and a host of water-related sports such as swimming, water-skiing, boating, and skating. The mere existence of a lake lends beauty and attraction to a landscape.

The committee may be interested in a few statistics. The Bureau of Sport Fisheries and Wildlife, Department of the Interior, completed an economic survey of the sports of hunting and fishing for 1965. The survey revealed that 28,348,000 sport fishermen spent nearly \$3 billion that year in pursuing their activities. They enjoyed 522,759,000 fishing recreation days, of which 426,922,000 were spent on fresh water. Undoubtedly, a major part of the fresh water fishing is done on lakes and ponds. And these statistics do not include the many other recreational uses of lakes.

Limnology, or the study of fresh waters, especially ponds and lakes, is not a new science. Prof. F. A. Forel, of the University of Lausanne, Switzerland, is regarded as the founder of modern limnology. He established the study in the 1860's. However, much of the present information on the ecology of lakes is relatively new, having been developed since World War II. There is much that scientists still do not know, particularly about pollution and eutrophication.

Eutrophication, or aging of water, is regarded by many scientists as one of the foremost natural resource problems of our time—certainly with respect to water pollution. Eutrophication most often results from man-produced nutrients which enter the lake or pond and eventually become part of the plant and animal growth cycles. The control of excessive production through pollutants is of major importance and concern to those who use the water for recreation.

Once biological nuisances develop, the controls are costly and time-consuming. Often the controls are temporary. Overproduction will remain a continuing problem unless the basic causes can be reduced or eliminated. And this is a point worth stressing: biologists of the Federal Water Pollution Control Administration say that the problem of altering basic causes has not been fully solved at the present time. This fact highlights the need for comprehensive pilot programs

in lake pollution prevention and control, as would be authorized by these bills.

The Federal Water Pollution Control Administration, in a bulletin issued in 1964 when the agency was a unit of the Public Health Service, listed the following effects from severe water pollution:

(1) transmission of enteric diseases by water inadequately treated, (2) transmission of diseases by insects from polluted streams, (3) harmful reduction of individual water intake because of water potability, (4) possible toxicity of chemical and metallic wastes, (5) neuroses caused by noxious odors from polluted streams, (6) spread of diseases by cattle and other animals having access to polluted streams, (7) loss of recreational areas, and (8) economic changes.

Pollution of lakes, of course, may come from many sources: domestic sewage, industrial wastes, mammal and bird wastes, runoff from agricultural lands and cities, pesticides applied from the air or by boats, and others. In a general sense, however, the principal problem is that pollutants add fertility to the water—often even if a plant is operating efficiently otherwise.

These fertilizers, mostly nitrogen and phosphorus, stimulate the growth of algae and other aquatic plants which become nuisances to recreational uses of the lakes. Unfortunately, a continued high rate of nutrient supply is not necessary for continued algal production. After an initial stimulus, the recycling of nutrients within the basin is enough to produce algal blooms for several years.

In short, as the aging process advances, the water becomes enriched and the lake gets shallower from accumulated sediment and organic debris, and anchoring of it by rooted aquatic plants.

Methods have been developed and perfected to produce a temporary reduction and control of excessive production under some circumstances. However, much still remains to be learned. The controls may be either mechanical or chemical, with their uses dependent upon the body of water and the type and extent of control desired. Mechanical controls generally are limited to rooted aquatic vegetation. Chemical controls have been developed for algae, rooted aquatic vegetation, and other nuisance organisms. Every control has limitations. Of course, the most important problem is controlling the basic cause or causes of pollution.

In conclusion, conservationists are agreed that much more work needs to be accomplished toward preventing, removing, and otherwise controlling the pollution of lakes, particularly those which are publicly owned and available to the public. Pilot programs demonstrating how this can be accomplished will be of broad general interest and benefit.

Thank you.

(The prepared statement of Louis Clapper follows:)

STATEMENT OF LOUIS S. CLAPPER ON BEHALF OF THE NATIONAL WILDLIFE
FEDERATION

Mr. Chairman, I am Louis S. Clapper, Chief of the Division of Conservation Education for the National Wildlife Federation, which has headquarters at 1412 Sixteenth Street, N.W., here in Washington, D.C.

By way of identification, the National Wildlife Federation is a private, non-profit organization which seeks to attain conservation goals through educational means and methods. The Federation has affiliated independent organization in 49 of the States. These affiliates, in turn, are composed of local groups and indi-

viduals who, when combined with associate members and other supporters of the National Wildlife Federation number an estimated 2½ million persons.

We welcome the invitation to appear here today.

Conservation organizations long have been among the groups which are leading a battle against man's contamination of his own environment. The National Wildlife Federation, in annual convention in March of this year, adopted a resolution listing what it considers to be the major issues of 1968. Environmental contamination heads the list. Our organization emphasizes its urgent concern about this contamination by water and air pollutants, by toxic chemicals used as pesticides and for other purposes, by solid wastes, and by noise—problems which are being aggravated by increases in the human population. These situations not only present hazards to the health of man and other creatures, but damage or destroy the quality of life experiences, including those found in the out-of-doors. We believe it is essential that massive efforts be launched to control water and air pollution, to plan and use the least harmful means of disposing of wastes, and to minimize or eliminate the ill effects resulting from the use of chemical pesticides. This resolution specifically comments: "In controlling water pollution, it is viewed as essential that Federal and State agencies adopt standards designed ultimately to attain high levels of water quality, recognizing when necessary that they may not be achieved in the immediate future, rather than establishing low levels of quality which are difficult to upgrade." The Federation also states its belief that the Federal Water Pollution Control Act can be improved through additional provisions designed to correct problems relating to the accelerated aging of lakes, mine acids, oil, and heat.

I might digress long enough here to express our gratitude and commendation to Members of this Committee for the extremely valuable leadership they have exerted in drawing attention throughout the Country to needs for controlling all contamination of the environment, particularly water pollution. When one recalls that the entire Federal construction grants program was in real jeopardy only ten years ago, the amounts of money involved in discussions about H.R. 15907 are truly remarkable and your Committee certainly merits plaudits for playing a most significant role in this progress. We were highly elated when, in 1966, major new increases were authorized in the construction grants program. In fact, at the time, we supported even greater authorizations. Therefore, our disappointment was keen when less than one-half of the authorized funds were appropriated for fiscal 1968 or sought for fiscal 1969. This disappointment exists even though we fully realize the magnitude of the competition for Federal funds for many other programs, especially national defense and urban improvements.

In view of the foregoing, we would like to endorse the principles expressed in H.R. 15907, the proposed "Water Quality Improvement Act of 1968."

LONG-TERM FINANCING

As we read the bill, it would allow the Federal Government for three years to obligate itself through contracts for long-term (up to 30 years) commitments to bear its share of the cost of constructing municipal waste treatment works. We also understand that the Federal Government would pay off both principal and interest in these payments. We are in accord with this method of financing and certainly hope it will prove sufficiently attractive to investors that there will be no difficulties in securing the necessary monies. Of course, we also are hopeful that the crises will be alleviated to the point where advance financing of this sort is not necessary and grants can be made outright for the full authorizations each year.

It goes without saying, Mr. Chairman, that we also hope the full authorization for \$700 million can be approved for fiscal 1969 under this type of arrangement.

ADDED REQUIREMENTS

We believe the requirements that the local public body be financially stable and approved are good ones. However, while not being opposed, we must admit that we do not fully understand or appreciate the rationale for the requirement relating to areas of 125,000 persons or more or to a standard statistical area.

It is sound, in our opinion, for the Federal Government to insist upon an effective statewide treatment works operator certification program. There is no question that many treatment plants are operated far below their potential

efficiency due, in part, to the lack of knowledge or desire on the part of operators. All too often, these operators are employed as much for their political connections than for a knowledge or ability in the field. Thus, anything that can improve professionalism in this area will be beneficial.

We should like to express our approval of reenactment of the comprehensive estuaries study and its extension. We are especially familiar with parts of this program and believe it should be extended. We also are in accord with the desirability of extending the authorization for the research, demonstration, investigations, training, and informational programs and for those on separation of storm sewers, advanced waste treatment, and industrial wastes.

CONTROL OF EUTROPHICATION

I should like to comment specifically upon the provisions in both H.R. 15907 (Sec. 4) and S. 2760 (Sec. 1), which would authorize the development and demonstration of new or improved methods for the prevention, removal, and control of natural or manmade pollution in lakes, including the undesirable effects of nutrients and vegetation.

Lakes, both natural and manmade, are among man's most valuable natural resources. From the utilitarian point of view, they provide sources of water supply for municipal, industrial, agricultural, and navigational purposes. From the recreational point of view, they offer magnificent opportunities for fishing, hunting, and a host of water-related sports such as swimming, water-skiing, boating, and skating. The mere existence of a lake lends beauty and attraction to a landscape.

The Committee may be interested in a few statistics. The Bureau of Sport Fisheries and Wildlife, Department of the Interior, completed an economic survey of the sports of hunting and fishing for 1965. The survey revealed that 28,348,000 sport fishermen spent nearly \$3 billion that year in pursuing their activities. They enjoyed 522,759,000 fishing recreation days, of which 426,922,000 were spent on fresh water. Undoubtedly, a major part of the fresh water fishing is done on lakes and ponds. And, these statistics do not include the many other recreational uses of lakes.

Limnology, or the study of fresh waters, especially ponds and lakes, is not a new science. Prof. F. A. Forel, of the University of Lausanne, Switzerland, is regarded as the founder of modern limnology. He established the study in the 1860's. However, much of the present information on the ecology of lakes is relatively new, having been developed since World War II. There is much that scientists still do not know, particularly about pollution and eutrophication.

Eutrophication, or aging of water, is regarded by many scientists as one of the foremost natural resource problems of our time—certainly with respect to water pollution. Eutrophication most often results from man-produced nutrients which enter the lake or pond and eventually become a part of the plant and animal growth cycles. The control of excessive production through pollutants is of major importance and concern to those who use the water for recreation. Once biological nuisances develop, the controls are costly and time-consuming. Often, the controls are temporary. Over-production will remain a continuing problem unless the basic causes can be reduced or eliminated. And, this is a point worth stressing: biologists of the Federal Water Pollution Control Administration say that the problem of altering basic causes has not been fully solved at the present time. This fact highlights the need for comprehensive pilot programs in lake pollution prevention and control, as would be authorized by these bills.

The Federal Water Pollution Control Administration, in a bulletin issued in 1964 when the agency was a unit of the Public Health Service, listed the following effects from severe water pollution: "(1) transmission of enteric diseases by water inadequately treated, (2) transmission of diseases by insects from polluted streams, (3) harmful reduction of individual water intake because of water potability, (4) possible toxicity of chemical and metallic wastes, (5) neuroses caused by noxious odors from polluted streams, (6) spread of diseases by cattle and other animals having access to polluted streams, (7) loss of recreational areas, and (8) economic changes."

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often even if a plant is operating efficiently otherwise. These fertilizers, mostly nitrogen and phosphorus, stimulate the growth of algae and other aquatic plants which become nuisances to recreational uses of the lakes. Unfortunately, a continued high rate of nutrient supply is not necessary for continued algal production. After an initial stimulus, the recycling of nutrients within the basin is enough to produce algal blooms for several years. In short, as the aging process advances, the water become enriched and the lake gets shallower from accumulated sediment and organic debris, and anchoring of it by rooted aquatic plants.

Methods have been developed and perfected to produce a temporary reduction and control of excessive production under some circumstances. However, much still remains to be learned. The controls may be either mechanical or chemical, with their uses dependent upon the body of water and the type and extent of control desired. Mechanical controls generally are limited to rooted aquatic vegetation. Chemical controls have been developed for algae, rooted aquatic vegetation, and other nuisance organisms. Every control has limitations. Of course, the most important problem is controlling the basic cause of causes of pollution.

In conclusion, conservationists are agreed that much more work needs to be accomplished toward preventing, removing, and otherwise controlling the pollution of lakes, particularly those which are publicly owned and available to the public. Pilot programs demonstrating how this can be accomplished will be of broad general interest and benefit.

ACID MINE WASTES

We believe added emphasis needs to be placed on developing means of controlling acid or other mine water pollution. This problem is acute in many areas and some breakthrough is essential. Demonstrations appear to be the best answer and we hope projects of this type, including that which was suspended at Elkins, West Virginia, can be pursued with vigor and dispatch.

OIL POLLUTION

The National Wildlife Federation long has been concerned about pollution resulting from oil, either by accidental or deliberate discharges. Thus, we are in agreement with the general principles expressed in both S. 2760 and H.R. 15906, particularly with respect to establishing liability for spills and provisions for cleanup and removal. However, we cannot agree to the provision in S. 2760 that would exempt liability for an act of God. This is a loophole which must be plugged. We think it is especially essential that some means be developed to fix responsibilities when there is a divided ownership between carriers and cargoes. We also consider it urgent that dockside facilities for disposal of oil wastes be provided as integral parts of harbor services.

POLLUTION FROM VESSELS

To us, water pollution is of serious and significant concern. This is true regardless of the origin of the pollution—the malodorous messes of municipal sewage, potent and pungent wastes from industries, sterilizing acids seeping from mines, and persistent and paralyzing oil from leaks and wrecks and spills. It is equally true that we must work to control additional pollution from vessels, even though these often present special and unusual difficulties. This is another source of evil which must be removed.

We view with concern the pollution resulting from vessels even though we recognize that, from a volume point of view, the pollution from watercraft is relatively small in comparison to some other sources. Pollution originating from watercraft is readily apparent visually from direct over-the-side discharges. Thus, it presents a more offensive appearance in many instances than greater volumes of pollution originating from other sources in the same area. This is particularly true when ships are tied up or anchored in a harbor. And, because of their mobility, watercraft often create pollution problems which are undetected. And, also because of their mobility, watercraft often can pollute areas which otherwise may be thought to be safe.

In our opinion, several basic principles are involved with the problem of water pollution originating with watercraft:

1. Wastes from watercraft must be recognized as important sources of pollution and given the proper attention by all regulatory agencies—Federal, state, and local. Because of the special nature of this type of pollution, unusually close coordination must be achieved between the various jurisdictions involved. It is our opinion that the regulatory agencies have not given enough attention to this problem in the past.

2. Pollution from watercraft must be approached without favor as to size, use, and country of origin. In short, we believe that regulations should apply equally to the largest liner and tanker and to the smallest type of recreational boat which has toilet facilities. We hope that vessels owned by the U.S. Government, including military craft, can set a proper type of example in the handling of their wastes. And, regulations must be made applicable to vessels under foreign registry which visit the United States as well as to those flying the U.S. flag. Commercial vessels of the U.S. should not be placed at a competitive disadvantage by being required to meet pollution control standards not required of others which use the same waters.

3. It is especially important that harbors be equipped with the proper dockside facilities to handle wastes from watercraft, both in the form of sewage connections to ships tied up in port and to handle wastes collected in holding tanks. This probably is the best solution whereby pollution from many foreign nations can be handled. The installation of proper holding or treatment facilities by vessels of some foreign countries may be difficult to achieve. But, if they can hook up to waste discharge facilities at docks in the U.S., this procedure will enhance the likelihood of controlling pollution. It appears tremendously important to us that these facilities be available to ships in as many ports as possible.

4. It is essential that effective laws and regulations to control vessel pollution be enacted and vigorously enforced. These should be made effective as far as out from land as the U.S. jurisdiction will permit. More and more Americans are seeking recreation along beaches which easily can be fouled by pollution or litter from watercraft. In this connection, we also would suggest that the Committee explore the desirability of invoking an international treaty for pollution discharges similar to that now applicable to oil. In other words, wastes could be dumped only in certain zones far at sea.

5. Marinas and other floating facilities used to service boats, and houseboats, should be regulated for water pollution in the same manner as land-located sources of pollution.

GENERAL OBSERVATIONS

To conclude this statement, Mr. Chairman, we should like to make two general observations.

First, back when the Water Quality Act of 1965 was passed, we were pleased that it seemed to set the stage for a flat-out declaration that the United States was setting a floor on water pollution—that conditions would not be allowed to get any worse—that all movement would be upward, toward enhancement of the quality of public waters. As you know, the States were required to develop recommended standards of quality by June 30 of last year (1967). Guidelines were issued.

Back in the early fall, we were dismayed to learn that the Federal Water Pollution Control Administration was approving of State standards which did not meet the Interior Department's own guidelines which said: "in no way will standards providing for less than existing water quality be acceptable." The FWPCA was placing its hopes on improving the water quality through agreements to attain secondary treatment for domestic sewage and industrial effluents.

Now, we are cognizant of the fact that secondary treatment of wastes is a worthy goal in most States, one which would result in the improvement of many lakes and streams and coastal areas. However, we are equally aware that secondary treatment is not 100 per cent effective—perhaps 85 per cent at best—and the net accumulative effect of several plants can result in damage or destruction of waters just as surely as no treatment at all. And, we also know that secondary treatment is not effective on some pollutants, notably nutrients and heavy metals and thermal pollution.

Thus, the representatives of several citizen groups, in October of 1967, protested to the Secretary of the Interior and he suspended approvals of State standards until the problems could be reviewed. We protested against the degradation

of waters. We protested that recommendations of the Department's own National Technical Advisory Committee on Water Quality Requirements for Fishes, other Aquatic Life, and Wildlife were not being followed, particularly with regards to oxygen and temperature. We protested that the Federal Government had abrogated its rights and responsibilities for determining the uses of interstate streams. In short, we expressed the opinion that the Water Quality Act of 1965 wa becoming nothing more than a license to pollute.

Early in February, the Secretary of the Interior issued a statement on the degradation problem and we were highly pleased and gratified at his position.

"I have concluded that in order to be consistent with the basic policy and objective of the Water Quality Act a provision in all State standards substantially in accordance with the following is required," Secretary Udall declared. This is the provision:

"Waters whose existing quality is better than the established standards as of the date on which such standards become effective will be maintained at their existing high quality. These and other waters of a State will not be lowered in quality unless and until it has been affirmatively demonstrated to the State water pollution control agency and the Department of the Interior that such change is justifiable as a result of necessary economic or social development and will not interfere with or become injurious to any assigned uses made of, or presently possible in, such waters. This will require that any industrial, public or private project or development which would constitute a new source of pollution or an increased source of pollution to high quality waters will be required, as part of the initial project design, to provide the highest and best degree of waste treatment available under existing technology, and, since these are also Federal standards, these waste treatment requirements will be developed cooperatively."

Once that basic determination of policy was decided, a host of approvals of State standards—with some exceptions—has followed. Needless to say, we sincerely hope that implementation of these standards can proceed with dispatch. This will include vigorous law enforcement when necessary.

As you might suspect, conservationists plan to be vigilant in watching a potential loophole in the Interior Department's policy statement. This relates to a lowering of standards if justifiable as a result of "necessary economic or social development" and will not "interfere with or become injurious to any assigned uses." Secretary Udall has said that the industries or municipalities must show compelling social and economic reasons before exceptions would be allowed to the standards. We plan to be on hand to insist that such exceptions really be "compelling."

Second, conservationists and many others are dismayed about attitudes recently expressed in some circles. Some Americans always have worshipped at the Altar of the Almighty Buck. In fact, much of the present day pollution, as well as other natural resource problems, can be traced directly to a pre-eminent consideration for dividends rather than responsibilities to the public.

We all know that many of the assets we treasure most are intangibles upon which no real monetary value can be placed—appreciation for the arts such as music and literature, for religion, and for love and affection. Something akin is reflected in an appreciation of the beauty of the outdoors, or natural values, that is spoiled by a contaminated environment. These considerations must be part of the overall picture, in addition to a need for clean water from health reasons or for pleasurable domestic or industrial purposes.

Finally, Mr. Chairman, for the information of the Committee, we are attaching two resolutions (Nos. 9 and 15) adopted at our annual convention earlier this year which relate to still other facets of the water pollution problem.

Thank you again for the opportunity of making these remarks.

RESOLUTION No. 9—CONTROL OF THERMAL POLLUTION FROM NUCLEAR POWERPLANTS

Whereas, public waters of the Nation are used for a variety of beneficial purposes by members of the public, particularly for water-related recreation such as fishing, hunting, swimming, boating, and water-skiing; and

Whereas, these bodies of water are major elements in recreation-oriented industries of important economic impact on the localities and States involved; and

Whereas, the proposed water usage for nuclear power plant cooling purposes may result in significant levels of thermal pollution in many parts of the Nation; and

Whereas, it has been demonstrated that thermal pollution can result in profound changes in the environment, damaging or destroying resident and anadromous fisheries and/or the aquatic organisms upon which they are dependent; and

Whereas, the Atomic Energy Commission denies having the authority to refuse licenses for power reactors on grounds of thermal pollution; and

Whereas, thermal pollution is defined as any change in temperature which is detrimental to the aquatic environment: Now, therefore, be it

Resolved That the National Wildlife Federation, in annual convention assembled March 8, 1968, at Houston, Texas, urges that the Atomic Energy Commission be authorized and directed to require that applicants for permits for nuclear power plants using public waters meet temperature and monitoring standards promulgated by the Secretary of the Interior and appropriate state authorities after consultation with Federal and state wildlife agencies, with the intent being to protect aquatic life, and after due notice and opportunity for public hearing based on substantial evidence that such modifications are necessary and desirable; and be it further

Resolved That the National Wildlife Federation also expresses the hope that all plants generating electric power by the use of steam will be required to install closed-circuit cooling systems or make other arrangements which will prevent thermal and radioactive pollution of public waters.

RESOLUTION No. 15—WATER QUALITY

Whereas, the Water Quality Act of 1965 (Public Law 89-234) encouraged people to believe that the quality of the Nation's water resources would be enhanced, with no state standards being accepted by the Federal Water Pollution Control Administration that did not fully protect existing water quality and abate existing pollution; and

Whereas, primary and secondary treatment processes accepted by FWPCA for some domestic sewage and industrial effluents do not remove certain heavy metals which are toxic to aquatic environments, nutrients which stimulate the growth of algae and other oxygen-depleting growths, or thermal pollution, and remove only a maximum of 85% of other wastes; and

Whereas, unless curtailed, the accumulative effect of a series of installations giving secondary treatment can be a downgrading of water quality; and

Whereas, FWPCA has accepted standards which will not fully protect the stated classified use of certain streams; and

Whereas, attempts to upgrade standards once established are resisted by those who, in good faith, comply with the original stated requirements; and

Whereas, the FWPCA has abrogated whatever right and authority it possessed to classify the uses of water in interstate streams: Now, therefore, be it

Resolved That the National Wildlife Federation, in annual convention assembled March 8, 1968, at Houston, Texas, hereby urges the Secretary of the Interior to require standards on interstate streams which will ensure water of a quality suitable for all beneficial and legitimate uses, including water contact sports, fish and other beneficial aquatic animal and vegetable life, recognizing that reasonable amounts of time may have to elapse before such standards can be achieved in some streams; and be it further

Resolved That the Secretary be urged to keep intact in an advisory capacity the National Technical Advisory Committee on Water Quality Requirements for Fishes, Other Aquatic Life, and Wildlife.

Mr. BLATNIK. Thank you, Mr. Clapper.

Dr. SMITH. Next is Mr. Hall.

(Prepared statement of John L. Hall follows:)

STATEMENT BY JOHN L. HALL, ASSISTANT EXECUTIVE DIRECTOR, THE WILDERNESS SOCIETY

Mr. Chairman, my name is John L. Hall, Assistant Executive Director of The Wilderness Society, a 40,000-member national conservation organization with headquarters at 729 Fifteenth Street, N.W., in Washington, D.C. The Wilderness Society's objectives are to secure the preservation of wilderness, to carry on an educational program concerning the value of wilderness and how it may best

be used and preserved in the public interest, to make and encourage scientific studies concerning wilderness, and to mobilize cooperation in resisting the invasion of wilderness. The Society strives to support all sound programs for the conservation of fish and wildlife, water, scenic, and outdoor recreation resources in order to assure balanced use of our nation's natural resources and the preservation of a quality environment for this generation and generations to come.

S. 2760

We approve of the basic purposes of this bill which will amend the Federal Water Pollution Control Act by authorizing research and demonstration programs for the control of lake pollution and acid and other mine drainage and to prevent pollution by oil. The purposes of this Act are desirable and needed. Potential Wilderness System units and scenic rivers in West Virginia are threatened by strip mine pollution. In Appalachia two-thirds of the streams and ponds tested by the Department of the Interior in 1965 were significantly polluted by acid to the point where they could not support fish life.

The federal government must take the leadership in research and demonstration programs and work cooperatively with the states and private industry in applying the methods known today in preventing, removing and controlling pollution of the nation's lakes and streams.

National wildlife refuges and marine and seashore national parks and monuments can be damaged by oil pollution which is extremely detrimental to fish and wildlife. There is a need for a comprehensive program to control and prevent oil pollution in our nation's waterways and territorial seas. The authority of the Secretary of the Interior must be strengthened with respect to enforcement and cleanup.

H.R. 15906

This bill is titled "The Oil and Hazardous Substance Pollution Control Act of 1968." The bill is practically the same as S. 2760 with respect to oil pollution. It does not provide for the Coast Guard to suspend or revoke the license of a master or other licensed officer of any vessel found violating the provisions of the Act. This provision is covered in "subsection (g)" of "Section 19" in S. 2760, and should be included in the legislation.

The proposed "Section 21" titled "Removal of Discharged Matter from the Navigable Waters of the United States and the contiguous zone" is very important and is needed. It defines "matter" as any substance of any description or origin other than oil which when discharged from a vessel or shore installation into any waters in substantial quantities, presents, in the judgment of the Secretary an imminent and substantial hazard to the public health and welfare.

Section 21 provides for almost the same prevention, control, and enforcement as is covered in Section 20 which pertains to oil pollution. We consider that this proposed Section 21 is needed to assist the Secretary of the Interior and other federal agencies in the prevention and control of pollution of the nation's waters. A good example is the extremely urgent need for preventing and controlling pollution in the Great Lakes basin.

H.R. 15907

This is a major piece of legislation on many aspects of water pollution control. It duplicates parts of other bills and substantially amends the Federal Water Pollution Control Act. Its main feature is the change in federal procedure of financing municipal treatment plants. We need to stimulate greater municipal action by using modern day financing methods as proposed.

There is a great need for better regional watershed and metropolitan area planning. The authorized amounts for construction grants appear realistic and we encourage their appropriation by Congress.

The comprehensive Estuaries Study is needed. Estuaries are important for recreational, fish and wildlife, wilderness, and ethic purposes and deserve more attention. The proposal in H.R. 15907 may duplicate other legislation for estuary studies now under consideration. However, we need a national program for study, use, preservation and development of estuarine areas. The \$1 million for fiscal years 1969 and 1970 may not be adequate for the study.

The strengthening of the research and demonstration features of the Water Pollution Control Act are needed and the provisions listed are good.

We appreciate the opportunity to present our views.

Mr BLATNIK. Thank you, Mr. Clapper.
Dr. SMITH. Next is Mr. Hall.

ACID AND OTHER MINE WATER POLLUTION CONTROL

Mr. HALL. I am John L. Hall, assistant executive director of the Wilderness Society.

As a member of the conservation panel on pollution, my remarks will be confined to the acid mine pollution problems that face us today and the need for effective action as proposed in the legislation being considered.

Acid mine drainage and the pollution that results is very serious and complex. It is estimated that 4,300 miles of major streams are affected by acid mine pollution, and a total of 11,000 miles of just ordinary streams.

In Appalachia today, two-thirds of the streams and ponds surveyed in 1965 by the Department of the Interior were unfit for fishlife. This is in an area adjacent to the heavy population centers of our Nation. These are the streams and ponds that used to support fishlife.

Personally, as a boy, I wondered why the many beautiful and former trout streams in north central Pennsylvania did not have trout in them. The answer was acid mine drainage from the abandoned underground mines in the Laporte area of Sullivan County.

The Federal Government must take leadership in demonstration areas and in research. It must work cooperatively with the States and private industry, and be a strong leader, as proposed in the legislation under study.

We feel the reason the Federal Government must be the leader is quite evident when we consider these facts. Fifty percent of acid mine pollution is from abandoned mines; 25 percent of the pollution is from surface mines, and the other 75 percent from underground mines.

And in this situation, when we consider the type of minerals being mined, we find that 93 to 97 percent of acid mine pollution comes from coal mining, and that 90 percent of this pollution originates on private lands.

This is very serious in the watersheds of the Chesapeake, Susquehanna drainages, the Potomac, and particularly in the States of Pennsylvania to Missouri. The prevention of acid mine drainage from surface and underground mines can be accomplished by two major methods. One is the preventing of the water from becoming polluted, and the second is removing the acids after they are in the water.

Of course, the first is much more feasible, and it has been estimated that today 70 percent of the acid mine pollution could be corrected, that is right today, with the knowledge that we have, from preventing the water from becoming polluted.

Then this is why the demonstration projects and the cooperative projects with the States and others is very important.

The treatment of this acid mine drainage, the prevention of this pollution, is very important, not only when we consider the conservation problems it causes, but the effect that this pollution has on our total environment.

The Federal Government must take the lead in encouraging the States to assist the good work going on in West Virginia, in legislation, and enforcement of this legislation, and in a demonstration project such as was started in Elkins, W. Va., which is a good example of what can be done. It also points out the magnitude of the total work that must be done.

We recommend strong action now in funding these demonstration projects that are being considered in acid mine research work, and we must emphasize—put the knowledge that we have today to work today to improve our environment.

Thank you, Mr. Chairman.

Mr. BLATNIK. Thank you very much, Mr. Hall.

Mr. Douglas.

Mr. PENFOLD. Mr. Douglas was not able to get back this afternoon, Mr. Chairman. He filed copies of his statement with the committee yesterday.

Mr. BLATNIK. Without objection, it will appear at this point in the record.

(Prepared statement of Philip A. Douglas follows:)

STATEMENT BY PHILIP A. DOUGLAS, EXECUTIVE SECRETARY, SPORT FISHING INSTITUTE, WASHINGTON, D.C.

OIL AND HAZARDOUS SUBSTANCES POLLUTION CONTROL

Mr. Chairman, I am Philip A. Douglas, Executive Secretary of the Sport Fishing Institute, the only non-profit, non-government, professionally-staffed national fish conservation organization. Our main objective is to encourage the rapid development and sound application of fish conservation practices in order to improve sport fishing to the fullest. We derive our operating funds from a wide representation of manufacturers of various sorts of equipment used out fishing, related industries, and interested individuals.

I submitted my comments to you April 22, 1968, on H.R. 15907, "The Water Quality Improvement Act of 1968," for inclusion in the record of hearings on that bill. Other fellow members of conservation organizations on this panel are addressing themselves to that particular phase of helping to effect water pollution control through easing the terms for construction funds for sewage treatment facilities to the secondary level in Standard Metropolitan Statistical Areas.

Today I wish to support this conservation panel in its concerted efforts to try to solve the myriad of water pollution problems facing this nation, and I apply my specific remarks to the oil and chemical pollution problems. These observations are concerned with H.R. 15906, the "Oil and Hazardous Substance Pollution Control Act of 1968."

There can be no doubt in anyone's mind but that the introduction of oil or any toxic chemical substance, deliberate or otherwise, into our waters does constitute a major threat to our aquatic resources. The cases of fish and wildlife "kills" in U.S. waters, by oil itself as a suffocating agent, and toxic chemicals in the form of pesticides, and a myriad of other lethal compounds, are almost universal both in coastal and inland waters. The recent oil spillage disaster by the tanker Torrey Canyon off the British coast has been given much publicity, sparking front page attention to other such happenings throughout the world. Close beside these unfortunate accidents comes the fear that our agricultural pest controls applied to the land are causing serious problems for the aquatic resources. Both problems are of considerable magnitude and cannot be ignored.

Oil Pollution.—Passage by the Senate last December of S. 2760 would authorize a research and demonstration program on lake pollution and acid and other mine water drainage and a program to control pollution by oil, with the Secretary of the Interior "at the helm." The latter is effected through repeal of the 1924 Oil Pollution Act, incorporating some of its provisions with changes in S. 2760, viz: Deletion of the terms "grossly negligent or willful" in definition of the word "discharge"—we highly approve of elimination of these hard-to-prove terms;

application of criminal penalties, where a willful act was determined; expansion of coverage to shore installations; coverage of Puerto Rico (following the recent San Juan Bay disaster), Virgin Islands, Guam and American Samoa; requirement of vessel or shore installation owners to remove discharged oil from navigable waters or pay clean-up costs in all cases, except when due to an act of God. The bill includes two additions in enforcement authority which are of considerable help to the Secretary: (1) Authorization to remove discharged oil from navigable waters and shoreline areas to prevent or mitigate the adverse effects on . . . fish and wildlife, and recreation; and to charge and recover all actual costs incurred. (2) Authorization of appropriations to a revolving fund to finance such clean-up measures.

H.R. 15906 would supplement S. 2760 to help do the job the President has requested be done, only do it better in our estimation. It would prohibit the discharge of oil from a vessel or offshore structure into the waters of the contiguous zone. It would also add a new section providing for the clean up of large discharges of pollutants not limited just to oil.

The President, in his message on "Renewing the Nation," proposed that legislation be provided to control oil pollution and pollution from other substances. These Senate and House bills resulted from this request. H.R. 15906 largely does what S. 2760 purports, but extends such provisions beyond the navigable waters of the U.S. to the contiguous zone, a nine-mile zone beginning on the outer limits of the Territorial Sea. Since winds and currents have considerable effect on the littoral zones of our coastline, such protection as far seaward as possible is absolutely essential and an extension of control to 12 miles offshore would be most desirable. Too, H.R. 15906 provides for an added civil penalty of up to \$1,000 to the civil and criminal penalties contained in S. 2760, an added deterrent to violators. There is also a proviso for the Secretary of the Interior to designate his authority to coordinate clean-up of oil pollution to other Federal agencies where appropriate. In addition, shore installations discharging any other substances posing imminent threat to the public welfare must ameliorate such efforts. I would like to request that this latter section be amended to include consideration for *fish and wildlife resources*, as well as human health and welfare.

Chemical Pollution.—H.R. 15906 provides an additional requirement to that of the Water Quality Act of 1965 that private owners take appropriate actions when they discharge substantial amounts of pollutants into interstate waters, thereby reducing water quality below state standards. The recent Clinch River disaster in Virginia and Tennessee might have been contained or mitigated if such authority were then in effect. (A \$40,000 total judgment for fish killed was obtained against the polluter!) Such spills might not do as extensive damage to fish and wildlife resources if immediate remedial measures are applied. We strongly favor such direction for the Secretary or his delegate to act immediately if the owner fails to do so.

Mr. Chairman, in addition we feel that ample provisions must be made in this proposed legislation to control the use of toxic chemicals that find their way into our coastal marine and inland waterways. Pesticides comprise one of the more "hazardous substances" to aquatic resources.

The nation had been shocked into reality that pesticides could cause considerable damage, when introduced into the aquatic environment during the U.S. Public Health Service's Division of Water Supply and Pollution Control Investigations, concerning the results of studies made along the lower Mississippi River in the Gulf of Mexico since 1960 into the cause of death involving millions of fish in these waters. The results of some three months of intensified investigations carried on by a team of engineers and scientists from the USPHS and the State of Louisiana directly involved water pollution caused by toxic, synthetic and organic materials. Findings indicated that aquatic life was particularly sensitive to pollution from certain synthetic and organic wastes in extremely minute proportions (less than one part per billion) that were identified as causing death through new measuring techniques which enabled scientists to detect and measure toxic substances in quantities as small as parts per trillion.

Two pesticides, endrin and dieldrin, were identified as being directly involving in recurring massive "fish kills" in the Mississippi Drainage Basin and its estuarine waters in the Gulf of Mexico. Most of you people are probably familiar with the details by now of this report. Historically, the warning flag should have been raised following the introduction of DDT as a "miracle" insecticide when it was soon found that side effects were serious enough to be considered of

primary importance as to whether or not it was worth the risk of making application of this chemical.

Congressman John Dingell of Michigan published an article in the April 10, 1968, Congressional Record from the "Michigan Out-Of-Doors" April, 1968, issue entitled "DDT Killing Fish: Lake Michigan Trout, Salmon are Hard-Hit." Researchers leave virtually no doubt that DDT residue in Lake Michigan is responsible for the die-off of coho salmon fry (15-20% mortality) in Michigan and Wisconsin hatcheries. This is transmitted from the lake-run mature females' ovaries, where it is concentrated in the oil droplets of the egg yolk. Director Ralph MacMullan of the Michigan Conservation Department warns of the dire consequences of the use of DDT in Lake Michigan areas to this currently-thriving coho salmon fishery, and urges considerate use of less persistent and easily biodegradable pesticides now available to agriculture. This department has issued instructions on storage and disposal of the DDT-type "hard" pesticides as contained in Appendix A, in hopes that continued use will be greatly curtailed. These instructions, Mr. Chairman, may be of use to those so disposed to follow these words of warning—at least we hope so, maybe somewhat naively.

Sport Fishing Institute, Mr. Chairman, has long been aware of and long publicly warned as to the intrinsic dangers involved in the synthetic and organic materials, and some of the substantiated results of their relentless use being broadcast over tremendous areas without due concern for *all* of our natural resources. DDT was the mere beginning. Tragic results on aquatic life using DDT in forest insect spraying programs were convincingly demonstrated and publicly chronicled by the Institute and others in the cases of extensive destruction of the organisms in New Brunswick's Miramichi River in 1954, famous for Atlantic salmon, and a similar debacle in 1955 in the Yellowstone River, Montana. These are instances we don't forget. Since its availability in 1947, DDT has had several subsequent competitors that have extremely dangerous and persistent characteristics. The more troublesome chlorinated hydrocarbons involving more persistent effects than the organic phosphates are aldrin, dieldrin, heptachlor, endrin and others.

By comparison with DDT, dieldrin and heptachlor are in the category of the hydrogen bomb compared to the atom bomb. Dieldrin itself is some twenty times as destructive of fish, game, song birds, beneficial insects, etc., as its predecessor DDT. I would like to cite a rather dramatic example as it was reported in SFI BULLETIN No. 74, January, 1958, in the lead article entitled "Super Insecticides—Space-Age Pollutants."

"Dieldrin was air-disseminated at the rate of one pound per acre over some 2,000 acres in May, 1955, in Florida, to kill sand-fly larvae . . . About 67 miles of ditches traversed the marshes where this treatment was conducted . . . 20-30 tons of fish or about 1,175,000 fish of at least 30 species were estimated to have been killed in this treatment . . . The larger game and food fishies succumbed first . . . crab set upon and destroyed the moribund fishes, but next day were dead themselves . . . Apparently, all of the aquatic life within this Indian River area was completely destroyed."

Mr. Chairman, this is merely to indicate to you and to your Committee that such cases as this were known and in public reports at least 13 years ago. Since that time, there have been many reports of aquatic life killed by such treatments and it has become increasingly evident that little or nothing is being done to stop this wholesale carnage. A sample of five of such reports is available as Appendix B to this testimony.

The immediate effects upon the aquatic organisms, in which we are particularly interested, may well be only a small aspect of the total panorama of the insecticide problem. Many are becoming alarmed at the various forms of fish and wildlife exhibiting growing concentrations of poisonous chemicals in their tissues and organs—animal protein that we consume as food, such as tuna, halibut, pheasants. A selective concentration of these toxic chemicals occurs when injected in oils—cod liver oil fed to babies being a prime example. The late Rachel Carson's SILENT SPRING, already a classic, emphasized and illustrated in various and diverse ways the vital warning that all should heed. With this exposition in mind, I doubt whether there be further need for me to dwell on these various facets of the inherent problems involved in the uncontrolled and widespread use of such "hazardous" chemicals. Dr. Jerome Wiesner, well known for his work as the Presidential Science Advisor, has claimed that health hazards of chemical pesticides are potentially greater than radioactive fallout!

Mr. Chairman, denial of oil and deleterious chemicals to our waterways is absolutely essential. It behooves all of us to work vigorously toward coordination of activity and unselfish guardianship of all of our natural resources. We feel that H.R. 15906 would, with its added features over those contained in S. 2760, give this nation the "big stick" it needs to control such pollution. The Sport Fishing Institute, therefore, goes in favor and lends its full support to passage of this bill with inclusion of the above suggested considerations.

Thank you.

APPENDIX A

The Michigan Department of Conservation Official News Bulletin dated April 18, 1968, tells how to store or get rid of "hard" pesticides.

A. For proper storage and disposal of "hard" pesticides:

1. Store pesticides in a cool, dry, well ventilated building away from foods or animal feed, preferably away from house or barn. Post the area with warning signs.
2. Keep pesticides under lock and key.
3. Keep pesticides in their original containers with lids tightly closed.
- Mark year of purchase on container with a wax pencil.
4. Inform fire department of any chemicals stored in quantity.
5. Do not store 2,4-D type herbicides with other pesticides.
6. Check the label for any other storage instructions or precautions.
7. Post a list of poison control centers near the storage site.

B. To get rid of "hard" pesticides:

1. Check the label for special directions.
2. Do not reuse containers.
3. Bury all material at least 18 inches deep in a disposal pit in sandy soil, in an isolated area at least 1,000 feet from any water source.
4. Break glass containers and puncture and smash metal containers and bury them in the disposal pit.
5. Burn empty bags and fiber drums in an area where smoke will not endanger humans. Do not inhale the smoke. Wear respirator and goggles. Bury ashes and remaining residue in the disposal pit.
6. Do not burn containers which have held 2,4-D type herbicides as the fumes may injure surrounding crops. Do not burn containers containing chlorates. They may explode.
7. Do not wash out sprayers or dump excess materials in areas where they could contaminate water sources. Left-over spray mixtures should be poured into a pit in sandy soil.

APPENDIX B

In June, 1958, DDT was sprayed over 302,000 acres of spruce-fir forest, Aroostook County, Maine, to control spruce budworm. The result was considerable reduction of young-of-year trout in 1958, and large trout in 1959 in waters of this area.

The period June to October, 1960, involved reports by the USPHS from 30 cooperating states indicating that agricultural pesticides and industrial wastes caused 70 per cent of 185 fish kills on 600 miles of streams and 5,000 acres of lakes. An average of 6,100 fish were observed in the pollution-caused kills, ranging from one hundred to five million. Agricultural poisons were listed in 40 per cent of the cases.

Thirty-six state conservation agencies reported in 1960 that of 305 cases of fish kills, agricultural poisons accounted for 73,000 fish killed in 81 instances.

The Oklahoma Wildlife Conservation Department was receiving at least one report weekly of fish losses in ponds and small lakes adjacent to areas where insecticides were being used in 1961. These reports are increasing and the chief of the department of fisheries stated that losses usually occurred after big rains following applications of insecticides.

During 1961, the USPHS received 411 notifications of pollution-caused fish kills in 45 state fish and game agencies. Nearly 15 million fish were reported killed in 263 instances (64 per cent) where numbers were estimated. River mileage affected, given in 240 reports, amounted to 1,686 miles. About 83 per cent of the kills were in rivers. Twenty-one per cent of the kills from known sources were attributed to agricultural poisons.

RESEARCH AND DEMONSTRATIONS

Mr. PENFOLD. Mr. Chairman, I am J. W. Penfold of the Izaak Walton League. The league has been organized for nearly 50 years, and its major interest throughout the years has been water pollution.

One recent effort of ours is this little booklet, "Clean Water," which was produced with the help of the other major conservation organizations, and is in the process now of distribution across the country. I gave a supply to the committee yesterday, in case any of the members wanted to have a look at it.

Mr. Chairman, I want to speak about a couple of items in which all of the conservationists are interested.

First of all, research.

It seems to us, Mr. Chairman, that the restructuring of section 6, while making no substantive changes, points up the growing emphasis on research and related activities and on systematic and prompt dissemination of research findings and data.

We agree that there should be this emphasis. There is no question but that the country should accelerate its efforts to discover and develop improved methods to measure the effects to discover and develop improved methods to measure the effects of pollutants on water uses and to develop better systems for treating sewage and other water-borne wastes to remove maximum possible amounts of physical, chemical, and biological pollutants.

We have but one fear, and it is an old fear with which conservationists have had a lot of experience over the years; that is the argument that action to abate pollution, using best present knowledge, be delayed until some time later when some research has been accomplished. The ultimate knowledge will never be achieved, if only because of population growth, increased complexities of society, the goods and services it requires and the creation of more sophisticated wastes.

We support research in all its ramifications, but we do not want the research effort used as an excuse for not doing what science and technology knows how to do today.

One specific illustration of this undesired potential is the use of augmented streamflow to meet water quality standards. Section 6, subsection (a) (6) provides that the Secretary shall develop improved methods "to evaluate the effects on water quality and water uses of augmented streamflows to control water pollution not reasonably susceptible to other means of abatement."

A person need only review the transcripts of State hearings on water quality standards required by the Water Quality Act of 1965 to find endless testimony urging stream flow augmentation as the "practical" alternative to construction of waste treatment facilities. We don't think this is an acceptable or practical alternative. We do agree that the kinds of information such evaluations would provide, in the long run, will be important to sound and effective management of the total water resource. We reject in principle that it be used by anyone to avoid responsibility for his own wastes.

This is clearly a matter of proper administration of the act rather than the language of the bill, Mr. Chairman, but we think it warrants mention before this committee.

Another matter of concern to the league, though not directly germane to the legislation before you is thermal pollution and particularly the no man's land of thermal pollution from nuclear power generators licensed by the Atomic Energy Commission. AEC states it has no authority to even consider thermal pollution. The Interior Department has no authorities in the licensing procedures. Yet, thermal pollution from such plants is a live threat. The prospects for the proliferation of nuclear plants are large.

Authorities and responsibilities should be clearly spelled out and assigned promptly, and before the problem gets way ahead of us.

In conjunction with thermal and other water quality standards and with expanded research on criteria indicated, we have been happy to hear the Secretary expound on the principle that approved standards be set within safe limits, rather than at the extreme limit of what we believe aquatic life can tolerate. Let the error in setting standards, if any, be on the safe side. "This is a reasonable requirement," he said, "to protect our resources and aquatic life in the face of incomplete knowledge."

This is standard engineering practice in designing any structure—a very generous safety factor is built into it. We don't think we can afford any less care in manipulating very sensitive aquatic environments.

In summary, Mr. Chairman, we strongly support the objectives and purposes of legislation before you as represented in H.R. 15907, S. 2760, H.R. 15906, H.R. 14000 and H.R. 13923.

We appreciate the privilege of presenting our views.

Thank you.

(Prepared statement of Joseph W. Penfold follows:)

STATEMENT BY J. W. PENFOLD, CONSERVATION DIRECTOR, THE IZAAK WALTON LEAGUE OF AMERICA

Mr. Chairman, I am J. W. Penfold, conservation director of the Izaak Walton League. The League is a national membership society dedicated to the conservation and wise use of America's natural resources. The national scandal of water pollution and the accelerating deterioration of our waters for fishing and all other public values was a prime reason for the organization of the League nearly a half century ago. We have over the years consistently and staunchly supported water pollution abatement and control programs at Federal, State and local levels. We are just as concerned today.

The scope and variety of proposals now before your Committee are such as to confuse the average citizen. He might have had reason to suppose, with the Water Quality Act of 1965 and the Clean Water Restoration Act of 1966 on the books, coupled with the transfer of the Federal program to the Interior Department, that the basic legislative job had been accomplished, that the remaining task was to implement these programs fully and to follow through with whatever enforcement might be required to assure clean water. But things are seldom so simple.

ADDITIONAL METHOD OF FINANCING WASTE TREATMENT WORKS

The 1966 Act established a schedule of action to expedite the construction of municipal waste treatment works. Due to the Vietnam conflict and the national budget, however, we defaulted on that pledge—the appropriations have not been made. Now the financing provisions of H.R. 15907 are proposed. We support this as a workable alternative to direct appropriations under the 1966 formula. If it succeeds in maintaining the accelerating pace of treatment plant construction that is required, it will be worth the additional cost over direct appropriations. We cannot afford to have this program lag. Water quality standards do not clean up water. Surveillance programs do not clean up water. Research doesn't clean

up water. Enforcement doesn't clean up water. Water is cleaned up by keeping the filth out of it in the first place. That is what waste treatment plants do. The construction grants program continues to be the core of the Federal-State-local effort. In the municipal phase of water pollution, the construction of treatment facilities is the basic measure of the success of the rest of the program. It is the basic key to securing the compliance of the industrial sector. It is the public's major leverage against pollution from any source. Without the construction grants we might well be carrying on an exercise in futility.

We support the provisions which would encourage better area wide planning and require systems of charges to amortize local share of the costs plus maintenance, operations and a reserve to meet planned expansion needs. Certainly all approved projects should meet State standards, conform with State water pollution plans and be consistent with a river basin pollution control plan, if there is one.

In supporting H.R. 15907 we must note that its effectiveness will be answered *only* if the funds to implement it are indeed appropriated in the amounts and at the times specified in the authorization.

OIL POLLUTION CONTROL

The League supports S. 2760, H.R. 14000, H.R. 15906 and others relating to oil pollution. H.R. 15906 would extend the provisions of S. 2760 for the control of oil pollution in the navigable waters of the United States to the Contiguous Zone, the 9-mile zone beginning on the outer limits of the Territorial Sea. We think that is an improvement, as is adding a civil penalty for violations to criminal penalties. We agree that the present requirement that a discharge be "grossly negligent" before liability attaches should be deleted; that the bill cover Puerto Rico, the Virgin Islands, Guam and Samoa. We do not agree that an owner of a vessel or a shore installation should entirely escape the responsibility to clean up or to pay the cost of clean up following an oil discharge caused by "an Act of God". This is a type of risk which may business or other enterprise must uniformly accept as an inescapable part of the undertaking.

ACID AND OTHER MINE WATER POLLUTION CONTROL

The League has long recognized the destruction from acid and other mine water pollution. We strongly support S. 2760 and H.R. 14000 which would authorize the Secretary to develop with the States demonstration projects for the elimination or control of such pollution.

LAKE POLLUTION CONTROL

We support S. 2760 and the series of House bills calling for a research and demonstration program for the prevention, removal and control of natural or man-caused pollution in lakes.

VESSEL POLLUTION CONTROL

We support H.R. 16207 and H.R. 13923 which would direct the Secretary of Interior to establish regulations for the control of sewage, litter, garbage, sludge and other substances discharged by vessels into navigable waters. We recognize that this program involves some very complex problems for the recreational boater which will not be resolved overnight. A great majority of League members own or regularly use boats for a variety of recreational purposes which are dependent upon clean water. As recreational boaters, we can hardly consider ourselves immune from responsibility for our own wastes. The bill provides for reasonable compliance schedules, uniformity for various classes of boats and requires consultation with interested parties before issuance of the regulations. The bill provides for a system of certification of devices which meet the standards to control the discharge of sewage. Such a system would not be "proof-positive" of compliance with water quality standards—for example, the boatowner might neglect to add a chemical agent to a treatment tank, although certification is based upon the proper use of that agent. Nonetheless certification of devices is a practical way of securing wide spread compliance and will be the convenient way for boatowners to put their craft in compliance.

ESTUARINE STUDY

The League has deep concern with the protection of estuarine areas for maximum production of fish and shellfish, recreation and esthetic values. Water pollution in all its forms is the basic threat to the Nation's estuaries. H.R. 15907 makes no substantive change in the provisions of the 1966 Act for the study of estuarine pollution, but it does extend the report date to January 30, 1970 and makes the funds appropriated for the study available until expended. Both are desirable amendments.

Mr. Chairman, from the beginning we have given strong support to the research, demonstration, investigations and training grants provisions of the Federal program. We now support Section 6 of H.R. 15907 which we understand makes no substantive changes in the present Act, but revises, clarifies and extends the provisions of Sections 5 and 6 of the present Act, and places no limit on appropriations after FY 1969.

THERMAL POLLUTION

It seems to the Izaak Walton League, Mr. Chairman that the restructuring of Sec. 6, while making no substantive changes, points up the growing emphasis on research and related activities and on systematic and prompt dissemination of research findings and data. We agree that there should be this emphasis. There is no question but that the country should accelerate its efforts to discover and develop improved methods to measure the effects of pollutants on water uses and to develop better systems for treating sewage and other water borne wastes to remove maximum possible amounts of physical, chemical and biological pollutants.

We have but one fear, and it is an old fear with which conservationists have had a lot of experience over the years; that is the argument that action to abate pollution, using best present knowledge, be delayed until some time later when some research has been accomplished. The ultimate knowledge will never be achieved, if only because of population growth, increased complexities of society, the goods and services it requires and the creation of more sophisticated wastes. We support research in all its ramifications, but we do not want the research effort used as an excuse for not doing what science and technology knows how to do today.

One specific illustration of this undesired potential is the use of augmented stream flow to meet water quality standards. Sec. 6, Subsection (a)(6) provides that the Secretary shall develop improved methods "to evaluate the effects on water quality and water uses of augmented stream flows to control water pollution not reasonably susceptible to other means of abatement".

A person need only review the transcripts of State hearings on water quality standards required by the Water Quality Act of 1965 to find endless testimony urging stream flow augmentation as the "practical" alternative to construction of waste treatment facilities. We don't think this is an acceptable or practical alternative. We do agree that the kinds of information such evaluations would provide, in the long run, will be important to sound and effective management to the total water resource. We reject in principle that it be used by anyone to avoid responsibility for his own wastes.

This is clearly a matter of proper administration of the Act rather than the language of the bill, Mr. Chairman, but we think it warrants mention before this Committee.

Another matter of concern to the League, though not directly germane to the legislation before you is thermal pollution and particularly the no-man's land of thermal pollution from nuclear power generators licensed by the Atomic Energy Commission. AEC states it has no authority to even consider thermal pollution. The Interior Department has no authorities in the licensing procedures. Yet, thermal pollution from such plants is a live threat. The prospects for the proliferation of nuclear plants are large. Authorities and responsibilities should be clearly spelled out and assigned promptly, and before the problem gets way ahead of us.

WATER QUALITY STANDARDS

In conjunction with thermal and other water quality standards and with expanded research on criteria indicated, we have been happy to hear the Secretary expound on the principle that approved standards be set within safe limits,

rather than at the extreme limit of what we believe aquatic life can tolerate. Let the error in setting standards, if any, be on the safe side. "This is a reasonable requirement," he said, "to protect our resources and aquatic life in the face of incomplete knowledge."

This is standard engineering practice in designing any structure—a very generous safety factor is built into it. We don't think we can afford any less care in manipulating very sensitive aquatic environments.

In summary, Mr. Chairman, we strongly support the objectives and purposes of legislation before you as represented in H.R. 15907, S. 2760, H.R. 15906, H.R. 14000, H.R. 13923.

We appreciate the privilege of presenting our views.

VESSEL POLLUTION CONTROL

Mr. McCARTHY (presiding). Thank you very much, Mr. Penfold. The next witness, Dr. Smith?

Dr. SMITH. Mr. Gutermuth.

Mr. GUTERMUTH. Mr. Chairman, I am vice president of the Wildlife Management Institute, which is one of the older national conservation organizations in this country.

It is a pleasure for me to join with the representatives of these other national conservation organizations in this discussion of the problems and opportunities in water pollution abatement. The many proposals before the committee are an indication of the national importance that is attached to this subject.

Water is one of the most fundamental of our Nation's resources; it touches on every facet of society. Its substantial role in guiding the settlement and development of this country continues today, but that role is being altered significantly by the constant expansion of population, the unprecedented demands for water for all kinds of consumptive and nonconsumptive purposes, and the awesome outpouring of municipal, agricultural, industrial, and other wastes.

I will confine my remarks, Mr. Chairman, to the general subject of the pollution of water from ships and other watercraft.

In discussing the invitation to appear before the committee as a panel, the conservation groups decided that they could be of most assistance by discussing specific areas of concern rather than by attempting to cover each of the many bills in detail. This procedure held the most promise of avoiding repetition and focusing attention on the major issues. For this reason, the Institute's remarks will center on pollution from watercraft. I am sure the committee realizes that the Institute supports and endorses the comments of the other conservation organizations represented here.

As I observed earlier, water had a major role in influencing the pattern of settlement and development of this country. The ports, bays, harbors, and channels which experience a heavy vessel traffic usually are located in areas having concentrations of people, industry, and commerce. Additionally, water is the focal point of much outdoor recreation, and these same areas near concentrations of people are used for sailing and other recreational boating, including the use of boats for fishing, as well as for swimming and other water sports.

It makes little sense to conservationists for municipalities and industries along these waters to be required to treat their wastes when, at the same time, there is no corresponding requirement that vessels refrain from discharging ballast, bilge, and wash waters, or sewage,

oils, litter, and other pollutants into the same waters. The goal of pollution abatement programs is to abate pollution so as to effectively reduce the volume of pollutants entering natural waters. The continued discharge of pollutants and other wastes from watercraft only complicates an already complicated pollution abatement problem in navigable waters.

The situation is further intensified by the mobile nature of the vessels that are discharging the pollutants and by the great diversity of materials that are involved. The vessels move into areas that already have critical pollution problems and can greatly aggravate conditions there. In a similar way, large fleets of recreational boats may congregate in a sheltered bay or cove, with the effect that a tremendous burden of pollution suddenly is added to the water. These problems are real, and they are mounting every day as the number of commercial and recreational watercraft increases, as commercial tankers of greater hauling capacity are launched, and as their cargoes become more diverse.

Catastrophes with tankers in recent months are indications of some of the things that can happen. But it should be kept in mind that the wastes already being discharged from commercial and recreational watercraft are of substantial volume, and while the results of this recurring discharge are not as dramatic or singular as the *Torrey Canyon* wreck, for example, without doubt they are annually destroying water-related resources and values of infinitely greater magnitude and over a much broader area.

I will not attempt to summarize the sizable records of problems and contradictions that have been compiled. Pollution emanating from vessels in the navigable waters in the United States already is seriously contaminating the environment. The problems are both local and regional in cause and effect, and all available evidence points to their intensification in the absence of corrective action.

Certainly, the demonstrated destruction of environmental values, including the hazards that are presented to public health and welfare, leaves no question but that this is a problem of large magnitude. It arises from several sources, among them the lack of uniform guidelines and requirements, the absence of consistent and vigorous enforcement, the unavailability of a continuing surveillance and monitoring network, inadequate information on which to base programs, and for many other reasons.

Conservationists sincerely hope that the committee will recommend appropriate action to counteract this serious source of waterborne pollution in the legislation reported. It presently constitutes one of the largest, single sources of pollution in the navigable waters of the United States. It is time that steps are taken to prevent it from going untended any longer.

(Prepared statement of C. R. Gutermuth follows:)

STATEMENT OF C. R. GUTERMUTH, WILDLIFE MANAGEMENT INSTITUTE

VESSEL POLLUTION CONTROL

Mr. Chairman, I am C. R. Gutermuth, vice president of the Wildlife Management Institute. The Institute is one of the older national conservation organizations. Its program has been devoted to the restoration and improved management of natural resources in the public interest since 1911.

It is a pleasure to join with representatives of other national conservation organizations in this discussion of the problems and opportunities in water pollution abatement. The many proposals before the committee are an indication of the national importance that is attached to this subject. Water is one of the most fundamental of our nation's resources; it touches on every facet of society. Its substantial role in guiding the settlement and development of this country continues today, but that role is being altered significantly by the constant expansion of population, the unprecedented demands for water for all kinds of consumptive and non-consumptive purposes, and the awesome outpouring of municipal, agricultural, industrial, and other wastes.

Today, as never before, water can limit growth and development. This is because the natural capacity of water to assimilate society's wastes has been exceeded in many areas and the values associated with and derived from water are decreasing or have, in fact, been greatly diminished. In numerous areas, water has been degraded to the point that it is no longer tolerable to society. Municipalities and development commissions are concerned because industry is finding water too dirty for use and too costly to reclaim, so industry is going beyond traditional locations in many instances for installation sites. The public is showing increasing intolerance of unsightly and offensive waters. The man on the street is taking an active role in promoting clean water campaigns, and sizeable bond issues have been authorized all over the country in support of needed pollution abatement programs. There also is mounting evidence that the accumulations of technical materials, such as pesticides, have implications on aquatic life that are not clearly understood. In fact, involvement of pesticides with coho salmon in Lake Michigan demonstrates that tremendous damage can be done to the natural aquatic environment before the consequences become obvious to man.

All of this is part of man's awakening and responsive interest in the restoration and maintenance of the quality of his environment. People have seen the unnecessary and disheartening consequences of man's wasteful misuse of resources. They also have experienced the benefits that can be achieved from the management and restoration of resources. I believe that the chairman and the members of the committee will agree that the national interest in restoring and preserving the quality of the environment is intensifying each year. Many of us also appreciate that this committee and the Congress has been responsive to this national concern since there have been repeated and successful efforts to strengthen and broaden appropriate federal authority to cope with the serious environmental pollution problems. Our presence here today is an indication that still more must be done.

I will confine my remarks, Mr. Chairman, to the general subject of the pollution of water from ships and other watercraft. In discussing the invitation to appear before the committee as a panel, the conservation groups decided that they could be of most assistance by discussing specific areas of concern rather than by attempting to cover each of the many bills in detail. This procedure held the most promise of avoiding repetition and focusing attention on the major issues. For this reason, the Institute's remarks will center on pollution from watercraft. I am sure the committee realizes that the Institute supports and endorses the comments of the other conservation organizations represented here.

As I observed earlier, water had a major role in influencing the pattern of settlement and development of this country. The ports, bays, harbors, and channels which experience a heavy vessel traffic usually are located in areas having concentrations of people, industry, and commerce. Additionally, water is the focal point of much outdoor recreation, and these same areas near concentrations of people are used for sailing and other recreational boating, including the use of boats for fishing, as well as for swimming and other water sports.

It makes little sense to conservationists for municipalities and industries along these waters to be required to treat their wastes when, at the same time, there is no corresponding requirement that vessels refrain from discharging ballast, bilge and wash waters, or sewage, oils, litter and other pollutants into the same waters. The goal of pollution abatement programs is to abate pollution so as to effectively reduce the volume of pollutants entering natural waters. The continued discharge of pollutants and other wastes from watercraft only complicates an already complicated pollution abatement problem in navigable waters.

The situation is further intensified by the mobile nature of the vessels that are discharging the pollutants and by the great diversity of materials that are involved. The vessels move into areas that already have critical pollution problems and can greatly aggravate conditions there. In a similar way, large fleets of

recreational boats may congregate in a sheltered bay or cove, with the effect that a tremendous burden of pollution suddenly is added to the water. These problems are real, and they are mounting every day as the number of commercial and recreational watercraft increases, as commercial tankers of greater hauling capacity are launched, and as their cargoes become more diverse.

Catastrophes with tankers in recent months are indications of some of the things that can happen. But it should be kept in mind that the wastes already being discharged from commercial and recreational watercraft are of substantial volume, and while the results of this recurring discharge are not as dramatic or singular as the Torrey Canyon wreck, for example, without doubt they are annually destroying water-related resources and values of infinitely greater magnitude and over a much broader area.

The Department of the Interior study report on "Wastes From Watercraft" (Senate Document No. 48) estimates there are about 46,000 documented commercial vessels, 65,000 non-documented commercial fishing vessels, 1,500 federal vessels, and 8 million recreational watercraft using the navigable waters of the United States. There also are about 40,000 foreign ship entrances recorded each year. Their sewage and other wastes are being discharged into the waters of the United States, a practice that has been followed since the beginning of navigation.

The discharges can greatly exceed the ability of the receiving waters to assimilate them. Public health may be endangered by the release of ballast waters brought in from foreign harbors. The transient nature of water-borne pollutants poses a hazard to areas used for water-contact sports, drinking water supplies or shellfish beds. Organic wastes and nutrients promote algal growth, the lowering of dissolved oxygen levels and, in addition to harming aquatic life, may produce offensive odors and stimulate the growth of undesirable vegetation.

Reports show, Mr. Chairman, that 29 states have laws to regulate vessel discharges, but these vary greatly in their coverage. Another 12 states have statutes that apply to recreational craft. Other minimal efforts are being made, such as by some watercraft operated by federal agencies, but these efforts in the main are only minor in comparison to the problems that exist. There is a scant record of the degree to which the various statutes are enforced, if at all. And furthermore, there is no measure of their adequacy to meet the situation that exists and is worsening steadily. I suspect that many of the laws are aimed at eliminating hazards to navigation rather than at maintaining the quality of water.

I will not attempt to summarize the sizeable records of problems and contradictions that have been compiled. Pollution emanating from vessels in the navigable waters in the United States already is seriously contaminating the environment. The problems are both local and regional in cause and effect, and all available evidence points to their intensification in the absence of corrective action. Certainly, the demonstrated destruction of environmental values, including the hazards that are presented to public health and welfare, leaves no question but that this is a problem of large magnitude. It arises from several sources, among them, the lack of uniform guidelines and requirements, the absence of consistent and vigorous enforcement, the unavailability of a continuing surveillance and monitoring network, inadequate information on which to base programs, and for many other reasons.

Conservationists sincerely hope that the committee will recommend appropriate action to counteract this serious source of water-borne pollution in the legislation reported. It presently constitutes one of the largest, single sources of pollution in the navigable waters of the United States. It is time that steps are taken to prevent it from going untended any longer.

WATER POLLUTION AND SCENIC AREAS

Mr. McCARTHY. Thank you very much, Mr. Gutermuth.

Dr. SMITH. Mr. Tupling is next.

Mr. McCARTHY. Mr. Tupling, the Washington representative of the Sierra Club.

Mr. TUPLING. Mr. Chairman, the Sierra Club is particularly concerned about the impact of pollution on scenic areas. It goes without saying that polluted water and scenic grandeur are mutually incom-

patible. At the same time, we see the preservation of unspoiled natural areas as a major factor in pollution abatement. Watershed management is an inherent benefit from national parks, national forests, and wilderness areas. Yet the trees have been removed from enough American mountainsides to demonstrate the direct relationship between forests and not only an adequate layer of topsoil, but also the existence of a stable water supply.

But at this point in history, it is too late to depend on any vast reforestation program to reverse the pollution trend. We must expand governmental programs at all levels so that water purity can become the measure of an advancing American society.

The committee deserves commendation for the attention being given to all facets of the water pollution problem. The Sierra Club supports the principles of proposals now before you to accelerate construction of waste treatment works, to curb pollution of water sources by oil, and to control acid or other mine pollution of watersheds and drainage areas. We urge prompt action.

Thank you.

(Prepared statement of Lloyd Tupling follows:)

STATEMENT OF LLOYD TUPLING, WASHINGTON REPRESENTATIVE, SIERRA CLUB

WATER POLLUTION AND SCENIC AREAS

Mr. Chairman and members of the Committee, one of the anachronisms of history is that the level of a society's cultural and economic advancement can be measured by the degree to which man has contaminated his potable water supply. The Seine, the Thames, the Hudson and Potomac are mute evidence of this tragic fact. The high degree of pollution is all the more difficult to understand when we realize that the total supply of water available for the world's need has not changed measurably since the day of creation.

The Sierra Club is particularly concerned about the impact of pollution on scenic areas. It goes without saying that polluted water and scenic grandeur are mutually incompatible. At the same time, we see the preservation of unspoiled natural areas as a major factor in pollution abatement. Watershed management is an inherent benefit from national parks, national forests, and wilderness areas. Yet the trees have been removed from enough American mountainsides to demonstrate the direct relationship between forests and not only an adequate layer of topsoil, but also the existence of a stable water supply.

Hydrographic studies have shown that, where 75 per cent of Western range land was covered with trees and plants, water runoff was 2 per cent of the amount of rain falling each hour. Soil loss under these conditions amounted to only about 5 per cent of a ton on one acre in an hour. But where a mere 10 per cent of the land supported trees and shrubs, 75 per cent of the rain ran off each hour, carrying with it tons of soil and thereby complicating water treatment problems.

The ax and chain-saw take a toll on purity of our water supply while untreated industrial and municipal wastes pour into our lakes and streams. But at this point in history, it is too late to depend on any vast reforestation program to reverse the pollution trend. We must expand governmental programs at all levels so that water purity can become the measure of an advancing American society.

The Committee deserves commendation for the attention being given to all facets of the water pollution problem. The Sierra Club supports the principles of proposals now before you to accelerate construction of waste treatment works, to curb pollution of water sources by oil, and to control acid or other mine pollution of watersheds and drainage areas. We urge prompt action.

In conclusion, I wish to include in the hearing record the text of the water pollution abatement policy statement adopted by the Board of Directors of the Sierra Club on May 4, 1957. This statement serves as the basis for the Club's support of water pollution control programs over the years. The text follows:

1. GENERAL POLICY

May 4, 1957—Board *endorses* the following policy statement of the National Wildlife Federation with respect to pollution of natural waters:

"The Federation asserts the principle that the producer of contaminating wastes, whether citizen, industry or municipality, has a social responsibility and moral obligation voluntarily to prevent the pollution of public waters. At the same time we recognize that regulations and enforcement are necessary to restore and to preserve clean waters. In keeping with the aforesaid principle, and in recognition of growing water shortages and of the seriousness of the pollution menace to the public health and welfare, the Federation declares the following policies and objectives in water pollution control:

1. Sound and effective pollution control laws and programs in every state.
2. Adequate federal authority to clean up pollution in interstate waters in cases where the states, interstate or private agencies cannot or will not do the job.
3. Adequate sewage treatment facilities in every community; adequate waste prevention or waste treatment by every industry.
4. Adequate research by public and private agencies aimed at improving the efficiency of sewage treatment and at solving difficult problems of industrial waste control.

ENFORCEMENT

Mr. McCARTHY. Thank you very much, Mr. Tupling.

Dr. Smith.

Dr. SMITH. Mr. Chairman, we of the Citizens Committee are in general agreement with what you have heard today, and we wish to make an appeal to this committee, which perhaps is not immediately germane in the legislation before you—this is the problem of enforcement.

We have been very distressed, and we have also been dismissed by many as being too impatient, too puristic in the establishment of State standards; but we nevertheless are constrained to appeal to this committee to see what influence can be achieved in order to accelerate some enforcement actions.

I am sure, as the chairman has indicated previously, that this committee and many Members of the Congress, not on this committee, as well as the conservationists have supported these programs for a long period of time, back when it was a real struggle to get any public recognition for a program just getting underway.

We were cautioned then, too. We were first cautioned that impatience could mean disaster to the entire program. We were urged patience at the time Mr. Gutermuth and others tried so desperately to upgrade the water pollution agency in the HEW Department. We were cautioned again that a level of experience was necessary before one could move vigorously in this area. We were cautioned again to inhibit to a greater degree our impatience at the lack of funds for a significant enforcement program.

When the transfer of the water pollution control agency from HEW to the Department of Interior was accomplished, another plea for restraint was urged upon us because the new Department necessarily had to become adjusted to its task. When this transition period appeared to have come to a close, we were urged again to exercise serious restraint in terms of undue criticism as the Department went about evaluating State plans that were presented to it.

It is not our primary effort to put people in jail for violations. We are not interested in a punitive measure for penalty's sake alone but we

do feel that a greater vigor must take place in pursuing the problems when they are identified.

To the best of our knowledge, as of March 26, 1968, 43 conferences have been convened. Only one, to our knowledge, has gone to adjudication and where the Federal court has retained jurisdiction in the case of St. Joseph, Mo., area on the Missouri River. We are not suggesting that each of these cases should be rushed as soon as the law will allow court action.

Our principal matter of concern is that once public hearings have taken place and the procedure of the act has been satisfied, and I think the procedure of the act leans over backward to make sure that it is thoroughly democratic, once this has been done and the conferences have been convened, the recommended compliance has got to be placed to find out whether they in fact have complied with the target dates that have been set as part of the conference.

In addition to that, we have got to move up, it seems to me, because some of the early target dates were based on the older techniques in antipollution control, and in many instances funds were not available, and then funds did become available.

It seems to me that these have to be reviewed because we are certainly not making the progress in terms of enforcement that are necessary. And I think these conferences have to be followed up. We do not have the personnel at the present time. We do not have the money allocated to it. But it does little good if we urge upon communities to establish sewage treatment plants and others, if we are not urging constantly other areas to do the same.

FEDERAL ACTIVITIES

Now, I must confess that one of the deepest and most significant problems is trying to get the Federal Government to do this job by themselves; in other words, police their own establishments.

I have here a speech on the "Water Pollution Control Policy for Federal Agencies," which was an address by Percy H. Andrews, director, Robert A. Taft Engineering Center, Cincinnati, Ohio. This was given in January.

The first paragraph is excellent:

Practice what you preach has long been one of the cornerstones of our ethical order and is basic to the policy and programs of the Federal Activities Coordination Division and of Water Pollution Control Policy for Federal Agencies. Any organization guilty of the same faults it seeks to correct is bound to be severely criticized by the very people whose support is essential for successful corrective action.

That had a fine democratic flavor to it, and I began to read with great eager, until I turned to page 2, and the rest points out great difficulties and why we have not made greater progress than we have.

It seems to me that it undercuts the whole moral fiber of an enforcement program if we have 20,000 installations owned and operated by Federal agencies that are not putting their own house in order.

Now, we have the Executive Order 11288, which was signed by President Johnson on July 2, 1966. This order is crisp in its language and incisive as to purpose. There is no reason in the world why this

should be misunderstood. We are perfectly aware, also, that the bureaucratic game is being played. Members of this committee know what it is.

I was a bureaucrat long enough to know that if I had to be cut somewhere in my budget, I would put that budget up in a posture to where the Budget Bureau or Congress would lop off what I wanted to have lopped off. When one places in a budget a line item for pollution abatement facilities, he is perfectly aware that when it becomes appropriate for budgets to be cut, this item will be a sitting duck.

On February 23, 1965, the Special Subcommittee on Public Works of the Senate held hearings on Federal Installations, Facilities and Equipment Control Act. On page 43 of these hearings, a brief colloquy between the chairman of the subcommittee, Senator Edmund Muskie, and Mr. John C. Bryson, a director of the Delaware Water Pollution Commission, is reported.

Senator Muskie inquired :

Mr. Bryson, in your prepared statement you made a point I think we should emphasize; that is that these agencies are primarily concerned with their principal mission, not with pollution treatment, so that in their budget presentations they are concerned in the Department of Defense, for example, primarily with requesting dollars necessary to carry out their primary mission, and so understandably in their presentation to the Budget Bureau, to the Appropriations Committees of the Congress, they are likely to emphasize their primary mission and not this one, and if dollars have to be saved this is where the dollars are likely to be saved. Is that your analysis of what happens?

And Mr. Bryson answered :

Yes, sir.

Mr. Chairman, we do not pretend to know the precise vehicle by which the rather broad, varied, and often disconnected elements of the bureaus of the Federal Government can be controlled as to pollution. We do feel that a reappraisal on the part of the committee is going to have to take shape, not only for the intrinsic value of cleanup alone but for the example that is being set to the States in their water pollution control enforcement actions and to those involved in municipal or commercial pollution. Unless something is done regarding the Federal installations it will stand as a monument to the inability of the Federal Government to clean up pollution that has been occasioned by its own actions.

Mr. Chairman, we would like to thank you and members of the committee for giving us the opportunity to present our views in these most important areas of water pollution control and abatement.

Thank you.

(Prepared statement of Dr. Spencer M. Smith, Jr., follows:)

STATEMENT OF DR. SPENCER M. SMITH, JR., SECRETARY OF THE CITIZENS
COMMITTEE ON NATURAL RESOURCES

Mr. Chairman and members of the committee, I am Dr. Spencer M. Smith, Jr., Secretary of the Citizens Committee on Natural Resources, a national conservation organization with offices in Washington, D.C.

The number of bills pending before the Committee in regard to water pollution control and abatement cover a variety of subjects and present a scope somewhat beyond our capacity to deal with in any substantive detail. As a result, our comments will deal only with particular elements of these measures.

S. 2760 as passed by the Senate is a measure long needed as the problems to which it is addressed are pervasive and have not been ameliorated significantly by any activity to date. Take pollution, mine water damage, and the impact of oil upon all elements of the ecology are so obvious that the problems they present do not need to be documented.

OIL POLLUTION CONTROL

There has been a tendency in Federal regulation procedure to provide two obvious avenues of escape for polluters. While we support the efforts contained in S. 2760 for emergency clean-up in order to minimize the pollutive effects of oil, the basic effort, it occurs to us, should be the prevention of these circumstances. While we are aware that no preventive policy can be 100% effective, certainly the number of occasions of oil spillage or oil escape can be minimized by vigorous enforcement action. To allow vessels or installations to pollute the waters either accidentally or on the basis of no proven malfeasance is to abrogate effective enforcement action. It would occur to us that this has not been the pattern of the past but on the contrary, if a violation occurs this may be one of the arguments offered by the defendant if the defendant chooses to appeal a regulatory ruling to the courts. To make the regulatory agencies solely responsible when a violation of the regulation takes place is improper and restrictive if the aim of such enforcement is to achieve widespread compliance.

We prefer H.R. 15906 since the enforcement provisions of this measure appear to us to be stronger and more capable of being implemented than those contained in S. 2760. The principal deficiency however, in our judgment, of H.R. 15906 is essentially the same.

ADDITIONAL METHOD OF FINANCING WASTE TREATMENT WORKS

We support the principles established in H.R. 15907, which would amend the Federal Water Pollution Control Act. The basic purport of the legislation is to accelerate the waste treatment construction grant program by a new method of financing. This measure would authorize the Secretary of the Interior to commit the Federal Government to contracts with state, interstate, or local public bodies by which the Secretary would pay to these governmental bodies required amounts over a fixed period of time but not to exceed thirty years. The present provisions of the act permit federal payments from 30 to 50% of the cost of construction of waste treatment works. The proposed legislation would permit the local and state governmental bodies to issue bonds covering the entire cost of the treatment works and the federal payment would be available for such bodies to pay the principal and interest on the bonds issued. In short, this would permit the Federal Government to guarantee the entire bond, which would be inclusive of the Federal and non-Federal shares. While these bonds would not be tax-exempt, as issued by the local governmental bodies, the payment structure authorized the Secretary would have the effect of reducing the interest to the states to rates comparable to municipal tax-exempt bonds.

It appears to us that the bill provides the necessary safeguards in authorizing the waste treatment system and also contains in Section 8(c) of the present act an amendment which would provide the proper transition from the present method of financing to that proposed in the legislation.

The amendment of this legislation to Section 8(b) of the act would continue the present authorization of funds to be appropriated in 1969-71 and would also authorize appropriations for an indefinite period in order that the principal and interest payments, which become the obligation of the Federal Government, be liquidated under the new authority. A failure to do this would, in our judgment, make it impossible for us to make any progress with the present back-log of sewage treatment facility needs, as well as to keep up with the present pollution problems occurring on all fronts due to the population expansion and to the industrial and technological expansion. The present legislation would establish essentially a contract authority for the agency but the provisions of the legislation would not allow such authority until the Congress has passed an appropriations act for fiscal year 1969, and two succeeding fiscal years, which would establish the level of such contract authority.

Mr. Chairman, it appears obvious from the experience we have had to date that something bold and imaginative must be done if the sewage treatment

needs of this country are to be met. The suggested legislation appears to us to be a genuine effort in this direction. Only recently the authorizations have been put at approximately $\frac{3}{4}$ of a billion dollars and this level was decided after the most laborious and careful hearings by the committees of the Congress and extensive discussions on the floor of both Houses of Congress as to the critical need that such an authorization represented. Subsequently, we are all aware of the problems of funding much more than $\frac{1}{2}$ of the amount authorized to be appropriated. While this may not be critical in many other areas of the Federal Budget, it is of vital importance to the program of water pollution control abatement. The impact upon health, recreation, and the general quality of our very existence has been hanging in the balance for too long a time to permit a condition where we fall a little farther behind each year to continue. Unless action of some drastic proportions is taken now, financial and technical problems may be so large that the community's ability to overcome either may be questionable.

ENFORCEMENT

Mr. Chairman, we have been most distressed at the problem of enforcement. While many of us have been dismissed as being too impatient, and too purist in the establishment of State standards, we nevertheless are constrained to appeal to this Committee for an acceleration of enforcement action. The Chairman, I am sure, will recall that conservationists have worked for a long period of years in support of the Chairman, this Committee, and other Congressional leaders in order to achieve a responsible and viable Federal water pollution control and abatement program. I need not recall to the Chairman the long and, what at that time appeared to be, unproductive years of effort to gain public recognition for a program just getting under way. We were cautioned at every turn of the road that impatience could well mean disaster for the entire program. We were urged patience at the time Mr. Gutermuth and others tried so desperately to up-grade the water pollution agency in the HEW Department. We were cautioned again that a level of experience was necessary before one could move vigorously in this area. We were cautioned again to inhibit to a greater degree our impatience at the lack of funds for a significant enforcement program. When the transfer of the water Pollution Control agency from HEW to the Department of Interior was accomplished another plea for restraint was urged upon us because the new Department necessarily had to become adjusted to its task. When this transition period appeared to have come to a close, we were urged again to exercise serious restraint in terms of undue criticism as the Department went about evaluating State plans that were presented to it.

It is not our primary effort to put people in jail for violations. We are not interested in a punitive measure for penalty's sake alone but we do feel that a greater vigor must take place in pursuing the problems when they are identified. To the best of our knowledge, as of March 26, 1968, forty-three conferences have been convened. Only one, to our knowledge, has gone to adjudication and where the Federal Court has retained jurisdiction in the case of St. Joseph, Missouri area on the Missouri River. We are not suggesting that each of these cases should be rushed as soon as the law will allow court action.

Our principal matter of concern is that once public hearings have taken place and that the procedures of the act have been satisfied and that conferences have been convened, that recommended compliance be more carefully policed and target dates be moved up with greater pressure exerted in order to clean up many of these areas.

FEDERAL ACTIVITIES

It has occurred to us, Mr. Chairman, that perhaps one of the main reasons for our failure in this regard has been the seeming inability of the Federal Government to make significant strides in having the some 20,000 installations owned and operated by Federal agencies to clean up their own pollution. I do not need to tell this Committee, which has made every effort within its authority to facilitate the Federal Government's putting its own house in order, that from every evidence that we have the strides made by Federal Government in this regard have not been significant. We are not making this statement without due consideration and we are not unreasonable in assuming that the entirety of all the problem areas should have been cleaned up by this date. But certainly more evidence of accomplishment should be indicated by this time. The Federal Gov-

ernment should provide the leadership, should be out in front, and should serve as a model as to how remedial action at these installations can be accomplished. To say there is no money available is to beg the question. We do not accept this reason from commercial polluters. We say simply that the health and well-being of the community demand pollution abatement. It occurs to us that agencies are playing a close game, as the committees in the Congress I am sure know better than do we. The way in which budget requests are presented to the Congress may have a great deal to do with whether appropriations are available to carry out the pollution abatement program. We are also aware of Executive Order 11288, entitled "Prevention, Control and Abatement of Water Pollution by Federal Activities", which was signed by the President on July 2, 1966. The language of the Executive Order is crisp, the direction is clear, but alas, the results have not followed. When one places in a budget a line item for pollution abatement facilities he is perfectly aware that when it becomes appropriate for budgets to be cut this item will be a sitting duck.

On February 23, 1965 the Special Subcommittee on Public Works of the Senate held hearings on Federal Installations, Facilities and Equipment Control Act. On page 43 of these hearings, a brief colloquy between the Chairman of the Subcommittee, Senator Edmund Muskie and Mr. John C. Bryson, a Director of the Delaware Water Pollution Commission, is reported. Senator Muskie inquired:

"Mr. Bryson, in your prepared statement you made a point I think we should emphasize; that is that these agencies are primarily concerned with their principal mission, not with pollution treatment, so that in their budget presentations they are concerned in the Department of Defense, for example, primarily with requesting the dollars necessary to carry out their primary mission, and so understandably in their presentation to the Budget Bureau, to the Appropriations Committees of the Congress, they are likely to emphasize their primary mission and not this one, and if dollars have to be saved this is where dollars are likely to be saved. Is that your analysis of what happens?"

Mr. Bryson: "Yes, sir."

Mr. Chairman, we do not pretend to know the precise vehicle by which the rather broad, varied and often disconnected elements of the Bureaus of the Federal Government can be controlled as to pollution. We do feel that a reappraisal on the part of the Committee is going to have to take shape, not only for the intrinsic value of clean up alone but for the example that is being set to the States in their water pollution control enforcement actions and to those involved in municipal or commercial pollution. Unless something is done regarding the Federal installations it will stand as a monument to the inability of the Federal Government to clean up pollution that has been occasioned by its own actions.

Mr. Chairman, we would like to thank you and members of the Committee for giving us the opportunity to present our views in these most important areas of water pollution control and abatement. Thank you.

Mr. McCARTHY. I think the last point you make certainly is a very valid one, because it is obvious that we cannot without integrity and forcefulness enforce these laws on commercial and municipal polluters if the Federal Government itself is not putting its own house in order.

Dr. SMITH. Mr. Chairman, any inquiries you wish to make to the gentlemen here who constitute the panel, I am sure they will be very happy to respond.

RESPONSIBILITY IN OIL POLLUTION CONTROL

Mr. McCARTHY. There was one point that emerged in this morning's hearings that I wonder if any of you gentlemen have any suggestions about. This concerns oil pollution, and it was brought out by the representatives of the maritime unions that the Senate bill was rather harsh in proposing to impose rather severe penalties, including imprisonment, for discharges of oil.

Their contention was that in most cases the seamen and the masters of these vessels, it was just beyond their control. Many of these ships are not ships, but skins, that they are constructed in such a fashion, for instance the oil tanker has the skin of the ship so that a rivet easily becomes loose and of course it is just oil oozing out. The orientation of this is such that any excess oil goes overboard.

This has been built in—leakage is built into the ships.

I asked Mr. Calhoun this morning about the existing ships, if they could be modified. He said they could. You could have a spill tank so that when the oil spills over it will go down to a spill tank rather than into a lake or ocean or what have you.

I am wondering if Mr. Gutermuth or somebody has some specific suggestions to offer the committee on what we might do in this area?

MR. GUTERMUTH. Mr. Chairman, maybe I should say that I have been coming down here, on one type of water pollution abatement hearing or another, for 25 years. And these objections on the part of people, and the presenting of their reasons for not being able to comply with reasonable and practical requirements for abatement, their reasons for saying that it cannot be done, are not new to us at all.

We have been putting up with this for many, many years. And we get this in all phases of conservation activity.

I was delighted, while I have not had a chance to study and analyze the entire statement by the representatives from the American Petroleum Institute yesterday, I was delighted to hear them come in here and recommend adequate insurance protection, providing liability funds to clean up these messes.

Now, much of this, quite obviously, is being brought on by indifference on the part of many people in many walks of life. We are building large tankers today, and then we are going into this jumbolizing of ships. We take a present-day ship, which does not quite satisfy people from an economy standpoint, and we cut the middle out of it, and insert a great big addition to the ship and create a structure here which is subject to many of these things. And then we have catastrophes like the *Torrey Canyon*. I am not sure that applies in this case, but I am saying that these are the problems that are being created by this jumbolizing.

We get ships that are so large that the sag in them, and that sort of thing, does create a hazard. But this *Ocean Eagle* down in San Juan Harbor—now, we have got a lot of things that we need to study in the way of research as to how to handle these things when the accidents do happen; that is a problem.

But, you see, some of these tankers that have cracked up back over the years, and in many cases were too close to the coastline and too close to the reefs and that sort of thing. There is only one way to correct these things; that is to put some teeth in these laws, and require these people to look at the other side of it and prepare for some of these things.

Now, this excuse that you cannot control this because of rivet holds and that sort of thing, all I have got to say is that if we are going to continue to permit the contamination of our environment, both in the air and on the land and in the waters of this country, with the tremen-

dously burgeoning human populations, something has got to be done. That is all there is to it, whether we like it or not, whether it is going to cost a little more to build better ships and change the construction of the ships, and so forth, to provide better protection and security, these things are going to have to be done, because the population demands and the people demands of this country are going to make this necessary.

Dr. SMITH. Mr. Chairman, I would like to point out that in 1954, at the old State Department auditorium, where maritime matters were being discussed, oil spillage was brought up, the identical arguments that you have just indicated to us were brought up at that time. That is 14 years ago.

One would hope that within that 14 years there would be some compelling factor to try and remove some of these things that are causing the pollution. I know the Senate bill has some teeth in it, and it seems to be rather strict; but at what point do you start, if you are going to get abatement of any of these kinds of problems?

I think Mr. Gutermuth is absolutely right. Some of these problems did not disappear. Certain kinds of research were not undertaken until enforcement was either on them or imminent. And at that point, efforts were made.

Mr. McCARTHY. We certainly appreciate your testimony, gentlemen. You have given us ample testimony to peruse, and we appreciate your dedication to this cause.

I hope that this bill is going to be a major step forward in the work that you have been working on for so many years; I think the country really owes you a great deal of gratitude.

Dr. SMITH. Thank you very much.

Mr. McCARTHY. The next witness is Mr. John E. Kinney, consulting engineer, of Ann Arbor, Mich.

You have appeared before our committee before, and I am happy to have you back, Mr. Kinney.

STATEMENT OF JOHN E. KINNEY, SANITARY ENGINEERING CONSULTANT, ANN ARBOR, MICH.

Mr. KINNEY. Thank you, Mr. Chairman.

I have a statement that I would like to submit to the record, if I might, and just take a few of the points that are in it and discuss them in more detail.

(Prepared statement of John E. Kinney follows:)

STATEMENT OF JOHN E. KINNEY

Mr. Chairman, members of the Public Works Committee, my name is John E. Kinney and I am a sanitary engineering consultant from Ann Arbor, Michigan.

My vocation is the technical accomplishment of acceptable water quality and this represents 30 years of academic and practical experience.

My avocation is the abatement of the political pollution which so often clouds the issues and programs directed towards clean streams.

Thus, I wish to express a double pleasure over the enlightened and understanding attitudes and questions propounded by this committee in this hearing. Very frankly, I owe you an apology. After the Senate hearing in March, I sadly concluded this House Committee had won the battles of 1964, 1965 and 1966, but had lost the war this year, for Senate members were agreeing with the

Secretary that our national policy included assertions which has been deliberately deleted by this committee and by the Congress.

I am sorry my faith was so shallow. Your questions and your comments while the Secretary was testifying left no doubt you knew what you were doing in passing the 1965 and 1966 enactments. Even more, there was no doubt you not only know what is required for accomplishment but you are also close enough to the people to understand and reflect their needs.

As one who is intimately involved with not only the technical problems of what can or can not be done, but also the administrative problems involved with the policy issues, I would like to briefly summarize the situation as I see it in both areas and comment on what is proposed in legislation and on how I believe your leadership can be of further assistance.

SITUATIONS AND CONDITIONS

It is axiomatic that an organization, foundation or bureaucracy can continue indefinitely as long as its pronouncements are limited to "Conditions and Situations" or to "Situations and Conditions" and devoid of debating specific details. If the leader can direct attention to an adequate number of crises, and if he can promise to resolve the crises, growth is insured.

Just how the job is to be done is a detail to be worked out later. Of course, it is difficult to remain on an absolutely generalized basis so one other element is essential to continuing success. The secret to success is vacillation, not perseverance. With a properly moving target and changing ground rules, chances for the opposition to develop controls are drastically lessened.

This committee saw this picture in detail during the testimony by the Secretary on Tuesday. He talked "Conditions and Situations" and answered questions on specifics with "Situations and Conditions". The queries on the necessity for new legislation were answered with promises of accomplishment if the requested authority is granted. Questions on the possibilities for control of oil, for example, were answered with descriptions of the crises of the *Torrey Canyon* and the *Ocean Eagle*. And the dialogue on standards left no doubt the states are faced with a shifting target and changing ground rules.

This committee undoubtedly recalls the battles in 1964, 1965 and 1966 in which the past experience and knowledge of its members prevailed and the Congress passed good legislation. These acts recognized that:

Since pollution is a people's problem it requires personal involvement and acceptance of responsibility by all;

Since it is a highly complicated problem requiring technical expertise it requires competency in leadership and research;

Since it is a costly problem evolved over many decades and since it is in competition with other equally costly and equally necessary problems, it will take an orderly succession of steps and hopefully at least cost in achieving control; and

Since decisions on water control our economy and growth, the people involved must participate in the decisionmaking.

However, there was the possibility that when the states held hearings and set standards, the states would not do an adequate job so the enactment provided that such standards should be reviewed by the Secretary to make sure that they were responsive to the purposes of the act. If my memory serves me correctly, the proposition that the Secretary could dictate standards was expressly rejected. So were the concepts of federal standards and treatment for treatment's sake under the guise of making water as clean as possible. So the Secretary's review was primarily an insurance factor in case the state did not accept its responsibility. If it did not, then the door was open to permit the Secretary to hold conferences and set standards.

But the faith of this committee in their people and in the demands of the people to achieve effective water quality control was not misplaced. The states have accepted their responsibility and have done a credible job. There may be arguments about some of the standards adopted but if they are inadequate, this will be demonstrated in short order once the program is underway.

However, in order to center the authority in one individual, the Congress has detailed a number of jobs specifically to the Secretary of Interior. But of even more importance, the Congress has given the Secretary discretionary authority in several instances. Even though the Congress has included guidelines for

the exercise of that judgment, it unfortunately would seem as though a court action will be required to determine whether that discretionary authority is being properly accepted unless this committee speaks out.

This committee has heard testimony about how serious many people are viewing the Secretary's policies. Legal opinions by reputable lawyers bluntly state he is out of order. The Secretary reported to this committee he does not agree with this legal interpretation. So unless this committee calls the shot and clarifies the situation, a legal hassle is in the making—and that hassle could stop the whole program.

That hassle can be in one of two ways:

The states which agree to the Secretary's demands may have to go to court to enforce the standards and there determine whether they have adopted unenforceable standards;

The secretary may withhold program grant monies from states which have not acceded to the Secretary's demands on the grounds the state must have an acceptable program—which the Secretary considers as including standards he approved—before the state can qualify. Since the state staffs are now financed in large part ($\frac{1}{4}$ to $\frac{1}{2}$) by federal grants, this curtailment cripple a state program.

Incidentally, neither of these is remote. Some states have informally been told that unless their standards are acceptable by July 1, the program grant monies will be withheld.

Thus, I suggest this committee with its understanding of what is needed to keep the program going—the program which this committee devised—could:

1. Provide that the administrator of the program be a person who has demonstrated a competency in this field and delegate the policy making authority to him under guidelines promulgated by the Congress;

2. Provide that there be an advisory committee of state administrators—the men who have to do the job—who would provide policy recommendations and proposals for joint federal-state research and administration demonstration projects to the administrator and to the Congress.

We are fortunate now in having a competent administrator. Joe Moore knows his business and demonstrated by his work in Texas that he knows the problems and approaches for their solution. However, as was brought out in the Tuesday questioning by the committee, the policies were established before he assumed office. Since the important issue is accomplishment of water quality control, not pride of authorship of policy, the responsibility given to the administrator to achieve quality control should include responsibility for policies. Making him work under policies which preceded his arrival is asking a lot.

Also, since the central problem is obviously one of attaining effective federal-state working relationships, Mr. Moore should have the assistance of people who are by experience knowledgeable of state problems. Replacement of the planners whose competency is theory with advisors whose competency is experience would mean a reorientation of the federal hierarchy which would result in accomplishment. This could and should be done by the Secretary and this committee could encourage such action.

“ANTIDEGRADATION”

The committee has heard much about the antidegradation policy statement proposed by the Secretary and adopted by some five states at his insistence. Suffice it to say that the title proposes a benefit while the fine print contains an insidious mechanism to reduce the states to branch offices of the Secretary.

An intra-agency memorandum in FWPCA outlined how such a statement could be interpreted and implemented. High quality water would not be limited to headwaters or pristine lakes but rather would apply to all waters in which any single quality parameter was acceptable. Also, the FWPCA in Washington would make final determination as to whether a discharge would be permitted and would condition approval on whether the latest technology is employed and whether the social and economic development warrants it.

Actually, all states now have as routine practice a true antidegradation policy. Once uses are defined and standards of quality to protect those uses are promulgated, the installation of developments which would reduce that stipulated quality is banned. It takes a formal hearing to determine whether there should be a change in uses permitted.

SOLID WASTE DISPOSAL

Congressman Jones made a most important point on Tuesday when he asked whether the solid waste disposal problem is being integrated into the water quality program. He correctly noted that solid waste is the growing problem and unless our regulations on water quality properly assess this aspect we can be creating an even greater problem in the near future. Governor Rockefeller gave his endorsement to this.

Some specific solid waste problems demand immediate attention from this committee because the public clamor has effectively curtailed factual development of answers. The first is the increasing sewage sludge disposal and the second is the disposal of dredged material from harbors. A third problem is the disposal of residue from cities and industries and this include trash, garbage and solids such as fly ash.

The public has become so conditioned to demands that no materials of any kind be permitted to discharge to our waterways that it has endorsed crusades by newspapers that no dredged material or sewage sludges be permitted to be dumped in either lakes or oceans. The solution in their opinion is simple—use land disposal or diked area disposal.

However, Mr. Jones is correct. This solution is simple now but its effects are irrevocable so that the issue should be appraised fully.

Filling in the marsh lands can have a greater effect on the ecology of the lake than dumping the material into the lake. The marshes are natural sponge balancing entities and provide habitat for aquatic life. Also, when material is piled on shore or close to shore in diked areas, the rain causes a continuous leeching of the salts to the lake. If these salts are nutrients, the algal growths in the shallow shore waters can be tremendous. The increased cost of disposing of dredged material can thus be followed by a further increase in costs in later years. However, if the site in the lake is selected properly and the dredged material is cohesive, bottom dumping can result in compacted material which does not become available for effect on the lake quality. Such a program was being fully evaluated in Lake Erie and Michigan when the Corps of Engineers, at FWPCA insistence, cut it off. This study should be completed before this committee has to determine which ports cannot be maintained because of cost of dredging and unavailability of disposal sites.

H.R. 15907—S. 3206

This bill has three major parts: new financing, estuarial studies, and research.

The last—research, investigation, training and information—is a revision of the present law on this subject. Essentially, it would give the Secretary more discretionary authority on what should be researched. This appropriation of \$125,000,000 is more than half the scheduled construction grant authorization, and would be a continuing deal so as to remove the review by this committee of the results of the authorization.

One of the very real disappointments under the federal law been the dearth of fruit from the research and demonstration monies. The committee could well inquire for:

1. A list of the research projects now funded with the detail of when the project was approved, when the first monies were paid the recipient, how much has been paid in toto, what the completion date was (or is) and what reports have been received on the findings as well as the dissemination of the findings.

2. How many applications FWPCA has now, how many are similar or related to the same objective, how long the application has been in hand, how many have been reported to the applicant as worthy, and how many have been promised as approvable once monies are appropriated.

3. A listing of the stipulations and requirements by FWPCA to the recipient of a contract before and after the contract is approved.

4. A listing of the field applications and the benefits of such application of findings financed from this program.

The research section as rewritten in this bill also suggests a conflict with the Executive Directive which, in response to the Bureau of the Budget demands, would cut down on duplication of collecting water quality data. This bill (Sec. 6(a)(4)) would give FWPCA a directive to do what U.S. Geological Survey is now doing.

The other proposals for research are already included in the present law. What is needed is not new legislation on research but rather a new policy on how research funds should be spent.

The "*comprehensive estuaries study*" is in reality the same as in the present law in Sec. 5(g). All it does is give it a separate section and extend the time in which the study is to be completed from 11/29 to 1/30/70.

The *financing proposal* was well discussed by the committee with witnesses on Tuesday. In my opinion, its effect on the program would be most detrimental. For example, removal of tax exempt bonding would undoubtedly raise interest rate above the 5% or 6% mandatory limits in most states and thus there would be no action. Mr. Oeming did a nice job in pointing out the deficiencies in this bill. Its purpose was to make it appear as though the federal agency has provided an alternative to the construction grant funds withheld by the Administration. This, it has not done.

WATERCRAFT DISCHARGES

The bills, H.R. 16207, H.R. 13923, deal with pollutional discharges from vessels within the navigable waters of the United States.

In addition the small boatowners proposed a bill (Exhibit E on their presentation) for such boats.

There is no doubt that human waste discharges from ships and small boats do have a deleterious effect in harbors and marinas. Their effect out in large open water is problematical except where plastic containers are discarded.

The boat owners were most vocal a few years ago for law to shut down industries unless they cleaned up immediately. In Chicago at the Lake Michigan conference when they pleaded for reasonable requirements and time for compliance, they heard the conferees use the argument the boat owner should not operate his vessel unless he could comply.

But here is where the difficulty lies. Mayor Daley made a big political splash a year ago by announcing that Chicago was going to adopt an ordinance enforceable for the 1968 season which would ban all boats without holding tanks. This was to be applied to all ships and small boats.

Rather than publicly admit that such a regulation is impractical the conferees endorsed the idea and proposed that the Great Lakes states all adopt similar legislation. Because that takes time, Chicago has postponed enforcement.

The ordinance is advertised as a fail safe. No treatment device is permitted—only a holding tank. For small boats or sailboats this can be an absurdity. At .5 gal/person/day, the space is not available.

Also, there is a conflict with the state water standards—even those approved by the Secretary. The standards set a quality in the water, not a prohibition against a discharge. This must be remembered in granting any authority to the Secretary to set specifications for boats.

Also, there is the practical problem of space on the large ships. The S.S. America has 200 outlets and no space in the ship other than a room—10x10—for a treatment unit. The discharges are not connected up.

How a dock facility could connect up to such a ship is a question. Before a law is passed providing for regulations, the committee could well require the Secretary to submit a report on the problem and its potential solutions.

Incidentally, one of the Canadian provinces which adopted such legislation has now announced a delay in enforcement while some practical answers are developed.

H.R. 16044

This bill proposes a federal subsidy to aid cities in the operation of sewage treatment plants "using proven new methods to achieve a substantial immediate improvement of effluent quality, including phosphate removal."

Since Congress is having difficulty in financing its past commitment towards construction of treatment plants, I see no merit in assuming the cost of operation of plants or the cost of administering such a program.

However, the concept behind the bill is exceedingly important. Mr. Oeming, in his statement, made reference to the fantastic improvement achieved in two Michigan primary sewage treatment plants by a proper addition of chemicals—a reduction in solids, oxygen consuming material and phosphates.

To achieve this same result via the route which the Secretary would make mandatory—that is, by the latest available technology as proposed by the

FWPCA in the Lake Michigan hearing in February—would require that the city construct a biological secondary treatment plant and thereby double its operating cost and then in addition construct a chemical tertiary plant which would cost the city an additional \$50–\$60 a million gallons.

The State of Michigan and Dow Chemical Company cooperated in a study which included a full plant-sized operation and showed that primary plant could achieve the same results—at less cost and without waiting for some future construction grant which would delay the clean up.

Actually, instead of paying the city 25% of the cost of the chemicals, this committee should use the money in demonstration grants elsewhere to show the applicability of this economic breakthrough.

S. 2760

This bill has three sections, all of which warrant attention.

Acid mine drainage control, as well as control of other mine water pollution from either active or abandoned mines, is the first item. This proposal assumes first that there is presently no authority to approach these problems and secondly that their importance warrants an additional \$15 million is required to resolve it.

Actually, the present law covers the situation but the federal agency has not demonstrated either knowledge or desire to work on it. This bill then would act as an excuse for the lack of action to date and make available a monetary reward for such inactivity.

Congressman Robert Jones made history a few years ago when, as Chairman of the Government Operations Natural Resources Subcommittee, he succeeded in getting from Interior the first comprehensive report on what constitutes the mine drainage problem and a program which could give us some answers. That proposal has been largely ignored.

Arguing that abandoned mines is outside the present law is fatuous. The causes of mine drainage are the same for active and abandoned mines. The FWPCA has already made a large research grant to Pennsylvania for the study of mine drainage control. We can either emphasize the treatment approach which at present is limited to adding lime and increasing the dissolved solids in our streams, and at a cost which will be perpetual, or we can determine better mining practice based on a better knowledge of geology, hydrology and mining. There is another alternative—a combination of surface mining, land reclamation and altered flow patterns in abandoned mines. This type research can be effective and permit the federal-state-industry participation which this committee has encouraged. This can be done under present law.

Lake eutrophication is the objective of the addition to Sec. 5. Once again, this is already included in the present law but once again, action has been nil so the lapse is to be covered by new legislation—H.R. 10751 is also concerned with this issue.

Oil Pollution is the third subject of this bill. As passed by the Senate this bill would make oil in a discharge from either a boat or a shore installation a federal offense. It does more, if the Senate Committee report (page 22) is a proper interpretation. The definition of oil would cover “discharged waste that includes oil or oily mixtures”.

That means oil or matter mixed with oil is a federal offense; the other contaminants would be a state responsibility. Only confusion will result.

As has been pointed out by others oil is included in state standards approved by the Secretary.

But this bill would also give Congressional approval to an exemption for all federal or state ships and shore installations. To make such an exemption makes a farce out of the proposal we all want clean water.

There is a need to better define who has responsibility when vessels lose oil. The issues of jurisdiction within 3 and 12 miles offshore require resolution. There is also a need to better define the controls for ships in handling hazardous cargo.

CONCLUSION

In summary I wish to commend this committee on its past battle scars in achieving effective water pollution control. Obviously, there will be other scars before the objective is achieved.

But it should be encouraging to know that your actions have improved our streams dramatically since 1948. An eye surgeon friend of mine told me that

since people's memories are short, he makes the practice of taking pictures of children's eyes before he starts a series of treatments to correct crossed eyes. Otherwise, the mother seldom believes he has made much improvement when the final adjustment is completed. People do not remember how bad things were 20 years ago. They can't see improvement from last year and so are unhappy.

Progress has been great and it should not be permitted to be slowed down either by changes in legislation or by vacillating policy, regardless of how well intentioned either may be.

This committee by its pronouncement now can assure continued progress. The committee's past reports offered guidance to the federal agency which was ignored. The House Appropriations Committee report (July 1967) was blunt in its criticism of the manner in which the Secretary has directed the program. This can now be corrected by this committee for it understands the situation. The Senate Committee does not. The incentive for action by this committee was well stated in the Appropriations Committee report:

"As the power to control water quality and quantity is not only the power to make or break business and agriculture but is a power over the life of the Nation itself, it is essential that the FWPCA not only closely coordinate its plans and activities with all the Federal agencies involved, but also with each of the states, local jurisdictions, and private interests affected by the program. The imposition of restrictions and controls without full and equitable consideration of the essential and varied interests involved in water supply, including priority of use and riparian rights, could have a most serious adverse effect on the various segments of the economy dependent upon water for their existence. The Committee wishes to emphasize the importance, therefore, of the new Administration undertaking its most difficult and essential program of water pollution control with a sense of balance and caution to assure any disruptive or adverse effects on the economy are minimized."

Mr. KINNEY. I would first express my apologies to the committee for my lack of faith. After listening to the Senate hearings in March, I sort of assumed that perhaps, after winning the battles of 1964, 1965, and 1966, the House had now lost the battle because of opinions that I was hearing on the Senate side.

But after these last 3 days, well, I find that my faith was shallow. Your understanding of what you are doing and why you are doing it is still there.

So we still have a real hope for the effective water pollution control.

WATER QUALITY STANDARDS

The first point that I would emphasize is the comments from the discussion you have heard on this so-called antidegradation clause. Now, in fact, all States have a true antidegradation clause. I do not know of any State that will not stop projects where the residual discharge, even after treatment, would cause an effect against the use of the stream. The use for waste discharge is not permitted. But the comment that was made that the purpose of this clause is to provide water on the safe side rather than as dirty as possible, and I think this statement has been made too often and without any real background.

What it has done has tended to give the idea that the States are trying to promote as much waste into the streams as they can, and for those who have been associated with the administration of these programs within the governmental agencies, as I have, you know that you cannot take a chance on a deal like that. You are promoting something that would be on the safe side to start with. It has tended to confuse the issues.

You had a copy of a brief that was submitted to you prepared by Covington and Burling on this issue, and I would like to add to the

record, and for your information, a copy of a summary that has been prepared by a committee of State Attorneys General for the Interstate Conference on Water Problems on the Role of the States, from the States' side of this issue.

Very frankly, gentlemen, the issue that we are getting into is the possibility that somewhere along the way someone is going to contest some of these proceedings in court. And unless the program is established on a firm basis, a court case can bring our whole program to a complete stop, and that is something that none of us want.

So the issues are such that the States have raised them. This program was done under the guidance of this Interstate Conference on Water Problems by a committee that prepared it for their use, for their review. I have been one of those who have been asked to review it. This is why I have a copy of it.

I would like to make it available at this time, even though it is not a document that has yet been adopted by the Conference, but it will at least give you some background for discussion and consideration.

Mr. McCARTHY. Without objection, so ordered; to appear in the record at this point.

(Summary referred to follows:)

(To be considered for adoption by the Interstate Conference on Water Problems)

THE ROLE OF THE STATES IN REGARD TO THE SETTING OF WATER QUALITY STANDARDS
UNDER THE FEDERAL WATER POLLUTION CONTROL ACT

This memorandum is directed to a discussion of the role of the states in setting of water quality standards and the state's interrelation with the Federal Water Pollution Control Administration of the Department of the Interior. It is designed primarily to be a guide to state agencies in evaluating their approach to this task and to hopefully stimulate appropriate state agencies in reassessing their position and policies *vis a vis* the federal government.

It is becoming increasingly apparent that many states, through their respective water pollution control agencies, are becoming alarmed over certain activities of the federal government in regard to water quality standards, plans of implementation and the approval thereof by the Secretary of the Interior.

Looking at the federal act as it is presently written, testimony at various congressional hearings and the rejection by the Congress of various proposed amendments, several legal and historical facts become apparent, to wit:

(1) The concept of nationally uniform, federally proposed and adopted water quality standards is clearly prohibited.

(2) The states have pre-eminence and primary authority in the field of water pollution abatement and control.

Most states have, pursuant to the federal act as amended in October 1965, adopted water quality standards and plans of implementation and forwarded the same to the Secretary of the Interior. This was required to have been done by June 30, 1967. Federal guidelines were issued May 9, 1966 to the states to aid them in establishing these standards. These were reissued in January 1967. However, since the promulgation of standards by the states thereof and their submission to the Secretary, the federal administrators have come up with two new policies heretofore not made known to the states. These are the so-called "non-degradation" standard and the one requiring secondary treatment or its equivalent. The federal legal aspects of these two items are treated in the attached addendum and will not be discussed herein except to say that the Secretary of Interior is without authority to establish either of them.

The question then remains as to what should be the approach of the several states to the Secretary's insistence that these two items be included in their standards and plans of implementation, coupled with his refusal to approve state standards that lack them.

At the outset, it should be pointed out that any standards adopted by the several states are valid, legal and enforceable standards without the Secretary's

approval and therefore the states should not relax or cut back their abatement programs while awaiting federal approval.

Two legal questions immediately arise concerning these two items independent of the Secretary's lack of authority to propose them. One is whether or not such proposals can be legally adopted by the states and, secondly, can they be adopted by the states without additional hearings.

As to the first proposition, it must be divided into two sub-topics: (1) are the standards consistent with state water pollution control acts and (2) can any state water pollution control administration legally delegate a portion of its authority and discretion to an agency of the federal government in the absence of specific state legislative authority.

With respect to sub-topic (1), the so-called "nondegradation" policy reads that: "Waters whose existing quality is better than the established standards as of the date on which such standards become effective will be maintained at their existing high quality. These and other waters of your State will not be lowered in quality unless and until it has been affirmatively demonstrated to the State water pollution control agency and the department of the Interior that such change is justifiable as a result of necessary economic or social development and will not interfere with or become injurious to any assigned uses made of, or presently possible in, such waters. This will require that any industrial, public or private project or development which would constitute a new source of pollution or an increased source of pollution to high quality waters will be required, as part of the initial project design, to provide the highest and best degree of waste treatment available under existing technology, and, since these are also Federal standards, these waste treatment requirements will be developed cooperatively."

This statement contains two important factors namely the requirement that the Department of Interior give prior approval to any installation and that any new sources of pollution be given "the highest and best degree of waste treatment available under existing technology."

The appropriate statutes of each state would have to be examined to determine whether or not such a proposed standard or regulation would be contrary thereto. Most states operate on either a permit system or a stream quality system basis. Examples of the effect of such proposed standard on each of these types of systems are set out hereinbelow.

The State of West Virginia operates on a permit system; that is, no one may discharge pollutants into the waters of the State until a permit therefor has been issued. Chapter 20, Article 5A, Section 7, Subsection (c), of West Virginia Code provides that:

"The department's permit shall be issued upon such reasonable terms and conditions as the chief may direct if (1) the certificate or permit of the department of health was issued (in those cases where the director of the division of sanitary engineering was required to act as aforesaid) and/or (2) the application, together with all supporting information and data and other evidence, establishes that any and all discharges or deposits of sewage, industrial wastes, or other wastes or the effluent therefrom resulting from such proposed activity will be treated and/or the quality and rate of flow thereof regulated or controlled to the fullest extent reasonably, economically and practically feasible in view of modern technology and scientific methods for the treatment, regulation or control of sewage, industrial wastes, or other wastes or the effluent therefrom."

Thus a permit shall be issued when the above-stated requirements are fulfilled. An attempt by West Virginia to adopt the regulation as suggested by the federal agency would add additional requirements to the organic laws of West Virginia and thus be invalid. The regulation would require prior federal approval of any new source and also highest and best treatment without regard to economic and practical feasibility. It is well settled in West Virginia and elsewhere that an administrative agency may not by regulation subvert or enlarge upon the statutory policy established by the Legislature.

The State of Colorado operates on a stream quality standard basis; that is, that no discharge is permitted which causes the quality of the water in the stream to fall below a certain standard established with respect to present and future uses. Consequently an attempt by the control authorities to establish such standards and requirements which are not related to the maintenance and attainment of stream quality standards would be contrary to the statute.

As to the suggested federal guideline that states require secondary or its equivalent treatment across the board within the next five years, this is clearly an effluent standard.

Under most state statutes, the quality of an effluent must be tailored so that upon mixing with the waters of the receiving stream, the desired standard of quality is achieved. Effluent standards must, therefore, be designed to result in that desired quality in the receiving waters. As stated by Burton J. Gindler, B.S.L., LL.B., in Volume 3 of *Waters and Water Rights*, 1967:

"There may be a tendency to establish effluent standards which provide a margin of safety. The effluent standards may often not be based on the fair assimilative capacity of the receiving waters; they may require a greater expense for waste treatment than is actually necessary."

Under what legal theory could a state administrator tell a municipality or industry that they must construct and install secondary or its equivalent treatment when they can clearly demonstrate that they are able to meet the pertinent water quality standards by using a lesser degree of treatment? Any state which adopts this requirement is probably buying itself a lot of litigation in which it cannot prevail. Consequently, across-the-board uniform effluent requirements, such as secondary treatment or its equivalent, is beyond the power of the Secretary to require and beyond the legal capacity of most states to require or enforce. Certainly the Secretary couldn't enforce it and knowing this he wants the states to do it for him, or at least attempt to do so.

With respect to sub-topic (2), it is axiomatic that the delegation of certain powers and discretion by a state agency to a federal agency is legally and constitutionally prohibited unless it is specifically authorized to do so by state legislation and even in some instances such legislative authority is highly questionable.

In regard to the question of the need for additional state hearings, if a state should attempt to adopt the Secretary's suggestion, it is clear, in most states at least, that such a hearing would be required. This is true for the reason that the impact of such an amendment is so broad as to affect the entire scope of standards theretofore adopted and thus constitutes a substantial deviation therefrom.

The whole purpose of a public hearing is to advise all segments of the public as to what it is the administrative agency proposes to do and give them an opportunity to offer suggestions, criticisms and alternatives. It also allows them to go on record as objecting to a certain regulation to protect themselves for the record should they later determine to have it tested judicially. To attempt to promulgate such a rule without a hearing would by-pass and ignore all of these well established legal concepts.

It is suggested that the state attorneys general should take a more active part in water pollution control activities and keep in constant touch with their water pollution control agencies and particularly request that such agencies invite them to any conferences or consultations with representatives of the Department of the Interior. This is not to imply that such federal representatives bear watching but rather that some state administrators out of a lack of understanding of legal restrictions may in good faith agree to do certain things beyond their authority.

Considering the recent activities of the federal government in this matter, it would appear that the Department of the Interior is attempting by indirection to do what the Congress has precluded them from doing directly; that is, to formulate broad and nationally uniform water quality standards and to inject themselves directly into state water pollution control administration. In seeking these goals, the federal representatives have attempted to pit one state against another and to play upon the fears of the states that federal grants will be withheld unless the states comply with their wishes.

This unhealthy climate results in a serious detriment to a state's economic development in that a water user who wishes to locate in a particular state cannot project his operating costs accurately until he knows what level of treatment will be required of him. If he relies on existing state standards, he may find to his horror that a later federally adopted rule might require him to substantially add to his treatment facility at a cost far beyond that which he could have constructed such a facility originally. Such a situation is unfair to water users and to the states.

All state regulatory bodies should take a long hard look at these federal proposals and seek the advice of their legal counsel. If it is determined that their adoption is legally unsound, then they should so advise the Secretary of the Interior and stand their ground.

The thoughts presented in this paper hopefully will serve to stimulate state officials to take a fresh and strong approach in their relationships with the Federal Water Pollution Control Administration and to encourage a review of the legal aspects of any standards, agreements and programs which have been accepted by the Secretary or proposed for his consideration. The Congress and the state legislatures have entrusted the primary responsibility for an effective pollution control program to the state agencies and nothing should be permitted to disrupt or deter it. The states will be required to enforce and administer the standards, not the federal government. The states are in the front ranks in the battle for clean water. They are the ones who must tell local industries, municipalities and citizens they must comply with these standards. So they must be certain they can enforce their pollution control programs.

Mr. KINNEY. Also, and along this same line, if I understood Mr. Penfold correctly, his statement was that the Federal agency has no authority over thermal pollution. I would suggest that somebody is missing a cue somewhere, because the thermal control units are probably the most discussed individual limits of any among the States and the Federal Government.

In other words, the authority is there, or they otherwise could not be contesting it.

Also, I find nothing in the law that excludes or limits any particular injurious effect. They are all included. Insofar as I can see, if I understood Mr. Penfold correctly, somebody has been giving him a song and dance. But it does bring to the point the desirability of having a better understanding of the policies that we are trying to achieve, and in terms of people who can get the work done. It has been repeatedly expressed that the job belongs to the States; they should be doing it under the guidance of the Secretary.

But when the guidelines are established by people whose experience is theory rather than actual practice in the field, sometimes it is a little difficult to follow.

One of my suggestions to this committee would be the adoption of an advisory committee to the Secretary and the Administrator that would be composed of State administrators. Let them meet directly with them, talk out their problems directly, and make formal recommendations of what they should be doing.

It would also be a good advisory group to this committee.

Very frankly, as far as I am concerned, the real hope for water control in the future lies with this committee, on this side rather than the other.

SOLID WASTE DISPOSAL

The second point I would like to mention is solid waste disposal. Mr. Jones made the point on Tuesday, and it was well taken. I am not so pessimistic that I do not think water pollution and air pollution are going to be handled—I am quite pessimistic that, at the rate we are going now, we are not going to have a real solution in terms of solid waste disposal unless we begin to think it out at this stage.

Our whole effort in water pollution is to take the solids out. Our whole effort in air pollution is to take the solids out.

What we have done is dig a hole and move it. We have now got the solids to take care of.

You are in this hassle in the city of Washington, the proposal of taking over the marshlands in the low level down the Potomac. Even

if you take over the marshlands, after a period of years, what do we have? We have trash, rubbish; we have sewage solids.

One of our most expensive jobs is removing the solids that are taken from the sewage treatment plants.

We have also another problem that has been bandied about, and it needs your guidance. That is the handling of dredged materials from harbors.

Now, under the Federal law, the Corps of Engineers is supposed to have jurisdiction over the handling and disposal of such dredged material. A year ago a program was set up between the Corps of Engineers and the Federal Water Pollution Control Agency to make some studies on the handling and the disposal of dredged material and the like; also to study alternate possibilities.

In the course of this they were to determine the actual effects of what went into the lake. They were to determine also the effects of what happens when there is onshore disposal.

A crusade of the Chicago newspapers put the whole thing into an emotional climate, that anything going into Lake Michigan would destroy the lake, and Lake Erie was already a vast swampland. They wanted no part of seeing Lake Michigan look the same as Lake Erie. No dying Lake Michigan. The demand was made for eliminating any disposal of dredge materials into Lake Michigan so as to save the lake. With the publicity and the newspaper crusade, and with the public concern—and very frankly, if I was as scared as those people, I would be demanding the same thing—they shut off the disposal of material into the lake right while this study was underway.

Now, the Congress has appropriated \$1 million for a study. They extended it with another \$6 million, and they are back for another seven this year, to continue it.

But unless we find out actually what is occurring with the material going into the lake, our answer is going to be totally in terms of onshore disposal. That has two limitations.

The first is that for Indiana alone the available space to put dredged material permits 1 year of dredging. Beyond that year, there is no space.

The second is that when they use the marshlands along the shore for fill with this dredged material, they are destroying two things. They are destroying duck habitats, for one; and second, they are destroying the sponge that acts as an equalizing base along the shore.

They will do more to change the ecology of the lake by such a maneuver than by dumping a good deal of material in the lake.

Before we destroy the marsh for all time, we should know what the irrevocable effect will be. There is also the related effect that when this material is piled on shore or piled in a diked area, unless we can come up with some better control than we have had in the past, there is a constant leeching of the material. The salts that are in the material including the nutrients, go into the water. When you drain the leached nutrient into the water and in a shallow area, our potential for algae growth is greater than if this material were carried out in the lake and dumped to the bottom where it can be covered with sand.

All dredge material is not the same. For that which would tend to be cohesive and would tend to hold together, so that it could drop to

the bottom, and in areas that would be selected so it would be covered, this material could be sealed off for all time, in what they call a sink in the lake.

There is a good deal involved in how this material is transported, where the sites should be. These kinds of considerations should be fully evaluated, rather than merely jump on a bandwagon. To save a lake we argue we cannot do one thing, only to find out, as Mr. Jones pointed out, that we have got a worse problem than we started with.

I strongly urge that this committee gives its consideration to this kind of an approach.

One of the real ironies in this, incidentally, and it is one of the things that galls me, is that this crusade in Chicago was carried on by a newspaper, the Tribune, that owns a paperplant in Canada, the Ontario Paper Co., whose waste is discharged, untreated, under the Wellington Canal, over into the old canal, down through the park of St. Catherine, and out to Lake Ontario, and with no treatment.

It is supposed to have treatment by 1970. They will be lucky if they get it by 1973 or 1974.

This is the paper that would mould American congressional opinion, while destroying Canadian waters. This double standard gives me a pain in the neck; but it is remarkable.

You know, sometimes you begin to wonder whether or not the crusading spirit is promoted by altruistic motives.

RESEARCH

The next area that I would like to mention is that of research. Under H.R. 15907 and S. 3206, three points are covered, three areas.

The first is research. The gentlemen that were just here were promoting more research. I am all for research, but, very frankly, unless we can begin to orient our research, we are more interested in spending money on projects than accomplishing anything.

Mr. Jones will recall that in the course of his hearings around the country, he attempted to determine who was using the results of this sponsored research and had no luck. And the condition is still pretty much the same today.

The proposal in the bill would essentially give the Secretary greater discretion. One of the biggest difficulties we are having today, and I am talking now from the practical viewpoint of dealing with people who have made application for grants, is the number of times that they have to redo their grant applications, the resubmissions—one company I know of claims today they have spent over \$40,000 in trying to get a Federal grant to work on a research program, simply because of the number of trips to Washington, the number of revampings, the number of redos, and this does more to discourage an attitude and leaves an impression that people are not interested.

This committee opened the research program to tie industrial waste treatment in as a part of the picture, and this was most important. Without the industrial picture, you have lost the show.

But unless the money is in a form that is available to be used, we are in a little difficulty, and right now we are in an administrative difficulty that is a dilly. It is one that I would suggest this committee could

give consideration to in terms of asking for the kind of grants that it requested. How many of them have been approved? I know of one in East Chicago, Ind., that after some 13 months, and only after a contact to Congressman Daddario when his committee was holding hearings, they got their first \$10,000. The grant had been approved. But all their money had been spent, and they had run out of credit.

Now you come up with: How do you get the other side of it? There is too much involved. And when you figure the grant program for research, it adds up to \$125 million, which is over half of what you are proposing for construction grants, and this suggests that we should either be getting some results or putting that money directly into construction for the cities. At least we would know what we were doing on that score.

ESTUARY STUDY

The proposed study on estuaries actually does nothing more than what this committee has already set up. This would just change a date from November to January, in terms of a report.

DEBT FINANCING

The financing considerations have been well developed by other witnesses before the committee, and I will not go into them. I endorse completely the concerns that Mr. Oeming had. The suggestion that this new Federal financing would be a panacea just will not work. For those that are involved with bonding, you find that bonding houses want the simply way. But the biggest objection would be on the basis of changing the tax-exempt picture of the bond; the interest rate would be above the level that the States could even issue a bond, or the cities; so our program stops.

Very frankly, I do not think it was very well thought out.

VESSEL POLLUTION CONTROL

If I might, I would like to comment a little on this picture of watercraft, on 16207 and 13923, as well as the proposed ordinance that the small-boat owners suggested. There is no doubt about it, that the discharge from boats, large and small, is an important consideration, particularly in harbors and marines. Their effect out in the deep waters, in the ocean, is problematical. But we have some practical difficulties, and those practical difficulties have been mentioned by witnesses here today. The variety of ships, the type of ships—again the Government Operations Subcommittee, when Mr. Jones was carrying forth with that, jarred the whole shipping industry into trying to come up with some kind of regulations. And it came as a jolt to the troops when they got together to find out that ships like the *SS America* has over 200 outlets, but no means to connect up all the discharges. It is not going to be simple on some of these larger ships.

And how you connect up at a port for some of these larger ships, I do not know.

The small boats and the lake boats and the lake carriers offered a good suggestion, the kind of facilities they put into boats to provide treatment. But we get into the political realm every so often, and the

mayor of Chicago announced a year ago that they had a resolution, or had adopted an ordinance that would be enforceable this season, and that was that you had to have holding tanks on every boat.

That sounded good at the time, but what they are proposing is that it is a fail-safe. They will not give approval to any specific treatment device, whether chlorinated or recycling activated sludge type unit. Very frankly, for the size of the tanks that they call for for the small boats, it is impossible. If it were to be enforced, the regatta this year, from Chicago, would have to be canceled because the holding tank is bigger than the boat.

Canada came up with something along the same line and this year they have announced a postponement until they can come up with some practical applications.

I would offer some suggestions to you. The first is that the law as set, present Federal law, requires a water quality, not effluent standard. In other words, to come up with the requirement by the Secretary that you cannot have any discharge would be in violation of your Federal law. Those witnesses this morning were correct. It is water quality you are trying to achieve.

What we do have is some difficulty in trying to maintain these facilities and harbors; and to protect the harbor you are going to come up with control that you would apply out in the lake. The boat just will not work it that way. What should be, I think, is a request to the Secretary to provide you with a report on the possibilities, along with a report from the Department of Transportation, or have him get it from the Department of Transportation, on the possibilities of redesign of the larger ships; and at times, schedule for conversion of ships, rather than leaving it up to a regulation that would be nebulous and in an area that we know now there are no specifics, and ask them to come forth with something that you could then review as a basis for setting the requirements for the future. And also to recognize that the requirement is to protect the water rather than to force the people to walk around with a satchel.

PLANT OPERATION

The next area would be the chemical treatment, Mr. Dingell's bill, H.R. 16044. The philosophy behind that bill is excellent. I do not agree with the content that suggests the Federal Government should assume 25 percent of the operating cost. They are having difficulty now honoring the requirement for the funds for construction. Simply what it means is that the State of Michigan, rather than wait for the ultimate in technology to be developed, has cooperated with the Dow Chemical Co. to come up with a procedure whereby the addition of two types of chemical coagulants, either one of which alone does not work, but the combination of the two of them has converted primary treatment plants over to the equivalent of what you would call a tertiary treatment plant.

The possibility of using primary treatment plants and converting them by such chemical conditions deserves attention. If this committee were to suggest that a specific amount of the funds proposed for such research were to go into demonstration projects in different parts of the country, to see whether or not this same approach would

be applicable elsewhere, you would have something, then, that could be used, used quickly, and come up and do what you are trying to accomplish.

Right now, with the shortage of funds, it is better that every city have a primary plan rather than holding up those, particularly the smaller towns that Mr. Denney was referring to, while we are trying to take care of the more advanced requirements of the larger cities.

Mr. Edmondson raised the question as to whether or not a city would agree to the requirement in getting Federal funds, that they would agree that the Secretary can review and approve the method of operation, to assure that it will be the ultimate.

Gentlemen, one of our biggest problems is that we have too few people in the Federal agency who have ever operated any treatment plant. And to leave it to a theoretician to take a look at a plan and to determine whether or not it is going to be operated properly, the best treatment plant in the world can be messed up by an operator in 20 minutes, and also a good operator can take a poor plant and make it work.

So to set up rules and regulations to determine whether it is effective, in my opinion, is a little naive.

ACID MINE DRAINAGE CONTROL

Acid mine drainage, under S. 2760. The proposal assumes that the Federal agency now has no authority in the present legislation to handle mine drainage. This is not true. They have. When they were asked by the Pennsylvania delegation for a résumé of what is known as mine drainage treatment, the excuse was offered that the majority of the Pennsylvania problem is on abandoned mines, and they have not been able to discuss that or touch it, because the requirements in the law limits their application to industrial waste. Abandoned mines are not industrial wastes in their book, and therefore they are outside the purview.

In my book, it is good mental gymnastics, but far from the truth. The cause of acid formation in an active mine and abandoned mine is identically the same. If you can control it in one, you can control it in the other.

Also, if we are going to approach this on the method of treatment alone, we are going to convert one problem into another. We are going to neutralize acid with lime, and instead of having acid stream, we will have a stream very high in dissolved solids—a white stream—and we have got a perpetual cost. Once you shut it off again, the stream goes acid again. Also costs of treatment with lime will add to cost of coal and price it out of the market.

Mr. Jones did the impossible a number of years ago, under Government Operations. He got a report out of the Interior Department on mine drainage, that included the views and considerations of the Geological Survey, the Fish and Wildlife and Bureau of Mines. And in my memory it is the first time all three agencies talked on the same subject. They came up with a report that was good, very good. It outlined a program, where it was, and the potential accomplishment.

The Bureau of the Budget got into the act and decided, since pollution control is primarily the job of the Federal Water Pollution Control Administration, the assignment of the jurisdiction be given to that agency, and the result has been that report was kicked around instead of showing some usefulness.

Very frankly, from those that are in the Department who have talked to me about it, there has been quite a hassle as to whether or not the agency wanted any part of mine drainage. They brought this program down in West Virginia, and it has been almost impossible to maintain. The original thought was that it was an abandoned mine, only to find out that it was active.

They started the study on it, appropriated the money for it, before they found that it was active, and then tried to close the mine down so it could be flooded.

There was no hesitancy at that time of getting into abandoned mine problems. Now they argue that the law does not cover it.

To carry it one step further, \$700,000 has been given on a grant to the State of Pennsylvania on mine drainage control, to be matched by \$300,000 from the State of Pennsylvania. Once the grant had been approved, and the first moneys had been funded, the Department said that they could not publish their findings. Everything had to come through FWPCA, and the university refused to go ahead with it. I think that has been clarified.

But this committee might well propose again a specific Federal-State-industry joint financing of a mine operation.

We have a creek in Pennsylvania with active mines and abandoned mines, acid mines, shaft mines, deep mines, and some are acid and some are alkaline, out there next to each other.

If we could find out why one is acid and one is alkaline, we would be a long way toward control.

LAKE POLLUTION CONTROL

Lake eutrophication again is the question as to whether or not there is authority in the present law. Secretary Udall last year proposed a program. Nothing has been done on it since. The proposal was based on the present law. You do have the jurisdiction; but our biggest problem is flow management in the streams or in the lakes, including Lake Erie, and proficient fish management; and until we get that, simply controlling sewer discharges is not going to be the answer.

OIL POLLUTION CONTROL

As far as the oil pollution is concerned, my one comment would be that the Senate bill would make an exemption of all Federal shore and ship facilities. They could pollute the rivers under congressional exemption; everybody else would have to clean up. Oil under that definition is any solids or matter mixed with oil. All it would do would mean that the oil in a discharge is a Federal offense, everything else would be a State offense.

Who has jurisdiction?

Gentlemen, I appreciate the time, and I have probably taken too much. But I offer one thought on the oil, to answer the problem such

as in Buffalo, and it is a very real one. The British have required that every port have a street-cleaning device, if you will, a boat such as Baltimore reported here, that can clean up debris and oil in the harbors and maintain them.

If every port in the United States did the same thing—we may have rules and regulations against throwing paper in the street, but we still have a street sweeper to clean them up—and this has been tried on experiments in Cleveland for the last 2 years. The chamber proposed financing the cost of the unit. The city is going to maintain it and operate it. And it will be their responsibility.

The difference in the Cleveland harbor, since they have taken this on, has been dramatic. It is the same kind of approach; because we surely cannot get rid of all storm sewers or gas stations—some day maybe.

Thank you.

Mr. McCARTHY. Thank you very much.

Mr. Jones.

Mr. JONES. Mr. Chairman, when I first started to work on the pollution abatement programs, in trying to analyze them, trying to study them and to reach some understanding of the problems that have been involved, Mr. Kinney was one of our first witnesses. And I do not know of anyone who has any vaster knowledge of the complex subjects, that has dealt with them over the period of years, and contributed so much to the progress, and it has been indeed helpful to us, and it has been reflected in the public laws that we now have.

I am pleased that he can be with us today and give us his valuable observations.

Mr. KINNEY. Thank you, sir.

Mr. McCARTHY. Mr. Cramer.

Mr. CRAMER. I want to join in what the gentleman from Alabama said. Many of us do not actually have a working knowledge of a treatment plant's construction, and are trying to get a better understanding of this problem of setting standards.

"NO DEGRADATION" POLICY

I just have one question. I think you were present in the room the other day when I asked this question of the Secretary, relating to antidegradation standards. I still have the clear impression in my own mind that the manner in which this present act is going to be administered, and also, obviously, this new one proposed by the bill, the Secretary would have the power to say yes or no, relating to the use of a riverbank location, for instance, of an industry, as to whether or not it has degradation effect. The standards are not being set from a standpoint of the State making such a decision, so, in effect, we have the Secretary of the Interior determining what can be done within the State as it relates to industrial development because of the water pollution question.

Is that not your understanding of it?

Mr. KINNEY. That is correct, and to support that there is an intra-agency memorandum that was developed in terms of a potential of implementing that, and that spelled out in no uncertain terms.

Mr. CRAMER. The Secretary is the only one who can say "Yes" to the location of a plant along a stream, if it appears that that plant location could result in degradation of the existing water quality; right?

Mr. KINNEY. It spells it out even beyond that. It is not only an industrial plant, it is an irrigation project, and it is the enlargement of a city—

Mr. CRAMER. Yes.

Mr. KINNEY. This is going to be a little difficult to control.

Mr. CRAMER. It was my understanding in concept, and I have been through this thing, too, from the very first of the Water Pollution Control Act, that relates to congressional action, and it was my understanding that clearly what Congress intended was that certain standards should be set within the States, and that hearings would be held; and that if the evidence indicated that the degradation would not be sufficient to overcome the public interest of the clean water, the industry could be developed. In order to have industrial developments, you have to balance the two, and that the State would have that authority.

Mr. KINNEY. That was the purpose.

Mr. CRAMER. Under the standards established.

Now, it appears that this question of degradation, the States have no authority. It appears that all the authority has been taken by the Secretary.

Mr. KINNEY. It is a nice title; but the procedures transfer the State agencies into branch offices of the Secretary.

To add to that, though, and I offered to the chairman before a copy of a brief that has been prepared by a Subcommittee of Interstate Conference on Water Problems, States attorneys general, that in their opinion the agreement of such a thing by State administrative agencies is unlawful, and that only the State legislature could offer such a delegation of authority, anyhow.

It is one more state of confusion. And unless it is resolved by this committee specifically, it could well mean a court hassle.

Mr. CRAMER. It means, also, that on a stream where there has not been too much industrial development there will be no progress unless the Secretary says so.

Mr. KINNEY. That is correct. But when you read this memorandum or intra-agency memorandum, it goes beyond that. Their proposal is that so long as any quality parameter of water is good, the water qualifies as a quality water. So that means all the waters of the United States are high-quality water, in one respect or another.

Mr. CRAMER. Could you submit a copy of that—do you have an extra copy of that memorandum?

Mr. KINNEY. I can get it for you.

Mr. CRAMER. I would like to have that as part of the record.

FWPCA DRAFT—FEBRUARY 15, 1968

APPLICATION OF THE WATER QUALITY DEGRADATION POLICY

1. *The Policy*

The Secretary of the Interior has indicated that a provision in all State standards substantially in accordance with the following is required:

Waters whose existing quality is better than the established standards as of the date on which such standards become effective will be maintained at their

existing high quality. These and other waters of a State will not be lowered in quality unless and until it has been affirmatively demonstrated to the State water pollution control agency and the Department of the Interior that such change is justifiable as a result of necessary economic or social development and will not interfere with or become injurious to any assigned uses made of, or presently possible in, such waters. This will require that any industrial, public or private project or development which would constitute a new source of pollution or an increased source of pollution to high quality waters will be required, as part of the initial project design, to provide the highest and best degree of waste treatment available under existing technology, and, since these are also Federal standards, these waste treatment requirements will be developed cooperatively.

2. *Waters to Which the Policy Applies*

Basically, the policy is designed to protect all waters whose existing quality is better than the established standards. We should be particularly alert to apply it to significant new waste sources on waters which are now considered relatively unpolluted; e.g., location of a new pulp mill on an unpolluted estuary.

In addition, however, we must recognize that the policy to be effective should also apply to waters which, while already polluted in one respect, would be damaged by a new source of pollution in another respect. For example, waters with high total dissolved solids content may still be of high quality with respect to dissolved oxygen. Any new source of pollution which would lower the dissolved oxygen, thus causing a threat to aquatic life, would be subject to the policy.

An alternative approach would be to categorize and list the specific waters to which the policy would apply. An inventory of the waters might be made, based upon evaluations of existing quality and water uses, e.g., waters which now support good fisheries or recreational uses. In effect, this would be selection or zoning of certain waters which merit an extra measure of protection. (This is a matter which will have to be resolved at an early stage.)

3. *Initiation of the Process*

The policy applies to all developments—such as new or increased municipal or industrial waste discharges, powerplants, or irrigation projects—which would cause new or increased pollution with respect to any parameter. The first step is for FWPCA to obtain notification of all such proposed developments at an early stage.

a. The Regional Directors will be responsible for contacting all States within their jurisdiction to make arrangements for such notification. Each State should be contacted as soon as it has agreed to inclusion of the required anti-degradation provision or its equivalent in its standards. Regional Directors should also become familiar with the mechanisms available to each State to regulate such developments (e.g., permit systems). As soon as arrangements have been made with a State for such notification, Headquarters should be advised.

b. For Federal activities, such notification should be accomplished in accordance with the July 1967 "Guidelines for Federal Departments, Agencies, and Establishments in the Prevention, Control, and Abatement of Water Pollution by Federal Activities."

c. Where other appropriate notification mechanisms exist (e.g., Interagency Agreement with the Department of Defense on dredging permits; Federal Power Commission licensing procedures) these will be utilized. (Note: Headquarters will prepare a list of all such arrangements for the guidance of the Regional Directors.)

4. *Determining Conformance with the Policy*

When the Regional Director is advised of a proposed new development which might degrade water quality, he should:

a. Assemble all existing water quality data, in cooperation with the State or States concerned, and evaluate it to determine the levels of existing quality.

b. Obtain information on the projected wasteloads or other developments, and forecast their effects on water quality. It will be the responsibility of the waste dischargers to provide such information, which should then be evaluated independently by FWPCA.

c. Obtain information on the proposed treatment or waste reduction methods. These methods may be developed through joint discussions with the State, waste dischargers, and design engineers. Determine whether or not the proposed methods represent the best available technology.

We have initiated work with the Office of Research and Development to categorize best available technology feasible to be applied to various classes of industries and other sources of pollution. This will be provided to the Regional Directors for guidance as soon as it is available. We will make continuing efforts to keep this information updated and refined.

d. Determine whether or not projected water quality changes will interfere with water use. In making such determinations, use the report of the National Technical Advisory Committee on Water Quality Criteria and other pertinent information as a guide.

5. *Decisions with Respect to Conformance or Nonconformance with Policy*

a. If our evaluation indicates that best available technology is not being applied, the State or Federal agency concerned should be notified, with a request for upgrading.

b. If the best available technology is being applied, but significant interference with water use will occur, the State or Federal agency should be so notified, and the Regional Director would recommend denial for locating the proposal development. (In such cases, the ultimate recourse would be a request for revision of standards in accordance with procedures established in the Act.)

c. If the increased pollution will not cause significant interference with existing water uses, but will cause degradation, then we must make a determination that "such change is justifiable as a result of economic or social development."

If the projected water quality degradation would not interfere with water use and if the best available treatment was being applied, the proposed activity could usually be deemed consistent with "economic or social development."

Consideration of "economic and social development" would appear most necessary where there is considerable use of and public concern about the water resource involved, and where there is major doubt as to the effects of the proposed waste discharge on the resource, and where inordinate expenses and treatment levels might be required. Examples might be complex chemical wastes being discharged after high levels of treatment to waters of outstanding ecological value.

In these cases such questions as the availability of alternate sites, the relative value of the resource being protected, the economic significance of the polluting activity (e.g., numbers of persons employed, etc.), and the views of the public and other governmental agencies must all be considered.

These cases will generally involve considerable controversy or uncertainty concerning the effects of a pollutant on valuable resource. They should be referred to Headquarters on an individual basis. (See No. 7 below.)

6. *Views of Other Agencies.* It will be extremely important for the Regional Director to determine the views of other States and Federal agencies concerned:

a. Where developments in one State would significantly degrade water quality in an adjacent State, the Regional Director should make arrangements for review of this matter by that State. This can best be accomplished after the evaluation outlined in item 4 has been completed.

b. In evaluating the effects of the proposed development upon water use, the Regional Director will be responsible for checking with other Federal agencies concerned to determine their views.

7. *Approval Procedure*

a. Regional Directors will have the authority to indicate approval for location of proposed developments which would lower water quality, but which clearly meet the requirements of the Secretary's policy. Such approval should be expressed in a qualified form, to reflect the future possibility of additional control requirements, should circumstances warrant. Appropriate wording will be developed and provided to the Regional Directors for their general use.

b. Approval for municipal and private developments should be expressed to the State water pollution control agency concerned. The Construction Grants program should be administered in accordance with this activity.

c. Approval for Federal developments should be expressed through procedures established in the July 1967 Guidelines.

d. Approval for water resources projects and related activities should be expressed through interagency review procedures and other established procedures.

Headquarters will provide the Regional Directors with specific instructions concerning points c and d.

e. Regional Directors' recommendations for disapproval should be forwarded to Headquarters for final action by the Commissioner.

f. Cases where a determination of "economic and social development" is involved should be referred to Headquarters for individual guidance.

8. Headquarters Coordination

It is recognized that many questions of interpretation will arise in applying this policy, particularly in the initial stages. These should be addressed to the Water Quality Standards Staff, which will have responsibility for coordinating this activity.

9. Other Program Implications

Effective implementation of the Secretary's policy has a number of long-range program implications. It will pose major demands upon FWPCA resources. It will call for increased emphasis upon:

a. Site evaluation through the Comprehensive Program activity, with increased use of mathematical models.

b. Increasing the technical capacity of individual regions to make the necessary evaluations. This will involve increasing our competencies for dealing with industrial waste and other problems through recruitment and training.

c. Expanding our pollution surveillance activities in conjunction with the States as rapidly as possible, and developing programs for the STORET system to provide rapid data evaluations and comparisons.

d. Improving our concept and definitions of what constitutes the best available treatment and controls.

e. Effective compliance with the Executive Order and Guidelines procedures by all Federal agencies.

EUTROPHICATION

Mr. KINNEY. I would like also, if I might, Mr. Chairman, to offer for the record—I do not have it; but I could send it to you—a summary of the Conference on Eutrophication, the International Conference on Eutrophication, at Madison, Wis. People from all over the world were there. The recommendations that they made suggest that our proposal of just limiting effluents is a bit naive. There are other things that might be considered. This might be of real interest to you for Lake Erie.

Mr. MCCARTHY. Fine. We would like to receive that very much, Mr. Kinney, and such other information as you have which would be helpful.

(Summary referred to follows:)

[From August 1967 issue of *Industrial Water Engineering*]

EUTROPHIC SIDELIGHTS

(By John E. Kinney, Contributing Editor¹)

The International Symposium on Eutrophication, held at Madison, Wisconsin, in June, 1967, was remarkable in many ways. For example, there were 577 registrants from all over the world; despite air conditioning failure during a heat wave, the auditorium was crowded on all five days of the conference; the speakers were competent, and contrary to many American symposia, reported on present work rather than historical reviews of the literature. The subject was thoroughly explored.

If there was one overriding conclusion I came to as the result of the conference it was that the United States is woefully behind other nations in researching and understanding the subject of eutrophication—the aging of lakes.

During the conference a spokesman for the Secretary of the Interior announced that the President was going to call the heads of the soap and chemical

¹ J. E. Kinney is an independent sanitary engineering consultant with headquarters at Ann Arbor, Michigan.

companies together to "discuss" a substitute for phosphates in detergent. The speaker offered this as an example of administrative leadership in solving the eutrophication problem. This action was prompted by the federal report that detergent is responsible for 80% of the phosphate which causes the algal blooms in Lake Erie—"the cause of the death of Lake Erie".

Had the spokesman attended the sessions, his headline seeking announcement would not have been made. The scientists merely smiled at such a politically oriented proposal to a complex issue.

However, they did not smile at the next confidence. The speaker reported on the embarrassment suffered by Secretary Udall when a scientist in Fish and Wildlife Service had publicly indicated that not enough was known about the causes of trouble in Lake Erie and that caution should be used in making dogmatic decisions. Such a statement after the President had announced full speed ahead was considered inexcusable. However, the speaker assured the audience the federal administration was again of one mind.

That disturbed some Europeans, and one asked me the next day whether the speaker had been joking. I replied that I was afraid he wasn't. Then he asked how much American research is politically controlled. My answer was it depends on the agency making the grant, the institution in which the work is done and how hungry the researcher is.

He nodded his head and said that would explain a mystery—why the productivity in America is not proportionate to the money reported expended on water resources research.

This is not a reflection on all American research—we were in agreement on that—but the American research budget is huge when compared to other nations and the productivity is not in proportion.

The greatest deficiency in a conference such as the one on eutrophication is in the mechanics of getting conference proceedings out for interested parties. To report the "news" which this meeting generated would require several articles. Tying it together to permit understanding of all the facets which affect the end result of a particular problem would take another series of articles.

Many of the conclusions would undoubtedly be considered by some experts as material they already knew. How much they could have proved would be another matter. But at this conference, the proofs or else the assumptions and deficiencies were explored. So was the status of work underway.

Among my reactions, after listening to the experts, were these:

The federal agency's approach to solving Lake Erie's problem by setting limits on phosphorous and nitrogen is a naive exercise in futility.

Blue-green algae—the nuisance algae in Lake Erie—appear when the nitrogen concentration is zero. Blue-greens obtain nitrogen from the air. In Israel when blue-greens appeared as nuisance blooms in fish management ponds, the solution called for maintaining a nitrogen concentration in the pond.

Nutrients are important but even more so is the flow pattern and so is the physical factor of the depth of the lake. The concentration at any time is the critical factor, not the load. For example, increasing the flow to a lake will increase load to the lake but if the concentration in the flow remains the same, there will be no change in the lake. Also, the critical load-depth relationship is a straight line of about 45 degree slope. For a given load a shallow lake could be eutrophic while a deep lake would not. Therefore, if Lake Erie is considered as three lakes, not one—a shallow lake at the western end, a deeper lake in the center and a much deeper lake in the eastern basin—it becomes obvious why the problem in the western basin is not experienced in the others. It also becomes evident the controls to achieve correction in western Lake Erie must include appraisal of flow pattern—even possible diversion of flow around the western lake if adequate dispersion to reduce concentration is not possible. It should also be noted that in reality the Detroit River consists of three channels—those along each shore carry higher concentrations of nutrients and essential elements than the center channel which is essentially the same quality as in Lake Huron.

The role of sodium and potassium concentrations can be critical in algal blooms. Deliberate efforts to make a lake eutrophic by addition of large amounts of phosphates failed until adequate concentration of sodium and/or potassium was provided. Also some lakes are eutrophic when the concentration of phosphorous is below the limit proposed by the federal agency for Lake Erie (actually in a report drafted by the federal agency and adopted reluctantly by the States). What is important is that the essential elements be present in the required bal-

ance. It is equally important to provide the correct temperature (blue-greens require warmer water) and limited turbidity. In other words, the emphasis on an average annual phosphorous limit bespeaks a lack of understanding of the situation.

Carbon dioxide can trigger a bloom. This occurs in waters high in carbonates which are shallow and have organic material on the bottom which can be activated by sunlight to release carbon dioxide.

High concentrations of phosphorous occur when the municipal sewage treatment plant draws down the digester—from 100 to 1000 ppm in solution hits the stream or lake as a slug. Also, the first rains in the spring wash tremendous quantities of phosphates and at high concentrations from land where the farmer spreads manure through the winter.

Nitrates added to the soil as fertilizer are soluble and tend to percolate to underground water. Phosphates attach to the soil and are carried to the stream with sediment loss from the land. Land management practice revision is needed.

Deliberately changing fish populations in lakes in Europe resulted in changes in zooplankton which in turn changed the phytoplankton. In other words not all changes in fish species result from changes in bottom organisms due to pollutional effects. If the commercial fishing is selective over the years and if there are changes in fish species due to accidental or deliberate introductions, the food chain will change to adapt. Both of these conditions have occurred in the Great Lakes. Commercial fishermen effectively eradicated the sturgeon (by 1895) because of their damage to the whitefish nets and concentrated on the whitefish, pike, etc. Meanwhile, the smelt was introduced in 1912 and the lamprey and alewife entered via the St. Lawrence and Welland Canal. Thus, comparisons of types of bottom organisms prevailing 40 years ago with those today is not the whole story. But this could explain why there were changes reported in western Lake Erie in 1930 when pollution was expressly denied as a factor.

Changes in Lake Michigan fisheries coincided with changes in Lake Erie fisheries. The exploding alewife population portends further changes unless there are controls on the alewife. Pollution is the ready excuse but actually it is an almost total lack of fish management with advocates of sports fishing interfering with efforts to intelligently manage the commercial potential. Even if the hoped-for adaptation of coho salmon becomes a reality, the alewife will be more than enough to be food for coho and, from all indications, enough to wipe out the other species. But this is another example of how some conservationists can carry a flag with no more objective than a personal selfish interest.

The "Standard Methods Syndrome" gives many a false sense of security. The errors in analysis for phosphorous and nitrogen are many but too little appreciated. So also is the error in comparing data collected in different years. Simply assuming that data are comparable because *Standards Methods* were used is an error of magnitude. Actually, there is also a lack of appreciation of the requirement to separate the fractions which are available, not immediately available or not available. And there are errors resulting from commonly accepted procedures for preserving samples. For example, chloroform results in cell rupture and gives orthophosphate if there is much algae.

It is doubtful if chemical analysis of water can give an accurate appraisal of controlling or limiting concentrations of elements as such analysis can do for productivity of soils. Certainly no procedure has been developed to date to measure the controlling concentration of nitrogen or phosphorous in the aquatic environment. There is, however, encouragement in data developed to date from analysis of plant tissue. This approach has paid dividends in plants and flowers (terrestrial) and should in aquatic plants. It reduces the analytical work to measurement of cell content. Plotting of yield against concentration of nitrogen and phosphorous defines critical concentrations—the point where increase in absorption is not accompanied by increase in yield.

Productivity of algae is not bad. What is bad is productivity of the wrong kind. With a growing population productivity is needed and should be planned. But so far we don't know how to guide such direction. However, if there is to be effective guidance, the present approach of assessing arbitrary concentration limits must be changed. In place of this prohibitive approach the effort should be to take advantage of eutrophication—not just to control it but even to exploit it to provide fish productivity and manipulate that productivity by controlling additions of nutrient in places where it will do good.

Intelligent fish management in lakes or in pens in lakes at points where tributary additions have a significant effect could result in a harvestable crop

of useful fish and at the same time effectively strain out the nutrient. This would provide an answer for agricultural wash as well as urban surface drainage—both major sources of nutrient.

Circulation patterns in a lake or river can control the availability of nutrient concentration, as well as temperature and clarity conditions to permit or restrict algal blooms. Intelligent design of such patterns could have other benefits. For example, when fish move to colder or warmer water to get relief from lower dissolved oxygen, the temperature change can be fatal. (This is particularly true of the alewife which is very temperature sensitive. It blunders into warmer water and dies.) As the dissolved oxygen becomes restrictive—lowering of oxygen below 3 parts per million puts the animal into the area of increased metabolic rate activity—the fish irrigates the gills more rapidly and this increased exposure of dissolved materials to the blood of the fish can be the reason why ammonia, for instance, becomes more toxic at lower DO. This oxykinetic causes the fish to move to a lesser stress area. If the circulation pattern provides a dissipation of concentration of nutrients it would also provide a more even temperature and oxygen gradient. The work reported indicated that the 3 ppm of DO is the critical level for start of stress with a rapid increase in stress as the oxygen reduces to 1 ppm.

There can be no standards defined to apply to all waters. Each river and lake must be appraised individually. Administrative ease standards are an invitation to futility.

Adding it all up: Limiting our attention to regulations on sewer outfalls (and even if they are eliminated) will result in a multibillion dollar treatment program, pea soup algae, and alewives.

The agronomist, analyst, economist, lawyer and engineer can apply principles developed by biologists who are permitted to solve problems rather than "prove" politically inspired conclusions. This conference made a lie out of the "dying Lake Erie" theme. It also reduced the politically motivated directive to a farce. The American approach to research grants and controls in water resources fared similarly. And yet, the conference provided the data and interpretation of the problem which will, if properly supported and implemented, provide solution.

Thus, the conference ended with a challenge to those conservationists who still refuse to face reality. If they want to team up with the technically competent in a determination of which waters should serve specific uses in the best public interest, the means for protecting those uses can be devised. However, if they continue to evidence a demand to restrict waters for their personal pleasures, achievement will remain nebulous, for their only approach is via legislative means. Oratory, laws and regulations make headlines but do not solve water quality problems.

[From June 1967 Issue of Industrial Water Engineering]

EUTROPHICATION

[A BIG WORD IN WATER MANAGEMENT]

In recent years as the popular press has tolled the death of many of our major water bodies, a new word has been introduced into the vocabulary of many concerned with pollution control—eutrophication. Unfortunately, the word has come to have as many misinterpretations as it has mispronunciations. Those who have long studied the process pronounce it "yoo trof i ka shun" and define it, in general terms, as an aging or maturing process which occurs in natural water bodies.

Since eutrophication has literally become a "big word" in water management we asked Gerald A. Rohlich, Director of the University of Wisconsin's Water Resources Center, to discuss its meaning and significance in greater detail. As Chairman of the first International Symposium on Eutrophication, held at the University of Wisconsin this month, he has been intensely involved in improving communication on the subject.

But since there are many facets of eutrophication which can (and do) fill volumes, we have asked Professor Rohlich to risk over-simplification and take an "overview" of the problem in this interview.

There are many noteworthy engineers in the country today and many noteworthy teachers of engineers. It is a rarity, however, when both descriptions are

applied to one man. In this sense Professor Rohlich is a rarity. He holds the Harrison Prescott Eddy Medal from the Water Pollution Control Federation for outstanding research and also the Benjamin Smith Reynolds Award from the University of Wisconsin for excellence in teaching engineers.

A civil engineer by training, Professor Rohlich received B.S., M.S. and Ph.D. degrees from the University of Wisconsin. Prior to his present position he served as associate dean of Wisconsin's graduate school, associate professor at Penn State, and instructor of civil engineering at Carnegie Tech. He has also held positions as: Engineering Assistant for the Bureau of Sewers, New York City; Chief Project Engineer for ESNA Corporation; and Senior Sanitary Engineer, Office Chief of Engineers, War Department.

Dr. Rohlich, is Lake Erie dead?

I'm not sure what the word "dead" means in this context. The fate of any lake is extinction. Our whole environment is constantly being altered by natural forces. In the case of a lake there is a gradual but constant encroachment by land . . . a filling in of inlets and outlets with sediment . . . an erosion of the surrounding soil. The terms "dying" and "dead" when applied to a natural water body are therefore relative and can be very misleading.

A "dying" lake, then, is not necessarily a cesspool . . .

No. But there may be some public confusion on this point. For example, some may refer to a lake as dying because it has a decreasing capability to be used for specific purposes. If a lakeshore became choked up with undesirable weeds they would interfere with swimming or boating, and the lake's *usefulness* for these purposes might be considered to be "dying." In the case of Lake Erie for example, authorities report that its productivity in terms of total fish catch has not changed significantly but that the *variety* of fish caught has changed. From this standpoint, the capability of Lake Erie to support certain species of fish is on the decline. On the other hand, there are other bodies of water which have deteriorated to the point where they are essentially cesspools.

What causes the deterioration in natural water bodies?

Some deteriorate through the process of eutrophication. In the broad context this is a process of enrichment often accompanied by a change in the natural "balance" of aquatic organism which the water is capable of supporting. It is caused by fertilization of the water as nutrients enter it from many sources. Just as fertilizer makes your lawn grow, the addition of nutrients such as phosphorous and nitrogen to water increases the growth of algae and aquatic weeds. The difference is that large concentrations of algae in water are undesirable.

Why?

Like terrestrial plants, algae produce oxygen from carbon dioxide, using sunlight as energy. In the absence of sunlight, however, plants reverse the process . . . consuming oxygen and giving off carbon dioxide. In a well-kept aquarium a balance is established so that the plants don't use more oxygen than they give off. The problem in a natural water body, however, is that large accumulations of algae are concentrated by wind action and at night begin to draw oxygen from the water . . . in extreme cases, completely depleting the water's supply. The deterioration in water quality then becomes self-sustaining . . . rotting vegetation releases more nutrients which promote algal growth which continues to use oxygen and so on. The algae also often create turbidity in the water and are a cause of tastes and odors.

Are water pollution and eutrophication one and the same?

No. While it is true that some types of pollution accelerate eutrophication, contamination of water with pollutants such as arsenic, DDT, or copper compounds do not contribute nutrients for plant growth. They, of course, may cause other detrimental effects. The words pollution and eutrophication should not therefore be used synonymously.

Is eutrophication a natural process?

You might consider it both a natural *and* cultural process. Normal precipitation and drainage from forest or plain areas contribute nutrients to water. This is a natural condition so that even if man were not around the lakes would go through an aging process. But the natural processes of enrichment and sedimentation are often accelerated by man's activities. In altering the landscape by agricultural development, urbanization, and by the discharge of sewage and other pollutants, man has increased the *rate* of eutrophication.

Has eutrophication reached crisis proportions in the country?

Here again this depends on what you mean by "crisis." Certainly if you made your living fishing on a particular lake and all the fish were dying, it would be a crisis. But the major problem with eutrophication today is that it is interfering with the aesthetic and recreational uses of our lakes. The big point is that we've got to start *now* to do whatever we can to stop eutrophication from accelerating. We've got to begin more intensive study and planning so that it doesn't build to crisis conditions in the future.

Does eutrophication pose a health problem?

I don't believe there is any direct relationship between eutrophication and the suitability of the water for, say, drinking purposes provided that it is given proper treatment. Depending on how badly the water has deteriorated, of course, there may be some additional cost in preparing it for potable use.

What do we need to do to keep eutrophication from getting out of hand?

That's a big question. But let me put it this way at the risk of oversimplification . . . we've got to accumulate more data on the sources of nutrients entering a particular water body and the relative effects of specific ones, and then establish priorities for reducing them. The problem involves not only technical and economic considerations but also institutional arrangements. For example, if a drainage area covers hundreds of cities, several counties, and a few states, you can see that there might be some administrative difficulties in approaching the problem.

What are the major nutrients involved?

Phosphorus and nitrogen are most frequently mentioned as being of primary importance. There are other elements such as iron, magnesium, calcium, silicon, sulfur, manganese, sodium, potassium, carbon, etc. which are also involved in the metabolism of aquatic plants and these may be limiting factors in algal growth.

What quantities of phosphorus and nitrogen cause excessive algal growth?

It is not possible to answer that question categorically. Each body of water must be investigated separately in evaluating the overall problem. A useful approach, however, is to determine the growth response to various nutrient levels by a bio-assay test. In other words, actually measure the algal growth with different levels of nutrients present. In this way you can determine what the critical levels are in a particular water body.

What problems does this data gathering present?

First of all, nitrogen and phosphate analyses are a bit more tricky than tests for, say, chloride. Past data on these constituents may be difficult to evaluate since sometimes we don't know how the numbers were arrived at. Then, too, the data must be accumulated over a long period of time to determine general trends. On a short-term basis, a decrease in nutrient level, for example, may be misinterpreted . . . it may only be a temporary dip in a rising curve.

Should we approach the problem by simply trying to eliminate phosphate and nitrogen discharges into lakes?

We can't, of course, eliminate these when they come from natural sources. Whenever it is practical to cut down on cultural pollution of this kind it would undoubtedly help. But we can't willy-nilly decide to remove all nitrogen and phosphate from discharges, however, since they may not in all cases be seriously contributing to the eutrophication problem.

For example, these may be minor elements which are limiting factors in algal growth (even in the presence of phosphate). We need to check this out carefully to determine whether or not the reduction in phosphate and nitrogen results in the decrease in algal growth desired. One of the big difficulties in dealing with eutrophication right now is that you can use available statistics to support various approaches in combatting it. And in many cases, the results of tidy and neat work in the lab just can't be extrapolated to conditions in nature.

Why is the problem so complex?

A natural body of water such as a lake is a dynamic "organism" and there are many interrelated factors which affect its metabolism. Not only do you have to consider the biological and chemical factors, but also the physical factors which have a bearing on eutrophication . . . geological history, climate, thermal properties, hydrology of the drainage basin . . . to name only a few. Then, too, in addition to determining the rate of eutrophication of a particular lake it becomes necessary to differentiate between "normal" and cultural contributions to this rate. This is important in determining the degree of a lake's recoverability. But establishing a base line of "normal" eutrophication isn't easy because there aren't many good records available on conditions before man started contributing to it.

What are some possible approaches in minimizing eutrophication?

First of all, it is easier to prevent cultural eutrophication than to cure it. This presupposes an awareness of the problem and proper development around water courses in zoning residential, industrial, or recreational areas. The *remedial* approaches which are possible include: (1) diversion of sewage or other nutrient sources away from the lake or stream involved; (2) dredging of bottom muds containing concentrated nutrients; (3) removal of rough fish which stir up nutrients from sediment and/or cultivation of plankton-eating fish which are later removed; (4) harvesting of weeds or algae; (5) low-flow augmentation to increase flushing and aid in dilution; (6) the use of chemicals to control algal growth; (7) the removal of nutrients from wastewater prior to discharge, etc.

Will you summarize your outlook on the problem of eutrophication?

I'm basically encouraged by the recent increased interest in eutrophication. This is a big first step in organizing to control it. I'm somewhat concerned, however, that many people may be misled in thinking there are simple solutions. Eutrophication is basically a recreational and aesthetic problem. Our approach to counteracting it must be realistic. We can't expect to get into a 300-horsepower auto, drive along a four-lane highway, and step off into the wilderness. But we can begin increased efforts to learn more about eutrophication and how to combat it. Our technical people have a responsibility to provide decision makers with enough factual information, including the economic considerations involved. Unlike rivers and streams, our lakes are not apt to be cleaned up rapidly by pollution abatement practices alone since there is more restricted circulation. But we've got to begin now to increase our efforts in: (1) realistically assessing the condition of our lakes and (2) setting priorities on where we want to spend our dollars in eliminating nutrients.

Mr. McCARTHY. Thank you very much.

As usual, you have made a great contribution and we are very grateful.

Mr. KINNEY. It is a pleasure.

Mr. McCARTHY. Next is Alexander B. Hawes, American Waterways Operators, Inc.

Mr. Hawes, we are delighted to have you here. You have an associate with you.

STATEMENT OF ALEXANDER B. HAWES ON BEHALF OF THE AMERICAN WATERWAYS OPERATORS, INC.; ACCOMPANIED BY MARKHAM BALL

Mr. HAWES. Thank you, Mr. Chairman and members of the committee. I have with me Mr. Markham Ball of our office. We are counsel to American Waterways Operators.

The American Waterways Operators, Inc., which I shall refer to as AWO, welcomes this opportunity to present certain comments on the legislation being considered by this committee to regulate waste and oil pollution from vessels.

Before giving these comments, I should like briefly to identify AWO. It is the national trade association that represents the interests of, and includes in its membership, water carriers of all types operating on U.S. inland waterways, and carriers operating tugs and barges in coastwise and intercoastal trade.

CONTROL OF POLLUTION FROM VESSELS

With respect to H.R. 13923, AWO has these comments:

1. *Uniformity of regulation.*—It is of the utmost importance that regulations and required equipment relating to waste from vessels

be uniform throughout the United States. Both commercial and recreational vessels constantly cross State lines. The Interior Department report of last year lists 29 States having regulations on waste from vessel. In addition, there are eight interstate compacts under which such regulations can be, if they have not already been, promulgated. At the present time, many of the regulations are widely ignored and casually enforced, if at all. If however, as a result of the mounting concern over water pollution, local authorities begin to enforce their widely varying requirements, the consequence could be potential disaster for owners and operators of vessels crossing State lines.

H.R. 13923 does not provide the desired uniformity. It merely adds Federal requirements on top of existing, and possible future, state or local requirements. The bill should be amended and strengthened to provide that when regulations are issued under it, they preempt the field and no regulations of other authorities directed to combating pollution shall have any force or effect.

2. *Centralization of authority and responsibility at the Federal level.*—All authority and responsibility for promulgation and enforcement of regulations controlling waste from vessels in order to prevent pollution should be centralized in one agency. Where necessary, this agency should be authorized to delegate certain responsibilities, for instance with respect to enforcement. H.R. 13923 proposes to give authority to a single agency, the Department of the Interior is specified in the bill, but fails to make its authority exclusive. The bill should make clear, by appropriate amendment to existing legislation, that all previously existing authority in other agencies to regulate such pollution, for example, under the Refuse Act and the New York Harbor Act, is transferred to the same department. At the same time, amendments should make clear that the powers remaining in the Corps of Engineers are limited to regulations to prevent obstruction of navigation.

Section 11 of the Federal Water Pollution Act, as proposed by H.R. 13923, does not apply to oil. Section 12, as proposed, does apply to oil discharges in the contiguous zone. The authority is placed in the Secretary of the Interior to regulate these so far as they pollute territorial waters or are deleterious to health or marine life or dangerous to persons or property within U.S. territory. The authority of the Corps of Engineers to regulate discharges which may be an obstruction to navigation is recognized in the bill. Oil discharges have traditionally been subject to separate legislation, and it seems to us that an overall updating of the Oil Pollution Acts by a new act on oil would be preferable to the piecemeal change that would be effected by H.R. 13923 in this respect.

3. *Advisory Board.*—The Advisory Board established under the Federal Water Pollution Control Act should be increased to include members who are knowledgeable in the field of waste from vessels, or a separate board to advise with respect to the implementation of H.R. 13923 should be set up. Among others, the barge, tug and towboat industry should be represented on any such board.

4. *Extension of section 11 provisions to section 12.*—Section 12 extends to the 9-mile contiguous zone beyond the territorial waters of

the United States the authority to control waste from vessels. Just as it is important to have uniformity of regulation on the navigable waters of the United States, it is important that the scheme of regulation and the regulations themselves applied in the contiguous zone should be as uniform as possible, within the boundaries of international law, with those applying to the navigable waters. Accordingly, for example, in issuing regulations under section 12, the Secretary of the Department should take into consideration the factors referred to in section 11(a); for example, technological feasibility, economic costs, the types of vessels, their operating patterns. Provision for compliance schedules such as those now in section 11(a)(1) should apply to regulations under section 12. The authority to exempt classes of vessels provided in section 11(e) should be granted to the Secretary in issuing regulations under section 12. The same kind of consultation or as suggested below, hearing, required under section 11(d) should be required under section 12. The same procedure for certification of sewage control equipment provided in section 11(e) should be available under section 12. If, as is suggested later in this statement, the use and maintenance of certified equipment satisfies the requirements of section 11, such use and maintenance should satisfy the requirements of section 12.

5. *Compliance schedules.*—Under section 11(a)(1), in issuing regulations to control sewage discharges the Secretary of the Department is required to establish reasonable schedules for compliance and such schedules are required to distinguish between new and existing vessels. These same requirements should be made applicable in regulating discharge of garbage, litter, or other waste as to which treatment equipment may be developed.

6. *Procedure for issuance of regulations.*—The proposed legislation does not require the Secretary to hold hearings before promulgating his regulations. He is required, under section 11(d), to consult with industry and Federal and State agencies before issuing regulations under section 11 and to give interested persons and agencies a reasonable opportunity to comment on these regulations before they take effect. To assure that all interested parties have their views fully considered, AWO recommends that the legislation require notice and opportunity for a hearing before the regulations are adopted. The Secretary should be required to make findings as to the facts on which regulations are based, and the right of judicial review should be provided to interested parties on the questions of whether findings of fact are based on substantial evidence and whether the regulations are reasonable in light of the findings made.

In addition, the provisions for notice and opportunity for a hearing on the regulations in advance of adoption and for judicial review should be made applicable to regulations under section 12.

7. *Enforcement.*—The provisions for inspection under section 11(j) of the proposed bill may lend themselves to abuse. No limitation as to time or circumstances is imposed on the right of inspectors to board and inspect vessels. The broad inspection procedures may indeed present constitutional questions, at least in the case of criminal prosecutions. Instead of the present provisions of section 11(j), provision could be made for periodic inspection of vessels. The right to board at

other times should be limited to cases in which enforcement officers have probable cause to believe that a violation has occurred. Like the right to arrest, the right to inspect, except periodically, should also be limited to cases in which the officer obtained a warrant or in which a violation was committed in his presence.

This recommendation would parallel the provisions of the Refuse Act, New York Harbor Act, and Oil Pollution Act of 1924. These acts require all arrests, except for violations committed in the presence of an enforcement officer, to be made with process.

In addition, it should be made clear that there can be no liability for sewage discharges on the part of a person who properly uses and maintains certified sewage control equipment.

8. *Research.*—The research provisions of the Water Pollution Control Act should be amended to make clear that they include development of practical methods of treating waste from vessels and of handling such waste so as to prevent its deposit in the waters in question. The present research provisions seem to be directed wholly to treatment of land-originated sewage.

9. *Reports to Congress.*—To assure continuing oversight by Congress, it would be desirable to provide for periodic reports by the Secretary of the Department to Congress on his proposed programs, including the state of knowledge of water pollution and means of control, estimates of costs of compliance, and proposed regulatory action. The Secretary should also report periodically on the actual progress of the program, including results of research, costs of compliance, and the program's success in reducing water pollution.

OIL POLLUTION CONTROL

I turn now to H.R. 14000, and specifically to section 4(a), providing for a new section 19 on oil pollution control to be inserted in the Federal Water Pollution Control Act.

Members of AWO include owners of oil tank barges, as well as towboat and tugboat owners who use oil as fuel. Both groups are vitally interested in this proposed legislation.

Recent maritime disasters involving oceangoing tankers have called attention to the serious consequences of major oil spills. I understand the principal objectives of the new section 19 to be to induce greater care to prevent oil discharges and to make those responsible for oil spills primarily liable for the damage they cause. AWO is wholly in sympathy with these objectives and with the efforts being made to control, and to the greatest extent possible eliminate, pollution by oil discharges in the navigable waters of the United States.

At the same time, oil pollution controls are a complex subject, as I am sure this committee well understands. The proposed legislation covers not only tankers, but towboats, tugboats, and barges as well. It covers vessels on the ocean within the jurisdiction of the United States, and it covers vessels in our relatively crowded harbors and inland waterways. AWO supports reasonable legislation to control oil pollution from all vessels in all the navigable waters of the United States. We feel most strongly, however, that legislation must be shaped to circumstances. Laws appropriate for the supertanker may not be appropriate for the barge on the inland waterways.

LIABILITY WITHOUT FAULT AND LIABILITY WITHOUT LIMIT

In two major respects, we feel that proposed section 19—in particular subsection (e)—is not reasonable, at least when applied to the barge and towing industry. This subsection would impose upon an owner or operator of a vessel the duty, subject only to an exception for “acts of God,” to remove oil discharged by the vessel into navigable waters. If he fails to remove the oil, the Secretary may remove the oil and charge the owner or operator the cost.

1. *Liability without fault.*—The first of AWO’s difficulties with subsection 19(e) is this: subject to the “act of God” exception, the subsection would impose liability without regard to fault on the part of the owner or operator. The logic of excusing liability in one type of instance where the owner or operator is without fault, but retaining it in others, is difficult to understand. If a vessel is wrecked by an unforeseeable storm, there will be no liability. On the other hand, if it strikes an uncharted reef, or if—to put the contrast most plainly—it is wrecked in a collision in which the other vessel was wholly at fault, it will be subject to the liability.

To hold a vessel owner liable where he is not in the least at fault, or indeed where the loss is the fault of another, is a radical departure from the most basic principles of our law, and from our basic notions of fairplay. If experience had shown that, except for acts of God, oil discharges do not occur unless the owner or operator is negligent, this feature of the provision might be justified as a rough way of putting liability where the fault is. But this is not so. Particularly in the more confined and crowded circumstances or harbors and inland waterways, experience teaches that spills are frequently the fault of other vessels, or shore-based dockworkers or stevedores, or the result of unavoidable hazards, such as uncharted shoals, or wrecks. There are hazards, not the least of which is the hazard of the negligent acts of others, that an owner or operator cannot avoid by the exercise of the highest care. To impose liability for an event that the owner or operator is powerless to foresee or prevent does not conform to one’s ordinary sense of justice.

It also seems somewhat odd that the criminal penalty, imposed by subsection (d) should require proof of willful violation of the prohibitions against discharge and that the \$10 thousand civil penalty of subsection (d) should be subject to the exceptions of emergency, unavoidable accident, collision, or stranding, but what could be a liability running to many thousands of dollars for removal of discharged oil is to be imposed without regard to fault.

The American Petroleum Institute has suggested, as a substitute for absolute liability, a rebuttable presumption of negligence in the event of an oil discharge. If this were merely to shift to the vessel owner or operator the burden of going forward with the evidence, it would be certainly more acceptable than the imposition of liability without fault. And it may be appropriate for oceangoing tankers exposed to the dangers of the high seas. Such a vessel may disappear, leaving no evidence to establish whether the sinking was due to negligence or unavoidable accident, or an act of God. There may be no witnesses to the discharge at all or only the master and crew of the

vessel involved. In such a situation, it may be fair to presume, at least until the vessel owner has offered evidence to the contrary, that the discharge was due to negligence. In the case of tugs and barges operating on the inland waterways and close to shore, however, the likelihood of complete disappearance of all evidence is practically nil. The vessel or vessels involved can be examined, and witnesses can be found. There seems no reason, therefore, to change the ordinary rules of evidence. The Government, with its resources of able legal and investigative staff and the powers of discovery under the Federal rules, should have no difficulty in establishing negligence if there was negligence.

2. *Liability without limit.*—Combined with liability without fault is an even more disturbing feature of this subsection, the fact that the liability imposed is without limit. Except for perhaps the largest oil companies, who may be financially strong enough to act as self-insurers, most owners and operators will have to resort to insurance to protect themselves against the liability imposed by this bill. So far as AWO has been able to determine, however, there are no underwriters in this country or Great Britain willing to write insurance against unlimited liability. This fact means that, while undoubtedly owners and operators would increase their coverage as a result of the bill, they could well remain ultimately exposed to an uninsured liability that in the case of smaller companies might wipe them out.

TUG AND BARGE OPERATIONS DIFFER FROM THOSE OF SEAGOING VESSELS

This risk is particularly serious in the case of tug and barge operators, which, typically, are small companies operating one to three tugs, or perhaps no more than a single barge, and whose resources are therefore limited.

We therefore strongly support the position of the American Petroleum Institute and other witnesses who have urged that some limitation of liability must be established.

We do not agree, however, with the amount of the limitation proposed by the American Petroleum Institute. The API formula of \$250 per gross registered ton with an overall limit of \$8 million, appropriate though it may be for tankers that carry up to 100,000 or 300,000 tons of oil, is not appropriate for the circumstances of barge operations.

The largest tank barges seldom carry more than 3,000 tons or 20,000 barrels. Their gross registered tonnage is seldom more than about 1,300 tons. The API formula, however, would establish a liability of over \$300,000 for each of such barges, although their cost now is only about \$150,000 apiece. In other words, the proposed limitation would be about double the value of a new barge and could well be many times greater than the limit of liability under existing law. In contrast, the API formula, when applied to a \$20 million supertanker, would limit liability to less than 50 percent of the owner's investment in the tanker.

At the same time, the dangers of damage from barge transportation are in an entirely different order of magnitude from those of ocean tanker operation. Tank barges are built with a number of compartments, rarely less than six and running up to 12. The largest compartment carries no more than 4,000 barrels or 600 tons. Most are smaller, say, 2,200 barrels or 300 tons. The usual accident involves the holing of one compartment. Frequently a damaged vessel can be brought to

shore or the leak stopped before all of the oil from even one compartment is lost.

Sinkings of barges are extremely rare. In 25 years of operations, Ashland Oil and Refining Co., with the largest single fleet, has had two sinkings, one partial and one complete. The most costly recent oil cleanup from a barge spill of which AWO is aware was the cleanup of a large oil slick in a tributary of the Mississippi, at a cost of \$20,000. According to one large company, the cost of cleaning up an oil spill from a barge is typically \$3,000 to \$4,000. These costs contrast with the cost of the English cleanup following the *Torry Canyon* disaster, in the amount of \$10 million.

We would propose, therefore, that a limit be fixed for maximum liability under subsection 19(e), and that this limitation be fixed in the case of tugs, barges, and similar vessels to an amount reasonably related both to the limited danger that these carriers present and to the limited financial resources of the owners and operators of these vessels. For these carriers, the limitation could be based on the oil-carrying capacity of the vessel but should not exceed the value of the vessel before the accident.

This separate treatment of tugs, barges, and similar vessels would be in keeping with the longstanding congressional policy expressed in the Limitation of Liability Act. Tugs, towboats, and barges are expressly excluded from the definition of "seagoing vessel" in the Liability Act and are subject to different treatment. Recognizing the greater capacity for damage, and the greater risk of total loss in the case of an accident involving a seagoing vessel, Congress in the Limitation of Liability Act has established one limitation for seagoing vessels and a separate, lower, limitation for other vessels. AWO urges that, regardless of the limit established for oceangoing tankers, a limitation be established for vessels that are not seagoing vessels, as that term is defined in the Liability Act, that is realistic in light of the nature and operations of these nonseagoing vessels.

These, then, are the major recommendations of AWO on H.R. 14000:

First, liability for the removal of oil spills under subsection 19(e) should be based on negligence.

Second, liability should be limited in the case of nonseagoing vessels to an amount related to the oil-carrying capacity of the vessels. The limit should be no higher than the value of the vessel before the accident.

GOOD SAMARITAN PROVISION

Finally, let me add a word on a separate point. Other witnesses have recommended amending the proposed legislation to include a "good Samaritan" provision to encourage prompt action to contain and clean up oil spills as soon as they occur. Even under subsection 19(e) in its present proposed form, there will be some spills for which vessel owners will have no cleanup responsibility. There seems to be no doubt, however, among those knowledgeable in this field, that damage from oil spills can be kept to a minimum if efforts are exerted promptly to contain and clean them up. Vessel owners should be encouraged to begin this work at once, in the event of every oil discharge, regardless of their ultimate legal liability to clean up the spill.

We believe, therefore, that the legislation should provide compensation for vessel owners who incur costs in cleaning up or containing oil spills in cases in which subsection 19(e) imposes no liability for cleanup. Compensation should be paid out of the revolving fund to be established under subsection 19(f).

Members of AWO are already working independently to improve techniques and equipment for handling oil and for dealing with spills. A number of harbors are now installing oil booms and other equipment to deal with spills. These efforts should be encouraged. A "good Samaritan," in this case the vessel owner who cleans up an oil spill for which he was not responsible, should have the cost of these efforts for the public good reimbursed.

That concludes my statement, Mr. Chairman. Thank you very much.

Mr. McCARTHY. Thank you very much, Mr. Hawes.

Any questions, Mr. McEwen?

Mr. McEWEN. No. I join in thanking you for this fine statement.

Mr. McCARTHY. I want to thank you very much, Mr. Hawes.

Mr. HAWES. Thank you.

Mr. McCARTHY. The next witness is Joe Choate, vice president, National Association of Engine & Boat Manufacturers.

CONTROL OF POLLUTION FROM RECREATIONAL WATERCRAFT

STATEMENT OF JOSEPH E. CHOATE ON BEHALF OF NATIONAL ASSOCIATION OF ENGINE & BOAT MANUFACTURERS

Mr. CHOATE. Mr. Chairman and members of the committee, I appreciate the opportunity to appear at this hearing today on behalf of the National Association of Engine & Boat Manufacturers.

I might express the hope that our position on the agenda reflects the evaluation of the importance of pollution from recreation of boats.

My principal remarks will be directed to H.R. 13923, to regulate waste discharge from pleasure boats. This association was organized in 1904, and today we represent 430 individual manufacturing companies in the boating industry. While most companies in this industry are relatively small, our membership represents the major portion of industry production both in units and in dollars. The chief purpose of our association is "to protect, to promote, further, and advance the interests of its members, as manufacturers and sellers of marine engines, marine motors, and boats of every kind and description and accessories thereto." NAEBM has been actively concerned with the problem of water pollution emanating from recreational watercraft since the early 1950's. We realize then that, with the growing popularity of boating, new problems would arise and one such problem would be that of waste disposal, even though, in our opinion, the amount of effluent being discharged from recreational craft was and is minute in terms of the total water pollution problem. Nevertheless, because of our concern back in the early 1950's, the industry then initiated a program which has been developed along four lines.

1. Education;
2. Development of standards;
3. Product evaluation through testing;

4. Stressing coordination and uniformity of boating laws at Federal and State levels.

EDUCATION

1. Education.—It is our belief that a very significant method by which to reduce the problem of waste disposal is through sound, constructive, educational programs. I believe that the National Litterbug Campaign is a good example of the kind of constructive results that can be gained from extensive promotional and educational efforts. As another example, through one NAEBM antipollution poster campaign, a sample of which I have brought along today, we encouraged boatowners to use onshore facilities to make every effort to keep our waters clean.

This is the poster. It says "Pollution Solution. Two Heads Are Better than One. Use the One Onshore" [indicating].

We have distributed over 20,000 of these posters nationwide to marinas, yacht clubs, and other waterfront organizations. A new poster is now in preparation for use during the coming season.

DEVELOPMENT OF STANDARDS FOR DEVICES

2. Development of Standards.—The second phase of our program involved the development of waste treatment devices or systems feasible for use in small boats. I'm sure you gentlemen appreciate that installation of any such equipment on small craft presents problems of some magnitude. I refer to space, weight, and cost limitations, the problem of adequate power and, above all, the safety of the craft and its passengers. The first order of business was to create standards to cover the performance and the safe use of all devices.

To do this all-important task, the NAEBM turned to the American Boat and Yacht Council, a broad based membership organization devoted to the development of safety standards for the design, construction, and equipment of small craft. The ABYC initiated the development of its "A-8 Standard for Sewage Treatment Devices for Marine Toilet Wastes" on January 23, 1957. I might add, the NAEBM encouraged the need to include "safety" as a part of such standards development because truly sophisticated development of holding or treatment devices must not only control bacteria discharged into the waters, but must also be safe in terms of its construction and operation for the protection of the boat and its passengers. I must add, that this A-8 Standard is recognized today throughout the industry as a realistic and sophisticated criterion for disposal systems.

PRODUCT EVALUATION

3. Product Evaluation Through Testing.—A third function was necessary to complete the job. That was to implement advisory standards by providing adequate testing of the devices. To accomplish this, the NAEBM helped reorganize the nonprofit testing laboratory, the Yacht Safety Bureau, which, in the early 1960's, undertook a complete testing procedure of all available waste treatment devices using the ABYC Standard as the performance requirement.

COORDINATED UNIFORM LAWS

4. *Stressing Coordination and Uniformity of Boating Laws at Federal and State Levels.*—At the same time the NAEBM was working with ABYC and YSB to establish safety standards and testing, we were also working on the broader problem of developing proper national policies and procedures that would assure some uniformity of enforcement and administration of boating laws among the States. In our opinion, the Federal Boating Act of 1958, which we actively encouraged and supported, accomplished this objective. It set the guidelines for creating the necessary uniformity and reciprocity, and it established the mechanism for effective Federal-State action concerning any problem facing those involved in recreational boating—including the problem of antipollution systems or devices. With the 1958 Federal Boating Act and the standardsmaking work of ABYC two very important parts of a total comprehensive effort to resolve the problem were accomplished. In 1963 the National Association of State Boating Law Administrators, NASBLA, organized a committee charged with the responsibility of compiling a report on the nature and extent of pollution of the waters of the United States by recreational watercraft and to make recommendations relative thereto. The committee of administrators, in the course of their duties, sent a questionnaire to over 200 heads of health, engineering, sanitation, and boating enforcement agencies to determine from the experts an estimate of the effect pleasure boats had on pollution, an idea of the number of boats actually involved, and an estimate of the number of days they were used. In November of 1965 the committee presented an official report of their findings to the membership of NASBLA. This excellent report indicated that pollution from recreational boats was, at most, negligible. We believe that this statement still holds true today.

NASBLA did not just stop there. In an effort to encourage uniformity among the widely varying State laws, they prepared a "Model Law" for the regulation of disposal of sewage from watercraft and to prohibit littering of waterways. This model serves as a uniformity guide and includes broad specifications for all types of devices.

As an example of a coordinated effort, one State, New York, a leader in the NASBLA Organization as well as in the development of laws regulating vessel discharges, is now completing an extensive study under the direction of the Yacht Safety Bureau. In our opinion, New York could possibly have a most workable, economical, and acceptable law, which could be adopted by other States in the country thus meeting required criteria of the Federal or State agencies involved in the problem. An interesting point is that the New York State law, modeled after NASBLA suggested law, uses the American Boat & Yacht Council project A-8 standard on sewage treatment devices which was adopted in July 1964; and will probably recognize testing procedures currently being developed by the Yacht Safety Bureau.

Both of these organizations submitted testimony before the Senate Committee on Public Works, Subcommittee on Air and Water Pollution. I would like to submit for the record copies of the statements which were presented before the committee.

Mr. McCARTHY. Without objection, they will be printed in the record at this point.

(The statements follow:)

AMERICAN BOAT AND YACHT COUNCIL, INC.,
NEW YORK, N.Y., March 28, 1968.

To: United States Senate Committee on Public Works, Sub-Committee on Air and Water Pollution.

From: American Boat and Yacht Council, Inc.

Subject: ABYC Statement on S. 2525, a Bill to amend the Federal Water Pollution Control Act, April 3, 1968.

Mr. Chairman, members of the Committee, and guests, thank you for inviting me to this hearing on behalf of the American Boat and Yacht Council, Inc.

The American Boat and Yacht Council was organized in 1954 to establish an advisory code of safety standards for the design and construction of small craft and their equipment. It is a broad-based technical society drawing its membership from the boating industry; the government, including the United States Coast Guard and the State Boating Law Administrators, the marine insurance industry, and, finally, the general public which includes such groups as the Coast Guard Auxiliary and the United States Power Squadrons.

These 14 years of diligent effort by the volunteers who serve on the Council's Technical Committees have merited the support of the Council by the United States Coast Guard, the National Association of Engine and Boat Manufacturers (a leading trade association in the boating industry), state boating law administrators, and boaters themselves.

Admiral Willard J. Smith, Commandant of the United States Coast Guard, included the following statement typical of this support in his preface to the 1968 edition of SAFETY STANDARDS FOR SMALL CRAFT, the official publication of the American Boat and Yacht Council:

To ensure that the trust of the novice boatman is well founded, the Coast Guard has long supported the concept of a broad-based standards-making body for the boating industry. With all interests fairly represented, the result is high quality standards developed in the best interest of the boating public.

"The American Boat and Yacht Council is such a broad-based standards-making body. The recommendations of the Council developed by engineers, designers, manufacturers, surveyors, and marine insurers—represent the composite opinion of the industry."

Project A-8, Sewage Treatment Devices for Marine Toilet Wastes, was formally initiated by the Council on January 23, 1957. On February 10, 1958, the Committee's report was released to the Council, the boating field, and all interested parties as a Proposed Standard. The objective of this release was to elicit field comment from all quarters. As a result of field comment, the report was revised and adopted as a standard in September, 1959. Additional field comment was received and the standard amended in 1961 and 1963, and these amendments were adopted by the Council's Technical Board in September of 1964.

At a meeting of the Technical Board on October 19, 1966, the scope of Project A-8 was expanded to include all types of sewage treatment and holding devices. The A-8 Committee membership was expanded to a total of 22 members representing manufacturers, users, Coast Guard, state pollution control agencies, and specialists. The complete committee roster is appended hereto.

This broad-based Committee has now divided the project into the following major areas:

1. Retention Devices
2. Recirculating Devices
3. Chemical-Macerator Devices
4. Incinerating Devices

Subsequent sections are available for devices not under consideration now and which are still being developed. These include devices using ultrasonics, pasteurization, chemical heat and others. The standard is continually under review, and all current comments received are given consideration.

The American Boat and Yacht Council Standard A-8 above-referenced covers item #3 of the above list, namely Chemical-Macerator Devices. A recent proposed standard has been developed for item #1 of the above list, namely Retention Devices. Copies of both of these sections are appended. These standards are

performance oriented and spell out that which is to be accomplished by the respective devices. An appropriate coliform bacteria count for the effluent of the chemical-macerator device is specified. Safety standards for the installation, operation and electrical equipment of the devices are incorporated either directly or by reference. The standard is used by many agencies at both the State and National level as the basis for legislation and/or testing of proprietary devices.

The A-8 Committee is making every effort to coordinate their work with the National Sanitation Foundation which has recently decided to develop a separate standard on Pollution Control Devices for Watercraft. In fact, a joint meeting of the two Committees has been scheduled by the Chairman of the A-8 Committee for Tuesday, April 23, 1968, at the ABYC office.

The Council maintains itself in an ethical and broad-based form so that its standards can be useful to governmental and regulatory bodies, and so that the boating industry can truly regulate itself. We cooperate wholeheartedly with the Yacht Safety Bureau, and support the proper testing procedures as performed by them.

The American Boat and Yacht Council stands ready to assist this Committee and the various Departments involved in establishing safety standards for the control of pollution from vessels using the navigable waters of the United States. The Council's standards can be incorporated directly or indirectly into the final regulations—directly by copying the standard word for word; indirectly by making reference to the A-8 Standard, where compliance with that standard would meet the requirements of the regulation. The advantage of the latter method would be that the regulation would always be up-to-date and dynamic to meet the needs of safety and provide for new devices as they are invented or developed.

In giving consideration to proposed Senate Bill No. 2525, we respectfully suggest that this Committee make haste slowly. We believe that in this area which is evidenced to be in a great state of flux, that precipitate action has proved costly in terms of time, tempers and trouble. We would call your attention to a situation in Chicago reported in the Philadelphia Sunday Bulletin of March 24, 1968. In that area, an ordinance forbidding discharge into Lake Michigan of effluent from waste treatment devices not complying with certain standards seems logical on the surface, but as noted in the article, a copy of which is appended, no standards have been set and no provisions made for alternatives. A similar situation developed in the Province of Ontario where a similar law intending to require retention devices on pleasure craft was found to be unworkable since there were no shore-side facilities for relieving the contents of the holding tanks.

We suggest as an alternative to S. 2525 serious and careful study of the actions already being taken by several of the states. Leading in this analysis and development are the states of New York, New Hampshire and Minnesota. Other states have pollution control laws in effect or are considering the same. It would seem that this Committee and/or the Federal Government in general could do this country a great service by helping to promote uniformity but allowing the detailed control and enforcement to be handled at the State level.

The attention of the Committee is called to certain questions raised by Document No. 48, a report entitled, "Wastes from Watercraft." In this report a great many allegations are made and conclusions reached relative to pollution from recreational boats without any significant research being indicated on which to base these conclusions and allegations. For example, it is said that "pleasure craft . . . may suddenly impose a load of untreated wastes . . ." ". . . a flotilla of recreational watercraft . . . can easily contaminate shell fish beds . . ." No specific examples are given nor unfavorable experience reported. Great emphasis is put on the numbers of persons involved in recreational boat use, but no recognition is given to the fact that this number of persons and this amount of usage is spread over thousands of miles of waterways in the United States.

Because of this lack of concentration, we feel that the contamination due to recreational watercraft is considerably less significant than is indicated by all of the attention it has received. As a measure of the amount of contamination, reference is made to an article from Marine Technology, a publication of the Society of Naval Architects and Marine Engineers, in its October, 1967, issue entitled "Sewage Pollution from River Tow Boats." Although the figures quoted have to do with tow boats on the major inland rivers, the number of persons involved both on a per boat basis and in total are comparable to those of recreational craft. By determining the amount of sewage discharged per boat per day

and then assuming that all 7,000 tow boats on the rivers were discharging an entire day's accumulation of sewage simultaneously at Cincinnati, the dilution ratio would be one part to 8,578 parts under average river flow conditions. Quoting from this article, "it is quite obvious that the average amount of sewage discharged from a tow boat is relatively insignificant." The entire text of this article is appended hereto.

Many yachtsmen, who incidentally are voters, feel that they are being unduly singled out for attention in this matter, while the major pollution sources—industries and municipalities—are being ignored or given substantial reprieves. It is not our place to confirm or deny the accuracy of these statements. It is only to report this feeling to you.

Further criticism of the statistical analysis used in Document No. 48 is contained in an editorial appearing in the Skipper magazine for December 1967. There is mentioned, for example, 40,000,000 persons using 8,000,000 watercraft or an average of 5 per boat. In another place where a detailed study is reported of 6,830 trips by boats, these carried 24,459 passengers, or an average of 3.59 persons per boat. The discrepancy is not explained. Further details and a treatment of this report in a generally light vein is found in this editorial, a copy of which is appended hereto.

Also appended for your information is a copy of the manuscript of an article to appear soon in Boating Industry magazine entitled, "The Case of the Macerator-Chlorinator Devices for Sewage Treatment on Small Craft" by Gordon Crowell, Vice President of Raritan Engineering Company. The significant point of this article is its claim that the macerator-chlorinator can produce an effluent which is less polluted than the water being pumped into it to flush with—an effluent less polluted than the discharge of many municipal sewage treatment plants.

May I thank you for giving consideration to these remarks. Please be assured that the American Boat and Yacht Council stands ready to assist you or any governmental body in the area of adequate safety standards to provide for the welfare of the boating public.

HARPER H. HULL, *President.*

Over forty-two million Americans take to our Nation's waterways each year. As the standard of living continues to rise individual leisure time becomes greater and proportionately more of our citizens have the opportunity to enjoy boating. By the year 2000, pleasure boating traffic in the United States will triple.

In view of this rapid growth, some boatmen may know very little about watercraft or marine equipment and accordingly may accept safe design and construction of the boat and its components without much question.

To ensure that the trust of the novice boatman is well founded, the Coast Guard has long supported the concept of a broad-based standards making body for the boating industry. With all interests fairly represented, the result is high quality standards developed in the best interest of the boating public.

The American Boat and Yacht Council is such a broad-based standards making body. The recommendations of the Council developed by engineers, designers, manufacturers, surveyors, and marine insurers—represent the composite opinion of the industry.

Technical personnel of the Coast Guard have cooperated extensively with the Council in the development of the marine standards contained in this publication. This, we believe, is a significant effort which the boating industry is making for the protection of the American boating public.

W. J. SMITH,
Admiral, U.S. Coast Guard, Commandant.

PART A

AMERICAN BOAT AND YACHT COUNCIL, INC., EQUIPMENT DIVISION PROJECT TECHNICAL COMMITTEE REPORT NO. A-8—RECOMMENDED PRACTICES AND STANDARDS COVERING SEWAGE HOLDING AND/OR TREATMENT DEVICES FOR MARINE TOILET WASTE INCLUDING THEIR INSTALLATION

COMMITTEE MEMBERSHIP

Gordon Crowell, Chairman, Raritan Engineering Co.
Henry Albing, Jr., Yacht Safety Bureau, Inc.
Henry E. Burger, Burger Boat Co., Inc.

Gordon Carlson, Carlson & Son, Inc.
 Russell Eckloff, New Hampshire Water Pollution Comm.
 Herbert J. Erickson (alternate for Mr. Olson), General Dynamics/Quincy Div.
 Donald P. Frankel, La Mere Industries, Inc.
 Peter J. Gannon, Bureau of Navigation, N.J. Dept. of Conservation & Eco. Development.
 Harper H. Hull, Trojan Boat Company.
 Charles E. Levitan, USCG Auxiliary.
 Frank Nokes, Wilcox-Critenden Div., North & Judd Mfg. Co.
 James O'Brien, N.Y. State Conservation Dept. Div. of Motor Boats.
 David Oliver, Capt., USCG, U.S. Coast Guard.
 Vernon A. Olson, The Society of Naval Architects and Marine Engineers.
 Alfred Peloquin, New England Interstate Water Pollution Control Commission.
 James Pfafflin, Polytechnic Institute of Brooklyn.
 Howard L. Potter, U.S. Dept. of the Interior.
 R. E. Reynolds, The Mathews Company.
 William Robinson, Yachting Magazine.
 Carl F. Sheppard, The Philadelphia Bulletin.
 Walter J. Sutcliffe, U.S. Power Squadrons.
 William Zimmerman, U.S. Power Squadrons.

Initial Report—November 7, 1957.

Approved by Division Director—November 18, 1957.

Approved by Coordinating Committee—February 10, 1958.

Approved by Publications Committee—February 10, 1958.

Adopted by Technical Board—September, 1964.

First Revision—October 31, 1964.

Second Revision—February 20, 1967.

Third Revision—July 26, 1967.

Fourth Revision—December 14, 1967.

Fifth Revision—February 7, 1968 (draft).

PART B-I

RECOMMENDED PRACTICES AND STANDARDS FOR RETENTION DEVICES

1. Scope

Wherein recommended practices and standards are applied to devices designed to retain human wastes from marine toilets for ultimate disposal to receiving tanks ashore, as may be required by appropriate regulatory agencies for pollution abatement.

2. Definitions

a. *Capacity*.—Volumetric capacity of the retention tank, being a function of the anticipated volume of waste and flush water.

b. *Deodorant*.—A substance or process which masks or destroys offensive odors.

c. *Disinfectant*.—A substance or process which destroys infectious organisms.

d. *Holding tank*.—A tank into which toilet wastes are discharged, and having no provision for discharge overboard to the water.

3. Deodorizing and/or disinfecting agent

a. The deodorizing and/or disinfecting agent, when used, shall meet the following conditions:

(1) Be easily obtainable.

(2) Constitute minimum hazard when handled or stored according to manufacturer's recommendation and form no dangerous gases nor react dangerously with other chemicals used for the same purpose.

4. Materials

a. Materials used shall be such as to withstand the corrosive effects of the sewage, deodorizing and/or disinfecting agent, flush water and environment.

b. Materials shall have chemical and/or galvanic compatibility.

5. Design and construction

a. The device shall—

(1) Be of ample strength for safe operation.

(2) Prevent the escape of dangerous gases, obnoxious odors and liquids to the boat interior.

(3) Provide for ease of cleaning, ease of maintenance and ease of replenishment of deodorizing and/or disinfecting agent, when used.

(4) Venting shall be to the free atmosphere, exterior to the boat's structure and of such a design as to preclude clogging.

(5) Be of such design and construction that the danger of ignition of flammable vapor within or external to the unit will be prevented.

(6) Use electrical components and connections complying with applicable standards of the American Boat and Yacht Council.

(7) Be of such design and construction that, when properly installed, malfunctioning of its components will not endanger the boat in which it is installed by permitting water to enter the hull interior.

(8) Provide no means for discharge of waste directly or indirectly to the water either deliberately or accidentally.

(9) Be of such design and construction that shifting contents of the container will not endanger either the container or the boat.

(10) Have adequate capacity for expected use.

(11) The manufacturer shall specify the maximum angle of heel at which no spillage will occur from his device.

b. It is recommended that a deck type fitting be used with the word "WASTE" conspicuously marked on the flange. The deck type fitting should have male threads not less than $1\frac{1}{2}$ inches in diameter with $11\frac{1}{2}$ threads per inch. The cap shall effect a seal.

6. Installation

a. Installation of the device and its piping should allow ease of servicing and replenishment of any required deodorizing and/or disinfecting agent.

b. The device shall be adequately secured independently of any connecting piping.

c. All piping shall be sufficiently strong and durable to withstand any pressure that might be imposed on it by normal operation of the device.

d. The interior of the piping or hose shall be as smooth as practicable so as to permit the free flow of sewage.

e. Materials and piping shall meet the requirements of section 4.

f. Subject to the foregoing, it is recommended that:

(1) Boat designers and manufacturers, in planning toilet installations, provide space adequate for the installation of an approved device.

(2) The piping or hose connecting toilet to intake of device should be as short and direct as possible.

(3) The retention device should be placed as low as practicable.

(4) Means should be provided for determining the degree of fullness of the tank without opening the tank.

PART B-II

RECOMMENDED PRACTICES AND STANDARDS FOR RECIRCULATING DEVICES

(Subcommittee: Gordon Crowell, Henry A. Albing, Jr., Fred Stone.)

PART B-III

RECOMMENDED PRACTICES AND STANDARDS FOR CHEMICAL MACERATION DEVICES

1. Scope

Wherein recommended practices and standards are applied to devices such as macerator-chemical treatment devices designed to treat human wastes discharged through marine toilets as may be required by appropriate regulatory agencies for pollution abatement.

2. Definitions

a. *Most Probable Number* (MPN)—A statistical measure of the number of coliform organisms present and indicative of the degree of pollution from human sources.

b. *Septic Action*—The biological decomposition of organic matter in the absence of dissolved oxygen, and accompanied by the production of offensive odors.

3. Effluent requirements

a. A sewage treatment device for marine toilets shall discharge an effluent meeting the following minimum standards:

- (1) Free of unsightly solids.
- (2) Having a Most Probable Number (MPN) of coliform organisms no greater than 240 per one hundred milliliters (ml).

4. *Disinfecting agent*

The disinfecting agent, if used, shall meet the following conditions :

- a. Be easily obtainable.
- b. Constitute minimum hazard when handled or stored according to manufacturers recommendations and form no dangerous gases.

5. *Materials*

- a. Materials shall be such as to withstand the corrosive effects of the sewage, the disinfecting agent, the flush water and the environment.
- b. Materials shall have chemical and/or galvanic compatibility.

6. *Design and construction*

- a. The device shall—
 - (1) Be of ample strength for safe operation.
 - (2) Be of a type that does not depend on septic action as part of its treatment.
 - (3) Prevent the escape of dangerous gases, obnoxious odors and liquids to boat interior.
 - (4) Provide for ease of maintenance, and ease of replenishment of the disinfecting agent.
 - (5) Function automatically with the operation of the marine toilet(s).
 - (6) Be of such design and construction that the danger of ignition of flammable vapor within or external to the unit will be prevented.
 - (7) Use electrical components and connections complying with applicable standards of the American Boat and Yacht Council.
 - (8) Be of such design and construction that, when properly installed functioning or malfunctioning of its components will not endanger the boat in which it is installed.
 - (9) The manufacturer shall specify the maximum angle of heel at which no spillage will occur from his device.
- b. The manufacturer shall provide adequate means for preventing abnormal pressure build-up.

7. *Installation*

- a. Installation of the device and its piping should allow ease of both servicing and replenishment of the disinfecting agent.
- b. The device shall be adequately secured independently of any connecting piping.
 - c. All piping shall be sufficiently strong and durable to withstand any pressure and temperature that might be imposed on it by normal operation of the device.
 - (1) The interior of the piping or hose shall be as smooth as practicable so as to permit the free flow of sewage.
- d. Materials of the connecting piping shall meet the requirements of section 5.
- e. Subject to the foregoing, it is recommended that :
 1. Boat designers and manufacturers, in planning toilet installations, provide a space adequate for the installation of an approved device.
 2. The piping or hose connecting toilet to intake of device should be as short and direct as possible.
 3. The device should be placed as low as practicable.

PART B-IV

RECOMMENDED PRACTICES AND STANDARDS FOR INCINERATING DEVICES

(Subcommittee : Donald F. Frankel and Henry W. Albing, Jr.)

PART C—MAJOR REASONS FOR PROPOSALS MADE IN PART B

I. Manufacturers of retention devices should arrive at a standard coupling device for both boat and dock-side facilities. The coupling device should permit quick and easy attachment without tools and should also be of such design and construction to minimize the possibility of spillage. The A-8 Committee added

Section 5.b. to Part B-I, because they considered a dimension recommendation to be of vital importance.

II. The Technical Committee of Project A-8 recognizes that because of the rapid rate of technological progress, many new concepts will appear in the near future. To mention a few possibilities in which there may be satisfactory solutions to the pollution problems, the Committee has considered ultra-sonics, pasturization, chemical heat and others.

It is the intent of the foregoing Recommended Practices and Standards that they be worded so as to not favor any particular concept and that they in no way preclude the development of new and better designs. Briefly stated, new devices shall either withhold all effluent from overboard discharge or harmlessly exhaust it into the surrounding atmosphere or water. Where heat and/or electricity is involved in the treatment process, the basic requirements as already defined by existing American Boat and Yacht Council and National Fire Protection Association Standards shall be adhered to.

Inasmuch as the A-8 Committee is a permanent one, the Committee will be reconvened whenever it appears that due to new developments, existing criteria must be revised.

PART D

STATEMENT OF VOTE OF PROJECT TECHNICAL COMMITTEE

Vote to be taken at a later date.

[The Sunday Bulletin, Philadelphia, Mar. 24, 1968]

BETTER BOATING—BOATMEN FACE HEAD PROBLEM IN CHICAGO

(By Carl F. Sheppard)

CHICAGO.—“Off with their heads,” screamed the Queen of Hearts as she rushed from city hall.

She'd just learned that Lake Michigan was polluted, and she hadn't waited to find out by whom. However, the mad hatter must have mentioned sailors.

Which is why you may see something new along Chicago's shoreline shortly—beheaded boats. Yachtsmen fighting a rearguard action against the real-life Lewis Carroll ordinance haven't been making much headway.

The ordinance forbids the discharge into the lake of effluents from waste treatment devices such as marine chlorinators which are not approved by the port director as complying with standards set by the Illinois Sanitary Water Board. The Board says it's not setting standards as yet. Which leaves holding tanks.

Not so curiously, everywhere we looked in the huge Chicago National Boat Travel and Outdoors Show which just closed here, holding tanks were on display. There was only one chlorinating unit, all right to use on boats on the other side of the lake in Ontario.

SEVERAL HEADACHES

Holding tanks were introduced on the east coast several years ago, but since then have bowed to chlorinators. Holding tanks have to be pumped out frequently by special dockside facilities, something the Queen of Hearts hasn't bothered to provide here. Where facilities do exist, some of them pump the holding tank contents into drains that pour it right back into the water.

Also holding tanks don't work at the angle of heel assumed by sailboats, and Chicago is a Great Lakes sailing center. As one motor sailer skipper put it, he'd have to drop his sails, put over the anchor, dash below, dash black, hike the hook and get underway again every time nature called.

But does the Queen of Hearts care? Let them straighten up and sail straight, she says, or get off the lake.

The lake has indeed, been getting soupy, what with every municipality pouring in rivers of sewage, hundreds of mills and factories doing ditto, the Army Engineering dredging up polluted bottom fill and tossing it around, and heavy shipping thickening the broth, day in, day out, year round.

YACHTSMEN SCAPEGOATS

The Queen of Hearts is reluctant to tackle these big barons, however, possibly remembering what happened to King John. She's given the barons time exten-

sions, meanwhile proving herself a champion of purity by demanding immediate compliance from several thousand local boats which might be used a couple of days a week on the average during the short season. Even though they don't contribute a measurable amount of pollution, the public need not know that. And let's forget the pollution check last December which showed the lake was worse than ever long after the last boats had departed.

The frustration of local yachtsmen, who seem to have become the latest political pawn in the great pollution game, came out at the March meeting of the National Boating Federation at the Chicago Yacht Club. The NBF, the national association of state and regional amateur boating organizations, reaffirmed its 1967 statement opposing operator licensing, then went on to add by unanimous vote:

"The NBF further urges that no legislative or administrative action be taken that would force upon the boating public toilet devices which have not been proved practical in marine use or which do not conform to the safety and performance standards of the American Boat and Yacht Council and the National Sanitation Foundation."

SINGLE STANDARD DUE

The ABYC, technical society of the boating industry, has been developing standards for marine waste treatment devices for many years. The NSF recently got into the act, and is ready to publish a slightly different standard. A joint committee is meeting April 4 to try to come up with a single standard which will be recognized nationwide.

Meanwhile, some unhappy skippers may switch to cruising the highway in the streamlined land yachts, a nice selection of which were on view at the show in the International Amphitheater. Some are trailered, some ride piggy-back, and one of the most elaborate family homes on wheels, was a Dodge bus so new no brochure accompanied the long, sleek machine. The price equipped was about \$15,000.

Or, for temporary escape from the heartless queen, a skipper could fly to the Land of the Midnight Sun to wrestle rare Arctic char and 40-pound trout, as urged by one of the wilderness fishing exhibitors at the show. We'd even settle for a 40-pound trout nearer home in Great Slave Lake.

SEWAGE POLLUTION FROM RIVER TOWBOATS

By Harold I. Kurtz¹

This paper discusses the fundamentals of sewage treatment as applicable to watercraft, particularly towboats and tugs. The initial discussion deals with the composition of sewage and the procedures by which its effect on the receiving body of water are measured. Municipal methods of treatment are discussed because these have been the "tried and proven." Since the attempts to adapt municipal methods to the requirements of watercraft have resulted in a very limited degree of success, the author tries to show the impracticability of using this approach and substitutes a method which fulfills the necessary requirements.

Very few problems in connection with the operation of towboats have caused as much discussion and speculation as the enforcement of some governmental regulation which would require the installation and operation of sewage-treatment facilities on river boats. Maintenance of the equipment can be a problem because men are reluctant to work with it, particularly if a tank must be emptied or a pump disassembled, or anything whereby they must physically come in contact with the sewage. As a result, the "human factor" becomes very important in securing the cooperation of the crew in the successful operation of any sewage-treatment facility. It is therefore important that the treatment process be fully automatic, or at least require a very minimum of attention.

¹ Vice President, Operations, Thomas Petroleum Transit, Incorporated, Butler, Pa.
Presented at the October 7, 1966 Meeting of the Great Lakes and Great Rivers Section of The Society of Naval Architects and Marine Engineers.

SEWAGE COMPOSITION

Sewage is composed of the liquid and solid wastes from the human, or animal, body. Because water is used as a carrier, the total solids content would be approximately 0.2 lb person per day, of which 0.1 lb would be suspended or undissolved, and 0.1 lb would be dissolved solids.

The biochemical oxygen demand, commonly referred to as "BOD," is defined as being the amount of oxygen required to stabilize or oxidize the sewage within a given period of time and at a specific temperature. This is usually five days and 20 C (68 F) respectively. The amount of BOD per person per day would be approximately 0.17 lb. The body wastes, or excreta, are almost 100 percent organic matter, because they are the residue of the food we eat after the body has extracted its nutrients. Our food is made up of animal and vegetable tissues. These tissues are highly complex organic substances. By organic, we mean that the atomic composition is basically carbon, hydrogen, and oxygen, which form the carbohydrates. With the addition or substitution of nitrogen, the proteins are formed. In order for the body to obtain nutrition, these complex compounds must be broken down into simple substances that the body can absorb through the various membranes that make up the intestinal tract, thence into the blood stream and to the muscular and other body tissues. As the tissues use these nutrients, or fuel, in the production of energy, waste products are formed and carried away from the tissues by the blood stream, and discharged via the excretory system. The human, or animal, body might be described as a very complex chemical refinery and filtration plant. The raw materials are broken down by chemical reactions catalyzed by bacteria and enzymatic action; and by selective filtration, the substances are absorbed by the tissue, where partial oxidation is accomplished to fulfill the needs of the tissue. The surplus and residue is either stored or cast off. That which is cast off is ultimately the sewage which we find so obnoxious and a problem of disposal. The decomposition of food in the digestive process is not complete. Consequently, the body excreta is composed of organic matter in various stages of decomposition together with enzymes and masses of bacteria common to the intestinal tract, called *Bacterium Coli*. Since the excreta is of such composition, it is very unstable chemically. As a result, the substances will readily combine with oxygen or other oxidizing agents. The BOD test measures the amount of the waste present in water by simply putting a measured portion of sewage in a measured volume of air-saturated water, and incubating for five days at 20 C. The oxygen content of the mixture is determined before and after the incubation period. From the depletion of the oxygen content, the biochemical oxygen demand is calculated.

MUNICIPAL TREATMENT PLANTS

In municipal sewage-treatment plants, the sewage enters the plant from the sewers. After passing through the bar screens which remove large foreign items that would damage or clog the pumps, the sewage is pumped through the primary sedimentation tanks, where the coarse solids settle out. The retention period in these tanks is approximately two hours. The solids are collected and pumped to digesters, or tanks, where bacterial decomposition reduces the solids to inert material which can be dried and used for soil conditioners.

In the decomposition process, liquefaction and gasification takes place. The gas is collected and used to produce heat and power. It has a high methane content and a Btu value as much as 900 to 1000 per cubic foot; the average is 650 to 700. The population equivalent is approximately one cubic foot of gas per person per day.

Going back to the primary sedimentation tank, the liquid, or effluent, containing dissolved and suspended solids is pumped to the secondary treatment. This phase is the oxidation stage, which is accomplished by either biological filtration or a bioaeration process, called activated sludge. In the former, the sewage is sprayed on a rock bed in which the rocks are covered with a gelatinous mass of bacteria. Within the strata of the filter, both plant and animal life thrives. Herein, carbohydrates and proteins are reduced to simple carbonaceous and nitrogenous compounds which are oxidized in stages by bacterial action. For example, the proteins are reduced to ammonia by one type of bacteria. Another type oxidizes the ammonia to nitrites. The third type oxidizes the nitrites to nitrates, which are stable. The efficiency of the filter is determined by a BOD test on the influent and effluent, as well as a chemical analysis of the ammonia, nitrite, and nitrate content of the effluent.

In the second method, activated sludge, the effluent from the primary tanks is mixed with a culture of organisms and then flows into aeration tanks, where the retention time is approximately six hours. The liquid is profusely aerated and agitated with compressed air. Instead of the bacterial growth clinging to a rock media and the water percolating through, as in the filtration process, the bacterial masses dispersed in the liquid grow rapidly and act as a coagulant for entraining the suspended solids. The same carbonaceous and nitrogenous cycles of reduction and oxidation take place here as in the filtration process.

The final stage of treatment is running the effluent from the filters or activated-sludge units through a final sedimentation tank to remove the settleable solids resulting from the previous processes. The effluent from this tank is chlorinated and discharged into the river or waterways.

It is very apparent that the processes of sewage treatment are basically bacteriological. Bacteria are specific. By that is meant that each type of bacteria has a specific function. For example, the various types of that break down protein to ammonia do nothing else. Other types are required to oxidize the ammonia to nitrites, and types entirely different from either of the two previously mentioned are required to oxidize the nitrites to nitrates. The same is true of the breakdown of the carbohydrates, and the subsequent oxidation of the carbonaceous compounds. In other words, each step in the biochemical process is caused by a specific type of organism. All microscopic organisms have their own limited range of environmental conditions under which they can thrive. When these conditions are not maintained, they either die or form spores, which are a dormant form. Fortunately, the undesirable, or disease-producing, bacteria are generally non-spore-forming bacteria and are easily killed when their environmental limitations are exceeded.

The two principle environmental factors are temperature and chemical. Bacteria that thrive best at 80 F are retarded at 60 F or 100 F. Those that thrive best at body temperature, 98.6 F, are grossly retarded at ± 10 deg, for example. They can, however, tolerate cold temperatures better than hot.

The story is about the same in a chemical environment. No bacteria can thrive in a strong acid or caustic environment. Most of them thrive best where the acidity, or alkalinity, is near the neutral point. Those that thrive best at a pH of 7.2 are retarded at a pH of 6.8, and vice versa. Considerable retardation of bacterial growth occurs at pH's of 6.6 and 7.6. A knowledge of the optimum pH range for the organisms being used is very important, because it provides the plant operator with an additional control parameter which may affect peak efficiency. The plant's efficiency is determined solely by maintaining the best possible conditions for growth of the organisms performing the treatment processes. Laboratory testing and control is necessary to attain this result. Bacteria can be killed in minutes, but it requires days and possibly weeks to restore the growth in the filters and aeration units.

With this basic background, let us try to apply it to the treatment of sewage on the average towboat.

TOWBOAT SEWAGE TREATMENT

Statistics indicate that the total number of people on boats on the inland waterways at any given time is approximately 55,000, with an average of eight per boat. The average amount of sewage is estimated at 30 gal. per person per day. This might be as high as 50 in some isolated instances, so, for the purpose of discussions let us use 40 gal per day per person.

Total flow per day, $8 \times 40 = 320$ gal per boat

$320 \text{ gal} \times 8.34 = 2669 \text{ lb}$ per boat

$\text{BOD} = 8 \times 0.25 = 2.0 \text{ lb}$ per boat

Solids $= 8 \times 0.2 = 1.6 \text{ lb}$ per boat

The average flow of the Ohio River at Cincinnati is 32,000 cfs, or 14.4 million gpm. The minimum is 6000 cfs, or 2.7 million gpm. At 2.7 million gpm, the dilution ratio is approximately 1:8450 if the entire 320 gal were pumped overboard within a minute. The BOD dilution ratio would be 1:11,259,000 (2 lb BOD/22,518,000 of water). If we assembled all 7000 boats on the inland waterways at Cincinnati, and they all discharged the daily accumulation of sewage simultaneously, 14,000 lb of BOD would represent a dilution ratio (based on the minimum river flow of 2,700,000 gal or 22,518,000 lb per minute) of 1:1608; under average flow conditions of 14,400,000 gpm, or 120,096,000 lb of water, it would be 1:8578. It

is quite obvious that the average amount of sewage discharged from a towboat is relatively insignificant. We should then look for other objectionable factors, namely, the aesthetic and the hazards to health. The aesthetic factor can be taken care of by triturating the solids to very fine particles which, if they float, would not be visually identifiable. The health hazard can be eliminated by sterilization. This reduces the treatment requirement to trituration and sterilization.

STERILIZATION

Chemical sterilization has several problems: (1) Cost; (2) Storage of chemicals; (3) Handling of chemicals; (4) Applying the correct dosages; (5) Provision for and maintaining adequate contact time for the bactericide to penetrate the solid particles in order to kill the disease or pathogenic bacteria contained therein; (6) The selection of a bactericide that will not have a residual toxicity to marine life. The most common chemicals used for this purpose are hypochlorite solutions. Even though a strong chlorine residual is maintained throughout the entire contact period, solid particles may not be penetrated sufficiently to kill the bacteria in the core of the particle. Therefore, virile pathogenic bacteria can still be present in heavily chlorinated sewage. If the effluent shows the presence of *any* *Bacterium Coli*, then it can be assumed that pathogenic bacteria can also be present.

The most effective bactericide for this application is heat. In the pasteurization of milk, the milk is heated to 140 F and the temperature held for 30 min. The same could well apply to sewage. However, it would be advisable to provide a tank capacity for a minimum of 24 hr to avoid the necessity for discharging while the boat is standing idle. Such a contact period at a minimum of 140 F would be more than sufficient to kill any pathogenic bacteria. The treatment plant would consist of a sump tank coiled to heat the sewage almost instantaneously, a pump, triturator, collection tank coiled in order to hold the temperature, and a discharge pump. The source of heat could be the engine and exhaust-manifold cooling water. Hypochlorite should be carried on the boat and applied to the system when the boat is standing idle and a source of heat is not available.

SUMMARY AND CONCLUSIONS

By briefly considering the physical, chemical, and bacteriological characteristics of sewage, the writer has attempted to arrive at a logical and practical solution to the problem of disposing of sewage from towboats that would prevent any objectionable pollution to the rivers and also prevent any jeopardy to the health of humans and marine life.

It is the writer's sincere belief that any study of the facts surrounding the degree of pollution that towboats cause with respect to the discharge of human excreta will substantiate the foregoing dissertation.

[From December 1967 issue of the Skipper]

FLOTSAM & JETSAM

It may have been a mistake to drop that copy of the Federal Water Pollution Control Administration's recent report on "Wastes from Watercraft" on The Skipper's desk, but we did. We had hopes that, with the federal government's monies and resources, perhaps a little sanity would enter the question of watercraft pollution to allay the over-charged emotionalism that has blossomed around it.

But from the welling of thumps, snorts, and imprecations that emanated from his sanctorum—enough to rattle the overhead and shake the concrete slab on which we live—we gathered that the report left something to be desired, so we weren't surprised when the copy was returned looking a little like the backsides of a bird-shotted corn poacher. The Skipper has one of those nylon-tipped, red ink pens that he particularly favors, and there were very few of the sixty-two pages in "Senate Document No. 48" that hadn't been underlined, circled, exclamation pointed, or loaded with virulent commentary.

After leafing through the bespattered pages, it seemed to us that The Skipper's scathing conclusion, which he had scrawled across the cover, was somewhat justified. Said he:

"They musta spent their money hiring two four-headed kids to knock together all the old bum dope for this. Doubt if any of those heads ever looked at any more water than was in the whisky glass. Can't find any indication of any original research at all. Can't find much sense in the conclusions. Can find plenty of contradictions. If this is the 'full and complete investigation' Congress ordered, God save us."

It was obvious that The Skipper had read the document with even more than his usual care and we were somewhat more than amused by some of his comments. In one case the report notes that of present anti-pollution devices, the highly efficient incinerator type was deemed too dangerous, the maceration-disinfection gadgets were not effective, and holding tanks were most effective and "adaptable to all sizes and types of vessels"; though elsewhere it observed that the tanks were "relatively large and heavy" and would be "difficult to install in existing larger craft."

Just how all that fitted together logically, brought a note from The Skipper that succinctly pointed out: "This oughta give a couple of those heads headaches."

Even more headachy were some of the report's "statistics" which blithely jumped from one source to another to pick up whatever figure seemed to be, obviously, the most impressive.

For instance, the report mentions at length the industry estimates of eight million boats and forty million people using them, or five to a boat straight across the board. Yet in another paragraph in the report, it cites a detailed, but anonymous, study of some 6,830 voyages out of an unspecified marina in boats larger than fifteen feet which carried a total of 24,459 passengers, or an average of 3.59 passengers.

But its analysis of current boat census figures is even more confusing when the report makes an attempt to determine the number of craft equipped with heads. Here it shamefully intermixes Coast Guard registration figures and industry estimates which for years have been about one hundred percent apart (the Coast Guard counts a little over four million boats registered; the industry estimates eight million registered and unregistered).

The report studies industry figures and estimates that ninety percent of inboard and inboard-outboard equipped craft carry heads. Then it estimates that eighty percent of the 361,000 outboard boats sold from 1959 to 1966 also are so equipped and fifty percent of "sailboats", though in another part this classification includes only unpowered sailboats, mostly of the class racing types.

Opposite that was The Skipper's note: "So all Lightnings carry thundermugs?"

Then the report goes on to analyze the Coast Guard counts as substantiating "correlation" which we gather to mean proof. It lists eighty percent of the Coast Guard count of 1,291,000 boats above sixteen feet as equipped with heads, a highly questionable conclusion to say the least. But then, to reach the 1,300,000 heads estimated from industry figures, they properly add the twelve thousand documented yachts, and improperly throw in the industry estimate of half the class sailboats to bring the two figures into shooting range.

The Skipper scrawled across this bit of statistical legerdemain the simple statement: "I'll be damned."

But a couple of the report's conclusions had obviously been the cause of the loudest imprecations that had flowed from the sanctorum. The offending sentences had been underlined, circled, and squared in notably heavier lines which indicated The Skipper had really borne down on his tortured pen.

One of them, noting the present imperfections of anti-pollution equipment commented: "... but the desire for Utopia should not be allowed to becloud and confuse the need for action today. Immediate requirements demand that existing technologies and devices be used to effect a realistic degree of water pollution from watercraft."

The Skipper had noted: "Even if they don't work?" and had labelled the whole thing with a scathing "sophomoric."

But there was still another sentence that brought The Skipper to an unprintable boil, particularly since he is one who recognizes pollution as one of the major current sociopolitical problems, and has long maintained that all efforts should be concentrated on the principal elements of the problem, rather than being dissipated in attacks on the minor "fringe areas." The sentence read:

"Unless we control watercraft waste discharges, the full benefits from other pollution control investments will not be fully realized."

Emending the suphuric prose, the gist of The Skipper's observation on that statement was that the money expended on the "study" would have been a thousand times more useful if it had been applied to the core of the pollution problem.

We had to agree, but elsewhere in his comments we found this little gem that seemed to put the whole thing in perspective. Wrote The Skipper:

"Out of a nation of birds watchers and girl watchers, they think they're going to make a nation of head watchers?"

A nine-month research project in the Amazon Basin is due to end this month when the ship *Alpha Helix*, a 133-foot, 300-ton vessel with more than half a million dollars worth of scientific equipment aboard, returns to La Jolla, California.

The expedition was directed by the Scripps Institution of Oceanography and supported by a six hundred thousand dollar grant from the National Science Foundation. Biologists, physiologists, biochemists, ecologists and physicians from universities in Brazil, Norway, France, Britain, West Germany, Canada, Japan, as well as this country, participated.

Among the discoveries so far reported: from underwater recordings, a zoologist discovered that a species of fresh-water dolphin makes noises like those of a sperm whale. Clear barks and yelps were heard. Previously, it was thought that fresh-water dolphins were silent as opposed to the highly articulate salt-water dolphin.

A German scientist, Dr. Hubert Markl of the University of Frankfurt, experimented with the dreaded piranha to discover what causes them to attack. A report we read stated that Dr. Markl used "plastic models of both smaller and larger river creatures" and that from his experiments the doctor concluded that "piranhas hesitated to attack anything larger than themselves and that the scent of blood was only a minor stimulus."

It all left us wondering if blood smeared on a plastic model just didn't have the same appeal as the blood of a newly killed animal we once saw devoured in a matter of minutes by a school of piranhas.

Pleione, 72-feet of fine lines and honest craftsmanship was filled with fifty-two thousand pounds of concrete and sunk into a three hundred foot hole near the eastern end of Fishers Island, New York, to sadden those who watched and many who didn't. She was a New York Fifty, one of nine such yachts built fifty-four years ago for big boat one-design racing from the designs of Nathanael Herreshoff. She was one of the last of the great racing schooners.

She was sunk on the orders of her owner, the late Joseph V. Santry of Marblehead, Massachusetts.

Code flags signalling *Bon Voyage* fluttered from the rigging of another old schooner, the *Brilliant*, which stood by. A wreath was floated over the spreading ripples by Waldo C. M. Johnston, director of the Marine Historical Association's Mystic Seaport at Mystic, Connecticut, where the lovely old girl had spent her last seven years on display.

"Mr. Santry did not want her to fall into other hands," Johnston said. "His wishes were that she be given a sailor's burial, her Valhalla. His widow wanted us to carry out those wishes. It was the love of a great sailor for a great ship."

Alice Springs, a town almost in the heart of Australia's great desert outback, was not to be outdone by Newport, Rhode Island.

Almost one thousand miles from the sea, and in an area where water is one of the scarcest commodities, Alice decided to run its own "Australia's Cup" in the bed of the dry Todd River. In fact, the annual madcap regatta attracted a record crowd of some six thousand people for "rowing" and "sailing" events decided by crews in bottomless boats running a course in the sandy river bed.

The "Australia's Cup" for twelve-square meter "yachts" drew two entrants: *Sir Bob* (Sir Robert Menzies, former Australian Prime Minister, is the husband of Dame Pattie Menzies, for whom the 1967 Australian America's Cup challenger was named) and *Insipid* for which no explanation is necessary. Accountably perhaps, there was no entry named *Damn Pity*.

Insipid was manned by an all-American crew drawn from personnel building a nearby space research station and took the honors of the day, and immediately called for a succession of lay days, to which the Australian crew unhesitatingly agreed.

Apparently, the river bed was the only thing that was dry for two outdoor bars sold more than two thousand twenty-six ounce bottles of beer on that day.

THE CASE FOR THE MACERATOR-CHLORINATOR DEVICES FOR SEWAGE TREATMENT ON SMALL CRAFT

To the landlubber and those others who are unfamiliar with all aspects of the problem of human waste disposal on small craft, it seems obvious that there can be no argument to the statement that holding tanks and recirculating types of toilets are the logical and fool-proof solution to water pollution caused by boats. The promoters of these devices have been most effective in selling their concept which, boiled down, is simply this—"no effluent, no pollution."

So convincingly has this theory been exploited that some legislators have even gone to the absurd lengths of advocating that holding tanks for bilge water be required, and that all craft regardless of size (even canoes) have provision for toilet facilities that would assure that all wastes would be properly disposed of ashore. However, when foolish laws of man are at cross purposes with the laws of nature, there can be no doubt as to which laws will prevail.

So let us concede that "no effluent—no pollution" is axiomatic. Now, just so we all speak the same language, let us say that throughout this presentation the phrase "holding tank" shall mean any device, including recirculating toilets, whose contents are retained aboard a boat for disposal in a legal manner ashore.

A few of the fallacies of the holding tank concept are as follows: The smaller the boat, the greater is the problem for available space. On craft that are barely large enough to accommodate a marine toilet, there simply is no room for a holding tank of any meaningful dimensions. Each flushing of a marine head requires about three quarts of water. Translate that into the capacity that would be required for a tank to hold all the discharge for even a week-end's outing for a couple with two children! In new boats this could possibly be provided, but how can this space be found on the hundreds of thousands of boats already built?

Many many more people enjoy small boats than are aboard large yachts where space is not so tight. As a matter of fact, the number of passengers per boat does not vary in proportion to the size of the boat. And, of course, boats in the 20-25 foot category out number those 35 to 45 feet long many times. It would be easier to find space for a 50 gallon tank on a forty footer than a ten gallon tank on a twenty-two footer. And you are likely to find the same number of people on both!

Now, let us suppose that we do have a holding tank on our boat. Where can it be pumped out? There are virtually no pumping stations in existence. According to a survey made in the Province of Ontario only two marina operators out of 282 said they would be willing to install pumping stations on their premises. The reasons? Pumping stations are costly to install, a nuisance to operate, and a source of irritation to both client and proprietor. Marina owners are, frankly, loath to get into the cesspool business. Furthermore, they ask, what are we going to do with the sewage after we pump it out? Most marinas are beyond municipal sewer systems, and if their own toilets do not flush directly into the marina waters, they have only septic tanks that would quickly become over loaded. Then, what can they do? Cart it off in tank trucks? To where? The nearest municipal sewer? Will the municipality let them? And does the municipality have a sewage treatment plant or do they also dump?

Marina operators also fear to invest money required for pump-out facilities due to the high cost (estimated variously at about \$3000 per station), and the very likely early obsolescence due to the very rapid improvements that are being made in treatment devices. They also recognize that any law that is so difficult of compliance and enforcement as to invite wholesale evasion will sooner or later be changed. Remember Prohibition? Another problem: As of now there is no such thing as a universally accepted deck fitting to standardize pump-out facilities.

Holding tanks can in themselves become wholesale breeders of bacteria. Provision will have to be made to prevent the formation of dangerous and explosive gases generated by bacterial putrefaction action on organic matter. How can you empty a tank completely? Tanks will have to be vented and ventilated to permit gases (methane and hydrogen-sulphide) to escape harmlessly. And what about the odor? In the laboratory, hydrogen-sulphide is known as the rotten egg odor! You figure that one out.

It is a fact that holding tanks are widely used in aircraft. But the longest airplane flight rarely exceeds eight hours and the toilets are serviced every time the plane touches down. But you cannot take a modification of an airplane unit

and expect it to operate on a boat for a week at a time, under the hot sun when the boat is closed up during the week and where the number of flushes will far outnumber the very moderate usage aboard a plane and expect the same results. Remember, too, the airlines have long since provided full facilities for handling this distasteful task along with the many other routine services modern planes require.

To sum it all up, unless it is the desire of legislators to legislate boating completely out of business, except for the largest luxury yachts where space and money are no objects, the entire holding tank concept is just not feasible. Here too, on the largest yachts where self contained electrical power is almost unlimited, the incinerator type of toilet would meet the requirements of "no effluent—no pollution" provided the odor and ash problem can also be met.

The macerator-chlorinator type of device meets not only the small boat's problem, but the largest as well. The newest types have consistently demonstrated that they can reduce the bacteria content of sewage from countless billions in untreated sewage to zero to twenty coliform per 100 ml. (milliliters). Most health agencies state that 240 to 1000 coliform per 100 ml. is acceptable and most municipalities deem that a 5000 count is safe for swimming. In short, a well designed macerator-chlorinator is capable of producing an effluent that is less polluted than the water being pumped in to flush with, i.e. the water the boat is floating in.

To achieve this decontamination, sewage must be macerated so that no single particle is larger than $1/32''$. This means that to assure that this size is attained, the effluent must be ground even finer. Actually, nothing would be recognizable. Paper is reduced to individual fibers shorter than $1/32''$. The color is bleached by the chlorine to nearly white. Much has been said regarding the nutrients remaining, namely phosphates and nitrates. B.O.D. (Biochemical Oxygen Demand) has also erroneously been attributed to macerator-chlorinators. BOD is exerted when micro organisms in the receiving water decompose the waste material. In carrying out life processes the micro organisms utilize the oxygen resources of the water. There will be no nitrates or phosphates in the effluent that were not present in the water being pumped in to flush with. The main source of phosphates is that they are used as builders in detergents, and nitrates stem mainly from run-off from fields where they are used as agricultural fertilizers. It appears that a certain critical nitrate nitrogen to phosphate phosphorous ratio of about 1 to 15 is necessary to produce algae blooms. A macerator-chlorinator would not aggregate this condition. Because chlorine is also an algacide, how can algae thrive where the effluent must have an excess of residual active chlorine to be a bactericide?

We should therefore conclude that in as much as the macerator-chlorinator can do a much better job than the primary municipal sewage plant, there is no sense in delivering its effluent to a pumping station where it *may* be deposited in sewage lines and after municipal treatment be returned to the lakes more polluted than when it left the boat. As required by the NSF and also the ABYC standards, adequate "fail-safe" provisions must be incorporated into decontaminating devices so that they will not flush if they are not operating properly. It would really be much easier to "cheat" on a holding-tank!

STATEMENT BY E. S. TERWILLIGER, EXECUTIVE VICE PRESIDENT, YACHT SAFETY BUREAU, INC.

Mr. Chairman, members of the Subcommittee, it is an appreciated privilege to present this statement on the activities of the Yacht Safety Bureau, with particular reference to water pollution control devices for use aboard boats. For your understanding of those activities, it is important that you know what the Bureau is, what it does, and how it operates. For that, as well as brevity herein, a copy of a descriptive pamphlet, entitled "Testing for Safety Afloat" is attached as a part of this statement.

The paragraphs in quotation marks on Pages 1 and 2 of the pamphlet comprise the Bureau's complete Certificate of Incorporation. In few words, that charter defines the Bureau's program, stresses devotion to the public interest, emphasizes the marine environment, confines program scope to the product phase of marine safety, and sets forth the basic process for implementing the program. Further procedural guidance stems from a 1963 ruling of the Internal Revenue Service exempting the Bureau from Federal taxes as an organiza-

tion operated exclusively for "testing for public safety" as described in Section 501(c)(3) of the IRS code. The purpose of the imposed procedural guidelines is to make certain the Bureau's product evaluation services are in the public interest and fair to all.

The IRS ruling was in part premised on the condition no part of Bureau operation was devoted to carrying on propaganda. Specifically related to that restraint is the avoidance of any attempt to influence legislation. To live completely with the spirit and word of that restraint the Bureau has not and does not express opinions on what product safety matters should or should not be regulated. However, I want to equally stress that, for such product safety matters as are now, or may be, the subject of regulations, the Bureau's evaluation operations can, and it is hoped they will, aid authorities charged with their administration.

The essence of Bureau operation is provision of an independent, uniform, reliable, and impartial marine product safety evaluation and certification service for the boating field. This is ensured by careful adherence to the procedural guidelines, plus keying evaluations to illustrate compliance with:

1. The advisory safety standards established by organizations like the American Boat & Yacht Council (ABYC) and the National Fire Protection Association (NFPA) in which all interested parties may participate; or
2. Applicable government regulations.

It is worth stating that the organizational separation of advisory safety standard development and safety evaluation voids any aspect of "self-certification".

The foregoing fixes the Bureau position with respect to regulations that may be established to control pollution from pleasure boats. The Bureau can, as a "testing for public safety" organization, develop and accomplish testing procedures that illustrate capability of devices or systems to comply with established objectives. This is the area of considerable past and current Bureau activity.

The ABYC was formally organized in 1954 for the single purpose of developing advisory safety standards for physical features of boats and their equipment through procedures permitting all interests concerned to participate. I was active in its formation and privileged to serve as its administrator until 1962.

In 1967, under the impulse of several annual conferences jointly sponsored by the New England Interstate Water Pollution Control Commission and the National Association of Engine & Boat Manufacturers, the ABYC was asked to develop "recommended practices and standards for sewage treatment devices for marine toilet waste, including their installation". That request was accepted. A committee blending industry, governmental, and professional participation was formed. The committee developed a proposal in time for the January 1959 joint conference. The proposal was commended by that conference and later in the same year adopted by the ABYC as an advisory standard. It was amended, in 1961, to include a recommended space allowance for installation of the devices aboard boats. A copy of that standard is attached, and a perusal will reveal:

1. It refers only to devices designed to treat human waste by the maceration-disinfection method to permit overboard discharge.
2. It states effluent and safety requirements in terms of objectives to be attained.

At the time the development of this standard was undertaken, only one device of the type was available to the best of my knowledge. The manufacturer had been working with the biology department of Wesleyan University and the Water Pollution Commission of the State of New Hampshire. Sanitary engineers of that commission undertook effluent testing of devices to help implement a state regulation prohibiting toilets aboard boats unless equipped with an *approved* sewage treatment device. The effective date of that regulation was originally set for the boating season of 1959, and I believe was a first.

During this period, various states were considering regulations to control pollution from boats. The ABYC standard provided guidance for them as well as for several manufacturers interested in developing devices of the type.

I should mention that while retention tanks were considered at the time as a method of pollution control, it was not pursued for standard development, because of space requirements aboard and the absence of shore side services. I should also mention that the effluent requirements for the macerator-disinfectant class of device, as stated in the original ABYC standard have not been changed. Those

requirements are that an effluent be free of unsightly solids and contain coliform bacteria not exceeding an MPN (most probable number) of 240 per hundred ML (milliliters). This more than met the minimum waste treatment recommended by the Federal Inter-departmental Committee on Sewage and Waste Disposal from Vessels with respect to vessels carrying relatively few people (40 or less).

With the adoption of the ABYC standard, the regulatory efforts by several states, and the growing interest by manufacturers, the problem of measuring the capability of proprietary devices to meet the requirements emerged. This virtually coincided with the commencement in 1962 of the Bureau's evaluation testing of products intended for use aboard boats, and the Bureau was requested by several manufacturers to test their devices. For on board safety aspects of the devices there was no doubt such testing was appropriate under the Bureau's charter. Counsel's opinion was sought with respect to the bacteriological examination necessary. The pertinent part of that opinion reads:

"This represents a slight departure from prior programs in that you will be concerned not only with hazards to the boat so equipped, but also with the hazard of water pollution (i.e. whether the device is efficient for its purpose of preventing or minimizing pollution of surrounding waters). We believe that this is clearly permissible under your charter. Water pollution constitutes a hazard to all who use pleasure boats and to all who are in areas where pleasure boats are used. Your concern with efficiency in this instance is directly related to a recognized hazard."

Accordingly, in early 1963, the Bureau undertook the development of a complete testing procedure for marine waste treatment devices as a basis for confirming compliance with the performance objectives in the ABYC standard. That testing procedure was progressed to initial form by the fall of 1963. For the parts having to do with bacteriological testing, the Bureau is particularly indebted to the assistance of sanitation engineers of the New Hampshire Water Pollution Commission; The Interstate Sanitation Commission for New York, New Jersey and Connecticut; to the Director of the American Biological Control Laboratories, Tenafly, New Jersey, who serves as the Bureau's consultant, and to many direct discussions with state and federal public health officials. The testing procedure was distributed to authorities in all fifty states and to the U.S. Public Health Service. No unfavorable comment was received.

Subsequently, the Bureau had many opportunities to test macerator-chemical devices. When effluent results were determined in strict accordance with the prescribed tests, the indications were such as to invite further exploration of the basic concept. For this several manufacturers submitted modified or pilot models. The Bureau accumulated both data and testing experience, but no device was listed and labeled.

In 1966, the National Association of Engine & Boat Manufacturers, requested the Bureau to undertake effluent tests of all available production or pilot models of the macerator-chemical type of devices intended for boat usage. The Bureau agreed on the basis it would be consistent with Bureau practices in establishing and confirming testing procedures for evaluating devices. The NAEBM obtained the cooperative loan of seven (7) production and four (4) pilot models of proprietary devices. They were operationally tested during the summer of 1966.

General observations from the accumulative effort to this point can be stated as:

1. Maceration must be virtually complete—the presence of practically any human waste solids in effluent prevents attainment of the required coliform bacteria level.

2. The disinfectant input should be consistent and sufficient in volume.

3. The overall operating period per device use must be adequate and is related to the above factors.

If these conditions are met, the established effluent objectives can be attained.

In January 1967, the Bureau issued its first authorization for the listing and labeling of a proprietary device of the macerator-disinfectant type.

During the period covered by the foregoing, there were no established guidelines in the form of advisory standards for human waste control systems using retention or incineration concepts aboard boats. These concepts are currently receiving rather intense attention by advisory standard preparing organizations. The concepts have been specifically referred to in regulations adopted by several states with some going so far as to emphasize their use by complete prohibition of any sewage discharge from vessels.

The relatively recent legislation by the State of New York requires that every vessel equipped with a toilet and operating on waters of that State must have

provisions for retaining, treating, or destroying human waste. The legislation also requires that devices used for the purpose must be approved by the Departments of Health and Conservation of the State of New York. In early 1967, the Yacht Safety Bureau was honored by a request by the Division of Motor Boats of the Conservation Department to assist it and the Health Department in establishing evaluation standards for the classifications of devices upon which the required approvals could appropriately be based. The Bureau accepted this obligation.

All manufacturers known to be producing holding tanks, recirculating toilets and incinerators were solicited for the loan of production samples for examination, study and exploratory testing. It was specifically understood the effort and its results would not under any circumstances constitute an evaluation of the particular devices by either the Bureau or the State authorities. By mid-year, two (2) incinerators, three (3) holding tanks, and three (3) recirculating flush toilets were received. The physical work for this effort is substantially complete and the report for the State of New York is under preparation. With that report the Bureau is required to submit the evaluation standards in ready to use form. Accordingly, they are being prepared through the process described in the attached pamphlet for the development of all the classification standards to which Yacht Safety Bureau evaluations of particular marine products can be related. The titles for these classification standards are:

YSB Standard E-21—"Requirements for Marine Waste Treatment and Disposal Devices."

YSB Standard E-45—"Requirements for Retention Assemblies for Sewage."

YSB Standard E-49—"Requirements for Marine Recirculating Assemblies for Human Waste."

YSB Standard E-52—"Requirements for Marine Sewage Incinerating Devices."

In their preliminary proposal form copies of each have been circulated for comment to the following:

1. The manufacturers who cooperated by lending devices.
2. Other manufacturers whose addresses were known.
3. The boating law administrators in all fifty (50) states.
4. The Division of Technical Services, Federal Water Pollution Control Administration Department of Interior.
5. The Bureau's Operations Committee, which includes U.S. Coast Guard participation.

The proposal designated E-21, having to do with the macerator-chemical treatment classification is a revision of the evaluation standard established earlier. The major revision is the inclusion of evaluation of provisions making the devices inoperative when the disinfectant input is inadequate. This is the only one of the classifications involving a bacteriological examination of effluent and it has just recently been directly reviewed with the Health Department of the State of New York.

In preparing the proposals, the Bureau referred to present related advisory standards, including factors under consideration for their revision, and various state regulations. The proposals are currently being revised to reflect consideration of comments received. As revised they will be submitted to the Operations Committee for its judgment of their suitability as a basis for evaluating proprietary devices and the listing and labeling of successfully evaluated devices.

Because of their present status I have not included copies of the proposals as a part of this statement. Early approval of them by the Operations Committee is hoped for and, as that is attained, I will be glad to see that copies reach you.

It is universally recognized that uniformity of advisory standards and of regulations are necessary, is a vital need. That need is particularly emphasized for the boating field for which the maintenance of freedom of mobility is so desirable. It follows as necessary that testing procedures, as well as the accomplishment of them, be uniform. The legislation you are considering deals with both basic regulations and their implementation by means of testing. With the example of the control of water pollution from vessels as pertinent to your present concern, it is my hope I have conveyed to you:

1. An idea of very heavy Yacht Safety Bureau efforts, both past and continuing, on the problem.

2. A picture of a dedicated, meaningful, practical, and fair program for marine product safety evaluation and certification for the boating public.

I thank you for this opportunity and my statement is respectfully submitted to you.

TESTING FOR SAFETY AFLOAT



YACHT SAFETY BUREAU, INC.
NON - PROFIT PUBLIC SERVICE ORGANIZATION

DECEMBER 1966
(585)

YACHT SAFETY BUREAU, INC.

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MEMBER

The Commandant — United States Coast Guard

YACHT SAFETY BUREAU, INC.

336 Old Hook Road

Westwood, New Jersey 07675

TESTING FOR SAFETY AFLOAT

Organization Of The Yacht Safety Bureau

Founded in 1947 to advance the basic safety of pleasure boats and their equipment, the Yacht Safety Bureau, Inc., was completely re-organized in 1959, under the joint and equal sponsorship of the National Association of Engine and Boat Manufacturers, Inc., and the major marine underwriters. The Bureau is chartered under the Membership Corporation Law of the State of New York as a non-profit organization and it is exempt from Federal income taxes by ruling of the Internal Revenue Service. The Certificate of Incorporation provides that:

"No distribution of any of the property, assets or income of the corporation, however or wherever acquired, shall ever be made to or among its members either by way of dividends, or distribution in liquidation or otherwise, but all of its property shall be considered and deemed to be and is dedicated to the accomplishment of its objects and purposes. In the event of dissolution of the corporation, its property and assets shall be transferred to another organization in furtherance of the purpose of testing for public safety in the field of pleasure boating, such other organizations to be chosen at a corporate meeting held for that purpose, subject to the order of the Supreme Court as provided by law."

Purpose And Activities

All activities of the Bureau are conducted in furtherance of its primary purpose, stated in its Certificate of Incorporation as follows:

"The purpose of this corporation is testing for public safety in the field of pleasure boating and any and all other corporate powers and activities shall be and are in pursuance of this purpose or incidental thereto.

"The corporation shall accept for inspection, testing and safety evaluation products intended for use on, in or in connection with small boats, primarily pleasure boats, including hulls and entire boats, and shall report and circulate the results of such inspections, tests, and evaluations to the public and/or interested parties, by provision

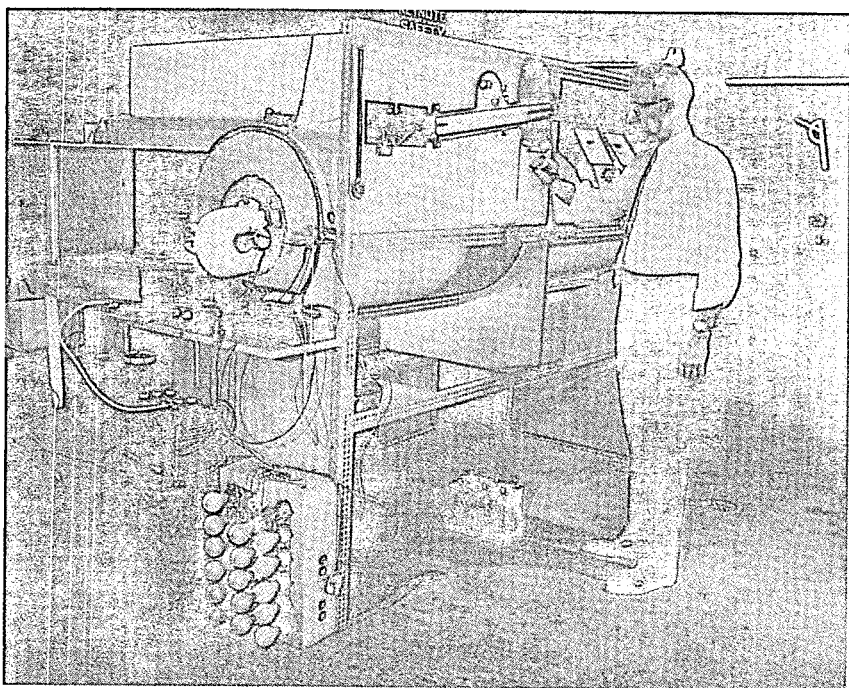
for the attachment to such products of labels or certificates, or by such other means as from time to time may be deemed appropriate.

"The corporation shall cooperate with and assist the Commandant of the United States Coast Guard in matters relating to pleasure boat safety.

"The corporation shall ascertain and define standards and classifications of materials, devices and methods bearing upon small boat safety against which particular items may be tested and evaluated.

"The corporation may acquire by any appropriate means laboratories and testing stations and the necessary equipment therefore, wherever situated; for the purpose of carrying on its primary activity and purpose.

"The corporation shall have such other powers as may be implied by law to the extent only that such powers shall be appropriate and necessary to its purpose of testing for public safety in the field of pleasure boating."



Recording Data for Test of Ventilating System Components

Simply stated, the objective of the Bureau is to see that marine equipment that has been measured for its safety of operation, when used as intended, is available to the boating public. The objective is based upon the logic that safety begins with safe products and continues with how they are used. To accomplish the objective in acceptable fashion, the Bureau is basically similar in concept, organization and operation to Underwriters' Laboratories, Inc. The Bureau stands today as a carefully defined organization devoted to the practical accomplishment of a public service without profit for anyone. For this, appreciation is due to the Bureau's sponsors, to the United States Coast Guard, to Underwriters' Laboratories, Inc., and to many men associated with boating as an industry and as a recreation.

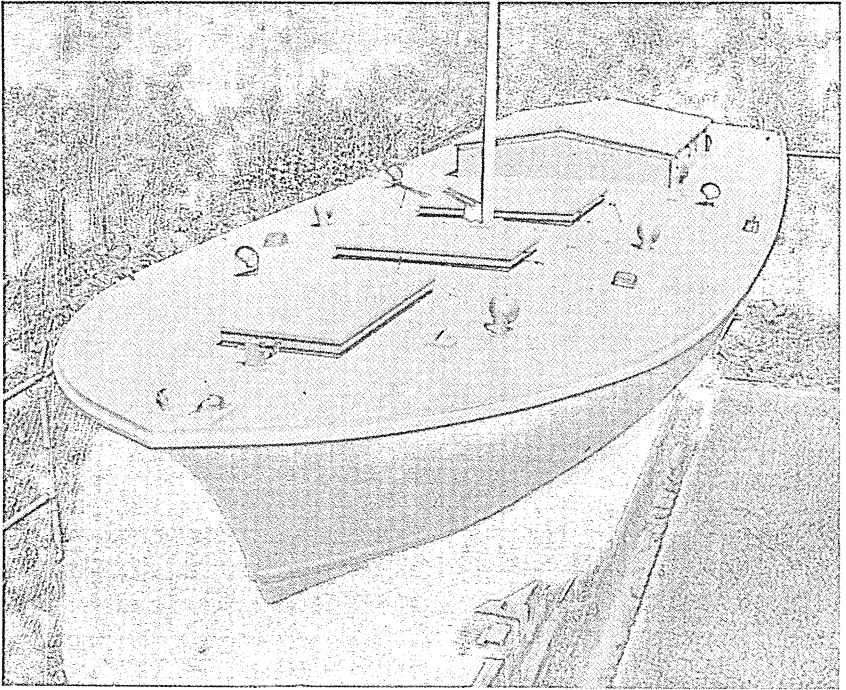
Administration

General authority to deal with all matters pertaining to the activities of the Bureau is vested in its Board of Directors. That Board is comprised of fourteen men with representation equally divided between the sponsoring marine underwriters and the National Association of Engine and Boat Manufacturers, Inc. Officers elected by and from the Board are the President, First Vice-President and the Treasurer. These officers serve without any compensation as do all Board members. The active, day-to-day, management of the corporation is the responsibility of the Executive Vice-President, who, along with the Secretary, is appointed by the Board.

The supervision of matters pertaining to safety testing is vested in the Operations Committee subject to final approval of the Board. This Committee is composed of technically qualified men from key parts of the industry and the United States Coast Guard. Its function is to render judgments on all testing requirements developed for use by the Bureau and on all test reports that include recommendations for product listings.

Facilities

The administrative office and initial testing station is at 336 Old Hook Road, Westwood, New Jersey. Here considerable capacity is in being and steadily being expanded for extensive physical testing of various classifications of marine equipment. Acquired or specially designed machines vibrate, rock, shock, burn, freeze, twist, pound, squeeze



Environmental Exposure Hull Ready for Launching in Southern Waters

and impart other forms of simulated environmental stress to products submitted for safety evaluation. Testing involving waterborne operations, atmospheric exposure, or exposure to fire is conducted outside the Bureau's present station and the examination and tests for some products or systems may be made at a manufacturer's plant.

Arranging For Tests

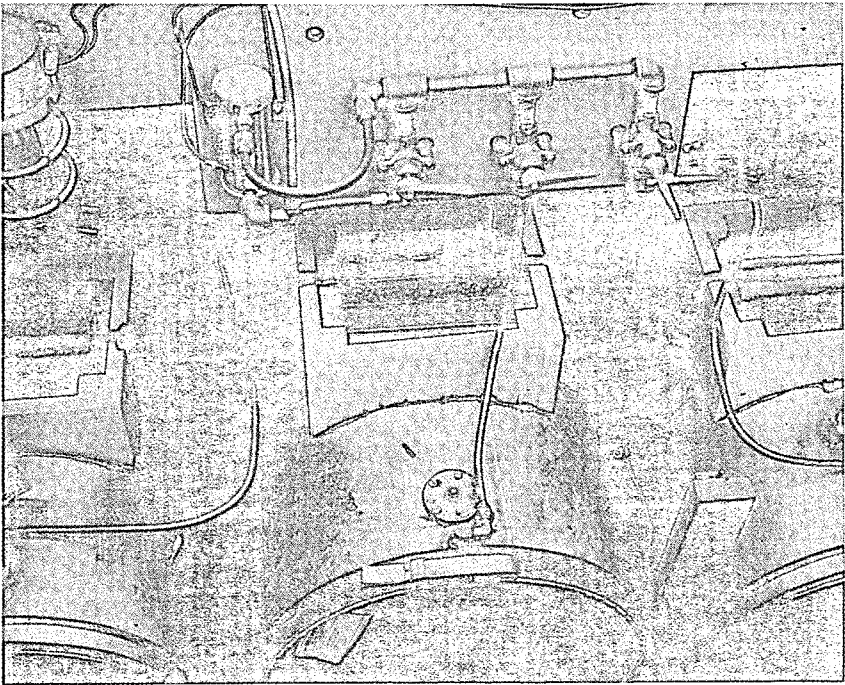
The Bureau does not solicit any work. A manufacturer desiring a safety investigation, a report, and a listing of his product may address the Bureau at its administrative office. He is expected to provide a complete description of his product for a preliminary study to classify it, and at least in a general way, to determine the probable nature and extent of the evaluation work. If a Bureau standard has been established for the product concerned, setting forth the minimum construction and performance requirements to which it would be tested, the submitter is given a copy of it.

It is expected that the entire evaluation procedure projected for any product will be thoroughly discussed with each submitter by correspondence or by direct interview. When complete understanding is reached regarding limitations of the responsibility of the Bureau, the work to be performed, the preliminary deposit, cost limit, test samples needed, time required, and the inspection service to be established if the product is found acceptable for listing, an application form covering these details is sent to the interested manufacturer.

Manufacturers may make appointments to witness particular tests of their product, if desired.

Bureau Standards

The Bureau's standards, prepared and under development, are intended to set forth minimum requirements for the construction and performance under test of various devices, materials, systems, and appliances, offered for use in the field of pleasure boating. A primary purpose of the Bureau's standards is to assure that all manu-



Fuel System Components Installed in Environmental Exposure Hull — Ready for Test

facturers of the same class of product may have their products evaluated for safety in the same way. Wherever it is practical to do so, the standards are based upon and designed to implement the advisory codes of the American Boat and Yacht Council, Inc., the National Fire Protection Association, and the regulations of the United States Coast Guard.

All standards are developed with the cooperation of representative manufacturers. The requirements are based on sound engineering principles, research, field experience, records of tests, and on consultations with manufacturers, users, inspection authorities, the United States Coast Guard, and others having special training or experience. They are subject to revision as changes are made in advisory codes or regulations, or as additional experience and investigation indicate.

Established Bureau standards are available on request without charge to interested manufacturers.

Test Reports

At the conclusion of any tests undertaken pursuant to an application, the submitter is advised of the findings. If these disclose objectionable features they are discussed only with him for they must be corrected and revised samples found acceptable before listing and labeling can be recommended. When the results of the investigation are such as to warrant a recommendation for listing, a complete report is prepared. It is reviewed with the manufacturer and submitted to the Bureau's Operations Committee for approval.

Additional copies of test reports are available to submitters at cost.

Listing And Labeling

Listing of a product, with its related privilege of the use of the Bureau's label, means that production samples of it have been evaluated and found acceptable under the Bureau's requirements for the class. Listing is an expression of the Bureau's good faith opinion, based on tests, that the item meets minimum applicable safety standards. It is not a warranty of quality or performance, nor are listed products of the same class necessarily equivalent in quality, performance, or merit.

Product listings are currently promulgated on printed cards. Copies of these cards are furnished to the sponsoring underwriter members;