

JOINT PUBLIC HEARING

before

SENATE ENVIRONMENTAL QUALITY COMMITTEE

AND

ASSEMBLY ENVIRONMENTAL QUALITY AND ENERGY COMMITTEE

The January 1-2, 1990 oil pipeline leak in the Arthur Kill

February 6, 1990  
Middletown Municipal Building  
1 Kings Highway  
Middletown, New Jersey

MEMBERS OF SENATE COMMITTEE PRESENT:  
Senator Richard Van Wagner, Co-Chairman

MEMBERS OF ASSEMBLY COMMITTEE PRESENT:  
Assemblyman Robert G. Smith, Co-Chairman  
Assemblyman Joseph M. Kyrillos Jr.  
Assemblywoman Joann H. Smith

ALSO PRESENT:

Mark T. Connelly  
Patricia Cane  
Office of Legislative Services  
Aides, Senate Environmental Quality Committee

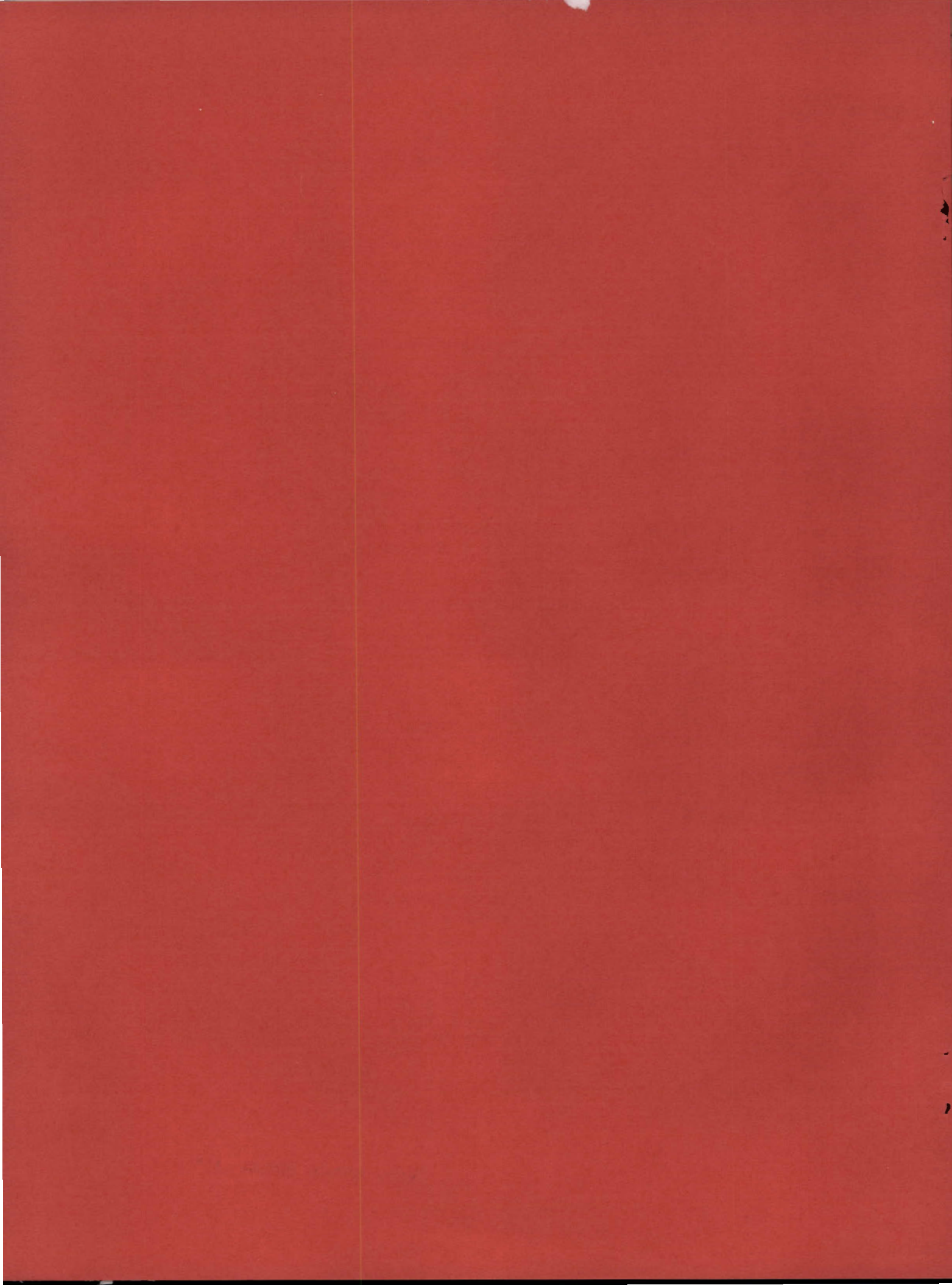
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Office of Legislative Services  
Aides, Assembly Environmental Quality  
and Energy Committee

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## NOTICE OF A JOINT PUBLIC HEARING

The Senate Environmental Quality Committee and the Assembly Energy and Environment Committee will hold a joint public hearing to assess:

*The environmental impact  
of the January 1-2, 1990 Exxon oil pipeline  
leak into the waters of the Arthur Kill*

The hearing will be held on *Tuesday, February 6, 1990 at 10:30 a.m. in the Middletown Municipal Building, 1 Kings Highway, Middletown, New Jersey*

*The public may address comments and questions to Patricia Cane, Aide to the Senate Environmental Quality Committee, and persons wishing to testify should contact Carol Hendryx, committee secretary, at (609) 292-7676.*

Issued 1/26/90

(Directions: Garden State Parkway to exit 114. If heading south, turn left onto Red Hill Road; if heading north, turn right onto Red Hill Road. At end of street, turn right onto Kings Highway. Municipal Building is on left at intersection with Route 35. The phone number is 201-615-2000.)



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SENATOR RICHARD VAN WAGNER (Co-Chairman): If you could, anyone who is here to testify, please sign up because that is the list that we will generate today. We would like to start, if we could. I like to start on time, and we are about two minutes beyond 10:30. As soon as the list is filled out, if you would bring it up to the desk and give it to Mark Connelly, our Committee Aide or Pat Cane, we'll be able to start taking testimony.

Before I begin, I would just like to make a brief statement. This is the second joint public hearing which the Senate Environmental Quality Committee and the Assembly Energy and Environment Committee have held on the Exxon pipeline spill of January 1 and 2, 1990.

In our review of the information obtained at the first public hearing, Chairman Smith and I were convinced that the Committees needed further and detailed information concerning Exxon's culpability for the oil spill. Therefore, today, Chairman Smith and I have sent a letter to Exxon requesting detailed and specific information concerning all aspects of the oil spill. We have asked Exxon to report to us within seven days on when they will be able to provide the Committees with the information we have requested. If we are not satisfied with Exxon's response to this request, Chairman Smith and I will use subpoena power for our Committees and compel Exxon to provide us with the information we need, which the citizens of New Jersey are entitled to.

The first public hearing also convinced Chairman Smith and I that legislation is required to establish a comprehensive approach to protecting our waters from oil and chemical spills from pipelines, tankers, and storage facilities. This legislation which we are now drafting will contain registration requirements, spill prevention planning requirements, public access to all spill prevention plans, inventory reporting

requirements, severe financial and criminal penalties for catastrophic releases and oil spills, and many specific provisions applying to the unique situation presented by pipelines such as the one that ruptured in the Arthur Kill.

With regard to the Exxon Bayway Bayonne pipeline, we believe that the State can and should assert regulatory authority over that pipeline, even though some argue that State action might be subject to a Federal preemption challenge. Clearly we should not expect the Federal government, still reeling from years of neglect of the environment, to protect the New Jersey environment. And if Exxon should be so foolish as to contest the State of New Jersey's right to regulate this pipeline, they will lose whatever friends they might have in this State. Indeed, we will soon be asking Exxon to voluntarily pledge that they will submit to the State regulation of the pipeline, in a gesture of good faith.

At the first public hearing on January 23 we focused on understanding the actions and mentality of Exxon, the party responsible for the spill. Today, we will focus on the victim of the spill, the environment.

Most scientists agree that it will take months if not years, to determine the environmental degradation and ecological damage caused by the spill. An estimate of the number of birds killed in the first 20 days after the spill is almost 500. Immediate damage was visible in the wetlands, mud flats, and marshlands of Pralls Island and Staten Island, to which prevailing winds pushed most of the spilled oil. These lands have, in the last 10 years, shown enough environmental recovery from previous years of abuse to serve as wildlife nesting and breeding areas, or as stopover points for migrating birds. Pralls Island is a bird sanctuary operated under the auspices of the National Audubon Society.

Not yet known, but in a scientific sense more important, is the damage to marine worms, clams, tiny shrimp, and other organisms at the lower end of the food chain, which serve as food for wildfowl and fish such as flounder and crabs. The extent to which certain components of the spilled oil such as naphthalene and benzene have entered and damaged the food chain and the effect of such damage, will be revealed only after long-term testing and monitoring, and it is only then that the full ecological impact of the spill can be assessed.

Today we hope that we can begin understanding the impact this spill had on the New Jersey-New York coastal environment. I would also like to emphasize that we make no distinction between the environmental damage done to New York or New Jersey. The fact that it appears that much of the damage occurred in New York is irrelevant. With slightly different wind and tidal patterns, the bulk of the damage could easily have fallen on our State, and in ecological terms, man-made boundaries only several hundred years old, are insignificant in terms of the ebbs and flows of the ecological balance of the Hudson-Raritan Estuary, the site of the spill.

I look forward to a productive hearing, and would now ask Chairman Smith to make some opening remarks.

ASSEMBLYMAN ROBERT G. SMITH (Co-Chairman): Mr. Chairman, the good news is I'm going to be unbelievably brief. I think your comments have succinctly summarized the position of both the Senate and Assembly Environment Committee. I felt quite badly at the last hearing that we didn't have time while we were getting the basic facts on the public record, to hear from the many environmental groups that made an effort to be at that hearing. Today I am looking forward to hearing their testimony concerning the environmental damage, and I am sure that we are all going to be very much saddened by their description of it.

I would hope that as they testify to the Committee they might give us some guidance with regard to some standards for cleanup with respect to oil spills. You may remember, Chairman, at the last Committee meeting we talked to the Coast Guard about how you know when an oil spill has been cleaned up; what are the objective standards associated with it? I really wasn't satisfied with the Coast Guard's answer. So I hope the environmental groups will deal with that and give us some guidance, and give the State of New Jersey some guidance.

And on that note, Mr. Chairman, I'm hoping we can move forward and get some of this information on the record.

SENATOR VAN WAGNER: Okay, just if you will-- Before we begin, I would like to just briefly if I can, paraphrase to some extent, the rather detailed letter that we have -- Chairman Smith and I -- are sending to Exxon today.

This letter is to Mr. Lawrence G. Rawl, R-A-W-L, Chief Executive Officer, Exxon Corporation, 1251 Avenue of the Americas, New York, New York.

"Dear Mr. Rawl, The Senate Environmental Quality Committee and the Assembly Energy and Environment Committee are conducting a joint investigation of the Exxon oil pipeline leak into the Arthur Kill that occurred on January 1 and 2, 1990. To aid us in this investigation, we ask you to prepare and to forward to the Committees the following information:

"1) All of Exxon's standard operating, inspection, maintenance, training, safety, and emergency response procedures, all permitted operator and supervisory discretion -- whether in writing or verbal -- regarding such procedures, and all accepted industry practices that govern or relate to the management and transfer of the petroleum through the pipeline.

"A detailed description of all emergency, alarm, automatic shutoff, leak detection, override, and reset systems,

and the threshold values Exxon uses to trigger such systems -- and how Exxon determines such values -- relating to petroleum storage, loss, and transfer in the pipeline, including the name and address of the manufacturer, serial number, the name and address of the installer, date of construction, installation, and of any reconstruction or reinstallation.

"All of Exxon's standard operating procedures and all accepted industry practices that govern or relate to the inspection, surveying, integrity testing, certification, and maintenance of all pipelines, valves, meters, gauges, pumps, and other structures and devices Exxon uses to transfer petroleum into, through, and from the pipeline.

"The dates and results, from January 1, 1978 through January 8, 1990 of all inspections, surveys, integrity testing, and certification of all pipes, valves, meters, gauges, pumps, and other structures and devices Exxon used to transfer petroleum into, through, and from the pipeline.

"All Federal, State and local statutes, regulations, and other standards and permits issued regulating the storage and transfer of petroleum, including construction, installation, inspection, and maintenance standards for hazardous liquid transmission pipelines, as well as discharge and release reporting and notification.

"A detailed chronology of all events contributing to, resulting from, or in any other way related to the pipeline leak and response to the pipeline leak, including, but not necessarily limited to: the operation of the pipeline; movement of petroleum from the Exxon Bayway Refinery to vessels and the pipeline; ship traffic in the vicinity of the pipeline and Exxon Bayway Refinery on Morse's Creek and the Arthur Kill; movement of petroleum from the pipeline to the Exxon Bayonne terminal; roles, movement, and location of personnel; and positions and readings of gauges, meters, sensing devices, and

any other machinery or equipment. This chronology of events shall include, at a minimum a statement of events in no more than one-half hour increments from 12:01 a.m. on December 31, 1989 through the time of the last action taken in response to the pipeline leak, and shall include any more frequent and earlier events related to the pipeline leak."

There are 15 specific areas of information that we have asked them to provide, so I will not go on and read this 3-page letter in the detail that we have it. We will have provided, however, through staff, enough copies for those members of the press particularly who would like to see this letter.

In addition to that, we will make available copies, generally, to people who might request copies of the letter, so they can see exactly what the Committees have asked Exxon to provide. Again, I would repeat, if this information is not forthcoming in the detailed manner in which we have requested it, if it is not thorough, if it does not address all of the questions that we ask in this letter, we will then proceed to use the subpoena power to obtain that information.

We will begin now the questioning at the public hearing with Mr. Rob Stuart of the New Jersey Public Interest Research Group. Mr. Stuart, whenever you are ready.

R O B S T U A R T: Good morning, Mr. Chairman and members of the Committee. It's good to see you all. I am pleased to have the opportunity to speak to you today to express New Jersey PIRG's deep concern over the recent oil spill by Exxon into the Arthur Kill. We believe this incident clearly points up how little is known about even the most obvious threats to our environment. Experience has demonstrated that even the largest corporations in this country, if left unregulated, rarely take care to minimize the environmental harm from their facilities. Even under conditions where corporations are regulated, some do

not abide by the law. That is, unfortunately, the case with the Exxon Bayway facility.

The testimony by Exxon at the first Joint Committee hearing on this disaster was riddled with conflicting statements and demonstrated an appalling lack of concern for the environment. Beyond the arrogant lack of concern over the faultiness of their sensitive equipment, it is inconceivable that a major corporation would not have a master plan of their plant that included a detailed inventory of the location of pipes leading into and out of the facility, what is transported in the pipes, and an analysis of the worst case accident scenarios. Clearly this type of information should be filed with the Coast Guard and the EPA, and should be updated regularly, and we hope that your letter spurs this type of action.

There can be no question that the Coast Guard was hampered in its assessment of the origin of the spill by a lack of information. Even a routine inquiry by the Coast Guard on the functioning or nonfunctioning of the pipeline monitoring equipment would have logically set off alarm bells. But because Exxon never bothered to inform the Coast Guard of the existence of the pipeline, there is little wonder that the pipe was the last place the Coast Guard looked for a leak.

Exxon has testified that a defective pipeline monitoring system has been operating for 12 years. That's obviously a problem. Even more concerning perhaps is the assertion by Exxon that there is no accountability at the Bayonne end of the pipe. It is hard to believe that there is not a gauge at the receiving end of the pipeline that registers both flow and pressure, and that this gauge is not checked regularly. This would seem to represent the very rudiments of a reasonable management practice.

Exxon has also testified that the corporation is going to write off the incident as "an ordinary cost of doing business." It is high time that we take away this type of tax write-off. But we also need to start holding corporate officials accountable for violating the environment. Until we institute strong criminal penalties for environmental crimes, we will not see a change in corporate attitudes. If the Clean Water Enforcement Act, sponsored by you, Mr. Chairman, had been passed--

SENATOR VAN WAGNER: And Mr. Smith.

MR. STUART: --and Mr. Smith, now -- had been passed, which passed the Senate unanimously last session, had not been stalled in the Assembly by strong chemical industry opposition, which incidentally included Exxon, we would have strong criminal penalties in place right now. If the Clean Water Enforcement Act had been in place, Exxon officials could face second degree criminal penalties for recklessly causing significant adverse environmental harm.

Between the Valdez spill and the Arthur Kill spill, it is clear that Exxon can always pay whatever amount of money is decided upon; that cleanup costs are simply an ordinary cost of doing business. Holding corporate officials responsible for management practices is what will change environmental attitudes at corporate headquarters and why Exxon fought so hard to kill this important bill.

Oil spills are not a new phenomenon, and much can be learned from past experiences. The first, most striking damage is always the oil covered beaches and the dead birds. One cannot overestimate the damage done by the initial hours of the spill in the slaughter of fish, mammals, and birds. But the long-term damage to habitat and the changes in the balances of plant and animal populations cannot be ignored either. The oil that is initially so obvious will, in a time, appear to

disappear. However, nothing could be further from the truth. The oil will settle into the sediments where it will remain for years.

In cases where oil spills on rocky coasts such as the Exxon Valdez spill in Alaska and the Amoco Cadiz spill in Brittany, France, beaches which appear clean one day are covered with oil the next. In cases like the spill of No. 2 fuel oil into Buzzards Bay in West Falmouth, Massachusetts where the soils are similar to those at the Arthur Kill spill, the oil saturates the sediments -- the soils -- and no amount of scrubbing will remove it. The effect that the oil has on the bottom dwelling organisms in the path of the spill, as well as the effect on the micro bacterial and protozoan populations can be quite striking. These organisms make up the very backbone of the ecological communities, and even subtle alterations in their numbers and types can have important ramifications.

The types of plants and animals that can survive in oil-laden waters are often very different than those found prior to the spill. Oil spills make the sediments uninhabitable for some species. These changes in species populations can have a profound effect on larger animals that rely on particular types of plants and animals as sources of food.

Even in abused waters like those of the Arthur Kill and Newark Bay, oil spills can have serious effects on plant and animal life. Many of the waters affected by the Exxon oil spill, including the Arthur Kill and Newark Bay, have been classified by the DEP as "toxic hot spots" because of long-term discharges of toxic substances from industrial facilities. Exxon had already been identified as a facility contributing to the degradation of these waters.

Unfortunately, the scientific community has only a partial picture of the ecology of the Arthur Kill area. Nevertheless, we know that these waters have supported diverse plant and animal populations and have served as a critical habitat for species, including birds. Eventually a new, and perhaps quite different community of plant and animal species will repopulate the oil covered areas. But even if, or after the birds start to come back, as Exxon asserts, the cleanup ends, the destruction resulting from the oil spill will continue. We strongly believe that there is no way that an accurate assessment of the environmental damage or a monetary penalty that reflects the true destruction resulting from this irresponsible action can be made.

Monetary penalties are not sufficient. The Bayway facility presently is being sued by citizens in our organization. The Bayway facility is being sued for over 70 violations of the Clean Water Act including a violation of the toxic chemical toluene that was 191,000% over permitted levels. As a result of this suit, the Bayway facility has installed appropriate pollution control equipment and is now complying with its permit. Interestingly, and somewhat disappointingly, the DEP has issued a draft permit for this facility that proposes to remove the limits on five organic chemicals currently regulated in the permit, including the limit on the discharge of toluene.

Clearly, citizen suits have been a useful tool in bringing at least one source of pollution from this facility into compliance with the law. But citizens cannot file suit against every industrial facility. That's why if strong criminal penalties had been in place to hold corporate heads of Exxon accountable for violations of the Act, then perhaps this corporation would not only have made sure that their wastewater discharge permit was being obeyed, but that meaningful steps in all areas of environmental responsibility were being taken.

This oil spill is a disaster that need not have happened. The testimony by Exxon has provided confirmation that monetary penalties will not suffice. It is patently unfair to continue to let corporations with irresponsible attitudes toward the environment get ahead at the expense of law-abiding, environmentally concerned businesses. We hope that this disaster will serve as a catalyst to strengthen the Clean Water Act in New Jersey through the Clean Water Enforcement Act, and the other legislation that you have discussed this morning.

Strong criminal penalties for violation of the Clean Water Act will send an effective signal to those facilities in New Jersey that have ignored environmental concern up until now. It is a proactive position that is much needed in this State. We will never really know all the damage that this spill has done, and will do in the future. But we look forward to this Legislature and this Committee taking effective steps to dramatically change the environmental attitude held by too many members of this State's industrial community.

SENATOR VAN WAGNER: Thank you, Mr. Stuart. As sponsors of the bill that you referred to, Mr. Smith and I would just like to ask some questions on that. And I'd like to yield now to Chairman Smith.

ASSEMBLYMAN SMITH: Thank you, Senator. Mr. Stuart, you are aware of the two different versions of the Clean Water Act that appeared in the last session? One, which euphemistically was called "The Dirty Water Bill," and the other which Senator Van Wagner sponsored and I attempted to amend in the Assembly, which we feel was a much stronger version. That is the version that is currently in front of the Senate, and currently in front of the Assembly, the stronger version. You know also that we are considering legislation to prevent this kind of occurrence -- really environmental

disaster -- from ever occurring again. Let's talk about the Clean Water Act -- the strong version of the Clean Water Act -- with respect to this oil spill.

Had the strong version of the Clean Water Act been enacted last year prior to-- And the timing is so ironic, it's unbelievable. But had it been enacted last year, what would be the difference in treatment with regard to the DEP and Exxon, with regard to any continuing pollution problems? And how do you think that would have changed attitudes on the part of the corporate leaders of Exxon?

MR. STUART: Well, as I said in my testimony, if the bill had been adopted with your amendments, this spill would have clearly fallen under-- Though it's obviously to be proven in a court of law, Exxon officials could have been held for second degree criminal penalties. And it carries a much more serious monetary fine, as well as the likelihood upon conviction that an official is going to go to jail.

ASSEMBLYMAN SMITH: There's no question in your mind that if corporate officials are faced with criminal penalties, that they would take a totally different approach to environmental protection and prevention?

MR. STUART: It's been said that environmental protection is a nice thing, and it's something that people try to adhere to. Though not only our data, GAO data, EPA's own data, suggest that these limits that companies sign onto are oftentimes ignored, and they are violated. And unfortunately, there is not always appropriate response by the State.

ASSEMBLYMAN SMITH: In fact, isn't there a built-in problem with the existing system? Under the current situation in water pollution control, the Department of Environmental Protection has discretion with regard to the imposition of penalties and fines. Doesn't that, in effect, encourage corporate leaders to contest fines and penalties, and to try, in effect, to cut the best deal they can with the DEP?

MR. STUART: If, in fact, they are even being put in that position, which again, is not always the case. But there's two other problems: One which you pointed out first, though, is that this is a self-reporting system. One of the important things that your bills do is to provide a minimum inspection for major industrial dischargers of once a year, which is not currently happening now; someone to go out to these facilities and check what's going on. Because we can't go to every facility in every month to get the data that makes up the discharge monitor report, we rely on industry self-reporting. We need a check on that system.

And then further, as you pointed out, even when an industry is caught and is in a penalty phase, the EPA has determined that in this region, all too often, the industry is able to cut a deal -- using your words -- whereby they are still achieving an economic benefit by polluting, even though they are paying a fine. And that's one of the provisions that the Clean Water Enforcement Act addresses; because we clearly do not want to send a message to industry that it's profitable to pollute.

We want to remove the profit first, and then we should talk about penalties so as to send the signal to other corporations that are basically weighing the cost of installing pollution control equipment or weighing a change in their production processes, that it's better to pay now for a cleaner environment later, rather than having to pay a larger price monetarily, as well as possibly face criminal actions in the future.

ASSEMBLYMAN SMITH: Right. I think you are absolutely right. Right now the attitude is it is cheaper to pollute than to prevent pollution. And that's what we really have to change.

Another advantage of the Clean Water Act, is the stimulation -- encouragement of third party intervention. Had those provisions been in effect, what might be the difference, again?

MR. STUART: Well, the difference is clear. Just in the case of this facility, as I noted. In July of this year we brought suit against Exxon for over two years of violations of toxic parameters of their permit, including this toluene, which was a regular. Through this suit Exxon has moved forward and has installed control equipment, whereby they are now in compliance with their permit. The DEP, because they were required under the Federal Clean Water Act to reopen the Exxon permit and look at the parameters and see how they could better control the flow of toxics into the Arthur Kill -- because the Arthur Kill was identified as a toxic hot spot -- put in place parameters that Exxon is now meeting, but those parameters were not to take effect until next January. So through the third party intervention, we've got Exxon complying with standards that aren't even in place yet.

ASSEMBLYMAN SMITH: I guess a summary-- You're more than welcome to challenge this summary if you'd like. We are obviously going to be legislating in the oil spill area: storage, pipelines, etc. But I think it's fair to say, had the stronger version of the Clean Water Act been in effect, I don't think it would have guaranteed that there would be no spill, but it would have made the probability that much less likely. Very much less likely. Is that a fair statement?

MR. STUART: It's fair. I mean, that was the most concerning thing about the loss of the bill last session. We sent a signal to industry that we weren't as serious as we could be in regard to these matters. As I say, we can't look back. All we are interested in is in looking forward and preventing this type of disaster from happening in the future.. We think, you know, the best disincentive for violations or accidents such as this is strong penalties up front.

ASSEMBLYMAN SMITH: Thank you, Mr. Stuart.

SENATOR VAN WAGNER: In relationship to the Clean Water Enforcement Act, one of the arguments -- as you know, having been involved with the bill for over two years-- One of the arguments frequently used is that the bill would prevent the DEP from pursuing the more difficult cases, and instead, require it to deal with a lot of detailed information, much of which would deter them from pursuing the bad guys, so to speak. In view of what happened, in your view at least, does this incident perhaps debunk that argument?

MR. STUART: We never gave that argument much credence. I think, and I don't want to go too far into it, we do have a hearing on this bill next week. But briefly, the Clean Water Enforcement Act never required, and I don't think will require the DEP to do so much such that they won't be able to focus on their other duties. All it requires them to do is to assess minimum penalties if they get word of, or report of, a serious violation; and then to take succeeding actions of greater magnitude if those violations continue.

So, I don't know if that fully answers your question, but obviously Exxon, in a violation of 191,000% over their permit level for toluene, I would think is a serious violation, but unfortunately no response was taken, and the violations continued month after month until we filed suit. So I think that we do have a problem in that there are a considerable number of facilities that fall into this category of significant violators.

Our hope is that through a change in our response such that officials and companies are being assessed, be it small penalties -- the highest amount of fine listed in the bill is \$5000 -- that they will quickly realize the error of their ways and they will come into compliance, as I think you share our feeling about this bill. We are not interested in large penalties and an overworked bureaucracy. What we are interested in is no penalties. We are interested in compliance

and a bureaucracy that can focus on other aspects of the environment which are obviously probably not able to be fully addressed because of the work in this area.

That is our goal. Companies should be complying with the law. We shouldn't have to be sitting here with the reams and reams of violations that are occurring. And unfortunate situations like the Exxon facility which may have been prevented if two years ago Exxon had been hit -- albeit, not that hard -- but if they had continued, yes, they would have been hit harder and maybe an official would have gone to jail. That may have sent a signal to the upper echelons that we've got to approach our industrial processes with an air towards preventing any kind of damage to the environment, rather than this, "Let's produce and see if we can get around, get through, or ignore, existing environmental regulation."

SENATOR VAN WAGNER: Thank you. Any other questions?

ASSEMBLYMAN KYRILLOS: Thank you, Mr. Chairman.

SENATOR VAN WAGNER: Mr. Kyrillos?

ASSEMBLYMAN KYRILLOS: Chairmans Van Wagner and Smith, it is a great pleasure for me to sit in with you today as a substitute, along with Assemblywoman Smith, for this Joint Committee meeting here in our district, in my home town. I would like to applaud both of you for your leadership concerning the Exxon oil spill, and your leadership on the Clean Water Enforcement Act, along with the Public Interest Research Group and Rob Stuart. The three of you, along with many of us -- I'm one of the original co-sponsors -- voted for the bill in the last session; a bill of great political momentum for this piece of legislation, and we've got to carry it through.

That piece of legislation is necessary, Rob. And inspections of pipelines like the one in the Arthur Kill are necessary. Had there been regular inspections, as you know, we

might have detected that malfunction and leak. And due to a regulatory exemption under the Hazardous Liquid Pipeline Safety Act of 1979, neither the Arthur Kill pipeline nor the leak detection system were ever inspected or approved by any regulatory agency. So I'd like to report back to the Chairman, and also to you Rob, and your group, following a meeting that Assemblywoman Smith and I have on February 23, with George Henley, the chief of the Federal Office of Pipeline Safety.

We'll be reviewing the option of rescinding the regulatory exclusion provision, which ignored monitoring of the Exxon pipeline in the Arthur Kill, and I hope will support us in that effort, and we will keep everyone abreast.

I also had a meeting with the Assistant Secretary of Transportation for Public Affairs in Washington on Friday. I hand delivered a letter that we had previously sent to the Secretary of Transportation, Sam Skinner, and will follow up on this issue. The Assistant Secretary told me that he will pass our concerns directly to the Secretary.

So I thank you for being here in Middletown, and Mr. Chairman, thank you for the opportunity.

SENATOR VAN WAGNER: Thank you, Mr. Kyrillos. Did you have a question? (affirmative response) Mrs. Smith has a comment.

ASSEMBLYWOMAN SMITH: Thank you Senator, and Assemblyman, for bringing this to the district. Our concerns are not only those of Exxon at this point. Our joint concerns are of any other oil company that is located anywhere within our nation.

Primarily, of course, as legislators from the New Jersey area, we are concerned with the companies that have been in existence for many, many years along the Raritan Bay, and along our waterways. Of course, most of them are located along waterways because it's tanker vessels that bring in the crude

where they refine the oil, in many cases, and then ship it out in the purposes that it is needed.

The Valdez Principles are very important; investment in large corporations to show an initiative by the State of New Jersey to give them the incentive to be good actors, instead of bad actors. In many cases, things are unforeseeable that happen. They cannot be prevented. But had we had the regulations and the laws in place--

Unfortunately it takes a bad incident to bring everybody's attention and awareness to the fact that things that have happened 20 and 30 years ago, pipelines have to be reinspected and maybe replaced. There is modern technology out there: There is x-ray equipment that can be used to -- as they are using along the Alaskan pipeline, but, of course, that's mostly above the surface. However, we are working toward that end. We have talked and we have written legislation related to the needs of these particular special items. And as Joe said, we will be going to Washington to meet with the safety director of the pipeline. We will give a report back to this Committee and to anyone-- We will have the report ready for anyone when we get back. Thank you, Senator.

SENATOR VAN WAGNER: Thank you. I just hope that your efforts will yield better results than we've had in eight years. Given the President's remarks yesterday, I think most environmental groups were largely disappointed by his response to the environmental concerns that you've expressed. So I hope-- I wish you well, and I hope that your efforts yield better results.

ASSEMBLYWOMAN SMITH: We hope so, too.

SENATOR VAN WAGNER: We now will ask Mr. Ben Forrest of Monmouth Clear Water to come to the witness table, if you would? Mr. Forrest?

B E N F O R R E S T: Thanks very much for having a meeting in our backyard. As you know, Monmouth County Clear Water is a citizens group based here in Monmouth County. Let's fix this a little bit here. (adjusts microphone)

We were really horrified by this spill. Jack Charlton (phonetic spelling) and myself, we went up-- I took a day off from work and videotaped some of the aftermath of that. It really hits us at home because as you know, Monmouth County Clear Water has worked at Keyport at -- all along the Raritan Bay here, and we've made some progress over the years.

It's pretty shattering when you see such a ridiculous accident take place. Five-hundred-thousand undetected gallons of fuel oil pouring out into the Bay really scares us. I'm really here to say that we're real happy that our State representatives are working to find a solution to this problem, because we can't allow this kind of thing to happen again.

We're very sad, of course, that the Clean Water Enforcement Act, which is a bill that we worked very hard on-- I've taken many days to Trenton that I don't get paid for, and we were really crushed when it didn't pass -- the tough version that we worked very hard for.

I want to thank Senator Van Wagner, Assemblyman Robert Smith, and Assemblyman Joe Kyrillos, for all the support and active participation that you had toward that bill. And I hope I can thank Assemblywoman Joann Smith too, because we really hope at Clear Water that you will change your mind on this one and vote with our bill this time.

It's a little bit of an emotional thing for us. As you know, we have boats on the Bay. We've gone out all summer. We have our festival at Sandy Hook, New Jersey which, of course, is right on the Raritan Bay so we get to look at what I think is one of the most beautiful places in the country, certainly in New Jersey, and that is Sandy Hook.

And then we look out on the Raritan Bay, and to think that this kind of damage is taking place really hurts us. That's pretty much all I have to say.

SENATOR VAN WAGNER: Well Ben, let me thank you for coming here today, and you have our assurance that, once again, a strong version of the Clean Water Enforcement Act will pass the Senate, as it did in the last session. Let me assure you as a native of this area, having grown up in East Keansburg -- which is now known as North Middletown -- and having lived here for almost 40 years, that I have seen the Bay in its best days, and I've seen it in its worst days, and I'm equally shattered by the event that took place on January 1 and 2.

Are there any other questions from the Committee? (no response) Okay, thank you, Ben. Thank you for coming, today.

MR. FORREST: Thank you very much.

SENATOR VAN WAGNER: I'd like to call Mr. Derry Bennett, of the American Littoral Society.

D E R R Y B E N N E T T: Also my thanks for coming down here. I think Andy Wilner spoke at your hearing up in Linden--

SENATOR VAN WAGNER: Yes, he did.

MR. BENNETT: --on behalf of the Littoral Society. Andy has been working with us to try to establish a Baykeeper Project for the harbor in New York and New Jersey. The message that I think he tried to bring up there, and the message that the Littoral Society has been trying to stress, lo these many years, is that Raritan Bay and Sandy Hook Bay, and New York Harbor, and the Hudson, are alive. They are not well, but they are environmental treasures. They are enormously important for recreational fishermen, for recreational boating, and they are also a habitat for an amazing array of marine life.

As stressed as that body of water is, it is still a major area for striped bass, which are moving up the Hudson to spawn. There are endangered species, the short nosed sturgeon

for one, which are inhabitants of the Bay. Biologically it is enormously productive and it needs people who care about it. The Littoral Society group is one, and Monmouth County Clear Water is another. We are finding as we survey the area that there are upwards of 60 or 70 organizations, from groups like the Hackensack River Coalition to groups on Staten Island, all of them concerned about the Harbor. When something like this happens, I think it draws our attention not only to the threats to it, but also to the fact that despite that, it still lives.

What I would like to do is run through about five or six specific suggestions and try also to address Mr. Smith's question about standards of cleanup. I don't think there is an easy answer to it, but I will try.

One of the things that we would suggest be done is an inventory of the especially delicate, or especially environmentally sensitive areas in the Harbor. A letter is, I think, going out to all of you from us today getting more specific about that. The problem here is that when the spill happened at the Arthur Kill, there wasn't a real direction about what to try to save, or protect, or boom off, first. Indeed, we found that the backside of Pralls Island was used for a while to collect oil, when maybe that oil should have been boomed away from there and collected somewhere else.

In a spill like this in marine waters, the worst place for the oil to end up is in the wetlands. From a biological standpoint, the best place to have the oil end up is on a beach, because you can clean it more easily. Now, I'm not talking about this No. 2 fuel, because there is really no good place for that to end up. But in most cases, you try to keep the oil out of the wetlands because they are the most easily damaged, the most damage can take place over a long period of time, and the most difficult to clean up.

So, we suggest an inventory that would be available in both New York and New Jersey offices, and the Coast Guard that

says, "If a spill happens in this part of the Bay, boom off these areas: one, two, three, four, five; those are the critical ones, and then worry about the containment after you get those areas protected."

We would suggest, in any way possible, that you all and others can work on, to encourage cooperation between New Jersey and New York, both New York State, and New York City in some kind of -- for want of a better term -- a Bay-Harbor initiative; some long-term emphasis that this is a valuable body of water. It's productive biologically. It's recreationally valuable in addition to its value as a harbor for navigation. It's a beautiful place. The two states have got to work together because as you pointed out here, New Jersey, I guess, takes credit for the spill and New York and Staten Island bear most of the damage.

SENATOR VAN WAGNER: Well, we pointed out that it was irrelevant.

MR. BENNETT: Yes, exactly. In that regard, I would hope that New Jersey would remember that there are some very delicate wetlands just downstream of the Exxon facility. I don't remember the name of it, but--

SENATOR VAN WAGNER: Shooters Island?

MR. BENNETT: No, below on the Jersey side. Constable Marsh, I think is the name.

SENATOR VAN WAGNER: Constable Marsh, just below Pralls?

MR. BENNETT: Right, exactly -- on both sides of the river.

SENATOR VAN WAGNER: Beatrice is taking me on a walking tour.

MR. BENNETT: Good, good. Last year -- and I guess Mark Connelly knows more detail about this, Senator Dalton I think, had hearings in -- was it Camden? -- on the spill containment possibilities or whatever, in the Delaware area.

I'd be interested in knowing whether that was a productive hearing and whether something similar to that at some future date, shouldn't be held for the New York-New Jersey Harbor also.

If you are looking at things, it might make sense now to go back and look at the whole situation with regard to booms and dikes. Are tankers and other vessels boomed during loading and offloading, and are the dikes that are supposed to be surrounding oil storage tanks the right height, the right width, the right strength, and what have you? In theory, when a storage tank goes in one of these storage areas, it's supposed to be diked so that the oil will be contained within the dike. I don't know what the inspection system for that is, but I suspect it probably could be renewed.

Among my other experiences I did spend some time in the merchant marine for an oil company -- not Exxon, but Sun Oil -- as a wiper on board tankers in the '50s. I can assure you that people who work in oil companies do not spend their working day worrying about how to keep the environment clean. They worry about getting to lunch, getting their work done, goofing off, doing the least amount of work in order to comply with something. That's a standard procedure, I think, and it pays to go back and look over their shoulder periodically.

It might be interesting for this Committee, or someone else, to look at the licenses and permits that have been granted to companies like Exxon and others, for these pipes, for the occupation of riparian lands. As I understand it, the Tidelands Resource Council gives out licenses and permits. They charge for them. These are given out because it has been decided that they are in the public interest. It may very well be that in order to get Exxon's attention, and someone else's attention, one might look at those licenses and decide that maybe it's no longer in the public interest to permit that license. They have to come up for renewal, and you might be able to get their attention in that way.

I'd like to talk about Exxon for just a second. My question is, what are we going-- What do we make of Exxon? It's important to remember that the Arthur Kill is one of only three incidents of fairly recently that have happened -- Valdez a year ago, on March 24--

A couple of years ago Exxon was caught in the act of running its empty tankers up from the Arthur Kill into the Hudson. They cleaned their bilges on the way up. When they got into the fresh water section of the Hudson River, they loaded their tankers with water, fresh water, and took the water down to the Caribbean and sold it.

They did this not only without permits, but they were also pumping their tanks against the law. They settled this; they essentially admitted that guilt. But this is a company which was trying to figure out a way to make a few extra dollars by getting some water out of the Hudson, and selling it to Central America.

Last week there was a hearing in Linden. Exxon is coming back for the second time in 15 years to apply for a permit to downgrade the water quality in Morse's Creek. Essentially because they are having trouble making-- They are having trouble when they are discharging, meeting the qualifications -- the criteria for the present water classification. Their answer to that seems to be rather than clean up their effluent, why don't we lower the standards in the creek?

We testified at that hearing last week along with the Public Interest Research Group of New Jersey, and some others have since come in by letter. I leave it only to ask again: What do we make of this company? I think the thing to do is to be very strict with them now.

To address for a second the standards for cleanup: I don't know; let me give you some thoughts. One of the problems with a spill like this is that you have essentially a company

which is going to try to say that the damage was as little as possible, and you are going to have others who are going to try to say that it is much more -- at least try to account for what the damages are.

The problem with an area like the Arthur Kill is that there is-- There have been oil spills in that area all this time. There are possibilities that you can catalog the amount of oil that is in the wetlands, for example, from this spill because it might have a different signature, but there have been spills in the Arthur Kill since the spill of a couple of weeks ago. It's just a routine, and it's going to be very difficult to separate those out.

There have been some base line studies that were done which are being looked into, I believe, by the New Jersey DEP. Public Service Electric and Gas has done recent base line work on bottom sediments and plankton and benthic vertebrates. There has been some work done by Angela Cristini at Ramapo State College on some crustaceans in the Arthur Kill area. The Corps of Engineers has done some environmental impact work there, because they are proposing to dredge the channels of the Arthur Kill more deeply. New York State, within the past year, has done an overflight -- false color infrared -- on the wetlands, so there might be some ability to detect the damage of the wetlands before and after this spill by comparing false color infrared photography.

One of the problems with the spill is that as sad as it is to see oily birds and dead animals on the beaches, in the long run there may be much more important impacts that are much more difficult to see. Some of them are sublethal.

You may have an instance where you might have animals which, because of a spill, may migrate elsewhere, or they might spawn too early or spawn late. You may lose part of a year class, but you don't have 100,000 dead fish floating on the surface to prove that.

As I said before, in an argument like this the lawyers for the spillers are going to say, "The Arthur Kill is a stressed area. You got a few bay anchovies, and you have a few eggs and larvae. It's not much. Don't charge us much."

The biologists, on the other hand will say, "This is a recovering area. We are trying to encourage striped bass, and weakfish, and other fishes to migrate up into the Hackensack through the Newark Bay area. They have to get up this way. If you insult them this much you might lose some of the impetus, some of the momentum that has been established by the cleanup."

The way to measure, I think, in this area-- The simplest measurement, I think, of the damage here-- One way is going to be to do good studies of the wetlands on the Shooters Island, Pralls Island area in the sediments, to measure productivity of invertebrates before and after the spill, and also to monitor the nesting of the egrets and the herons, and the ibises in those rookeries this summer and see if there is a measurable decrease in the numbers of those who are nesting or fledging young.

Other than that, I would suggest that one of the ways to establish the damages for a spill like this would be to somehow come up with a system which may in part be somewhat arbitrary; that is to say that any spill in any body of water in New Jersey is damaging, and establish a simple matrix of places where the spill takes place, times of the year, quantities and qualities of the spilled material, and simply come up with a formula that both sides could agree to.

Although I hesitate to use the comparison -- maybe it's a bad one -- it might be like no-fault insurance.

SENATOR VAN WAGNER: Don't use the comparison.

MR. BENNETT: Okay, I won't use the term. Something in essence which says, rather than each side spend \$150,000 or \$200,000 in court and take three years to argue back and forth about whether you killed some mysid shrimp or didn't, have

everyone agree that if you have a spill you are going to cause some damage and come up with essentially a matrix. If this is the damage, this is the time of the year, this is the amount of the spill -- it's No. 2 oil or it's crude or it's Saudi crude or Alaskan crude -- this is the number you come up with, multiply it out; it's \$3.2 million. Boom, it's done. It might be a possible way out.

Another thing to look at maybe, on this one, is that there is a group that has been meeting. It's advising the Trust for Public Land, and the New York and New Jersey DEC and DEP, made up of Audubon, Staten Island groups, and Natural Resources Defense Council, and the American Littoral Society. They are looking at the settlement which was drafted after a similar spill by Shell Oil. I don't remember whether it was in San Francisco Bay or Los Angeles Harbor; maybe someone else would. It was about 440,000 gallons of No. 2 fuel. There was a settlement there that included some fines, and also included some reparations in the way of mitigation and purchase of land and restoration of some wetlands. That might serve as a model.

It might also -- the background for that settlement -- might indicate the ways that they decided on recovery and damages.

Let me finish off just by saying that we are going to-- The Clear Water and the Littoral Society are going to commemorate the first anniversary of the Valdez spill and the-- Detail some people at the Exxon spill-- We are having two meetings, one in Keansburg, not North Middletown or West Middletown, but really Keansburg, on the 22nd and one in Long Branch on the 26th, in the evening. There will be public notice of those to show the Valdez spill and to show the Exxon spill in the Arthur Kill.

We're going to stick with it. We hope you do, too. And to the extent that we can be helpful, we'd be delighted to pitch in.

SENATOR VAN WAGNER: Well, if I could, I'd just like to respond to a couple of things. About 12 years ago, if you recall, I and the late Assemblyman Walter Kozloski, former Assemblyman Anthony Villane, and New York legislators, if you recall, made a valiant attempt to create a bistate committee to do the kinds of things that you just talked about. As we proceeded through the hearing process, you continued to be there, and several other groups continued to be there. But unfortunately, perhaps because of just differences of opinion and approach, we were unable to come up with legislation that could be agreed upon in both states.

Since that time I have continued to attempt to work with New York legislators, most recently Assemblyman Maurice Hinchey, who as you know is the Chairman of the New York Assembly Committee on the Environment. And I have again communicated with him based on the visit that Mr. Smith and I made about two weeks ago to the Arthur Kill with staff, to try to familiarize ourselves totally with what took place and the region in which it took place. I'm hopeful that this event, considering the fact that much of the observable ecological damage now has seemed to occur on the Staten Island side, will somehow prompt or attract the New York legislators along with New Jersey legislators, to jointly come up with legislation that will protect the entire region.

Secondly, as I mentioned in my opening remarks, Mr. Smith and I have, in fact, through staff, begun a draft of legislation as you outlined. We will include in that draft a requirement for an inventory of those areas that you mentioned, as well as the pipelines that impact those areas, or any kind of facility that, in fact, requires some type of discharge permit.

In addition to that, as I mentioned in my letter, we intend to pursue Exxon unceasingly. I don't know if you remained to the end of the hearing that we conducted in

Woodbridge, but I advised Mr. DiCorcia at that time that I was disappointed in the fact that the appropriate officials, in our view, were not there to testify -- that there did not seem to be anyone there who, in fact, could give us a direct responsible answer to the management controls that were or were not in place, and that I was advising him that this would not end until we had all the answers from that particular company. Realizing, of course, that it doesn't only apply to them, but given their track record, they certainly were going to have a lot more to answer for, including the possibility of criminal negligence. And I don't rule that out lightly. I, in fact, as has Mr. Smith, have talked to the Attorney General, to the Director of the Division of Criminal Justice, and to the Governor about this possibility.

So these hearings that we are conducting, in our view, are going to result in more than just recommendations. They are going to result in legislation. They are going to result in action taken by the State of New Jersey and other authorities against this company for what I feel is negligence, irresponsibility, and a total disregard for the environment that they get to use. So I just wanted to make that statement to you so that you would be aware of that.

In addition to that, I would personally like to -- and I spoke to some of the people you mentioned, in the northern part of the State who--

You know, oftentimes we think about environmentally oriented people as being mostly in the suburban areas, more concerned about the estuaries and bodies of water in this area. But what I found in getting involved in this particular incident in talking to some of the people in Linden and Rahway and in places like that, is that there is a great concern on the part of people living in the urban environment for the protection of that environment. They hold that in as

much value as we do our bay and our ocean. Unfortunately, some of the companies that use those estuaries don't have that same level of value.

So I'm going to attempt to form as part of a resource group for our Committee in the Senate, a kind of working group made up of some of the organizations that you talked about, that would interact with us and network with us on the kinds of legislative initiatives that we are going to try to undertake over these next few years. So I appreciate your coming here, and I just wanted to assure you of that initiative. Mr. Smith?

ASSEMBLYMAN SMITH: Mr. Bennett, just one question: Any estimates on your part as to how long the Arthur Kill will feel the impact, the adverse impact associated with this particular spill?

MR. BENNETT: It's a question that is asked often. I don't have a clear answer. I would say that probably if you came back in a year and did water quality measurements, you probably couldn't detect any differences, I think. But the marshes, when they had a similar spill in the Falmouth marshes, they are still finding oil-- How long ago was that spill? I don't remember, 15 or 20 years ago? They are still finding No. 2 fuel oil in the marsh that's as if it had come out of an oil can with no changes.

So that will be detected in that marsh for probably at least a decade. The important thing is to find out what the impacts were on the salt marsh and the intertidal area, whether you had a wipeout of some marine worms and invertebrates that are important food organisms for other things. That can be discovered.

As I understand it, they are going to be doing those samples. In fact, they are going out Friday to start looking. They can do before and afters and they come back-- In general, marine organisms in this area would be able to repopulate in time. But, I think, if you were to come up with a number in

the marshes, it would be decades, and in the intertidal flats it might be a couple of years. And the water, the water right now may not be showing any measurable impact because it's pretty much flushed out.

ASSEMBLYMAN SMITH: Thank you, Mr. Bennett.

SENATOR VAN WAGNER: Interestingly enough we were advised by the State Police, and from my own experience, that the actual cleanup of the No. 6 oil -- that was the product that was apparently aboard the Valdez -- was actually in some cases, as bad as it was, was easier to clean up because the oil actually congealed--

MR. BENNETT: Yeah, you knew where it was.

SENATOR VAN WAGNER: --it could be lifted right out. Whereas the No. 2 oil -- and this is another one of my concerns -- evaporates eventually, and ultimately comes down somewhere else. So that the effects of it could last for years in one place or another within that region. Do you have any feelings about that?

MR. BENNETT: The problem with this No. 2 oil is, and it was heard right from the very beginning, "Oh, it's evaporating. It's going to go away." A couple of things about that: First of all, there were some people -- in fact I think Guy Molinari, the Borough President of Staten Island, who is asthmatic -- was very sensitive to the fact that there were air quality problems. Secondly, there are in No. 2 fuels some very toxic fractions which are in the water, which are killers. So, in some cases the lighter fractions are more damaging than the others.

The other thing I should just say in closing is that, and I don't mean to let Exxon off the hook because they are on there and they should be kept on there: You have to remember that every day we are putting oil into the waterways through runoff, through casual disposal of crankcase oil. I mean, we

are not innocent of this at all. There are an awful lot of other things that have to be attacked on the addition of hydrocarbons to the ecosystem, and not just this.

SENATOR VAN WAGNER: Understood. Any other questions?

ASSEMBLYMAN KYRILLOS: No, Mr. Chairman. I think you've summed up well. I just wanted to thank Derry for all his correspondence and his great legislative ideas and his leadership. Thank you.

SENATOR VAN WAGNER: Thank you. We have the New Jersey Department of Environmental Protection here, Mr. Gerard Burke, along with a very large contingent, as I see.

I should mention that Commissioner Yaskin has communicated with the Committees' Chairs. She has been actively involved in this issue, and will be appearing before the Committee as soon as the data is made available to everyone in all departments. Sir?

ASSISTANT COMMISSIONER G E R A R D B U R K E: Good morning Senator Van Wagner, Assemblyman Smith, and other distinguished members of the Committee. I am Gerry Burke. I am the Assistant Commissioner in Charge of Enforcement and Regulatory Affairs for the New Jersey Department of Environmental Protection. I have with me today to my far left, John Trela, the Assistant Commissioner in Charge of Hazardous Waste Management for the Department of Environmental Protection, and to my immediate left, Robert Tucker, the Director of Science and Research, for DEP.

On behalf of Commissioner Yaskin, I would like to thank you for this opportunity to testify on the catastrophic Exxon oil spill in the Arthur Kill. By now, Exxon's failures are a matter of public record. Before I move onto the primary focus of my testimony today concerning the environmental impact of the spill, however, I would like to share a few observations with you concerning Exxon's conduct.

In an event of this type, accurate information and time are of the essence. In order to minimize the migration and evaporation of the oil, immediate response is necessary. Exxon maintains that once it determined the problem was theirs, they responded without regard to the volume lost. However, by this time, hours of response time were lost, and as a result of Exxon's low estimate, government's initial response was limited.

If the volume estimated had been accurate, the U.S. Coast Guard's regional response team would have been activated, not just notified, and the Coast Guard's Atlantic strike force would have responded much sooner.

Just as troubling are the facts that have surfaced concerning the cause of the incident. The pipeline was ostensibly equipped with a leak detection system which was designed to automatically shut down the pipeline in the event of a release of more than 10 barrels per hour. It appears that the system worked. Exxon, however, has represented that the system was too sensitive. In addition, there was in place a standing operating procedure which called for checks if the automatic shutoff was activated. In short, everything required to protect the environment from discharge was in place; everything except responsible operation.

It appears that the automatic shutoff was tripped more than once, and each time the operators overrode the system and resumed pumping. Exxon has defended this action by saying that the system was unduly sensitive and switches did not work. It would, therefore, appear that Exxon allowed a system to operate which was so unreliable that it was ignored. The standard operating procedure was replaced by a real world operating procedure where the automatic leak detection shutoff was routinely overridden. No amount of government oversight or inspection would have unearthed the fact that no one at Exxon took the system seriously. The fact is that Exxon gambled with its systems, and the environment lost.

I would now like to focus on the environmental impact of the spill, and the actions that the State of New Jersey is taking to minimize its impact on the environment.

Despite the extensive pollution that has occurred over the years in the Arthur Kill, its tributaries and adjacent waters remain valuable components of the estuarine system. Our preliminary field observations have revealed large numbers of dead and dying marine worms, crabs, and other invertebrates in the marshes and on the shoreline of the spill zone, raising our concern for the survival of birds and fish returning to the area in the coming spring months. At least eight species of colonial nesting herons and egrets nest at Pralls Island and Shooters Island and feed on fish and invertebrates in the wetlands.

In addition, rafters, water birds, and shorebirds migrate through the Newark Bay and Raritan Bay estuaries in great numbers during the spring and fall. Feeding on small mammals, fish, and invertebrates, diamondback terrapins -- a species with commercial value -- is found there and is dependent on animal food and suitable hibernation conditions.

In fact, there is evidence that conditions in the Arthur Kill had been improving in recent years. For example, 73 species of fish were identified in the Arthur Kill in an 1988-1989 study. Unfortunately, as a result of the spill, the total number of bird fatalities that we estimate, now exceeds 500.

In light of the potential magnitude of the ecological damage, the Department of Environmental Protection has moved ahead with other involved agencies to develop a three-tiered approach to assessing the impacts of this spill. This approach includes immediate cleanup, short-term assessment, and longer-term studies to fully measure the extent of damage caused by Exxon. This assessment will build upon a substantial

amount of research already going on in this area by DEP and scientists from our State academic institutions.

We are also benefitting from the experience gained from assessing other spills such as the Delaware River spill last summer, the Alaskan spill, and the Shell Oil spill in California. Working cooperatively with New York and several Federal agencies provides all involved parties with the best information by which to design and implement a damage assessment.

To this end we have identified the following issues that need to be addressed:

1) Measurement of the distribution of oil contamination in the sediments and benthic organisms. In other words, how much oil is left in the ecosystem?

2) How effective has the oil spill cleanup been? Are there still areas where oil is present in substantial quantities?

3) We need to design strategies to protect migratory birds upon their spring arrival, as well as the waterfowl already in the area.

4) What are the toxic components of the oil, and what are the lethal impacts of the water soluble toxic components?

5) What are the subsequent impacts on the reproductive processes of the numerous aquatic and terrestrial organisms occurring in the spill area?

The Department is committed to addressing these issues with or without Exxon's cooperation. We are working cooperatively with the State of New York and concerned Federal agencies. It is our intention to retain a contractor to conduct the necessary studies, and work to ensure that the impact of the spill is minimized to the maximum extent possible.

Before we take your questions, I would like to comment briefly on the State Spill Prevention Rules. The Spill Compensation and Control Act requires that the owner or

operator of every major facility with a total storage capacity of greater than 400,000 gallons of hazardous substances must submit a Discharge Prevention, Containment, or Countermeasure Plan, also known as a DPCC Plan, and a Discharge Cleanup and Removal Plan to the Department.

The purpose of this program is to encourage, and in certain instances require, design and maintenance standards in major facilities that will insure against the discharge of hazardous substances. The Discharge Prevention Plans contain a general site plan of the facility which shows the location of structures in or which hazardous substances are stored or handled, or which are used for the prevention of discharges of hazardous substances. In addition to the site plan submitted to the Department, the owner/operator must maintain detailed plans at the facility.

In the case of transmission pipelines, the facility must also file a map which includes such information as the size and age of the pipeline, location of valves, pumps, and flow recording devices, operating and maximum design pressure, and periods that the pipeline will be in use. The pipeline must also be equipped with sensing devices capable of detecting leaks and which will automatically shut off flow or initiate procedures to shut off flow.

Exxon submitted plans which included the above information at the Bayonne plant on July 9, 1974, which were revised on February 28, 1983. For the Bayway facility, plans were submitted on April 12, 1985.

The Department notified Exxon on October 25, 1989 that a professional engineer's certification of the Bayway plans was required. To date, Exxon has not complied with that request.

SENATOR VAN WAGNER: Is that since 1985?

ASSISTANT COMMISSIONER BURKE: No. We requested that Exxon have a professional engineer's certification of the Bayway plans in October of 1989.

SENATOR VAN WAGNER: But the last update that you received was in 1985?

ASSISTANT COMMISSIONER BURKE: That's correct, Senator.

SENATOR VAN WAGNER: Prior to that, was there any follow-up, or prior to that or in-between that, was there any follow-up made in order to get them to bring themselves more current?

ASSISTANT COMMISSIONER BURKE: Not necessarily current, Senator. The plans are reviewed to the extent that we have staff available to see if they comply with the requirements of the rules. There are no inspections of the facilities conducted. It is a review of the plans as against what is required by our rules.

SENATOR VAN WAGNER: Thank you. Go on, I'm sorry to interrupt.

ASSISTANT COMMISSIONER BURKE: No problem. DEP's regulations also mandate that the owner/operator must submit the following information to the Department within 60 days after any reportable discharge at a major facility: A full report of the discharge incident including the cause of the discharge and the failure analysis. The corrective actions and/or countermeasures taken including a description of the equipment, repairs and/or replacements, and additional preventive measures taken or proposed to minimize the possibility of recurrence.

The Department intends to require Exxon to upgrade its Discharge Prevention Plan to include the following:

- 1) metering and recording of total flows through pipelines,
- 2) protection of buried or submerged pipelines from damage, and
- 3) periodic certification as to the integrity of all safety devices designed to prevent release of the contents

of the pipelines. None of these measures will be effective, however, if Exxon ignores their operational responsibilities.

Finally, it has become painfully obvious that there is a need for Federal regulation and oversight of pipelines of this type. We support the efforts of Senators Bradley and Lautenberg to ensure Federal regulation in this area.

I know you must have a lot of questions, and we'll do our best to answer them.

SENATOR VAN WAGNER: I mentioned in my opening remarks that it is our belief that the State can and should assert regulatory authority over these types of pipeline. Personally, I'm not satisfied simply with the elimination of the present exemption for the 20% of capacity flow based on the Federal preemption that took place in 1979. Let me tell you why -- okay? -- and then I'll ask you the question.

In 1979 the Federal preemption took place, as I understand it--

ASSISTANT COMMISSIONER BURKE: That's also my understanding.

SENATOR VAN WAGNER: --and that's when the law was passed. It is now 1990. As of October of 1989 there still were no regulations adopted by the Federal government. I realize this is not necessarily the responsibility of the State DEP, however. And we were advised at the last meeting that there were perhaps 10 pipeline safety inspectors nationally to do this kind of work. In light of that and in light of this particular catastrophe, is it not in our best interest as a State to take regulatory authority over these pipelines?

ASSISTANT COMMISSIONER BURKE: Senator, I think the difficulty as we reviewed the issue, is that even if the State of New Jersey was to assert jurisdiction over some of these pipelines, we would still be at a substantial risk. There are pipelines entering the State of New Jersey that originate in Pennsylvania, in the Marcus Hook area. Even if we were to

assert jurisdiction and the State of Pennsylvania did nothing or the Federal government continued its current posture, the State of New Jersey would be at substantial risk.

I think there is a need for uniform Federal regulation in this area.

SENATOR VAN WAGNER: We have someone from the EPA today, so we'll be asking them some questions about that.

Given the fact that we do have the Spill Compensation Act which requires much of what we are going to be asking for in terms of administrative requests, it seems to me, at least, that the State, or states perhaps in this case, have to take some -- if I can borrow a phrase of their own -- preemptive action, in taking control of their own destiny. I, frankly, do not trust the Federal government to do that. The track record over the last eight years has been abominable in terms of the environment. There's no sign to me that it is going to continue and get any better.

Shouldn't this be enough to perhaps have us at the State level begin to say to Washington, "It's time for us to work together, and at least provide some kind of concerted action to take some control over these environmental matters"?

ASSISTANT COMMISSIONER BURKE: Senator, I agree with your concerns. I understand them. The issue of preemption is unclear. We have asked our Attorney General's office for advice on this issue within the last several weeks. It will be an issue of contention in our current lawsuit against Exxon. For that reason I'm a little bit hesitant to go into too much detail about the preemption issue. As you know, we have filed suit against Exxon.

SENATOR VAN WAGNER: I know.

ASSISTANT COMMISSIONER BURKE: One of the requests for relief we put in there, is that Exxon be restrained from placing the system back in operation without the State of New Jersey's approval. Obviously, in the context of that argument,

we will be faced with the preemption issue. For the current time it appears to be moot, because the Office of Pipeline Safety on the Federal level has also placed restriction on Exxon placing the line back in operation.

It is a gray area with respect to our ability to regulate these pipelines. I would just as soon not in any way prejudice the Attorney General's arguments that we will have to make against Exxon in any way this morning.

SENATOR VAN WAGNER: Studies of the various aspects of the ecology of these waters are currently underway. Will these studies be integrated with the need to assess the damage from this particular oil spill?

ASSISTANT COMMISSIONER BURKE: Senator, if I may, I'd like to have Bob Tucker, DEP's Director of Science and Research respond. He is intimately familiar with the work that has gone on for the last month in getting ready to undertake the necessary work in order to minimize the impacts of the spill.

SENATOR VAN WAGNER: Okay, Dr. Tucker?

R O B E R T K. T U C K E R, Ph. D: We are working closely with our counterparts in New York State and with the Federal agencies to outline the scope of services for the natural resources damage assessment. Fortunately, we had some investigators in the area prior to the spill who have provided us some baseline information in regard to the organisms present. People in Staten Island were working on Pralls Island with the heron rookery on our side of the Arthur Kill. We were looking at benthic organisms and as Mr. Burke indicated, over the last few years there had been substantial recovery in that system, which makes it truly tragic to have the magnitude of this kind of a spill.

My personal observations up there indicate serious impacts on the benthic organisms, and I certainly observed a real need to go back and to look carefully at the natural resource damage.

SENATOR VAN WAGNER: Could you respond to Mr. Bennett's comment on the development of some type of matrix to measure the damage as it relates to each of the areas that are impacted?

DR. TUCKER: One of the things that Mr. Bennett indicated, that the impacts in the sediments and on the organisms that live in the sediments will be substantially more long-term than perhaps in the water column. I agree completely with him, and that certainly is the consensus of the other scientists that I have talked to.

In terms of a matrix, we need to identify those most sensitive parts of the ecosystem, including the organisms that will serve as food for the herons and some of the other endangered birds, the migratory waterfowl, that will be coming back.

The impacts from the Falmouth spill, which was in 1969, can still be seen in the marshes, particularly in the benthic sediments. They continue to have an impact on the benthic invertebrates.

SENATOR VAN WAGNER: That's 21 years.

DR. TUCKER: Yes. It's amazing how long in the sediment and in the marsh area these impacts continue. In addition to a natural damage assessment over the next few months, we are discussing with scientists the need for some longer-term follow-up studies. As Mr. Burke indicated, we will be looking particularly at reproductive effects and some of the interactions with the species in that ecosystem.

SENATOR VAN WAGNER: These impacts-- You know, oftentimes it's hard for people-- You know, when I talk to people about the impact on the environment, many times people don't associate that with themselves as humans. Could you outline, perhaps, the significance of these impacts as it

relates not only to the environment, but to the real quality of life areas, in terms of what takes place when this kind of long lasting impact occurs?

DR. TUCKER: I think to look at the human aspects of this, certainly over the last few years, New Jersey has really focused on its waterways. We've taken great strides in designating along shore parks and as part of this activity, I think this was contributing to the cleanup of the Hudson-Raritan Estuary. So the impacts of this kind of pollution on that progress is a real impact on the human sense of the quality of life in the environment.

In addition, this system contributes to both sport and commercial fisheries. An impact, even though it is in that very narrow area of the Kill-- There is a possibility of some of those components entering the food chain, possibly getting into some of the organisms that we eat. There are people who are catching crabs in the Raritan complex. One of the things that we need to do in terms of follow-up is to see if there is a distribution of those toxic components into the food chain and what particular impacts that might have on the human food chain.

SENATOR VAN WAGNER: Are there any estimates as to the time frame required to collecting that information necessary to evaluate the ecological response to the spill? Months, years--

DR. TUCKER: No. I think one of the tributes to our academic researchers already there-- They went out immediately and collected some of the organisms and started comparing it to the baseline information they already had. To keep comparing this, for an initial assessment, certainly -- beyond the return of the migratory birds this spring and then to compare it with some of the other baseline information we have throughout the summer and fall. So probably, the intermediate damage assessment will need to occur over the next year.

We are going to need some longer-term follow-up studies on reproductive success of the animals. One of the tools that we are going to be using is a geographic information system. We have a map system that we are now using to try to get a sense of the impacts of the spill. This was based on information from the emergency response crew, which just from the immediate assessment could tell where some of the most serious impacts along the shoreline of the Arthur Kill and into the Kill Van Kull occurred.

With the geographic information system, we can update this on a regular basis and provide information to the scientists who are doing additional work.

Our people from Fish, Game, and Wildlife, did some overflights and noticed right after the spill where some of the birds were concentrated. Right in the head end of Raritan Bay they noticed over 18,000 waterfowl just from that overflight. On January 8, the Saw Mill Creek Wildlife Area was closed to provide at least a relief area for some of the waterfowl in the area where they would be less disturbed.

But there is great potential impact in terms of the waterfowl in the area. Any tools that we can use such as this mapping, will be of benefit in following up the assessment.

SENATOR VAN WAGNER: Can you supply the Committee with reasonable facsimiles of those maps?

DR. TUCKER: Yes, absolutely.

SENATOR VAN WAGNER: Thank you.

ASSISTANT COMMISSIONER BURKE: Senator, if I might add one thing? The State of New Jersey has taken the lead on this natural resource damage assessment, working with New York and the Federal agencies. We have recently circulated among the relevant agencies a scope of services for the work that needs to be done that has been accepted favorably by the other agencies. There is another meeting scheduled tomorrow. We expect to be providing the Committee shortly with an estimate

of the cost of the work we think needs to be done, for your information. Of course, we will expect and demand that Exxon pay that full bill.

SENATOR VAN WAGNER: Thank you. Mr. Smith?

ASSEMBLYMAN SMITH: Commissioner, we're learning many lessons from the Exxon spill which I think in many ways expose some of the vulnerabilities that the State has with respect to petroleum products. And on that note, I would like to talk about the Spill Prevention, Control, and Containment Plans that are currently on file with the DEP -- also called DPCC Plans or SPCC Plans depending on your familiarity with the regulations.

Is Mr. Trela here, because he is in charge of that area?

ASSISTANT COMMISSIONER BURKE: No, he's in charge of the cleanup and investigation that is underway.

ASSEMBLYMAN SMITH: Who is in charge of the Spill Prevention, Control, and Containment Plans?

ASSISTANT COMMISSIONER BURKE: That would currently be within the jurisdiction of the Division of Water Resources. There is no one here from that division today.

ASSEMBLYMAN SMITH: Okay, do you have any idea of how many facilities in the State are covered by the SPCC regulations?

ASSISTANT COMMISSIONER BURKE: My understanding is there are 226 major facilities.

ASSEMBLYMAN SMITH: In the State?

ASSISTANT COMMISSIONER BURKE: Yes sir.

ASSEMBLYMAN SMITH: Do you have any idea what quantity of petroleum products are stored at these facilities?

ASSISTANT COMMISSIONER BURKE: No, I do not. But, in order to qualify as a major facility, you must have a capacity to store or handle greater than 400,000 gallons of hazardous substances.

ASSEMBLYMAN SMITH: All right, so we are talking about at least 100 million gallons of petroleum product, if every facility was just at 400,000.

ASSISTANT COMMISSIONER BURKE: Easily.

ASSEMBLYMAN SMITH: Which is probably a low estimate, a very low estimate. So we are talking about a tremendous quantity of petroleum products stored in facilities around the State.

The SPCC Plans were originally required to be filed with the DEP during what time frame?

ASSISTANT COMMISSIONER BURKE: I would guess about 1980.

ASSEMBLYMAN SMITH: So they are about a decade old, roughly? I think you mentioned in your testimony that within the DEP there are personnel who review these plans?

ASSISTANT COMMISSIONER BURKE: There are very limited personnel.

ASSEMBLYMAN SMITH: How many personnel are involved in the review of the plans?

ASSISTANT COMMISSIONER BURKE: There are two positions available to review these plans, one of which is currently vacant.

ASSEMBLYMAN SMITH: All right. Now, the two people who review these plans, their responsibility is strictly a paperwork review. They look at the plans, they may have some comments or concerns, and they'll write back to the facility that submitted them, but they have no responsibility, for example, to go to the site or to go back a year later to see whether or not the plan is still in effect or that the equipment is on-site. Is that true?

ASSISTANT COMMISSIONER BURKE: That's correct. They essentially review what is submitted against what the rules require, to make sure that the facility meets all the checklist requirements.

ASSEMBLYMAN SMITH: All right, correct me if I'm wrong, but as I remember the Valdez situation, the State of Alaska seemed to be very much concerned that a plan -- a Spill Prevention, Control, Containment Plan, out in Alaska -- had been on file, and yet when the incident occurred, the equipment necessary to handle the problem wasn't available. In light of that -- and also in light of some of the other problems that we've been having, the spill out in Pittsburgh two years ago -- in light of those past incidents -- and I think also the recent one out in California-- I think according to the GAO 3000 oil spills a year is the national average right now, ever since 1982. In light of that horrendous history with regard to oil spills, do you think we're doing enough?

ASSISTANT COMMISSIONER BURKE: Senator, I think--

ASSEMBLYMAN SMITH: Assemblyman.

ASSISTANT COMMISSIONER BURKE: I'm sorry, Assemblyman. Should I apologize? (laughter)

ASSEMBLYMAN SMITH: Senator Lynch would get very upset.

ASSISTANT COMMISSIONER BURKE: The State of New Jersey is prepared to deal with what is characterized as a less than major spill. And by major spill, we would define it as greater than 100,000 gallons. I think we are prepared to deal with-- We can call upon sufficient contractors to deal with a less than 100,000 gallon spill. After the spill in the Delaware River last summer, we testified in Washington that-- We were critical of the response at that time because we thought that the Coast Guard should have more quickly federalized the response to that spill.

The State of New Jersey is not prepared on its own, or capable of responding on its own to a major spill.

ASSEMBLYMAN SMITH: Right, but that's not the focus of the question. The question is not what happens after the spill occurs and who should be cleaning up, the question is how do we prevent the spills from occurring in the first place? We have

legislation on the books in New Jersey that say that these 226 major facilities are to submit a plan providing for the prevention of spills, or if the spills occur, containment of those spills. The question is: Are we putting enough effort in the State of New Jersey on spill prevention, control, and containment, with those two people who review the plans?

ASSISTANT COMMISSIONER BURKE: I think the answer is obvious, Assemblyman. Additional personnel are necessary. I would add, however, if I might, as I indicated during my testimony, as we have reviewed this specific incident, no amount of government resources could have foreseen the fact that Exxon would have ignored the operational systems that were in place to prevent this kind of spill. And, in fact, the impact could have been minimized had they responded and recognized and followed their own standard operating procedures during the night of January 1 and the morning of January 2.

ASSEMBLYMAN SMITH: I don't know if I agree. And I'll tell you why I don't necessarily agree. If we had a Spill Prevention, Control, and Containment operation in the State of New Jersey -- in the DEP -- where on an annual basis the plans had to be updated-- On an annual basis, at least once a year, the DEP would send an inspector to the 226 major facilities to see if either equipment is in place, or the detection systems are operating properly, or the storm drains are operating according to the plan, or that the personnel had been trained properly, or that there's a procedures manual that the personnel are being trained with on an annual basis, because of personnel turnover every year-- My guess is that Exxon -- and every word of opprobrium that's been leveled against Exxon is probably understated-- But my guess is that if the State of New Jersey had a much more aggressive spill control and containment plan, that those corporate executives who were involved with these 226 major facilities would be much more sensitive to, and much more responsive to, the need for spill

control and containment planning on their part, and making sure that those resources are available and that personnel are trained.

While Exxon is going to get everything that it deserves -- there's no question in my mind that Exxon is going to get everything it deserves, both legislatively and legally -- I think we also as responsible members of the State government have to find ways to see to it that this doesn't happen again. And quite frankly, the pipeline is only the tip of the oil spill iceberg.

The real problem in New Jersey and all across the country are these major storage facilities. And if we haven't looked at them in a decade, if we haven't looked at the plans in a decade, if we don't send people out to go to the sites and check them out periodically, I would suggest to you that we have a much bigger problem awaiting us than the 500,000 gallon spill that we have had in the Arthur Kill.

I've communicated with two prior Commissioners. Commissioner Dewling and Commissioner Daggett on the problem, as the spill in the Monongahela occurred and subsequently when Commissioner Daggett performed his interim service in the DEP, and they have both indicated to me that they think there is a problem, too. So, everybody's agreed that there is a problem. And I think right now you have the focus, the public focus of the people of the State, on petroleum products and preventing them from adversely impacting our environment. What we're looking at right now is a terrific upgrade -- a much more aggressive program in the spill prevention and control area where the industry pays for the program, the annual inspections, where you have sufficient staff to see to it that the laws are carried out. And I would hope in light of your testimony, and what is obviously a problem, the DEP could be supportive of that legislation.

ASSISTANT COMMISSIONER BURKE: Assemblyman, I just don't want to-- There was another spill during the summer, a tank at the Northfield Terminal facility released its contents. In that case, the system worked. The diking system that was required worked.

I just don't want to give anyone the notion that we can guarantee even with additional resources, if companies ignore basic operating procedures, that we're not going to have the possibility of another event like this.

SENATOR VAN WAGNER: I think the point that we are trying to make, Commissioner Burke, is that given an aggressive posture by the State in executing and implementing the kinds of requirements that Mr. Smith just talked about, that included in that would be a requirement for the companies to demonstrate clearly that they have personnel who are certified and are on the job who can, in fact, follow operational procedures, and behind that a very strong legislative statement by way of law that says, "If you do not follow these procedures, and it is a deliberate neglect on your part, you will face not only civil penalties paid by your company, but criminal penalties paid by those responsible for not enforcing these procedures." I think that's the point being made.

ASSISTANT COMMISSIONER BURKE: Senator, I would also say that there appears to be some deficiencies in our current laws with respect to penalties for catastrophic events of this type. The existing penalties of \$50,000 under the Water Pollution Control Act, and Spill Act, were never contemplated for these types of events. I think consideration should be given to some kind of penalty for catastrophic events.

Clearly if Exxon even pays the full amount of penalties, I don't think we'll come anywhere near to what-- The chronic polluter may pay more than Exxon for this one event, and at least as we've seen from the chronology of

events, this could have been prevented at several occasions along the way during that night and following morning.

SENATOR VAN WAGNER: I think in the opening remarks we focused, not specifically, in general, on the need to update and upgrade our present Spill Compensation Act, which I believe is--

ASSISTANT COMMISSIONER BURKE: I apologize, I arrived late.

SENATOR VAN WAGNER: --right, which I believe is where the language for that is, for those penalties.

ASSISTANT COMMISSIONER BURKE: That's correct.

SENATOR VAN WAGNER: Are there any other questions?

ASSEMBLYMAN SMITH: Just one, and I'm not sure whether Mr. Burke is the right person for the question. But one of the items being discussed is a joint resolution between the Senate and the Assembly, asking the Federal legislators to change the tax laws of this country, namely to make the cost of cleaning up a spill not a cost of doing business -- making it a below the line cost; that is, that it is a deduction from corporate profits and not deductible from your income taxes, all right? We think that would change attitudes tremendously in corporate America. As we were talking about penalties, it struck me that New Jersey collects corporate business taxes, and they may be in the area where we have some jurisdiction. Does anyone, either OLS or DEP, know whether or not in New Jersey the cost of cleaning up a spill would be deductible such that the corporate business taxes paid by the corporation--

SENATOR VAN WAGNER: I can answer you, having been the writer of most of New Jersey's tax laws, either fortunately or unfortunately.

ASSEMBLYMAN SMITH: Okay, great.

SENATOR VAN WAGNER: The New Jersey corporate tax, the net profits tax, does in fact contemplate some deductions and is very much patterned after the Federal statute. So there

would probably be, in effect, the same advantage in the net profits -- CBT tax, as we call it in New Jersey -- the corporation business tax, as exists in the corporate tax.

I don't know if you recall, but we went through a long period of time, and I don't mean to get into tax policy-- But when the Federal act was changed, I believe in 1985 and 1986, there was a long discussion over whether or not corporate tax in New Jersey would be continued to be linked to that change, so I think it is right now unlinked, but I think the same principles of deduction apply.

ASSEMBLYMAN SMITH: All right. Well, Mr. Chairman, with that in mind, I'd ask our OLS staff who are assisting this Committee, to research the question of whether or not we can make the costs of cleanup a below the line cost in New Jersey's tax structure, as opposed to an above the line cost so that it's not deductible.

We certainly can't control what the Federal government does. We can make recommendations. But in New Jersey we have a greater say. And that may be a way to make the 226 facilities that are storing major quantities of petroleum products unbelievably responsive to this problem.

SENATOR VAN WAGNER: Mr. Smith and I arrived at a conclusion after the first meeting that the carrot on a stick approach that is often advanced as a means of bringing corporations into -- in some cases into the twentieth century -- in terms of environmental management has, in fact, not worked. So our thought was perhaps it's time to turn the stick around and use the heavier end of it.

ASSISTANT COMMISSIONER BURKE: Senator, I don't know how many of you noticed. There's a picture in The Star-Ledger, I guess last week, taken at the Exxon facility exhorting Exxon employees to do the best with what they have. Unfortunately, Exxon management didn't take their own statements to their employees to heart.

SENATOR VAN WAGNER: Any other questions? Mr. Kyrillos?

ASSEMBLYMAN KYRILLOS: Thank you. I just wanted to return for a moment to the question of State monitoring and oversight versus Federal oversight of these pipelines. You mentioned earlier that the State of New Jersey on its own could not prevent potential accidents from pipelines that may, in fact, originate in Pennsylvania or somewhere else. Is there any way to quantify or give some sense of what it is we can do on our own, versus what we are dependent on help from Washington, or from other neighboring states?

ASSISTANT COMMISSIONER BURKE: Our information that we have is that there are 10 to 12 of these type of pipelines that run through the State of New Jersey. Once again, our concern is that if the State of New Jersey as it has in the past, aggressively regulates in this area, while we'll have safe pipelines that are subject to our jurisdiction, we will still leave the State of New Jersey exposed, if Pennsylvania should not be quite as forceful as we are.

I would hope that we would use whatever efforts we can to convince the Federal government through whatever offices are available to us, that the current system of regulation, or nonregulation by the Federal government just does not make sense, with the potential for catastrophic events that we've unfortunately seen.

ASSEMBLYMAN KYRILLOS: I agree. Of those 10 to 12 pipelines, is there any way to conclude what in fact we can control ourselves, or are we all -- every one of them -- dependent on neighboring states or outside of our jurisdiction?

ASSISTANT COMMISSIONER BURKE: Assemblyman, I think what it boils down to is the question of preemption and at what point the State of New Jersey's ability to regulate begins and ends. At this point, I don't have a very clear answer to that question. We do require that major facilities, if they have

these types of transmission pipelines, submit plans to us. I think we will find out, either in the context of this Exxon litigation to what extent, in fact, the State of New Jersey can exercise jurisdiction over these pipelines.

I haven't answered your question because I don't know the answer.

ASSEMBLYMAN KYRILLOS: No, I understand. We look forward to that information. You mentioned in one of your first observations, the hours of response time lost due to Exxon's negligence, and I was aware of that lost time. I should be, but I'm not sure of the reasons for that lost time. Could you just outline briefly what the trouble was?

ASSISTANT COMMISSIONER BURKE: Well, we can tell you what our observations are--

ASSEMBLYMAN KYRILLOS: Based on your observations.

ASSISTANT COMMISSIONER BURKE: --as to the inner workings of what was happening in the control room that evening. I'm going to leave that to the grand jury which is currently empaneled, but maybe John Trela could just briefly fill you in on the chronology of events that occurred during the night of January 1 and the morning of January 2. We have this available in much more detail that we could provide to the Committee in writing, a copy of our preliminary investigative report, but in response to your question, maybe Johnny could--

SENATOR VAN WAGNER: I should also point out John, before you do that, you were not a member of the Committee during the first hearing, but the Committee has a detailed chronology of events that took place and summing it up, Assemblyman, what Exxon told us is that it was dark, so-- And the Coast Guard corroborated that. Until a flyover was performed in the early morning hours, once the dawn came up -- and Commander Brooks is here and he'll verify this -- that it was very difficult to tell that a spill had occurred. What's

interesting, however, is that GATX, who is the actual reporter of the presence of oil in the Kill, actually had commenced at 6:30. Am I right, Commander?

L T. C O M M A N D E R L A W R E N C E B R O O K S:  
(speaking from audience) Yes, sir.

SENATOR VAN WAGNER: --at 6:30 to begin containment action and cleanup action on its own without acknowledging responsibility for the spill. Go ahead, Mr. Trela.

J O H N J. T R E L A, Ph. D.: Thank you Mr. Chairman. The information we have at this time, Assemblyman, basically indicates that on or around-- Between the hours of 10:00 p.m. and 10:30 p.m. on January 1, 1990, there was an indication of certain malfunctions in the system. At that time the operators in Bayonne noted that there was an increase in the deviation in the leak detection system. In other words, there was a meter that showed a difference between what was coming into the pipe and what was going out of the pipe, and they noticed a difference.

Subsequent to that there was a variety of scenarios that went along the lines of the system shutting off and being turned back on again by the operators. The automatic system that would detect leaks shutting the pipeline down, and then the system being turned back on by the operators. It was in the early morning hours as Chairman Van Wagner has already indicated that-- I'll give you the exact time here, the--

SENATOR VAN WAGNER: It was about 10:00 a.m.

DR. TRELA: No, it was much earlier than that.

SENATOR VAN WAGNER: 6:30?

DR. TRELA: 3:50 a.m. The Linden Fire Department arrived at the main gate of Exxon--

SENATOR VAN WAGNER: Oh yeah, right. I'm sorry.

DR. TRELA: --to report that there was a spill of oil in the vicinity of the barge docks. Subsequent to that, at 4:05 a.m. the New Jersey Marine Police arrived and also did an

inspection. It was not until later that morning, I believe on the order of approximately 6:30 or so, that DEP suggested that the source of the spill was Exxon, and it was much later in the morning, at 11:30 in the morning that Exxon itself admitted that they were the source of the spill.

So this is conceivably some -- as many as eight hours or more after the actual incident "began," although this matter is still under investigation.

ASSISTANT COMMISSIONER BURKE: Assemblyman, Exxon standard operating procedures that were supposedly in place provided that should the leak detection system alarm sound or trip, there were a series of events that were supposed to take place. Notification of supervisors, notification of appropriate governmental authorities: All of those precautions were ignored. Instead, Exxon's response was to turn the system back on.

ASSEMBLYMAN KYRILLOS: I appreciate that summary and realize it's a matter that you went over in your Woodbridge meeting that I was not able to hear at the time. I appreciate it.

One final point. Both my colleague Assemblyman Smith and I have written a letter to Commissioner Yaskin dated January 18. We haven't gotten an answer to that yet. I know that it's an awkward time and in the midst of transition she has been very busy, but if you could prompt her on that. Many of our questions you have answered either in full or partially here today, and through the Chairman, if it's possible to get a copy of the transcript of your opening remarks, Commissioner, we'd appreciate that.

ASSISTANT COMMISSIONER BURKE: I'd be happy to.

SENATOR VAN WAGNER: The entire record of this hearing will be made available including the record from the meeting at Woodbridge. Any other questions? Assemblywoman Smith?

ASSEMBLYWOMAN SMITH: John, you and I have worked with all kinds of hazardous problems in the past, and I'm glad to see you here today. I'm not glad, but under the circumstances I am happy to see you.

DR. TRELA: We're glad.

ASSISTANT COMMISSIONER BURKE: We appreciate the sentiment.

ASSEMBLYWOMAN SMITH: I have a question that-- I need to be enlightened. All municipalities-- I don't know whether chemical companies have the same facilities or the same requirements. I think they do, but I'm not sure if it affects a company like Exxon. Your hazardous response teams that are set up under the guidelines of the municipalities and the police departments with the fire companies, the first aid-- They have to have drills periodically in order to meet their qualifications and be certified by the State. The DEP and the EPA come in, and I remember we just had one not too long ago, not by choice but because of an oil truck, or a chemical truck on Highway 34 that was overheating and could have exploded. So we had our drill early. My question is, do the companies such as Exxon or any of these other companies that don't fall under the other chemical guidelines, have these trained people there to be there, to react in a particular situation like this? Do they have drills relating to it? Just having a plan on a piece of paper, that's not sufficient.

I mean, anyone could submit a plan and nothing could be done for years and years. If the plan hasn't been looked at within even a six-month period and half of the personnel responsible for it are gone or moved on to other things, how do you monitor this? Do they have the same guidelines that they have to follow?

DR. TRELA: Well, I think that you've asked several questions. Let me try to respond to all of them if I can.

On the first level, I think that most of your larger chemical companies do have emergency response teams very similar to those of municipal governments. I think that the reasons though, why they have them are very different. In the case of municipal governments, I think that they are operating in conformance with the requirements under the Office of Emergency Management, with the State Police, and the DEP in terms of providing that emergency services control in response capability.

On the second level, I think many industrial facilities have them, especially the larger ones, principally for insurance and safety reasons. In many cases, a lot of large companies have fire departments and emergency management teams -- the people with the white spacesuits, etc. -- that can go in and respond to things. I'm not aware of-- Maybe Gerry might be aware of any legal requirement that requires them to have those emergency response teams. I'm not aware of any, right off the top of my head.

ASSISTANT COMMISSIONER BURKE: Assemblywoman, I think you have hit the nail on the head to some extent. There are much more detailed requirements for facilities that handle extraordinarily hazardous substances under a law that was passed, I believe, three years ago -- the Toxic Catastrophe Prevention Act. But that, once again, only applies to, I think it's 112 extraordinarily hazardous substances. There are very specific requirements for getting procedures approved and emergency response teams. Those requirements to date, have not been extended into the petroleum industry.

ASSEMBLYWOMAN SMITH: Do they-- Is lead one of the hazardous waste products that they require?

ASSISTANT COMMISSIONER BURKE: Excuse me.

ASSEMBLYWOMAN SMITH: Lead, is lead one of them?

ASSISTANT COMMISSIONER BURKE: If I guessed-- If I answered I would be guessing.

SENATOR VAN WAGNER: No. It's a-- I think there are 25 high level priority contaminants: xylene, arsenic; not even arsenic I don't think is included.

ASSEMBLYWOMAN SMITH: It's too broad, too broad to mean anything.

SENATOR VAN WAGNER: It's long scientific names.

ASSEMBLYWOMAN SMITH: I was just wondering because, I mean, if municipalities and other companies-- I know J&J, DuPont, Hercules, the others, they all have these, and I was wondering whether-- Now, all of the municipalities answer to a disaster like this, so they help out. They help out the corporations and usually there is reciprocity with the corporations back to the respective volunteers in the towns.

I was just wondering, do they have the same criteria that they have to follow? They should. But putting it down on paper and having plans doesn't mean anything.

So I was wondering. You said that you have two people who monitor the plans?

DR. TRELA: Yes. As Gerry indicated earlier, there are two engineers who review what is called plans and specifications submitted by the companies in the form of applications, you might say, that respond to requirements that are in the regulations.

ASSEMBLYWOMAN SMITH: Okay, it sounds trite. It sounds very trite that there are only two engineers. However, you have only so many companies, right?

DR. TRELA: Right.

ASSEMBLYWOMAN SMITH: Two-hundred-and-some?

ASSISTANT COMMISSIONER BURKE: Two-hundred-twenty-six is the current list.

ASSEMBLYWOMAN SMITH: And they present their plans at broken basis--

DR. TRELA: Yes, staggered

ASSEMBLYWOMAN SMITH: --time frame and so forth, so it's not inconceivable that these two people could handle the oversight of those--

ASSISTANT COMMISSIONER BURKE: Assemblywoman, I think it's a question of the detail, even the work-- There are two positions. One of them is currently vacant and affected by the freeze. It's a level of detail that would be required. As Assemblyman Smith pointed out, that is a review done of the material submitted. There is no on-site inspection conducted.

And I would submit that two people would not be sufficient to, in fact, go out and verify the plans. In most of our programs we have to rely on the certifications of professional engineers and others, to ensure that work is going to be carried out. We do not--

ASSEMBLYWOMAN SMITH: Do you have departmental cooperation for site inspections, where you can take people from different areas within the DEP to help do this type of job?

ASSISTANT COMMISSIONER BURKE: Assemblywoman, we conduct inspections of a lot of facilities in the State of New Jersey. If there is a need for a multimedia review of a facility, then inspectors from various divisions--

ASSEMBLYWOMAN SMITH: You bring in the troops from everywhere. Thank you. Thank you for your input.

SENATOR VAN WAGNER: Okay, thank you. We are going to -- in light of my conversation with Commissioner Yaskin yesterday afternoon -- be asking you to keep us advised of your progress. I've indicated that we will provide you with the letter requesting the detailed information. Commissioner Yaskin and the Governor have also asked me to provide that letter to them.

I thank you for coming today.

ASSISTANT COMMISSIONER BURKE: Thank you very much, Senator.

SENATOR VAN WAGNER: I'd like to call now, Mr. Michael Torrusio of the United States Environmental Protection Agency.

ASSEMBLYMAN SMITH: Mr. Torrusio, how are you, sir?

M I C H A E L T O R R U S I O: How are you, sir? Good afternoon.

ASSEMBLYMAN SMITH: Good. Good afternoon. For the members of the public who weren't at our last meeting, would you just introduce yourself for the record?

MR. TORRUSIO: Surely. I am Michael Torrusio, Associate Regional Administrator for Region II, United States EPA. I previously testified on January 23. At that time I provided you with an overview of the emergency response systems that exist and a perspective on our role in addressing oil spills and hazardous materials emergencies. Today, I am pleased to bring you up-to-date on enforcement activities that we at EPA are pursuing, and our role in assessing the environmental impacts of the spill.

ASSEMBLYMAN SMITH: All right, Mr. Torrusio, you have been kind enough to present to the Committee a written statement; "Testimony of Michael Torrusio of the U.S. EPA before the New Jersey State Senate and Assembly Committees on February 6, 1990," which is six pages in length, and which we will formally enter into the record. Perhaps you could give the Committee a summary of the six pages.

MR. TORRUSIO: I was just about to ask if you would like me to summarize it.

ASSEMBLYMAN SMITH: Please.

MR. TORRUSIO: Because I know that there are some questions that you had asked me about the general accounting office report, and I thought you might be interested in that.

I think the thrust of what the testimony says is that on February 5, we had sent a letter to Exxon requiring them to implement about seven different measures, which under the Clean

Water Act, we believe, will help prevent future discharges from this Bayway facility. I don't have to enumerate them. They are listed in here.

I think the other aspect that is of import is that we have made a decision that our original letter, which I referred to when I previously testified, requesting information, was not, in fact-- The information was not sufficient. We have made that determination, and that under the judicial system could possibly impose \$25,000 a day fine upon Exxon until they comply with that information.

We have also issued an order that asks them to supply us with those seven steps, or implementing those seven steps. We have also found them in violation of the discharge permit system that the Federal government and New Jersey, together, operate.

Therefore, until and unless they comply with the seven conditions that we've asked, they will not be able to operate that facility. So I think, that, in the--

ASSEMBLYMAN SMITH: Well, they will be able to operate the pipeline?

MR. TORRUSIO: Correct, the pipeline. In addition there is, if they don't respond properly, the potential that we will find them again in violation of our requests for information, which could additionally add a \$25,000 a day fine.

Basically, that's the thrust of the testimony.

ASSEMBLYMAN SMITH: Okay, at our last meeting we asked you to take a look at the 1989 general accounting office report on some of the areas of difficulty within EPA concerning oil spills. Perhaps you could respond to those questions?

MR. TORRUSIO: I can respond at least partially. An official response is coming--

ASSEMBLYMAN SMITH: Okay.

MR. TORRUSIO: --and it is being drafted by a number of our divisions. But from a perspective from the Inland Oil

Spill Report itself, I would like to say that this Inland Spill Report and the critiques enclosed, were directed upon four EPA regions which were inspected and their procedures were incorporated into this. The critiques are directed toward those four regions, of which Region II is not one.

The four regions that were investigated were Region III, which is the Pennsylvania and Maryland area; Region V, which is the Chicago and Great Lakes section; Region VI, which is Kansas City and the Plains States, Iowa, Missouri; and Region IX, which is California, Nevada, and Arizona, I believe.

So we are not-- While this may or may not be a fair characterization of EPA in general, and those four regions specifically, they are not directed, of necessity, toward us.

ASSEMBLYMAN SMITH: What about the criticism of the adoption of rules and regulations that were pending back in 1989? Have they been adopted?

MR. TORRUSIO: The information that I have received on those rules and regulations is that from a Region II perspective, we have been in touch with Exxon and the other facilities that fall within our purview and have asked them and given them the rules and regulations that are necessary to come up with their SPCC programs, and to our knowledge, those programs were implemented.

ASSEMBLYMAN SMITH: Right, but have the regulations been changed such that operators of these oil storage facilities must construct and test their tanks using industry standards? That was one of the criticisms, that EPA doesn't have sufficient standards with respect to the program. Have new regulations been adopted to guarantee that?

MR. TORRUSIO: That I can't answer. That, I would not be able to answer. I would, from my knowledge of how the Federal government works, imagine that much of the construction -- having been involved with liquefied natural gas tanks and pipelines that are attached to them -- much of those

construction criteria come from the Department of Transportation directly. Any other agency has but cursory authority to be involved.

ASSEMBLYMAN SMITH: They were very critical in this report of "windshield inspections." How many inspectors are there in EPA reviewing these oil spill response capabilities -- in Region II?

MR. TORRUSIO: An answer that we tried to get today, in anticipation of it, and I believe that it is roughly the same as New Jersey, although I won't say that--

ASSEMBLYMAN SMITH: What is the number?

MR. TORRUSIO: About two.

ASSEMBLYMAN SMITH: Two people for Region II? Region II is New York, New Jersey, and Puerto Rico?

MR. TORRUSIO: And the Virgin Islands. Although Puerto Rico and the Virgin Islands have their own field office and their own people -- so when we say two, and that is to the best of my knowledge -- we are talking about New Jersey and New York.

ASSEMBLYMAN SMITH: So, on what frequency would major facilities with oil storage capability be inspected? How often does that happen?

MR. TORRUSIO: We don't believe that there is any regular frequency. That is to say, the type of maneuver such as the painting of the Golden Gate Bridge, where you start at one end and you paint to the other end and you come back and do it, so you have a regular sequence of events. I believe that it is, as man-hours are able to be allocated and resources allocated to that, that they go out and inspect them.

ASSEMBLYMAN SMITH: Mike, I noticed you referring to the gentleman behind you. Is he an EPA representative as well?

MR. TORRUSIO: Yes, he is one of my staff members.

ASSEMBLYMAN SMITH: Could I ask who that is?

MR. TORRUSIO: That's Barry Shaw, from the Office of External Programs.

ASSEMBLYMAN SMITH: Okay, so Barry is not involved with the oil spill program, necessarily?

MR. TORRUSIO: No. He's one of my support staff, and he was kind enough to go out and try to get the exact number--

ASSEMBLYMAN SMITH: How many inspections of facilities occur in Region II on an annual basis?

MR. TORRUSIO: That I don't know.

ASSEMBLYMAN SMITH: Could you find that out for us?

MR. TORRUSIO: I certainly will.

ASSEMBLYMAN SMITH: Okay, so that the criticism that windshield inspections-- I mean, I have to tell you that, when you say that-- First of all, we are real unhappy with New Jersey having two people who review paper plans for spill prevention for the entire State of New Jersey, which has 226 major facilities. When you tell me that you have two inspectors for New York, New Jersey, and Puerto Rico, that's even less.

MR. TORRUSIO: Well, at least New York and New Jersey. Puerto Rico does have a field office and they have a field complement, so--

ASSEMBLYMAN SMITH: All right, can you give us-- What would really be very helpful is if you would give us in writing the degree to which Region II EPA staffs this area, the oil spill area -- prevention, spill containment area -- for Region II. How many people are involved in it? What's your budget in that area? How many inspections they make each year?

One of the other criticisms in this was that the Act provides for fines of up to \$5000 per violation of oil pollution prevention regulations. And despite numerous oil spills and other violations, seven of the ten EPA regions have not levied fines. Is Region II, one of the seven out of ten?

MR. TORRUSIO: I can find that out.

ASSEMBLYMAN SMITH: Okay, would you also tell us how much in the way of fines have been levied by EPA Region II, over the course of, say, the last 10 years?

MR. TORRUSIO: Surely.

ASSEMBLYMAN SMITH: Would you do that as well?

MR. TORRUSIO: Yes. Let me just make a comment while you are formulating your questions. In sympathy with the New Jersey State DEP, back in the 1960s -- the late 1960s -- our Edison facility was perhaps the foremost agency in terms of oil spill prevention and issuing of reports of how to take care of oil spills and development of oil spill technology. The amount of material that our Edison, New Jersey facility promulgated was just unbelievable. But as the technology developed -- and I am sure that you are aware of this -- we become complacent about the potential. I don't know as to when the last time that I rode in an elevator that I worried about when it was inspected last, or how safe it is. The same thing with traffic lights: They turn on, they turn off. So, when you are running an agency, as New Jersey is, as we are, and you have finite resources, you tend to bring your resources into those areas where they are desperately needed and where you can do the most good.

This is not in any way an apology for whatever actions may not have been taken, but as a way of saying that sometimes when you have a relatively good track record, and we haven't had major spills, and most of the spills that we have had in our area always occurred from transporting, from ship to shore-- That given the fact that a company is told that they are to develop a plan, and assuming that it is also in their interests to contain whatever oil spills occur, and not to lose any valuable product which they sell, that given a certain number of inspections, to make sure that people do what sometimes they do not want to do, that they are doing it because nothing has occurred.

ASSEMBLYMAN SMITH: Well, I think the problem with your comment is that I don't know that we can assume that corporate leaders assume it's in their best interest to do everything necessary to prevent a spill. That's one of the things that we are considering legislating in New Jersey; increasing the fines, criminal penalties, and a whole bunch of other actions that will make it clear that it's much more painful to pollute and much less painful to prevent pollution than not. So I don't know that that assumption is correct.

In terms of this GAO Report, they have some specific recommendations. They said, "Amend the oil spill prevention regulations to require that: 1) above ground storage tanks be built and tested in accordance with industry and other standards, 2) facilities plan how to react to a spill that overflows facility boundaries, and 3) storm water drainage systems be designed with controls to prevent oil from escaping through them."

Now I can remember from my correspondence with Commissioner Daggett, and that's in the record of the first hearing, that his answer to me was that EPA was about to revise its rules and regulations, and we really wanted to see what they had. Do you know, for a fact, if the rules and regulations really have been revised?

MR. TORRUSIO: No, I don't. But, I'll make sure that you get that.

ASSEMBLYMAN SMITH: Okay, how about the gentleman from External Affairs? No, you don't know, or no, they haven't?

B A R R Y S H A W: (speaking from audience) No, I don't know.

ASSEMBLYMAN SMITH: So you are going to get back to us on this, that survey. Their second recommendation was: "Inventory above ground storage facilities and implement policies for: 1) selecting facilities to inspect after coordinating with state and local authorities." In light of

the fact that we are going to have a much stronger program in New Jersey, one of the things you might take back to Region II is that they may want to coordinate their efforts with New Jersey.

You know, in an awful lot of other Federal programs a way in which you get your resources to go further is to allow the states to implement a plan, and the Federal government provides a portion of the costs. The State provides the other portion, and everybody gets more bang for their buck.

MR. TORRUSIO: Absolutely. That's something that we very definitely will be working on.

ASSEMBLYMAN SMITH: And I hope that might be one of the resolutions that we consider for this Committee's action.

Well, in any case, if you would get back with that information, in writing, we would appreciate it very much.

MR. TORRUSIO: We certainly will. We have staff members working on it now.

SENATOR VAN WAGNER: Mr. Torrusio, I'd like to ask you a couple of questions that-- If they seem to require speculation on your part and you choose not to speculate, I'll understand, okay?

On January 5 you notified Exxon under sections 308 and 311 of the Federal Clean Water Act, as you stated in your remarks, to provide you with detailed information by January 18 of this year. Did you, in fact, receive that detailed information?

MR. TORRUSIO: We received a great portion of it. In fact, we called it the "big brown box," because it came in a rather large, brown box. That's because they were kind enough to put it in file folders, and so they needed the space. It was quite a bit of information that we received. However, some of the key points and key information that we felt were necessary in order to make a determination were, in fact, missing.

SENATOR VAN WAGNER: Was part of the documentation that was missing a detailed explanation by the company of what steps were taken to follow the procedures that they outlined to you?

MR. TORRUSIO: The majority of what was missing, to the best of my knowledge, revolved around their leak detection system, how it operated, and what its history was. There was other material that was missing, but to my knowledge, not specifically what you are asking.

SENATOR VAN WAGNER: Were you able to personally review any of that material?

MR. TORRUSIO: No, sir.

SENATOR VAN WAGNER: Or was that done largely by attorneys?

MR. TORRUSIO: It was done largely by attorneys and the Water Division people.

SENATOR VAN WAGNER: Okay, so you don't know whether, in fact, the material that was missing was material that related to the observation of procedures by the company? You don't know that?

MR. TORRUSIO: No.

SENATOR VAN WAGNER: Okay. Did you know that yesterday the EPA indicated in The Newark Star-Ledger, that, in fact, the company observed few of the procedures it was supposed to follow when a leak in the 6.7-mile line was suspected? Were you aware of that?

MR. TORRUSIO: Say it again, Senator.

SENATOR VAN WAGNER: According to the report in The Newark Star-Ledger in which the EPA charged Exxon's oil spill with violating the very sections of the law, the Federal Clean Water Act you referred to, it was noted that according to the operation documents released by the EPA, that the company observed few of the procedures it was supposed to follow when a leak in the 6.7-mile line was suspected.

MR. TORRUSIO: It was my understanding that certain key procedural events were not in the documents that we received. So we were unable to determine exactly what they were supposed to do. We believe that they did not know what they were supposed to do.

SENATOR VAN WAGNER: Okay. So in other words -- in going back to my original question -- there were, in fact, missing documents that related to the observation of procedures--

MR. TORRUSIO: It would appear so, yes.

SENATOR VAN WAGNER: --which led the Environmental Protection Agency to assume, at least, that these procedures were not known, and certainly not followed?

MR. TORRUSIO: That would appear to be so.

SENATOR VAN WAGNER: In assessing the fines-- And again, you know, I realize that this requires supposition on your part, and if you choose not to do that, I'll understand.

MR. TORRUSIO: That's fine.

SENATOR VAN WAGNER: In assessing the fines based on the violation of the Federal Clean Water Act, it is noted in the same article that the oil was spilled in the navigable waters of the Arthur Kill without a permit. And an administrative order to that extent was signed by Mr. Richard Caspe, Director of the EPA's Water Management Division. Is that within your jurisdiction?

MR. TORRUSIO: That's correct.

SENATOR VAN WAGNER: What, in fact, does that mean?

MR. TORRUSIO: One of the original and guiding goals of the Clean Water Act is that there would be zero discharge, if at all possible. In order to achieve that goal under the Clean Water Act, it was made a violation of the Act if anyone discharged anything without a permit. When Exxon's pipe ruptured, they, in fact, violated the Clean Water

Act, which says, "Thou shalt not discharge into the waters of the United States without a permit."

SENATOR VAN WAGNER: Okay, that was my assumption.

MR. TORRUSIO: So, we were able then to use the full force of the Clean Water Act, and step in and say, "You, in fact, did that, and we are finding you guilty of that."

SENATOR VAN WAGNER: In essence it is also stated that any resumption of operations of this pipeline are terminated until the pipeline is repaired or replaced, or the existing leak detection system is repaired or replaced. Obviously the pipeline has to be repaired or replaced, but the leak detection system is repaired or replaced so that it will reliably detect leakage; develop measures to prevent further external damages to the pipeline; develop an operations and maintenance manual that includes procedures for responding to potential leaks in the line; and develop formalized training for line operators.

Was that not part of the procedures originally required for these companies to operate?

MR. TORRUSIO: No. Let me explain it this way: We have dual jurisdiction in this area; for oil spills and hazardous spills. The Coast Guard for the water, and the EPA for upland. And so, we could not address the pipeline. Notwithstanding the statutory authority being given over to the DOT, we could not, in fact, address the pipeline, because the pipeline was not discharging anything into the waters.

When the pipe broke, the Coast Guard, under its authority, came in and regulated the cleanup, oversaw the cleanup, and took whatever actions were needed. We were able to, at that point, utilize the full strength of the Clean Water Act, to be able to then set our limits and our procedures and our demands so as to ensure that this permit would not, in fact, be violated, or this discharge would not, in fact, occur.

We did not have any authority prior to the pipe rupturing and an illegal discharge occurring. Once the

discharge occurred, then we could come in under the Clean Water Act and retrospectively say, "This is what we believe is necessary and required before we will let you put this pipe back into operation."

SENATOR VAN WAGNER: Okay, let me just see if I can retrace, then, this jurisdictional flow? Up until the time a rupture occurs in a pipeline, the responsibility for overseeing the safety and operation of that pipeline, I assume, then lies with the Federal Department of Transportation?

MR. TORRUSIO: Correct.

SENATOR VAN WAGNER: Okay. When a disruption occurs, when damage occurs, then and only then are you able to move into the picture and take action such as you've recommended for the company to take, before it can resume its operations. Is that a--

MR. TORRUSIO: With one minor modification. The fact that when it ruptured, it discharged into the water.

SENATOR VAN WAGNER: I see.

MR. TORRUSIO: Had it ruptured and discharged into a basin that they captured, we would not have any authority because it would not have been an illegal discharge under the Clean Water Act into the waters of the United States.

SENATOR VAN WAGNER: Suppose it ruptured and discharged into a basin that was later found to be faulty and was not sufficient to contain the material?

What I am asking you is, isn't this all kind of ridiculous, that an agency such as yours, and again I'm not trying to put you on the spot--

MR. TORRUSIO: Yes, I understand.

SENATOR VAN WAGNER: --that an agency such as yours, that's charged with the responsibility, along with the Coast Guard, to deal with leaks and disruptions in the environment,

and the cleanup supervision, does not, in fact, have any jurisdiction over how that operation is conducted in the first place?

MR. TORRUSIO: Well, I think I would have to say no, for a number of reasons, not the least of which is that EPA's expertise lies in environmental concerns. And as the world gets more complex, and as we examine the various interrelations that crop up, it's developing that EPA has a greater role in many areas where it maybe previously did not. But it is clear here that the statutory -- the Federal statutory authority -- over the development of interstate pipelines rests with the Department of Transportation.

What I think I am suggesting is that we at EPA are using an innovation of the Clean Water Act in order to make sure that we have a statutory authority to implement certain steps that maybe normally we would not have.

And I think we can kind of liken it to a person passing a red light. You pass a red light and you get caught. All you did was pass the red light and got caught. However, the agency with authority at that point can now say, "Not only did you pass the red light and you pay a fine, but you have to go to safe driving school; you have to have community service," and adds additional criteria that you must meet that prior to your passing the red light, they couldn't ask you to do.

And so, we had a rupture of a pipe in a pipeline that was not under the EPA statutory authority. That occurrence allowed oil to discharge into the water. That's a violation of a statute that we have authority on. We are using that as a means of retrospectively asking for material and for certain actions to be implemented before we will allow that pipeline to be put back in service.

SENATOR VAN WAGNER: You see, using the analogy you have just used if I might, the same enforcement agency that says you can't pass a red light is the same agency that

enforces the law when you do pass the red light. The one other instance that happens when someone passes a red light is they perhaps might get hit by another car.

This seems to me to be analogous to the kind of situation we have. When the car runs off the track, then you have the responsibility, and you have to find an innovative way of penalizing the company -- in this instance Exxon -- and preventing them from continuing that operation. Yet the agency who has the responsibility of making sure that that operation is carried out in a safe and secure fashion, and is done in terms of proper procedures, does not seem to have any jurisdiction in the matter if things go awry.

Now, doesn't that seem to be a little bit cumbersome, at the very least?

MR. TORRUSIO: Perhaps, but I would also comment that I am not privy to what the Department of Transportation is doing.

SENATOR VAN WAGNER: That's my point.

MR. TORRUSIO: And they may well, in fact, come out with recommendations and mandatory obligations far in excess of what we are allowed to do.

What I am saying is that our agency has looked at this occurrence in a new and innovative way, and are using the statutory authorities that we do have in the most practical and the most responsible manner to assure that regardless of whether or not ultimately we have control over pipelines, that this particular pipeline and this particular agency is not going to rupture again.

I think, given the constraints of our statutory authority, that's as much as we can do.

SENATOR VAN WAGNER: Were you or your agency -- and I direct this to you or the gentleman from External Affairs -- ever aware of the faultiness of the leak detection system, from 1978? (indeterminate response)

You were aware?

MR. TORRUSIO: No, no. I was just grinning because I'm only on board since September, so no, I was not aware.

SENATOR VAN WAGNER: But I said, "You or your agency."

MR. TORRUSIO: I'm not sure.

SENATOR VAN WAGNER: You're not sure?

MR. TORRUSIO: I would assume no, but I have no knowledge.

SENATOR VAN WAGNER: So, in your own surmise, at least -- and I realize that you have only been there a short time -- it would seem to you at least, that a system that is designed to protect against the damage to the environment is still not something that would be of concern to the Environmental Protection Agency until, in fact, that system operates as this one did and a disruption occurs and it doesn't necessarily get paid attention to by the company?

MR. TORRUSIO: No. Senator, I think that we are in complete agreement. From listening -- this is my second time now -- to many of the people, I think that we are all in agreement, that there is, for want of a better term, a gray area here, where jurisdictions either do not overlap or overlap, or no one is sure.

SENATOR VAN WAGNER: Okay, okay.

MR. TORRUSIO: And I don't think, from an agency viewpoint, that we would argue with you that something more needs to be done, absolutely.

SENATOR VAN WAGNER: Yeah.

MR. TORRUSIO: Absolutely. I'm sure that everyone is in complete agreement on that.

SENATOR VAN WAGNER: I asked you that because I, too, when I first looked at the jurisdictional labyrinth that exists in this whole area, was astonished at the fact that at both Federal and State levels, there seems to be a lack of clear-cut procedures which, with any linkages from one department to

another, and we have heard from our own DEP, and we've had a Spill Compensation Act in this State, a Spill Control Compensation Act in this State since 1982 -- 1976, I'm sorry -- yet we ourselves are still looking at gray areas.

MR. TORRUSIO: Well, I think that there will be a greater scrutiny of those gray areas to see whether or not truly cities and municipalities and states do not have certain rights and privileges on equipment that is physically located on their ground, wherein they can ask for reports.

And I think that you will probably find that this will be one of the ways that they will go.

SENATOR VAN WAGNER: Well, let me provide a piece of interesting information for you: The actual certification of the operators of the pipeline -- and these two were not certified, from the records that we have received so far -- is carried out by the New York City Fire Department.

MR. TORRUSIO: And I know that the New York City Fire Department is considering reviewing their regulations and their requirements that would close that gap.

SENATOR VAN WAGNER: I'd like to thank you. Are there any further questions? (no response)

Okay, thank you, Mr. Torrusio.

MR. TORRUSIO: I thank you, sir.

SENATOR VAN WAGNER: I appreciate your coming today.

MR. TORRUSIO: Not at all. And I'll make sure that Mr. Smith gets the information that he wants.

SENATOR VAN WAGNER: Thank you, sir.

MR. TORRUSIO: Thank you.

SENATOR VAN WAGNER: Commander Brooks, I know it's your turn. You are almost the anchorman, Commander, but Mr. Csulak from NOAA arrived, so--

LIEUTENANT COMMANDER BROOKS: Yes, sir.

SENATOR VAN WAGNER: And you have Mr. Ed Levine, I understand, with you. Commander, before you begin, I didn't

get a chance to do this at the last hearing, but I did want to compliment you on your continuing forthrightness in dealing with these matters with this Committee. And I thank you.

LIEUTENANT COMMANDER BROOKS: Thank you, sir.

SENATOR VAN WAGNER: So, whenever you're ready to begin--

LIEUTENANT COMMANDER BROOKS: Well, sir, once again, I'm here representing Captain North who is the Coast Guard Captain of the Port of New York, and the Federal on-scene coordinator for this area.

Mr. Levine is with me today. He is our NOAA Scientific Support Coordinator who offers us insight on the environmental issues during spills in the coastal area. It's appropriate that Mr. Csulak is here also.

SENATOR VAN WAGNER: Is this easier for you, Mr. Csulak, to sit in on this portion? I mean, whatever your pleasure is.

F R A N K G. C S U L A K: It doesn't matter to me. Do you want me to sit up?

SENATOR VAN WAGNER: Yeah, why don't you stay there and then we can move back and forth? I think it will be easier to follow.

LIEUTENANT COMMANDER BROOKS: Senator, we're here to answer the Committee's questions today, so--

SENATOR VAN WAGNER: Okay. Can I pick up where I left off?

LIEUTENANT COMMANDER BROOKS: Certainly, sir.

SENATOR VAN WAGNER: Okay, good. When we previously spoke, we talked primarily about the Federal response and the federalization of a spill of this nature -- some of the problems that occur when a spill like this occurs in a pipeline. I think you noted that because of the darkness, that in some cases when an underwater pipeline disrupts and oil is

discharged, it may well be difficult to detect that until you have enough light to see it. Is that a fair characterization, or--

LIEUTENANT COMMANDER BROOKS: Yes, sir. As I explained at the last session, a pipeline leak by tradition or experience in this area, is unusual. Our records for the last 10 years don't show a prior incident of an underwater pipeline leak. I explained that my investigative team conducted their investigation looking at our normal sources for a spill in the area, and yes sir, the dark certainly had an impact on how our investigation-- Basically, we weren't able to determine the overall area impacted because of darkness.

SENATOR VAN WAGNER: I'm just going to move away from you for a minute. I'm going to ask Mr. Csulak, if I may, a question. Exxon will be liable for the cost of all the natural resource and wildlife damage, including monitoring costs. No agency has, as yet, estimated the damage in dollar figures. To my knowledge, NOAA is the Federal agency responsible for the assessment of natural resources and wildlife losses.

MR. CSULAK: NOAA is one of two Federal agencies.

SENATOR VAN WAGNER: One of two, okay.

MR. CSULAK: Yes.

SENATOR VAN WAGNER: Could you give us just a brief schematic of how you will carry out that assessment?

MR. CSULAK: Well, before I get into that, let me tell you who is involved. Right now there is no lead trustee. It's been a joint effort between the States of New York and New Jersey, NOAA, and the Department of Interior as far as designing and implementing this damage assessment. Right now we are in the final stages of-- The trustees are in the final stages of designing this environmental assessment or damage assessment, and we hope to have it finalized by the end of the week and present it to Exxon either late this week or early next week.

As far as what a trustee does: NOAA is a natural resource trustee for marine resources, okay? Fish, shellfish, those resources are wildlife found in marine waters. In developing a damage assessment we are trying to compensate the public for the injury or the loss of natural resources resulting from the spill.

There is a prescreening process which we just completed. Now we're in the process of developing scopes of work for these damage assessment studies which will include both short-term and long-term studies.

SENATOR VAN WAGNER: I know Exxon is responsible for the studies and the monitoring, but who is actually going to perform the work?

MR. CSULAK: Some work will be performed by contractors; some will be performed by government agencies. For example, right now I am trying to get on board the National Marine Fishery Service, to conduct the fishery study in the area. So it will be a combined effort between states, Federal agencies, and contractors.

SENATOR VAN WAGNER: What kind of time element do you think is going to be necessary to evaluate this ecological loss?

MR. CSULAK: Well right now, we have sort of broken down the assessment into two phases: short-term needs, and long-term studies. Right now, our short-term needs are to address primarily the waterfowl, the migratory birds that will be returning to the area in late March or early April. They are our prime concern right now.

However, I do have-- The outline of the program right now includes bird studies, wetland studies, benthic organism studies, fishery studies, and an economic impact study. As far as length of these studies, that has not been determined yet, whether they will be three-year studies or five-year studies, for example.

SENATOR VAN WAGNER: Will any restorative work be done along the shoreline of Pralls Island, for example, to your knowledge? Will that be part of the assessment?

MR. CSULAK: All of the damage assessment studies that will be conducted will lead toward restoration down the road. Now, restoration in this case hasn't been defined yet as to whether it is going to be monetary penalties, or whether it is going to be restoration of resources or habitat.

So at this point, restoration has not been defined. But that's the goal -- that's the ultimate goal -- to restore the habitat, or to restore the area to how it was before, prior to the spill.

SENATOR VAN WAGNER: Okay. If I might again, Commander? The question was raised at our initial hearing concerning Clean Harbors?

LIEUTENANT COMMANDER BROOKS: Clean Harbors Co-op, sir?

SENATOR VAN WAGNER: Right.

LIEUTENANT COMMANDER BROOKS: Yes, sir.

SENATOR VAN WAGNER: At that hearing there was a statement made by an individual in the audience who was a former employee of Exxon, I believe, stating that the Clean Harbors Co-op was not, in fact, an operating organization. Do you have any detailed knowledge of the manner in which Clean Harbors Co-op operates? Have you had any experience with them in other incidents?

LIEUTENANT COMMANDER BROOKS: Yes, sir.

SENATOR VAN WAGNER: Could you give us just an explanation of what takes place? How long does it take for that to take place, and what the general results have been in your own experience?

LIEUTENANT COMMANDER BROOKS: Yes, sir. Clean Harbors Co-op is basically an equipment maintenance and stockpile resource for nine major oil companies in the port. The operation of that equipment is subcontracted to another

pollution contractor which is Clean Venture, which is a standard commercial pollution contractor for the port area.

So, when Clean Harbors Co-op is activated by one of their supporting companies, Clean Harbors Co-op basically has a very limited number of personnel that actually man that equipment. Clean Venture comes in with people to actually--

SENATOR VAN WAGNER: Actually, Commander, it's one person, isn't it?

LIEUTENANT COMMANDER BROOKS: Clean Harbors Co-op?

SENATOR VAN WAGNER: Yeah.

LIEUTENANT COMMANDER BROOKS: I imagine there's at least two or three. You know, it's a nominal number, yes, sir.

ASSEMBLYMAN KYRILLOS: I think you are correct, Senator. There is just one.

LIEUTENANT COMMANDER BROOKS: All the maintenance is also done, I believe, by Clean Venture, as well, yes, sir.

SENATOR VAN WAGNER: In your experience, what has been the normal time of response in terms of Clean Harbors Co-op bringing onto the scene whatever personnel and equipment necessary from Clean Harbors Ventures?

LIEUTENANT COMMANDER BROOKS: We've had a very limited use of the Co-op equipment.

SENATOR VAN WAGNER: Okay.

LIEUTENANT COMMANDER BROOKS: However, normal contractors such as Clean Venture, any of the other ones in the area-- The standard time to mobilize personnel and get on the scene is anywhere from two to six hours, depending on the time of the day, the day of the week, weather conditions, any other--

SENATOR VAN WAGNER: In your experience, when a spill occurs of this magnitude, or even smaller magnitude, is two to six hours a sufficient response time to minimize damage?

E D W I N L E V I N E: Again, the sooner the better. However, as the Commander said--

SENATOR VAN WAGNER: Is two hours or six hours sooner, or better?

MR. LEVINE: Well, the sooner the better. If you could be there instantaneously, that's ideally the best response time. I can't say two hours is not good, or very good. But in the scheme of things with, as the Commander said again, the environmental conditions and the time of day and all that taken into effect, that would be a good response time, two hours.

SENATOR VAN WAGNER: I don't have any other questions. Again, I want to thank you for coming today. We are going to be pursuing this at a subsequent hearing.

One last question, Commander: Since the time of this occurrence, in your own view -- and I realize that you don't necessarily become involved until some type of catastrophe occurs; I also realize this is not your primary mission -- but since that time, have you observed any additional vigilance being placed in and about the area of the Arthur Kill, or the Kill Van Kull, or Newark Bay, or any of the areas where there is a considerable amount of industrial and this type of activity taking place?

LIEUTENANT COMMANDER BROOKS: We've had an increase in oversight based as a result of -- since last year, with the reestablishment of the New Jersey State Marine Police in Newark Bay.

SENATOR VAN WAGNER: Okay.

LIEUTENANT COMMANDER BROOKS: They have been operating and slowly building up a very strong presence in the Arthur Kill and the Newark Bay area, Senator. They came on-line last summer.

Since that time we have had an increased number of, and identification of spill sources from the numerous flights -- helicopter flights -- that Exxon is conducting over the Arthur Kill since the spill.

SENATOR VAN WAGNER: Do you catalog these along with -- in conjunction with the sightings by the New Jersey Marine State Police, and perhaps report them to, let's say, Mr. Torrusio?

LIEUTENANT COMMANDER BROOKS: Well, we wouldn't normally report minor spills. You know, the majority of spills that occur in that area are probably less than 100 gallons. I would say, even more so, most of them are less than 50 gallons. We would not report them.

EPA is on our list of phone calls to make, but we would not expect them to respond. We would notify the New Jersey State DEP. We would notify New York State, and New York City, depending on the actual area of the spill.

SENATOR VAN WAGNER: Okay.

MR. CSULAK: Senator, as part of NOAA which has been involved with the cleanup committee and the Coast Guard has put together a list of those spills that have occurred in the affected area-- This one goes up until January 29.

SENATOR VAN WAGNER: How many do you have?

MR. CSULAK: There have been 13.

SENATOR VAN WAGNER: There have been 13 spills in this area, including this one?

MR. CSULAK: No. Not including this one.

SENATOR VAN WAGNER: Not including this one? And those spills have been in volumes of less than 100 gallons, or more than 100 gallons?

MR. CSULAK: Just, 120 gallons, 20 gallons, 2 barrels, 5 gallons, unknown. It varies.

SENATOR VAN WAGNER: All right. Again, I would like to thank you for--

MR. LEVINE: Senator, may I just say a couple of things in response to--

SENATOR VAN WAGNER: Sure, anything you want to say.

MR. LEVINE: --a couple of other previous statements? One about the environmental sensitivity mapping: NOAA has already undertaken that, and it's been done for just about the whole coastline. We do have environmental sensitivity maps for the area that was affected and they were used in the response strategy.

SENATOR VAN WAGNER: So you have an inventory?

MR. LEVINE: Yes. What was brought up prior, for the damage assessment matrix. The Department of the Interior has a computer model that they call their "Type-A Damage Assessment Model." Basically, you tell it how much oil was spilled, where it was spilled, and when it was spilled, and you push the button and it will give you a dollar figure.

That's already been upheld in court. Basically, the trustees, or the spiller, have the option of either accepting what they call the Type-A, where they can take the dollar figure by the computer model, or they can go out and do a Type-B, which is actually going out into the field and doing all the field work and then coming up with a dollar amount that way.

One way takes considerably longer than the other way.

SENATOR VAN WAGNER: Could you provide us, perhaps, with copies of the way the matrix is formed, at least--

MR. LEVINE: I can get you--

SENATOR VAN WAGNER: --or request it for us?

MR. LEVINE: Right, it would be through the Department of the Interior. They are the ones who actually run the program.

SENATOR VAN WAGNER: And I would also like, if possible, to see a copy of the region's environmentally sensitive mapping, if you would, unless that's on file with the DEP?

MR. LEVINE: No. NOAA has that, plus we've also recently completed mapping on the Delaware Bay for a summary

map. That's one map that shows, seasonally, what's sensitive and where, to oil spills.

Just two other things that I would like to touch on: You had asked me previously about the response time. Not too much addressing the time, but in terms of the efficiency of the response, approximately 20% to 25% of the spilled product has been recovered. That percentage, based on previous spills, is a very high percentage of recovered product. Whether the response time is short or not, the amount they were able to recover was fairly high.

SENATOR VAN WAGNER: I guess what I am trying to determine is whether or not the method that is used to service nine companies in a region that is so heavily impacted is, in fact, effective and efficient, more so than it might be cosmetic? I guess you partially answered that by saying that the 25% recovery is, in your estimation at least, substantial.

MR. LEVINE: One other thing that I would like to mention on the Falmouth Spill Report that's been brought up now a few times: It's a spill that took place in Massachusetts with a similar product, but what they did was they compared an oiled area to an unoiled area, and how long it took to regenerate. They are still finding oil in there. So it's-- If you compared an oiled to an unoiled, you had decades. But what was not brought out is the study more properly could have been done, with an oiled area that had been walked on and worked and had lots of people on it, to an oiled area that was just left to Mother Nature.

There are studies like that that have gone on. The amount of foot-traffic on the marsh, and a lot of that being just the researchers coming in to take samples and to see what the effect of the oil is in the marsh, actually pushes the oil down into the sediments. So it makes-- The traffic on it extends the time that the oil will be in the sediment. By not having people tromping on the marsh and letting the natural

flushing action occur, you can bring the recovery time of the marsh down, instead of decades, to years. That was one of the strategies we had suggested in the cleanup phase.

One last thing:

SENATOR VAN WAGNER: Sure, that's the first real piece of information that we've had so far.

MR. LEVINE: The last thing I would just like to touch on is that I have been involved in the Prince William Sound spill, the World Prodigy spill in Rhode Island, the Delaware spill with the Presidente Rivera, and somebody had mentioned earlier about trying to make sure that this never happens again. It's one of these things: Never say never, because in almost all the larger or even small spills, it's human error that is the real resulting factor. Until almost we can get the people out of the loop, we're going to be doing this.

SENATOR VAN WAGNER: Well, you see, that's an interesting point that you make, because some of our feeling is that we really have to get people into the loop; that here we have the failure of technology, acknowledged by the company. They felt the system they had was far too sensitive and to that extent, generally did not pay attention to it when it went off.

So I realize that you have a great deal of experience in this, but sometimes I wonder, thinking about Mr. Torrusio's comment earlier, if we haven't grown to become a society which has become overly reliant on technology and machines to tell us what's wrong all the time. That's part of my concern.

MR. LEVINE: No, I'm saying, I think-- I mean, we can get as technologically advanced on it as we can, but as long as people ignore the switch, or the captain decides to take the tanker in by himself, or somebody throws the anchor too soon, things are going to happen, even though all the regulations are there and the technology is there.

SENATOR VAN WAGNER: Yeah, I agree, but I would like to think that when someone is transporting and dealing with

some commodity that is as valuable as this and has as much long-range effect if something goes wrong, that they might look beyond just what the regulations require.

MR. LEVINE: All right.

SENATOR VAN WAGNER: Thank you.

LIEUTENANT COMMANDER BROOKS: Mr. Senator, if I just--

SENATOR VAN WAGNER: Yes, sir. Commander?

LIEUTENANT COMMANDER BROOKS: You talked about response time for equipment. Each of the waterfront facilities that engage in vessel to shoreside transfers of bulk oil are required to have an operations manual. This is another plan, and they submit that for Coast Guard review.

SENATOR VAN WAGNER: Oh, okay.

LIEUTENANT COMMANDER BROOKS: Along in that plan they have to outline how they would respond to an oil spill from a vessel or from their dock area. They are required to have some basic equipment on scene and stipulate which contractor, or how they would clean it up themselves. So each facility is required to have hard boom of sufficient quantity to basically wrap a vessel at their pier. That is probably the first response that occurs.

Some communities, such as Woodbridge, New Jersey, require bulk oil transfer vessels to have boom set out before they start the transfer. That's just a local reg.

SENATOR VAN WAGNER: Do you monitor that at all? Do you check on it to make sure that all of those plans are being adhered to, or is that your jurisdiction?

LIEUTENANT COMMANDER BROOKS: Yes, sir. Within the Port of New York Zone we have 230 bulk oil facilities. We have inspectors that check those facilities each year, as I discussed in the last hearing. It's in the area of the water to shoreside transfer, such as the dock to the first inland valve.

And, yes sir, we get out to each facility each year. We review the plans. As a result of us, they are constantly being upgraded. Last fall we sent out letters to all the facilities that we wanted to evaluate specifically on how long it would take for them to put their boom out.

Some companies had up to an hour time frame to just put boom out. And we felt that that was not enough time. They should cut that time to at least 30 minutes. You know, just from the standpoint that if a vessel has a spill, if the source is coming right alongside the water, the boom is your first containment method, and it has to get out there.

SENATOR VAN WAGNER: Is that, in fact, what GATX did at 6:30 a.m.?

LIEUTENANT COMMANDER BROOKS: No, sir.

SENATOR VAN WAGNER: They did not do that?

LIEUTENANT COMMANDER BROOKS: No. They just called in a contractor, because they could not find the source of the spill.

SENATOR VAN WAGNER: Did the contractor put out a boom?

LIEUTENANT COMMANDER BROOKS: I don't believe the contractor deployed a boom there. They only showed up with several vac trucks.

SENATOR VAN WAGNER: I see.

LIEUTENANT COMMANDER BROOKS: That's all they had, sir.

MR. CSULAK: There was only a sheen present, according to your list here.

LIEUTENANT COMMANDER BROOKS: No, this was on the morning of the Exxon spill, on 2 January.

SENATOR VAN WAGNER: Sir, just noting your 25% figure-- In terms of the oil that was collected as opposed to the amount of water that was collected, is that 25% oil, only?

MR. LEVINE: Yes, I believe that was Exxon's number. Close to 140,000 gallons of oil.

SENATOR VAN WAGNER: That was Exxon's number?

MR. LEVINE: Right.

SENATOR VAN WAGNER: Okay, and you weren't able to determine as to whether or not that was a mixture of oil and water, or oil only?

MR. LEVINE: No, that's product.

SENATOR VAN WAGNER: That's product only?

Gentlemen, again I thank you for being here. That ends the list that we have. Is there anyone who is not on the list who is here, who would like to address the Committee? (no response)

If not, the Committee will stand adjourned. Thank you for coming.

(HEARING CONCLUDED)

**APPENDIX**





New Jersey State Legislature

SENATE ENVIRONMENTAL QUALITY AND ASSEMBLY ENERGY AND ENVIRONMENT COMMITTEES

STATE HOUSE ANNEX, CN-068  
TRENTON, NEW JERSEY 08625  
TELEPHONE: (609) 292-7676

February 5, 1990

Mr. Lawrence G. Rawl  
Chief Executive Officer  
Exxon Corporation  
1251 Avenue of the Americas  
New York, New York 10020-1198

Dear Mr. Rawl:

The Senate Environmental Quality Committee and the Assembly Energy and Environment Committee are conducting a joint investigation of the Exxon oil pipeline leak into the Arthur Kill that occurred on January 1-2, 1990. To aid us in this investigation, we would appreciate your preparing and forwarding to the committees the following information:

(1) All of Exxon's standard operating, inspection, maintenance, training, safety, and emergency response procedures, all permitted operator and supervisory discretion (whether in writing or verbal) regarding such procedures, and all accepted industry practices that govern or relate to the management and transfer of petroleum through the pipeline.

(2) A detailed description of all emergency, alarm, automatic shutoff, leak detection, override, and reset systems, and the threshold values Exxon uses to trigger such systems (and how Exxon determines such values) relating to petroleum storage, loss, and transfer in the pipeline, including the name and address of the manufacturer, serial number, the name and address of the installer, date of construction, installation, and of any reconstruction or reinstallation.

(3) All of Exxon's standard operating procedures and all accepted industry practices that govern or relate to the inspection, surveying, integrity testing, certification, and maintenance of all pipes, valves, meters, gauges, pumps, and other structures and devices Exxon uses to transfer petroleum into, through, and from the pipeline.

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(4) The dates and results, from January 1, 1978 through January 8, 1990, of all inspections, surveys, integrity testing, and certification of all pipes, valves, meters, gauges, pumps, and other structures and devices Exxon used to transfer petroleum into, through, and from the pipeline.

(5) All maintenance of, and repairs to, from January 1, 1978 through January 8, 1990, all pipes, pump valves, meters, gauges, pumps, and other structures Exxon used to transfer petroleum into, through, and from the pipeline, including the reason for the maintenance or repair, description of what was done, date of maintenance and repair, cost of the repair, and personnel involved.

(6) A detailed chronology of all events contributing to, resulting from, or in any other way related to the pipeline leak and response to the pipeline leak, including, but not necessarily limited to: the operation of the pipeline; movement of petroleum from the Exxon Bayway Refinery to vessels and the pipeline; ship traffic in the vicinity of the pipeline and the Exxon Bayway Refinery on Morse's Creek and the Arthur Kill; movement of petroleum from the pipeline to the Exxon Bayonne Terminal; roles, movement, and location of personnel; and positions and readings of gauges, meters, sensing devices, and any other machinery or equipment. This chronology of events shall include, at a minimum, a statement of events in no more than one-half hour increments from 12:01 A.M. on December 31, 1989 through the time of the last action taken in response to the pipeline leak, and shall include any more frequent and earlier events related to the pipeline leak.

(7) All Federal, State and local statutes, regulations, and other standards and permits issued regulating the storage and transfer of petroleum, including construction, installation, inspection, and maintenance standards for hazardous liquid transmission pipelines, as well as discharge and release reporting and notification.

(8) The total capacity of the entire length of the pipeline; the total capacity of the pipeline between valves No. 5 and No. 6.; and the total capacity of the pipeline between valves No. 4 and No. 5.

(9) The normal pumping rate of petroleum through the pipeline; the maximum pumping rate of petroleum through the pipeline if the flow through the pipeline had been stopped either automatically or manually immediately after the break occurred in the pipeline.

(10) The Volume of petroleum that could have by design been discharged from the existing rupture in the pipeline if the flow through the pipeline had been stopped either automatically or manually immediately after the break occurred in the pipeline.

(11) The total amount of petroleum which was to have been transferred from the refinery to the Bayonne Terminal during the evening and morning of January 1-2, 1990, and the percentage of that amount which had been transferred when the pipeline was shut down on January 2.

(12) All analyses conducted by Exxon or any other person of petroleum discharged from the pipeline during the incident.

(13) A detailed chronology of all actions Exxon took to contain and remediate the incident and to mitigate potential damage to natural resources. This chronology shall include, at a minimum, a statement of actions Exxon took in increments of no more than one-half hour from 12:01 A.M. on December 31, 1989, to the time of Exxon's last action taken in response to the incident, and shall include any more frequent and earlier actions taken.

(14) All data on the concentrations in the water, sediments, suspended matter, or biota in and along the Arthur Kill and any of its tributaries and adjacent waters in New Jersey and New York, of total hydrocarbons, petroleum hydrocarbons, polynuclear aromatic hydrocarbons, and any petroleum product handled at the Bayway Refinery, including but not limited to benzene and naphthalene.

(15) All data on the concentration of hydrocarbons in the atmosphere in the vicinity of the Exxon Bayway Refinery.

We would appreciate hearing from you within 7 days of receipt of this request concerning the date on which you will be able to provide the committees with this information. The materials requested in this letter should be delivered to Room 350 of the State House Annex.

Sincerely,

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Senator Richard Van Wagner, Chairman  
Senate Environmental Quality Committee

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Assemblyman Robert G. Smith, Chairman  
Assembly Energy and Environment  
Committee

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**TESTIMONY OF  
MICHAEL TORRUSIO  
U.S. ENVIRONMENTAL-PROTECTION AGENCY  
BEFORE THE  
NEW JERSEY STATE SENATE  
NEW JERSEY STATE ASSEMBLY  
COMMITTEES ON ENVIRONMENTAL QUALITY  
FEBRUARY 6, 1990**

**Good morning, I am Michael Torrusio, Associate Regional Administrator for Region 2, which includes New York, New Jersey, Puerto Rico and the Virgin Islands, of the Environmental Protection Agency. On January 23, I provided you with an overview of the emergency response systems that exist, and a perspective on our role in addressing oil spills and hazardous materials emergencies. Today I am pleased to bring you up to date on enforcement activities we at the EPA are pursuing and our role in assessing the environmental impacts of the spill.**

**Since EPA has enforcement authorities under the Clean Water Act, on January 5, 1990 we notified Exxon under Sections 308 and 311 of the Act, to provide us by January 18 detailed information on the nature and extent of the spill. Late on January 17 we received information from Exxon responding to our request.**

**Based on the material received, as well as the knowledge gained through personal observations, EPA on February 5, 1990 issued an Administrative Order**

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requiring Exxon to implement seven measures designed to prevent future discharges from its Bayway facility. We ordered Exxon to:

1. develop a written operation and maintenance manual for the pipeline that contains procedures for monitoring pressure during start-up, transfer and shutdown, and for responding to leaks;
2. develop a formalized training program for pipeline operators and linewalkers in accordance with the maintenance manual;
3. obtain certification by the New York City Fire Department for all pipeline operators and linewalkers.
4. repair or replace the existing pipeline leak detection system so that it will reliably detect leakage from the pipeline;
5. develop measures to prevent external damage to the pipeline;
6. pressure test the pipeline in accordance with requirements established by applicable Federal, State, and local authorities; and
7. obtain recertification of the pipeline by all applicable authorities.

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These measures must be undertaken before the pipeline can be put back into operation. On March 5, and on the fifth day of each succeeding month, Exxon is required to submit a report to EPA that describes the status of the implementation of each of these measures.

Failure to comply with the order could carry fines of up to \$25,000 per day. It is EPA's intent to take all steps not only to ensure the health and integrity of the existing aquatic resources, but to take those actions necessary to prevent further occurrences of oil spills such as this.

In addition, we wrote Exxon on February 5 and requested more information about the spill, particularly as it relates to the leak detection system. We asked that Exxon respond by February 12.

And now I would like to review our role in assessing environmental impact of the spill.

Since the Exxon Oil Spill occurred in coastal waters the Coast Guard is the On-Scene Coordinator, and has the lead in conducting the cleanup. However, EPA's role in the cleanup efforts has been rather extensive considering our status as a support agency. We have provided technical advice and recommendations to the Coast Guard, the New York State Department of

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Environmental Conservation, and the New Jersey Department of Environmental Protection. We are particularly well suited to offer these types of assistance to those involved in the cleanup. In addition, because of the value of wetlands and the potential for disaster this spill poses, we have also provided the expertise of a wildlife biologist.

At this point let me present you with a description of the specific actions we have taken. EPA was notified of the spill by the Coast Guard on Tuesday, January 2. At that time the spill was believed to be about 5,000 gallons. On Wednesday, January 3 when the seriousness of the spill became evident, and was reclassified as major, EPA's Coordinator went to the scene and obtained all necessary information about the spill. In order to better assess the situation our Coordinator also took a helicopter overflight of the spill later on Wednesday and then attended briefings on the spill with Exxon and the Coast Guard. As I mentioned earlier, we also dispatched a wildlife biologist from our Marine and Wetlands Branch to the spill site on Thursday, January 4 to assess potential damage to wetlands and bird nesting areas. In summary, both our own On-Scene Coordinator and wildlife biologist were at the spill site from January 3 and on subsequent days observing the cleanup, assessing damage to wetlands, and offering technical assistance to the Coast Guard.

Now as to actions. In the short term, it is our intention to monitor water quality and wetlands conditions in Arthur Kill and continue in our support role to

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offer our technical assistance to Federal, State, and local governmental agencies to ensure that cleanup and remediation efforts are as effective as possible.

We also have a role to play in the long term. As part of the Water Quality Act of 1987 a National Estuary Program was established, and the New York - New Jersey Harbor was designated as an estuary of national significance. The overall goal of the program is to establish and maintain a healthy productive harbor ecosystem with full beneficial uses. An important part of this study will concern itself with the health and preservation of the wetlands of Arthur Kill.

In this regard we have been engaged in a planning process with Federal, State, and local agencies, and environmental and citizen groups to develop long term strategies to ensure that this portion of the New York - New Jersey Harbor natural resources remain protected.

During the cleanup, the Coast Guard served as the On-Scene Coordinator. The National Oceanographic and Atmospheric Administration (NOAA) is the lead federal resource trustee. NOAA is charged with coordinating the concerns and recommendations of other trustee agencies, including the Department of the Interior, the New York State Department of Environmental Conservation, the New Jersey Department of Environmental Protection, and the New York City Department of Environmental Protection. While EPA is not a

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designated resource trustee, agency personnel responded on-site to provide technical recommendations and lend Agency support.

Representatives of EPA accompanied the resource trustees on site investigations to identify areas where oil was concentrating, both in the water and in adjacent wetlands. Wetland areas both on Staten Island and in New Jersey were of primary concern. Various methods for "cleaning" the impacted areas in the short-term have been discussed, however, each technique has the potential to do more harm than good. In the short-term, passive techniques and tidal action appear to be the soundest methods.

The full assessment of natural resource damage associated with the spill, in terms of both immediate and long term impacts cannot be made at this time due to the dormancy of vegetation and winter absence of most wildlife species. At this season, the extent of damage to natural resources is not readily apparent. Various approaches for assessing the damage have been proposed and are being coordinated among the resource trustees and EPA.

Thank you for the opportunity to make these remarks. I will be pleased to answer any questions you may have.

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U.S. DEPARTMENT OF COMMERCE  
National Oceanic and Atmospheric Administration  
NATIONAL OCEAN SERVICE  
OFFICE OF OCEANOGRAPHY AND MARINE ASSESSMENT  
OCEAN ASSESSMENTS DIVISION  
Hazardous Material Response Branch  
Building 110, Box 2  
Governors Island, New York 10004

12 February, 1990

Senator Richard Van Wagner  
State House  
Trenton, NJ 08625

Honorable Sen. Van Wagner:

Enclosed is the material requested at the 6 February hearing on the Exxon Bayway oil spill.

The black and white copy of "Sensitivity of Coastal Environments and Wildlife to Spilled Oil for New York Harbor An Atlas of Coastal Resources" is a compilation of USGS 7.5 minute topographic maps coded for use in protecting environmental resources at risk to oil spill. The maps are produced in color, making them extremely useful and easy to read. The black and white color greatly diminish their quality. These maps were generated by request and funding from NOAA's Hazardous Materials Response Branch. Copied is the index page, legend for map symbols page, and a copy of the page for the Kills where the spill took place.

The Type B Damage Assessment model paper was produced by the Department of the Interior. I have just copied the first page and summary for each section. For more complete information on this and the Type A computer model, I suggest you contact Mr. Don Henne of the US DOI, at The Custom House, room 502, Second and Chestnut Streets, Philadelphia, PA, 19106.

I am also sending you the complete set of Delaware Bay Environmental Sensitivity Index maps. The set consists of four maps, one for each season. Depicted on each base map are the environmental (ie. marsh, beach, etc.) and biological (ie. bird nesting sites, fish spawning areas, etc.) resources determined to be sensitive to oil spills during that season. However, this oil sensitivity has many cross over points to other disciplines and land use planning.

NOAA has funded this type of sensitivity mapping for a number of other areas around the country. The impetus for the production of this set of maps was at the request of the Delaware River and Bay Cooperative and the U.S. Coast Guard Captain of the Port of Philadelphia in conjunction with the Multi Agency Local Response Team (MALRT). These maps have been reviewed by many professionals at local, state and federal levels, as well as the public and private sectors, insuring a high degree of accuracy for the information presented. The actual work compiling the data and preparing the graphics was performed by RPI, Inc. A listing of reviewers and contributors appears on each map.

During the recent oil spill in the Delaware River by the T/V Presidente Rivera, the maps proved a valuable tool in prioritizing defenses of sensitive areas to this disaster.

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If you should require additional information please contact me at the above address.

Very Truly Yours,

A handwritten signature in black ink, appearing to read 'Ed Levine', with a stylized flourish at the end.

Ed Levine

Scientific Support Coordinator

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TYPE B TECHNICAL INFORMATION DOCUMENT: GUIDANCE ON USE  
OF HABITAT EVALUATION PROCEDURES AND HABITAT  
SUITABILITY INDEX MODELS FOR CERCLA APPLICATIONS

National Ecology Center  
U.S. Fish and Wildlife Service  
Drake Creekside Building One  
2627 Redwing Road  
Fort Collins, CO 80526-2899

Project Coordinators:

Peter Escherich  
David Rosenberger  
CERCLA 301 Project  
U.S. Department of the Interior  
Washington, DC 20240

National Ecology Center  
Fish and Wildlife Service  
U.S. Department of the Interior  
Washington, DC 20240

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## PREFACE

This document is designed to provide field users with technical information concerning the potential application and use of Habitat Evaluation Procedures (HEP) and Habitat Suitability Index (HSI) models for evaluating the effects of oil and hazardous substances on fish and wildlife habitat. In particular, this document has been developed for use in conjunction with the natural resource damage assessment rules that have been promulgated under section 301(c) of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA). The "type B" natural resource damage assessment rules published at 43 CFR Part 11 provide procedures to be used in assessing damages in individual cases. In the quantification phase of that rule, provision is made for quantifying the effects of the injury to biological resources resulting from the discharge or release of oil or hazardous substances based on restoration of services lost. The procedures described here are among a number of alternative methods for quantifying the effects of the release on biological resources. As described in the rule, damages may be based on the cost of the most cost-effective method of restoring those lost services. Users of this information document must consult the rule for further discussion of methods of demonstrating that injury has occurred, for selecting the basis of the damage determination, for other alternative methods of quantifying the effects of injury, and for criteria necessary to select and use all methods, including the ones described here.

Potential applications of HEP discussed in the present document are to: (a) help establish that control area habitats are similar to pre-release assessment area conditions; (b) determine amount of habitat change based on evidence that oil or hazardous substances affect habitat variables; (c) determine changes in Habitat Unit (HU) availability caused by oil or hazardous substances; (d) provide a replicable and quantitative basis for determining appropriate measures needed, and thus the costs, to restore assessment area habitat; and (e) provide a replicable and quantitative basis for determining appropriate measures needed, and thus the costs, to replace assessment habitat that cannot be restored to achieve in-kind, equal or relative replacement. Sources of information for oil and hazardous substances, including data bases and guidance on selecting specialists for assistance with habitat evaluation studies, are discussed. It is assumed that users of this document are familiar with HEP concepts and applications. Another assumption is that users are familiar with basic concepts and procedures for developing, testing, and evaluating the accuracy of habitat models. It is highly recommended that

users be trained in the use of HEP; such training is given frequently, at various locations in the U.S., by the Fish and Wildlife Service (see below). The recommendations in this document apply equally to fish and to wildlife species.

The information in this document supplements the guidance in 43 CFR Part 11, but is not required to be followed to obtain the rebuttable presumption provided by those regulations. This document provides recommendations concerning one of several alternative methods of quantifying the effects of injury to biological resources. The regulations in 43 CFR Part 11 should be reviewed prior to applying the information contained in this report. Any discrepancies between information contained in this report and the regulations provided in 43 CFR Part 11 should be decided in favor of the regulations when carrying out a damage assessment pursuant to those regulations.

This document is a supplement to, not a replacement for the manuals and training available for HEP. Additional information, including basic manuals for HEP and information concerning training, can be obtained from the National Ecology Center, U.S. Fish and Wildlife Service, Creekside One, 2627 Redwing Road, Fort Collins, CO 80526-2899 (FTS 323-5100, COMM. 303-226-9100).

PB 88-1 001 28

Type B Technical Information Document

# APPLICATION OF AIR MODELS TO NATURAL RESOURCE INJURY ASSESSMENT

U.S. Department of the Interior  
CERCLA 301 Project  
Washington, D.C.



June 1987

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New Jersey State Library

## 1.0 INTRODUCTION

The purpose of this document is to provide information on the selection of simulation models which can be used in the assessment of injury to natural resources resulting from pollutants in the air. The information document provides the results of a study compiling information on hazardous pollutant modeling in a form which will aid federal resource trustees in evaluating injury to natural resources. Specifically, techniques are presented for estimates of emissions, dispersion, or chemical transformations in the atmosphere in terms of concentration, dose, or deposition amounts. The methods recommended are designed to be adequate for hazardous materials identified through the Comprehensive Environmental Response, Compensation and Liability Act of 1980, which uses hazardous materials designations from the Federal Water Pollution Act, the Solid Waste Disposal Act, the Clean Air Act, and the Toxic Substances Control Act.

The following considerations guided preparation of the information document:

- The intended users are federal and state officials acting as trustees of natural resources.
- Approved EPA techniques for air quality modeling are recommended where appropriate.
- Methods of source, dispersion and deposition assessment are oriented toward use with a minimum of available data. Complex numerical models are not be considered since they are typically data intensive and often require specialized expertise.
- References should be publicly available.

The model techniques are expected to be applied after an incident of natural resource injury for purposes of assessing natural resource injury. This is done by identifying potential sources of chemicals causing the injury and by establishing the plausibility that a source could be the cause of injurious concentration levels. Application is therefore diagnostic.

Incidents of injury are considered in two broad classes, acute and prolonged (chronic). Acute incidents are defined in this guide as those in which a single event or chemical release causes a one-time concentration or deposition level which is injurious. A prolonged incident is one in which chemical releases over long periods cause a continuous low level concentration, dose or an accumulation for material due to deposition. The former type of incident might include a plant upset in which a hazardous material is released over a period of minutes to hours. A prolonged incident might result from a situation such as the annual accumulation of a chemical which originates as a slow evolving volatile emission from a hazardous material storage area or material carried in wind blown soil particles. To simulate these events, models are provided over a range of time scales from instantaneous to long-term (annual).

Spatial scales of interest vary by chemical but in general involve those over which an identifiable source can be determined. For acute incidents, high concentrations are typically required for injury and as a result the source/receptor separation distance will generally be small. In these instances, the distances are within the capabilities of EPA model assumptions. For prolonged exposures, concentrations levels may be lower, source/receptor distances longer, and source attribution is more difficult. For prolonged exposures, source and receptor oriented modelling techniques are identified. Receptor models are beneficial in source attribution if unique source emission composition patterns or signatures can be identified and a complete monitoring data base is available.

The information document consists of three additional sections. Section 2.0 summarizes the types of natural resource injury incidents which were considered in preparing the guideline. Also summarized in this section are the types of models which are available and expected uncertainty or

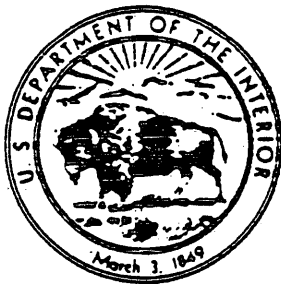
limitations in their use. Section 3.0 describes potential approaches to using models as assessment tools. The first element of an assessment, and of this section, is the description of the event. The first subsection describes the types of data usually required. The second subsection discusses sources of modeling data to be used if the incident report does not provide adequate data coverage. The last subsection is a guide to selecting the appropriate model for simulations. Section 3.3, a guide to model selection, references models described in Section 4.0 as candidates for use in assessment.

Simulation of all aspects of all injurious incidents involving the air pathway is not possible using a single model or modeling approach. Often questions arising in assessments are at the limits of our current knowledge of atmospheric dispersion and deposition theory. The intent of this guide is to provide recommendations on techniques currently available for assessments. If techniques do not directly apply, it is beneficial to consult specialists in the area of question.

Type B Technical Information Document

# INJURY TO FISH AND WILDLIFE SPECIES

U.S. Department of the Interior  
CERCLA 301 Project  
Washington, D.C.



June 1987

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## FOREWORD

Section 301(c) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) requires the President to promulgate regulations for the assessment of damages for injury to, destruction of, or loss of natural resources. Executive Order 12316, section 8(c), August 14, 1981, delegated this responsibility to the Secretary of the Interior. These regulations are to be used to assess damages to natural resources caused by a release of a hazardous substance or a discharge of oil covered by CERCLA or section 311(f)(4) and (5) of the Clean Water Act.

Section 301(c) mandates that two types of regulations, referred to as type A and type B regulations, be developed. The type A regulations are for simplified assessments and will rely on existing studies and minimal field observations to compute damages. The type B regulations shall specify:

alternative protocols for conducting assessments in individual cases to loss (of a trustee's natural resource). Such regulations shall identify the best available procedures to determine such damages, including both direct and indirect injury, destruction, or loss and shall take into consideration factors including, but not limited to, replacement value, use value, and the ability of the ecosystem to recover.

This document provides technical information to be used by trustees of natural resources that are conducting a type B natural resource damage assessment. The information contained in this document pertains to the determination of injury to fish and wildlife resources and provides testing and sampling methodologies that have been reported in the technical literature. This information supplements the guidance provided in 43 CFR Part 11, but is not required to be followed to obtain the rebuttable presumption provided by CERCLA for trustees conducting assessments in accordance with those regulations. The regulations in 43 CFR Part 11 should be reviewed prior to applying the information contained in this report. Any discrepancies between any information contained within this report and the regulations provided in 43 CFR Part 11 should be decided in favor of the regulations.

Type B Technical Information Document

# TECHNIQUES TO MEASURE DAMAGES TO NATURAL RESOURCES

U.S. Department of the Interior  
CERCLA 301 Project  
Washington, D.C.



June 1987

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## PREFACE

This information document addresses the economic issues associated with the 43 CFR Part 11 type B regulations on natural resource damages. In writing the document, we have tried to examine some of the important economic questions that are likely to arise for the trustees who will perform type B damage assessments. Primarily, the document stresses "what" the trustees will want to consider in measuring damages, not "how" to measure them. In other words, this document is not a cookbook, or a simple guide to measuring damages.

There are several reasons why we have decided to emphasize what to do. First, the document is being written to accompany the damage assessment regulations. This document includes background information which was helpful in preparing those regulations. As such, it must try to identify important issues before practical knowledge from actual experiences is available. Clearly, this type of experience is needed before any kind of "how to" document applicable to resources in different circumstances can be written.

The second reason for focusing on what to do stems from the scope and potential complexity of the issues that may arise in a type B damage assessment. Just the economic issues alone cut across issues that range from conceptual—e.g., sources of individuals' values for resource services—to practical—e.g., the data needed for a particular valuation method. Simple answers, or rules of thumb, the basic ingredients of a "how to guide," simply do not exist for many of these questions. Again, we will need more experience with damage assessments in all types of environments before we have some general answers.

The third and final reason that we have emphasized what to do stems from our perception of trustees' needs. For example, many may need the services of outside consultants to help measure the damages. For these situations, we hope our document will help trustees evaluate the merits of consultants' proposals to measure damages. In fact, we have included many lists of key issues to help trustees with these types of evaluations.

Finally, we would like to thank the many individuals who have helped us with this document. Our Department of the Interior project officer, Willie Taylor, has provided constructive guidance throughout the project. Bob Davis of the Bureau of Land Management within the Department of the Interior gave us a thoughtful and incisive review of an earlier draft. Also from the Department of the Interior, Donald Bieniewicz, of the Office of Policy Analysis, and William Watson of the Geological Survey, provided helpful comments. Bob Anderson of the American Petroleum Institute (API) shared copies of many articles and reports that API has sponsored on damage assessment. As always, Kerry Smith of Vanderbilt University has contributed a great deal to this volume. In large part, Kerry has contributed indirectly, that is by virtue of the experience we have gained in working with him over the last four years. Many of the ideas in Chapter 2 come from our work together on valuation methods.

Several Research Triangle Institute staff members have also helped us in this project. Tayler Bingham contributed valuable suggestions at several crucial stages of the work. Hall Ashmore's editing has substantially helped this document. Last, but in no way least, Jan Shirley and her word processing staff have again helped make this a better document.

Type B Technical Information Document

# APPROACHES TO THE ASSESSMENT OF INJURY TO SOIL ARISING FROM DISCHARGES OF HAZARDOUS SUBSTANCES AND OIL

U.S. Department of the Interior  
CERCLA 301 Project  
Washington, D.C.



June 1987

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## EXECUTIVE SUMMARY

This report provides useful information for trustees of natural resources who are embarking on a natural resource damage assessment involving potential injury to the soil portion of the geologic resource. Specifically, this document supplies descriptive information on methods to be used for determining the nature and magnitude of injury to the following:

- Soil Chemical Characteristics
  - acidity or pH
  - cation exchange capacity
  - percent base saturation
  - salinity
- Soil Physical Characteristics
  - porosity
  - water holding capacity
  - aggregate stability
- Biological Characteristics
  - microbial activities
  - invertebrate activities
  - vegetation
- Contaminant Transport Potential
  - leaching
  - food chain.

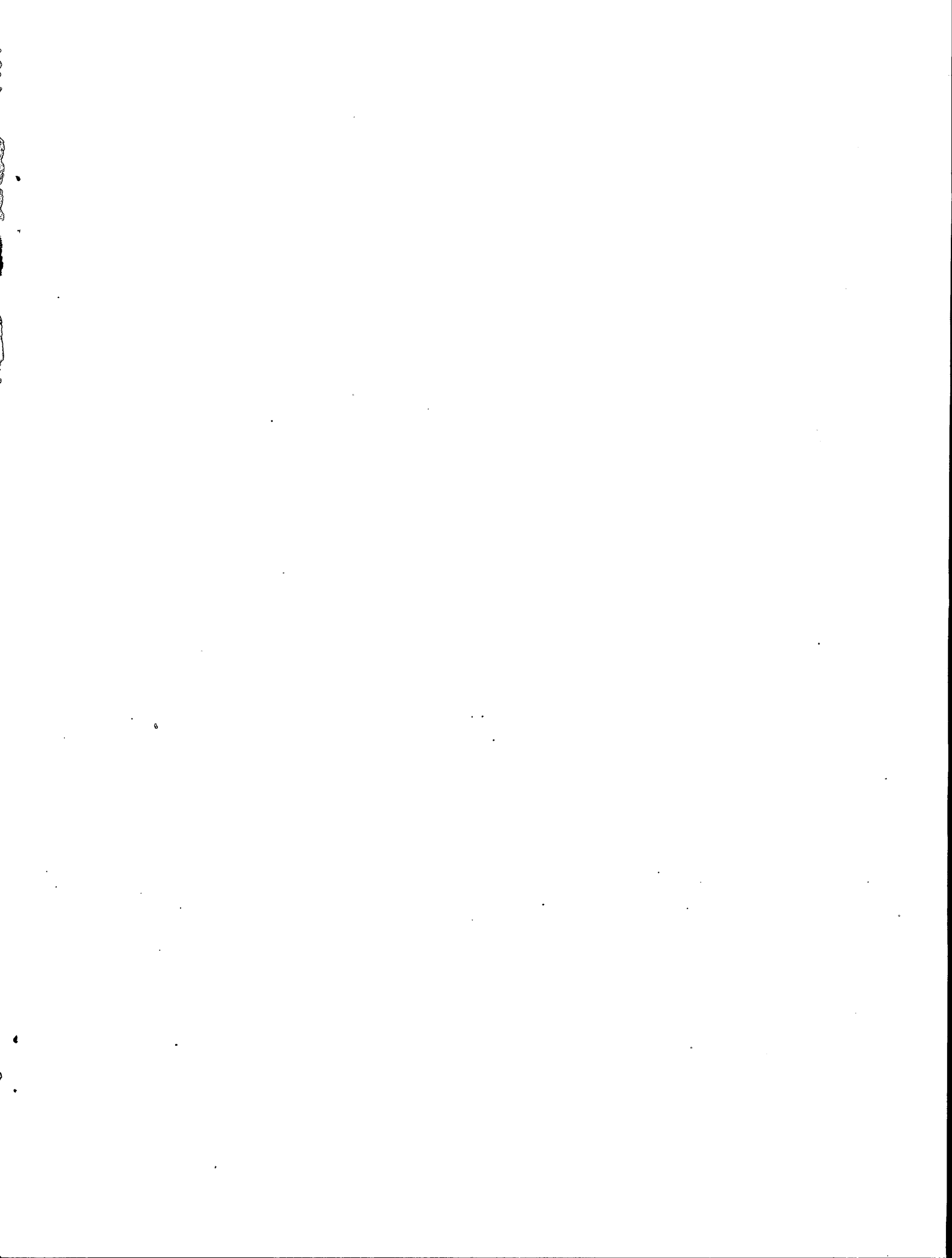
In addition, this document explains how injuries to the soil resource can be translated into a reduction in services provided by that soil in comparison to local baseline (i.e., uninjured) soils. It also provides information important in determining both the ability and time necessary for the soil to recover from the injury.

The information in this document explains that portion of the regulations contained in 43 CFR Part 11 that pertain to the soils portion of the geologic resource. Geologic resources are only one of five groups

into which all resources are placed in the natural resource damage assessment regulations. The other four categories are surface water, ground water, air, and biological resources. Frequently in a natural resource assessment, resources from several of these five groups will be of concern. Biological resources such as earthworms, elements of ground-water resources, and the sediments portion of surface water resources are often studied in conjunction with soil assessments. Information on conducting assessments for these other resources is not included in this document. For these other resources, the appropriate portions of the regulations and referenced documents for those resources should be consulted.

This document is not intended to be a comprehensive listing of all the procedures available to a trustee who would perform an assessment of potential soil impacts. The information in this document supplements the guidance provided in 43 CFR Part 11 but is not required to be followed to obtain the rebuttable presumption provided by those regulations. The regulations in 43 CFR Part 11 should be reviewed prior to applying the information contained in this report. Any discrepancies between information contained within this report and the regulations provided in 43 CFR Part 11 should be decided in favor of the regulations.





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