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PUBLIC HEARING

before

SENATE ENERGY AND ENVIRONMENT COMMITTEE

on

Oil Spill Prevention and Response Capability

April 19, 1989
Harbor League Club
Camden, New Jersey

MEMBERS OF COMMITTEE PRESENT:

Senator Daniel J. Dalton, Chairman
Senator Catherine A. Costa, Vice Chairman
Senator William L. Gormley

ALSO PRESENT:

Mark T. Connelly
Office of Legislative Services
Aide, Senate Energy and Environment Committee

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Hearing Recorded and Transcribed by
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April 6, 1989

Notice of a Public Hearing

The Senate Energy and Environment Committee will hold a public hearing on Wednesday, April 19, 1989 at 11:00 a.m. at the Harbor League Club, 800 Hudson Square, Camden, New Jersey.

The purpose of the public hearing will be to determine the capability of responsible parties to prevent, or respond to, a petroleum or chemical spill in New Jersey waters, to assess the potential for major petroleum or chemical spills in New Jersey waters, and ~~to~~ determine if legislation is necessary to strengthen the State's or other parties' spill prevention and response capability.

Persons interested in testifying at the public hearing should contact Mark T. Connelly, Aide to the Committee, at (609) 292-7676.



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SENATOR DANIEL J. DALTON (Chairman): I would like to call the hearing to order. I have a brief statement, and then I think we'll begin testimony.

The subject of today's public hearing -- oil spill prevention and cleanup planning -- has long been one of New Jersey's major environmental concerns. One of our State's key environmental statutes, the Spill Compensation and Control Act, was enacted 13 years ago in response to proposals to explore for oil off the New Jersey coast, and in recognition of the huge amounts of crude and refined petroleum products which are transported by water to and from the State. The threat that was present over a decade ago has not decreased; if anything, it has increased.

Almost every foot of New Jersey's hundreds of miles of coastline, bays, and rivers is vulnerable to the environmental and ecological damage which a spill of hazardous substances into the water would produce. And although in recent years other, more ever-present, and continuous forms of water pollution, such as industrial discharges, sewage treatment plant discharges, and non-point source pollution, have received a great deal of attention, the environmental threat posed by a catastrophic oil spill hangs like a sword over our heads every day. And, as the recent spill in Alaska demonstrates, that sword can fall at any time.

It would probably be easy to feel safe and complacent here in New Jersey, while viewing the scenes on television of the monstrous oil spill off the coast of Alaska. It couldn't happen here, or should I say, could it?

In September of 1985, the tanker Grand Eagle hit a shoal and spilled 435 gallons of crude oil over a 15-mile stretch of the Delaware.

In March of 1986, the tanker Interar Alliance crashed into Marcus Hook, trashing two miles of Jersey

shoreline. The Intermar Alliance is an Iberian-registered tankard, 400-foot long. And 105,000 gallons fell below the gash line.

And then less than -- less than six months later, a 729-foot tanker, Viking Osprey, spilled 295 gallons of light Mexican crude into the Delaware, which came ashore along a 12-mile stretch of our coastline.

The prevalence of these spills should come as no surprise to anyone, when you consider that approximately 1.4 billion gallons of petroleum products are handled annually by Delaware River ports. More than twice that amount, 3.5 billion gallons are handled by New York and New Jersey harbor ports each year.

What is more surprising and fortunate for New Jersey's environment, is that a larger scale disaster hasn't occurred here. While Alaska is a major production State, New Jersey is the hub of petroleum product distribution for the northeast corridor, with four major refineries, and dozens of tank farms and terminals.

Our State's consumption needs, alone, open our ports to higher amounts of imported crude and refined products. Environmental regulation in this area is tricky, because it involves planning for a potential event, which everyone hopes will never occur.

Other major regulatory programs -- air pollution, water pollution, solid or hazardous waste pollution -- concern ongoing polluting activities which, through a permitting system, we attempt to keep to a minimum.

In the area of oil spill prevention and cleanup, however, planning and preparation are everything. It is on these components that I would like the meeting to focus today.

In this light, there are a number of questions which, I think, all of us might carefully consider:

Firstly, are the contingency plans of our State, the Coast Guard, and industry based on the largest spills which could occur, or do they assume that truly catastrophic spills will not happen in New Jersey waters, and, thus, will fail when confronted with the reality of a catastrophic spill?

Are the contingency plans of industry and the co-op, which might appear adequate on paper, subject to a verification process to determine if what is on paper actually exists?

Have environmentally sensitive areas been identified, so that, in the event of a spill, they can be protected on a priority basis?

What system exists for the coordination of the several groups and agencies which would have responsibility for various aspects of a cleanup effort?

Who would determine the priority of actions to be taken in response to a spill? For instance, who would determine when a dispersant would be used, and what kind of dispersant would be allowed?

How is New Jersey prepared to deal with spills off the coast between Sandy Hook and Cape May, as opposed to spills in our harbors?

How is New Jersey prepared to deal with spills of refined petroleum products, such as gasoline?

Before beginning the public hearing, I would like to make two requests of those offering testimony. First, in your references to the size of spills or capacities of tankers and barges, use either gallons or barrels, but use one measurement, if you would, consistently. And, secondly -- and this is a personal note -- please don't tell me or members of the Committee that it couldn't happen here. In light of what we know happened in Alaska, nothing is too far-fetched to happen here.

I want to, first of all, express my appreciation to the Harbor Club for allowing us to hold this public hearing here.

I would like to introduce some of the members of the Committee. Senator Catherine Costa from Burlington County has just arrived.

On my immediate left is Madelyn Rumowicz. She is a staff person on the Senate Majority staff, and on my immediate right is Mark Connelly who is employed by the Office of Legislative Services. The Office of Legislative Services is the research arm of the Legislature, and Mark is the staffer for the Senate Energy and Environment Committee.

I would like to call on, if I could, with DEP and the Coast Guard's permission, a friend, someone who is the Freeholder Director in Camden County, Rob Andrews.

R O B E R T E. A N D R E W S: Good morning, Senator Dalton, Senator Costa. Thank you very much for the opportunity to be here this morning on behalf of my colleagues in county government. Thank you for bringing this hearing to the City of Camden, to our county seat.

The harbor and port are so important to us in Camden County, both economically and environmentally. It's heartwarming and characteristic that you bring this here. We very much appreciate it.

Dan, in particular, all of us in county government want to thank you for the efforts that you have made in shaping environmental legislation that not only cleans the environment and improves the quality of life for those who live in the county, but it makes our jobs as local officials easier by giving us good common-sense efforts to work with, and we thank you for that.

In county government, with respect to this problem, we are the facilitators, if you will. As you well know, State law presently requires us to, through our

Office of Emergency Management, devise and implement an emergency management plan, which is reviewed on a two-year basis.

I have with me today Chuck Van Camp and Dan Ciechanowski from our office who may answer any questions that you may have.

My concerns are really twofold in respect to the issues that the Committee raises today: The first is to ask you to continue to reinforce the tools that you have already given us.

Present law, as you know, requires us to do these emergency management plans which cover the whole spectrum of prevention and cure issues with respect to the environment and effects on human health. It's a good idea, and it's a plan that we think works rather well. It's worked in our counties in conjunction with the municipalities. We would ask you to continue to support that process both through legislation and through State funding.

The second tool that we have, that we think needs to be enhanced, is the impetus toward mutual aid agreements. As I'm sure the members of the Committee know, there is a mutual aid agreement involving the local counties, the Coast Guard, and the relevant State agencies, both in the Commonwealth of Pennsylvania and the State of New Jersey, with respect to the Delaware River. We hope it's never tested. But, if it is, we're confident that our experience thus far has shown that it works rather well.

There is a legal process that requires us to think through these problems, to sit down and come up with mutual aid agreements that would deal with any catastrophes that may occur.

The second area of concern that I would have, is to ask the Committee to look at the financial requirements for the industry with respect to their financial response to a catastrophe.

I would commend the State government, the Legislature, for its foresightedness in requiring those who use our river and who use our waterways to go through inspection, and to post their own plans as to what they would do financially and mechanically, if a catastrophe were to occur. That's farsighted. That's definitely on the right track. That's what we need to do.

My concern is that there needs to be a more specific mechanism for financial responsibility, should that occur. If, this afternoon, a barge on the Delaware River created a catastrophe, if there were an oil spill on our river, it's rather clear from the legal mechanics and the legal agreements whose responsibility it would be.

The more practical question, I suppose, though, is, if a dredging company or environmental company needs to come in to clean that up, who's going to pay for it? Who has the authority? The legal questions are answered. I think we need a greater degree of fiscal assurance.

My suggestion would be that the Committee consider a technique that is used in land use development throughout the State and in other environments; that is, a surety bond or letter of credit concept. I think we need to be sure that the emergency management councils, the State Police, the Coast Guard, the other public agencies that are involved, have an immediate source of dollars to call upon, if there's an emergency that needs to be dealt with.

My suggestion is that the Committee look at a system which would require those who use our waterways and who are potentially the cause of this kind of problem to contribute either through premiums on a surety bond or premiums on a letter of credit to a fund that would be available at the discretion of the State's Emergency Management Coordinator, who I understand is Colonel Pagano,

or some other official that you would designate, so there would be immediate access to an emergency fund.

I would conclude, again, by thanking the Committee for coming to Camden and calling attention to this problem, and by offering on behalf of the county government our assistance and our willingness to be of any help that we can be in this very worthy endeavor. I thank you.

SENATOR DALTON: You can be assured that the Committee is going to focus on the whole aspect of financial responsibility and the very practical aspect of what dollars are available should, indeed, a catastrophe occur.

It's my understanding that there is presently a pot of money available. The question becomes, is that adequate enough? And what triggers the utilization of that money? There are appropriate questions that you raise, and we'll continue to raise them with the folks that come before us today.

What I'd like to do, I'd like to call on, if I could, again with DEP's permission, representatives of the Coast Guard, and then, in turn, I would call on probably the DEP, then members of the petroleum industry and the Pilots Association that are here today.

But, I'd like to first start with Captain Edward Roe of the U.S. Coast Guard in Philadelphia. Are there any other members that you would like to have up here with you?

CAPTAIN EDWARD ROE: Good morning. I'm Captain Edward Roe, Coast Guard for the Port of Philadelphia. I appreciate the opportunity to discuss the oil transport and oil spill risk and planning in the event of a spill with you this morning.

As the Captain of the Port, I am the pre-designated Federal coordinator for the coastal region within my geographic zone. My geographic zone extends from

mid-New Jersey southward to the Delaware-Maryland border, includes the Delaware Bay, Delaware River, and two-thirds of the State of Pennsylvania.

As the Federal on-scene coordinator, I'm responsible for the planning and directing of the Federal response to oil or hazardous substance releases or potential releases.

What I want to talk to you about this morning is, first of all, the flow of oil through our area, and the areas that we see as a risk. The coastal areas of New Jersey and Delaware are basically non-industrial. We see very little oil flowing into that area or out of that area. So, although the oil doesn't flow through there, certainly it has a high potential for an economic risk.

But I want to focus today on the environmental risk, where this oil is flowing. The complex that you see in front of you on this chart represents what is generally referred to as the Ports of Philadelphia. And in deference to New Jersey, it does include Salem, Camden, Paulsboro, and the New Jersey part of the Delaware Bay and River system.

The port is one of the busiest in the nation. Last year, we had 3100 ships call at the Ports of Philadelphia. The Port of Philadelphia is the second largest refining port in the nation. It is the largest petroleum port on the east coast. Last year, there were 1047 tankers which called on the Ports of Philadelphia.

In addition, there were 7000 barge movements within the port complex. Of the 1047 tankers, 175 were foreign flag -- or, 175 were U.S. flag, correction; 872 were foreign flag. I have found that getting commitments from foreign-flagged vessels is generally more difficult than getting commitments from U.S. vessels or U.S. facilities. PMI Club is in England and the owner is in Greece, and getting someone to sign a contract is difficult.

As the Federal OSC, I have access to what we refer to as the 311-K Fund, which is a fund set up by the Federal government to respond to oil spills where either the spiller is unknown or the spiller does not take adequate action. I would like to point out that the trend in vessels is to larger vessels carrying fewer crew as automation becomes more and more a fact of life.

I have identified the major oil terminals extending from Delaware up to the Schuylkill River, by the red dots. Wherever you see a red dot on this chart, that is a major oil-handling facility, from Texaco, Delaware City, up to Chevron and the facilities in Philadelphia. The tankers move in from sea either coming in the north or south approach. Tankers that are drawing 40 feet or less may proceed straight up the bay and the river to the facility. Tankers drawing greater than 40 feet, up to and including 55 feet, will proceed to Big Stone Beach Anchorage, which is the area I have identified here.

At that location, they lighter their product into, generally, barges until the ship's draft is reduced to 40 feet, at which point that ship can also proceed up the river to its berth. A typical tanker may be lightering down here and will be drawing 55 feet, will carry 1 million barrels of oil, and 15 tanks. The vessels will be automated with 20 to 25 crew members. The pilots will board these tankers at the entrance, regardless of whether they are going to Anchorage or proceeding up the river.

The U.S. vessels will be taking Coast Guard-licensed Federal pilots. Foreign vessels will be taking State licensed pilots.

We also have experienced, in the last couple of years, an increase in lightering offshore where even lighter vessels will lighter either to large barges or to ships. The total for 1987 and 1988 for those offshore facilities was 18. They occur 20 to 25 miles off the State of Delaware coastline, and the trajectory for oil spilled

over 25 miles offshore, with the currents-- It will be taken offshore, and will not impact the shoreline.

The areas that we see as the higher risk areas, and all of these are identified in our contingency plan, are the approaches where vessel traffic is coming from various directions and concentrating on the entrance to the bay -- Big Stone Beach Anchorage -- because of the oil transfer activity that occurs in that area -- Marcus Hook area -- because of the concentration of facilities, and the fact that we have a rock ledge which crosses from Pennsylvania into New Jersey, or, in this case, perhaps from New Jersey to Pennsylvania, and goes across the channel, and the confluence of the Schuylkill-Delaware River, where we have several facilities and vessels merging in that area.

The Coast Guard, in conjunction with the international community, has developed a rather comprehensive regulatory requirement which is placed on vessels and facilities to prevent oil spills. Generally those are international conventions which the Federal government adopts, through adopting the law, and then the Coast Guard implements through regulations. These cover everything from drip pans to ballast systems to what can be discharged, to the requirement for hose testing, the requirement for equipment, radar, gyro, navigation equipment-- It would take us all day just to go through the various requirements that we place on those vessels.

We, in the field, are responsible for insuring that those requirements are met. And we do that through a boarding program. We board barges, tankers, ships of all kinds. We inspect facilities for compliance with these regulations. Last year, we boarded about 1000 vessels for compliance with these regulations.

One of the most important things for our concern this morning is our foreign tank vessel examination

program, where once each year the Coast Guard will board every foreign tanker, and make sure that tanker remains in compliance with all of our regulations and all of the international requirements.

From the facility side, we will inspect every facility also once each year, to make sure they have the proper equipment, the proper plans, the proper training for their people. These are all preventative measures.

With all of that in mind, we do have oil spills. Last year, we had 267 reports of oil spills. Out of that, we were able to actually gather enough information and find oil in 115 of those cases. A total of approximately 71,000 gallons of oil was spilled. And that is 71,000 gallons out of, if my memory is correct, 25 billion gallons of petroleum product which transited via the marine mode within the Ports of Philadelphia.

So that the spill rate is about .00028%. I hope my memory is good on those figures. I don't have them written down. Nineteen of those 267 responses involved releases, or potential releases, of hazardous materials. Most of them were potential releases where material was released at a chemical plant and was contained within the plant itself. Nevertheless, we responded as potential release.

The boardings and inspections that I mentioned on vessels and facilities are two of the methods that we use to enforce regulations. We also have the ability to require vessels to take specific actions. These actions are often intended to insure we have an equivalent level of safety maintained when a vessel has a problem.

For example, we will routinely require a vessel that has experienced, somewhere in its transit, a steering problem, to have a tug escort up the channel. We'll routinely require a vessel which has a problem with their radar to limit their transit to times during good visibility.

We're looking for a trade-off. Vessels that carry cargoes which may be of particular concern -- liquefied petroleum gases are an example -- we require them to take a tug escort all the way up. We put a Coast Guard vessel also escorting them so the blue light will stand out, and we put restrictions where they can meet other vessels and the speed at which they can meet.

We routinely use high wind warnings. If we have winds forecast at over 20 knots, we will put out a safety broadcast for all vessels to hear, so they can take appropriate safety measures if they are transiting; so they can take safety measures if they are at anchor down here.

I think, throughout, our policy has been one in which our primary concern is safety, and not one of rigid enforcement of the regulations. If we were to rigidly enforce the regulations that we have in place, we would put the Ports of Philadelphia at a tremendous economic disadvantage. So, if we can get the equivalent level of safety, we will work with a vessel and a shipper to move that ship. That is whether it is a tanker, freighter, or barge. Whether it is foreign or U.S. owned, we will treat them all the same. If we cannot get that equivalent level of safety, or if the vessel owner will not work with us, we will order them to leave, and we have ordered vessels to depart our port and go to sea. We don't do that alone. We have a reasonable response team which is composed of members of the three states, and of Federal agencies.

Before we take a measure such as oaring the vessel to a port, if it's environmental concerns we have, we will consult with the other members of the regional response team before we make that decision. Generally it's a telephone conversation. It's generally very lengthy. It may take an hour, an hour-and-a-half on a conference call, but we will do that.

Beyond the regulatory safety aspect, we also have a continuing dialogue with industry, primarily through our local members advisory committee. This is a forum where we get to address our local safety concerns. We worked, for example, successfully in getting a series of voluntary recommendations put into place, which recognized that we do have a very long transit up the Delaware Bay and River. If we look out the window and see the river here, it's about 87 miles -- and the pilots will probably correct me -- from the pilot station to the Ben Franklin Bridge. We know that, and we know that that transit increases our exposure. We put some voluntary recommendations which have been published in the "Coast Pilot" as kind of an end to that process.

It advises members of the shift, for example, to lighter fuel oil so they can maneuver very early in the transit, rather than get to the dock, a safety feature. As I mentioned, we have experienced 267 spills per year, and that was our number last year in the Ports of Philadelphia. Of those, 54 have been from vessels.

It's important to consider the fact that we have pollution from many different sources. If we were to have a very heavy rain, we would get reports of spills all in this area, because the parking lots are running off; the oil from the cars has dripped on the parking lot, and we have runoff. Some of the facilities are getting old. They have buried pipe line and some of those pipe lines have been deactivated, but the oil spill still remains in the saturated ground.

We have three cases going now. They've been identified. All three facilities are taking major actions to mitigate that damage, to the point where we now have no oil escaping into the river, even though they may have recovered over 100,000 gallons of oil from the facility,

from the ground. We're trying to work back from the river and say, "Let's eliminate the threat to the river before it reaches the river."

We have had three major spills, and they were alluded to earlier. The Grand Eagle grounded, lost steering and grounded in Marcus Hook, and lost 420,000 gallons of petroleum. I should mention in that spill we did determine that the spiller's action was inadequate and we did assume part of the cleanup of that spill. And we spent Federal money on that cleanup, about \$1 million. We had the cleanup for about a week, at which point the spiller was able to get himself organized and geared up, and we turned it back over to the spiller. We haven't recovered our Federal money from the spiller, yet.

And that's, as I allude back, that's one of the concerns with the foreign--

SENATOR GORMLEY: Who was the spiller?

CAPTAIN ROE: The spiller was the vessel, the Grand Eagle.

SENATOR GORMLEY: Who was the owner, foreign?

CAPTAIN ROE: Foreign company, yes. And that brings up an aspect that the United States is a country; New Jersey is a State, and is no longer a shipper State. New Jersey is a port State. You are acting as host to foreign vessels with foreign owners coming into your ports. The tank vessel Intermar Alliance lost steering, struck a facility, again in Marcus Hook, and spilled 200,000 gallons of oil. And another vessel, the Viking Osprey, struck a submerged rock in the vicinity of Marcus Hook, and lost 295,000 gallons of oil.

SENATOR GORMLEY: What year?

CAPTAIN ROE: The Viking Osprey occurred on September 10, 1986. Response to all three of those major incidents has generally been regarded as professional and effective, and the environmental damage was held to a

minimum. Effective response requires planning, training, and equipment. I think we all have learned that, sometimes the hard way.

The National Oil and Hazardous Substance Pollution Contingency Plan was developed pursuant to the Federal Water Pollution Control Act. That plan, which is in Federal regulation form, requires a regional contingency plan and regional response team based on the standard government regions.

The national plan -- also called a local contingency plan -- which, as the Federal on-scene coordinator, I have. That plan identifies the risk, identifies vulnerable areas, identifies the resources we have to respond to it, identifies other outside resources, and identifies 39 different contractors, for example, who have the ability to respond. And it spells out what our organization is and how we are to relate to others.

Our plan also establishes what we refer to as a multi-agency response team. That team has representatives from the three states involved, from the Federal government, from other local communities. The intent of that team is to, one, have everyone know each other before we have a spill; and, two, to provide for a coordinated spill response so that we don't have turf battles, so that we don't have four or five people in charge.

As the Federal OSC, I would prefer not to be in charge and to be in a monitoring role. If forced to, as we saw with the Grand Eagle, I will step in if I have to.

This multi-agency local response team has been used several times, and we will continue to use it. We use it, for example, in identifying vulnerable resources. We have just completed a two-year study on updating our vulnerable resource list. The product of that is at the printers, and we will have a very nice colored, vulnerable resource chart to refer to, one for each season of the year.

If I can get this down for a second, without losing everything, this is the type of information that will be shown on that chart -- fish and shellfish areas, marshland, any special areas, such as down here. It will identify the wildlife area that sits down here by the Marsh River.

I might add, I am very sensitive to this area. I grew up right there on the river, so, I maybe have a little more sense of pride in this area, and want to see it as it was; not as I remember it, because I remember people coming down and throwing their trash into the river. Most of that activity has stopped. I do have a feel and a sympathy for our wetland areas and our bay and river.

We, with the local multi-agency response team, address very important issues that come up which could result in conflict. The example I commonly use, and one that has come up on every spill-- We have oil spilled and it starts to impinge on the marshland. We now have oiled grass. If you talk to the wetlands people, they do not want you to cut grass. If you cut the marsh grass, the oil may get into the stock system and kill the marsh grass. If you talk to the fish and wildlife people, they would like to see that oiled grass cut. If you just leave oil on the grass, the wild fowl will get oil on them, and put them at risk. So, you have competing valid concerns. And the multi-agency local response team allows us to deal with those concerns, hopefully, in a way which will do the best we can to satisfy everyone.

We also use it to determine when an area is clean. When the spiller comes to us and says, "We have this stretch of beach which is now clean," then we will set up a meeting with the spiller, with the State representative for whatever state is impacted, and my representative, and all three will walk that beach at the same time, so we're not having one person walk it and

saying it looks good, and another person walks it at a different time of the day and sees it differently. We put all the people there at the same time, and if the State says, "We don't like that area," then other special forces which we have at our access are the national strike team, and we have called them on every one of the major spills and on several that weren't major.

A key to them is to call them early in the game. It's going to take them three or four hours to get here. We have the public information assistance team, and although it sounds on the fringes, it's important that you have people on the scene who are able to deal with the press and let the response people deal with the spill. We have the scientific coordinator, another contract person, whose job it is to provide trajectories, and he relies on the local scientific community. EPA has the tactical assist team and the emergency response team, and they also have Federal on-scene coordinators for their inland area, which, if we get inundated with a large spill, we can also call on to assist us.

Getting away from the government to industry, we find the Delaware Bay and River Cooperative, which is a pooling of the resources of the oil handlers within the Ports of Philadelphia to enable them to respond in the best fashion they can to a spill. They maintain equipment and plans at various pre-identified sites. Those sites are identified also in our Federal Local Contingency Plan.

For example, that plan requires that for any major spill or medium spill anywhere in this area, we automatically go and protect Tinicum Creek, because we're concerned with the wildlife. Even if the tide is going out, we do that. History has shown that if you spill oil on the river, it's going to migrate about a mile down every tide cycle. The co-op has at its disposal over 18,000 feet of containment -- almost 19,000 feet. That's in addition

to some of the booms which the local facilities will maintain for their use.

They have skimming capability at two locations, Sun Oil and Marcus Hook, and the skimmer in the Delaware Bay is located in Lewes, Delaware. That's a relatively rough water skimmer. And, keep in mind that there are weather conditions that no skimmer can respond to. If it's 500 gallons a minute, it's probably bigger than anything in Alaska right now. The only equipment I've seen in Alaska has been relatively small skimmers. This is probably bigger than any of them.

They maintain personnel on standby ready to get that skimmer under way within two hours. They exercise that skimmer once a week, to make sure it's fully operational, and they are holding routine training exercises in 1989.

I believe they have a forward plan. These exercises are in addition to exercises that each facility will hold in exercising to get the boom out to protect the vessel or to protect the facility, or to capture oil that may have spilled up the river as it migrates down.

At any time, in Philadelphia, we have the capability to lighter three-quarters of a million barrels of oil from a tank vessel. I mention these factors because they are factors which you've been reading about in Alaska, and maybe I'm answering some questions before they are asked.

We update our local contingency plan each year. It was updated in '88 and we've completed our '89 update, and it's also being printed up now. Industry holds other exercises in the area, and some of them outside. We have not long ago, attended an exercise which Mobil Oil held in their corporate headquarters in New York, to familiarize their corporate level executives with oil spill response and how they would do it and what some of the problems would be.

Just last July, I hosted an on-scene coordinator regional response team meeting in Philadelphia. It was a computer-generated exercise, which simulated a response to a major oil and chemical spill. It was attended by over 400 people in all levels of the response community. We think it was very successful.

I have concentrated on tankers and movement, movement of large quantities of oil as they represent the biggest threat to our port. There are many other courses of potential oil spills just too numerous to go into today. Although we cannot prevent all spills, and if you use a worst case scenario, we do not have the equipment to respond to all spills in a satisfactory measure, if you consider satisfactorily keeping it off of the shoreline-- A large oil spill in the Delaware River and Bay is probably going to end up on the shoreline, a good amount of it is. Keep in mind that you have a two-knot current. If it takes you an hour, that oil has moved two miles already. So, you're chasing it. That's the nature of the river environment. Anywhere in the country you'll find the same thing.

Our recovery rate on the major spills was above the average recovery rate. We did get compliments from even the Audubon Society on the response to those three major spills.

SENATOR DALTON: What was the recovery rate?

CAPTAIN ROE: Around 20% or 25%. Normally, you would find 10% recovery, which is not very much in a major spill. And if you're looking at the results coming in from Alaska, that seems to be about what they are saying.

As we are becoming an important host nation to vessel traffic carrying large quantities of oil, the planning that we do and the preventative measures that we take, certainly I find is the money is well-spent.

So, again, thank you for inviting me, and I think that I'd be happy to answer any questions.

SENATOR DALTON: Thank you, Captain. My understanding is, Captain, Lieutenant Commander Brooks from the Port of New York is also here to respond to any questions that we may have relative to northern New Jersey. Is that correct?

LT. COMMANDER LAWRENCE BROOKS: Yes.

SENATOR DALTON: I should note that we've been joined by Senator Bill Gormley from Atlantic County, who, obviously, because of his district, has a fairly keen interest in this whole subject area.

One of the things I want to ask that deals with the contingency plans-- You had indicated that you developed a contingency plan?

CAPTAIN ROE: Yes.

SENATOR DALTON: I suspect the same is true for the New York Port, sir.

LIEUTENANT COMMANDER BROOKS: Yes.

SENATOR DALTON: What do you require of industry by way of the contingency plan?

CAPTAIN ROE: Each facility is required to have an operations manual. In that manual will be contained their response to oil spills as one of the different emergencies that that manual will treat. It also requires training for the personnel at various other aspects of the preventative end and the response end.

SENATOR DALTON: Is it in the Coast Guard's jurisdiction to approve a contingency plan by industry?

CAPTAIN ROE: We review the operation manuals and we do approve them, yes.

SENATOR DALTON: So, in other words, if, in fact, there's a spill at a facility, and whether that be a facility along the river, or also a vessel coming up the river, or along the coastline, you approve those plans?

CAPTAIN ROE: You've got two questions there. The first is, if it happens at a facility, yes, there are plans.

The second part of the question is, if it happens on a foreign vessel, off the coast, that vessel is not covered by any plans.

SENATOR DALTON: What if, in fact, there is a release off the coast, how do you respond?

CAPTAIN ROE: We would respond as we normally would. We would want to go to the spiller and say, "Okay, Mr. Spiller, what are you going to do to mitigate the environmental damage of your spill?" If he gives us a satisfactory answer, and if he then takes action in accordance with his plan, we will stay in a monitoring role. We will oversee him. We will have monitors out making sure that he's actually doing what he says he's going to do.

If, on the other hand, he does not take any action, he doesn't want to develop a plan, or he develops a plan and he doesn't follow it, then we would step in and assume the role ourselves, using money from the 311-K Fund to pay for the cleanup.

SENATOR DALTON: Off our coast-- Assume there is a spill off the coast of southern New Jersey. I think what you're telling me is that if, in fact, there is a private sector, the owner of the vessel has an adequate contingency plan, and you monitor. Okay?

CAPTAIN ROE: No, not a contingency plan. We're dealing with a response plan, not a contingency plan.

SENATOR DALTON: A response plan, you would monitor. If it's a foreign vessel, then, in all probability you would take charge?

CAPTAIN ROE: I wouldn't say "in all probability." I would say that-- The probability for that happening would be greater than if it were a U.S. vessel.

SENATOR DALTON: Okay.

SENATOR GORMLEY: Are you saying it's a higher risk level?

CAPTAIN ROE: I'm saying that the U.S. vessel will be responded to, on the average, faster and with more emphasis than if the foreign vessel has a problem. What you're doing with the foreign vessel, you're waiting for the PMI Club and the owner to make commitments. Many times they don't make a decision until they are on the scene, which could be 12 or 15 hours later.

If it happens in the harbor, generally a facility has stepped in and taken action on behalf of the spiller until he takes--

SENATOR GORMLEY: What has been the longest response from a foreign owner? In other words, do they wait 72 hours until the attorneys say, "We'll cover the liability?" Oftentimes, I assume when they react, they might be fearful about potential litigation as a result of the spill, and I assume they are going through their legal departments and whatever.

How long have you had to wait sometimes?

CAPTAIN ROE: The longest I can remember is 16 hours.

SENATOR GORMLEY: Sixteen hours, okay. In terms of the environmental effect of that 16-hour delay, what cost did it add? How large was the spill able to spread as a result of that 16-hour delay before it responded?

CAPTAIN ROE: It did not add to that environmental damage, because the facility that the vessel was going to, took it on themselves to initiate action to call in cleanup contractors. They took all the action that the spiller could have taken in those initial phases.

SENATOR GORMLEY: Of the three spills that you mentioned, how many were foreign?

CAPTAIN ROE: All three.

SENATOR GORMLEY: All three were foreign, okay. Mathematically, it's not working out too well for them.

If you had your ideal -- and this is obviously something that we can't deal with, but only recommend-- What do you need on the Federal level as it pertains to those vessels? In other words, in order to go to port, in a U.S. port, you must conform to the same plan, or whatever. Has anybody sought that legislation?

CAPTAIN ROE: To my knowledge, no. Each vessel is required to carry financial responsibility for an oil spill, and in order to transfer our oil in a U.S. port, they have to have a certificate of financial responsibility. That's based on \$150 per gross ton of the vessel.

SENATOR GORMLEY: Give me a gross number.

CAPTAIN ROE: If you use the Exxon Valdez, you're looking at \$14 million.

SENATOR GORMLEY: We're talking infinitesimal, if, in fact, you have a major spill. Fourteen million is a lot of money.

CAPTAIN ROE: I think the issue is, what is a major spill? Are we talking-- Are we going to set public policy which says we have to be able to respond to 11 tankers, and are we willing to pay for that response level?

SENATOR GORMLEY: What it appears to be, and some of these things are, how large is big, and how big is a spill? We can go back and forth on that. But, it appears to be, in terms of safety, at least if the pattern of conduct is correct, that the foreign vessels just don't seem to be on an equal level with the American craft. That would appear to be a fair conclusion, based upon our history.

And my question is: What additional safeguards would you want to see to bring them in line? Obviously, I

guess it would only be recommendations that we could make, but what would you want to see?

CAPTAIN ROE: Probably, and I'm speaking now for myself--

SENATOR GORMLEY: We understand that.

CAPTAIN ROE: The ability to immediately access a fund -- other than our fund -- to start the cleanup on their behalf. If we access our fund, then we're in a fund recovery mode, and in the Grand Eagle's case, we haven't recovered our funds yet after over three years.

SENATOR GORMLEY: Is it in litigation?

CAPTAIN ROE: Yes, yes. It is in litigation. So, that's probably the one biggest thing that I could have in my pocket ready to go.

Now, I don't hesitate to access our own 311-K Fund. If you do, you get into a fund recovery and it drags out. I'd like to have a mechanism whereby I can jump in right away, and say, "Okay, guys, you have one hour or two hours."

SENATOR GORMLEY: But, also, on the other level, they don't have to have the response plan in order the way the U.S. vessels do.

CAPTAIN ROE: U.S. facilities, and that's the link.

SENATOR GORMLEY: They are not really tied to the same type of planning. Hopefully-- I mean the best is not to have it happen at all, but the next best is pre-planning. Their safety precautions are not at the same level.

CAPTAIN ROE: They carry no spill equipment. They carry no boom. If they did, they probably couldn't deploy it anyhow. They have no ability to respond to their own spill and clean it up. They are dependent, if they have a spill, on local industry, i.e., through private contractors, to respond to that spill.

SENATOR GORMLEY: We place that burden on our vessels?

LIEUTENANT COMMANDER BROOKS: No.

CAPTAIN ROE: No, I said the facilities must have the plan. The vessel itself does not have a plan.

LIEUTENANT COMMANDER BROOKS: Excuse me, if I could, what Captain Roe was stating earlier dealing with U.S. flag vessels-- If you have a U.S. flagged tanker, then that tanker is owned by a U.S. company, and you have quick access to the company executives who are willing to make decisions.

When you have a foreign tanker in a U.S. port, to get that decision-making process rolling, it has to go basically back to their main office, which is usually in a foreign country, whether it's Greek or Norwegian, or English, and you have time differences. Those people want assurances that everything is going to be handled properly, and usually they like to have a representative on-scene from the main office. So you get into certain delays. In many cases, they will contract with someone in the U. S. port area to act on their behalf.

But, when you're dealing with a major oil spill, sometimes they are a little hesitant. In the Port of New York we have not had an open water major oil spill from a foreign tanker that was obvious. And by that I mean, we had an unusual one where there was some internal structural damage, and it was just coming out in an unusual way, and it took us a couple days to find out how it was coming out. Everybody worked together.

In the interim, we initiated a Federal cleanup to get equipment moving and start the cleanup. Once we all figured out how it was coming out, they assumed responsibility for the cleanup.

SENATOR DALTON: Both of you in your respective jurisdictions, how many facilities submit plans to you?

CAPTAIN ROE: I would say about 49 in this area.

SENATOR DALTON: That's a 100% response?

LIEUTENANT COMMANDER BROOKS: Port of New York we have 249.

SENATOR DALTON: When you're looking at those plans, contingency plans, obviously you look at whether it is a reasonable plan.

In other words, whether the plan can be implemented, and implemented effectively and quickly, but do you go beyond the paper to visit the facility, to make sure that they have equipment available to implement that plan?

CAPTAIN ROE: Yes, we have, in all cases-- I won't say in all cases for fear of being in error. But, generally, yes.

LIEUTENANT COMMANDER BROOKS: Yes, as part of our annual inspection, we visit the facility and make sure they have the amount of boom they say they have.

Now, their operations manual is not a response plan. That is a portion. The operations manual is overall how the facility operates, type of commodities, how they are conducting waterside transfers, number of people on watch, gauging systems, and communications systems. In addition, how much boom they have on scene, and if they are going to utilize a contract for cleanup in the event of a spill, who that contractor is, 24-hour phone numbers, etc., along that line.

SENATOR DALTON: Are there facilities along the New Jersey coast that submit plans to you?

CAPTAIN ROE: I have none in my area.

LIEUTENANT COMMANDER BROOKS: Along the Atlantic shoreline, I have none.

SENATOR DALTON: Just one more question, and I'm going to turn it over to Senator Costa. If, in fact, there is a spill that deals with not crude, but a refined product, Captain Roe, do you have the ability to address that spill?

CAPTAIN ROE: The response would be in the same manner. In some instances it's easier to clean a product up, because it's easier to clean it up; it's not as thick. We would respond in the same manner.

SENATOR DALTON: Technologically, the response is the same?

CAPTAIN ROE: Correct.

SENATOR DALTON: And that response is adequate?

CAPTAIN ROE: The response is adequate, you know, for a spill up to a certain size, whether we say 30,000 barrels in Philadelphia, or some other number. You know, the equipment on-scene in this area would not be adequate for response to a 10 million gallon spill.

I don't want to give you that impression.

SENATOR DALTON: That's really not the point I'm driving at. I'm driving at that you say that you have the ability to respond to a significant spill -- and let's use the Viking Osprey spill of 295,000 gallons -- regardless of whether it's a crude or refined product.

CAPTAIN ROE: Yes.

SENATOR DALTON: Do you have that same ability along the New Jersey coast?

CAPTAIN ROE: We would use the same resources.

SENATOR DALTON: Would those resources be adequate along the Jersey shore, as you presently have them?

CAPTAIN ROE: It would depend highly on the weather conditions. Spill equipment is only effective in certain environmental conditions. If you have sea conditions over four or five feet, your equipment is not going to be effective. You cannot operate from a vessel. Your boom won't hold the oil. The skimmers will not operate in that kind of a sea condition.

If you were to have a spill in that environmental state, I don't know of anything in the world that's going to contain the oil.

SENATOR DALTON: Let me ask you this: If it is a refined product, what is the distinction if in fact you have heavy seas as far as its impact upon the environment?

LIEUTENANT COMMANDER BROOKS: I think there are certain differences here. We had placed a tremendous amount of emphasis on the type of product you're dealing with. If you have a very high level, distal level number three diesel versus a black oil, your gasoline high level distillates are going to dissipate very rapidly. Their impact on the shoreline varies, in that a gasoline, if it hits a shoreline with marshland, could have a more devastating impact since it's going to kill. Yet, it evaporates quicker. You have more safety problems trying to even clean it up. In many cases with gasoline, you want to flush it out as quickly as possible, get it back out into the river system.

SENATOR DALTON: Its toxicity is higher.

LIEUTENANT COMMANDER BROOKS: With the black oils, it clings in cold weather. Sometimes it may sink, and then you may not see it again until next summer, and that's probably somewhere else. And in the ocean environment, Captain Roe was saying, you're not going to be able to contain it during any sustained sea state, much less try and clean it up. But it's going to move.

SENATOR DALTON: Let me ask you this one last question: You have, as Captain Roe has been saying, I guess-- The size of the ship, and its ability to come up the river, determines just that, whether you allow it to move up the river, and I suspect the same thing-- Is that the same situation in the Port of New York?

LIEUTENANT COMMANDER BROOKS: We have restricted it to a 40-foot draft.

SENATOR DALTON: However, out in the ocean, the size is of no significance or relevance, or somewhat little, okay. As a result, the size of the vessel that's traveling out in the ocean is larger, okay.

LIEUTENANT COMMANDER BROOKS: A ship is going to go where it can make a port of call. So, your larger, supertankers are going to head for a port that has the capability to offload them, if they cannot be received in New York, any of the ports along the New England area, or Philly. There's no reason for them to be off the east coast of the United States, unless it's quite a distance out.

SENATOR DALTON: Captain Roe, you stated, if, in fact, a larger vessel cannot come up the river, then you will off-load down in the mouth of the river.

CAPTAIN ROE: They are restricted to 55 feet to get into that area. If they lighter offshore, if they go off far enough, it's conceivable that they can lighter any ship.

SENATOR DALTON: I suspect that's the same with the Port of New York?

LIEUTENANT COMMANDER BROOKS: We haven't had any to deal with yet. It's feasible.

SENATOR DALTON: Let me address this to Captain Roe, then. If, in fact, you have a significant spill, okay, of refined product, what I'm asking is, do you have the ability and equipment to respond effectively?

CAPTAIN ROE: Again, within the limits, within the environmental limits, that we're given. I don't want to tell you if we have gale warnings, and high seas that we can respond and clean up that oil. We can't.

SENATOR DALTON: If you have the Valdez situation out -- off the shoreline?

CAPTAIN ROE: No, no, whether it's refined or crude oil would make no difference.

SENATOR COSTA: I never heard the term "lightering" before today. When you speak of lightering, you mean in the ocean they will transfer from one ship to another ship?

CAPTAIN ROE: They will bring a smaller ship and tie them up together.

SENATOR COSTA: Do you have many of them or not?

CAPTAIN ROE: We've had none; out of the 17 lighterings, we've had none.

SENATOR COSTA: We've learned today that most of the ships that come through are foreign ships.

CAPTAIN ROE: Yes.

SENATOR COSTA: You say just once a year you go on to the foreign ships to see if they are in compliance. What do you look for?

CAPTAIN ROE: Everything from inert gas systems, which is a safety system which puts inert gas into the cargo tank, so you don't have an explosive atmosphere in the cargo tanks, do they have drip pans, have their hoses been tested.

SENATOR COSTA: That's just done once a year?

CAPTAIN ROE: We make sure that all of the inspection certificates are updated, issued by the flag state. The flag state will periodically inspect the vessel for hull integrity. It will be dry-docked, and we will check the metal thickness. Naturally, we can't require every vessel to do that on our behalf. Then they'd be doing it for every country in the world that they call on.

SENATOR COSTA: What you're looking for is what can happen in an explosion or something.

CAPTAIN ROE: Explosion-- Is all their navigation equipment on there, do they have the charts for our area, do they have the publications they need to navigate with, do they have the proper radio equipment to talk to people?

SENATOR COSTA: I also heard you say that they don't carry spill equipment.

CAPTAIN ROE: Correct.

SENATOR COSTA: They are not prepared to do something about it immediately. They have to get outside help?

CAPTAIN ROE: Correct.

SENATOR COSTA: I see. I also heard you say that it takes time, because they have to get back to the original country, or whatever country, on how they want to solve the problem. They have to make a plan at that point. Why is it we don't have a plan stated, or some people or person that can be contacted for any spill that happens with a foreign country ship? Is that something that's lacking, that you have to have this wait? What I'm speaking of is immediate response, because as I heard here also, when you have a spill, a matter of a few hours, depending upon the winds and the tide, etc., etc., it moves fast. So, hours and minutes mean a lot.

Is that what's lacking, where we don't have somebody on call or with these foreign countries that have their ships coming into our ports that can make the decisions immediately? You spoke of time differences.

CAPTAIN ROE: I'm not sure whether that would be a key or not. Certainly, access to the decision-maker from that ship owner. The government will probably not make a decision for you.

SENATOR COSTA: It has to be separately, each and every one. What I'm saying, could there not be designated among these various shippers-- You know, this is not something that happens -- that's not bound to happen every once in a while. It occurs, but there's always a possibility, every time you have a ship coming down with oil that there may be an accident; there may be a spill. It sounds to me that without having easy access to somebody, it's like, oh, it just happened now, and now we have to go through the whole procedure of finding somebody. I think that person should be found immediately.

CAPTAIN ROE: We'd like to be able to find that person immediately.

SENATOR COSTA: How can we correct that?

CAPTAIN ROE: I'm not sure, in the international scheme of shipping, that it's possible to have one person identified.

SENATOR COSTA: You can't have it. But, then, of course, you're speaking of their ships, but it's our waterways, our area, that's being hurt. So, do we have that ability, whether or not they come in, to immediately act?

CAPTAIN ROE: That's where we get into the 311-K Fund that we have. And I believe the State of New Jersey will probably address the funds that they have access to.

SENATOR COSTA: How long do you have to wait?

CAPTAIN ROE: Five minutes.

SENATOR COSTA: You can immediately start?

LIEUTENANT COMMANDER BROOKS: I think Captain Roe's example about the time delay in getting an owner's commitment-- He stated the facility was already responding. We're not going to wait 16 hours or 6 hours for a response on a substantial oil spill.

SENATOR COSTA: That's what I was asking about. It sounded to me like you had to wait until they said okay.

CAPTAIN ROE: No, the facility that that vessel was here for, there was no delay on the response.

SENATOR COSTA: The ship itself doesn't have anyone who took action immediately?

CAPTAIN ROE: Well, two of them were destined for the facility that they moored to; the third ship hit a facility that it wasn't destined for. But, nevertheless, that facility, because they had the plans and the facility in place, immediately took the action to contain that oil and to start the cleanup process.

SENATOR COSTA: What happened to the other one that it didn't belong to?

CAPTAIN ROE: That happened to the one that hit the facility that it was not destined for. Oil got on

the shoreline, but the response-- Oil got on the shoreline, but the response was started immediately. There wasn't a delay of 16 hours. We had a ship come into Big Stone Anchorage. After they got to the Anchorage, it reported that they were losing a slight amount of oil, and there was a sheen behind them.

Our response to them was, "We want you to have containment within 4 hours, or you must leave." So--

SENATOR COSTA: Did you wait those 4 hours?

CAPTAIN ROE: It's going to take 4 hours to get something out to them.

SENATOR COSTA: They are in the middle of the Delaware Bay? It took so long before anybody got there, when I read about the Valdez incident.

CAPTAIN ROE: I can't really pass judgment on that incident.

SENATOR COSTA: I want to get clarification how you can make it better.

CAPTAIN ROE: It will take 2 hours just to get someone to the vessel, so, basically, we gave them 2 hours, plus 2 hours to get everything in motion, and I don't think that's unreasonable. You can't be everywhere because the spill and our plan recognizes it. You could have a spill at any place at any time.

If you have a spill 2:00 on Sunday morning, in the middle of the Delaware Bay, where there is nothing, you can't be there in 20 or 30 minutes. You're under a pleasant philosophy. It's just impossible. So, we gave them that case. It was arbitrary. We gave them 4 hours.

SENATOR COSTA: What is the reason that a ship itself does not have any equipment to take care of a spill right then and there? Why can't they carry something to immediately do that while they are getting help?

CAPTAIN ROE: It's a matter of people. It's a matter of equipment. These ships are so big it would be

like deploying a boom off a 40- or 50-foot high pier and then trying to get it in place, because you don't want it up against the ship because you're losing the oil out from underneath the boom.

SENATOR COSTA: I'm completely ignorant of this. That's why my questions may not seem right to you. Please bear with me.

What do the people on board the ship do at that time? Is there anything that can be done? Are they trained in any way?

CAPTAIN ROE: What they are trying to do is eliminate the source, which is one of the first steps you take. They are looking to remove cargo from wherever the spill is coming from. If it's coming from a tank, they are looking to pump cargo from that tank into a cargo holding tank that is not leaking, so they can eliminate the source. That's a key to any response. Whether it's from a pipe line or tank on the ship, or ballast line, they want to eliminate the source of the pollution.

SENATOR COSTA: I want to go back to one thing regarding three different groups that walk the wetlands at the same time, so that one can't say, "Well, it was bad at this time or good at another time." Do they go just one time? If someone is going to say it's bad at a different time of the day, or due to weather conditions?

CAPTAIN ROE: I'm saying they walk it at the same time, so they all see the same thing. They only walk it once, if they are satisfied. If they are not satisfied, then they send the spiller back to do more cleanup. When the spiller comes back the second time, then we'll walk it the second time.

SENATOR GORMLEY: You're going to have to excuse me. I have another commitment in Trenton. I have a press conference in Trenton. One point I'd like to check by you, I know we're dwelling on it. It is a loophole and problem

you brought up, this million dollars. If, in fact, we made the facility liable, the facility to which that foreign vessel was bound, in terms of being responsible to make up the cost of that million dollars or whatever, would that make the process simpler for you to collect the money?

CAPTAIN ROE: That's an issue I wouldn't want to address. But you smiled. I like that. I think one thing we can look to, Mr. Chairman, is the fact that these foreign vessels, instead of us running around trying to catch them after the fact, or having that 16-hour delay, or waiting for three years to get the money back, we can pass that liability on to the facility, a facility that is accepting the foreign vessel in one form or another. We know they are not going to move and they won't be hard to find.

SENATOR DALTON: Thank you.

SENATOR COSTA: In addressing the questions, you were dealing with facilities being right close to them. What if it happens off our shores and the facility isn't right there to take care of it.

CAPTAIN ROE: If it's off the shores and the spiller doesn't respond, we have to do it ourselves.

SENATOR COSTA: How long does that take?

CAPTAIN ROE: We have immediate access to the funds to get the people moving.

SENATOR COSTA: For foreign vessels.

CAPTAIN ROE: For foreign vessels, it is not limited to U.S. vessel use, the fund is accessible for any oil spill.

LIEUTENANT COMMANDER BROOKS: The 311-K Fund is stipulated for use for any spill that threatens the U.S. shoreline or occurs in waters in the United States. If the spill incident off the shore is going to potentially threaten the shoreline, then we can tap into the fund and initiate action.

SENATOR DALTON: Your basic premise, and I think what you're leading the Committee to believe, is to a great extent the industry is prepared to handle a significant spill, particularly in the Delaware. I don't want to misrepresent what you're saying, but you indicated that there are contingency plans, that those plans are checked out beyond just the paperwork, in other words that the equipment, the manpower is available to address a major spill.

CAPTAIN ROE: Defining a major spill as a one-tank spill, yes. If we start talking multiple tank spills, then it's beyond the capability of the equipment available locally to handle that.

SENATOR DALTON: In 1986, the Viking Osprey spill and the Intermar Alliance spill, were they multiple compartment spills?

CAPTAIN ROE: No, one tank spills.

SENATOR DALTON: And wasn't it true that 100,000 gallons of crude reached the Jersey shore?

CAPTAIN ROE: I wouldn't give an estimate on the quantity that reached the New Jersey shore, but a significant amount of that reached the New Jersey shore.

SENATOR DALTON: Where was the plan?

CAPTAIN ROE: Where?

SENATOR DALTON: Where was the plan put into effect? You have a plan. You said you checked and determined that industry was ready to respond.

CAPTAIN ROE: Now, if your impression is that the plan will prevent oil from getting on the shoreline, that's inaccurate. In the Delaware River, the majority of that oil, I won't say, majority, a significant part of that oil is going to end up on the shoreline. And I don't know of anything now that I could do to prevent that from happening, because you have a narrow waterway. You have a current. You have a waterway which changes directions. So

that even the wind, although it may help you in one section of the river, is going to hurt you in the next section because the river will take a 90 degree bend, and that wind which was keeping the oil off of the shoreline is now going to push it on the shoreline, and our plan is in many parts--

SENATOR DALTON: Basically you're saying with the plan, there is a significant amount of material that's liable to end up on our shoreline if there is a spill, and there has been in the Delaware River?

CAPTAIN ROE: Correct. And our plans are aimed at keeping that oil out of the vulnerable areas, allowing the oil the opportunity to go on a shore, in, if you will, a non-sensitive areas where it can be cleaned up.

SENATOR COSTA: But you also said when you have a 25% recovery, you thought that was great, because usually there's 10% recovery. That means there's 75% that's still there doing harm to our shores?

CAPTAIN ROE: You'll have a third of it evaporate in two days. There are other factors that are in that equation. We have 100 gallons spilled and we pick up 25.

SENATOR COSTA: No matter how good we are at taking care of that spill, it's not good enough.

CAPTAIN ROE: We're probably not going to get it all. And then the question becomes, what is the environmental damage that's been done?

In other words, if we were to go to Marcus Hook or New Castle, or those areas today, what environmental damage would we find is still there from those three major spills?

SENATOR COSTA: I have another question. I'm asking your opinion: If we would have more oil drilling here in the United States, we would have less coming in from foreign shores. That stands to reason.

CAPTAIN ROE: I would say that would make sense.

SENATOR COSTA: There would be less risk to our shores. The main thing is, you're getting all this imported oil in.

CAPTAIN ROE: Or it would probably-- You're going to have to move that oil by some means. So, although the threat to the shores may be less, the threat to someone's farmland-- That's a trade-off that I could address.

SENATOR DALTON: Captain Roe and Lieutenant Commander Brooks, can you stay with us?

CAPTAIN ROE: I can stay.

SENATOR DALTON: Thank you very much. I appreciate both your attendance and your assistance.

The next speakers are Deputy Commissioner, Michael Catania, and Don Deieso, New Jersey Department of Environmental Protection.

D E P. C O M M. M I C H A E L F. C A T A N I A:
Senators, thank you. We appreciate the opportunity to be here. Let me introduce the people I have brought with me today.

To my right is Don Deieso, Assistant Commissioner for Environmental Management and Control. The Emergency Response Program within the Department reports to Don. To his right, John Vernam, Emergency Response Coordinator for the Department. He works out of the Division of Environmental Quality, Bureau of Emergency Response. To my left is Stan Delikat, retired Colonel from the U.S. Army, Chief of our Bureau of Emergency Response.

What I'd like to do is lay out for you how DEP handled emergency response; more importantly, how we will be the big mosaic of local agencies and the private sector and try to give you an overview of what happens in an emergency response situation.

I will try to honor your request by not telling you that can't happen here. Our emergency response plans

are premised on the notion that spills will happen -- that is a certainty; that what we can do is address the magnitude of those spills, and adopt plans to seek to prevent as many of them as possible; but, more importantly, to respond to the spills that can and will occur, and to minimize their impacts. And, I think it was probably a good idea that you did start off with the Coast Guard.

The Coast Guard, when you're talking about marine oil spills, plays the primary role. Under the Federal statutes, under the outer continental and deep water port statutes, the Federal government, through the Coast Guard, is really the on-scene coordinator and is the lead agency to respond to oil spills.

Also, under the Federal statutes, EPA takes on that role, when you're talking inland spills, and there are agreements between the Coast Guard and EPA defining jurisdictions, so you know which agency to go to.

New Jersey is very fortunate. New Jersey has a lot of tools as a State. You mentioned that in 1976 the Legislature enacted the Spill Compensation and Control Act. That's an incredibly important and powerful tool, much like the Coast Guard was just relating to you, both Captain Roe and Lieutenant Commander Brooks.

New Jersey is to determine immediately whether the plan is in place with contractors, and, if not, to go to a list of pre-approved contractors who can immediately respond to a spill. One of the things that did not come out in some of the questions that we've just listened to is that, you had asked us to identify not only whether the plan is in place, but whether it was verified, whether people knew that equipment was available, and to contrast it with the Alaska oil spill.

You'll also hear from the company operations that exist in the private sector later on. I want you to

know from the beginning of our testimony, the way that we would respond with the Coast Guard and with the regional response team and the private sector would be if it's necessary, and a decision would be quickly made. Emergency response contractors would be activated in key areas. Particularly, when we're talking about the Delaware River, we would not have to wait a substantial amount of time to find out whether or not, one, it was going to respond on the State level, or would seek to activate funding under 311-K, under the Federal Water Pollution Control Act. So these pre-approved contractors would have responded immediately with equipment that we already know is in place.

We know that that equipment is in place because, as the Coast Guard was telling you, there are drills conducted to make sure that not only is it there, but that it's workable; that the teams of people from different levels of government and private sector know how to work together, and can work together.

He was referring to July 13 and 14 of last year. During that summer exercise, the scenario was a three-ship collision with a major oil spill in the Delaware River, immediately opposite the Delaware, in close proximity to the Philadelphia Airport. We attended that conference. We do have a handle on verifying not only that the plans are in place, but that the equipment is in place.

To put it somewhat into context, Lieutenant (sic) Roe would address any contingency that ever came up. I don't think that's so much the issue. It would certainly be scenarios under which we would not be able to accomplish everything we wanted to accomplish. I don't think there would be a scenario under which we would have a substantial delay before we started, in order to minimize the spill.

SENATOR DALTON: I think, just to clarify what I was getting at particularly offshore, if, in fact, you had a situation such as the Alaskan situation, are we ready to

respond? If I'm correct, I think Captain Roe was very uncomfortable in assuring this Committee that we would have that ability. I don't want to misrepresent Captain Roe.

DEPUTY COMMISSIONER CATANIA: I won't either from New Jersey DEP. The principal threat would be in the Delaware Bay or Delaware River or New York Harbor. The simple fact of life, is that we do not have substantial tanker traffic very close to the shores from Sandy Hook to Cape May. We would be talking about a very deep water spill, many, many miles off of our coast, which would give us quite a lot of response time.

The State would have no jurisdiction there at all, because it would be outside the three-mile seaward jurisdiction of the State. The Coast Guard would be principally, as well as the co-op Clean Harbor Associates in New York Harbor-- If you're talking about a near shore spill near New Jersey beaches, it's not going to happen, because traffic is not there. We do not have the facilities.

It's not until you get into the New York Harbor area that you would find those, or in the Delaware Bay or Delaware River Bay. The other thing I wanted to clarify, in terms of planning, and there seems to be a little bit of confusion on this, facilities do plans. There are Federal plans called spill prevention containment, and countermeasure plans. On a State level also, under the Spill Act, we have 450 major facilities, major facility and our laws anything having combined above ground and below ground of over 400,000 gallons with respect to petroleum products-- Chemicals, other than petroleum, are a little over 250,000 gallons, or the equivalent. DPCC plans, countermeasure plans under DEP regulations-- They are inspected by our Water Pollution Control Program, as part of the annual, or at least semiannual inspection that we do, and that verifies that the equipment is also there,

that the plans are in place, that the planning is in place to address a spill from a facility. It's when you get a spill from the vessel, that the vessel doesn't have a plan, then you go to the contingency plan for the appropriate government agency or facility that's attracting that vessel. So, one of the documents I brought to you today is a plan that we have just finished updating, that we do on an annual basis, the contingency plan for oil and hazardous material releases. This is the State Emergency Response Plan. It is much broader than oil spills. It covers hazardous spills, nuclear spills -- hazardous other than oil products. In order to respond to oil spills, you have need to understand how our standard emergency response procedures and organizations operate.

Normally, this plan would be updated in May. We've expedited the final review of it, so we expect it will be signed in a few days, because we wanted to be able to come here and be able to tell you that New Jersey has recently updated its plan. And I can go into some details on how that plan works and how the organizations work, but I wanted to first lay out to you the role that we play in the mix of responsibilities with the Coast Guard, with the Federal Environmental Protection Agency. The other members of the regional response team would include such agencies as: NOAA, Department of Commerce, Department of Interior, and the affected states, and State agencies would also participate in the response. So, I won't tell you that a spill -- a significant spill -- won't happen in New Jersey coastal waters or on the land of New Jersey, but I will tell you that with the plans that are done by the regional response team, the Coast Guard, and EPA, by the State, and by local agencies-- Because under Title III of SARA, we have not only the State Emergency Response Commission, which is co-chaired by the Superintendent of the State Police and the Commissioner of Environmental Protection--

We have 588 local emergency planning commissions, which are basically 21 counties and the 567 municipalities, each of which develops an emergency response plan, and they work as part of the team that is activated when a disaster happens, be it an oil spill in water, or a flipped tanker on a highway, or release of some hazardous material. They are all treated the same in terms of how the network responds to that.

We have a very sophisticated and mature system in New Jersey. We are ahead of the other states, largely because of the foresight that we have had to put some of the programs in place and to give us statutory tools. We've tried to refine that even further at DEP by consolidating the way we respond to an emergency, up to several years ago.

We have emergency response units operating out of the different pollution control divisions throughout DEP, and through an emergency response coordinator, who would perform-- What we decided to do was to put together a variety of programs that seek to prevent releases, whether they are to the air or to the water, and the ones that address them if there is an emergency situation, and we've created an element in the Division of Environmental Quality. We have put together all the various responses from its various responses in one bureau, which Stan Delikat heads up. We've also combined that bureau with other bureaus, that, for example, handle the submissions to the Department, and the Right-To-Know Program, that handles the Toxic Catastrophic Prevention Act program that seeks to prevent releases of extraordinary hazardous substances for facilities that handle those, for the 118 substances that are designated in our regulations. We've tried to put together a consolidation of our responsibilities, so the left hand knows what the right hand is doing, basically.

And although this is fairly recent, we think it works fairly well together, and it also allows us to speak with one voice, when we deal with the Federal agencies, and when we deal with our sister agencies in other states.

One of the things that also came out earlier was that you asked about environmentally sensitive areas. I think it was Captain Roe that showed us a map of the shellfish areas and wildlife management areas and some of the wetlands areas that are designated for special protection in the contingency plans.

New Jersey, as well as other states, and other agencies, was represented on that committee, and one of the things I'd like you to know, is the contingency plans call for immediate protection in those areas. In the event of a major spill that would threaten them, we would have the ability to use pre-positioned equipment to respond in a situation, as necessary, to protect those areas. We can protect the mouth of Tidal Creek, the shellfish growing areas, and they would be done by booming them or other appropriate measures to try and protect them in advance of it.

Fortunately, the geography of New Jersey is very different from Alaska. We're dealing with a relatively confined area. Although there can certainly be spills that we would not be able to respond to as quickly, this is not Prince William Sound. Believe me, the logistics there are much more difficult; just the sheer scope of the area that you would be trying to protect is much much different. We have a much more confined area, and I think we have a more sophisticated and older program of trying to figure out the best way of mustering all the resources, be they Federal, State, local, or industry, to act together.

And the three spills that we've been talking about thus far -- while some of the oil indeed did reach the New Jersey shore -- I think are probably success stories in how to respond, and how to minimize a situation

that, while we all hoped would not occur, did occur, but did not become a major disaster. The difference between having a moderate spill become a disaster is a function of a variety of factors. It's a function of plans that you have in place, and the response network that you have in place, and the equipment that you have in place, as well as some things that we're never going to be able to control -- which the Coast Guard was telling us about -- and that has to do with the condition of the sea, how high the waves are and the currents and things like that, to do the best that we can. We have tried to structure our response so we can maximize our ability to make sure we do not have a-- That does not mean it will not happen. That means if we do have a spill that occurs that is a major spill, we will do the best we can to minimize that, and develop a situation. For weeks and weeks, we find out the best way to respond. I don't think we will have that in New Jersey. It's because of the partnership of the variety of agencies in the Federal government, New Jersey, and the sister states, and the industry.

With the tools that you have given us, the Coast Guard would have the ability, and we have the ability almost instantaneously, to direct the responsible party to take immediate action. If they are liable for damages, the amounts are assessed, using pre-approved contractors. In addition to the Spill Fund, which brings in approximately \$45 million a year, since petroleum is considered a hazardous substance under New Jersey law, we could also, if necessary, access the other pots of money that the Legislature has provided. These include \$300 million in bond funds that the Legislature provided in 1981 and, I believe, in 1986. These include the remainder of the \$150 million pot of money left over by a budget surplus several years ago that was dedicated to hazardous waste cleanup. I

believe there is approximately \$30 million of that which is not yet obligated.

It also includes the increase in the business tax that is dedicated to hazardous waste cleanup, or retention of State funds if we do not get the corporate business tax increase, as well as some other budgetary funds. What I'm trying to tell you, from a civic perspective of money, is that New Jersey is fortunate that we have a lot of resources to draw on. We have the legal ability to access those funds very quickly to draw on contracts, if necessary, if the responsible parties do not respond to our satisfaction, and to work in concert with the Federal resources that are available as well as the industry resources. New Jersey's position would certainly be that we would seek to have Federal funding for as many of these spills as possible, and our history has been very successful in maximizing the use of Federal funds, so we do not have to draw on the Federal funds. Our history has been considerably successful, showing that New Jersey can step forward, fund the necessary efforts, minimize the damage, and argue it out in court later on, without having to worry about what damage is occurring to the environment in the interim.

Now I would like to get into a little bit of how we would respond to a spill, and how we are organized to do that. The plan that you have before you, on page four of my testimony, is to guide the DEP's response to any emergency which impacts the State's environment. It not only establishes the coordinating roles required for interaction with key disaster response agencies, but also contains summaries of the Division sub-plans for incident specific emergencies such as nuclear, pesticide, air stagnation and TCPA emergencies. Finally, it serves as a battle plan for the Bureau of Emergency Response and the Trenton Dispatch Hotline to carry out departmental

procedures for dealing with petroleum and hazardous substance discharges.

What I'd like to point out here, DEP has maintained a 24-hour hotline, Trenton Dispatch, that accepts reports of any emergency situation, and the staff is organized into two regions throughout the State, so you have 18 professionals on call 24 hours a day to dispatch immediately through Trenton Dispatch, so we can send emergency responders to assess the situation immediately and advise the appropriate people, the Department management. The plan is organized functionally with the key internal emergency phone numbers listed in section one. You should note the chain begins with the hotline, works through the emergency response structure, moves up to the Assistant Commissioner for Environmental Management and Control, then to Commissioner Daggett.

Although I am not on the list, I was formerly in that chain. Now, I would function in the absence of the Commissioner. And we have a network that tells us, the emergency responders and tells Trenton Dispatch, who is available from management at any given time, and we make sure that senior management, on Friday evenings before we leave the offices, Trenton Dispatch knows whether Don, myself, or Commissioner Daggett are available. The Commissioner and I rotate weekends, so that one of us is always available, and we carry beepers, to make sure Trenton Dispatch can contact us. The basic plan outlines DEP relationships with Federal, State, county, and municipal agencies and spells out the manner in which DEP will respond to oil and hazardous material releases. It provides internal guidance concerning organization and responsibilities for the Department's divisions, elements, bureaus, and field units. A key philosophy is that local authorities bear the initial responsibility for first response and disaster relief.

Again, we're not talking here about a situation where you have a major oil spill, marine bays spill. That would be the Coast Guard's responsibility. This manual is-- We would work in concert with local authorities. The moment we would think they would not have the resources capable of dealing with that, that would happen immediately.

Our emergency responders would be on the scene, would work with the local police and the State Police, Office of Emergency Management, to make that decision. But the way the procedures would normally work, the first line of defense would be the local authorities, and if that was not adequate, or they felt the need to ask for assistance, that would happen immediately.

The State resources-- If necessary, State contracts would be brought in. I should also tell you that we conduct training exercises through the State Police and through DEP for local emergency responders, so we can prepare them to handle emergency situations that they are responding to. We are in the process, under the Right-To-Know Program and under the information coming in of Title III of SARA, of computerizing that information, so we have a data base that can be accessed. So they know, for example, if there's a fire at a chemical plant; they know what they are likely to be dealing with, or whether it's a refinery or any other type of facility. That data base is not yet complete. We are still in the process of putting that on-line.

It's phenomenal. Once that is in place, we will have a computerized network so emergency responders throughout the State can plug into that, know exactly what they are dealing with, know what kind of substance they are dealing with, and know the appropriate actions to take, and know whom they should involve.

The concept of the operation is so that prompt and effective response to minor accidents, disasters involving hazardous chemicals, toxic substances, and petroleum products will be taken by local government employing local resources and resources obtained by prearranged agreement with neighboring jurisdictions, county health departments, local chapters of quasi-governmental organizations, and the local private sector.

Most minor accidents and disasters are expected to be, and are, in fact, handled by local government. I don't have the percentage, but that is the standard operating procedure, and works normally very well.

New Jersey is a part of Region II. Delaware is part of Region III. Whether you're talking about the Delaware River or Delaware Bay oil spill, you may have both Regions having some involvement, and we would coordinate with them.

Another statute that New Jersey has, and another tool that New Jersey has, is the Governor's emergency powers statute, which is basically a post World War II statute. Under that statute, the Governor can declare a state of emergency that normally triggers the Office of Emergency Management and the Superintendent of State Police to be the lead agency to handle the situation that the Governor has determined cannot be adequately handled by a more local response. And New Jersey would be part of that team.

The mission of New Jersey's Bureau of Emergency Response is to:

- 1) Maintain a 24-hour response capability to all environmental emergencies.
- 2) Find the source of discharge and contain the spread of contaminants into the environment.

3) Assess the hazards posed by, and remove hazardous substances from the environment; and to minimize the exposure to the citizens and damage to the environment.

4) Act as an on-scene coordinator for the Department during an emergency. Keep local, State, and Federal agencies informed as appropriate.

5) Monitor an air pollution episodic discharge where the emission of a substance -- hazardous, toxic, etc. -- into the outdoor atmosphere creates and/or represents a substantial and/or potential endangerment to life, property, or the environment.

6) Expedite the containment and clean-up of hazardous substances through the hiring of a third party contractor as directed by an emergency services contract.

We have a variety of term contracts that provide for different services, whether it be oil spill removal services or land-based removal services. They involve a whole variety of services. We have developed a mechanism to have prearranged contractors in different parts of the State, so we can activate them on a moment's notice, if necessary.

7) Establish a command post or response center from which spill response activities will be directed. Advise and assist Federal, State, and local authorities on assessment and mitigation activities.

8) Seek the assistance of the State OEM and State Police to coordinate the response of the various State agencies involved in a spill response during a declared state of emergency.

9) Indicate appropriate enforcement action when necessary.

John Vernam's role would be to work with the State Police and the State agencies to make sure everyone is operating under the same premise, so we don't lose time in an emergency by having two people work on the same thing.

We would also use this as its basis for future enforcement action, and we would attempt to conduct the emergency response actions in a way which would maximize our ability to recover the funds later on.

Finally, the manual provides a resource listing of departmental assets and their distribution. With the exception of Spill Fund operations, it is the last check made before going to the private sector for resources.

The Spill Fund, which I mentioned earlier, has a remarkable capability which is used for petroleum-related emergency solutions. When a responsible party cannot be found, and there is a direct threat to the public, the Spill Fund is accessed to hire pre-approved clean-up contractors.

If the responsible party is identified and fails to respond to a DEP directive to clean up, up to triple damages, costs can be collected by the State.

Okay, the manual does a lot of other things. That's really the premise of it. I guess the main point that I want to make, is that we do have plans. They are tested. They do work. They don't always prevent spills from happening. They don't always prevent spills from coming up on the shore. They don't always prevent us from having areas evacuated.

Hopefully they do serve to minimize it. That's the goal there, not really for prevention. I won't go into that.

At this point, part of my testimony is focused on the specifics of three spills that we were talking about earlier. We would be happy to answer questions about it, or to answer any questions you have about it.

I think what I'd like to do-- If you want, we could give you an idea of what would happen in a typical situation, who the call would come into, what events would be triggered, who would respond, who would be involved, and

we can do that either through questions or play out a few scenarios for you.

SENATOR DALTON: Why don't you take a scenario, Michael, of a spill in the Delaware, and lead the Committee through the process that you would undertake in responding to that spill.

DEPUTY COMMISSIONER CATANIA: Okay. All right. I think what would frequently happen is we would be notified by the Coast Guard that a spill had occurred.

JOHN W. VERNAM: That would be the most common occurrence. Others come in from the local people. We would immediately call the Coast Guard to see if they had that report, from the local towns or cities where that report originated from.

STANLEY DELIKAT: The local management office, whether it was county, health, or whatever other designated agency under the county environmental health act -- I would dispatch a team generally to respond to that portion of the shore of New Jersey which would be most likely affected by the reported locations of that spill.

In parallel to this, that captain of a ship that's had his trouble has notified the Coast Guard through radio to port. The Coast Guard, in parallel to the action of the State government, is proceeding to dispatch a boat to the scene, and then take it through the steps that the Coast Guard shared with you.

We have two parallel steps: One is State and local government on our end, and also the Coast Guard, to bring that situation in the water to some equilibrium, and they, in turn, will look, confirm that the accident has occurred, the severity of the accident, if the owner of the ship and/or stationary facility is the one that the Coast Guard monitors.

If it isn't happening, the Coast Guard will call in their contracts that are in place, well-equipped to respond, to bring the situation in the water to some peace.

The Viking Osprey, which was discussed earlier, was approaching a dockage at Paulsboro, New Jersey. Of those three spills, that was the one that happened to be "in our bailiwick." Emergency responders were on-scene and stayed from the very beginning. Actually, that evening through the termination a week later, when the majority of the oil was taken, that was going to be taken from the river. The beach cleanup was an ongoing activity, which emergency responders turned over to another State agency for long-term mitigation.

Basically, the process is to get it done in two or three days and move on to something else; find another agency in the State to take over long-term responsibility, such as, Fish and Game, Coastal Resources, or Water Management. We turn it over to them after the major mitigation has been accomplished.

SENATOR DALTON: May I interrupt right there? What is your role as far as cleanup? What actually do you do?

MR. DELIKAT: Supervisor.

SENATOR DALTON: Who do you supervise?

MR. DELIKAT: If it's a contractor hired by a responsible party, we make sure he's doing it right, in concert with the Coast Guard. If they say it's right and we say it's wrong, we solve that.

If there is no immediately identified responsible party, then I am empowered through the chain to commit Spill Fund monies to hire one of our pre-approved contractors. They have an hour-and-a-half to get on the scene.

SENATOR DALTON: How many pre-approved contracts do you have?

MR. DELIKAT: We have three, currently.

SENATOR DALTON: What are their roles? I imagine they don't all do the same thing, do they?

MR. DELIKAT: They deal with hazardous materials and oil spills. Some have slightly different limitations, cannot deal with particular chemicals, but they all have a capacity to work with petroleum-based products. They do not go out into the river. They do go out into rough streams and mouths of rivers.

SENATOR DALTON: Who goes out in the river?

MR. DELIKAT: Delaware Bay Cooperative and private contractors.

A S S T. C O M M. D O N A L D A. D E I E S O: Or the Coast Guard.

Senator, we actually have three phases. There was some confusion developed, I think, in Senator Costa's questions, and I could see that she properly didn't--

We haven't done a good job in explaining the fundamentals. You have three phases of this program. One is a provision to see that the accident doesn't occur. And if I could just give you some principles that guide us in an emergency response, any spill has consequences. It may be trivial. Any spill of anything, there's a consequence to it.

Secondly, there's no response program that is 100% effective. And Captain Roe was careful to say, he can collect 25% of the oil.

The third principle is the Emergency Response Programs simply seek to minimize the effects. But that brings us back to the most important piece: prevention, Senator. You had a very nice list of questions that you intend to pose to each of the witnesses here today.

May I suggest adding one more, which is certainly important for the industrial representatives, "prevention." The Emergency Response Programs at best will minimize. The Emergency Response Programs will never address all, and there will be a consequence of any spill.

Properly, then, if we have our energy and investment to spend, it should be in the prevention. That prevention -- and you heard the Captain describe it to you -- can be in navigation, to see that vessels that can come into the river and bay navigate properly; have the equipment to navigate properly.

It could be prevention to see that there are no collisions through proper channeling and routing of the vessels.

Prevention, too, can be when a transfer from a vessel to a stationary tank -- that it is transferred in properly. But prevention is certainly the heart of this matter. Once the release has occurred, there is only a discussion we can have; how severe the consequences are, not a matter of, will there be. I offer that as a guiding principle. In that regard, the third piece of an emergency response would be prevention. Responding to the incident is number two.

And, Senator, third is the cleanup. You were alluding to that: Who takes responsibility? We would on land take responsibility for wetland that was damaged, or sand that's contaminated, or soil contaminated with oil or petrochemicals. If there were a spill, all three means are what constitute this State response or Federal response to one of these incidents, but prevention is a key and certainly our industrial witnesses should be asked, "What measures do you have in place to make sure the incident doesn't happen in the first place?"

SENATOR COSTA: I concur. That's most important.

SENATOR DALTON: Now that you have moved off the scene, there is some cleanup that has to take place. Who is charged with that cleanup?

DEPUTY COMMISSIONER CATANIA: Stan's Bureau at that point would step out of it. And one of the operating

divisions of DEP would step in. Whether it would be one of the enforcement programs, Water Resources, or Hazardous Waste, or presumably it would also be Fish and Game people, if we're dealing with a wildlife area.

So, we would keep the Emergency Response Program ready to respond to another emergency, rather than consuming all of the resources for an indefinite period of time.

They would come in, get it organized, and turn it over to one of the operating programs for supervision of long-term cleanup, much like we would do under a hazardous waste program, and we would break the responsibilities into two parts, immediate and long-term.

SENATOR DALTON: On the issue of cleanup -- and how we do deal with refined petroleum products, such as gasoline -- how do you react to a gasoline spill? We were led to believe theirs was a much, much tougher type of spill to address, usually, than an accrued oil spill, because of the toxicity of that refined product.

ASSISTANT COMMISSIONER DEIESO: When we talk about the emergency response and how you contain it, and what you do to capture it, such as crude oil, it is challenging if it strikes a shore. We do have toxicity concerns which are greater for gasoline than crude. But, to somewhat soften the impact, the gasoline evaporates very, very quickly.

So, when we look at cleanup, it isn't going to be around long before nature takes it up, makes it a vapor and moves it into the atmosphere, leaving much less for us to address.

SENATOR DALTON: When it comes to a narrow river, the impact of gasoline is as significant as the crude oil, because of the fact the Coast Guard indicated, it's going to get to the shore.

ASSISTANT COMMISSIONER DEIESO: As oil, it will get to the shore. Gasoline's life expectancy on shore and/or in water is probably measured in hours, before it volatilizes and leaves us.

Crude oil is another story. That's going to be around for months and years.

DEPUTY COMMISSIONER CATANIA: The response to that will be the same, in terms of personnel -- the network that would respond. You're just dealing with a different type of spill. So, it would be a different type of spill, and different procedures would be used. And some of the safety concerns would be a little bit different, too, in terms of the danger of fire and concerns like that.

You asked us also earlier to address the issue of dispersants, and one of the things that has not come out, as of yet, dispersants are a very controversial issue, where to use them, and how best to use them.

There is an existing protocol for Delaware Bay and Delaware River that involves some pre-approved areas, and areas where we have decided they should not be used. There is a network that has to be considered, and basically a conference call would take place. That would involve representatives of the regional response teams, Coast Guard, EPA, and Interior, and also involve the affected State agencies.

In the Delaware Bay, DEP-- We would basically have a conference of whether or not it made sense to use dispersants if it happened to be in the pre-approved area which surrounds the anchorage. Because of the variety of factors, the currents with the river there, dispersants make sense there. They may not make sense, particularly, in environmentally sensitive areas.

Preceding any decision by the on-scene coordinators, they realize under the protocol they have to have that consultation.

SENATOR DALTON: I want to interrupt you, if I may. We're going to take a half-hour break, the Committee. We will come back to you, and then turn to the industry, and to co-ops, so people should, if they want to, go grab a sandwich. Please feel free to do so.

The way we're going, as I said, we're going to return to DEP. We're going to then turn to the industry, and then turn to the co-ops. So, feel free to utilize that as a yardstick to determine how long you have.

(RECESS)

AFTER RECESS:

SENATOR DALTON: Senator Costa, I'm sure, is on her way. I think we left off -- as far as the actual cleanup is concerned. Your office has left the scene.

Now, we're focusing on cleanup, basically, of the shoreline. Describe for me that scenario.

DEPUTY COMMISSIONER CATANIA: What would happen, either the supervision of the State-hired contractors would shift from Stan's Bureau to one of the operating divisions, and it would become an enforcement type situation, or if it was a responsible party, or if it was our Hazardous Site Cleanup crews, then State staff would be supervising privately-hired contractors.

It's really a question of who's supervising the contract. We let the emergency responders go back to being ready to respond, in case of another emergency, and not tie them up for an extended period of time, and let one of the programs supervise from that point on.

SENATOR DALTON: One of the programs? Identify those programs for me.

DEPUTY COMMISSIONER CATANIA: Water Resources, their enforcement program, or Hazardous Waste Management Division, their enforcement program; conceivably, Environmental Quality, as well as Coastal Regions and Fish and Game.

SENATOR DALTON: What sort of resources do you have in those divisions ready to respond to a situation like this? I imagine, for instance, at Hazardous Waste Management, you're going to be dealing with specific sites throughout the State as you are. I mean, what sort of resources can you call upon to--

DEPUTY COMMISSIONER CATANIA: They have their own staff to have on-scene coordinators to supervise and make sure it's being performed adequately. They can all tap into the same contractor; that is, Stan could tap into. If there was a need for additional contracting services to extend the contract, they would take advantage of the same contractor.

SENATOR DALTON: Stan indicated earlier that you had three contractors. These are the emergency--

MR. DELIKAT: There are three specific contractors that are called to respond in priority. If one declines, call the next one, and the next one. Should all three of them be incapable of doing this, then I can go to any available contractor in the State.

But, those three have a one-and-a-half hour on-site time requirement; two hours to start work. If I go outside those three, then it's a negotiated arrival on the site.

SENATOR DALTON: One of the issues also raised earlier was the whole issue of the use of dispersants, which was a fairly controversial issue in the Alaskan situation; so much so, I think even Exxon was criticized by

some of the state environmental officials, as far as their inability to utilize dispersants until 10 or 12 hours after the release of the crude.

Mike, you indicated that, you know, what you would do is probably put together a conference call as to the utilization of these dispersants.

Let me ask you a question: Wouldn't it be more prudent to try to resolve that issue now in a non-emergency situation, then it would be as far as utilization of a conference call during an emergency?

DEPUTY COMMISSIONER CATANIA: That has been done in some specific areas, which I mentioned earlier. There are some areas that are pre-approved; Big Stone Beach Anchorage in Delaware Bay, down in that area. I guess the lightering is going on. Where the larger ships are anchored, dispersants are appropriate to be used there, and there's a preexisting agreement between the Federal and State authorities that dispersants can be used there.

MR. VERNAM: That's only on a small spill. Major ones, they go to mechanical means. In the New York Harbor it's 30 meters off the New York Harbor. From then in deeper areas it's pre-approved. Anything within that is not. They have to then set up a conference call to get all three states involved, and Federal agencies to then okay the use of the dispersants, other than in those areas.

SENATOR DALTON: In fact, you have a situation, again, such as the Alaskan situation, where there seems to be some conflict, as far as the utilization of dispersants. How could you resolve that conflict?

DEPUTY COMMISSIONER CATANIA: There's a preexisting agreement that goes back to 1983 and 1984, something called Delaware River Bay's Dispersant Committee, under the direction of a regional response team. Presume that the Coast Guard would have the on-scene coordinator and the Coast Guard would either get a suggestion from a

responsible party, or part of the response team, to use dispersants. There's a concurrence network that he would have to discuss it with immediately before they could approve that. That would include, NOAH, Department of Interior, and appropriate State agencies.

SENATOR DALTON: If, in fact, it occurred on a weekend, isn't that a very cumbersome--

DEPUTY COMMISSIONER CATANIA: No, because each of these agencies have emergency responders who are available 24 hours a day.

SENATOR DALTON: Who makes the call?

DEPUTY COMMISSIONER CATANIA: The on scene coordinator. He seeks the concurrence, and he has the authority to make that call.

SENATOR DALTON: One of the other questions I had for you-- Some local communities require that booms be placed around ships when off-loading cargo. In the case of ship-to-ship transfers in bays, do you feel that would be an appropriate precaution?

DEPUTY COMMISSIONER CATANIA: To automatically boom in every instance?

SENATOR DALTON: Yes.

MR. VERNAM: I think it's an appropriate precaution, yes. However, the jurisdiction is there under the Coast Guard and wouldn't be under New Jersey, especially in light of it being on the Delaware side of the river. We wouldn't have jurisdiction. And in New York Harbor, yes, it would be appropriate by the Verrazano Bridge.

SENATOR DALTON: What you're saying is that where New Jersey has the authority, that it would probably be an appropriate requirement to establish booms when we have ship-to-ship loading?

MR. VERNAM: Yes, that's one of the preventative measures.

SENATOR DALTON: Okay. One of the other issues is in fines and penalties. What are the fines and penalties now for spills in New Jersey waterways?

DEPUTY COMMISSIONER CATANIA: Under the Spill Act and Water Pollution Control Act, up to \$50,000 a day, and each day is a separate offense.

SENATOR DALTON: A situation occurs where you have a spill off the coast of New Jersey. That responsible party, I suspect, the owner of the vessel, would have to be -- would pay or be subject to fines up to \$50,000 a day.

Now, is that dependent upon the size of the spill, or what would determine the fine?

DEPUTY COMMISSIONER CATANIA: There's two requirements: an immediate notification requirement in the New Jersey statute. Anyone who is responsible for a spill of a hazardous substance has to immediately notify the Department, and failure to notify is a violation of the Act, just as a discharge is, because discharge is prohibited.

And the penalty schedule we would use under the Water Pollution Control Act, which also has the same level in it, would take a look at a number of different factors. It would look at the degree of environmental damage. It would look at the degree of culpability of the party, whether or not it was potential negligence and a variety of factors would be taken into account to decide whether we go all the way up to the maximum penalty or something in between would be levied.

The size of the spill would be appropriate to consider in terms of environmental damage as one of the factors. But, the maximum would still be available.

SENATOR DALTON: Okay, I have no further questions. Senator Costa, do you have any?

SENATOR COSTA: Yes. How many gallons of oil do these tankers usually carry before lightering, and after

lightering? They would all be lightened before they came into the Delaware Bay area, would they not?

DEPUTY COMMISSIONER CATANIA: Let's address that. First of all, we're not talking about supertankers coming into these waters. We're talking about intermediate, fairly large, crude carriers coming in and lightering from the anchorage point that you saw on the map.

ASSISTANT COMMISSIONER DEIESO: Two hundred to 400,000 barrels is what the tankers--

DEPUTY COMMISSIONER CATANIA: Forty-two gallons to a barrel.

SENATOR COSTA: So the average one that would come in after lightering, into the waterways, that we're speaking of -- into the Delaware Bay area -- would be after lightering that they come through-- How many?

ASSISTANT COMMISSIONER DEIESO: Well, they are doing two things: They are coming in and lightering, and they are emptying cargo, so they rise higher in the water and don't draw as much, and then the ship, now reduced in cargo, floating higher on the water can now proceed up the river to its port.

The product that's been off-loaded will go to a barge, and the barge now will make its way also up river to its port. So, the lightering serves two purposes. The ships coming in simply weigh too much, and they are sitting too low in the water and can't make their way up the river.

One of the master pilots is here, and they are actually the people that are on these ships. They are much more familiar with the capacity and size of the ships. We are not directly involved in that.

SENATOR COSTA: I was asking that question to find out what kind of damage you can see if any of them did have an accident in that area -- whether it was greater or lesser?

DEPUTY COMMISSIONER CATANIA: We're not talking about super-large carriers, but we are talking about enough

oil to do a substantial amount of environmental damage if it's not handled properly, and if the spill is not contained quickly.

SENATOR DALTON: I don't know, some of the vessels coming up here, and the spills being involved, have been fairly significant.

DEPUTY COMMISSIONER CATANIA: Yes, yes.

SENATOR DALTON: When you talk about the Exxon Valdez, you're talking about 900-plus vessel. When you're talking about the Viking Osprey, or some of the other vessels, they have all been significantly -- 700, 800-plus foot vessels, so, you're not suggesting that lightering takes place all the time?

DEPUTY COMMISSIONER CATANIA: No, no, but the super-large carriers, the kind that stay out in the ocean and never come in, are not coming up the Delaware River.

SENATOR DALTON: I understand that.

DEPUTY COMMISSIONER CATANIA: And the ones that are coming up have been lightered to some extent, so they can navigate the channels.

SENATOR DALTON: But we're still talking about vessels the size of the Exxon Valdez coming up this river.

DEPUTY COMMISSIONER CATANIA: The pilots can answer that better, but I think that is accurate. These gentlemen are pilots.

SENATOR COSTA: You can get as much as the Valdez had?

P A U L L. I V E S: Oh, yes.

SENATOR DALTON: You can have a 10.5 million gallon spill?

MR. IVES: The Valdez was loaded much deeper than a vessel that could come up the Delaware River, while we could have actually not been carrying the amount of cargo that the Valdez was carrying.

SENATOR COSTA: That was where I was going.

SENATOR DALTON: The Valdez was carrying 40 million gallons. Can you have a 10 million gallon vessel come up the river?

MR. IVES: Sure.

SENATOR DALTON: So, in theory, you could have a 10 million gallon spill?

MR. IVES: In theory.

SENATOR DALTON: Are you guys ready to handle that?

MR. IVES: We do that all the time.

DEPUTY COMMISSIONER CATANIA: I think we are ready to respond to it. My real response would be, while that ship may have 10 million gallons of oil on it, we think there's enough advanced planning and preplanning to get that 10 million gallons out.

SENATOR DALTON: When you had your exercise during the summer, what spill did you contemplate, what size spill?

MR. DELIKAT: The three ship crash in the Delaware River was a major oil spill. It never was computed exactly.

DEPUTY COMMISSIONER CATANIA: Do you know what the range was?

ASSISTANT COMMISSIONER DEIESO: Major oil spill.

MR. DELIKAT: It was a major spill, over 100,000 gallons in the water. But, precisely--

SENATOR DALTON: One hundred thousand gallons?

MR. DELIKAT: Generally that's the major oil spill.

SENATOR DALTON: We're talking about a spill 100 times that size.

DEPUTY COMMISSIONER CATANIA: If you look at the Viking Osprey and Grand Eagle, the full capacity did not spill. They could have, in response to those accidents,

prevented the full capacity of the ship from getting into the river. So it's a function of how quickly you respond and how adequately you can respond.

If you ask me, if there were over 10 million gallons on the river--

SENATOR DALTON: You're saying that in your major spill, you had 100,000 gallons contemplated?

ASSISTANT COMMISSIONER DEIESO: Greater than.

SENATOR DALTON: But you indicated to me earlier, there's a potential for a 10 million gallon spill. Why were you doing an exercise that contemplates 100 million gallons, when there's a potential for 10 million gallons?

DEPUTY COMMISSIONER CATANIA: The actions you would take are basically the same for 150,000 as it would be for 10 million. The level of response would be the same. In terms of how you treat that, it's a major spill, as opposed to a minor spill, that you have a very different level of response for.

SENATOR DALTON: In fact, if you had a 100,000 gallon spill, you would call in the same amount of equipment as in a 10 million gallon spill?

DEPUTY COMMISSIONER CATANIA: Initially, yes. If we had a 10 million gallon spill before we responded, we'd be in real serious trouble. If we had a ship leaking oil at 150--

SENATOR DALTON: I'm not asking you to tell me everything is fine. If you have a major spill, a spill over a 10 million--

DEPUTY COMMISSIONER CATANIA: We're all in deep trouble.

ASSISTANT COMMISSIONER DEIESO: One of the things we need to mention, as in the Exxon Valdez, you have a rupture in the hull as one way to lose your cargo. They pumped a tremendous amount of oil off the Valdez, as we do;

or you can transfer cargo from one of the containerized tanks to another ship. Because the vessel has this much cargo doesn't mean that cargo is all in jeopardy.

The emergency response has, as its first mission, in addition to stabilizing the spill, stabilizing the vessel, moving it off onto barges, and stabilizing the environment.

The question you pose in the extreme, is, how would we lose, in a couple of hours, that much oil? You'd have to tear a hull from tank to tank, from end to end, like a can opener and have it just rush out.

I don't know that their speed is enough in our Delaware River and/or Bay to create anything like that. That should be left to experts to advise.

Just in principle, because cargo is there, it doesn't mean all that is going to escape.

SENATOR DALTON: You have 10 million, and one million gallons escape. Okay, I'm making the point, Don, -- and don't minimize it -- that we are in deep, deep trouble if that happens, okay? You're saying, your exercise is based upon a three-tanker collision where 100,000 gallons escape. And we have vessels traveling up-- That's what you told me, okay?

DEPUTY COMMISSIONER CATANIA: Let me clarify that. I'll have the stenographer read it back. That's not what we're trying to say. In fact, in the report, 100,000 gallons is already in the river. It's already a major spill with hypothetical vessels.

There's a capacity for a much bigger spill. What we're trying to say, when you respond to a spill, if there's already a million gallons in the river, you're way behind the eightball, and you have a major problem. When you respond when it's a 100,000 gallon spill or lower, you have a chance to do something to help.

The goal of our plans is to be there quickly

enough to keep it from getting to that proportion. If you don't, you're right, you're in a whole different ball game, and you're going to meet a situation that's going to take you weeks and months to catch up with.

SENATOR DALTON: The last spill, major spill, in this river deposited 295,000 gallons.

DEPUTY COMMISSIONER CATANIA: By the time it was contained?

SENATOR DALTON: You're doing an exercise that contemplates 100,000 gallons.

DEPUTY COMMISSIONER CATANIA: I don't mean to be argumentative, but it is premised on a 635-foot container vessel. I don't have the capacity. In here, it's got to be a 635-foot vessel which has a huge capacity, much greater than the numbers we're talking about -- 100,000 or 400,000. We're talking about millions of gallons of oil.

Obviously, the question is, how do you keep that scenario from deteriorating? You've got a tanker in the river, 100,000 gallons is--

ASSISTANT COMMISSIONER DEIESO: And leaking at a rate of 500 gallons an hour, or 1000 gallons an hour. So, what you have isn't this rupture, oil leaking at a certain rate. The longer it takes you to get there, the more that's leaking. If it takes you five hours to respond, and nothing is done on that ship by off-loading or transferring to other tanks, then you're going to continue leaking.

So, the first principle is, can you get there quickly and stabilize; get what's in the water and stabilize its cargo?

SENATOR DALTON: In 1986 that wasn't done?

ASSISTANT COMMISSIONER DEIESO: It wasn't done. The period of time, and the size of the gash, let that amount, 200,000 or 300,000 gallons, into the environment, a portion of which was captured.

DEPUTY COMMISSIONER CATANIA: What did happen, the response effort kept that spill from going beyond those proportions, so the whole cargo in that ship didn't get into the river. That's why you treat everything over 100,000 gallons as if it had the potential to let everything out.

SENATOR COSTA: When do they use that floating plastic fence?

DEPUTY COMMISSIONER CATANIA: They use it for any spill.

ASSISTANT COMMISSIONER DEIESO: They are used as quickly as we can get there, and we see this oil leak from this leaking ship. If we can ring that area, we can hold it in.

SENATOR COSTA: How soon can you get that?

ASSISTANT COMMISSIONER DEIESO: Typically an hour or hour-and-a-half.

SENATOR COSTA: Do we have the booms?

ASSISTANT COMMISSIONER DEIESO: The contractors are equipped with them.

DEPUTY COMMISSIONER CATANIA: The industry will go through our emergency contractors, and they also have equipment pre-positioned.

The point I was trying to make, we have the capability of responding fairly quickly, so we can keep fairly small spills from becoming disasters, because we can get their quickly enough.

When Stan activates one of our emergency contractors, they don't have to come from San Francisco and fly in this equipment. It's here. In a matter of hours, they are there using that equipment.

When the Delaware River Bay Cooperative activates its teams and its contractors, they have equipment pre-positioned, so they can respond right away, too.

SENATOR COSTA: In the case of the Valdez area, what happened there? Did they not have a boom for that area?

DEPUTY COMMISSIONER CATANIA: They took a very long time, so much more oil spilled out.

SENATOR DALTON: Do you do a verification of planning by the private sector with regard to their ability to respond?

DEPUTY COMMISSIONER CATANIA: As I said before, we do the drills so we test out whether the equipment is there and available. We also inspect facilities that have to deal with the discharge, preventive counter-plans so we make sure the equipment listed on their plans are on site, and their plans are on-site.

SENATOR DALTON: And the personnel that they list is actually there and on site?

DEPUTY COMMISSIONER CATANIA: I don't want to leave you with the impression that we're everywhere and we can respond immediately. It could be, in-between inspections, somebody removes equipment, and we had counted on it being there, because that's in the plan to be there.

SENATOR DALTON: Has that occurred before?

DEPUTY COMMISSIONER CATANIA: To my knowledge, no.

SENATOR DALTON: You also led me to believe earlier that it will never happen in the ocean. The likelihood is very minimal, when there's been a tanker collision even out in the ocean.

DEPUTY COMMISSIONER CATANIA: They have been far enough offshore, so there is a relatively long time to respond before it would hit the beaches.

SENATOR DALTON: Here again, that is speculative. You know, you and the Coast Guard have both said weather conditions and other variables will make that determination.

DEPUTY COMMISSIONER CATANIA: We're not telling you we can prevent any spill from hitting the beaches. We think we've done what prudent people can do to prepare for it and minimize it. We have a pretty-- There are scenarios that you could put together under which everything possible that will go wrong will go wrong, and it will take--

SENATOR DALTON: My concern is this: That you had a situation where the same scenarios were supposed to be checked and double-checked, in Alaska, where perhaps the greatest environmental disaster of this century occurred just recently. What I'm suggesting to you, is that the Committee is very, very concerned that we insure, or we minimize that possibility here in New Jersey. That's what I'm suggesting to you.

For someone to come here and say this isn't going to happen-- Don't tell us that, okay?

But, you know, if you're saying that we are ready to minimize any significant spill, whether it be offshore or in the Delaware or New York Harbors, that is certainly a prudent message to leave the Committee.

DEPUTY COMMISSIONER CATANIA: What would also have helped, if your counterpart had held a hearing two weeks before, it would have gotten some answers and found out there were some things that needed attention. We can learn from that lesson and that mistake that unfortunately happened in another state. And through things like this hearing, we can make sure that we all go back and test these plans.

We have a drill coming up next week. It is not a scenario. There is a jet fuel component to it that leaks into the river. It's another opportunity to test the equipment; to assist the response team to make sure we do everything possible to get ready and do our best to handle any situation that comes up.

SENATOR DALTON: Okay, thank you very much. We appreciate it. Jim, you have some folks here. I don't know if you are going to testify personally, or--

J A M E S B E N T O N: Yes, I'm going to testify personally. Mr. Chairman, members of the Committee, my name is James Benton. I am the Executive Director of the New Jersey Petroleum Council, a trade association representing the major oil companies. Our offices are located in Trenton, New Jersey.

The New Jersey Petroleum Council represents the petroleum industry engaged in marketing, refining, transportation, and research in the State of New Jersey. Obviously, the responsibility extends to the Delaware Bay and River harbor area, and the New York/New Jersey Harbor area, the two major east coast facilities serving the needs of the mid-Atlantic.

Accompanying me today, on behalf of the industry, would be representatives from the two spill cooperatives which have been previously referred to, and individual representatives from the refiners and terminals located along the Delaware River that comprise the cooperative. These representatives are from Sun, BP, Chevron, Mobil, Coastal, and Texaco.

The petroleum industry appreciates the opportunity to detail its plans in responding to accidents involving the petroleum industry facilities in New Jersey and the immediate surrounding areas.

We believe that a cooperative effort from Federal, State, local, and individual companies provide a necessary safeguard in assuring the public of an ability to handle emergencies.

At the outset, let me extend an invitation to this Committee and interested legislators to view the facilities and examine the response plans on a firsthand basis. Hearings, such as the one today in this particular

location, while serving as a necessary overview, could be even more valuable if combined with direct, firsthand inspection of plans and equipment, which can be only fully appreciated by a direct review at each facility.

The Coast Guard, the State Department of Environmental Protection, spill cooperatives, and individual companies are continually and regularly reviewing and updating their preparedness programs. The Delaware Bay and River Cooperative and the Clean Harbors Cooperative of New York and New Jersey serve as a model for corporate responsibility in a first line defense against potential spills that is, by the way, self-imposed and funded by the industry.

Employing responsible executive coordinators and owning and having access to emergency response equipment, these co-ops comprise the first respondents in any emergency that should occur in the respective harbor areas. Further, participation has been insured by the State of New Jersey through the New Jersey Spill Compensation Fund, originally designed to mitigate against petroleum spills. This money, raised through direct taxation on petroleum products, ensures that State funding will be available to respond to a spill when and if that incident occurs.

Emergency response plans are not things that just lie dormant. They are being continually updated and reviewed in light of new facts and developments. Efforts are ongoing within the petroleum industry at the present time.

Presently, a Presidential Commission ordered by President George Bush to review the incidents surrounding the recent Alaska spill is under way. This Commission will provide valuable insight and lessons that can be learned by all operating in the industry. Further, the American Petroleum Institute's Board of Directors created a task

force comprised of chief executive officers, headed by Allen Murray, Chairman of Mobil Oil Corporation, which will review the industry's practices and make necessary recommendations for improvement and prevention. As these reports and analyses become available over time, we will share with the Committee the insights that these reports offer. Recently, a review of the Delaware Bay and River Cooperative practices has been initiated by a member company. I believe a similar review will also be underway in the New Jersey/New York Harbor area.

In sum, we are not standing on the present plans, but are making continuing efforts to review and update on a regular basis all procedures involving accidents in New Jersey areas, and the plans were detailed earlier by the Department. They were originally-- For example, presently, there is a Presidential Commission, ordered by President George Bush to review the incidents surrounding this, even though, as earlier described by Deputy Commissioner Catania, they are a major, complete review.

We are presently making plans to review and update all procedures involving accidents and the potential of accidents in the New Jersey area.

I might also add, as recently as yesterday, the Department of Interior announced a joint industry-government plan for a review of oil spill plans and research programs on oil spill containment and cleanup technology. This program, which is envisioned to take place over a three-year period, also holds the possibility that some of this research involving executive branch agencies -- the Department of Transportation, the Environmental Protection Agency, NOAA, and, obviously, the Department of Interior may have research money coming to New Jersey, as some of the research will be conducted here at Leonardo, New Jersey, at the Naval facility there. That was just announced yesterday.

Individual companies and their employees require that safety and appropriate safety procedures be paramount and highlighted in all industry operations. These plans must be carried out by all personnel involved in the transfer of any product. Companies are keenly aware of the penalties and damages to the environment which may occur as a result of faulty or careless handling. Major petroleum research facilities, such as in Princeton or Florham Park, are recognized throughout the world for research in petroleum discharges and containment. These facilities have the capacity to assist in support of local response networks.

These response plans also rely on spill cooperatives and shared responsibility with all refiners and many major petroleum storage facilities on the waterways. This voluntary, cooperative effort among refiners, terminals, and petroleum industry facilities represents a cornerstone of protection against a spill. It should also be noted that cooperatives that exist in harbors on the East Coast have a reciprocal plan for emergency response that would move equipment to a location. Cooperatives maintain a ready list of contractors and available response facilities in the event of further need.

New Jersey, located between two major population centers, has the added benefit of being a center for communications. Communication networking virtually assures that distressed situations may be properly recognized and authorities alerted and notified of developments in a timely fashion to further aid in development of response equipment.

The New Jersey Department of Environmental Protection has a role to play in cleanup questions. I think we're very fortunate as New Jerseyans to have these two worldwide facilities located right within our State's

borders, cooperatives, which were highlighted for you before. It's important to remember.

The New Jersey Spill Compensation Fund has provided primary funding for State cleanups since its inception in 1977. Petroleum industry companies have recognized the Legislature's and the administration's right to exercise powers to control the transfer and storage of substances and, as a result of any discharge, require prompt containment and removal of such substances. This Fund, which was initiated in 1977, has raised over \$70 million by direct petroleum industry revenue alone to provide for insurance against potential petroleum industry discharges. Millions more have been raised from the petroleum industry through general corporate taxation and are used to clean up abandoned hazardous waste sites in New Jersey.

The Legislature, recognizing the potential of a large spill, enacted an "escalator" clause designed to increase the tax should the liability outstrip the financial coverage. During this period of time, the petroleum industry fund has not been increased on an escalated basis due to the presence of responsible parties when accidents did occur.

Further, strict reporting requirements are recognized and enforced by the State of New Jersey in the event of a spill. Many spills have been reported -- most less than 500 gallons -- and properly responded to, and handled by the industry with regulatory oversight. Indeed, in previous testimony, the Department of Environmental Protection has often commended the industry for its response capabilities.

The Federal government, primarily through the United States Coast Guard, offers the petroleum industry the expertise and ability to coordinate resources in the event of a major spill. While the Coast Guard has some equipment to respond to a spill, they are the primary

coordinator for drills and practices that occur in both harbor areas on a regular basis. The petroleum industry relies on the Coast Guard expertise in navigation hazards and recognizes its primary enforcement role. Industry and the Coast Guard meet regularly with government on the State level to review and share plans for activity in the respective harbors, often at a spill cooperative meeting.

In closing, we wish to again extend to the Committee the opportunity to visit firsthand and review with us, in an ongoing basis, the response capabilities the industry has in assuring the public that petroleum industry transportation in the Delaware Bay and River area, and the New York/New Jersey Harbor area can be done in a safe manner. On behalf of those companies that are present, we pledge to you our continuing cooperation in this area. We would be happy to answer questions posed by the members of the Committee.

That concludes my formal testimony. I'd be happy to answer any questions you might have.

SENATOR DALTON: I'd like to start. The use of foreign vessels, which was raised earlier this morning-- What percentage of not only crude but also refined product is brought into the Delaware Bay and New York/New Jersey Harbor by foreign vessels?

MR. BENTON: I believe Captain Roe from the Philadelphia Port correctly gave the figures, as I understand them, as to the foreign-owned tankers. To quote him directly, 175 United States tankers, and 872 foreign-flagged vessels, out of a composite figure of 1047 -- clearly in the vast majority.

SENATOR DALTON: I assume Captain Roe is addressing the whole issue of the Philadelphia Port. Is that your understanding, roughly the percentage of tankers going into the New York/New Jersey port--

MR. BENTON: That's also my understanding, although it may be somewhat less in the New York Harbor, due to the nature of the ships in the harbor area in New York.

SENATOR DALTON: Describe for me, as you understand them, the distinctions between the licensing, not only of the vessels themselves, but also the pilots of vessels on U.S. tankers as compared to foreign vessel tankers?

MR. BENTON: The licensing requirements?

SENATOR DALTON: Right, for the vessel itself, as well as the pilot. In other words, I imagine there has to be some sort of requirements with regard to the vessel itself, okay?

Additionally, I imagine there's further requirements with regard to pilots of those vessels and, please, if you want to refer to somebody, fine.

MR. BENTON: My response would be to refer you to the member companies. Respectfully, the pilots are right behind me.

CAPTAIN JACK SPARKS: All foreign vessels, and all American vessels, bound to or from a foreign port, require a State license. On board at all times, an American-flagged vessel -- that's trading within the territories or within the states -- is required to have a Federal license on board, a Coast Guard license.

In the case of the foreign-flagged vessels, the State pilots have both licenses.

SENATOR DALTON: Okay. So, in the case of foreign-flagged vessels, okay, there is both a State and a Federal license requirement?

CAPTAIN SPARKS: That's correct. It's not required, but, in this instance, all State pilots have Federal licenses. Although that is not a requirement, we have that.

SENATOR DALTON: That's on foreign-flagged vessels. What was the first example you gave me of just vessels that have State licenses?

CAPTAIN SPARKS: Foreign-flagged vessels, and vessels that trade to and from a foreign port.

SENATOR DALTON: Tell me the distinction between a State and Federal license?

CAPTAIN SPARKS: A Federal license is issued by the Coast Guard, and the State license is issued by the State. The requirements and the expertise are much larger and greater standards for a State license than for a Federal license.

SENATOR DALTON: So the State license requirement is stiffer than the Federal license requirement?

CAPTAIN SPARKS: Yes.

SENATOR DALTON: Can you give me an example of how it's different?

By the way, excuse me--

MR. BENTON: That's fine. I'd like to identify the gentleman, for the purpose of the record, as Captain Sparks. It's in my statement that I have here; I can answer that in advance.

CAPTAIN SPARKS: To qualify for a State license-- One needs to ride on anywhere from 650 ships to 1100 ships over a four-year period for a State license, with an active pilot with him at all times, in a four-year apprenticeship -- anywhere from 650 to 1100.

To acquire a Federal license, the requirements are to ride on those ships only 12 roundtrips -- to acquire a Federal pilot's license. As you can see by that--

SENATOR DALTON: I think we're going to hear from you next. You're next on our list. Thank you for that.

Just returning to that, the significant number of ships that are utilized by your industry are foreign ships. Is that correct?

MR. BENTON: That's right.

SENATOR DALTON: Now, of those foreign ships, do you have any sort of breakdown as to their licensor, whether they be Federal, State, or both?

MR. BENTON: No, I don't. I could probably get that.

SENATOR DALTON: Could you provide that to the Committee? I think what we're seeing here is a fairly significant distinction as far as licensing requirements.

CAPTAIN SPARKS: They are licensed from which flag they fly. The license that's required here is a local license. The licenses that are on those ships for masters and mates and engineers are given by the country from whence they come.

SENATOR DALTON: And the licenses that you're talking about are for pilots, sir?

CAPTAIN SPARKS: That's correct.

SENATOR DALTON: And the pilot will navigate the ship from the mouth of the Delaware up to--

CAPTAIN SPARKS: Up to wherever he goes.

SENATOR DALTON: But in the case of ocean going vessels, okay, what we're talking about is a whole different -- it's a licensor whose origin is on that foreign country that, I guess, owns and operates that ship?

CAPTAIN SPARKS: That's correct. That person is not permitted to pilot that ship in this river. It must have a State pilot on board, so his license is really irrelevant once he enters our waters.

SENATOR DALTON: Okay, fine. Getting that information, I think, would be helpful, Jim. One of the things I want to ask you is-- Your member companies are members of those co-ops, I assume, in many cases?

MR. BENTON: That's correct.

SENATOR DALTON: In the case of -- and pick a company on that, whichever you want to choose, as far as your drills-- What is the maximum spill that those drills are based on?

MR. BENTON: I'd have to defer that question, again, directly to the people involved in the drills -- Edward Wirkowski, from the New York/New Jersey Harbor, and Ted Leigh, who is a little further back.

E D W A R D W I R K O W S K I: Our drills vary from size, to complexity, to simplistic. And others, as such, as I'll talk about later.

We're designed for a spill of 20,000 barrels. So, we have drills that go up to that amount. Sometimes for basis of expediency and cost, we'll do it at partial drills -- 5000 and others.

SENATOR DALTON: Do you ever go above the million marker, Ed?

MR. WIRKOWSKI: One million gallons? That's about 20,000 barrels.

SENATOR DALTON: You know, excuse my math, tell me yes or no?

MR. WIRKOWSKI: That's the same number I told you. He said 20,000 barrels, which is the same amount of gallons.

SENATOR DALTON: That's 840,000 gallons. Do you go above a million gallons in your exercise?

MR. WIRKOWSKI: No.

SENATOR DALTON: Is the gentleman from the Delaware Co-op here?

T E D L E I G H: These drills go from the up-river area and the bay river area where the lightering is carried on. We routinely carry on exercises. In the case of the lightering activity, we typically carry out exercises directed to dealing with a vessel leaking at the lightering facility.

In the case of the up-river locations, we mount drills and call out our boom deployment teams, anticipating that large spill, not one that's specified in terms of numbers of gallons.

As Captain Roe pointed out earlier, there are certain boomed deployment sites that would automatically be boomed in the event of a spill.

Sometimes we simply go through a communications exercise. In other cases, we actually deploy the boom in all of these locations. So, as Mr. Wirkowski said, we go through various stages of exercises.

SENATOR COSTA: How much of an area would you--

MR. LEIGH: We have teams established to boom each one of these sites; voluntary teams from the member companies. Those teams are backed up with a second member company and a third backup, which is a contractor being responsible for each one of those sites.

SENATOR COSTA: How much of an area? How much area could it cover -- a spill?

MR. LEIGH: We have trailers which carry 1000 feet of boom. And we have booms staged for each particular site. We know the quantity of boom which is necessary. Our typical booming operation is to provide protection to the sensitive areas, as Captain Roe pointed out.

SENATOR DALTON: What percentage of the booms make up that sensitive wetlands area?

MR. LEIGH: The sites that we're speaking of, Delaware City and north, predesignated boom sites, where, again, we have the highest concentration of traffic and activities which will cause a spill.

SENATOR DALTON: You don't have a percentage or rough estimate?

MR. LEIGH: No, it's the geographic distances, basically, down the Delaware.

SENATOR DALTON: From?

MR. LEIGH: From the Philadelphia and Camden area.

CAPTAIN SPARKS: Thirty-five nautical miles.

SENATOR DALTON: You have the boom. What percentage of the shoreline do those sensitive sites make up?

MR. LEIGH: In terms of the length of the shoreline, I couldn't give you an answer, sir. We've identified, along with the Coast Guard and the State agencies, the most critical areas that have provided protection to those areas.

SENATOR COSTA: You've gotten on to what I was trying to elicit, which is, how many miles can you cover?

MR. LEIGH: As stated earlier, we have 1900 feet of boom that is owned by the cooperative, individual member companies, and another 10,000 feet of boom.

SENATOR COSTA: So, you can call upon others as cooperatives as much as you need to, to cover that area with the boom?

MR. LEIGH: That's correct. As Captain Roe pointed out earlier, you don't simply install several thousand feet of boom to attempt to protect a particular length of shoreline. You seek out those areas which are most sensitive and try to provide protection to those.

SENATOR COSTA: I see. I imagine that you would make sure it doesn't leak out in one end to go toward that sensitive area. You would have enough there, not only in front of a sensitive area, but beyond that to contain it?

MR. LEIGH: We study each area and determine the best way to determine that. In fact, we have a tidal flow past that area.

SENATOR DALTON: Jim, the utilization of foreign oil-- Our utilization of foreign oil is on the increase, and, also, the amount of foreign vessels that we utilize is obviously significant.

What do you feel-- What would your reaction be, and why, to the Legislature placing the liability for spills from these vessels on the receiving facilities?

I know the first answer. What I wanted to do is get your rationale. I suspect you would oppose that or have problems with that. Is that correct?

MR. BENTON: I'd like an opportunity to examine it a little further with the benefit of some people that have had firsthand experience in this area. I'm not certain that the facility would not already bear a significant part of the potential liability for the transfer of that subject into the facility.

But, I'd like an opportunity to take a further look at that issue. Obviously, we are in business to provide product to the consumers, not only in New Jersey, but the Middle Atlantic region.

We would be concerned about something that would place those particular refineries at a competitive disadvantage. However, let me also say, right behind that, if not even before that previous statement, that I think it's also important to recognize that the companies do, in fact, respect the environment and would want to make certain that those products are transferred in the appropriate fashion. They do assume the liability as was earlier indicated. And, in some cases, that liability is recognized and responded to in an appropriate fashion.

Jack Galloway, from Chevron, also here on my immediate right, seems to want to add to my statement.

J O H N R. G A L L O W A Y: Captain Roe tried to point out that the body of law governing responsibility for cleanup, and the responsibility for pollution, lies not just in the laws of the United States or the laws of the states involved, but also in the convention, which, of course, is another body of law, superior, as a matter of fact, to the body of law of the United States, and those

conventions, or the enforcement of those conventions, are the responsibility of the Coast Guard.

If you wanted a detailed observation of the conventions that are in force involving responsibility for foreign vessels carrying oil to our shores, we'd be happy to get that for you.

SENATOR DALTON: Also, Captain Roe acknowledged, in the 1986 accident, a major spill occurred in the Delaware where the actual damages have yet to be collected. And I guess that's what we're talking about here.

MR. GALLOWAY: There are some lawyers that would like to argue that, too.

SENATOR DALTON: I don't think they would argue the point that the damages haven't been collected.

MR. GALLOWAY: There are conventions, that is, international treaty law, that governs those responsibilities. We would be happy to have that prepared for you, so you can review those prior to coming up with a financial responsibility law, which seems to me the direction you're heading. At least that was the question you seemed to have.

We'd be happy to have those for you, so you can at least have the use of reviewing what those international conventions and treaty law provide.

SENATOR DALTON: I think that would be useful.

MR. BENTON: There is an oil spill law in place in the United States that's presently up and being debated right now in Congress, that would probably address this type of issue, from a national perspective.

SENATOR DALTON: For sure. I have no further questions. Senator?

SENATOR COSTA: I'd like to make a comment. It's wonderful what we can do after the oil spill. You said that George Bush is now forming a commission to study oil spills. Why hasn't anything been done previously to

this major oil spill, because I'm sure we had oil spills before?

MR. BENTON: Speaking for New Jersey, Senator--

SENATOR COSTA: How much more can we accomplish now at this point?

MR. BENTON: I think there always, as I indicated in this testimony, is the opportunity to review, update, and examine the new facts that become available within emergency response plans. It's an ongoing, living document that must be continually reviewed and updated.

I think the industry, the Federal government and the State government are, in fact, doing that. But, I think it's also important to recognize that in New Jersey, I've had plans. They are as Mike -- Deputy Commissioner Catania -- recognized.

They are mature plans and ones that have worked well, and I think the industry, coupled with the proper role of State and local officials, and recognizing the preeminent authority of the Coast Guard have all responded to give the public in the State the sense that the transportation of petroleum products can be accomplished in a safe manner consistent with environmental policies.

SENATOR COSTA: In the case of the Valdez, it was human failing that occurred, and I'm sure the industry is taking that into consideration. And I'm just wondering how much they are going to do in order to see that that doesn't occur again.

MR. BENTON: Very clearly, as I emphasized in my testimony, industry views the people and the way that they handle their responsibilities in the area of prevention, and safety procedures, to be paramount, and they are, in fact, the first line of prevention.

SENATOR COSTA: It was stated here about prevention being the most important element, as far as the

accidents that occur. How is the industry going to prevent that from ever happening again, with somebody who can slip through who has a problem, being in control of such a major tanker, with such dire results as we've had from his failing.

SENATOR DALTON: Jim, does the industry have a review of pilot certification as a result of the situation in Alaska?

MR. BENTON: I would believe that would be a component of the review that's going on. As to whether I'm--

SENATOR COSTA: The Pilots' Association is here. I'd like to ask them what they go through.

SENATOR DALTON: I'm not concerned about the river pilots. I'm concerned with the tankers.

MR. BENTON: Captain Bates is here from the Sun Oil Company, and perhaps he can respond to that.

SENATOR DALTON: Captain, do you know of any review of the certification of tanker pilots that's being undertaken now as a result of the Valdez disaster?

CAPTAIN JOHN BATES: Personally, I do not, with the exception of my company. It's always reviewed monthly. But, I would think so. I would think the industry would be responsive to that.

Really, with the Valdez, I don't think anyone is sure what happened. There was a qualified pilot for Prince William Sound.

SENATOR COSTA: If one is impaired, such as we have heard--

SENATOR DALTON: Qualified impaired pilot, wasn't he?

CAPTAIN BATES: At this point in time, we would be remiss, as a group of concerned citizens, to find him guilty through the press.

SENATOR COSTA: Is there a difference between pilot and the fellow-- He was a master. There's a difference.

CAPTAIN BATES: Captain and master are the same.

SENATOR COSTA: The master is in charge--

CAPTAIN BATES: I'm trying to explain, Senator, I'm sorry-- The master is in the Coast Guard. As we heard from Captain Roe, when you pass an examination-- A pilot of a ship is different. But a pilot can also be a master of a ship, which I am, a pilot in Puerto Rico, and a pilot of the Delaware River.

SENATOR COSTA: If you were on a ship, and you were impaired, is there someone that can take over for you on the ship?

CAPTAIN BATES: Sure.

SENATOR COSTA: What happened in this instance, with the Valdez, if the pilot -- because it's easier for me-- I understand it was someone who wasn't that well-versed in piloting the ship, who took over.

Now, shouldn't there have been a backup in something as important as putting through a tanker that could cause so much damage as we've seen?

CAPTAIN BATES: There is a backup.

SENATOR COSTA: We're speaking-- I'm back on prevention.

CAPTAIN BATES: There are three other licensed officers capable of handling that particular ship in that particular area. Obviously, human error. And they didn't do it. You have a Captain of a ship and you have a first mate and a second mate and a third mate. All three are capable of handling the ship when the master isn't on the bridge.

SENATOR COSTA: Do you have any recommendations as to which way to go, so that it would not happen? You're saying that there are people who back up a pilot, and yet, in that instance, it did not occur. A proper individual did not take over. How can you explain that?

CAPTAIN BATES: Human error. You cannot, Senator, legislate or regulate stupidity.

SENATOR DALTON: How about removing someone as a pilot for a revoked driver's license? That is certainly not stupidity.

SENATOR COSTA: Because, if that's what you're saying -- you can't legislate stupidity -- and, in this case, they can just go ahead and do the same mistake-- Prevention is not possible, then, and this is what we're trying to get at. How can we get to prevention?

CAPTAIN BATES: Let me try to address that.

SENATOR COSTA: If I were the oil person, I'd make sure there would be something on there--

CAPTAIN BATES: In the Delaware River, for our record, we haven't had those kind of incidents at all. It's been many years back, in the early '50s, we had one down at the C and D Canal. We haven't had any. Obviously, we're doing a good job. The Valdez, for 12 years, didn't have any. The company that had the incident is a well-run company.

One individual smears the whole industry -- the petroleum industry -- the seagoing people in this country. Keep in mind, there are only 350-odd ships left under the U.S. flag. Ten years ago, there was 800. Mostly everything is being moved into this country, petroleum products, with foreign-flagged vessels because we, the U.S. Merchant Marine, cannot compete, based on Federal regulations, based on our salaries for our people, who we treat very well. That only works -- and I testified before on this-- Our officers work six-and-a-half to seven months a year. That's where we're coming to.

Our oil and imports are coming in on foreign-flagged ships. You can't have a competitive situation with the U.S. Merchant Marine.

SENATOR DALTON: Thank you very much. Thank you, Jim. I appreciate it.

MR. BENTON: It's important to note that we're prepared to continue to work with this Committee. There were many questions from my own notes, and from notes of others, that we are prepared to deal with. For example, the question of dispersants came up, and when they are used, obviously, with the world-class facilities we have here in New Jersey-- They are presently working on some of the response capabilities, and we'd be happy to share it with you.

SENATOR DALTON: I appreciate that. Thank you, again.

Captain Jack Sparks, Pilots' Association.

CAPTAIN SPARKS: I have a prepared text to read, and then I'll give you a copy, and later any questions you have, I'd be more than willing to answer.

We have Captain Bill Dorsey from the Pilots' Association, Captain Paul Ives, and Susan Howland from the Maritime Exchange in Philadelphia.

SENATOR DALTON: Thank you, Captain Sparks. I appreciate it. If we have any questions, we'll feel free to ask them.

My basic question, Captain, I think you've already addressed. It was, explaining to the Committee the distinction between the various licenses.

I think you've explained that very, very well. Is there a distinction between a pilot's license and a tanker pilot's license? For instance, someone who would be out in the open ocean?

CAPTAIN SPARKS: There is a complete system of State pilots in this river. They have State and Federal. That's the difference. They don't go to sea. They just pilot in these waters.

The other pilot licenses-- Captains of ships and mates can acquire those licenses. They cannot acquire the State licenses.

SENATOR COSTA: May I ask, does that mean if a foreign ship comes through, they can't come in here unless they pick up one of you as pilots?

CAPTAIN SPARKS: That is correct.

MR. IVES: I'd like to correct something that I've heard. Pilotage, in the legal and technical sense, begins when a vessel enters inland waters. A master of a vessel or third mate or navigating officer of a tanker or container ship outside does not require a pilot's license. He is operating on either a master mariner's license or a mate's license, which is issued by the appropriate country for which he sails.

If he's a Norwegian ship, he would have one issued by the equivalent of our United States Coast Guard.

SENATOR DALTON: That criteria would change depending upon the country?

CAPTAIN SPARKS: Some, but it's a pretty narrow difference.

SENATOR DALTON: I guess the thing that concerns us is to preclude a situation like the Alaska situation. Regardless of whether the person was impaired or not impaired, he certainly was revoked, as far as a driver's license.

One can make certain assumptions based upon that revocation of license. It would seem to me that's something that we should be looking to address in order to insure that that doesn't happen again.

MR. IVES: That would not be very likely to happen to the pilots, certainly not in this area -- I suspect, not in the country. We have a very stringent oversight. If a pilot has an alcohol problem, that is detected and taken care of before an accident.

SENATOR DALTON: How do you insure that? It would seem to me alcoholics, by definition, certainly don't come out and voluntarily ask for help.

MR. IVES: We're a very small group, and we know who is having a problem.

SENATOR COSTA: May I ask you a question? In the case of the Valdez incident, the captain was going in inland waters. Why didn't he pick up a pilot?

CAPTAIN SPARKS: He was not in pilotage waters -- in State pilotage waters -- in that incident. He had a State pilot on board earlier. He had taken the ship out to within a few miles of where that incident occurred, and the pilot left the ship and went back ashore, and then they took the ship on themselves.

SENATOR COSTA: So he should have been out in open waters?

CAPTAIN SPARKS: He ended at the proper place. His line of jurisdiction ended, and he got off and the ship went on its way. That's where it occurred -- the problem -- a little while after that.

SENATOR DALTON: Thank you very much. Ms. Howland, your statement will be made part of the record.

S U S A N H O W L A N D: That's fine. Thank you.

SENATOR DALTON: Ted Leigh, Delaware Bay and River Co-op.

MR. LEIGH: I don't have a prepared statement. I'd be glad to respond to any questions you have, and it's been indicated before, many of our members are represented here today.

SENATOR DALTON: How about Mr. Wirkowski?

MR. WIRKOWSKI: My name is Edward Wirkowski. I'm the Manager of Clean Harbors Cooperative covering New York Harbor. My background, briefly, is an engineer by education. I've worked 40 years for Chevron in all aspects of the refinery operation here in New Jersey: operating, maintenance, construction, engineering, and such.

One of my responsibilities was handling any oil spills for the company. I have been involved in directing

oil spills for at least 25 years. My experience goes back to prior to the time when they made commercial booms and we used to make them out of wood by nailing boards together in H-frames and putting canvas in between them and lowering them into the water in that fashion. Later on, other ones did go.

While part of Chevron's Corporation, I was lent by Chevron from 1970 -- late '70s -- on a full-time basis, to manage and develop this oil spill co-op. I retired two years ago, and since then I've been hired by the major oil companies to manage this oil spill co-op.

Briefly, this oil spill cooperative was initiated back in 1974 by Exxon and supported by Chevron, which were the two major transporters of oil in the New York Harbor area. They were the two refineries.

I might mention that today all the other refineries in New York Harbor have closed down. Exxon is on a limited operation, and Chevron is down to about a 10% operation, only making asphalt.

So, the number of crude ships arriving there has reduced significantly. Ninety-five percent of the marine traffic that has occurred in New York Harbor is for products for use by customers, whether it's industrial, personal, or otherwise.

So, we have primarily a product type of port. The volume is probably the largest marine volume in the country of any port, primarily because of the density of the population and the needs of the public. And that's why it is.

It has been reduced from the '70s to today for two major reasons: One is the fact that more product is coming by pipe line and less by ship; and the second one is that we now make automobiles that get 35 and 40 miles to the gallon, and insulate our houses, and the amount of product has been reduced significantly in the business. This has reduced the number of incidents that we experience. The less traffic, the less potential accidents.

Back when we started this cooperative, it was started as a result of an incident that wasn't too different than your meeting here today. It was an incident that occurred of a spill in San Francisco and the local companies asked themselves then, as they are doing now, "Are we prepared for this type of incident?" And, as a result, they hired a consultant, a well-known man named George Gilmore, who made a study of the general area, including the Delaware and New York Harbor area. He concluded with results that didn't surprise us. Fundamentally, that minor incidental spills were being able to be handled effectively and efficiently by the member companies or local contractor, but singly and collectively they were not prepared to handle a major oil spill.

Today, everyone uses 120,000 barrels as a measure of major. That was undreamed of back when we were formulating our cooperative. There were no such spills in the country of that size and magnitude.

As a result of this preliminary study, the companies then-- There were eight major oil companies that consisted of Exxon, Chevron, Texaco, Mobil, Shell, BP, and Sun. Gulf and Sun formulated a group to decide to develop a capability to handle a major spill, should one occur.

And, as a result, it was formed as a nonprofit, joint enterprise. It was a voluntary operation. There were no rules regarding it. We hired a full-time manager to expedite the effort, and formed committees in a legal agreement and all the other factors needed, such as how you're going to fund it, what is the area you're going to operate in, what's the basis of what you're going to do, etc.

I might add, our membership is open to anybody, and any group that is small that's interested in being a member, and we tried to solicit groups to join us more and more. Being in the oil spill business is not a cheap

business. Everything is extremely expensive. Our skimming vessels cost half a million dollars apiece, for example. Boom runs very expensive as such.

At the time we formed this operation, our first approach was to do some of the things I think you're asking here today. We tried to look at it from a business, scientific point of view, and asked ourselves a number of questions. The first thing was, how big a spill are we likely to have? And, so, we consulted with all of our marine experts from the many companies.

And we looked at the spills that occurred in New York Harbor, and consulted with the Coast Guard and their records. We looked at world-wide spills and such. My experience is, there is a difference between open water spills and in harbor spills. One is, you're protected.

If you take the spill off Normandy, what happened there, you had a total loss of an entire ship. You had adverse weather conditions that finally broke the ship apart. There has never been, to my knowledge, a complete loss of a ship of that type that has ever occurred in any major harbor, that I know of, anywhere in the world.

So, we have a situation that says, are you likely to have a total destruction or not? The second thing that we look at, is how big are the ships? We asked our people how big are they today, how big are the compartments, what are the likely maximum type of spillage that you could have? Obviously, this is a judgmental type of decision. There are no ways to determine what it is.

Previous testimony indicated that, if you have grounded -- typically, oil floats on water, as you probably are aware-- When we have a leak, one of the techniques we use, whether it's in a tank or ship's tank, or anything else, we'll actually pump water into it to float the oil up, transfer the oil into other compartments, so, as a result, the lower the crack or break in the vessel, the

less oil you're going to lose out of that vessel, because it always floats up above. That's what happened in Exxon's Valdez, and it happens in all other places.

In New York Harbor, our waterways are designed to have a maximum of 36 feet of depth. The inlet to the ship's area, where they can burn or dock or park, is an area near the Verrazano Bridge off of Stepleton, Staten Island, which has water depths of about 44 feet. Typically, the deeper the water, the bigger the ship. The bigger the ship, the less it costs to transport it. That's why everybody tries to transport things in large ships.

At the anchorage place in Stepleton, ships that can accommodate 42 or 44 feet, they will transfer it in a lightering operation, lighten the ships to go to the individual terminals or refineries. Those are all limited to a 36-foot depth.

Channelways in New York Harbor, the main ones, run about 1000 feet wide coming into the harbor. The narrow ones, going up around Staten Island, are typically 500 or 600 feet wide. All of these occasions are such that they do need the attention of the pilots. They are relatively narrow. The ships travel at extremely low speeds, because of the fact that they are narrow, as compared to open, deep water things.

We've had groundings. A good number of them have had no leakage whatever. Typically what happens, you ground a ship and wait until a tide comes, and a tide changes four feet in New York Harbor in each six ship site. Typically, it will then go off, and you then go up. When that happens, we protect the ship and the boom with other containment facilities, and hope that nothing has occurred, which usually is the case. Occasionally, you will have it.

Our marine experts believed that the biggest spill we could have -- and we asked them individually, the eight companies, the eight experts and such -- and

collectively combined it, and they felt that the biggest spill you could have would not be from a shore-side facility, but from a ship grounding or a collision. And the size of the ships that can transfer from New York Harbor and such, we concluded, would be about 20,000 barrels; 20,000 is 800-some gallons. You might say that's small compared to the present incident. That's true.

And we're taking another look at whether we should revise our thinking on that score. And we've already had a number of visits by a number of companies and others taking a look, and we'll be doing that extensively.

At the time we picked the 20,000 barrels-- In my 25 years, the largest spill I have been involved with has been 5000 barrels. The largest I have ever heard of in New York Harbor has been closer to around 10,000 barrels. And that was when a shore-side tank broke and leaked into the water adjacent to it.

The largest marine piling is about 5000 barrels. There's never been any that approach 20,000 barrels in New York Harbor in all of history from day one. So, as a result, we felt that we were being ultra-conservative in our approach. We used that basis as the basis of designing what equipment we would need for such a protection.

We arbitrarily took a very low period of time, and we arbitrarily picked five days as the means of determining how soon we would want to clean up the free oil that remained on the water. So, our basis of design was 20,000 barrels in five days. That excluded shoreline cleanup, piles, and there are a lot of things to be done by hand, small cleaning, rocks and things, that take more time and such. But the main body of oil on the water, we designed on the basis of 20,000 barrels in five days.

Our next step was to run simulated spills on computers in Shell's research program in Houston, and we

pursued the potential sites where we might have major spills by getting, again, our marine experts in this area. We looked at where the larger ships traveled, where the trickiest places were and such. And, so, we ran these computer programs, which tracked the oil hour by hour, which, in turn, showed where it went from different spots and different seasons under different wind current and other conditions, to determine how much would hit shore, where it would hit, what sensitive places would be hit, how much we could anticipate collecting in the water versus against the shoreline and such.

We did this, as I say, for about 10 different spots. And we used that as the basis. We then determined how much boom we needed, or fencing, to protect the sensitive areas, and how much we would need to contain the oil and the spill.

In general, let me start by saying that the four aspects that we look at -- as has been mentioned several times -- are prevention, stoppage, containment, and cleanup. And I'll come back and touch on each of those in a minute. But, what we then did was, in addition to running these computer studies, a committee of three of us or so, we visited other major cooperatives throughout the country. We went to the Gulf Coast and visited them, and asked them what they did and what their experiences were. That was in New Orleans. We went to Los Angeles, San Francisco, and Seattle, Washington. We also visited the Coast Guard and asked them for their advice, and their experiences in Governor's Island, and we talked to other people who were familiar with other major spills that happened throughout the world.

Coupling that all up with what we thought was good judgment, and some safety facts, we came up with a laundry list of what we needed to do in order to protect the environment from a possible major spill in New York

Harbor. This was done. And I have some slides I'll run through briefly and show you some of them, but basically we purchased 5000 feet of boom, which is almost nine miles. We purchased 15 deployment boats to deploy this boom, so you can deploy it simultaneously.

We have -- if you don't have the boat -- to wait. The current and other things will move it, so then you lose valuable time. The longer you wait, it spreads out and the more difficult the problem becomes. The faster you can react, the cheaper it is to clean up. We have six work boats, six self-propelled skimming vessels to pick up the oil out in the open water.

In addition to these, we've supplemental things, such as a portable command center, 36 two-way radios and regular communication systems, and six portable marine radios, so we can be in touch with the Coast Guard, and other governmental agencies.

We have shore-side skimmers of various types, and trailers that are floodlight trailers, so each one can light up seven-and-a-half acres. We can work at nighttime. We have dispersant bucket spray systems. We have spray boat equipment, and all types of miscellaneous equipment, which includes everything from safety gear, coveralls, rubbers, boots, goggles, chainsaws, pumps, generators--

SENATOR DALTON: You're prepared.

MR. WIRKOWSKI: We had a lot of people think we're not prepared, so--

SENATOR DALTON: The goggles convinced me.

MR. WIRKOWSKI: We have been operating since 1979. Although we were funded and paid for by the member companies, our capital investment of equipment amounted to about \$4 million, and we spend -- we hired a contractor.

We have seven full-time employees who operate and test the equipment. The bodies are stationed at

strategically located places in New York Harbor, and all of the marine equipment and operating things are operated several times a month on a 12-month-a-year basis. It costs us to maintain our equipment, and our operation, between \$500,000 and \$600,000 a year. The response that we have-- I, as a manager, am on call 365 days a year. I'm on call on a beeper system, including when I'm on vacation, and it covers from Connecticut to Cape May. In an event I'm out of the area, we have one representative from each company on a backup list who are called in the event they can't get me.

And then there's a second backup list that consists of managers and superintendents, top people of each of the facilities that are part of your membership. I am on call. Our objective and our tests indicate that we respond with a first response in one hour. And by that I am saying one hour from the time I get a call that there is a problem, we have our equipment on the way to the spill, not at the spill, but on the way. That's the only way I can measure, because depending on how the spill is, determines where it is.

Our land equipment is stationed at a contractor's facility in box trailers ready to roll, and that's where his tractors are, and that's where his people start in from. We rely on contractors for the hands-on labor. And they provide that type of facility.

In addition to our contractors-- Our contractors are tested. They test the equipment. They run through training drills monthly. They learn how to operate all of our equipment. We supplement the seven people with others from the contractor's manpower facilities.

As far as in addition to the equipment, we have two other major areas of interest and concern. One that has been brought up and mentioned a number of times, is our contingency manuals. I brought one just to show you what

it is. It is probably one of the best that's in existence, because we took the best from everybody else's in the country, and I added to it and revised it, since our members are members of cooperatives all over the country.

What we do, without going into a lot of detail, is, we have charts in here that cover the currents, the maps, the sensitive areas. We have maps of every part of New York Harbor in here. It defines where the wildlife is, where you can boom, where access roads are, and all of the necessary information you need to operate marinas, water intakes, public beaches, etc.

In addition to that type of equipment, we have emergency numbers that cover not only other equipment, contractors, government people, but also those who supply food, port-a-johns, first-aid squads, etc. We have areas that cover how to clean up spills and all types of environment, be it sand beaches, gravel beaches, marshland, etc., disposal communications, training, prevention, etc. All of these are all included.

And we know just about how to detect where oil goes and such. In general, oil will follow the currents. The deepest water is where the current is greatest. In general, you can almost predict where the oil is going to go by following the channels which are usually the deepest amount. This has actually helped us in some spills because, generally, the wetlands and marshes are in very shallow areas, and that's where the currents are the slowest.

Oil almost always follows the current, rather than the wind, except if you get into extremely high wind conditions, almost like hurricane winds, except during the tide changes, and then the current is zero and then the wind takes over.

So, historically, you have two aspects: During the change of tides, the current is dominating. During the

times when it doesn't, then the wind takes over, and that's what generally occurs. That's the second aspect. The third aspect is a response organization. We have developed in Clean Harbors a management response team to help manage a major spill, should one occur. And we have developed an organizational chart which consists of three major factors. One is a staff expertise that has marine experts, manpower broker, government liaison, wildlife coordinator, and claims people, legal and such. They are sort of staff.

And then the second aspect is a cleanup organization. And this includes both onshore and offshore supervisors, planners, air surveillance, disposal supervisors, staging areas, and other aspects of the communications center operations, and such.

The last part of that is a support organization. The support organization consists of: engineering specialists; communications engineers, to make sure the radio systems function and work, and correct them if they break down; purchasing agents; contract specialists; historians; photographers; and such. These jobs have all been defined. We have job descriptions showing all those functions.

SENATOR DALTON: You're not going to give us those descriptions?

MR. WIRKOWSKI: No, no, no. Lastly, I would just say that we have these jobs filled from volunteers from member companies. They total between 100 and 150 people who are assigned to these functioning units. Each of those are given complete classroom orientation in oil spills -- which would be me -- and a hands-on training with all of our equipment down at Port Newark, on a regular, repeated type of basis. So, even the lawyers get a complete review, and they get out on the skimmers and handle booms, etc.

I mentioned the four aspects of oil spill prevention, and I might add just briefly-- I'll hit

those fast. There are several areas of prevention that we looked at. One is hardware, and the shore-side facilities. Pretty much, all of our companies have looked at pipes, lines, valves. They have eliminated all the flanges and drains that are not needed. They just left the minimum, potential sources of the leak. All old hoses have been replaced, and such.

The most important aspect of hardware is that pretty much all of our companies use ultrasonic testing, where they test the thickness of lines in an ongoing, operating condition, unlike maybe you and I. We replace those lines when they leak. Rather than wait for the kitchen drain to leak -- when I call the plumber -- these things are all things that are done for prevention.

The second aspect is Coast Guard regulations. They have included people standing by during all transfers. It included better communications. At one time, there were problems between foreign ship crews and American crews. No transfer can start until they have a person on ship and shore who can understand and communicate, plus radio communications.

And the third is, they require a walk-through of the transfer facilities to make sure all the valves and drains are set properly, so somebody doesn't absent-mindedly leave it open. The head of the shore and the head of the boat have to jointly make this walk and sign the papers.

And the last, and probably most important, is the human element, or human errors. And this is something that we work on, that we cannot eliminate entirely. The companies that I represent have all had extensive training programs. And, I think, more important than even training is awareness -- awareness of the importance of the environment.

I might mention that all the people that I've worked with are extremely interested in maintaining the environment, in the 40 years that I have been involved. They are sincere, as I am sincere. We have taken a much stronger stance in the last 10 and 15 years, than we used to, to be frank and honest with you. What comes through is, you will have a safety program or an oil spill program work if the people on the bottom believe the person on the top is interested and sincere. If he's not, it will all go by the wayside.

At Chevron, every spill that is sighted, whether it starts from their place or not, whether it's a response or not, has to be reported from the manager to the corporate office. They are continually reviewed on these aspects. And this personal involvement, this dedication, has really made a major difference, plus the reduced amount of volume. People today are severely disciplined and/or terminated if they have major or repeated minor violations. And all of these have helped the prevention aspect.

In the stoppage, I think I've already talked about things, such as, you pump water in and you do things of this sort in order to prevent -- because the smaller volume you leak out, the less problem you have in cleaning up. We also carry wood plugs from this size to that size to drive into leaks to stop them and so on. So, there are a number of ways you do this.

The third is containment.

SENATOR DALTON: We have the room until 3:45. If you can wrap it up--

MR. WIRKOWSKI: I'll wrap it up in one minute. I think I've covered drills, training, and backup personnel between the Delaware Co-op and the New York Co-op.

We have a reciprocity agreement to exchange equipment and people with each other. And that's one of

the major areas that we do have. And that's about-- I think I've covered all the highlights.

If you have time, I'll show you some slides. It will take about five minutes, if you want.

SENATOR DALTON: I'm going to have to decline, Mr. Wirkowski. I want to thank you very much for your participation in the hearing, as well as everyone else today. I think we learned a lot. Hopefully, this will be an ongoing exercise, and we'll be making some recommendations, not only to the State Legislature, but as well as to our congressional delegation. And we'll make sure that everyone who testified, including yourself, gets a copy of those recommendations.

Again, thank you very much. That will conclude our hearing today. Thank you.

(HEARING CONCLUDED)

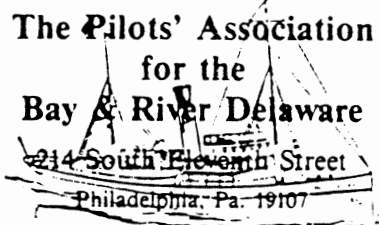


APPENDIX



~~Jack Sparks, President~~
George G. Macintire, *Secretary Treasurer*
Richard G. Steers, *Manager*
Edward L. Colaprete, *Business Agent*

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STATEMENT OF JACK SPARKS AT
SENATE ENERGY AND ENVIRONMENT COMMITTEE HEARING
SENATOR DANIEL DALTON, CHAIRMAN
HARBOR LEAGUE CLUB
APRIL 19, 1989, 11:00 a.m.

IX

Good Morning! I am Jack Sparks, President of The Pilots' Association for the Bay and River Delaware. I am a life long resident of Cape May, New Jersey and have been an active pilot on the Delaware River for almost 30 years. I also serve as Chairman of the Delaware Bay and River Authority. I am one of 84 state and U. S. Coast Guard licensed pilots who make up our Association. These pilots, citizens of Pennsylvania, New Jersey, and Delaware, are responsible for the navigation of about 95% of the ocean-going vessels transiting the Delaware River between the Delaware Bay entrance and the Head of Navigation at Trenton, New Jersey.

Since we are meeting today with the oil spill disaster in Alaska foremost in our minds, we are keenly aware that a third of the vessels we pilot on the Delaware River are carrying crude oil or other petroleum and chemical products.

I am here to reassure you that the principal focus of the members of the Pilots' Association is on prevention of such casualties. State pilots handle more than 3,000 ships arriving at our Capes each year. They are the most highly qualified and thoroughly trained seamen you will find anywhere in the world. The standards, training, oversight, and discipline of State pilots far exceed the requirements of the United States Coast Guard.

Concerning our standards: To even be eligible to take an examination for a fourth-class, entry level, state pilot license,

2x.

an apprentice must make from 650 to 1,100 trips on the river, which will take 4 years to complete. These trips must all be under the guidance of an experienced pilot standing at his side under all weather and sea conditions, on all types of ships. Another 4-years' experience is required before he may qualify for a first-class license to pilot the largest ships. Our comprehensive drug and alcohol programs, required annual and random testing, stringent annual physical examinations, mandatory retirement age, annual proof of frequent service on the river, as well as our continuing professional education program all far exceed U. S. Coast Guard requirements. Our system is geared to correcting a problem before an incident, not after the fact.

Concerning training: In addition to the training of apprentices, just mentioned, all licensed local pilots take part in an extensive continuing education program. At a cost of more than \$9,000 per man, every pilot is going to the world's finest advanced ship-handling school in Grenoble, France. Every pilot also undertakes frequent simulator training and refresher courses here in the United States.

Local pilots are responsible to their respective state-appointed pilot commissions and boards who provide careful oversight of their professional activity. Pilots are motivated to perform in a professional manner through training and experience, not out of fear of disciplinary proceedings after an accident.

Taking into consideration the variety of adverse conditions pilots must face, our job could be considered to embrace some element of risk. We have put time, money and effort into making the operation as risk free as possible. The vessel traffic system on the Delaware River, operated by the pilots in conjunction with the Philadelphia Maritime Exchange, is one of the most technologically advanced in the world. It is manned by trained and experienced pilots 24 hours a day, 365 days a year. We have invested heavily in state of the art radar and communications equipment with additional support of sophisticated computer programs. Our command center at Cape Henlopen tracks vessels from at least 20 miles at sea, all the way to Big Stone Beach Anchorage, with precise positioning and full communication at all times. The whole system works well. The record speaks for itself: ships have been calling at Big Stone Beach Anchorage for 32 years. They discharge part of their cargo into barges before proceeding upriver to our seven major refineries or other petroleum and chemical terminals. There have been virtually no oil spills during those 32 years!

Pilotage service is available to all ships entering the Delaware Bay, year around. It all takes dedication to the proposition that well qualified and experience pilots are the best investment in safe navigation on our inland waters.

As local pilots living here, we see our first priority to protect the environment of the region - it's our home.

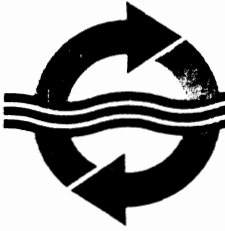
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I want to make a very important point here. The cooperation between the oil companies and the pilots is excellent. Working through the Mariners' Advisory Committee, an organization of owners, operators and experienced mariners meeting on a regular basis, operating rules and safety standards are mutually agreed upon. Pilots are under no pressure from the oil companies to undertake an unsafe transit. The pilot's decision is final.

In closing, let me emphasize that our duty as local pilots, the main thrust of our professional activity, is to prevent marine casualties - to keep environmental disasters like Valdez from happening here in the Delaware.

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JAMES F. YOUNG, ESQ. SOLICITOR

April 19, 1989

TESTIMONY TO THE NEW JERSEY SENATE ENERGY AND ENVIRONMENT COMMITTEE

Mr. Chairman and members of the Committee, my name is Susan Howland. I am the manager of Communications for the Ports of Philadelphia Maritime Exchange. The Maritime Exchange is a non-profit trade association which represents 200 port-related businesses here in the Delaware Valley.

In addition to our responsibilities as a trade association, the Maritime Exchange also has an important operating role within the Delaware River port system. The Maritime Exchange is responsible for the monitoring and reporting of ship traffic along the Delaware River.

Recently, the Delaware River Port Authority made \$1.5 million available to the Exchange to complete the development of the TRACS System. TRACS is an automated system which will electronically expedite the movement of international cargo through port, rail, truck and air terminals. This is the system that will allow the freight transportation system, here in our region, to enter the "age of information".

I appreciate the Committee taking the time to visit our regional port complex and to gain, first hand, a working understanding of the oil industry's significance to our local economy.

The primary strength of the Delaware River port system has always been its oil refineries. The Delaware River is host to the largest oil refining center on the east coast. This imported liquid bulk commodity and its byproducts account for the overwhelming majority of total international waterborne commerce within the Ports of Philadelphia.

Perhaps the best indicator of the significance of the petroleum industry to our regional economy is measured in total tonnage and the number of oil facilities located on the river. Oil consistently accounts for more than 85% of the total of all

6X

international waterborne commerce moving through our regional port system.

In 1988, 51.7 million tons of oil passed through our port. Each ton of this commodity represents nearly \$9 to the regional economy -- in other words the direct economic benefit of this commodity, last year alone, represented nearly \$500 million.

Additionally, the region has eight oil refineries, seventeen oil terminals and four transportation companies depending on oil imports through our port. Obviously, the health of these entities has a tremendous impact on the employment base here in the region.

While we are not in a position to technically respond to those issues directly associated with the Valdez accident and the relevance of those issues to our local port, we do appreciate the opportunity to make the committee aware of the significance of the oil industry to our local economy.

OIL IMPORTS AS A PERCENTAGE OF TOTAL BULK IMPORTS, 1982-1986

		Percentage of Total Bulk Imports
<u>1982</u>		
Total Bulk Imports	48,020,632	
Total Oil Imports	42,951,281	89%
<u>1983</u>		
Total Bulk Imports	44,385,847	
Total Oil Imports	40,394,167	91%
<u>1984</u>		
Total Bulk Imports	48,873,644	
Total Oil Imports	43,811,259	89%
<u>1985</u>		
Total Bulk Imports	49,700,522	
Total Oil Imports	44,377,582	89%
<u>1986</u>		
Total Bulk Imports	57,010,773	
Total Oil Imports	51,376,781	90%

Table ii-15

Source: Delaware River Port Authority

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LISTING OF OIL REFINERIES, OIL TERMINALS AND OIL TRANSPORTATION COMPANIES
AT THE PORTS OF PHILADELPHIA

REFINERIES

Atlantic Refining and Marketing Corporation
B.P. America
Chevron U.S.A.
Coastal Corporation
Mobil Oil Corporation
Seaview Petroleum Corporation
Sun Refining & Marketing Company
Texaco, Incorporated

TERMINALS

Amerada Hess Corporation
Atlantic Pipeline - Ft. Mifflin
B. P. America
Chevron Hog Island
Citgo
Exxon Shipping Company
Koch Fuels
Mantua Oil Company
Meenan Oil
National Heat and Power
Northern Contracting
Pennel Energy - F. C. Haab
Petroleum Heat and Power
Royal Petroleum
Swann Oil Company, Incorporated
Texaco Pennsauken
Unitank

TRANSPORTATION COMPANIES

Keystone Tankers
Maritrans Operating Partners LTD
Sun Transport, Incorporated
Texaco Maine Service

Table ii-16

Source: Ports of Philadelphia Maritime Exchange

