S. HRG. 110–1216

PROTECTING OUR SHORES FROM OIL SPILLS—OPERATIONAL PROCEDURES AND SHIP DESIGNS

HEARING

BEFORE THE

SUBCOMMITTEE ON SURFACE TRANSPORTATION AND MERCHANT MARINE INFRASTRUCTURE, SAFETY, AND SECURITY

OF THE

COMMITTEE ON COMMERCE, SCIENCE, AND TRANSPORTATION
UNITED STATES SENATE

ONE HUNDRED TENTH CONGRESS

SECOND SESSION

MARCH 4, 2008

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PROTECTING OUR SHORES FROM OIL SPILLS—OPERATIONAL PROCEDURES AND SHIP DESIGNS

TUESDAY, MARCH 4, 2008

U.S. SENATE,
SUBCOMMITTEE ON SURFACE TRANSPORTATION AND
MERCHANT MARINE INFRASTRUCTURE, SAFETY, AND SECURITY,
COMMITTEE ON COMMERCE, SCIENCE, AND TRANSPORTATION,
Washington, DC.

The Subcommittee met, pursuant to notice, at 2:30 p.m. in room SR–253, Russell Senate Office Building, Hon. Frank R. Lautenberg, Chairman of the Subcommittee, presiding.

OPENING STATEMENT OF HON. FRANK R. LAUTENBERG, U.S. SENATOR FROM NEW JERSEY

Senator LAUTENBERG. I will call the Committee to order, and start the proceedings.

The lack of attendance has nothing to do with a lack of interest in the subject, I can assure you. It has something to do with a little bit of over-scheduling—not here, but elsewhere. So, thank all of you for being here, and I am particularly pleased to see the Commandant of the Coast Guard here, Commandant Allen.

You've done a very good job, as have your people. We're very proud of the Coast Guard. We consider them somewhat magical, because they keep managing to do more with less. And I don't know how we can continue to expect that, by assigning you more responsibilities. And, you name it—you've got it.

Whether it's pollution patrol, whether it's refugees, whether it's navigation assistance, whether it's ship registry, everything imaginable that could happen, or that should happen at sea, is taken care of by the Coast Guard. And we're particularly proud of the organization, but we're also proud of our Cape May Station, where we train people and get a chance to visit with a degree of frequency.

I want to welcome everyone to today's hearing as we work to better protect our shores, our wildlife, our families, and our economy from deadly and toxic effects of oil spills. This week is a particularly good time for this hearing, because right now the Supreme Court is considering a final appeal by Exxon, over its catastrophic oil spill in Valdez, Alaska.

And I was up there, early on, I was Chairman of the Appropriations Subcommittee then that dealt with Coast Guard, and I managed to thumb a ride up to the site, and saw the EXXON VALDEZ

floundering in the water, and saw the kind of magic color scheme that went out, looking harmless. But you could see that the birds and the marine life, and everything else was terribly affected.

Sometimes we get questions about the quality of service we get from government employees. And I'll tell you something—I saw those islands, and I was up not more than 2 or 3 days after the ship ran aground, and we had people from Fish and Wildlife, and other departments up there, cleaning up the ducks and the seals and the other wildlife.

So, Exxon did pay some part of its obligation, compensation for lost wages, and damages. But there's a case just heard by the Supreme Court and not a decision made yet, as a result of an assessment of $5 billion in punitive damages that were awarded. Exxon has refused to step up to its citizenship obligation. Exxon kept fighting the payment, and kept getting it reduced and so forth—that $5 billion got down to $2 billion. It's the only thing that hasn't gone up in the last 5 years. And it forced me to look at their earnings. Five years ago Exxon made $21 billion. In the last year, they made $40 billion—that's pretty good growth, I would say.

And so, 19 years after the spill, Exxon is still fighting a damage award that would cost them about 3 weeks worth of profit.

And while they continue to fight, the environment continues to suffer. The Alaska coastline, as well as the local economy, is still reeling from the oil spill, that material that remains.

In the aftermath of the Valdez disaster, Congress passed the Oil Pollution Act of 1990—one of the most powerful oil spill laws on the books. And as a Senator from a coastal State, I was proud to be an original co-sponsor of that law, which required mandatory response plans, double-hulling of tanker ships, and provided a fair way to ensure that spills were cleaned up.

But, in the year 2004, a single-hull oil tanker spilled more than 260,000 gallons of crude oil into the Delaware River, along the New Jersey/Pennsylvania border. That spill devastated our environment, and shut down some of the busiest ports in the country.

So, 2 years ago, I worked with this committee to update the Oil Pollution Act by nearly tripling the liability limits which polluters must pay for spills from single-hull tankers, and doubling liabilities for non-tank vessels.

But while the number of oil spills from tankers has declined, spills continue to occur from fuel tanks of cargo and fishing vessels. Last year, for instance, San Francisco Bay was deluged with 53,000 barrels of fuel oil from a ship that wasn't an oil tanker. That fuel was there to operate the ship. And we had that kind of a spill.

These, and other recent spills, make it clear that we've got to do more to protect our shores. Fuel tanks on container ships can hold up to 4 million gallons of oil—which is more than some oil tankers carry as cargo.

The international community has already put in place better ship design requirements, and it's time for the United States to catch up.

Now, we need to use the Coast Guard's vessel tracking assistance services to help prevent collisions and improve our response to oil spills. We need to look at how the Coast Guard licenses mariners, including what medical standards are used to determine their fit-

ness to operate these vessels, and we need to increase Federal oil spill liability limits for ships that we know have higher risks of causing devastating spills.

So, today I'm introducing legislation that will address these needs, because the environment—and our economy—depend on our work to prevent another major catastrophe.

So, I look forward to working with my colleagues on this, and other legislation to better protect our shores.

And with that, Commandant Allen, we welcome you here, and look forward to your testimony and I ask you to please proceed.

STATEMENT OF ADMIRAL THAD W. ALLEN, COMMANDANT, U.S. COAST GUARD, DEPARTMENT OF HOMELAND SECURITY

Admiral ALLEN. Good afternoon, Chairman Lautenberg, and thank you for your remarks. I will reinforce some of your points in my opening statement.

I have full testimony submitted for the record and I have a brief opening statement if that is okay, sir.

The risks carried by fuel aboard vessels—whether as cargo or as propulsion—have been recognized for some time as a risk. The recent COSCO BUSAN spill in San Francisco underscores the need to identify the causes and prevent such spills, while focusing on vessel manning, design, rulemaking capacity, and Vessel Traffic Services.

Let me be clear at the onset, sir, there's no better approach to this problem than prevention. Once oil has been discharged into the environment, there are no winners, and the best any response can do is mitigate the impact.

The San Francisco spill highlighted the threat from non-tank vessels, such as the COSCO BUSAN. I'd like to provide the Committee with some current data framing the size of the fleet, and the threat we are discussing.

Based on data through February 2008, the Coast Guard has received and reviewed response plans for more than 14,700 non-tank vessels on call in U.S. ports. That is up from approximately 13,000, when I testified in December 2007.

Of this number, more than 8,300 are classified as ocean-going freight vessels, such as the COSCO BUSAN. The majority of these vessels have a fuel capacity of between ten and twenty thousand barrels. Each barrel contains approximately 42 gallons, so the range is 420,000 to 840,000 gallons.

However, there are 360 vessels that carry for than 50,000 barrels, and there are 100 that carry more than 70,000 barrels, sir. And to correct one statement you made—you may not be aware of this, sir—the highest-capacity freight ship listed in our records is 173,000 barrels, or 7.3 million gallons. The COSCO BUSAN had a capacity of 52,000 barrels, or 2.2 million gallons.

To address the threat posed by non-tank vessels, there have been several international and domestic steps taken, and more planned. Under the provisions of MARPOL Annex I, double hulls, or other protective arrangements, double hulls or other protective arrangements for fuel tanks are required for ship contracts awarded after August 2007, or for ships delivered after August 2010. These provisions also require ship-board oil emergency plans.

Domestically, as you have stated, we have gone further than the international standards. The Coast Guard Maritime Transportation Act of 2004 and 2006, established a response plan requirement for non-tank vessels greater than 400 gross tons.

The legislation created an August 2005 deadline for the implementation of these plans. The Coast Guard issued interim guidance in February 2005, providing interim authorization for non-tank vessels to operate under Coast Guard-reviewed response plans, pending development of implementing regulations.

We are currently developing temporary non-tank vessel response plan enforcement measures to be used until the final non-tank rule can be published. We anticipate the final rule will be complete in 2010, but these temporary measures will enforce the non-tank vessel response requirements on the highest risk non-tank vessels, including those over 1,600 gross tons, under our existing authority of the Ports and Waterways Safety Act.

It involved prescreening of vessel arrival data, and examination of response plans during Coast Guard inspections. Vessels not found in compliance will be subject to Captain of Port control measures.

This enforcement regime marks a change in policy from previous Coast Guard guidance, which did not impose enforcement mechanisms. We will provide advanced notice to the marine industry through the *Federal Register,* before implementation.

The appropriate temporary enforcement measures for vessels between 400 and 1,600 gross tons is also under development and will be shaped by the range of risk posed from offshore supply vessels, towing vessels, private yachts, fishing vessels, and others falling below this tonnage category.

As I noted earlier, plans for over 14,700 vessels had been received and reviewed by the Coast Guard. By comparison, we've reviewed response plans for 8,319 tank vessels. Clearly, the number and increasing fuel capacity of large freight ships justify a review of all aspects of spill prevention, and response.

Another significant area is a limit of liability of a responsible party under the provisions of the Oil Pollution Act of 1990. For a number of years, the limits of liability remain as established at the time OP 90 was implemented. As you noted, they were significantly increased under Coast Guard Maritime Transportation Act of 2006.

The Coast Guard published a notice of proposed rulemaking to amend Certificate of Financial Responsibility regulations to reflect those increased liability limits, and it working to publish a final rule as early as Fall 2008. The Coast Guard Authorization Act of 2006 also required an annual report to Congress on the adequacy of oil spill liability limits, including impacts on the Oil Spill Liability Trust Fund. Our reports have concluded increasing liability limits per incident for single-hull tank ships, tank barges and non-tank vessels greater than 300 gross tons would result in a more balanced cost share between responsible parties, and the Trust Fund.

The COSCO BUSAN casualty also caused us to look closer at our roles and responsibilities regarding our VTS systems. They serve as an important component of a comprehensive waterway system. The VTS is designed primarily as an information service that im-

proves safety by advising pilots and vessel masters of significant events, conditions or other vessel movements or operations. Through the Ports and Waterway Safety Act, we have adequate authority to provide these advisories or direct traffic, when needed.

We're also taking important steps to improve Coast Guard rulemaking. As you know, the current backlog of rules to be developed by the Coast Guard is in excess of 90. On 9/11/2001, it was approximately 50. Despite tremendous effort by our Coast Guard personnel, we are not gaining ground, and many important rules have been cued, awaiting required resources. This situation is unsatisfactory to me, and it should be unsatisfactory to you, sir.

As I said, I am taking important and aggressive measures to improve. I have tasked the Coast Guard Maritime Safety and Security Council to assess the current situation, and provide me options to reduce this backlog.

I have also ordered they meet, at least quarterly, and provide early visibility on significant projects. Under their oversight, I've also chartered a rulemaking review and reform project, to conduct a top to bottom review of our rulemaking processes, and facilitate increases in capacity that will be assisted by organizational consultants.

Additionally, we have streamlined our internal business processes, and targeted efforts to the most critical projects. I'm confident these measures will deliver the improvements that we require and you should expect.

Finally, I am grateful for Congressional support for rulemaking. During the Fiscal Year 2008 Appropriations process, we will receive $3.1 million for 31 personnel to increase our regulatory capacity.

The Fiscal Year 2009 President's budget seeks an additional increase of $2.6 million for contractor support to expedite high-priority rulemaking projects. I would appreciate your support for this request, as it provides enhanced capacity to address our backlog.

Mr. Chairman, I'd like to close with a comment regarding the COSCO BUSAN incident Specific Performance Review. As I testified in December, I have initiated a Performance Review which involved third parties. Phase I of the report was released on January 28, 2008. It addresses the first 2 weeks of the response, and provided 110 lessons learned, and 128 recommendations to improve preparedness and response in the San Francisco Bay community.

The recommendations follow the several broad categories, and include emphasis on the area, contingency planning process, the use of exercises and drills and incorporation of local response capabilities and information sharing throughout the incident command structure.

The second phase of the report will address the remainder of the response, and is due to me on May 7, 2008. I will provide the results of my plans in the way ahead to the Congress.

Beyond the performance review, we are partnering closely with the Department of Homeland Security, the Inspector General and their audit of the response.

I thank you for the opportunity to testify today, and I will be happy to take your questions, sir.

[The prepared statement of Admiral Allen follows:]

PREPARED STATEMENT OF ADMIRAL THAD W. ALLEN, COMMANDANT,
U.S. COAST GUARD, DEPARTMENT OF HOMELAND SECURITY

Good afternoon, Mr. Chairman and distinguished Members of the Committee. It is a pleasure to appear before you today to discuss issues related to commercial vessel manning, design standards, and Vessel Traffic Services (VTS). The Coast Guard is committed to protection of the environment and safety of the maritime pubic through ensuring vessels are properly manned, designed and operated on U.S. waterways.

Vessel Manning

International Standards

The International Convention for the Safety of Life at Sea (SOLAS) Chapter V, Regulation 14 requires that vessels be sufficiently and effectively manned, and requires Administrations (*i.e.,* flag states) to issue minimum safe manning documents to vessels they register. The Safe Manning Certificate establishes and documents manning requirements for vessels. Administrations must also ensure that mariners serving on their ships meet competency requirements established in the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978, as amended (STCW) Code. The International Regulations for Prevention of Collisions at Sea (COLREGS or Rules of the Road) requires that ships maintain an effective lookout while operating in restricted waters or conditions of reduced visibility. Although not specific, additional international guidelines have been created which establish principles in keeping a navigational watch, lookout requirements, watch arrangements, procedures for taking over a watch, performing a watch and watch keeping under varying conditions in different areas which are all intended to promote safe navigation.

Safe manning is a function of the number of qualified and experienced seafarers necessary for the safety of the vessel, and its crew passengers, and cargo. The Principles of Safe Manning adopted by United Nations' International Maritime Organization (IMO) resolution A.890 (21) as Amended by resolution A.955(23) notes the ability of seafarers to meet the requirements also depends upon conditions relating to training, hours of work and rest, health, and occupational safety. This Resolution provides recommendations to aid in determining the minimum manning for safe navigation, including situations involving transiting in restricted waters/ports.

Coast Guard Enforcement

Vessel manning is as important to overall vessel safety as vessel condition and safety management. The Safety Management Regulations (33 CFR Part 96) provide general requirements for vessel safety management systems. Companies must include instructions for the safe operation of vessels into their safety management system including proper manning and operational procedures for transits in restricted waters and in conditions of restricted visibility.

The safety management system aboard a vessels are validated during both inspection and record audits conducted by the cognizant Administration, ultimately resulting in the issuance of the international Safety Management Certificate. Upon receiving an Advanced Notice of Arrival for a vessel, the Coast Guard reviews vessel records to ensure the Safety Management Certificate and other required documents are valid. A vessel without a valid Safety Management Certificate is detained prior to entry into port and the vessel's Administration is then required to ascertain the vessel safety management system and issue a valid certificate in compliance with SOLAS requirements.

While in port, the Coast Guard verifies STCW compliance during Port State Control (PSC) examinations on foreign vessels including checks of the following: minimum safe manning, crew certificates and endorsements, watch arrangements and schedules, new crewmember familiarization procedures, and the overall safety management system.

The Coast Guard assesses whether a vessel is in apparent compliance with the requirements of the Conventions to ensure that the crew can respond to emergency situations and perform the vital functions necessary for safe operation and prevention or mitigation of pollution. The STCW Code contains the specifications for the minimum international standard of competence for seafarers. The United States has adopted STCW requirements and 46 Subchapter B, Parts 10–16 contain equivalent requirements for U.S. mariners.

Coast Guard Port State Control Officers (PSCOs) gauge crew competency by observing fire and abandon ship drills and other shipboard operations. If the PSCO observes inadequate skills during drills or other operations, indicating a lack of crew

competency in essential shipboard operations, a detention of the vessel is warranted until the safety deficiency can be resolved.

Crew competency and the number of crewmembers are major aspects of vessel manning. Adequate manning allows for appropriate crew rest periods and STCW provides specific rest period requirements; however, vessels may deviate from the required rest periods for emergencies, drills or other overriding operational conditions (for example restricted visibility) which may require more people on watch. At times mariners will not have ample rest prior to their arrival and/or departure from the U.S. due to enhanced navigational watches inbound/outbound port, and quick turn-around for unloading and offloading cargo. If a PSCO observes potential fatigue issues with crew, corrective actions will be taken before allowing the vessel to get underway.

Vessel Design Standards

Vessel oil pollution prevention standards have evolved over the years. The primary focus has been on tank vessels, which have historically posed the greatest risk for oil pollution. As a result, tank vessel hull design standards have progressed from dedicated clean ballast tanks, to segregated ballast tanks, to complete double hull protection of the cargo tank block following the Exxon Valdez casualty in 1989. U.S. leadership at IMO has been instrumental over the years in upgrading international oil pollution prevention standards, and there is generally close alignment between U.S. and IMO tank vessel design standards.

Until recently, protective measures for the location of fuel tanks were generally considered unwarranted by both the United States and IMO. The Oil Spill Pollution Act of 1990s Double Hull Interim Final Rule preamble indicated that fuel oil represented only a relatively small risk to the environment compared with cargo oil and therefore double hulling of fuel tanks was unnecessary. This perception began to change through the 1990s as a number of prominent fuel spills in U.S. waters (Enif—1995; Kure—1997; and New Carissa—1999) raised awareness of the risk of oil spills from fuel tanks. Then with European environmental concerns very high after the Erika casualty off France in 1999, the IMO decided to establish strong new requirements for the protection of fuel tanks which culminated in the 2006 adoption of MARPOL Annex I regulation 12A—Oil Fuel Tank Protection.

New Fuel Tank Protection Requirements for Oceangoing Freight Ships

Nontank vessels are vulnerable to spills caused by groundings, collisions, and allisions due to the location and capacity of onboard fuel tanks. Fuel is generally carried in tanks located in the bottom or side of the vessels without double hull protection.

Current U.S. requirements regarding the location of fuel tanks are located in 33 CFR Subchapter O (Pollution) and essentially prohibit oil from being carried in a forepeak tank or any tank forward of the collision bulkhead. There is no restriction on locating fuel tanks adjacent to the outer hull plating.

However, oceangoing freight vessels on international voyages are subject to the International Convention for the Prevention of Pollution from Ships otherwise referred to as MARPOL 73/78. New MARPOL Annex I regulation 12A—Oil Fuel Tank Protection has entered into force and applies to all ships with an aggregate oil fuel capacity of 600 cubic meters (this equates to approximately 158,500 gallons) and above with a building contract after July 31, 2007, or which are delivered after July 31, 2010. The regulation provides two options for the protection of fuel tanks with volumes greater than 30 cubic meters (approximately 7,925 gals):

1. a prescriptive double hull requirement; or
2. a probabilistic accidental oil outflow performance requirement.

Vessels meeting the first option must have fuel tanks with double bottoms and double sides, which provide separation from the outer skin of the vessel ranging from 0.76 to 2.0 meters.

Vessels falling under the second option must meet an accidental oil fuel outflow performance requirement, which provides the equivalent of double-hull protection while allowing for some fuel tank arrangement flexibility. The performance requirement considers historical casualty statistics to determine optimal fuel tank arrangements in order to minimize the risk of oil fuel outflow from hull damage.

The Coast Guard published a Notice of Policy in the August 27, 2007 *Federal Register* regarding our compliance policy, pending a rulemaking project to harmonize existing U.S. regulations with the new MARPOL regulation. The policy states that vessels (U.S. or foreign) required by MARPOL to hold an International Oil Pollution Prevention (IOPP) certificate must meet regulation 12A. U.S. vessels not required to hold an IOPP Certificate need not comply with regulation 12A. A vessel is re-

quired to hold an IOPP certificate if it is over 400 gross tons (over 150 gross tons for oil tankers) and engages on international voyages to other MARPOL signatory countries.

Rulemaking

The Coast Guard is undertaking substantial steps to improve our rulemaking capability. These improvements will allow the Coast Guard move forward expeditiously with rulemaking projects that will enhance our core missions of marine safety, security, and stewardship.

- *Marine Safety and Security Council:* The Marine Safety and Security Council (MSSC) is the Coast Guard's senior rulemaking oversight body. We have revamped the MSSC membership to better reflect our current organizational structure and to provide more responsive, cross-cutting oversight. The MSSC will meet at least quarterly to oversee the rulemaking development system and progress of the top priority projects. This will ensure early visibility on significant rulemaking issues, and best utilization of Coast Guard resources to serve the public as efficiently and effectively as possible.
- *Rulemaking Review and Reform Project (RRRP):* A Rulemaking Review and Reform Project is underway to conduct a top to bottom review of our rulemaking processes and to facilitate increases in capacity. The RRRP is assisted by a group of Organizational Performance Consultants who will assist in identifying, defining and improving our rulemaking processes. The RRRP is assessing the current state of rulemaking to determine root causes of rulemaking delays and identify specific opportunities for improvement.

Other Environmental Initiatives

The Coast Guard is working domestically and in conjunction with the IMO to improve environmental standards and compliance. Several concurrent initiatives are underway and progress is being made on several fronts:

- *Reduction of air emissions from ships (MARPOL Annex VI).* The Coast Guard, Environmental Protection Agency (EPA), and maritime representatives from several countries have been actively engaged with the IMO to establish new and more stringent international standards addressing air emissions from ships. Air pollution from ships already significantly contributes to the air quality problems in the U.S. and emissions are expected to quadruple by 2030. The U.S. Government has played a leading role in shaping the current standards, but our influence could be compromised if we fail to pass legislation and submit our instrument of ratification to MARPOL Annex VI before final IMO negotiations conclude at the end of March 2008. Your Committee presently has the implementing legislation for consideration, in the form of H.R. 802, which passed the House last year under suspension of the rules. I personally request that you give urgent consideration to H.R. 802, which the Administration fully supports, in order to allow the United States to succeed in our efforts to enhance the air emissions standards for ships both domestically and throughout the world.
- *Nontank Vessel Response Plans (NTVRP).* The Coast Guard and Maritime Transportation Act of 2004 required the preparation and submission of oil spill response plans for nontank vessels. The Coast Guard is working to publish regulations on the development and submission of Nontank Vessel Response Plans (NTVRP) plans. In the interim, the Coast Guard published Navigation and Inspection Circular (NVIC) 01–05, which assists nontank vessel owners and operators with the development of interim NTVRPs. To date, the Coast Guard has reviewed interim NTVRPs covering over 14,700 foreign and domestic nontank vessels. However, vessels are not required to follow the guidance contained in NVIC 01–05. The Coast Guard is currently revising to the interim enforcement strategy which would clarify the requirements for all covered vessels to have prepared and submitted a NTVRP prior to operating in U.S. waters. This enforcement will be limited to those portions of the authorizing statute that are self-executing.
- *Ballast Water Discharge Management Regulation.* The Coast Guard is engaged in a rulemaking that would set a performance standard for the quality of ballast water discharged in U.S. waters. We believe such a standard is the most effective way to approve Ballast Water Management Systems (BWMS) that are environmentally protective and scientifically sound. This rulemaking would also establish rigorous testing requirements BWMS would undergo to ensure they work under shipboard conditions. The Coast Guard is committed to approving BWMS that will prevent aquatic nuisance species introductions into U.S. waters.

Vessel Traffic Services Cuts

Ports and Waterways Safety Act (PWSA)

As authorized by the Ports and Waterways Safety Act (PWSA), the Coast Guard established VTS in certain ports and waterway areas to maximize the safe and efficient use of waterways by preventing marine accidents and their associated environmental damage. In order to carry out these duties, VTSs use a variety of communications, surveillance equipment, and operating systems to collect, process, and disseminate navigation safety information and exercise regulatory authority when necessary. VTSs also use their capabilities to support other Coast Guard mission areas such as maritime security, aids to navigation, search and rescue (SAR), and law enforcement.

VTS Operations

VTSs operate as an active part of a comprehensive waterways management system, which includes passive measures such as the COLREGS or Rules of the Road, aids to navigation such as buoys and lights, other regulations, and vessel routing schemes. In areas determined to present a high level of navigational risk, VTSs act in conjunction with these passive measures and the skill of professional mariners to ensure safe navigation. VTS procedures are developed in conjunction with maritime community stakeholders and in alignment with international guidance from the IMO and the International Association of Marine Aids to Navigation and Lighthouse Authorities (IALA). This includes a formal training program for VTS watchstanders consisting of national certification, local qualification, and continuing professional development.

The PWSA grants the Coast Guard extensive authority to establish VTS and control or supervise vessel traffic. The Coast Guard may require vessels to participate in VTS and carry certain navigation safety equipment. The PWSA authorizes the Coast Guard to control vessel traffic in hazardous circumstances and to direct vessel operations if they violate regulations or it is necessary in the interest of safety. We have issued regulations implementing these authorities and delegating authority to individual VTSs.

VTS procedures have been developed to carry out these authorities in alignment with international guidelines and recommendations. In general, a VTS will monitor their area of responsibility to build a traffic image and, having analyzed the data collected, inform mariners of pertinent information to assist them in navigational decisionmaking. In certain circumstances the VTS will recommend a course of action, and in the event of a violation of regulations or in the interest of safety, a VTS may direct a vessel to take certain action. Per current doctrine, procedures, and training, orders to vessels are issued in an "outcome-based" manner; in which the vessel is ordered to do something (*e.g.,* do not proceed past a point) but not told specifically how to do it (*e.g.,* specific speed or course to steer). However, the Coast Guard has the authority to issue more specific orders to vessels, and in very rare circumstances has exercised it. Under international guidelines, VTSs generally act as a navigational aid to the mariner, but the ultimate responsibility for safe navigation of the ship remains with the master of the vessel. VTSs assist in vessel navigation decision-making, not ship handling, particularly when a vessel is facing an *"in extremis"* situation. When direction is provided, the VTS refrains from issuing ship handling instructions because it would create an extremely hazardous situation to direct emergency vessel maneuvers from a remote location.

We are committed to the marine safety mission and the safety and security of the maritime public.

During my State of the Coast Guard address, I emphasized the Coast Guard's longstanding commitment to honoring and serving professional mariners. Moreover, my plan to enhance the Coast Guard's marine safety program is a hallmark of this commitment. We have already requested significant increases to our marine inspector work force; planned Centers of Excellence that will match our skills with those of the maritime industry in certain regions; and made other program enhancements intended to improve customer service.

On February 8, I met with representatives of the maritime industry at Coast Guard Headquarters for the first of many Marine Industry Forums. I am initiating these forums to facilitate discussion and dialogue on a broad range of marine safety matters. I recently traveled to maritime industry events in Houston and Cleveland, and will continue to hold these meetings as we move forward so that the Coast Guard's planned enhancements are both effective and responsive to the needs of industry and professional mariners.

Thank you for the opportunity to testify. I look forward to your questions.

USCGC ACHUSHNET

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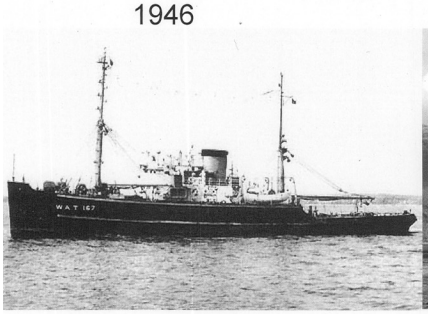

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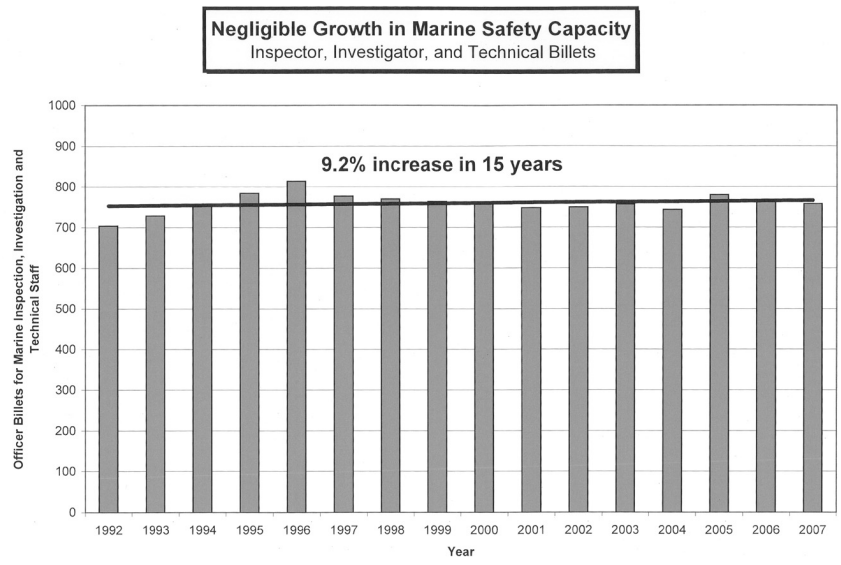
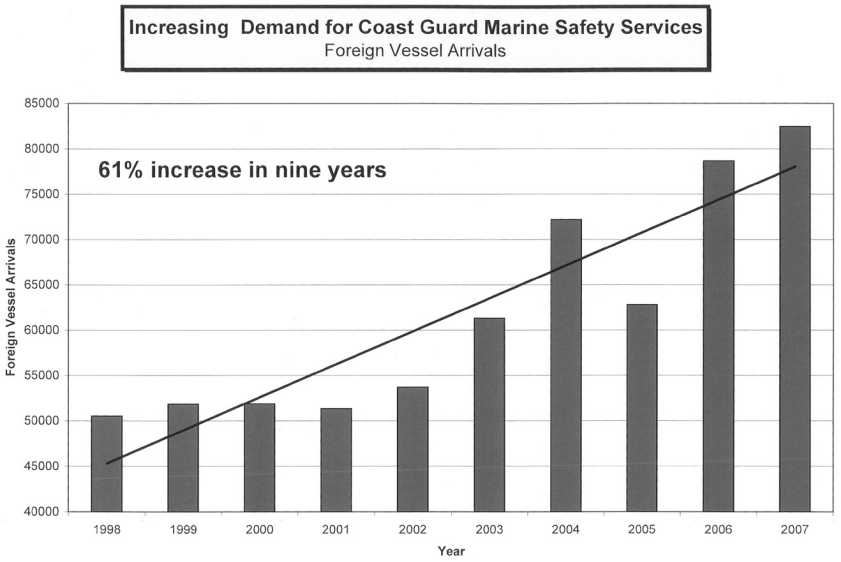




Senator LAUTENBERG. Thank you very much, Commandant.

Senator I'm joined by Senator Stevens, the Co-Chairman of the full Committee, as well as Senator Gordon Smith from Oregon. And both of these Senators feel, as I do, about the Coast Guard. We admire it, respect it, and want to support it. Senator Stevens has a statement he wanted to put in the record.

Senator Stevens?

STATEMENT OF HON. TED STEVENS,
U.S. SENATOR FROM ALASKA

Senator STEVENS. Thank you very much, Admiral, I'm sorry to be late. I'm helping manage the bill on the floor, and I did want to pay my respects to you, and ask that my statement appear in the record.

I have some questions I'd like to submit to you for the record.

[The prepared statement of Senator Stevens follows:]

PREPARED STATEMENT OF HON. TED STEVENS, U.S. SENATOR FROM ALASKA

I have seen firsthand the devastation that can be caused by oil spills. Just one significant spill in a sensitive area of our coastline can be extremely destructive to the ocean, environment and those who depend on its resources.

In 1989, the EXXON VALDEZ spilled 11 million gallons of crude oil in Prince William Sound. The fishermen and communities devastated by this spill have yet to fully recover from its impacts. It was just last week, nearly 18 years after the spill, that the Supreme Court finally heard oral arguments on whether those injured would be able to recover punitive damages.

The legal process has been so drawn out that nearly 8,000 of the original 30,000 plaintiffs have since passed away.

After the EXXON VALDEZ oil spill, Congress passed the Oil Pollution Act of 1990. This act has done much to reduce the risk of oil spills and improve our response efforts. But I remain concerned about the adequacy of our prevention resources. We need to make sure the Coast Guard has the tools it needs to help vessels avoid accidents that may cause an oil spill.

Initiatives like the vessel tracking system used in areas of Alaska need to be expanded so we can track all the cargo ships and oil tankers sailing in our waters. As Captain Ed Page will testify, these tracking systems show, in real time, the location of possible response vessels and give us the greatest chance to prevent or contain an oil spill and protect our valuable coastlines.

I thank Captain Ed Page for making the long journey from Alaska to be here today and I look forward to hearing from all of our witnesses.

Admiral ALLEN. Yes, sir.

Senator STEVENS. But, I would say to you, I think I have before, that I flew into the EXXON VALDEZ spill with Admiral Yost, your predecessor. I don't think I've ever seen anything like that in my life, neither one of us. We were both stunned by what we saw.

And the aftermath of that was really a development that no one expected, because when we flew over the vessel, the tanker, it was on the island, it was up out of the water, really, because it was low tide. And it had, I recall, one of the segments of the vessel had been punctured by the island as it struck the island. I think four-fifths of the oil was still on board.

The management decisions that were made, right then, led to this spill being the worst spill in the history of the world.

Now, I just throw that out to you, because I do think that what we really have to have, and you've got more things now in Valdez than anybody realizes in terms of be able to track those tankers down.

But we need to be assured that there's training of the people to operate those systems to make sure that we don't have another catastrophe of that kind. We also need to have some people be trained about the actions that can be taken to protect the environment.

At that time, I called my old friend Senator Bellman, Henry Bellman of Oklahoma, who had been a Senator for two terms, went back and he was Governor. And I said, "Henry, what would you do

if you had something like this in your backyard?" And he said, "I'd call the Army and tell them to drop Napalm on it, burn it."

I went ashore, and made that suggestion to the crowd there, both officials from government and from the industry, and they all said, "You can't do that, think of that, there'd be a Clean Air violation." And I'll never forget that if I live to be 100. They were afraid of the Clean Air violation, rather than protecting the waters of Prince Williams Sound.

Now, I think that we have to have people trained to make judgments and to understand the circumstances, and while alternatives are available to prevent the catastrophe that we subsequently saw.

So, I hope you'll answer my questions, and I look forward to visiting with you again, and maybe you might come up and do a little marine research with me in the Prince William Sound.

Admiral ALLEN. Thank you, sir.

Senator STEVENS. Thank you.

Senator LAUTENBERG. Thanks very much, Senator Stevens.

Senator STEVENS. You can come, too.

Senator LAUTENBERG. I'd like it, I love Alaska. You know, we all take pride in our coastlines.

Senator Smith, Co-Chairman of the Subcommittee.

STATEMENT OF HON. GORDON H. SMITH,
U.S. SENATOR FROM OREGON

Senator SMITH. Thank you, Mr. Chairman.

Admiral it's great to have you here, and I thank you for your testimony, most of which I was about to hear.

We've talked in my office, and also about the important role that I believe the Coast Guard plays for the state of Oregon, and I want to join in the comments of others, how much I appreciate the Coast Guard and your very significant presence in Oregon.

And let me just simply say that the Columbia River is really a lifeline for Oregon, for both shallow and deep draft vessels and ports—whether you're talking wheat or cattle, or timber or high-tech products they move in and out of Port of Portland in a tremendous volume. It's a growth engine for our whole state.

Hearing Senator Stevens speak of EXXON VALDEZ, I'm reminded that it isn't just oil tankers that pose a potential difficulty. In 1999, a ship by the name of the New Carissa was grounded off the Oregon Coast, spilling roughly 70,000 gallons of fuel into Oregon waters, and obviously it had a devastating impact on wildlife and oyster beds and recreation—all of these things were lost. And so, I do hope that you're focused, as well, on vehicles that are not necessarily transporting oil, because it's very, very important.

But, the main point I want to make, in light of Federal legislation that is being proposed here, legislation to which I remain open, but I want to specifically talk about the pilotage issue, which has gained a great deal of attention in the wake of the spill that occurred, I guess it was in November, in San Francisco Bay.

I think it's very important to remember that these pilotage program are often—in my case, in the case of Oregon—governed by State regulations. And this allows states to structure a system that is suited to the particular needs and circumstances of their own waters. Oregon's a perfect example of that.

Since 1846, 13 years before Oregon was officially admitted to the Union, the Oregon Board of Maritime Pilots has worked to ensure the safety of our maritime system by ensuring that only well-qualified persons are licensed to pilot vessels, entering and leaving Oregon ports. And Oregon pilot training and expertise is so specific that it takes two pilots to bring a ship into the Port of Portland. One to steer the ship across the Columbia River bar, and a second to navigate the river channel.

Since the spill in San Francisco Bay, a lot of ideas have been floated to make changes to the current piloting system, with some calling for a much greater Federal role. And again, while I will remain open to good ideas, I believe that we need to be very careful that we don't needlessly and inadvertently jeopardize safety by shaking up a system that for hundreds of years is already proven highly effective.

So, thank you Mr. Chairman. That's what I want to say as part of my testimony, and again welcome the Admiral.

Senator LAUTENBERG. Thank you very much, Senator Smith. Senator Smith raises a point about how well things went for so many years, but the size of vessels has changed so radically.

As a matter of fact, not wanting to date myself, but I sailed across the Atlantic during World War II on a ship that was considered pretty good size, it was called the America, and in its origination, it was the largest passenger ship built in America and then it was converted to the West Point, it became a troop ship.

And I had staff check—just for old times' sake—the size of that, and it was 700 feet. That's like a launch on some of these boats that we see now.

Commandant, thanks very much for the statement you made, and for the forward-looking steps that the Coast Guard is making to try and keep abreast of things.

But one of the things that concerns me is whether or not the vessels applying our ports, our shores, have the financial ability to cover the costs of a spill that's up to their liability limit.

Now, there was new regulation anticipated to cover that. Can you give us an idea when these new regulations regarding the financial conditions of the company that has that ship afloat might be published?

Admiral ALLEN. Yes, sir. Actually, there are two regulations that are in progress. One of the is to be able to adjust limits of liability in the future based on a consumer price index, something that had not been done before the legislation. And the second one is to issue regulations that would create requirements for certificates of financial responsibility would match the liability limits.

On the COFRs—the Certificate of Financial Responsibility, we are poised to issue that rule later on this Fall, and the other one is under development right now, but they are both in progress, sir.

Senator LAUTENBERG. It's an important step, don't you think?

Admiral ALLEN. Yes, sir.

Senator LAUTENBERG. Especially with some of the flags that are flown—they are not always reliable, and——

Admiral ALLEN. Yes, sir. For an example, the limits of liability for the COSCO BUSAN under the new liability limits went from somewhere in the thirties, to $61 million. But, without the rule to

change the Certificate of Financial Responsibility, that remains at the lower limit in the $30,000 range—that needs to be adjusted, sir.

Senator LAUTENBERG. Thirty million? Yes.

You just talked about adjusting the oil spill liability limits, and that should be accounting for inflation. Is the Coast Guard authorized to introduce that into the licensing requirement? To adjust for inflation?

Admiral ALLEN. Yes, sir. Yes, sir—that's the intent of the rulemaking that's underway right now. Yes, sir.

Senator LAUTENBERG. The GAO has found that the average cost of spills from single-hull barges and non-tank vessels are higher right now than current limits. Do you think that these liability limits should be adjusted beyond changes for inflation, to ensure that polluters pay fair amounts for the spills they've caused?

Admiral ALLEN. Yes, sir, we do. We've submitted two reports since the passage of the legislation indicating that there's a larger share of liability against the Oil Spill Liability Trust Fund from single-hull ships or tankers, and barges. And, while we have not quantified that, yet, that is something that is worth discussing in the future, and whether or not an adjustment should be made, because it is inequitable in the current form, sir.

Senator LAUTENBERG. Generally speaking, ships with double-hulls around their fuel tanks improve the chances of surviving an accident. So, do you agree with that? The fact that double hulls around the fuel tanks protect us from spills that otherwise might not occur?

Admiral ALLEN. Yes, sir. That's absolutely correct, and as was stated in my statement through our work at International Maritime Organization, we now have procedures in effect that will require those tanks to be double-hulled in the future. That is the right way to go, sir.

Senator LAUTENBERG. And, I would ask this—should ships without these protected fuel tanks be required to pay more of their spill costs, given that they present a greater liability?

Admiral ALLEN. Yes, sir. I think that's something that should be considered.

Senator LAUTENBERG. Because I've had a look at the design recommendations by the international body to see where fuel tanks might be installed in the vessel, and getting them away from the bottom of the hull, but rather lifting them up—I have a question that tells you what an old-time sailor would ask. And that is, does that increase the instability in heavy seas? There's a lot of weight attached to those tanks when they're filled.

Admiral ALLEN. Not necessarily, sir. The liquid loading of a ship should allow for transfer between tanks, whether it is shifting fuel as it's being used, and there are also tanks that are used for ballasting that can keep the ship stable. This is within the extreme art of the possible in ship design, sir.

Senator LAUTENBERG. The Delaware River Oil Spill Advisory Commission was authorized in 2006. When might the Coast Guard actually create it?

Admiral ALLEN. Sir, we're in the process of doing that right now. We've got the nominations of the personnel that are going to be

part of the Advisory Committee. They're at the Department of Homeland Security being reviewed right now. On approval of those nominations, there is a requirement for them to hold their first meeting within 60 days, so as soon as those nominations are approved, we will notify your office, and you can expect a meeting within 60 days, sir.

Senator LAUTENBERG. And the Vessel Identification System—when might the Coast Guard have that system operational?

Admiral ALLEN. Well, we have automated identification systems that are operating right now, sir, around the country, achieving coverage in accordance with the Maritime Transportation Security Act.

We're also implementing agreements that have been made at IMO where long-range tracking will come into effect over the next 18 to 24 months. Our goal is to have coverage, ultimately, between AIS and long-range tracking out to 2,000 miles, if you declared your intent to the United States, if you're subject to Safety In Life At Sea Convention, or if you're in transit 1,000 miles off the coast, sir.

Senator LAUTENBERG. Now, that's not new technology, I assume. What is there, if anything, that impedes progress on that project?

Admiral ALLEN. Only establishing the technical standards, and getting the equipment out there, establishing data centers and distributing the information. The AIS system has been around for some period of time, originally used as a collision avoidance and navigation support system for pilots and so forth. That is a line-of-sight system. We are currently in the process of building out the national AIS system, which will give us coverage around the entire United States and then also the ability to transmit data out to 24 miles. We'll move beyond that with long-range tracking, which is the new agreement that was reached last year at IMO, sir.

Senator LAUTENBERG. So other, other seafaring countries will be required, as well, to participate in that program?

Admiral ALLEN. Yes, sir. Signatories to the IMO Convention, once it's ratified, will be required to carry the equipment, and we can require that of signatory countries, as well, sir. There will have to be an international data center that will be stood up that collects the data, distributes it. There's still a decision to be made at IMO, where that will happen. We, in the Coast Guard, have volunteered to do that for the first 2 years, and fund that while the decision is made on the ultimate location, sir.

Senator LAUTENBERG. Last, you required the pilot in the COSCO BUSAN incident to turn in his Federal Merchant Marine Officer's License on the ground that he was not physically able to perform the pilot's duties. And, if that was the case—why was he granted a Coast Guard pilot's license in the first place?

Admiral ALLEN. Sir, he was granted a license, and then he was granted a waiver on his medical condition, because that determination was made at the port level in San Francisco at the Regional Exam Center.

As of October 2007, we have centralized the review of all medical examinations at our National Maritime Center in West Virginia, we actually have qualified public health doctors there, they're re-

viewing these records, rather than our people that work in the port level.

His medical examination and the waiver associated with that, came before we had transferred the centralized review of medical files in West Virginia. When we did the review at that level, we found out that his current medical condition was not waiverable, and was something that would potentially impede his ability to perform. He has voluntarily surrendered his license, and that is an administrative procedure that we are taking, pending any kind of medical evidence he might want to give us that shows that he's qualified to carry out his duties. As it stands right now, he's surrendered his license, sir.

Senator LAUTENBERG. Is the Coast Guard therefore taking steps to improve the medical review process for mariners' licensing, generally?

Admiral ALLEN. Yes, sir. There are several things that are happening. First of all, we have centralized the review of all the physical exam reports in one location, with a medical staff that's qualified to do that.

Second, we are issuing new regulations on merchant mariner documentation that will improve the medical standards and the screening for individuals that are applying for licenses.

Third, we are putting out a navigational circular that will provide further guidance to the field on what the standards are. These three in combination, I think, are going to position us very well, and we expect to have the new guidance out sometime later on in the year after our advisory committee, the Towing Safety Advisory Committee, and our Maritime Personnel Advisory Committee, meet and finalize their input to those new policies, sir.

Senator LAUTENBERG. Very good.

Senator Smith?

Senator SMITH. Again, Admiral, thank you for all that you do, and your great branch of our service.

You have worked with the public and private sector trade sectors, and the transportation interests in my state. I'm aware of—this has been quite successful in using existing technologies in business relationships and new and unique ways to improve navigation safety, and therefore the economic competitiveness of my part of the world.

The—apparently the system developed and currently being used on the Columbia River not only provides pilots with real-time vessel tracking information, but it is continually updated with the most recent channel survey information provided by the Army Corps of Engineers.

This system—which was developed by the private sector—clearly has some very important public safety and security applications. I understand in some testimony we will hear later in this hearing, that these ideas are spreading to other ports and parts of the country. So, I wonder what the Coast Guard sees as its role in fostering these private sector initiatives that improve the safety for the public sector?

Admiral ALLEN. Yes, sir. I think it's important to draw information from wherever it exists, that can improve the safety and security of the operation of our waterways. Our ultimate goal in the

Coast Guard is to create something what we called "maritime domain awareness." And that's a combination of information, sensor data, what's held in the private sector, what is available through law enforcement, and to share this to improve the transparency—not only to improve safety, but also to be able to detect anomalies—who is obeying the rules, and who isn't—so we, there's a target of interest we can deal with them as far offshore as possible.

Your maritime leadership in the Columbia River Basin briefed me several years ago when I was Chief of Staff, before I became Commandant, and I actually linked them up with our Maritime Domain Awareness Staff at that time, and we look forward to working with any community.

The issue we have is—it sometimes gets down to bits and bytes and wires and how do you fuse everything together. A lot of times it's not a technology problem—it's how you put it all on the same screen, sir.

Senator SMITH. Do you see that as the Coast Guard's role, is helping to fuse everything together, then?

Admiral ALLEN. To develop a common operating picture in and around a port environment is vital for us to conducting our mission, and I do see that as our role, sir.

Senator SMITH. Very good, well, I would certainly encourage that, because I think it's working and your leadership in that effort, bring publics and privates together, I think that that's commendable and I would say more, more of the same would be great, wherever in the country.

Thank you, Mr. Chairman.

Senator LAUTENBERG. Thanks very much, Senator Smith.

Commandant Allen, one morning, not too long ago—I was listening to a broadcast on National Public Radio, and heard a man named John Devons, who was mayor of Valdez at that time of EXXON VALDEZ accident. And, a statement was made that the lingering oil of the running aground of the EXXON VALDEZ is insignificant, not a threat, but a response was, the oil residue is not bio-accessible—that means it's not posing any ecological risks to any of the species that remain in the Sound.

Well, Mr. Devons, former Mayor, now Executive Director of the Prince Williams Sound Regional Citizens' Advisory Council said, "Exxon can say all they want, and I mean, they have bought a lot of scientists who have said it's not causing any more problems. But the people live out there, and I mean, subsistence users, they know good and well that there's oil on those beaches," and before that it was said that those who once harvested wildly from the Sound now pick their spots warily. It may look Sierra Club Calendar perfect, but there's oil just beneath the surface. And the Mayor has been angry for 18 years, and we're still wrestling with that, and I'm hoping that we've learned so much from that spill, it had to do with the skipper's condition, as well as how the course was set, and why we couldn't track that from a station on the land, and sound an alarm.

Thank you, Commander Allen for your good work, and for the Coast Guard, generally. We appreciate, greatly, the work that they do, and we still have so much confidence in your abilities, that I'm

afraid you'll get another assignment for the Coast Guard to handle. We'll try to prevent it, unless the money comes with it.

Admiral ALLEN. Thank you, sir.

Senator LAUTENBERG. Thank you very much.

And now, we want to hear from the second panel, Mr. Paul Kirchner, who is the Executive Director and General Counsel for the American Pilots Association, Captain Ed Page, the President of the Maritime Exchange of Alaska, and Dr. Kirsi Tikka of Paramus, New Jersey, who serves as the Vice President of Global Technology and Business Development for the American Bureau of Shipping and I note for the benefit of my colleague and friend, it's an inland station in New Jersey where they're looking at the development of the American Bureau of Shipping.

So, we thank all of you for being here, for sharing your expertise with us, and I would ask for your testimony, limit it to 5 minutes, please.

And once settled, Mr. Kirchner?

STATEMENT OF PAUL G. KIRCHNER, EXECUTIVE DIRECTOR AND GENERAL COUNSEL, AMERICAN PILOTS' ASSOCIATION

Mr. KIRCHNER. Thank you, Mr. Chairman and Senator Smith.

My name is Paul Kirchner, I'm the Executive Director and General Counsel of the American Pilots' Association. The APA appreciates the invitation to testify today.

In my written testimony, I provided some information about pilotage in the United States—perhaps more information than the Subcommittee really wanted—but I have, particularly, tried to address questions that have been raised in connection with the COSCO BUSAN incident. In addition, I will be happy to answer any questions that the Subcommittee might have today, or any time in the future.

I do have a few short remarks, here.

Senator LAUTENBERG. Please do.

The pilotage system in this country is a system of State regulation. This reflects a specific judgment, made by Congress in 1789, that because of the unique nature of pilotage as well as the variation in navigation conditions and piloting demands in the different ports and waterways in the country, pilotage is best regulated at the State and local level.

That judgment has been reaffirmed many times since, and the State pilotage system that has developed from that judgment, has served, and continues to serve, the interests of this country extremely well. The U.S. has the safest, most technologically advanced, and most efficient system of pilotage in the world.

Any system, however, should constantly seek improvement. Although vessel accidents are very rare, when an accident does occur, pilot associations and State pilotage authorities recognize the need to examine their practices, to see if they can do a better job. The COSCO BUSAN incident provides U.S. pilotage with that challenge.

What can the pilotage profession and the pilotage system learn from COSCO BUSAN, and are there changes that can be made to help prevent similar accidents in the future?

The pilot community has already taken actions in response to the COSCO BUSAN incident. These address such matters as fog policies, training, and pilot carry-aboard equipment. As more is learned about the details of the accident, and its causes, there will be additional actions by various segments of the U.S. pilotage system—pilots, pilot associations, pilotage Commissioners, and State legislatures.

The APA and its pilot members are also ready and willing to work with Congress and with the Coast Guard to find ways to improve the National Marine Safety Programs, upgrade the infrastructure associated with those programs, and generally enhance navigation safety.

Thank you, Mr. Chairman.

[The prepared statement of Mr. Kirchner follows:]

PREPARED STATEMENT OF PAUL G. KIRCHNER, EXECUTIVE DIRECTOR AND GENERAL COUNSEL, AMERICAN PILOTS' ASSOCIATION

Good afternoon, Mr. Chairman and Members of the Subcommittee. I am Paul Kirchner, Executive Director—General Counsel of the American Pilots' Association. The APA appreciates the invitation to testify today to discuss pilotage in the United States and the role U.S. pilots play in the prevention of oil spills from vessels.

The APA has been the national association of the piloting profession since 1884. Today, there are approximately 1,200 individual pilots working in the 60 APA-member pilot groups. These APA members pilot about 95 percent of all oceangoing foreign trade vessels moving in U.S. waters. Virtually all state-licensed pilots belong to an APA member group as well as all of the U.S. Coast Guard registered pilots working in the Great Lakes.

The pilotage system in this country is a system of state regulation. State pilots are also subject to Federal navigation safety laws, hold Federal pilot licenses, and work closely with the Coast Guard. In every coastal state, however, the primary source of regulatory oversight of pilotage operations is a state governmental authority, typically a pilot commission. This system of state responsibility reflects a specific judgment made by Congress in 1789 that pilotage is best regulated at the state and local level. The judgment has been reaffirmed many times since, and the state pilotage system has served, and continues to serve, the interests of this country extremely well. The U.S. has the safest, most technologically advanced, and most efficient system of pilotage in the world.

Any system, however, should constantly seek improvement. Indeed, one of the major benefits of state and local level control of pilotage is the ability of the system to evolve and adjust to changing conditions and developments in vessel navigation. It also is able to respond quickly to lessons learned from accidents. Although vessel accidents are very rare, when an accident does occur, pilots, pilot associations, and state pilotage authorities recognize the need to examine their practices to see if they can do a better job. The COSCO BUSAN incident presents U.S. pilotage with that challenge. What can the piloting profession and the pilotage system learn from COSCO BUSAN, and are there changes that can be made to help prevent similar accidents in the future?

Despite considerable speculation and opinions offered in news reports and other sources, we do not yet know what happened on the bridge of the COSCO BUSAN on the morning of November 7, 2007. Clearly, something went wrong in the navigation of that vessel. Typically, it takes a combination of things to produce this kind of result. In Bridge Resource Management terms, it appears that there was a lack of situational awareness and a chain of errors. Modern bridge procedures, including cross-monitoring and information sharing, are designed to prevent such problems from occurring, and if they do occur, from reaching a point where the result is an accident. Until we know exactly what errors were made and the specific reasons for the lack of situational awareness by the pilot and the bridge crew, we will not know why the normal fail safe mechanisms did not work on the COSCO BUSAN that morning.

We do know, however, that the accident and its causes are being thoroughly investigated by a number of bodies. The Coast Guard and the NTSB are conducting casualty investigations to determine the causes of the accident. The Department of Homeland Security's Office of Inspector General is investigating certain aspects of

the accident and the resulting oil spill. The U.S. Attorneys office is reportedly considering criminal charges.

The pilot's performance is being examined by the state authorities. His state license was summarily suspended after the accident by the Board of Pilot Commissioners for the Bays of San Francisco, San Pablo and Suisun. On December 6, 2007, the Pilot Commission's Incident Review Committee filed an "accusation" against the pilot charging him generally with negligence and listing a number of asserted errors including his decision to get underway despite the fog conditions and a loss of situational awareness during the voyage.

This is a formal license suspension or revocation proceeding under state statute and commission regulations. The matter is set for a hearing before an Administrative Law Judge. The hearing, which the ALJ has estimated may take 15 days, was recently postponed until September due to difficulties that the pilot and his attorneys are having securing evidence necessary for his defense. The ongoing criminal investigation was cited as a source of those difficulties. Meanwhile, the pilot's state license will remain suspended.

The pilot has also surrendered his Federal pilot license to the Coast Guard. That action was taken in response to a notification from the Coast Guard that it has determined that he is not medically fit for the duties of a pilot, based on information that he had previously disclosed in connection with the Coast Guard's normal medical review program for pilots and other mariners. The Coast Guard has indicated that it will not return the license unless the pilot demonstrates that he is fit for duty.

In addition to these investigations and actions taken against the pilot, various components of the pilotage system have already taken some steps to respond to several of the immediate issues that have been raised by the accident. For example, the San Francisco Bar Pilots Association is conducting a complete review of its operations. It has developed a new set of guidelines for moving in fog. Those guidelines have been submitted to the Coast Guard, and the expectation is that the Association and the Coast Guard will jointly submit them to the local Harbor Safety Committee for adoption and implementation in the region. The Association has established a committee of its members to work with a similar committee established by the San Francisco Pilot Commission to review the content of the Commission's training programs, particularly continuing training.

The Pilot Commission has set up a Navigation and Technology Committee to study carry aboard electronic piloting units. The committee has been directed to issue a report to the Commission by June 1 with recommendations on whether all pilots should be required to use such units, which types of units and capabilities should be selected, how and when they should be used, and what training should be required. Over the last 2 months, that committee has evaluated and "test-driven" several different types of portable units, ancillary equipment, and navigation software programs.

The Pilot Commission has also initiated a thorough review of its operations. The California State Legislature is considering several bills calling for reviews of, and in some cases changes to, the Commission's procedures and operations.

The American Pilots' Association has conducted an in-depth survey of its member groups regarding their use of carry aboard units. Results of that survey should be available in another week or two. The APA also expects to issue a "Best Practices" paper on pilot carry aboards in the same timeframe. The Best Practices project was begun a number of months before the COSCO BUSAN accident, but the accident has accelerated the project's schedule.

As more is learned about the details of the accident and its causes, there will be additional actions by various segments of the U.S. pilotage system—pilots, pilot associations, pilotage commissions, state legislatures—in response to the lessons of the COSCO BUSAN incident. The APA and its pilot members are also ready and willing to work with Congress and the Coast Guard to find ways to improve the national marine safety programs, upgrade the infrastructure associated with those programs, and generally enhance navigation safety.

In order to assist the Subcommittee in its review of COSCO BUSAN and the subject of preventing oil spills from vessel casualties, we are providing the following information about pilotage in the U.S. The information is particularly addressed to questions that have been raised by the COSCO BUSAN incident.

U.S. Pilotage—An Overview

Pilotage of international trade vessels in the United States is regulated by the individual states, each of which maintains a pilotage system that is suited to the particular needs and circumstances of its own waters. In 1789, the first Congress of the United States enacted a law giving the states the right to regulate pilotage in

their waters. That created the state pilotage system, which remains in effect today. Every foreign-flag vessel and every United States-flag vessel engaged in international trade moving in the waters of a state is required by the state to take a pilot licensed by the state.

Although each state has its own pilotage statute and regulatory system, there are substantial similarities in their systems. In all but one state, pilots are licensed and otherwise regulated by a pilot commission, which is a governmental entity that is part of a state agency or of a local municipality or port authority. Most pilot commissions have a mixed membership composed of representatives of ship operators, port interests, environmental groups, pilots, government agencies, and the public. The commission selects individuals for admission to a training program, oversees the training process, issues licenses, investigates accidents involving pilots or complaints filed against pilots, and oversees various aspects of the pilotage operation.

Each U.S.-flag coastwise vessel is required by Federal law to use a pilot holding a Federal license issued by the Coast Guard. Unlike the comprehensive state systems, Federal regulation is limited to licensing and disciplinary enforcement. The Federal license has much lower qualification requirements and standards (for example, no prior training as a pilot or continuing training is required) than a state license and is similar to a pilotage exemption certificate issued under systems in other parts of the world. Each state pilot also holds a Federal license, however. In this respect, the Federal license serves as a national minimum standard.

State and Federal License Jurisdiction

The states and the Coast Guard have reciprocal and mutually supportive roles in overseeing the professional activities of pilots. This is a carefully balanced system equally accommodating the need for comprehensive state pilotage regulation as well as the important Federal marine safety functions of the Coast Guard.

When a state pilot is working on a vessel subject to a state compulsory pilotage requirement (*i.e.,* a foreign flag vessel or a U.S.-flag vessel operating under a registry endorsement), the pilot is considered to be "working under the state license." As a consequence, the state pilotage authority (the applicable Pilot Commission) has the primary role in overseeing the pilot's performance. The state authority will investigate the pilot's performance and has a range or available remedial or disciplinary actions, including letters of warning, fines, remedial training, and suspension or revocation of the state license.

The Coast Guard also has several forms of disciplinary measures that it can take against a state pilot for actions by the pilot while working under the state license. For example, the Coast Guard can initiate a license suspension or revocation proceeding against the pilot's Federal license if the pilot committed an "act of incompetence relating to the operation of a vessel," 46 U.S.C. 7703(A)(4), even if that act occurred while working under the state license. Under Coast Guard regulations, "incompetence is the inability on the part of a person to perform required duties, whether due to professional deficiencies, physical disability, mental incapacity or any combination thereof." 46 CFR 5.31. This license authority in the case of incompetence, for example, is the basis for the demand that the Coast Guard made for the surrender of the COSCO BUSAN pilot's license. The Coast Guard also has a wide range of civil penalties that can be assessed for a variety of violations and actions, including the negligent operation of a vessel.

When a state pilot is working on a vessel subject to the Federal compulsory pilotage requirement (46 U.S.C. 8502 and 8503), the pilot is considered to be "working under the Federal license." In that case, the Coast Guard is primarily responsible for overseeing the pilot's performance and taking appropriate responsive action, including letters of warning, civil penalties, remedial training, and suspension or revocation of the Federal license. In most states, the state pilotage authority may also take action against the pilot and his state license.

There is one important limitation on the Coast Guard's authority to suspend or revoke a state pilot's Federal license. Under 46 U.S.C. § 7703, the Coast Guard can suspend or revoke a Federal license for negligence, misconduct or a violation of Coast Guard marine safety regulations only if the asserted offense occurred while the holder was acting under the authority of the Federal license. In the case of a state pilot, this Federal law bars the Coast Guard from proceeding against the Federal license of the pilot for asserted offenses of those types while working under the pilot's state license. This result is a necessary consequence of the system of state pilotage that has existed in this country for over 215 years.

Removing that limitation to permit the Coast Guard to proceed against a state pilot's Federal pilot license for all types of asserted offenses while acting under the authority of the pilot's state license would interfere with and undermine the state's regulatory role. Virtually every state pilot is required by state statute, commission

regulation, or association rules to have a Federal pilot license. The loss of a state pilot's Federal license, therefore, would effectively mean the loss of the pilot's ability to work as a state pilot. That would have the Coast Guard, not the state pilotage authority, exercise the ultimate control over state pilots.

The courts have recognized the critical role that this limitation on the Coast Guard license authority plays in preserving the state pilotage system and the destructive impact that removing the limitation would have. For example, in *Soriano* v. *United States,* 495 F.2d 681 (9th Cir. 1974), the U.S. Ninth Circuit Court of Appeals struck down a Coast Guard attempt to avoid the limitation and proceed against the Federal pilot license of a pilot licensed by the State of Washington. The Coast Guard tried to use its regulation, currently at 46 CFR § 5.57(a), providing that an individual is considered to be acting under the authority of a Federal license when the license is required by law or is a condition of employment (a Washington pilot is required by law to hold a Federal pilot license). The Court held that the regulation could not be used to obtain jurisdiction over a state pilot:

> The Commandant's condition of employment regulation leads to precisely this result: it affects the power of the states to regulate pilots of foreign-flag, merchant vessels in state waters. . . . [E]ven though it chooses to require a Federal pilot's license as a condition for the issuance of a state license, the state of Washington still might not wish to see its own pilots investigated and reprimanded for alleged misconduct while serving as compulsory pilots pursuant to state law.
>
> . . . The Commandant's regulation, which purports to place state pilots under Coast Guard discipline, infringes upon an area specifically reserved by Congress for 185 years for regulation by the states and acknowledged by the Supreme Court for more than 120 years to be a subject of peculiarly local concern. *See Cooley* v. *Board of Wardens of Port of Philadelphia,* 53 U.S. (12 How.) 299, 13 L.Ed 996 (1851). The regulation is void.

Id. at 684.

Another attempt to avoid the limitation of 46 U.S.C. § 7703 was struck down 2 years after the *Soriano* decision in *Dietze* v. *Siler,* 414 F. Supp. 1105 (E.D. La. 1976). Again, the importance of the limitation in preserving the state pilotage system was recognized. The *Dietze* court observed:

> Thus retained [in the predecessor of 46 U.S.C. § 7703] is the traditional right of each state to enforce the standards of state pilotage as to acts under state licenses, free from the possibility that the same acts will be subject to Federal investigation and the same pilots subject to sanction under Federal law.

Id. at 1113. In addition, the court described the limiting phrase, "acting under the authority of his license" in the predecessor of 46 U.S.C. § 7703 as the product of the "historical attempt by Congress to preserve the integrity of state regulation even while promoting public safety." *Supra* at 1112.

This rather limited limitation on the Coast Guard's license authority in the case of state pilots has no effect on marine safety. The Coast Guard retains considerable authority to take action against a state pilot, including the very important authority to take away the Federal license of a state pilot who is incompetent—physically, mentally or professionally. Moreover, as a practical matter, the possibility of an action against a state pilot's Federal license for negligence or misconduct would provide no additional incentive for doing a good job. There is no lack of severe consequences for a pilot who is involved in an accident or has a substandard performance during a piloting assignment. State disciplinary and license actions, Federal and state civil penalties, uninsurable damages claims in civil suits, criminal charges, and potentially crippling legal fees provide incentive enough.

The reality is that every time a pilot boards a ship, he or she knows that a moment's inattention, complacency, confusion, or a wrong decision could lead to a potentially catastrophic vessel casualty with hundreds of millions of dollars in damages and/or loss of life, the end of the pilot's career, and financial ruin for the pilot and the pilot's family. Coupled with the physical dangers involved in the job of piloting, no other occupation or profession presents such risks to its practitioners in the normal course of their activities.

Role of the Compulsory Pilot

In 1997, the Board of Trustees of the APA adopted the following as the official statement of the piloting profession on the role of the compulsory state pilot and the relationship between the pilot and the master and bridge crew of a vessel. This statement has guided the profession ever since:

Navigation of a vessel in U.S. pilotage waters is considered to be a shared responsibility between the pilot and the master/bridge crew. The compulsory state pilot directs the navigation of the vessel subject to the master's overall command of the vessel and the ultimate responsibility for its safety. The master has the right, and in fact the duty, to intervene or to displace the pilot in circumstances where the pilot is manifestly incompetent or incapacitated or the vessel is in immediate danger ("in extremis") due to the pilot's actions. With that limited exception, international law requires the master and/or the officer in charge of the watch to "cooperate closely with the pilot and maintain an accurate check on the ship's position and movement."

State-licensed pilots are expected to act in the public interest and to maintain a professional judgment that is independent of any desires that do not comport with the needs of maritime safety. In addition, licensing and regulatory authorities, state and Federal, require compulsory pilots to take all reasonable actions to prevent ships under their navigational control from engaging in unsafe operations. Because of these duties, a compulsory state pilot in the U.S. is not considered a member of the "bridge team." Nevertheless, a pilot is expected to develop and maintain a cooperative, mutually supportive working relationship with the master and the bridge crew in recognition of the respective responsibility of each for safe navigation.

Pilots and Advanced Navigation Technology: Carry Aboard Electronic Units

APA-member pilots are supporters of advanced navigation technology, extremely knowledgeable about it, and experienced practitioners in its use. Whether through the use of their own carry-aboard electronic navigation units or of equipment installed on ships' bridges, today's pilots understand and are familiar with the latest types of advanced navigation technology.

With their knowledge and training, and their experience seeing all different types of ships with all different types of navigation technology, pilots are in a unique position to assess the strengths and weaknesses and the benefits and dangers in modern navigation technology. Pilots bring a very practical approach to navigation technology, one firmly rooted in what actually happens on the bridge of ship and what they need in order to make the best navigation decisions. This then can be described as a dual attitude of pilots toward advanced navigation technology. They support and embrace technology but with a full awareness of the cautions that must surround its use.

There is one area in particular in which U.S. pilots have distinguished themselves in the practical application of advanced navigation technology. APA-member pilots in the U.S. have been the world leaders in the developing practice of pilot carry aboard units (also referred to as portable piloting units or PPUs). State pilots on the Bay and River Delaware are believed to have been the first pilots in the world to use carry aboard units over 25 years ago.

The APA has played a major role in supporting this program in the U.S. The association has sponsored and conducted research on the subject. It has also made recommendations on the selection and use of carry aboard units as well as on training in not only the operation of the units but also in their incorporation into piloting practices and effective Bridge Resource Management principles.

Today, approximately 55–60 percent of the 1200 pilots belonging to APA member pilot groups use some type of carry aboard unit. These pilots, often in conjunction with state pilotage authorities, have made the decision to use such units after considerable research and a determination that a particular type of unit could be of benefit as an additional source of navigation information under the conditions of piloting in their area.

In places where units are not used today, it is because the pilots there have made an informed professional judgment that such a practice would not be appropriate at this time with the types of units currently available. As the technology evolves, the quality of electronic data improves, and new units become commercially available, the local pilots may decide to use carry aboard units at some point in the future. There will probably remain some locations, however, where carry aboard units will never be appropriate. The units may not be necessary or provide any benefits under the local conditions and types of piloting required or they could even have a negative effect on safety.

Even where pilot groups use the units, including places where they have used the units for many years, the units are not used for every piloting assignment or task. For example, pilots might not use the units for shift jobs or other short movements, particularly in clear weather, or during certain operations, such as docking and undocking. The units may not be necessary or helpful for such assignments or may

act as an unsafe distraction during an operation that requires the pilot's full attention to other navigation demands. Also, units are not used in some locations where the hydrographic data or satellite signal on which the unit depends may be unreliable.

A large part of the success of the pilot carry aboard program in the U.S. can be attributed to the fact that it has been driven by the pilots themselves. The program has grown incrementally as pilots have developed units based on their intimate knowledge of the particular conditions and needs in their area—not on regulatory mandates or vendors' marketing claims. Pilots have also learned how best to use the units. For these reasons, the pilots are wary of potentially overwhelming governmental regulation, especially at the national level, which could seriously interfere with the growth and development of the program.

There are ways, however, for the Federal Government to support the piloting profession's carry aboard program. The Coast Guard, for example, should be provided with adequate resources to maintain the DGPS and AIS infrastructure on which most units depend for their raw data. The recent decision by the Administration to request funding for a fully deployed eLoran system is a welcome development. A robust eLoran would provide a valuable terrestrial backup source of position, navigation and timing (PNT) data on which AIS and pilot carry aboard units depend. In addition, NOAA should be provided with full funding for a national program of Physical Oceanographic Real Time Systems, which provide valuable tide, current and water level data. In several places, pilots are seeking to have PORTS data included in their unit displays. That development is threatened, however, by the persistent underfunding of the PORTS program.

Pilots and VTS

Pilots, as the principal users of VTS services and, for most vessels, the point of contact between the VTS and the vessel, value the information provided by VTS systems. That information is one of the resources that pilots use in maintaining situational awareness and making critical navigation decisions. The primary mission of the VTS, therefore, is to give pilots and other mariners the information that they feel is useful in making those decisions. Other functions and benefits, such as traffic management, traffic monitoring, interventions in navigation emergency situations, or other regulatory activities, are secondary, although important.

Except in emergency situations or hazardous conditions, navigation decisions must be made on the bridge of the ship by the master, pilot, and other mariners involved in directing the movement of the ship. Nevertheless, there may be specific circumstances where the current role of VTS and its range of interactions with a vessel could be expanded. The APA and its members are certainly willing to discuss with the Coast Guard ways in which the VTS and pilots could better work together to prevent vessel accidents, particularly in conditions such as fog, when own-ship and other-ship position information may be compromised.

It would be unrealistic, however, to think that vessels could ever, as a normal practice, be safely navigated by personnel in a VTS center. Information available from the current technology in VTS centers, particularly with respect to AIS indications of vessel location, is simply not accurate or reliable enough to justify attempts at directing a vessel's navigation. As result, interventions from a VTS center should be kept to a minimum and reserved for true emergencies and hazardous conditions where the normal risks of such action are outweighed by the exigencies of the situation.

Even if the quality and quantity of the equipment in a VTS were significantly improved over what is found today, there is no way that the virtual information available in the VTS center could provide situational awareness of all the forces that affect a vessel or must be considered in making correct navigational decisions. Simply, the view from a VTS center is much different from the view from the bridge of a vessel.

Watchstanders in Coast Guard VTS centers are not mariners and have little, if any, understanding of hydrodynamic or mechanical forces affecting a vessel, shiphandling techniques, or navigation practices. This is not meant as a criticism of VTS personnel—they are information providers, not vessel navigators. Even if the personnel were replaced or supplemented with experienced mariners who receive VTS training, it would still not be a safe practice to direct a vessel's navigation from a VTS center.

Thank you Mr. Chairman. I hope the information we have provided is helpful, and I would be pleased to answer any questions that the Subcommittee may have.

Senator LAUTENBERG. Thank you very much, Mr. Kirchner, we'll have a chance to ask some questions.

And now, if you would, Captain Page?

STATEMENT OF CAPTAIN EDWARD PAGE, EXECUTIVE DIRECTOR, MARINE EXCHANGE OF ALASKA

Captain PAGE. Yes, sir. Chairman Lautenberg and Ranking Member Smith, it's my honor to have the opportunity to appear before you today to tell you about how the Maritime Industry is using vessel tracking technology to help prevent oil spills, and more effectively respond to marine casualties and environmental emergencies.

My name is Ed Page, I'm Executive Director of the Marine Exchange of Alaska, previously served as Commissioned Officer in the United States Coast Guard.

For the last 40 years, I've been committed to maritime safety, and throughout that time, I've learned firsthand that vessel tracking technology is critically important in preventing oil spills and responding to other maritime emergencies.

Over the years, I've been involved in hundreds of maritime casualties that have resulted in loss of life, loss of property, disruption of trade, and environmental harm. My 3 years of involvement in the EXXON VALDEZ oil spill made me realize we needed better prevention and response capabilities, and the best tool was having the ability to track the locations of vessels.

Fifteen years ago, I was assigned as the Captain of the Port of Los Angeles, Long Beach. Upon my arrival, I was concerned I did not have the capabilities I needed, in order to do my job. I didn't know where our vessels were, and was told that a Coast Guard Vessel Traffic Service would not be available for 6 years.

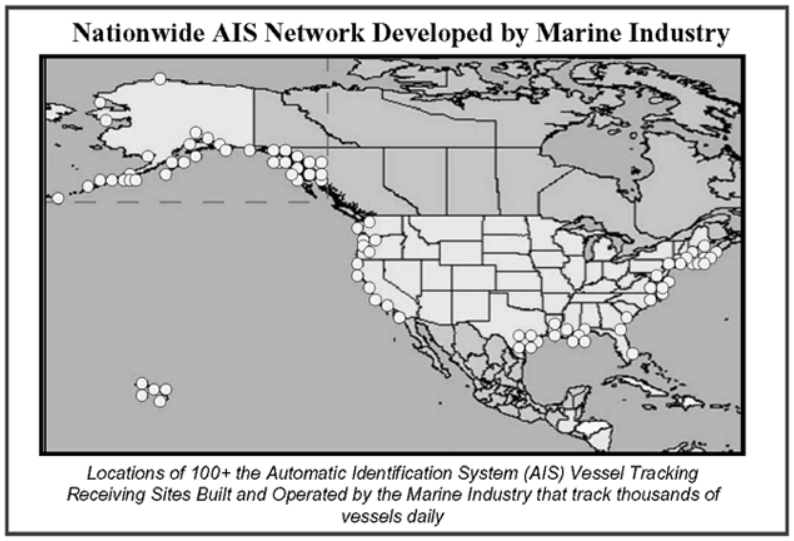
As a field commander, that was unacceptable. I therefore worked at the local marine exchange, the port community and the State of California to develop a Vessel Tracking System then. This Coast Guard-marine industry partnership that applied vessel tracking technology was—and continues to be—the reason why one of the largest ports in our Nation is also one of the safest.

Marine Exchange of Alaska is a non-profit maritime organization established to provide information, communications and services to help ensure safe, secure, efficient, and environmentally responsible maritime operations. It is one of the 13 Marine Exchanges around the United States that collectively make up the Maritime Information Services of North America—or MISNA—that has used satellite and other technologies to track vessels throughout the United States, and in some cases, around the world.

In 2004, the International Maritime Organization, or IMO, required vessels to be equipped with Automatic Identification Systems, or AIS, which is similar to airplane transponders. The Marine Exchanges that make up MISNA realized there was no national network of receivers to process the information broadcast by vessels that could aid safe and efficient maritime operations, so we therefore built and presently operate over 100 AIS receiving stations around the United States that are tracking thousands of vessels every day.

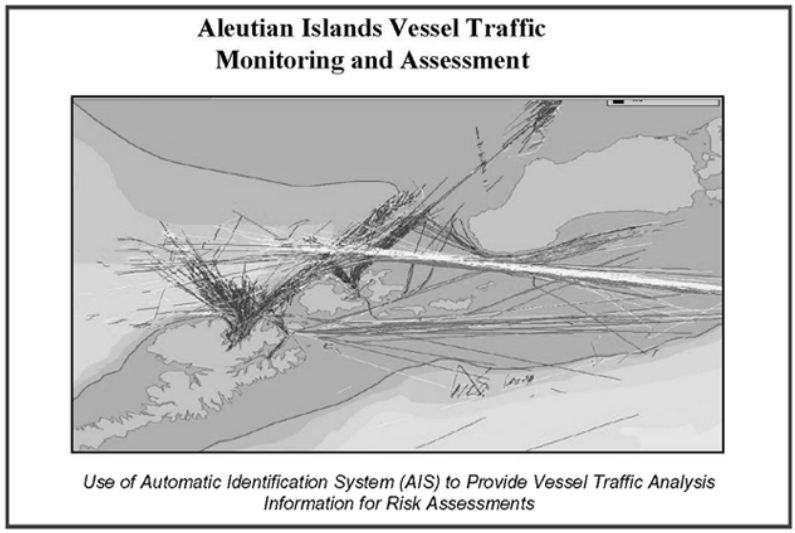
In fact, to make this easier to understand, this graphic to the right of me shows where the 100 some-odd sites that MISNA has developed over the last several years, are located. And, of course,

you can see your states are represented—New Jersey and Delaware Bay and New York, and of course, Oregon.

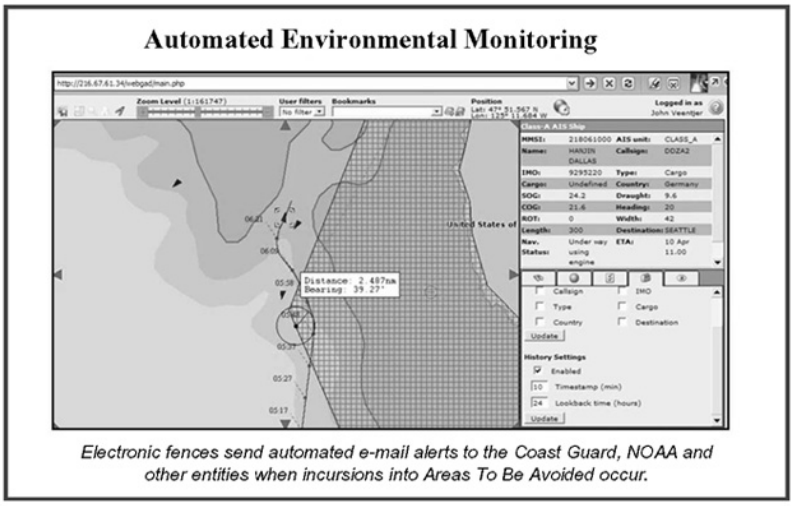


Our sites extend, as you can see, from Maine, to Hawaii, to Alaska, and even above the Arctic Circle—we're ubiquitous.

The next graphic will show you how we use this information, and how we can play back and examine vessel track lines to determine risk. This particular slide shows you the Unimak Pass and Aleutian Islands of Alaska and Bering Sea where vessels from around the world transit our waters. We can identify risk situations and manage that risk, and identify anomalies that would be of concern, and bring that to the attention of the United States Coast Guard.



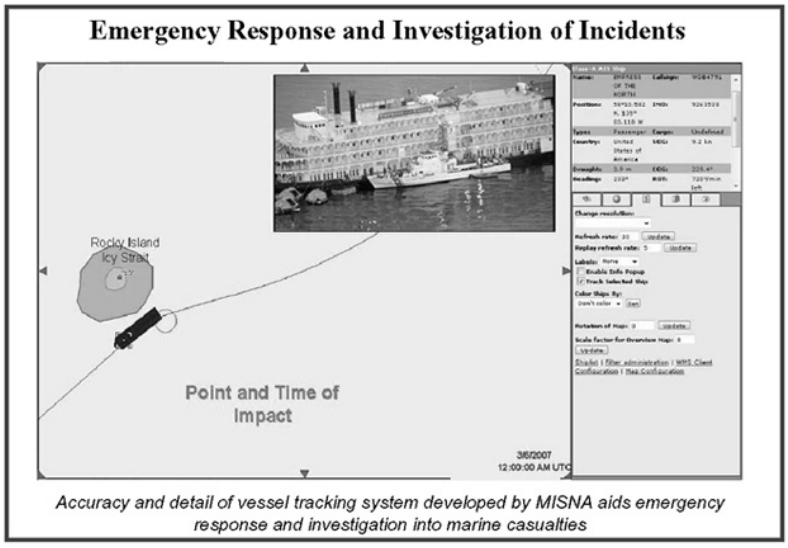
The next graphic shows how we use that technology to help ensure environmentally responsible and sound maritime operations. This graphic is actually off the coast of Washington, the "area to be avoided," the sensitive area, and we have put an electronic fence, if you will, using the AIS information, so if a vessel strays into a bad area, or wrong area, it automatically sends e-mail and phone messages off so we can correct the action.



We do similarly up in Alaska's Glacier Bay—when a vessel exceeds a speed limit in Glacier Bay, where we're trying to protect whales—it automatically sends an e-mail and message off to the Park Service, who can notify the vessel to slow down.

So, it's used in several different ways to protect environmental havoc that may be caused by vessels.

And the last slide shows an emergency response where a cruise ship ran aground this last summer in Alaska, and this information provided the Coast Guard the location of other vessels to carry out abandon ships operations, salvage, and oil spill response, thus mitigating the impacts of that incident that happened in Alaska.



Accuracy and detail of vessel tracking system developed by MISNA aids emergency response and investigation into marine casualties

Going back to my experiences as the Captain of the Port of Los Angeles, Long Beach, and my years in the Coast Guard, I want to reiterate that this public-private partnership model that fully employs vessel tracking technologies is the most expedient and effective way to prevent oil spills, and respond to other maritime emergencies.

I continue to urge the Coast Guard to fulfill their commitment to public-private partnerships, as articulated in the Coast Guard's "Strategy for Maritime Safety, Security and Stewardship," and embrace these capabilities developed by the maritime industry.

Thank you for the opportunity to appear before you today, and I stand by to answer your questions. Thank you.

[The prepared statement of Captain Page follows:]

PREPARED STATEMENT OF CAPTAIN EDWARD PAGE, EXECUTIVE DIRECTOR, MARINE EXCHANGE OF ALASKA

Chairman Lautenberg, Ranking Member Smith, and distinguished Subcommittee Members, it is my honor to have the opportunity to appear before you today to tell you about how the maritime industry is using vessel tracking technology to help prevent oil spills and more effectively respond to marine casualties and environmental emergencies. My name is Edward Page and I am the Executive Director of the Marine Exchange of Alaska, a non-profit maritime organization established to provide information, communications and services to aid safe, secure, efficient and environmentally responsible maritime operations.

The Marine Exchange of Alaska is a member of the Maritime Information Service of North America (MISNA), a national coalition of maritime information organizations that represents the commercial maritime community's shared commitment to proactively address the challenges faced by the maritime industry, the U.S. Coast Guard, their respective states, and other Federal and state agencies in a cooperative and cost effective manner. MISNA membership also includes maritime exchanges in New England, New York, Philadelphia, Baltimore, Virginia, Florida, New Orleans, Houston, Los Angeles-Long Beach, San Francisco and Seattle. Several of the people who oversee the operations of these maritime exchanges are former Coast Guard Captains of the Port, and all the people who run these maritime exchanges have extensive maritime experience, including as licensed master mariners and senior maritime industry executives. MISNA, whose membership is comprised of over

8,000 maritime organizations is recognized as an honest broker of maritime information and collectively serves as the "eyes and ears" of the maritime community.

As a representative of the maritime industry, and just like Congress, I want to identify the best ways to prevent oil spills and environmental harm and improve the effectiveness of oil spill responses when maritime accidents occur. I am confident that substantial improvements to current practice can be made quickly and at minimal cost by expanding the application of existing vessel tracking technologies that have been developed through joint efforts by the Coast Guard, the Marine Exchange of Alaska, and the entire marine industry.

Prior to establishing the Marine Exchange of Alaska 7 years ago, I served as an officer in the U.S. Coast Guard for 29 years. After serving as the Chief of the Coast Guard's Marine Environmental Protection branch for Alaska, I served as the Captain of the Port of Los Angeles-Long Beach. During this time, I responded to numerous search and rescue cases, maritime accidents and oil spills. My three-year involvement in the EXXON VALDEZ response in particular convinced me that considerable resources should be devoted to the prevention of oil spills, as the recovery of oil is a daunting and costly challenge that historically has limited effectiveness. The phrase, "an ounce of prevention is worth a pound of cure" has clearly proven to apply to oil spills.

During my time as Captain of the Port of Los Angeles-Long Beach, my strongest and most effective ally in preventing maritime accidents was the Marine Exchange of Los Angeles, along with the pilots, towing industry and vessel operators, and everyone who shared the same commitment and goal of ensuring safe and environmentally sound maritime operations. Our single most important and effective prevention resource was the vessel tracking information obtained from the expedited stand up of a vessel tracking system at the marine exchange. The information we obtained on vessels' movements was an eye opener; it provided me with important information that I did not have before we established the vessel tracking system, and it quickly led to the implementation of several risk mitigation measures including tug escort requirements in certain areas, relocation of pilot boarding areas, speed restrictions, changing of traffic lanes, special operating procedures for fog conditions, and many others. Cumulatively these changes turned one of the world's busiest ports into one of the world's safest.

I am proud to say that this joint Coast Guard/Marine Exchange LA/LB vessel traffic center that we established in 1994 is still going strong, and in fact was recognized by the National Academy of Sciences and by Congress as an industry/Coast Guard joint venture that should be replicated to save costs and increase effectiveness in ensuring safe, secure, efficient and environmentally responsible maritime operations.

The lesson I learned from my 40 years in the Coast Guard and working in the marine industry is that the most powerful tool for protecting our shores from oil spills and other environmental disasters is the information on vessels' locations provided by vessel tracking systems. Analysis of historical vessel tracks aid risk assessment and risk management, and the ability to see vessel positions in real-time aids prevention of incidents and emergency response. The Coast Guard calls this Maritime Domain Awareness (MDA), or the effective understanding of anything in the maritime environment that can affect the safety, security, economy, or environment of the United States.

The best way to achieve maritime domain awareness quickly and effectively is through strong public-private partnerships. This is recognized in *The U.S. Coast Guard Strategy for Maritime Safety, Security, and Stewardship* which states that "Government and private stakeholders must establish an unprecedented level of information sharing and intelligence integration" in order to enhance maritime domain awareness. This document also states that prevention efforts "work best when implemented through strong partnerships with the commercial and recreational users of the Nation's ports and waterways."

I have learned first hand that the marine industry is more effective than the government when it comes to providing vessel tracking capabilities, and is also best suited for ensuring that information obtained from their vessel tracking systems is effectively shared with those in the marine industry and government. I took these lessons with me when I retired from the Coast Guard to stand up the marine exchange for Alaska to help address the challenges of ensuring safe and environmentally sound operations in the largest and most daunting maritime region in the U.S.

When the International Maritime Organization (IMO) mandated in 2004 that all vessels be equipped with Automatic Identification Systems (AIS)—which are like airplane transponders—the Marine Exchange of Alaska, and other marine exchanges around the country realized that AIS would not improve maritime safety

unless there were also receiving stations on shore able to receive, process and disseminate the information. As a result, we constructed a network of AIS receiving stations around the country, and today marine exchanges operate a network of more than 100 AIS receiving sites on all three coasts and in Hawaii.

In Alaska, we went one step further, and along with our extensive network of maritime stakeholders, my staff of five people deployed a tracking system that uses both satellite (long range) and an Automatic Identification System (AIS) network of over 50 receiving sites extending from the Arctic, 1,500 miles west through the Aleutian Islands, and 1,200 miles south to Ketchikan. In Alaska, we have shared the information obtained from our tracking system with the State of Alaska, the Coast Guard and the marine industry. Our vessel tracking system has been used to assist vessels in distress, aid oil spill response operations by locating rescue and oil spill recovery vessels, and to compliment maritime security efforts. The Coast Guard, State of Alaska and the marine industry have all invested in the establishment and operation of this vessel tracking network which we plan to expand into areas of the Arctic, Chukchi, and Bering Seas that currently lack AIS coverage.

While the Coast Guard recognizes the importance of having this capability in Alaska and other regions of the US, their focus has been on establishing a National AIS network that is projected to be fully operational after 2014. We in the marine industry believe that utilization of the vessel tracking system currently operated by marine exchanges across the country provides a today solution that should be tapped right now to serve as a bridging and complementary solution until the Coast Guard's national AIS system is in place.

There are many examples of how the vessel tracking system established and operated by the Marine Exchange of Alaska has been used to aid maritime safety. For example:

- In order to minimize whale ship strikes, e-mail alerts are automatically transmitted in real-time to the U.S. Park Service when vessels are exceeding speed limits imposed in regions of Glacier Bay, Alaska where humpback whales are present;
- Erratic and high risk vessel operations in Alaska waters are graphically provided to the Coast Guard for investigation and follow-up;
- The historical tracklines and detailed information on vessels transiting Alaska waters and traveling to and from the Far East are provided to the Coast Guard for risk assessment;
- The locations of oil exploration vessels in the Arctic have been tracked in real time and shared with the Coast Guard and State agencies;
- The location of oil spill response vessels responding to the SELENDANG AYU oil spill in the Aleutian Islands was provided in real time with satellite transponders to the Coast Guard, State of Alaska agencies and commercial spill responders;
- The location of a grounded tanker SEABULK PRIDE in Cook Inlet Alaska and the locations and transits of response vessels was provided to the Coast Guard, State of Alaska agencies and the commercial tugs and response vessels; and
- The location of Good Samaritan vessels used to rescue passengers from the grounded cruise ship EMPRESS OF THE NORTH in Alaska was provided to the Coast Guard this past summer.

Similar capabilities are being provided around the U.S. by other maritime exchange organizations that are networked together by MISNA. Off the coast of Washington State, for instance, e-mail alerts are automatically transmitted when vessels enter a NOAA established "Area To Be Avoided."

In closing, I would like to reiterate that vessel tracking technologies are critical in protecting our shores from oil spills and other environmental disasters. I urge the Coast Guard to utilize the vessel tracking network developed by the marine industry and that is operational today to help prevent and respond to oil spills as well as aid the execution of the services' search and rescue and maritime security missions. Such efforts will help achieve our common goal of providing for safe, secure, efficient and environmentally sound maritime operations.

Thank you, Mr. Chairman and Members of the Subcommittee, for the opportunity to testify today on behalf of the Marine Exchange of Alaska and the Maritime Information Service of North America. I look forward to answering any questions you may have.

Senator LAUTENBERG. Thank you very, very much.
Dr. Tikka?

STATEMENT OF DR. KIRSI TIKKA, VICE PRESIDENT, GLOBAL TECHNOLOGY AND BUSINESS DEVELOPMENT, AMERICAN BUREAU OF SHIPPING (ABS)

Dr. TIKKA. Thank you. Thank you, Mr. Chairman, Members of the Committee, good afternoon.

My name is Dr. Kirsi Tikka, I am Vice President, Global Technology and Business Development, at the American Bureau of Shipping. I am appearing before you today, at your request, to provide you with factual information relating to the international requirements for the protective location of fuel oil tanks on ships.

ABS is a not-for-profit organization whose mission is to promote the security of life, property, and the natural environment, primarily through the development and verification of standards for the design, construction and operational maintenance of marine-related facilities.

The principal safety and environmental standards for the international shipping industry are established through the International Maritime Organization—IMO—the specialized agency of the United Nations. These include the Safety of Life at Sea, SOLAS, Convention, and the International Convention for the Prevention of Pollution of Ships, MARPOL.

This international approach is essential if commercial ships are to be able to trade across all oceans, and to all nations under a consistent set of statutory requirements.

Concerned about the potential for pollution from a ruptured fuel oil space, in 2006 IMO's Marine Environment Protection Committee—MEPC—adopted an amendment to the revised MARPOL Annex I, that includes the new Regulation 12A on oil fuel tank protection.

It applies to all new ships and major conversions with an aggregate oil fuel capacity of 600 cubic meters and above, for which either the contract for construction between shipbuilder and ship owner was placed on or after 1 August 2007, or the ship is delivered on or after 1 August 2010.

The initiative to develop this regulation started with a proposal by the Netherlands in the working group on oil tanker safety and environmental matters in December 2000. The Netherlands pointed out that large ships often carry large quantities of fuel oil. In the case of pollution incidents involving fuel oil, it would be appropriate to require a similar degree of protection against collision or grounding, as in oil tankers. Those affected by oil pollution will not accept any distinction as to the source of the oil.

The proposal was subject to several years of review, ultimately culminating in the new amendment, the objective of which is to reduce the frequency and volume of fuel oil spills, in the event of collision or grounding. The regulations, as adopted, apply to tanks greater than 30 cubic meters in capacity in which oil fuel is carried.

Designers and owners are given two alternative approaches to apply with the new requirements. In both approaches, the maximum individual tank capacity of 2,500 cubic meters is imposed.

It is expected that most owners of most ship types will opt for the first, prescriptive alternative, which protectively locates the

bunker tanks in board of, and above double-side and double-bottom spaces, respectively.

The second alternative is an accidental oil fuel out-flow performance standard. It is inherent in the new regulations that the fuel oil piping shall also be located in protected positions.

On the basis of the new designs that have been reviewed by ABS, it appears that the most common approach adopted by shipyards is to provide protected location in the engine room, in protected locations in topside tanks, and deep tanks between the transverse bulkheads, between the cargo holds.

Incorporating the required protectively located spaces will incur additional bulkheads, and associated structural costs. With the possible exception of container ships, cargo-carrying capacity is not expected to be materially affected.

I have provided, as handout to the Committee, some illustrations of the impact of this regulation, that I'm happy to explain, if needed.

Mr. Chairman, it has been my pleasure to address you today, I am more than happy to answer any relevant questions the Committee Members may have.

Thank you.

[The prepared statement of Dr. Tikka follows:]

PREPARED STATEMENT OF DR. KIRSI TIKKA, VICE PRESIDENT, GLOBAL TECHNOLOGY AND BUSINESS DEVELOPMENT, AMERICAN BUREAU OF SHIPPING (ABS)

Mr. Chairman, Members of the Committee, good afternoon.

My name is Dr. Kirsi Tikka. I am Vice President, Global Technology and Business Development of the American Bureau of Shipping or ABS, as we are more commonly called.

I am appearing before you today, at your request, to provide you with factual information relating to the international requirements, both statutory and those required by the self-regulating mechanism for international shipping known as classification, for the protective location of fuel oil tanks on ships.

ABS is a not-for-profit organization. Founded in 1862, it is one of the world's leading classification societies. The Mission of ABS is to serve the public interest as well as the needs of our clients by promoting the security of life, property and the natural environment primarily through the development and verification of standards for the design, construction and operational maintenance of marine-related facilities.

The U.S. Merchant Marine Act of 1920 officially recognized ABS as the classification body for U.S. Government owned vessels. We continue to act in this manner to this day.

International Maritime Standards

Technical standards for the international shipping industry are principally established through two complementary mechanisms. Paramount is the International Maritime Organization (IMO) the specialized agency of the United Nations charged with responsibility for the development and maintenance of a comprehensive regulatory framework for shipping. Its remit includes both safety and environmental concerns. It is an inter-governmental agency with 167 Member States, including the United States of America.

It has long been accepted that it is the role of government to determine the overall level of risk to which its citizens should be exposed from the conduct of international shipping.

Because of the international nature of shipping, this evaluation has been carried out within the IMO which has developed, and amended as necessary, the principal Conventions that apply to the industry, most notably the Safety of Life at Sea (SOLAS) Convention, the International Convention on Load Lines (ICLL) and the International Convention for the Prevention of Pollution from Ships (MARPOL), the provisions of which are then adopted into national law, as appropriate, by the individual member States. This international approach is essential if commercial ships

are to be able to trade across all oceans and to all nations under a consistent set of statutory requirements.

Complementing this regulatory approach is the self-regulatory practice of classification which can trace its history back more than 200 years. Growing out of a need of the marine underwriting community to have an impartial, independent mechanism for establishing detailed technical standards for the design, construction and maintenance of ships, classification societies such as ABS work closely with governments and industry to establish these standards, known as Rules.

In view of this, and responding to the request of this Committee for information with respect to the current regulatory requirements relating to the protective location of fuel oil tanks on commercial vessels, ABS is pleased to provide the following summary.

It should be noted that, for the sake of clarity, the following remarks address the standards for ships. The IMO requirements also consider specialized offshore units, such as some of those in operation in the U.S. waters of the Gulf of Mexico. Information relating to these units can be found in the text of the MARPOL amendment that appears as an appendix to this statement. ABS would be pleased to provide subsequent written information on this specialized application if the Committee deems it useful.

IMO Regulations

Concerned about the potential for pollution from a ruptured fuel oil tank, in 2006 IMO's Marine Environment Protection Committee (MEPC) adopted an amendment to the revised MARPOL Annex I (Prevention of Pollution by Oil) that includes a new regulation (12A) on fuel oil tank protection. (The full text of the amendment is attached to this statement as Appendix I.)

It applies to all new ships and major conversions with an aggregate fuel oil capacity of 600 m^3 (158,502 U.S. gallons[1] or about 570 tons of Marine Fuel Oil (MFO)) and above for which either the contract for construction between shipbuilder and shipowner was placed on or after 1 August 2007 or, if no contract, the keel is laid on or after 1 February 2008 or the ship is delivered on or after 1 August 2010.

The initiative to develop this regulation started with a proposal by the Netherlands in the Working Group on Oil Tanker Safety and Environmental Matters at a meeting of the IMO's Maritime Safety Committee (MSC), in December 2000; one of many safety and environmental initiatives taken up by IMO following the sinking of the oil tanker ERIKA off the coast of France in 1999.

The Netherlands pointed out that:

- large ships often carry quantities of fuel oil that exceed the cargo oil deadweight limits of MARPOL for the protection of cargo tanks in oil tankers.
- in the case of a pollution incident involving a ship carrying a large quantity of fuel oil in its fuel oil tanks it would therefore be appropriate to require a similar degree of protection against collision or grounding as in oil tankers.
- those affected by oil pollution will not accept any distinction as to the source of the oil pollution.

The Netherlands proposed double-side and double-bottom protection for fuel oil tanks in line with those required for cargo oil tanks of oil tankers. The proposal was subject to several years of investigation, review and debate, ultimately culminating in the new Amendment, the objective of which is to reduce the frequency and volume of fuel oil spills in the event of a collision or grounding.

The regulations, as adopted, apply to tanks greater than 30 m^3 (7,925.1 U.S. gallons) in capacity in which fuel oil is carried but excludes those tanks which would not contain fuel oil in normal operation such as overflow and sludge tanks.

Designers and owners are given two alternative approaches to comply with the new requirements. In both approaches a maximum individual tank capacity of 2,500 m^3 (660,425 U.S. gallons) is imposed.

It is expected that most owners of most ship types will opt for the first, prescriptive alternative which protectively locates the fuel oil tanks inboard of and above double side and double bottom spaces respectively. The double bottom height ranges, as a function of ship breadth, from a minimum of 0.76 meters to a maximum of 2.0 meters, in line with newly adopted SOLAS regulations. The double side width ranges, as a function of total fuel oil capacity, from a minimum of 1.0 meter to a maximum of 2.0 meters; with the exception of a minimum double side width of 0.76 meters for individual fuel oil tanks with a capacity of less than 500 cubic meters (132,085 U.S. gallons).

[1] 264.17 U.S. gallons/m^3

The second alternative is an accidental fuel oil outflow performance standard that allows the designer to locate fuel oil tanks based on a calculated "mean oil outflow parameter", in the event of a collision or grounding, as compared to a maximum allowable value. Specific procedures are given for the calculation of the oil outflow from each tank, due to side damage and bottom damage, based on its probability of being breached in the event of a collision or grounding.

This probabilistic approach also takes into account the density of the fuel oil, the location of each fuel oil tank relative to the side shell and bottom shell and the tank size. These are used to determine the mean oil outflow parameter for the ship. In the event that a double bottom or double side is fitted to reduce the mean oil outflow, the dimensions of those spaces are to be not less than those required under the prescriptive alternative.

Mr. Chairman, I realize that while the protective location under the first approach is easy to grasp, this very brief explanation of the probabilistic approach may sound complex. It was adopted by the IMO, after discussion with industry, in order to give designers the freedom to optimize fuel oil tank arrangements and to deal with the design constraints encountered in different ship types. The approach was developed by a Panel of the U.S.-based Society of Naval Architects and Marine Engineers (SNAME) based on, and in line with, the recently adopted accidental oil outflow performance requirements related to spills from cargo oil tanks in the event of collisions or groundings contained in MARPOL Annex I regulation 23.

It is inherent in the new regulations that the fuel oil piping shall also be located in protected positions. Where the piping must be placed closer to the ships bottom or side than specified, MARPOL Annex I regulation 12A requires the fitting of valves or similar closing devices within, or immediately adjacent to, the protected fuel tank. The valves must be capable of being operated remotely from either the bridge or machinery control position, they must fail in a closed position in the event of a remote control system failure and they are to be kept closed at sea except during the transfer of fuel oil.

On the basis of the new designs that have been reviewed by ABS, it appears that the most common approach adopted by shipyards for tanker designs is to provide protected locations in the engine room and in way of the pump room. For oil tankers, it is noted that in accordance with MARPOL Annex I, regulation 19.3, double bottom and double side tanks that are used to protect cargo oil tanks are not allowed to hold oil of any kind, including fuel oil, even if the probabilistic approach were to indicate otherwise.

To date, bulk carrier designers are largely choosing to locate fuel oil tanks in the engine room, in protected locations in topside tanks and in protected spaces between the engine room and the aftermost cargo hold.

LNG carrier designers are tending toward providing protected space in the engine room or in protected locations between the collision bulkhead and the cofferdam bulkhead of the No. 1 cargo tank.

Large containerships pose a particular challenge given the very large quantity of fuel oil that must be carried to maintain the preferred high service speeds. The most common arrangement to date is to use protectively located deep tanks between the transverse bulkheads between the cargo holds. An alternative arrangement is to provide fuel oil tanks above the double bottom in one or more cargo holds which, however, reduces cargo capacity.

For all ship types, incorporating the required protectively located spaces will incur additional bulkheads and associated structural costs. With the possible exception of containerships, cargo carrying capacity is not expected to be materially affected.

ABS Standards

To encourage owners to consider incorporating protectively located fuel oil tanks into new ship designs, ABS introduced the optional class notation POT (Protection of Fuel and Lubricating Oil Tanks) effective 1 July 2003, more than 4 years in advance of the implementation date of the new MARPOL regulation. ABS has been gratified that several shipowners have chosen to adopt the ABS optional notation in advance of the regulatory requirements taking effect.

Mr. Chairman, it has been my pleasure to address you today. I am more than happy to answer any relevant questions the Committee members may have.

Thank you.

APPENDIX

ANNEX 2

Resolution MEPC.141(54)

Adopted on 24 March 2006

Amendments to the Annex of the Protocol of 1978 Relating to The International Convention for the Prevention of Pollution from Ships, 1973

(Amendments to regulation 1, addition to regulation 12A, consequential amendments to the IOPP Certificate and amendments to regulation 21 of the revised Annex I of MARPOL 73/78)

The Marine Environment Protection Committee,

RECALLING article 38(a) of the Convention on the International Maritime Organization concerning the functions of the Marine Environment Protection Committee (the Committee) conferred upon it by international conventions for the prevention and control of marine pollution,

NOTING article 16 of the International Convention for the Prevention of Pollution from Ships, 1973 (hereinafter referred to as the "1973 Convention") and article VI of the Protocol of 1978 relating to the International Convention for the Prevention of Pollution from Ships, 1973 (hereinafter referred to as the "1978 Protocol") which together specify the amendment procedure of the 1978 Protocol and confer upon the appropriate body of the Organization the function of considering and adopting amendments to the 1973 Convention, as modified by the 1978 Protocol (MARPOL 73/78),

NOTING ALSO that the revised Annex I to MARPOL 73/78 was adopted by resolution MEPC.117(52) and is expected to enter into force on 1 January 2007,

HAVING CONSIDERED proposed amendments to regulation 1, proposed new regulation 12A, consequential amendments to the Supplement (Forms A and B) of the IOPP Certificate, and proposed amendments to regulation 21 of the revised Annex I to MARPOL 73/78,

1. ADOPTS, in accordance with article 16(2)(d) of the 1973 Convention, the amendments to the revised Annex I of MARPOL 73/78, the text of which is set out at Annex to the present resolution;

2. DETERMINES, in accordance with article 16(2)(f)(iii) of the 1973 Convention, that the amendments shall be deemed to have been accepted on 1 February 2007, unless prior to that date, not less than one-third of the Parties or Parties the combined merchant fleets of which constitute not less than 50 per cent of the gross tonnage of the world's merchant fleet, have communicated to the Organization their objection to the amendments;

3. INVITES the Parties to note that, in accordance with article 16(2)(g)(ii) of the 1973 Convention, the said amendments shall enter into force on 1 August 2007 upon their acceptance in accordance with paragraph 2 above;

4. REQUESTS the Secretary-General, in conformity with article 16(2)(e) of the 1973 Convention, to transmit to all Parties to MARPOL 73/78 certified copies of the present resolution and the text of the amendments contained in the Annex; and

5. REQUESTS FURTHER the Secretary-General to transmit to the Members of the Organization which are not Parties to MARPOL 73/78 copies of the present resolution and its Annex.

ANNEX

Amendments to the Revised MARPOL Annex I

1 Addition of paragraph 28.9 to regulation 1

The following new paragraph 28.9 is added after the existing paragraph 28.8 of regulation 1:

"28.9 ship delivered on or after 1 August 2010 means a ship:

.1 for which the building contract is placed on or after 1 August 2007; or

.2 in the absence of a building contract, the keels of which are laid or which are at a similar stage of construction on or after 1 February 2008; or

.3 the delivery of which is on or after 1 August 2010; or

.4 which have undergone a major conversion:

.1 for which the contract is placed after 1 August 2007; or

.2 in the absence of contract, the construction work of which is begun after 1 February 2008; or

.3 which is completed after 1 August 2010."

2 Addition of new regulation 12A on oil fuel tank protection

The following new regulation 12A is added after the existing regulation 12:

"Regulation 12A—Oil fuel tank protection

1 This regulation shall apply to all ships with an aggregate oil fuel capacity of 600 m^3 and above which are delivered on or after 1 August 2010, as defined in regulation 1.28.9 of this Annex.

2 The application of this regulation in determining the location of tanks used to carry oil fuel does not govern over the provisions of regulation 19 of this Annex.

3 For the purpose of this regulation, the following definitions shall apply:

.1 "Oil fuel" means any oil used as fuel oil in connection with the propulsion and auxiliary machinery of the ship in which such oil is carried.

.2 "Load line draught (d_S)" is the vertical distance, in metres, from the moulded baseline at mid-length to the waterline corresponding to the summer freeboard draught to be assigned to the ship.

.3 "Light ship draught" is the moulded draught amidships corresponding to the lightweight.

.4 "Partial load line draught (d_P)" is the light ship draught plus 60 percent of the difference between the light ship draught and the load line draught d_S. The partial load line draught (d_p) shall be measured in metres.

.5 "Waterline (d_B)" is the vertical distance, in metres, from the moulded baseline at mid-length to the waterline corresponding to 30 percent of the depth D_S.

.6 "Breadth (B_S)" is the greatest moulded breadth of the ship, in metres, at or below the deepest load line draught (d_S).

.7 "Breadth (B_B)" is the greatest moulded breadth of the ship, in metres, at or below the waterline (d_B).

.8 "Depth (D_S)" is the moulded depth, in metres, measured at mid-length to the upper deck at side. For the purpose of the application, "upper deck" means the highest deck to which the watertight transverse bulkheads except aft peak bulkheads extend.

.9 "Length (L)" means 96 percent of the total length on a waterline at 85 percent of the least moulded depth measured from the top of the keel, or the length from the foreside of the stem to the axis of the rudder stock on that waterline, if that be greater. In ships designed with a rake of keel the waterline on which this length is measured shall be parallel to the designed waterline. The length (L) shall be measured in metres.

.10 "Breadth (B)" means the maximum breadth of the ship, in metres, measured amidships to the moulded line of the frame in a ship with a metal shell and to the outer surface of the hull in a ship with a shell of any other material.

.11 "Oil fuel tank" means a tank in which oil fuel is carried, but excludes those tanks which would not contain oil fuel in normal operation, such as overflow tanks.

.12 "Small oil fuel tank" is an oil fuel tank with a maximum individual capacity not greater than 30 m^3.

.13 "C" is the ship's total volume of oil fuel, including that of the small oil fuel tanks, in m^3, at 98 percent tank filling.

.14 "Oil fuel capacity" means the volume of a tank in m^3, at 98 percent filling.

4 The provisions of this regulation shall apply to all oil fuel tanks except small oil fuel tanks, as defined in 3.12, provided that the aggregate capacity of such excluded tanks is not greater than 600 m^3.

5 Individual oil fuel tanks shall not have a capacity of over 2,500 m^3.

6 For ships, other than self-elevating drilling units, having an aggregate oil fuel capacity of 600 m^3 and above, oil fuel tanks shall be located above the moulded line of the bottom shell plating nowhere less than the distance h as specified below:

h = B/20 m or,

h = 2.0 m, whichever is the lesser.

The minimum value of h = 0.76 m

In the turn of the bilge area and at locations without a clearly defined turn of the bilge, the oil fuel tank boundary line shall run parallel to the line of the midship flat bottom as shown in *Figure 1.*

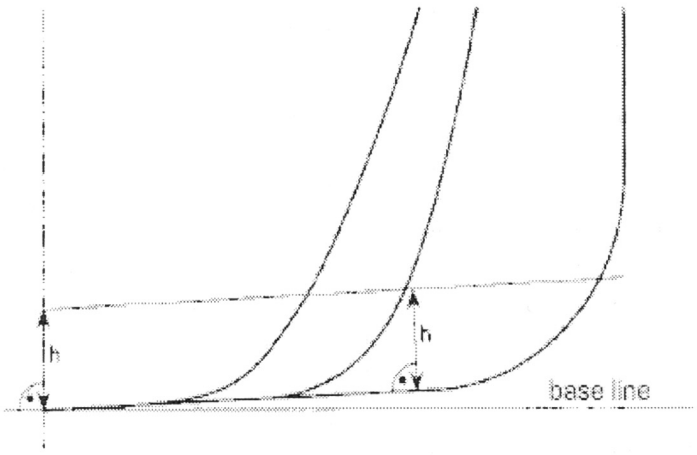


Figure 1—Oil fuel tank boundary lines for the purpose of paragraph 6

7 For ships having an aggregate oil fuel capacity of 600 m^3 or more but less than 5,000 m^3, oil fuel tanks shall be located inboard of the moulded line of the side shell plating, nowhere less than the distance w which, as shown in *Figure 2,* is measured at any cross-section at right angles to the side shell, as specified below:

w = 0.4 + 2.4 C/20,000 m

The minimum value of w = 1.0 m, however for individual tanks with an oil fuel capacity of less than 500 m^3 the minimum value is 0.76 m.

8 For ships having an aggregate oil fuel capacity of 5,000 m^3 and over, oil fuel tanks shall be located inboard of the moulded line of the side shell plating, nowhere less than the distance w which, as shown in *Figure 2,* is measured at any cross-section at right angles to the side shell, as specified below:

w = 0.5 + C/20,000 m or

w = 2.0 m, whichever is the lesser.

The minimum value of w = 1.0 m

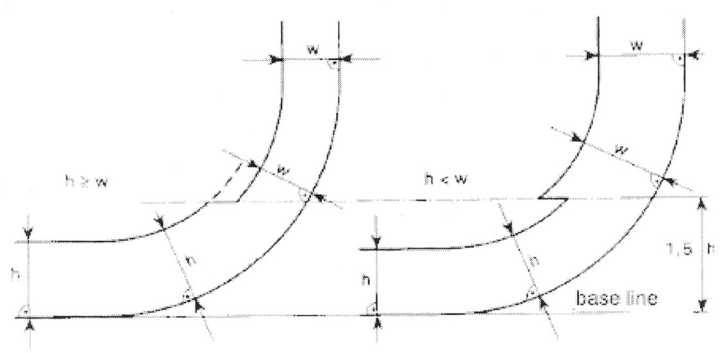


Figure 2—Oil fuel tank boundary lines for the purpose of paragraphs 7 and 8

9 Lines of oil fuel piping located at a distance from the ship's bottom of less than h, as defined in paragraph 6, or from the ship's side less than w, as defined in paragraphs 7 and 8 shall be fitted with valves or similar closing devices within or immediately adjacent to the oil fuel tank. These valves shall be capable of being brought into operation from a readily accessible enclosed space the location of which is accessible from the navigation bridge or propulsion machinery control position without traversing exposed freeboard or superstructure decks. The valves shall close in case of remote control system failure (fail in a closed position) and shall be kept closed at sea at any time when the tank contains oil fuel except that they may be opened during oil fuel transfer operations.

10 Suction wells in oil fuel tanks may protrude into the double bottom below the boundary line defined by the distance h provided that such wells are as small as practicable and the distance between the well bottom and the bottom shell plating is not less than 0.5 h.

11 Alternatively to paragraphs 6 and either 7 or 8, ships shall comply with the accidental oil fuel outflow performance standard specified below:

.1 The level of protection against oil fuel pollution in the event of collision or grounding shall be assessed on the basis of the mean oil outflow parameter as follows:

$O_M < 0.0157–1.14E–6 \cdot C$ $\quad 600\ m^3 \leq C < 5{,}000\ m^3$

$O_M < 0.010$ $\quad C \geq 5{,}000\ m^3$

Where O_M = mean oil outflow parameter;
C = total oil fuel volume.

.2 The following general assumption shall apply when calculating the mean oil outflow parameter:

.1 the ship shall be assumed loaded to the partial load line draught d_P without trim or heel;

.2 all oil fuel tanks shall be assumed loaded to 98 percent of their volumetric capacity;

.3 the nominal density of the oil fuel (ρ_n) shall generally be taken as 1,000 kg/m^3. If the density of the oil fuel is specifically restricted to a lesser value, the lesser value may be applied; and

.4 for the purpose of these outflow calculations, the permeability of each oil fuel tank shall be taken as 0.99, unless proven otherwise.

.3 The following assumptions shall be used when combining the oil outflow parameters:

.1 The mean oil outflow shall be calculated independently for side damage and for bottom damage and then combined into a non-dimensional oil outflow parameter OM, as follows:

$O_M = (0.4\ O_{MS} + 0.6\ O_{MB})/C$

where:

O_{MS} = mean outflow for side damage, in m^3
O_{MB} = mean outflow for bottom damage, in m^3
C = total oil fuel volume.

.2 For bottom damage, independent calculations for mean outflow shall be done for 0 m and 2.5 m tide conditions, and then combined as follows:

$O_{MB} = 0.7\ O_{MB(0)} + 0.3\ O_{MB(2.5)}$

where:

$O_{MB(0)}$ = mean outflow for 0 m tide condition, and
$O_{MB(2.5)}$ = mean outflow for minus 2.5 m tide condition, in m^3.

.4 The mean outflow for side damage OMS shall be calculated as follows:

$$O_{MS} = \sum_{1}^{n} P_{S(i)}\, O_{S(i)} \quad [m^3]$$

where:

i	=	represents each oil fuel tank under consideration;
n	=	total number of oil fuel tanks;
$P_{S(i)}$	=	the probability of penetrating oil fuel tank i from side damage, calculated in accordance with paragraph 11.6 of this regulation;
$O_{S(i)}$	=	the outflow, in m^3, from side damage to oil fuel tank i, which is assumed equal to the total volume in oil fuel tank i at 98 percent filling.

.5 The mean outflow for bottom damage shall be calculated for each tidal condition as follows:

.1

$$O_{MB(0)} = \sum_{1}^{n} P_{B(i)} O_{B(i)} C_{DB(i)} \ [m^3]$$

where:

i	=	represents each oil fuel tank under consideration;
n	=	total number of oil fuel tanks;
$P_{B(i)}$	=	the probability of penetrating oil fuel tank i from bottom damage, calculated in accordance with paragraph 11.7 of this regulation;
$O_{B(i)}$	=	the outflow from oil fuel tank i, in m^3, calculated in accordance with paragraph 11. 5.3 of this regulation; and
$C_{DB(i)}$	=	factor to account for oil capture as defined in paragraph 11.5.4.

.2

$$O_{MB(2.5)} = \sum_{1}^{n} P_{B(i)} O_{B(i)} C_{DB(i)} \qquad [m^3]$$

where:

i, n, $P_{B(i)}$ and $C_{DB(i)}$	=	as defined in subparagraph .1 above
$O_{B(i)}$	=	the outflow from oil fuel tank i, in m^3, after tidal change.

.3 The oil outflow $O_{B(i)}$ for each oil fuel tank shall be calculated based on pressure balance principles, in accordance with the following assumptions:

.1 The ship shall be assumed stranded with zero trim and heel, with the stranded draught prior to tidal change equal to the partial load line draught d_P.

.2 The oil fuel level after damage shall be calculated as follows:

$h_F = \{(d_P + t_C - Z_l)(\rho_S)\}/\rho_n$

where:

h_F	=	the height of the oil fuel surface above Z_l, in m;
t_C	=	the tidal change, in m. Reductions in tide shall be expressed as negative values;
Z_l	=	the height of the lowest point in the oil fuel tank above the baseline, in m;
ρ_S	=	density of seawater, to be taken as 1,025 kg/m^3; and,
ρ_n	=	nominal density of the oil fuel, as defined in 11.2.3.

.3 The oil outflow $O_{B(i)}$ for any tank bounding the bottom shell plating shall be taken not less than the following formula, but no more than the tank capacity:

$O_{B(i)} = H_W \cdot A$

where:

H_W = 1.0 m, when $Y_B = 0$
H_W = $B_B/50$ but not greater than 0.4 m, when Y_B is greater than $B_B/5$ or 11.5 m, whichever is less

"H_W" is to be measured upwards from the midship flat bottom line. In the turn of the bilge area and at locations without a clearly defined turn of the bilge, H_W is to be measured from a line parallel to the midship flat bottom, as shown for distance "h" in *Figure 1*.

For Y_B values outboard $B_B/5$ or 11.5 m, whichever is less, H_W is to be linearly interpolated.

YB = the minimum value of Y_B over the length of the oil fuel tank, where at any given location, Y_B is the transverse distance between the side shell at waterline d_B and the tank at or below waterline d_B.
A = the maximum horizontal projected area of the oil fuel tank up to the level of H_W from the bottom of the tank.

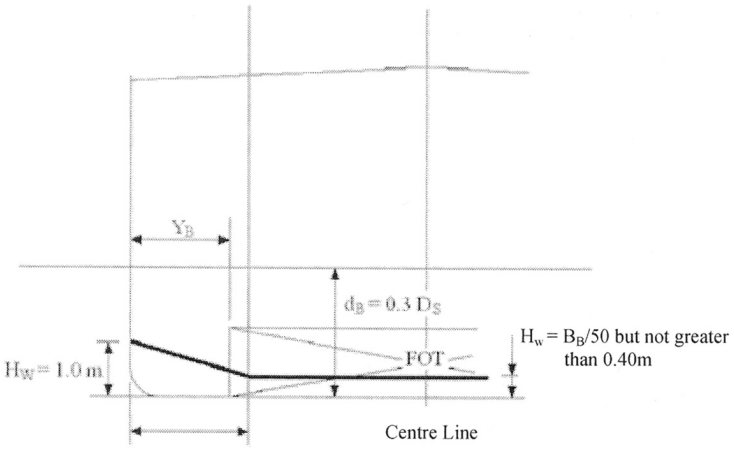


Figure 3—Dimensions for calculation of the minimum oil outflow for the purpose of subparagraph 11.5.3.3

.4 In the case of bottom damage, a portion from the outflow from an oil fuel tank may be captured by non-oil compartments. This effect is approximated by application of the factor $C_{DB(i)}$ for each tank, which shall be taken as follows:

$C_{DB(i)}$ = 0.6 for oil fuel tanks bounded from below by non-oil compartments;
$C_{DB(i)}$ = 1 otherwise.

.6 The probability P_S of breaching a compartment from side damage shall be calculated as follows:

.1 $P_S = P_{SL} \cdot P_{SV} \cdot P_{ST}$

where:

P_{SL} = $(1 - P_{Sf} - P_{Sa})$ = probability the damage will extend into the longitudinal zone bounded by X_a and X_f;

P_{SV} = $(1 - P_{Su} - P_{Sl})$ = probability the damage will extend into the vertical zone bounded by Z_l and Z_u;

P_{ST} = $(1 - P_{Sy})$ = probability the damage will extend transversely beyond the boundary defined by y;

.2 P_{Sa}, P_{Sf}, P_{Su} and P_{Sl} shall be determined by linear interpolation from the table of probabilities for side damage provided in 11.6.3, and P_{Sy} shall be calculated from the formulas provided in 11.6.3, where:

P_{Sa} = the probability the damage will lie entirely aft of location X_a/L;

P_{Sf} = the probability the damage will lie entirely forward of location X_f/L;

P_{Sl} = probability the damage will lie entirely below the tank;

P_{Su} = probability the damage will lie entirely above the tank; and

P_{Sy} = probability the damage will lie entirely outboard the tank.

Compartment boundaries X_a, X_f, Z_l, Z_u and y shall be developed as follows:

X_a = the longitudinal distance from aft terminal of L to the aft most point on the compartment being considered, in m;

X_f = the longitudinal distance from aft terminal of L to the foremost point on the compartment being considered, in m;

Z_l = the vertical distance from the moulded baseline to the lowest point on the compartment being considered, in m. Where Z_l is greater than D_S, Z_l shall be taken as D_S;

Z_u = the vertical distance from the moulded baseline to the highest point on the compartment being considered, in m. Where Z_u is greater than D_S, Z_u shall be taken as D_S; and,

y = the minimum horizontal distance measured at right angles to the centreline between the compartment under consideration and the side shell, in m.[1]

In way of the turn of the bilge, y need not to be considered below a distance h above baseline, where h is lesser of B/10, 3 m or the top of the tank.

[1] For symmetrical tank arrangements, damages are considered for one side of the ship only, in which case all "y" dimensions are to be measured from that side. For asymmetrical arrangements reference is made to the Explanatory Notes on matters related to the accidental oil outflow performance, adopted by the Organization by resolution MEPC.122(52).

.3 Table of Probabilities for side damage

X_a/L	P_{Sa}	X_f/L	P_{Sf}	Z_l/D_S	P_{Sl}	Z_u/D_S	P_{Su}
0,00	0,000	0,00	0,967	0,00	0,000	0,00	0,968
0,05	0,023	0,05	0,917	0,05	0,000	0,05	0,952
0,10	0,068	0,10	0,867	0,10	0,001	0,10	0,931
0,15	0,117	0,15	0,817	0,15	0,003	0,15	0,905
0,20	0,167	0,20	0,767	0,20	0,007	0,20	0,873
0,25	0,217	0,25	0,717	0,25	0,013	0,25	0,836
0,30	0,267	0,30	0,667	0,30	0,021	0,30	0,789
0,35	0,317	0,35	0,617	0,35	0,034	0,35	0,733
0,40	0,367	0,40	0,567	0,40	0,055	0,40	0,670
0,45	0,417	0,45	0,517	0,45	0,085	0,45	0,599
0,50	0,467	0,50	0,467	0,50	0,123	0,50	0,525
0,55	0,517	0,55	0,417	0,55	0,172	0,55	0,452
0,60	0,567	0,60	0,367	0,60	0,226	0,60	0,383
0,65	0,617	0,65	0,317	0,65	0,285	0,65	0,317
0,70	0,667	0,70	0,267	0,70	0,347	0,70	0,255
0,75	0,717	0,75	0,217	0,75	0,413	0,75	0,197
0,80	0,767	0,80	0,167	0,80	0,482	0,80	0,143
0,85	0,817	0,85	0,117	0,85	0,553	0,85	0,092
0,90	0,867	0,90	0,068	0,90	0,626	0,90	0,046
0,95	0,917	0,95	0,023	0,95	0,700	0,95	0,013
1,00	0,967	1,00	0,000	1,00	0,775	1,00	0,000

P_{Sy} shall be calculated as follows:

$P_{Sy} = (24.96 - 199.6\ y/B_S)\ (y/B_S)$ for $y/B_S \leq 0.05$

$P_{Sy} = 0.749 + \{5 - 44.4\ (y/B_S - 0.05)\}\ \{(y/B_S) - 0.05\}$ for $0.05 < y/B_S < 0.1$

$P_{Sy} = 0.888 + 0.56\ (y/B_S - 0.1)$ for $y/B_S \leq 0.1$

P_{Sy} is not to be taken greater than 1.

.7 The probability P_B of breaching a compartment from bottom damage shall be calculated as follows:

.1 $P_B = P_{BL} \cdot P_{BT} \cdot P_{BV}$

where:

P_{BL} = $(1 - P_{Bf} - P_{Ba})$ = probability the damage will extend into the longitudinal zone bounded by X_a and X_f;

P_{BT} = $(1 - P_{Bp} - P_{Bs})$ = probability the damage will extend into transverse zone bounded by Y_p and Y_s; and

P_{BV} = $(1 - P_{Bz})$ = probability the damage will extend vertically above the boundary defined by z;

.2 P_{Ba}, P_{Bf}, P_{Bp} and P_{Bs} shall be determined by linear interpolation from the table of probabilities for bottom damage provided in 11.7.3, and PBz shall be calculated from the formulas provided in 11.7.3, where:

P_{Ba} = the probability the damage will lie entirely aft of location X_a/L;

P_{Bf} = the probability the damage will lie entirely forward of location X_f/L;

P_{Bp} = probability the damage will lie entirely to port of the tank;

P_{Bs} = probability the damage will lie entirely to starboard the tank; and

P_{Bz} = probability the damage will lie entirely below the tank.

Compartment boundaries X_a, X_f, Y_p, Y_S and z shall be developed as follows:

X_a and X_f as defined in 11.6.2;

Y_p = the transverse distance from the port-most point on the compartment located at or below the waterline d_B, to a vertical plane located $B_B/2$ to starboard of the ship's centreline;

Y_S = the transverse distance from the starboard-most point on the compartment located at or below the waterline d_B, to a vertical plane located $B_B/2$ to starboard of the ship's centreline; and

z = the minimum value of z over the length of the compartment, where, at any given longitudinal location, z is the vertical distance from the lower point of the bottom shell at that longitudinal location to the lower point of the compartment at that longitudinal location.

.3 Table of probabilities for bottom damage

X_a/L	P_{Ba}	X_f/L	P_{Bf}	Y_p/B_B	P_{Bp}	Y_s/B_B	P_{Bs}
0,00	0,000	0,00	0,969	0,00	0,844	0,00	0,000
0,05	0,002	0,05	0,953	0,05	0,794	0,05	0,009
0,10	0,008	0,10	0,936	0,10	0,744	0,10	0,032
0,15	0,017	0,15	0,916	0,15	0,694	0,15	0,063
0,20	0,029	0,20	0,894	0,20	0,644	0,20	0,097
0,25	0,042	0,25	0,870	0,25	0,594	0,25	0,133
0,30	0,058	0,30	0,842	0,30	0,544	0,30	0,171
0,35	0,076	0,35	0,810	0,35	0,494	0,35	0,211
0,40	0,096	0,40	0,775	0,40	0,444	0,40	0,253
0,45	0,119	0,45	0,734	0,45	0,394	0,45	0,297
0,50	0,143	0,50	0,687	0,50	0,344	0,50	0,344
0,55	0,171	0,55	0,630	0,55	0,297	0,55	0,394
0,60	0,203	0,60	0,563	0,60	0,253	0,60	0,444
0,65	0,242	0,65	0,489	0,65	0,211	0,65	0,494
0,70	0,289	0,70	0,413	0,70	0,171	0,70	0,544
0,75	0,344	0,75	0,333	0,75	0,133	0,75	0,594
0,80	0,409	0,80	0,252	0,80	0,097	0,80	0,644
0,85	0,482	0,85	0,170	0,85	0,063	0,85	0,694
0,90	0,565	0,90	0,089	0,90	0,032	0,90	0,744
0,95	0,658	0,95	0,026	0,95	0,009	0,95	0,794
1,00	0,761	1,00	0,000	1,00	0,000	1,00	0,844

P_{Bz} shall be calculated as follows:

$P_{Bz} = (14.5 - 67\ z/D_S)\ (z/D_S)$ for $z/D_S \leq 0.1$

$P_{Bz} = 0.78 + 1.1\ \{(z/D_S - 0.1)\}$ for $z/D_S > 0.1$

P_{Bz} is not to be taken greater than 1.

.8 For the purpose of maintenance and inspection, any oil fuel tanks that do not border the outer shell plating shall be located no closer to the bottom shell plating than the minimum value of *h* in paragraph 6 and no closer to the side shell plating than the applicable minimum value of w in paragraph 7 or 8.

12 In approving the design and construction of ships to be built in accordance with this regulation, Administrations shall have due regard to the general safety aspects, including the need for maintenance and inspection of wing and double bottom tanks or spaces."

3 Consequential amendments to the Supplement of the IOPP Certificate (Forms A and B)

The following new paragraph 2A is added to the Supplement of the IOPP Certificate (Forms A and B):

"2A.1 The ship is required to be constructed according to regulation 12A and complies with the requirements of:

paragraphs 6 and either 7 or 8 (double hull construction) ☐

paragraph 11 (accidental oil fuel outflow performance). ☐

2A.2 The ship is not required to comply with the requirements of regulation 12A. ☐"

4 Amendments to regulation 21

The text of existing paragraph 2.2 of regulation 21 on Prevention of oil pollution from oil tankers carrying heavy grade oil as cargo is replaced by the following:

"oils, other than crude oils, having either a density at 15 °C higher than 900 kg/m^3 or a kinematic viscosity at 50 °C higher than 180 mm^2/s; or"

Senator LAUTENBERG. Thank you very much. Thank all of you.

I want to ask Mr. Kirchner—what's the process of becoming a State pilot?

Mr. KIRCHNER. Each state has its own system for selecting people to become trainees to become a state pilot. I can describe the situation in New Jersey as a representative example.

The system in New Jersey is conducted and administered by the New Jersey Pilot Commission. That's 6 individuals who are appointed by the Governor, all of whom are required to have some kind of a maritime background. None of whom are allowed to have any connection or interest in a pilotage operation.

Every 2 years, they advertise in trade publications, they go to the maritime schools, and they solicit applications. Those applications are received, they're reviewed to make sure that the individuals comply with the prerequisites for the system——

Senator LAUTENBERG. Thanks—I just wanted to get an outline of the fact that states have their own organizations, because in our harbor, and harbors in New Jersey, the Sandy Hook Pilots Association, and I don't know whether they are represented by the 6 people who are appointed by the State of New Jersey.

Mr. KIRCHNER. Right.

Senator LAUTENBERG. Are the waters covered, are there overlapping organizations? Is there a New Jersey Pilots Association, Sandy Hook, and New York Pilots Association?

Mr. KIRCHNER. In the Port of New York, there is a New York Pilot Commission, and a New Jersey Pilot Commission. There is a New York/Sandy Hook Pilot Association, and a New Jersey/Sandy Hook Pilot Association—they work together. The two pilot associations work out of the same office, and so the pilotage there is shared between the two states.

Senator LAUTENBERG. And so it's just one after the other? Because the waters are—awfully close in those harbors, and I'm just curious as to who makes the decision, and these are private organizations, is this right?

Mr. KIRCHNER. Right, Senator.

The two associations maintain a joint rotation system, so whichever pilot is first on-turn when a ship arrives—whether it's a New York or a New Jersey pilot—will handle that ship, no matter where it goes in the Port of New York.

Senator LAUTENBERG. Because I'm an Honorary Pilot Member of the Sandy Hook Pilots Association.

Mr. KIRCHNER. That's what I understand.

Senator LAUTENBERG. And so far, I haven't gotten my call.

[Laughter.]

Senator LAUTENBERG. But I want to ask you this about the license that was surrendered to the Coast Guard. This was the pilot from the COSCO BUSAN. He surrendered his license, the action was taken in response to a notification from the Coast Guard that it determined he's not medically fit for the duties of a pilot, based on information that he previously disclosed, in connection with the Coast Guard's normal medical review program for pilots and other mariners.

Now, why would the Coast Guard issue a license to someone unqualified? Do you have an answer?

Mr. KIRCHNER. Senator, I don't know. He disclosed his medical conditions. The Coast Guard has told me that what it was looking at to make the determination in December was information that it had had for a number of years. So, because of changes in the process, I guess they caught whatever it is they felt was a problem, which they were not able to catch earlier.

But, I don't know exactly what the medical condition is that's the basis for that action.

Senator LAUTENBERG. No, but how can we improve the process by which pilots are licensed by the Coast Guard?

Mr. KIRCHNER. Well, with the medical review program, as the Commandant said, that's undergoing a complete top to bottom revision, we've been working, and the rest of the maritime community has been working, with the Coast Guard to try and develop a process that makes sense, that gives the Coast Guard the information they need, but also is a program that the Coast Guard has the resources to administer. And that's the real challenge there.

Senator LAUTENBERG. So, will the Coast Guard have final say—regardless of which pilot association it is—to approve or veto an application, in your judgment?

Mr. KIRCHNER. Of the pilot's Federal license, yes, Senator.

Senator LAUTENBERG. Yes.

Dr. Tikka, are current ship designs adequate to protect against fuel oil spills? Or do we have to move to a new international standard to protects ourselves?

Dr. TIKKA. Well, the international standard that has been adopted by IMO provides additional protection to the fuel oil tanks, so it is a change to the current design requirements. Whether the current designs are adequate or not, that really is more of a policy question than a design question.

Senator LAUTENBERG. Well, how quickly are other countries moving to a standard that requires this protective layer, double hull, around their fuel tanks?

Dr. TIKKA. Well, the international—the IMO Requirement 12A is applicable to vessels with a contract signed on or after 1 August 2007 or for vessels that are delivered after 1 August 2010. So, this is the time schedule that the member States of the IMO are subject to.

Senator LAUTENBERG. You heard me raise the question about stability—if the fuel tanks are on the upper level of the vessel, are there any stability issues? Or what weight offset do they have to put into other areas of the vessel?

Dr. TIKKA. Right, if the fuel oil tanks are at the, say, in the upper wing tanks or in deep tanks, it has to be taken into account in the design of the vessel from the stability point of view, but it's nothing that could not be handled from a design point of view.

Senator LAUTENBERG. From a design point of view.

Dr. TIKKA. And operational point of view, if I may add.

Senator LAUTENBERG. I just wonder whether the use of ballast, or otherwise, is needed to offset these?

Dr. TIKKA. Mr. Chairman, that depends on the vessel type. On container ships, if—again, depending on the size of the container ships, it will probably require some use of ballast to compensate for the higher center of gravity of the fuel oil tanks. But, it is a very design-specific question.

Senator LAUTENBERG. Captain Page, what fees do you charge to the private sector to subscribe to your VTS?

Captain PAGE. There's a variety of rates there, Mr. Chairman. In some cases, vessels pay the equivalent of a latte a day, or $3 a day, to track anywhere in the world, every few hours. And that would also include AIS data when they come closer to shore.

In some cases, it may be a port that needs to see all of the vessels, and they might pay $100 a month. The Coast Guard even pays, in some areas, for access to our system, so they can see vessels. Because about 50 percent of our sites around the country have coverage that the Coast Guard doesn't.

So, there's a variety of pricing schemes, depending on how many people use it, much like a cable TV service—how many people are going to see it. And ultimately, we're all non-profit maritime organizations, we're just trying to cover our operating costs, and make it fair that those who use it the most, pay a higher percentage.

Senator LAUTENBERG. Tell me something, would the average speed of a ship—if you go out 2,000 miles, you're talking about a fair amount of time before that ship hits our waters, or comes into our ports and harbors—what's the value there?

Captain PAGE. Well, Mr. Chairman, we use this right now, for instance, on tankers and cruise ships and ferries, no matter where they are—if there's a situation that they might get in distress, you can quickly find them, and other vessels that can render assistance.

We can also see anomalies in vessels' transits. If a vessel is disabled, such as the SELENDANG AYU, off the coast of Alaska, that elected to wait about 24 hours before they called the Coast Guard and said they were in trouble—which was too late. In this case, led to the vessel running aground, and a helicopter crashing in the process of rescue, and what have you.

So, it gives you early notification of a problem waiting——

Senator LAUTENBERG. OK.

Captain PAGE. Instead of waiting to extremis.

Senator LAUTENBERG. It sounds like a great idea, but I was just trying to figure out what value there is to be sizing up a ship that

might be 5 days off the coast. But it's certainly good and you can see emergencies, et cetera.

Captain PAGE. It also has security connotations. We can tell—we can see a vessel's voyage for the last year, we can tell you which ports they called on, to see if it's a port we're concerned with, and we also can see if there's any anomalies in transit from the Far East—was it really their last port of call since Singapore? Or did they stop somewhere else? Or did they stop in the ocean for a couple of days? So, it really validates that the vessel coming to our shores has a unremarkable voyage.

Senator LAUTENBERG. So, but that's data that is available to anyone operating a system, it would not just be the United States, it could be the U.K. in the same distance, when we're talking about 2,000 miles.

Captain PAGE. It depends which system your using. Right now——

Senator LAUTENBERG. General——

Captain PAGE. Sir.

Senator LAUTENBERG. General information that's using.

Thanks very much.

We're joined by Senator Klobuchar. Now, her sea is an important body of water, but it's much too big to be called a lake, I think.

STATEMENT OF HON. AMY KLOBUCHAR,
U.S. SENATOR FROM MINNESOTA

Senator KLOBUCHAR. I think so, you can't see across it.

Thank you, Chairman Lautenberg.

Well, what he didn't tell you, on another Subcommittee I'm on, the Oceans Subcommittee, when I went to my first meeting—OK, maybe it wasn't my first choice—but I went to the first meeting and I looked around the room, and I saw Olympia Snowe, and Trent Lott and John Kerry, and I wrote a note, actually, it was one of my first weeks on the job, to Senator Lautenberg, and I said, "Everyone on this Subcommittee has an ocean, except me."

And Senator Lautenberg wrote back and said, "Well, next year, just come back and ask for one."

[Laughter.]

Senator KLOBUCHAR. But in any case, I actually have been pleasantly surprised to find out that the Oceans Subcommittee—which we're not on today—covers the Great Lakes. And so, I've become the voice of the Great Lakes on the Committee.

And I just wanted to thank you all for coming today, as many of my colleagues have alluded to, we are almost 20 years removed from the EXXON VALDEZ oil spill that irreparably harmed the pristine environment in the Prince William Sound, but 2 decades later, that incident still is very much with us—whether it's with the environmental repercussions or with the legal case that's still pending, which actually, the fishermen were represented by a Minnesota law firm, so we hear about it more than you would think in Minnesota.

And I'm pleased that the Coast Guard is in the process of developing new strategies, I met with the Admiral yesterday, to minimize the frequency and environmental fallout from oil spills of nontanker vessels. But, I think that Congressional action may be nec-

essary to build upon the successful maritime safety legislation passed in the last 20 years.

And, again, from a Minnesota standpoint, the dangers are not isolated to oceans. While the Great Lakes have been fortunate to escape a significant spill, a large cargo ship run aground could wreak havoc on the contained environment of the Great Lakes. And so, my interest from a state point of view lies with that.

Mr. Kirchner, I heard about half of your testimony, I had another meeting, and I wanted to commend the American Pilots' Association for its role in promoting maritime safety.

But there was one issue in your written testimony—that I wanted to explore more, where you discuss the proposals that would require pilots to carry aboard portable piloting units, laptop computers that provide electronic navigation programs.

I think in your testimony—I don't want to misstate it—but you said you don't want those requirements, because you think the portable piloting units should be voluntary. Among the reason you cite are that the units may not be necessary, or provide any benefits, and that there could be problems.

And I understand, clearly, that the piloting is a human task. But I wondered why we wouldn't be doing everything we can to promote the use of technologically-assisted instruments.

So, could you talk about what your views are on this and why you wouldn't see that as something we should require?

Mr. KIRCHNER. The use of portable piloting equipment is a very important program that's been under development for the last 20 years in the U.S. We are strong believers in the value of those, but they're not for every place. There are some types of piloting assignments, and some type of operations where they wouldn't help, and in fact, they could be a distraction, they could create a problem.

So, it's really up to the local pilotage authorities, working with the pilots, to make that determination on a local level. And even where portable units are used, they are much different from one place to the other. The pilot units that are used on the Columbia River in Oregon, for example, are much different than the ones that are used on the Delaware River.

So, we are wary of a national or a Federal standard or some type of a national program that would not be able to take into account the local variations.

Senator KLOBUCHAR. And now, if you don't support a mandate, do you think there are other initiatives that you'd support to try to encourage the use of the these kind of units?

Mr. KIRCHNER. Well, we mentioned, it's important to have the AIS and DGPS infrastructure maintained. The units rely on those items, and that would be a big help.

Units are used by our pilots in the Great Lakes, for example, and frankly, we had some difficulty getting the Coast Guard to accept them, or to recognize them, and to include the costs in the rate base.

So, anyplace—well, all pilotage fees are regulated—so that we would encourage all of the entities that regulate the rates to include money in the rates to pay for the units.

Senator KLOBUCHAR. OK.

You've also spoken strongly in favor of maintaining the system of State regulation of pilot certification and licensing. The Federal pilot license is currently the bare minimum standard, and would you support efforts to increase the Federal standards for a pilot license, while not infringing on the individual states' authority?

Mr. KIRCHNER. I can't imagine a particular type of increase or raising of standards that we would oppose.

Senator KLOBUCHAR. OK, thank you.

Doctor, Senator Lautenberg talked to you about the technology with the ships and I know that the double-hull technology has proven effective in reducing oil spills by tankers, and should produce similar results for non-tankers.

Do you believe that this is the final solution for minimizing the incidents of oil spills? Or do you think that there is other ship technology changes that would reduce oil spills even further?

Dr. TIKKA. That's a difficult question to answer. Well, we all—certainly we always hope that there is progress in technology that further improves the performance of the vessels. So, I wouldn't like to rule these new regulations to be the final say.

But, immediately doesn't—nothing comes to mind that I would say that there is some development ongoing from a design point of view that would increase the environmental performance of tankers, but of course there are a lot of, also, operational aspects that have to be considered from an environmental performance point of view.

Senator KLOBUCHAR. Captain Page, speaking of technology, the Marine Exchange's use of the Vessel Traffic Services and Automatic Identification System shows how technology can help with maritime safety. Do you believe we should be doing more to promote the use of that technology, to help manage busy ports and harbors, and do you believe the Coast Guard should assume a greater responsibility for managing shipping traffic?

Captain PAGE. Well, I do believe that we need to move further on the application of technology. You could look at some areas around the country where they push very, very hard these technologies as a force multiplier to improve maritime safety, and it's used by pilots to get a virtual bridge team, in some areas, where they add another person, virtually, on the bridge during fog conditions, what have you.

So, I think the marine industry has a big role in that, and I think that the Coast Guard needs to foster, and promote, and work closely with the maritime industry, and take advantage of these existing technologies, and promote them further. It's one of the several pieces that need to be done. Certainly, there's the design aspect of ships, there's a human factor—the pilots—and then there's a technological solution. And all three of those need to be moving forward, I believe, if we want to reduce risk of oil spills and other disasters.

Senator KLOBUCHAR. Thank you.

Do any of the other two of you have anything more you want to add in answer to my questions? I'll give you that opportunity.

[No response.]

Senator KLOBUCHAR. All right. Thank you very much.

Senator LAUTENBERG. And with that, I call the meeting of this Subcommittee to a close, and I note that the record will be open for 5 days so that other Members may submit questions for any of you that have appeared this day.

Thank you for your excellent testimony and patience in our getting to you, but we're glad to see you.

Captain PAGE. Thank you, sir.

Dr. TIKKA. Thank you.

[Whereupon, at 3:50 p.m., the hearing was adjourned.]

A P P E N D I X

Response to Written Question Submitted by Hon. Barbara Boxer to Admiral Thad W. Allen

Question. The new draft rules for tug escort of tankers reduces by 97 percent the number of days of training required for operators. How does this comport with the Coast Guard's promise to strengthen oil spill prevention measures, especially in low-visibility situations? Why is Coast Guard considering rulemaking to cut the training for tugboat pilots from 30 months to 30 days?

Answer. There has been no suggestion that the sea service required to obtain mate (pilot) of towing vessels should be reduced to 30 days, and the Coast Guard is not contemplating a reduction of the sea service for this license.

The Notice of Proposed Rulemaking (NPRM) published on September 17, 2007, proposes that in order to obtain a mate (pilot) of towing vessels license, the alternate progression candidate needs a total of 36 months of service as master of steam or motor vessels not more than (NMT) 200 GRT, *i.e.,* any tonnage master of steam or motor vessels license not exceeding 200 GRT. This is in addition to the sea service required to obtain the underlying master NMT 200 GRT license, which is at least 12–36 months, depending on the specific type of NMT 200 GRT master license held. To obtain a mate (pilot) of towing vessels license under the proposed alternate progression, this represents a total of 4–6 years of sea service, at least 3 years of which must be as a master of a NMT 200 GRT vessel, depending on the specific type of NMT 200 GRT master license held.

Alternate progression candidates must also complete a Towing Officer Assessment Record (TOAR) or approved course in lieu of TOAR, pass an examination, and complete at least 30 days training and observation on towing vessels in order to obtain a mate (pilot) of towing vessels license.