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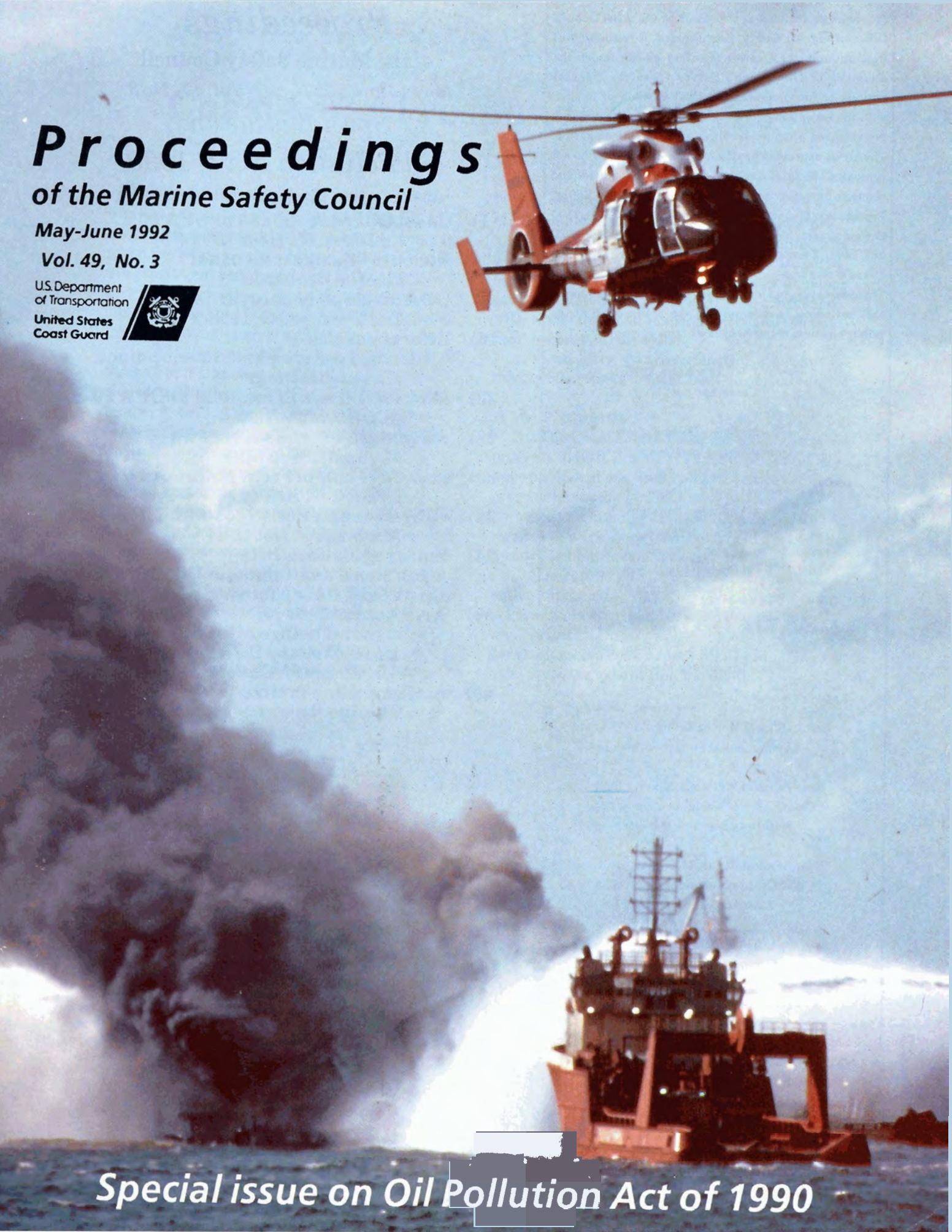

Special issue on Oil Pollution Act of 1990

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Proceedings

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May - June, 1992 *Vol. 49, No 3*

Special issue on Oil Pollution Act of 1990

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Coast Guard responds to OPA 90

RADM A. E. "Gene" Henn

The Oil Pollution Act of 1990 (OPA 90) was signed into law on August 18, 1990. This is the largest single tasking that Congress has ever given the Coast Guard. Although several federal agencies have been required to take regulatory actions, the Coast Guard has been responsible for most OPA 90 efforts, including developing regulations, studies and reports.

A major new field command, the National Strike Force Coordination Center, was commissioned in Elizabeth City, North Carolina, on September 3, 1991. Commanded by CAPT Don Jensen, this center coordinates the activities of the three strike teams in the National Strike Force. The center is also responsible for developing and managing a computerized database of spill resources, and designing spill exercises and drills to test and evaluate contingency plans and levels of preparedness.

A new division (G-MS), referred to as the OPA 90 staff, was created within the Office of Marine Safety, Security and Environmental Protection in January 1991 to handle most of the Coast Guard OPA 90 projects. Headed by Mr. Norman W. Lemley, the division is staffed by military and civilian personnel, serving as project managers, lawyers, economists, environmentalists, editors and administrators.

The National Pollution Funds Center was also established as a result of OPA 90. Directed by RADM R. A. Appelbaum, this center develops and administers the parts of OPA 90 concerned with vessel financial responsibility and the Oil Spill Liability Trust Fund.

Currently, we are conducting approximately 80 projects to meet OPA 90 objectives.

Achievements

The Coast Guard has made substantial progress in fulfilling OPA 90 requirements. We have published one final rule, six notices of proposed rulemaking and four advance notices of proposed rulemaking in the *Federal Register*. A number of workshops have been held around the country to help develop regulations.

On January 15, 1992, we published a notice announcing the policy on the appointment of area committee members and designating their responsibilities. These committees will be developing area contingency plans preparing for local response to pollution incidents.

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The world's largest oil spill could have occurred if this blaze had not been controlled. The tanker, Mega Borg, contained about 38 million gallons of raw crude oil when it exploded in the Gulf of Mexico on June 8, 1990.

Coastguardsman sops up oil from Exxon Valdez spill in Prince William Sound, Alaska, on March 24, 1989.

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For the first time, we are using the negotiated rulemaking process to develop regulations for tank vessel response plans.

Other Coast Guard accomplishments under OPA 90 include:

- deepwater ports study,
- tanker navigation safety study,
- National Contingency Plan revision progress,
- installation of a light at Bligh Reef on September 4, 1990,
- third strike team established and commissioned at Fort Dix, New Jersey, on September 5, 1991,
- selection of 19 sites for prepositioned response equipment, and
- establishment of response groups in all 10 Coast Guard districts to provide first lines of defense against pollution incidents.

We are also working with the International Maritime Organization (IMO) to carry out additional measures to minimize pollution of the oceans and rivers of the world.

Conclusion

The Coast Guard has committed considerable financial and personnel resources to meet the requirements of OPA 90. I am personally committed to fully implementing the provisions of OPA 90 on my watch. As a result of the decisive action Congress took in passing this legislation, I believe we will see permanent improvements in the environment and new technologies to help prevent and respond to oil spills.

I hope you will find this special OPA 90 issue of Proceedings interesting and informative. Many of the articles were written by OPA 90 staff members, which should provide valuable insights into first-hand activities under the law.

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No more *"business as usual"*

By Mr. Jim Bennardo

Background

Good Friday, 1989, turned out to be anything but good for Exxon Corp., due to what has been termed the worst environmental disaster in United States history. Since then, much has been written about the *Exxon Valdez* oil spill in Prince William Sound, Alaska, and the consequent major legislation known as OPA 90.

Thus far, the *Valdez* spill has cost Exxon more than $2 billion in clean-up costs, plus a still-controversial settlement with the state of Alaska, currently set at $1.4 billion. The cost to the corporation in terms of its goodwill may be considerably higher.

The accident also galvanized Congress into passing OPA 90 unanimously, an impressive feat in its own right. The act's impact on both the regulated petroleum and shipping industries, and on the regulating agencies is going to be substantial.

Coast Guard and OPA 90

Although OPA 90 will require regulatory action by several federal agencies, its primary tasks fall to the Coast Guard, which is initiating a vigorous effort to implement OPA 90 requirements. The OPA 90 mandates may look like new initiatives, but they are, in actuality a further step in a continuing, long-term effort. The Coast Guard has been actively involved with many environmental issues regarding tanker safety and pollution prevention for the past 25 years.

OPA 90 is the largest single legislative assignment the Coast Guard has ever received. There are approximately 80 separate projects, regulations and studies, both domestic and international in scope, associated with the act.

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Exxon Valdez offloads oil cargo to another tanker in Puget Sound, Alaska.

Coastguardsman rescues oil-covered bird after the American Trader oil spill off Huntington Beach, California, in early 1990.

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Features

OPA 90 has a number of provisions which will profoundly change the way oil is transported in United States waters. The most notable is the increase in liability for companies that handle, store and transport oil. In some cases, such as gross negligence, the shipper's liability is unlimited. This provision alone may cause some shippers to abandon United States markets.

The act also establishes the use of a federal trust fund for financing clean-up operations through a 5¢/bbl. fee on both imported and domestic oil. It also imposes response planning and execution responsibilities on government entities, as well as the owners and operators of vessels and facilities. Further, the act mandates new prevention measures involving vessel construction and operation.

There's more to come. The potential exists for even greater complexity. OPA 90 does not prevent individual states from prescribing their own regulations in certain areas. In fact some states are already enacting legislation similar to OPA 90. But because of the potential for a patchwork of dissimilar requirements that could drive commerce from one state to another, some coastal states have formed a task force to coordinate their regulatory requirements among themselves and with the federal government.

Other sections of OPA 90:

(1) mandate new preventive measures involving both vessel construction and operation,

(2) promote international cooperation in spill prevention,

(3) provide special protection for Prince William Sound,

(4) create an interagency oil pollution research and development program, and

(5) require specific improvements to the Trans-Alaska Pipeline system.

Coast Guard changes

In response to OPA 90, the Coast Guard made several organizational and operational changes. Two special staffs were established: the National Pollution Funds Center to develop and administer provisions of financial responsibility and the Oil Spill Liability Trust Fund; and the OPA 90 staff to write regulations and coordinate the myriad of studies and reports.

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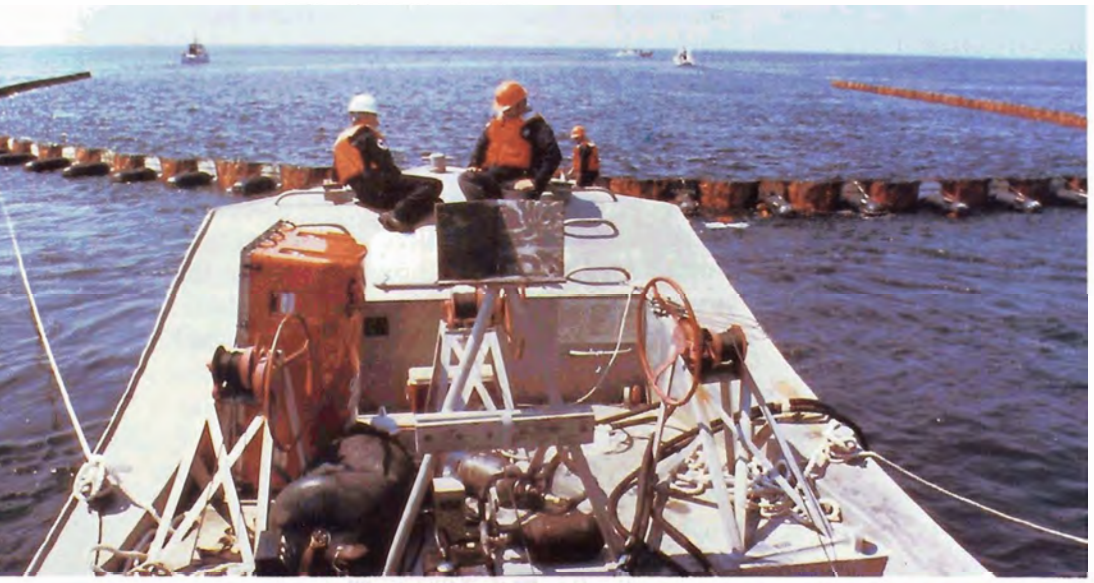
Boom deployment is getting



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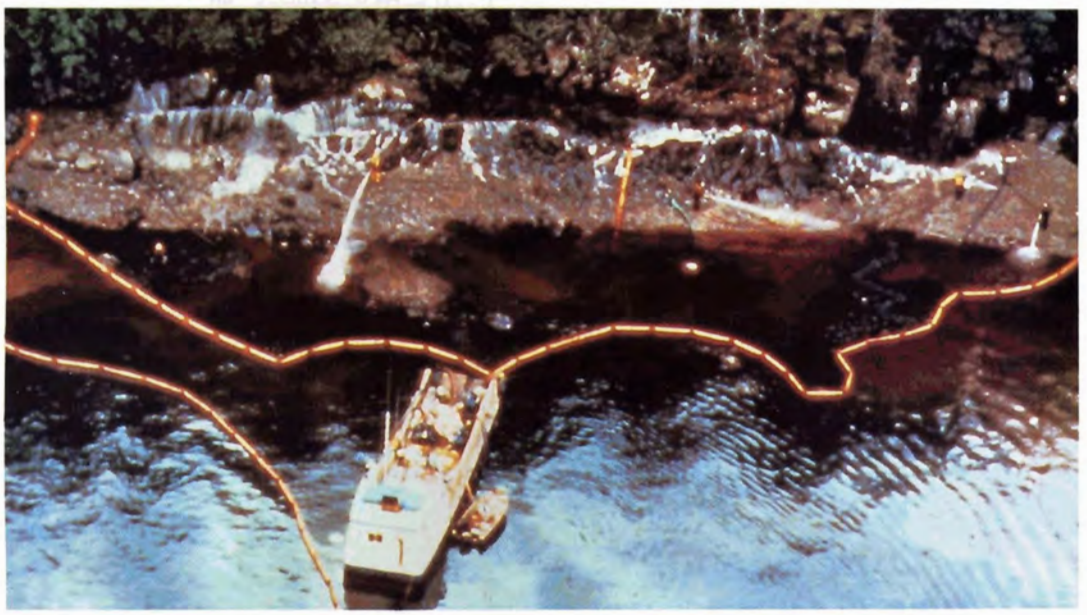

more efficient.

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Improvements were made in the oil spill response mechanism in the field. The Coast Guard has primary federal responsibility for oil spill response in coastal areas. The agency provides predesignated on-scene coordinators and maintains manned facilities that can be used to oversee spills.

In addition, the Coast Guard has created a third strike team. Now there is a strike team on each coast, which will be able to airlift pollution response experts and clean-up equipment to spill sites in order to assist on-scene coordinators. Directed by the National Strike Force Coordination Center in Elizabeth City, North Carolina, the strike teams are located in San Francisco, California; Mobile, Alabama; and Fort Dix, New Jersey.

District response groups, consisting of Coast Guard personnel, vessels and equipment, have been established at each of the 10 Coast Guard districts. These groups have been formed to identify the pollution response capabilities available in each district.

While it is critical to have immediate response capability in event of a spill, it is just as essential to have response equipment placed where it will most likely be needed. The Coast Guard has identified 19 sites within the United States to store equipment. Although the primary clean-up responsibility rests with the spiller, this prepositioned equipment will be available for rapid deployment. This quick response capability is critically important, because early prevention in a spill can significantly restrict the area eventually damaged.

Prevention is more important than response. To make best use of both, and to consider compensation and restoration, contingency planning is called for and will become a major regulatory requirement. The Environmental Protection Agency (EPA) and the Coast Guard co-chair monthly meetings of the National Response Team to draft a revised national contingency plan.

The National Response Team is an interagency group with representatives from 15 federal agencies. Its primary function is setting and maintaining national response policy -- it does not direct spill responses. The team also supports regional response teams, who come from the same federal agencies as well as from state agencies. These regional teams are planning groups who support on-scene coordinators.

Domestic activities

One of the major tasks facing the Coast Guard is developing the regulations necessary to carry out OPA 90. For example, to reduce the risk of oil spills, new tankers and those undergoing major conversions must be fitted with double hulls. Existing single-hull tankers must be ret-

Pom-pom boom is deployed to collect free floating surface oil.

rofitted to remain in service, and all tankers must have double hulls by 2015. However, the act does not specify the design criteria that constitutes a double hull. Such details will be covered by rulemaking and industry consensus standards.

The American Society of Testing and Materials formed a task group to develop a standard for double hulls. This standard could be the foundation for a similar international criterion. The Coast Guard will provide general standards, while the society will provide the detailed standards.

The Coast Guard is also preparing rules concerning response plans for both vessels and facilities. This is important, because operators may not handle oil if they do not submit plans to the Coast Guard within six months after the rules are published.

The act also requires rules to mandate tanker escorts in Prince William Sound, Rosario Strait and Puget Sound. Also in response to the act, the Coast Guard installed a lighthouse at Bligh Reef in Prince William Sound.

The Coast Guard has conducted a study to determine the need for vessel traffic service systems, and is developing a national vessel traffic system plan. Published in three volumes and an overview, the study, "Port needs study," is available to the public only through the National Technical Information Service (telephone: 1-800-336-4700).

The national vessel traffic system plan would simplify existing regulations by consolidating them into standard national traffic management and reporting procedures. In order to accomplish this, equipment improvements are needed. Related regulations will address the extended service area for vessel operators.

One sensitive issue addressed by OPA 90, directly associated with the *Exxon Valdez* in the public mind, is drug and alcohol testing. The act affirms the Coast Guard position that drug testing is as essential to the safe operation of commercial vessels as it is to other modes of transportation.

In addition, OPA 90 delegates the authority to the Coast Guard to immediately suspend a license, certificate or merchant mariner's document pending a hearing, if there is probable cause to believe the individual used alcohol or other dangerous drugs. Instructions to Coast Guard field units on this new authority are being prepared.

The act directs the Coast Guard to "evaluate and test a program of remote alcohol testing for masters and pilots aboard tankers carrying significant quantities of oil." A study to accomplish this task is underway.

A number of other rulemakings and studies are mandated by OPA 90. Many of the more important rules will be subjects of public hearings or workshops, which will allow interested parties a forum to express their views and offer suggestions. All rulemakings will be available for written comment.

OPA 90 also requires cooperation among government agencies and establishes committees to involve local citizens' groups in planning and response activities. One requirement is for an interagency coordinating committee of 13 agencies, chaired by the Coast Guard, to pool their research and development resources.

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Atlantic strike team member inspects beach in Saudi Arabia after January 1991 oil spill.

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The goals are:

- improved spill prevention and response measures,
- solid response management,
- increased knowledge of oil's fate and effects, and
- optimal restoration and rehabilitation.

The act authorizes limited funding for regional grant, demonstration, and research and development programs.

International activities

No anti-pollution effort of this magnitude can be effective without international cooperation. The United States is the major world market for oil, so few importers can afford to abandon it because of its stricter regulations. However, since so much of the tanker fleet is under foreign flags, the Coast Guard is working with IMO to minimize pollution of the world's oceans and rivers. IMO is the arm of the United Nations which establishes rules for worldwide vessel operation and construction.

IMO's Marine Environment Protection Committee produced a study confirming the mid-deck design as an acceptable alternative to double hulls. The United States is reserving its position on the mid-deck alternative. The IMO also approved a phase-out schedule for existing tankers -- at age 30, tankers must be scrapped or retrofitted to the new standards.

Other OPA 90-related international considerations raised through IMO include:

- the role of human factors in pollution incidents,
- an international tanker casualty data collection system,
- the use of simulators in training of masters and mates, and
- the proper training and qualification of vessel traffic service operators.

Congress recently ratified the International Convention on Standards for Training, Certification and Watchkeeping for Seafarers. The Coast Guard was an early supporter of this convention. Current United States merchant vessel personnel rules incorporate its basic requirements, and the Coast Guard will enforce them on foreign vessels when they call at United States ports.

International cooperation with United States' efforts will not happen over night. Many foreign countries feel that portions of the unilateral United States' legislation does not coincide with their views. The challenge is great.

Conclusions

The Coast Guard is well aware of the long and arduous federal rulemaking process. In contrast, many states have been implementing legislation at a faster rate. The ideal would be to have OPA 90 in place and working as a touchstone for coordinated regulations. Nevertheless, the states have been most cooperative in their efforts to make their statutes as compatible as possible with OPA 90.

It is anticipated that it will be several years before all OPA 90-related tasks are completed. To date, the Coast Guard has committed considerable resources to carry out the requirements. However, this will involve more than unilateral Coast Guard actions. Federal and state agencies must work together with industry, conservationists and the public to arrive at fair and effective regulatory requirements.

The Coast Guard is mailing pertinent OPA 90 information as quickly as possible to more than 1,600 interested parties, including representatives of industry, environmental interests, maritime publishing, the legal community and the general public. (To get on OPA 90's mailing list, contact Mr. Gary Holliday (G-MS-2), Coast Guard headquarters.)

In the foreseeable future, we can expect permanent changes in the way the oil industry operates and is regulated, and the creation of new technologies to help prevent and respond to oil spills, along with ecological benefits for our oceans and rivers.

Traditionally committed to marine safety and pollution prevention, the Coast Guard welcomes this bold new environmental initiative.

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Newport News Shipbuilding, Newport News, Virginia -- the largest shipyard in the world.

OPA 90: *Boon to shipyards?*

By CAPT Warren G. Leback

For several years, United States shipyards have been on the decline, with virtually no new commercial ship construction over 1,000 gross tons. For vessels trading in the United States, OPA 90 imposes double-hull requirements on new tank vessels, and directs the Coast Guard to develop modifications for existing tank vessels.

United States shipyards

Only one oceangoing commercial cargo ship (a 32,600 gross-ton container ship for Matson Navigation Co.) has been constructed in a United States shipyard in recent years. (The *R. J. Pfeiffer* was christened on February 15, 1992.) Previously, the last commercial ship weighing more than 1,000 gross tons was ordered in a United States shipyard in 1984.

On September 4, 1991, the Marine Spill Response Corp., a not-for-profit group formed by the oil companies to respond to catastrophic oil spills, announced the purchase of sixteen 210-foot offshore response vessels. The shipyards involved in the construction of the vessels are Halter Marine, Inc., in Gulfport, Mississippi, and Bender Shipbuilding and Repair in Mobile, Alabama. Three other ships are also under contract for construction in United States shipyards.

For several years, shipyards in this country have been supported by government construction programs, mainly through the Department of Defense. It has been asserted that this reliance on government contracts provided little incentive for the shipyards to modernize and

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become commercially competitive with foreign shipyards.

The Shipbuilders' Council of America, a national trade organization representing the principal private shipbuilders and repairers, and venders of marine equipment and services, has noted the distinction between military and commercial ship construction. Most military ships are one-of-a-kind, fully integrated, highly complex systems built to very detailed specifications. The payload, arms, is an integrated part of the ship, and interior spaces are small and highly specialized. Commercial ships, on the other hand, contain large open spaces for cargo. Tooling techniques to fabricate and weld the heavy steel plate used in commercial vessels differ greatly from those used in military construction.

Reportedly, two reasons why United States shipyards do not successfully compete for commercial construction are higher labor and material costs, and less modern manufacturing facilities. Another major reason articulated is that European and Asian countries subsidize their shipbuilding industries, whereas the United States does not. For more than two years, the Organization for Economic Cooperation and Development, an international association of highly industrialized nations, has been negotiating to eliminate these subsidies to level the playing field for equitable competition. These negotiations, however, have not yet been successfully concluded.

OPA 90

Enacted in response to casualties including the *Exxon Valdez* catastrophe, OPA 90 imposes construction and equipment requirements for tank vessels operating in United States waters. Principally, OPA 90 mandates double hulls for vessels for which a building contract was placed after June 30, 1990, and provides a schedule for phasing out existing single-hulled tank vessels greater than 5,000 gross tons by 2010. An exception is provided for vessels calling at the Louisiana Offshore Oil Port, a crude oil reception facility in the Gulf of Mexico, or offloading oil in an offshore lightering zone. These vessels must be phased out by 2015.

Section 4115 of OPA 90 requires the Coast Guard to issue structural and operational requirements for existing tank vessels. The United States seeks the international shipping community to embrace double-hull tankers by proposing amendments to the Protocol of 1978 relating to the 1973 Convention for the Prevention of Pollution from Ships (MARPOL).

Thus OPA 90 and MARPOL, if adopted, could generate an array of shipyard business opportunities. This was the hope of John J. Stocker, president of the Shipbuilders' Council of America.

"...OPA 90 and Marpol, if adopted, could generate an array of shipyard business opportunities."

Some construction activity has already occurred. CONOCO, Chevron and other companies are planning to build double-hull tankers, ordering from foreign shipyards before the enactment of OPA 90. As of October 1, 1991, two oil companies had solicited bids from United States shipyards to construct up to seven double-hull tankers. Whether this activity signals a new wave of construction due solely to OPA is open to question.

Also, OPA 90 may generate the development of a fleet of commercial or not-for-profit, cleanup vessels. As noted earlier, the Marine Spill Response Corp. has already contracted for the construction of 16 specialized oil-spill response vessels. Other groups may refit existing offshore supply vessels or build new ones. The National Response Corp., a joint venture of Seacor, SCF-Olympic and Marine Pollution Control, has been formed and will offer response services to the industry with existing vessels. There may be opportunities for other organizations as well, especially when the Coast Guard develops rules requiring vessel response plans.

Opportunity factors

Many factors contribute to the idea that OPA 90 may not be the immediate boon to shipyards that had been hoped. They include OPA section 4115(f), which specifically contemplated the use of Maritime Administration (MARAD) ship financing guarantees for OPA 90-induced vessel construction and reconstruction, shipbuilding subsidies by foreign governments, and tanker demand projections.

Ship finance guarantees

MARAD administers the program, which authorizes the secretary of transportation to guarantee and to enter into a commitment to guarantee the payment of interest on an unpaid balance of principal of any obligation which is eligible to be guaranteed under title XI of the Merchant Marine Act, 1936. Except for some recent cases, MARAD has not issued any new title XI guarantees for United States ship construction since 1988. Such guarantees were not issued because of market conditions, and the fact that the limited number of proposals submitted did not meet tightened eligibility requirements.

Section 4115(f) of OPA 90 specifically amended title XI by adding a section 1104B. Congress prescribed that the secretary may guarantee obligations which aid . . . in the financing and refinancing . . . of a contract for construction or reconstruction of a vessel or vessels owned by citizens of the United States which are designed and are to be employed for commercial use in the coastwise or intercoastal trade or in the foreign trade . . . if:

A) the construction or reconstruction by an applicant is made necessary to replace vessels, the continued operation of which is denied by virtue of the imposition of a statutorily mandated change in standards for the operation of vessels, and where, as a matter of law, the applicant would be denied the right to continue operating vessels in the trades in which the applicant operated prior to the taking effect of the statutory or regulatory change;

B) the applicant is presently engaged in transporting cargoes of the type and class that will be constructed or reconstructed under this section as replacements only for vessels made obsolete by changes in operating standards imposed by statute;

C) the capacity of the vessels to be constructed or reconstructed under this title will not increase the cargo-carrying capacity of the vessels being replaced; and

D) the secretary has not made a determination that the market demand for the vessel over its useful life will diminish so as to make the granting of the guarantee fiduciarily imprudent . . .

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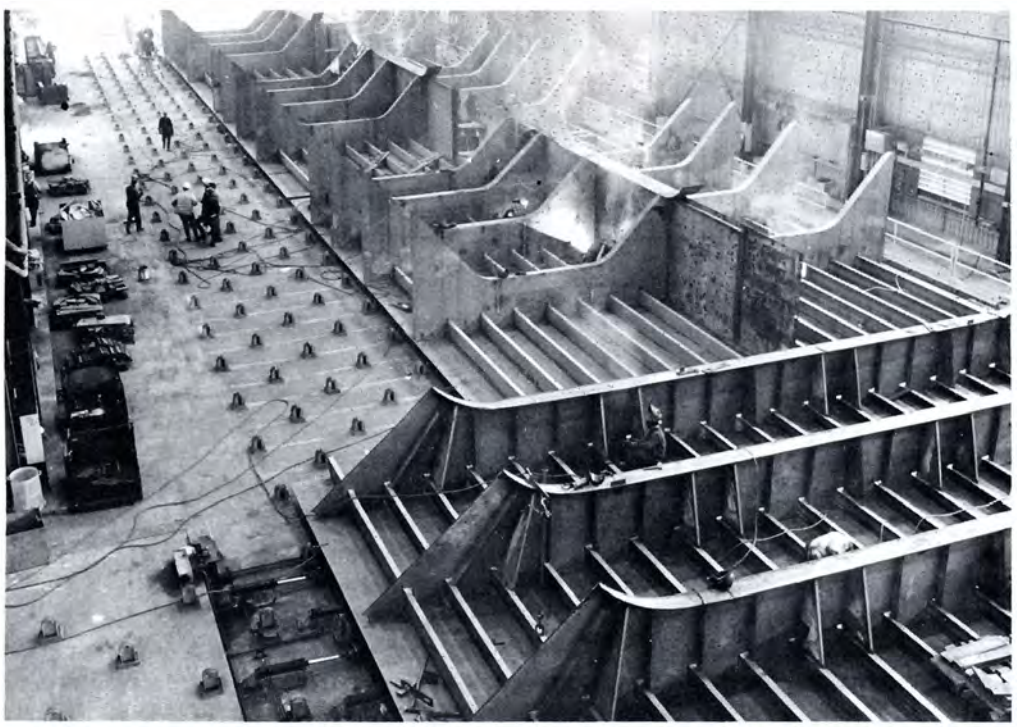

Prefabricated webs are manually fitted and welded to panels after stiffeners have been added at BethShip Sparrows Point, Maryland, yard.

An Exxon Valdez/Long Beach-class oil tanker under construction at NASSCO shipyard in San Diego, California, in 1986.

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On the surface, this OPA 90 amendment demonstrated Congressional intent that the title XI program be used to assist in vessel construction and reconstruction necessitated by OPA 90. For several reasons, however, the benefits of section 1104B may be difficult to realize.

First, what Congress appears to have given with one hand, it may have taken away with the other. On November 5, 1990, less than three months after OPA 90 was signed into law by the president, Congress enacted the Omnibus Budget Reconciliation Act of 1990 (Public Law 101-508). Within this massive act, Congress substantially revised the method by which most federal credit programs operate. The Credit Reform Act of 1990, enacted by section 13201 of Public Law 101-508, essentially put most credit programs "on budget" and subject to the annual appropriations process. Generally, any loan guarantee commitment issued after September 30, 1991, must be supported by budget authority contained in an appropriation act, with an appropriation to cover the subsidy cost of the loan guarantee, as well as an appropriation of administrative expenses to cover the cost of administering the loan guarantee program. The subsidy cost of a loan guarantee is, in essence, the risk factor involved in a given project.

Second, even though Congress intended section 1104B to be a source of guarantee authority, it may never be used due to the constraints placed on applicants. Under section 1104B(a)(3), the total capacity of the replacement vessels can have no greater carrying capacity than the vessels being replaced. This precludes an owner from building a more efficient, larger capacity carrier. (It may be possible to replace two smaller carriers with one tanker having the same total cargo-carrying capacity.)

Third, section 1104B(a)(2) provides that the applicant must agree to use the replacement vessel only to replace a vessel made obsolete by OPA 90 standards. In addition, section 1104B (a)(1) allows assistance only if the applicant would otherwise be denied the right to continue operation in trades in which the applicant operated before the statutory or regulatory changes. These conditions raise a question about whether the replacement vessel might only be able to be used in the same trades as the one being replaced. If so, these conditions might prevent an owner from reacting to changing market opportunities to use the vessel in the most efficient and needed trades.

Because of these constraints, the present usefulness of section 1104B is considerably diminished. In essence, this section was unnec-

essary since an applicant has to meet nearly the same economic soundness conditions that apply to the existing title XI program, which has been determined to be subject to the funding constraints of the Credit Reform Act.

In August 1991, Crowley Maritime Corp. applied to MARAD for title XI guarantees totaling $450 million for the construction of ten 42,000 dead weight ton, double-hulled tankers. Crowley saw opportunities for such tankers because of OPA 90 and other market developments. As these were not replacement tankers, the application was based on section 1104A rather than the OPA 90-created section 1104B. Crowley withdrew its application apparently due to the constraints of the Credit Reform Act and a lack of will to endure the legislative process of the agency obtaining appropriations.

Thus if OPA 90 induces vessel owners to seek title XI financing, it likely will occur not because of section 1104B, as created by section 4115 of OPA 90, but because the deal is one that qualifies under the traditional title XI program.

The constraints imposed by the Credit Reform Act make planning all the more difficult, since each new loan guarantee commitment requires budget authority, and MARAD currently has no budget authority for new title XI commitments for fiscal year 1992 and none requested for fiscal year 1993. Unless the annual budget cycle anticipates a certain amount of OPA 90-induced construction or reconstruction for which loan guarantees are sought, it may be difficult for both government planners and business people to rely upon the title XI program for assistance to meet any construction demands arising from OPA 90. Of course, Congress could reinforce its intent to make title XI assistance available for construction and reconstruction undertaken for environmental reasons by exempting the title XI program from the Credit Reform Act.

Subsidies

Perhaps the greatest perceived impediment to domestic shipbuilding is direct and indirect subsidies provided by foreign governments to their shipyards. These direct construction subsidies, grants, customs duties exemptions, research and development aid, investment aid, government equity infusions and aid to shipowners (including credit facilities, interest-free loans, loan guarantees and tax concessions) conspire to undermine the ability of United States shipyards to be commercially competitive.

The United States has not provided direct construction subsidies and has not issued any new operating-differential subsidy contracts since 1980. However, some indirect subsidies remain, such as build United States for domestic shipping under the Jones Act and related laws. The remaining subsidies are minor compared to those provided by foreign governments.

The Jones Act, section 27 of the Merchant Marine Act of 1920, requires that merchandise being transported by water between points in the United States be carried on United States-built, United States-citizen owned and United States-documented vessels.

As a result of a petition by the shipbuilders' council, the United States trade representative elected to solve the subsidy problem on an international rather than unilateral basis. The council withdrew its petition to enable the representative to negotiate an end to worldwide shipbuilding subsidies.

For more than two years, representatives of the United States, Japan, the European community, South Korea and the Nordic countries have been negotiating an international agreement to phase out these subsidies. The United States has not had an especially strong bargaining position due to having discontinued direct construction subsidies in 1981. (The United

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Major reconstruction of Roll On/ Roll Off ship Estelle Maersk took place in the mid-1980s at BethShip Sparrows Point yard.

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States shipbuilding industry has likened the termination of construction differential subsidies to unilateral disarmament.) In addition, the United States has been unwilling to agree to phase out the domestic building requirements of the Jones Act and related legislation.

Thus far, the negotiators have arrived at a broad agreement on a list of prohibited practices, and have made some progress on a phase-out schedule for these practices. At least three major issues are unresolved. Most significantly, the issue of "injurious pricing" (antidumping) has imposed a roadblock to settlement. The treatment of home credit schemes and the Jones Act also remain areas of contention.

At a negotiating session in December 1991, the delegates became deadlocked and unable to reach an agreement. Success appears to be more elusive than the United States trade representative had hoped.

Other ways to deal with the subsidy issue include the revival of the shipbuilders' council petition and unilateral action by Congress. Proponents of Congressional action have introduced H.R. 2056, which was reported out of the House Committee on Ways and Means on November 4, 1991, and referred to the Committee on Merchant Marine and Fisheries. The Committee on Ways and Means also requested the International Trade Commission to investigate the likely economic effects of the enactment of H.R. 2056, and to report to the committee by April 27, 1992.

The bill, known as the "Shipbuilding Trade Reform Act of 1991," would require subsidy certifications for vessels visiting the United States, and the repayment of subsidies before a vessel could call at United States ports. The responsibility for subsidy repayment is placed upon the shipowner rather than the shipyard where the vessel was constructed. This bill reflects Congressional impatience with the international negotiation process, and further action on it and similar legislation can be expected. It is apparent there is great uncertainty about when, if ever, foreign shipbuilding subsidies will end.

If the playing field should be leveled, there still remains a question about whether United States shipyards can compete on the world market. Philip Loree, chairman of the Federation of American Controlled Shipping, testified that in mid 1990, one of his member companies obtained quotes from both Japanese and American yards to build double-hull crude carriers in three tonnage categories. The American quotes were two to three times those of the Japanese. Mr. Loree concluded that, even if the subsidy cost were discounted, the American prices would still not be close to those of the Japanese.

On the other hand, the shipbuilders' council believes that the productivity gains achieved by domestic shipbuilders in constructing warships and auxiliaries for the Navy can be transferred to the commercial sector. According to the Department of Defense, these productivity gains translated into more than $5 billion worth of savings to taxpayers in naval shipbuilding programs in the 1980s.

Tanker demand

If subsidies were eliminated and a level playing field achieved, worldwide tanker demand to replace the large part of the world fleet built in the 1970s may support some resurgence of United States shipbuilding. If the subsidies are not eliminated, then, realistically, the primary new building business that United States shipyards can count on as a result of OPA 90 is that required to replace existing tonnage for the Jones Act trade. This assumes that the recent attacks on the Jones Act do not gain momentum and result in its elimination. This is particularly important now because United States-flag tanker operators have expressed interest in building as many as ten tankers in United States shipyards in the near future. However, uncertainty about continued support for the Jones Act is currently holding up the award of contracts for the construction of these tankers.

Due to a reduction in the level of Alaskan North Slope crude oil production, MARAD projects that the demand for domestic trade tankers will decrease during the next ten years. In addition, as United States oil production falls, imports of crude oil and refined products are expected to increase to offset the loss of domestic sources. Refined products are expected to be imported directly into the major consuming regions. Also, coastwise and intercoastal movements of refined products are projected to fall. These factors mean that few product tankers will be needed to carry refined products in the United States domestic trade.

MARAD estimates that no more than approximately 15 tankers totaling about 500,000 dead weight tons will need to be constructed during the next decade. This is only a small portion of the 30 to 50 new commercial shipbuild-

Once a large bustling yard, the Quincy, Massachusetts, division of General Dynamics stopped building ships in 1986.

ing orders per year that the shipbuilders' council estimates are needed to offset the decline in military orders. If this projection comes true, it can hardly be considered sufficient to inject life into United States shipyards.

If anything, in the near future, the double-hull requirements may reduce new construction due to its increased cost (estimated to be an additional 15 to 20 percent) with the consequent higher charter required to make the replacement economically viable. The ability to contract for replacement construction also presumes that adequate financing will be available.

One possible negative effect of OPA 90 on private sector financing is the uncertainty that this legislation places over possible mortgagee liability for oil spills, and the added jeopardy placed upon the mortgagee's secured interest (the vessel) due to potential unlimited liability and expanded damage claim exposure.

Under certain circumstances, OPA 90 imposes unlimited liability on the party responsible for an oil spill. This liability is not capped at a dollar amount, but a vessel does have a finite value. Obviously, the investment of the mortgagee (the bank which financed the purchase of the vessel) is in jeopardy where the damages exceed the value of the vessel. These are problems that Congress may be faced with in the near future.

Conclusion

Although OPA 90 will alter the way ships trading with the United States are built, it cannot be expected to cure the ills of our shipyards. Continued foreign government shipbuilding subsidies, coupled with the elimination of United States subsidies, and the constraints placed on title XI assistance due to the Credit Reform Act requirements conspire to defuse United States shipyard rebirth on the basis of traditional programs of government support.

As United States shipyards suffer further from the reduction of defense-related construction, they will have to demonstrate their ability to adopt new techniques to adapt to modern commercial shipbuilding practices, and they will have to prove that they can operate at competitive productivity levels.

The challenge is for United States shipyards to undergo this transformation. Their opportunities lie in building new tankers for the Jones Act trade and potentially for the world tanker replacement market for the 1990s.

All photographs accompanying this article are courtesy of the Shipbuilders Council of America, headquartered in Arlington, VA.

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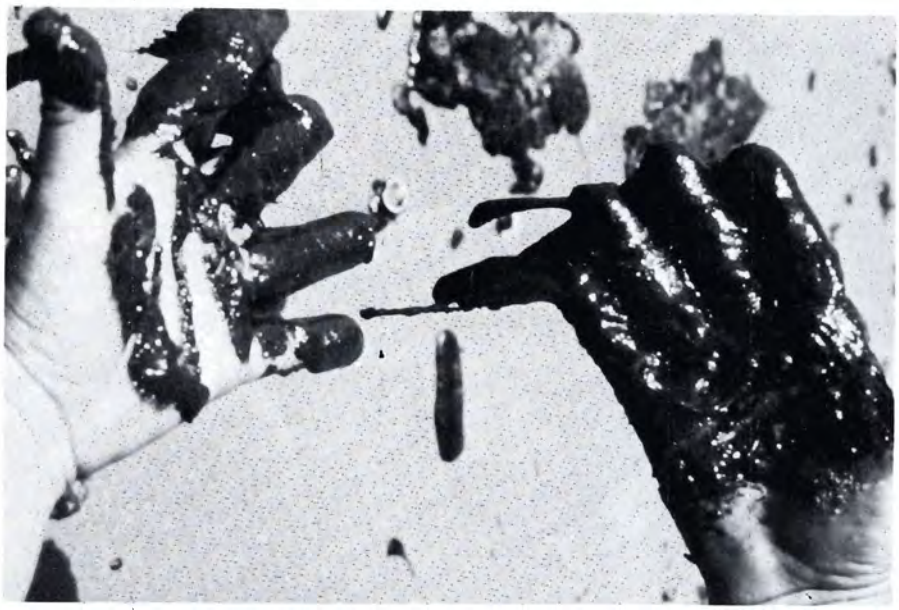

Efforts unite in OPA 90 research and development

By Ms. Ann Dalsimer

Dramatic advances in environmental protection have generally resulted from catastrophic events. OPA 90 is no exception. Just as the sinking of the Titanic triggered international action for safety of life at sea, the Exxon Valdez oil spill provided the impetus for the passage of the most ambitious legislation ever in marine environmental protection. The fact that OPA 90 passed both houses of Congress unanimously attests to the commitment of American political leadership and the concern of the public at large.

In drafting OPA 90, the Congress recognized that old piecemeal approaches to pollution research and technology development were no longer scientifically acceptable or economically efficient. In title VII of the act, Congress mandated the creation of an interagency coordinating committee on oil pollution research to comprise all agencies with statutory responsibilities related to oil pollution.

The committee was directed to: "...coordinate a comprehensive program of oil pollution research, technology development and demonstration among the federal agencies, in cooperation and coordination with industries, universities, research institutions, state governments and other nations, as appropriate, and foster cost effective research mechanisms, including the joint funding of research."

The interagency committee is chaired by Mr. Daniel F. Sheehan, associate director in the Coast Guard's Office of Marine Safety, Security and Environmental Protection. Members include the National Ocean and Atmospheric Administration, National Institute of Standards and Technology, United States Army Corps of Engineers, United States Navy, Department of Energy, Minerals Management Service, Fish and Wildlife Service, Coast Guard, Maritime Administration, Research and Special Programs Administration, Environmental Protection Agency, Federal Emergency Management Agency and National Aeronautics and Space Administration.

OPA 90 required that an oil pollution research and technology plan be prepared by the committee for submission to Congress reflecting priorities identified in the legislation. These include oil spill prevention, response planning and management and response, along with the fate and effects of oil in water, and the restoration of oil-contaminated land surfaces.

Prevention

The prevention component of the research plan combines engineering, management and human factor initiatives. It is divided into eight major areas:

1-- **vessel design,**
2-- **vessel operations,**
3-- **vessel inspection,**
4-- **waterways management,**
5-- **facility design,**
6-- **facility operations,**
7-- **pipeline operations, and**
8-- **pipeline survey.**

Vessel design

Double hulls, while providing protection in low-energy impact situations, cannot be considered the panacea for all spill scenarios. New designs, including alternative structural arrangements and flexible tank liners will be evaluated. Vessel maneuverability, stability and stopping ability will be assessed. Using probability-based design techniques, the effects of aging and fatigue on older hulls can be predicted.

Vessel operations

Since up to 80 percent of all spill incidents are related in some way to human error, operational efficiency of vessels is crucial. A prime target of research will be the interaction between individuals and the equipment they handle. This is especially important in light of the fact that crews are becoming smaller and vessel technology increasingly complex. Factors such as fatigue, boredom and language barriers also will be reviewed. Finally, shipboard technology, such as navigation and control systems, must be designed to complement the human operators.

Vessel inspection

Periodic vessel inspections, combined with regular maintenance and repair schedules, contribute to the safety and seaworthiness of vessels. Inspection methods will be reviewed and improved to identify structural and mechanical problems before they become critical. Human factors that influence inspector performance, including health, fatigue and hazardous environments, will also be thoroughly assessed.

Waterways management

Proper management of waterways is crucial to pollution prevention and response. Integrated systems merging electronic navigation, radar and electronic charts can revolutionize navigation. Installation of vessel traffic service controls will reduce risks in congested waterways and lower operational costs due to port entry delays. Research is needed on artificial intelligence, information resource management, and simulation techniques to guide and monitor all vessels, including those with hazardous cargoes.

Facility design

The design and location of waterway channels, berths, spill containment systems, storage tanks, piping and pumps are critical elements of the oil industry. They must be designed to mesh with all the transportation-related components, and independently provide adequate spill prevention and containment.

Facility operations

Human factors engineering forms the basis of research and development (R&D) in facility operations, especially in light of the significant increase in the use of offshore terminals and lightering activities, where personnel requirements differ from those onshore.

Pipeline operations

Approximately 225,000 miles of onshore and offshore pipelines transfer oil from production and storage facilities to consumers throughout the United States. R&D to improve both pipeline design and inspection instrumentation is needed for detecting leaks, monitoring flows and speeding up automatic shutdown in the event of a problem.

Pipeline surveys

About 18,000 miles of subsea pipelines have been laid on the outer continental shelf during the past 40 years. The research plan calls for an integrity survey to determine their material condition. Two surveys are also proposed for the approximately 205,000 miles of onshore pipelines. The first will address the adequacy of current regulations on pipelines in environmentally sensitive areas. The second will review the unregulated onshore liquid gathering lines to determine if their regulation should be considered.

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Response planning-management

The response to the *Exxon Valdez* spill was a logistical nightmare, which revealed inherent weaknesses in the national contingency plan. In October 1990, Secretary of Transportation Samuel K. Skinner and Environmental Protection Agency Administrator William K. Reilly submitted a report to President George Bush recommending improvements to the national response system. This report, along with provisions of OPA 90, form the framework for R&D efforts. Six areas are designated priorities:

1-- **risk assessment and contingency planning,**

2-- **spill response training and readiness,**

3-- **spill management,**

4-- **communications,**

5-- **health and safety, and**

6-- **R&D clearinghouse database development.**

Risk assessment and contingency planning

Contingency plans for both stationary structures and transportation modes are key to effective response. Risk assessment is an integral part of these plans, because it identifies high hazard sources and areas of dense traffic congestion, and pinpoints sensitive habitats that should be protected during spill response.

Response training and readiness

While most oil-related organizations offer emergency response training, their programs may not always be efficient due to personnel transfers and/or lack of time and money. The R&D program will look into optimizing training procedures and investigate whether spill response schools should be certified.

Spill management

A major deficiency in spill management is the lack of state-of-the-art decision support systems. Response practices lag behind what modern automated systems have to offer, and only R&D can determine how these systems can best be applied effectively.

Communications

Efficient emergency communications networks must be developed if response activities are to be well-coordinated, and if sudden unexpected occurrences are to be dealt with efficiently. The isolation and lack of phone lines in the *Exxon Valdez* spill were major operational impediments to its successful resolution.

Advanced spill management techniques include the use of sorbent boom, such as in the Exxon Valdez cleanup below.

Health and safety

More work is required to determine potential hazards, to improve methods of monitoring for toxic substances, and to conduct R&D on protective equipment and clothing for response personnel. In addition, the interagency committee intends to assess both the physical and psychological aspects of stress in emergency situations.

R&D clearinghouse database

The R&D clearinghouse would represent the new global approach to environmental research coordination. It would contain information from all over the world on oil spill prevention and research programs, as well as indicate what country is doing what kind of R&D. By replacing duplicate efforts with cooperative endeavors, the cause of international environmental protection can be greatly advanced.

Vessel salvage and containment

Pollution should be eliminated at the source. Consider how much worse the horror of *Exxon Valdez* would have been if 80 percent of its cargo had not been offloaded. The 20 percent that escaped killed much aquatic life and destroyed pristine ecosystems.

The R&D program will examine both active and passive measures for preventing the loss of oil from a damaged ship. The active measures will include booms and skimmers, which can be rapidly deployed to recover oil, and the development of new methods for plugging breached tanks. The passive measures relate back to ship design and construction, with the automatic transfer of oil away from damaged portions of the ship. Finally, improved methods of vessel destruction will be assessed for use when it is the only viable alternative.

The destruction of ***wildlife -- one*** *reason for oil spill prevention efforts.*

Spill response

Despite the best planning and intentions, it is inevitable that spills will happen. Fast, effective response may spell the difference between an unfortunate accident and a calamitous event. Six categories of problems will be addressed in the response component of the research plan:

1-- vessel salvage and containment,
2-- surveillance,
3-- on-water containment/ recovery/treatment,
4-- on-water oil treatment,
5-- shoreline impact mitigation/ cleanup technology, and
6-- disposal.

Surveillance

Existing remote sensing systems leave a lot to be desired. Wind patterns, fish oil, fresh water, silt, seaweed -- all appear as candidate oil slicks. The infrared and ultraviolet detection systems are now at least 30 years old and badly in need of upgrading. There is promising emerging technology that can not only detect the presence of oil, but measure the thickness of the slick. Full-scale development of this technology would greatly aid emergency response teams.

On-water containment/recovery/treatment

During the 1970s, one of the main thrusts of R&D was the development of booms and skim-

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Gulf strike team member gathers oil sample for research and development.

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mers to contain, direct and recover oil. Since then, however, little innovation has taken place, and, in the 1990s, the same old bottlenecks caused by debris, viscous oil, and the on-going puzzle of what to do with recovered oil and water are still with us.

Technologies need to be developed for adverse environments, such as ice-clogged waters and fast currents. The role of sorbents needs to be investigated. Testing needs to be conducted at the oil and hazardous materials simulated environmental test facility and in the open ocean.

On-water oil treatment

On-site burning appears to offer one of the best methods for getting rid of oil on water, especially crude oil. Laboratory and full-scale tests indicate that as much as 95 percent of the discharge can be eliminated. Further research should determine the effectiveness of burning under various conditions; the extent, composition and impact of resulting airborne contaminants; and the logistical and safety considerations associated with this method. In addition, the toxicity, effectiveness and applications logistics of dispersants, surfactants, elastomers and gelling agents will be reexamined in detail.

Shoreline impact mitigation/cleanup technology

Mechanical, chemical and biological methods of oil removal will be investigated. Although many highly sensitive areas were protected following the *Exxon Valdez* incident, the enormous amounts of human resources and equipment deployed cannot be assumed to be available on a general basis. Much needs to be studied about how to contain and remove oil from the shore without causing more ecological harm.

Disposal

Although often an afterthought, an important issue is how to dispose of recovered oil and oily debris. Burial in shoreside landfills is rapidly becoming an unacceptable option. However, research on environmentally safe and economically efficient methods is badly outdated and does not reflect recent advances in treatments, such as disposal in secure landfills, incineration and subsequent bioremediation.

Fate, transport and effects of oil

Surprisingly little is known about how oil moves after it is spilled or what its long-term impacts are. After the oil slick is no longer visible and the tarballs have disappeared from the beaches, are the ecosystems still contaminated? If so, how long will the effects last? A year? A decade? Longer?

In the hope of answering some of these questions, the research plan will investigate six areas :

1-- **transport and properties of oil discharges and by-products,**
2-- **environmental fate and effects of oil discharges,**
3-- **natural resource damage assessment,**
4-- **identification of sensitive areas at risk,**
5-- **collection of environmental baseline data in risk areas, and**
6-- **preparation of scientific monitoring and evaluation plans.**

Oil transport and properties

A major research priority will be organizing, collating, updating and enhancing databanks on the treatment and properties of oil discharges and by-products. Specific geographic risk analyses will be performed, including studies of the fate and transport of oil spilled into large river systems. Work will be accelerated on developing portable oil analysis kits, since the behavior of the oil constituents is strongly influenced by its composition.

Fate and effects of discharges

Fragile ecosystems can be better protected if the effects of oil are better understood. Key habitats to be studied include submerged aquatic vegetation, coastal marshes, subtidal systems, coral reefs, mangroves and other forests subject to tidal flows or located on freshwater river and lake banks. Both the habitats and their resident biota will be studied to determine levels of toxicity and other impacts of oil on vegetation vigor, production, reproduction, and mineral and nutrient cycling. Findings will be integrated with those of studies of affected fauna.

Natural resource damage assessment

This new field combines scientific assessment of environmental injury with damage cost estimates. Thus, "injury" relates to the physical impact of oil spills on plants and animals, while "damage" relates to the monetary costs. The research plan will focus on innovative methods of studying injuries over time, using different types of fresh and weathered oil, on a variety of habitats and populations. It will also explore various avenues toward matching levels of injury with levels of financial responsibility.

Identification of risk areas

The National Oceanic and Atmospheric Administration's environmental sensitivity index graphically portrays natural resources, shoreline characteristics, drinking water intakes and socioeconomic features of areas at risk from oil spills. This index, however, lacks data on major rivers, the Great Lakes and some coastal areas. It will be updated and digitized, and data on seasonal distributions of marine mammals, birds and wildlife habitats will be standardized.

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If 80 percent of the Exxon Valdez' cargo had not been offloaded, the consequences would have been that much worse. Photo by PAC Ed Moreth.

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Baseline data collection

Data collected during the *Exxon Valdez* incident will be synthesized and collated. Based on field observation, near surface/surface ocean water models will then be refined. Studies in this category will enhance environmental baseline research being conducted by the Minerals Management Service, the National Oceanic and At-mospheric Administration, the Environmental Protection Agency and various state environmental agencies.

Monitoring and evaluation plans

Long-term, comprehensive, scientific studies will be made of the short- and long-term effects of selected oil spills. Data will be standardized so that spills can be compared. Strategies will be developed to measure ecosystem recovery.

Restoration and rehabilitation

Insufficient knowledge of the interaction between natural resources and intruding oil pollution hampers the ability of scientists to judge when to begin action, what action to take and when to cease. "How clean is clean?" This is a question often posed in the spill response community. The research plan will create an approach to carrying out restoration and rehabilitation to the endpoint when further mitigation is neither cost effective nor environmentally beneficial. This is a new field. All the R&D will be experimental, and the procedures will be flexible enough to adapt to unexpected circumstances.

Regional grant programs

In addition to the cooperative federal effort, OPA 90 directs the interagency committee to initiate a program of competitive grants to universities and other research institutions to study the regional aspects of oil pollution. In the act, "regions" correspond to the ten Coast Guard districts, and the $6 million authorization is divided among them. All proposals will be considered by the interagency committee if they are consistent with the established R&D priorities of the research plan.

Coordination and cooperation

OPA 90's global approach is demonstrated by the requirement that the interagency committee seek out and work with all other institutions -- state, local, private, national and international -- involved in oil pollution research and technology development.

The IMO supports this agenda, with article 8 of the International Convention on Oil Pollution Preparedness, Response and Cooperation formalizing the organization's commitment.

The Coast Guard and IMO will cosponsor an international oil spill R&D forum in the Washington, D.C. area during the first week of June 1992 to facilitate information exchange among sponsors of pollution research and program managers.

Conclusion

A new era of environmental awareness and responsibility has dawned. Throughout the United States and around the world, governments and private institutions are beginning to work together to provide better tools, processes and procedures to prevent, if possible, and mitigate, if necessary, the effects of future oil spills. The Coast Guard is proud to be an integral part of this effort.

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The Ashland Oil Terminal in Cincinnati, Ohio, receives refined petroleum products and chemicals by barge on the Ohio River, and transports them by tank truck and rail car.

Photo courtesy of Ashland Oil, Inc.

How facilities will respond to OPA 90

By LCDR Walter Hunt

On January 2, 1988, the Ashland Oil Terminal in Floreffe, Pennsylvania, was the site of a massive, nearly instantaneous release of diesel oil into the Monongahela River. An estimated 3.8 million gallons flowed from the facility's storage tank, with approximately 750,000 gallons reaching the river.

This resulted in the filtering of drinking water or closing of intakes for 2.7 million people along about 300 miles of the Monongahela and Ohio Rivers. The short-term environmental consequences included an estimated 10,000 dead fish and 2,000 birds.

Such a major oil release can have devastating effects on the environment, particularly in inland waters where the dynamics of coastal areas are not prevalent.

A 1991 General Accounting Office report stated that there were 16,000 spills discharging about 46 million gallons of oil in the United States in 1988. Spills at waterfront facilities accounted for about half of this amount, according to the report.

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OPA 90 became an appropriate vehicle to increase the level of spill response planning for onshore and offshore facilities which store and/or handle oil.

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1988 task force

In 1988, shortly after the Ashland discharge incident, a task force of federal, state and regional agency representatives was formed to consider oil spill response plans for oil facilities. Among this group's recommendations were to:

1) amend spill prevention, control and countermeasures regulations (40 CFR part 112) to require specific contingency plans for discharges from facilities that store and handle oil,

2) consider local physical and environmental characteristics in preparing contingency plans,

3) fund research to develop technologies to improve oil pollution response equipment, and

4) increase cooperation between agencies responsible for oil pollution response and, if necessary, revise memoranda of agreements between appropriate federal and state agencies.

OPA 90

Following the Ashland storage tank discharge in 1988, the *Exxon Valdez* spill in 1989 and the tank vessel *Mega Borg* burning and spilling 300,000 gallons of crude oil into the Gulf of Mexico in June 1990, the 101st Congress passed OPA 90. This legislation addressed many real and perceived shortcomings of the existing pollution response system.

The most significant impact on facilities is legislatively-mandated pollution response planning. Section 4202(a) of OPA 90 amended section 311(j) of the Federal Water Pollution Control Act (FWPCA), requiring owners and operators of certain facilities to submit response plans to the president of the United States.

Section 4202(b)(4) establishes an implementation schedule for the provisions of section 311(j). Regulations must be issued requiring response plans for tank vessels and affected facilities by August 18, 1992 (two years after the enactment of OPA 90). By August 18, 1993, tank vessels and facilities that handle, store or transport oil must have an approved plan and comply with it.

Response plan regulations for tank vessels and facilities which handle hazardous substances will be issued at a later date, since they are not subject to specific regulatory deadlines that would prohibit operation.

Response plans

Under the amended FWPCA, an onshore facility that could reasonably be expected to cause "substantial harm" to the environment by discharging into or on the navigable waters, adjoining shoreline or the exclusive economic zone will have to prepare a facility response plan which must:

1) be consistent with the national contingency plan contained in 40 CFR part 300 and the area contingency plan;

2) identify a qualified individual with full authority and capability to activate the response plan (including funding for the response);

3) identify, and ensure by contract or other means acceptable to the president, private personnel and equipment necessary to remove the worst case discharge to the maximum extent practicable, and to mitigate or prevent the discharge, or a substantial threat of such a discharge;

4) describe the training, equipment testing, periodic unannounced drills, and actions of facility personnel to ensure the safety of the facility, and to mitigate or prevent the discharge, or substantial threat of discharge;

5) be updated periodically; and

6) be resubmitted for approval of each significant change.

OPA 90 further states that for an onshore facility with a response plan submitted that could reasonably be expected to cause "significant and substantial" harm to the environment, the president shall:

1) promptly review such response plans;

2) require amendments to any plan not meeting requirements of the FWPCA;

3) approve any plan that meets these requirements; and

4) review each plan periodically.

Coast Guard and EPA

The Coast Guard and the Environmental Protection Agency (EPA) are developing uniform criteria to accomplish what is stated in the conference report. These criteria will be used by both EPA regional administrators and Coast Guard captains of the port (COTP). While the criteria will be similar, they will have to be sufficiently flexibile to permit application to both transportation- and non-transportation-related facilities.

The Coast Guard and EPA will continue to determine which agency has jurisdiction over an onshore facility, based on whether it is transportation-related or not. A 1971 memorandum of understanding between EPA and the Department of Transportation (DOT) established policies and guidelines to follow in determining which agency would regulate a facility for pollution prevention purposes.

Congress passed OPA 90 after the Mega Borg burned and spilled 300,000 gallons of crude oil into the Gulf of Mexico in June 1990.

Congress did not specifically define "substantial harm" or "significant and substantial harm" to the environment. A joint explanatory statement of the Committee of Conference states that the requirement to prepare and submit a response plan should be broadly applied.

The report recognized that even small discharges could result in substantial harm under certain circumstances. It also states that the nationwide criteria to be developed by the president will result in "only some proportion of all submitted onshore facility response plans . . . to be reviewed and approved by the president."

The theory of imposing requirements for response planning based on prevention-oriented regulations may have some inherent logic. However, it overlooks an existing regulatory regimen which is response-oriented. Under the national contingency plan, the Coast Guard is the predesignated federal on-scene coordinator for oil pollu-

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tion response in the coastal zone, while EPA is the predesignated coordinator for the inland zone. The boundaries between these zones are established by agreement between the two agencies and contained in federal regional contingency plans.

However, facilities and their associated environmental hazards are not divided along such clear locational boundaries. In other words, there is no legal mandate for the response plan from a non-transportation-related facility in the coastal zone to receive any regulatory scrutiny by the Coast Guard on-scene coordinator charged with responding to a pollution incident from that facility. Likewise, the EPA coordinator may be coping with a spill from a facility whose response plans he or she has never seen, or more importantly, from a facility that, unknown to him or her, was not required to have a response plan.

Due to the long-lived cooperative spirit between the EPA and the Coast Guard, such a scenario is unlikely to occur. Headquarters staff from both agencies have long recognized the pitfalls of establishing overly narrow and parochial response plan programs for on-shore facilities.

Discussion between the agencies has resulted in a general agreement that an on-scene coordinator will be able to review any response plan required from a facility in his or her response zone before the agency with authority to approve the plan grants final approval. The intention is not for the Coast Guard on-scene coordinator to comment on every response plan to be approved by EPA, but to review plans from certain facilities that could be expected to pose "significant and substantial harm" to the environment in the event of a discharge into or on navigable waters. This may include plans from facilities that have a history of pollution incidents.

More importantly, these plans will also become integrated into the area contingency plan, which must be developed by the on-scene coordinator in accordance with OPA 90 revisions to section 311(j)(4) of the FWPCA. However, under executive order 12777, EPA has approval authority for the response plan for any non-transportation-related facility in the coastal zone. Similar language will also be developed to allow the EPA coordinator to review and comment on any transportation-related facility in the inland zone before the Coast Guard approves the plan.

It is also expected that both agencies will be aware of any determination that a facility does not pose either a threat of "substantial harm" or "significant and substantial harm." It is expected that the agency regulating a specific facility will defer to the opinion of the predesignated on-scene coordinator that the facility could reasonably be expected to cause either threat. The joint development of the determining criteria should minimize the likelihood that the agencies will have different opinions.

Complexes

In the real world, facilities are not as neatly divided along transportation-and non-transportation-related lines as regulating agencies would like. It is possible that within the security fence of a facility operated by one company, several agencies may have jurisdiction over pollution response plans.

"In the real world, facilities are not as neatly divided. . ."

A facility subjected to multi-agency jurisdiction is considered a "complex." This facility may have a pier with a manifold used to transfer oil to or from vessels. The manifold is connected by a pipeline to a large storage tank surrounded by a dike, berm or other method of secondary containment. This tank receives product from or supplies product to a transportation-related pipeline that may be part of an interstate or intrastate pipeline network.

Following the 1971 memorandum of understanding between EPA and DOT, the marine manifold and pipeline connecting it to the storage tank are the responsibility of DOT, delegated to the Coast Guard. Inside the secondary containment, the storage tank and associated piping are EPA's responsibility. The interstate or intrastate pipeline feeding to or from the storage tank would be the responsibility of DOT. The burning question has been, "Does this mean that a different response plan is required for each agency?"

One plan

The general consensus between individuals working on this issue for both EPA and DOT is that one plan will suffice. It is expected that both DOT and the Coast Guard will settle on a mutually-agreeable format and response plan contents. The plan must address the items required by law.

Both agencies agree that they must have similar requirements on the qualifications of the designated individual who activates the response plan, on the amount of response equipment required to respond to a worst case scenario, and on requirements for testing and conducting drills with pollution response equipment. It is anticipated that both agencies will review and jointly approve the response plan submitted by the owner or operator of a "complex."

Unresolved issues

Many policy issues remain to be resolved before requirements for facility response plans can be issued. These include a definition of the worst case scenario for facilities, a definition of "the maximum extent practicable" for a planned response to a worst case scenario, and an agreement on the amount and type of equipment necessary to respond to a worst case scenario.

Also not yet resolved is what form of contractor certification would best assure that response contractors identified in a response plan are reliable and capable of performing at an expected level.

Some of these issues may be resolved in the development of regulations by the Coast Guard to carry out tank vessel response plans. Under section 311(j)(6) of the FWPCA, tank vessels are subject to the same regulatory deadlines as offshore and onshore facilities.

Cooperative efforts

The development of regulations for facility response plans will take the combined efforts of several agencies. It will also require the active participation of the petroleum industry, clean-up contractors, environmental groups and affected states. This exchange of information and ideas must take place within the constraints of the rulemaking process as stated in the Administrative Procedure Act (5 U.S.C. 553, *et sec*).

All participants must remember that the purpose is to ensure that sufficient private sector resources are identified and available to respond to massive discharges of oil or hazardous substances. The broader goal, however, is to minimize future damage to the environment.

See page 47 for the advance notice of proposed rulemaking for facility response plans.

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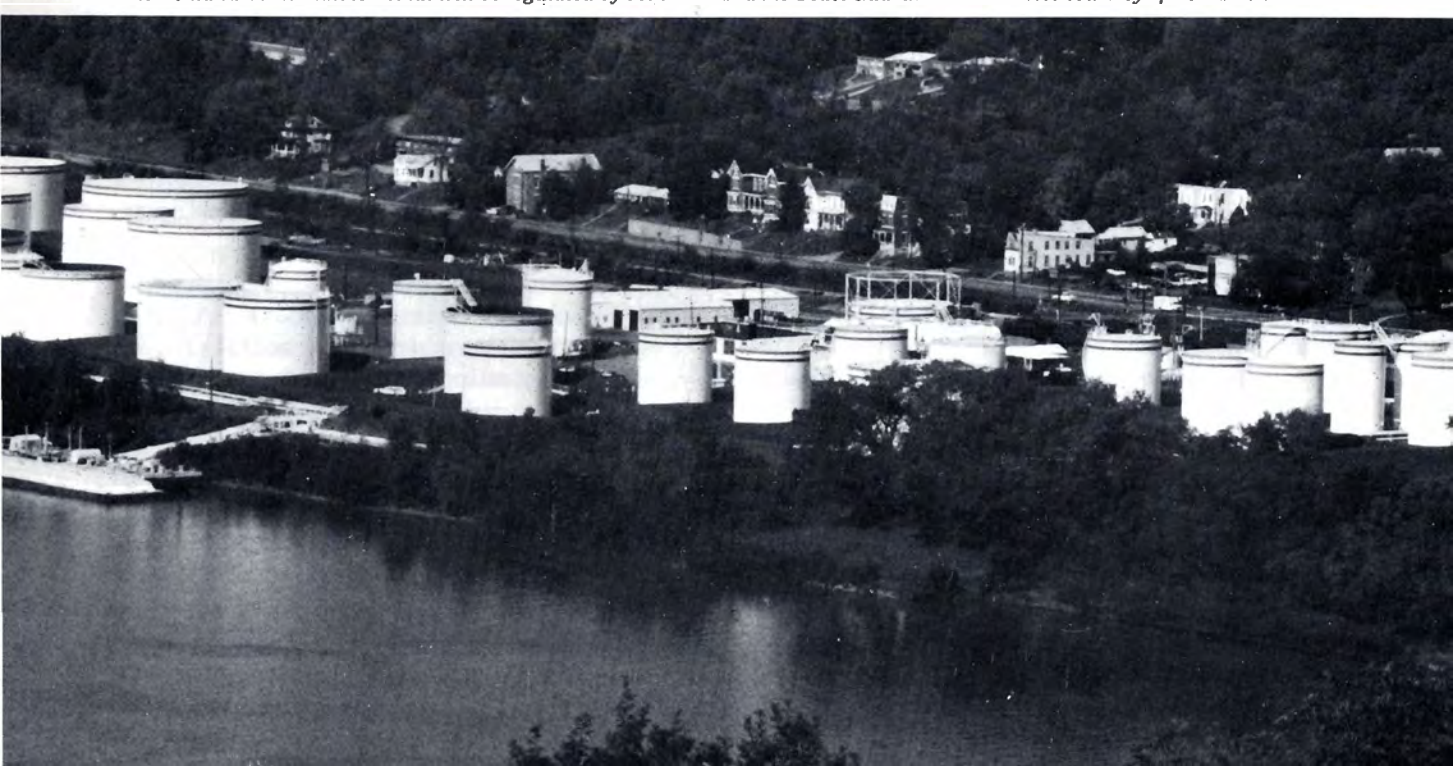
The Ashland Cincinnati terminal will be regulated by both EPA and the Coast Guard. *Photo courtesy of Ashland Oil.*



Oiler on U. S. flag passenger ship S.S. Independence wears safety shield working on grinder.

All aboard -- -- reliable crews

By Mr. James W. Cratty

Record checks

New record-checking measures under OPA 90 go a long way toward assuring that reliable crews serve aboard merchant vessels.

Title IV, subtitle A of OPA 90 (prevention) addresses licensing and certification of merchant seamen. Specifically, this part authorizes the secretary of transportation to access the National Driver Register. Based on information contained in this register, the Coast Guard may deny issuance of licenses, certificates of registry and merchant mariners' documents.

Under subtitle A, the secretary also has discretionary authority to review the criminal record of an applicant for a license, certificate or document. OPA 90 also requires that these applicants be tested for use of dangerous drugs in violation of law or federal regulations.

In addition, OPA 90 requires the Coast Guard to establish an expiration date not exceeding five years and a renewal procedure for existing and newly issued certificates of registry and merchant mariners' documents.

The provisions regarding the National Driver Register and the criminal record check are intended to identify individuals with specific motor vehicle driving offenses or serious criminal offenses that would impair the holder's ability to safely serve on a merchant vessel.

The drug testing requirement is an additional tool in assuring a drug- and alcohol-free workplace in the maritime industry.

The five-year renewal period will allow the Coast Guard to ensure that vessel personnel continue to be qualified to operate vessels safely.

(left) Fireman watches control board on S.S. Independence.

(above) Oiler checks engine room operations on ~~USNS DeSteiguer~~.

Enforcement

The legislation authorizes temporary suspension of licenses, certificates of registry and merchant mariners' documents before convening a hearing. Temporarily suspending merchant mariner creditionals before convening a hearing will allow the Coast Guard to prevent some merchant seamen who are considered a threat to marine safety from sailing while they are waiting for a hearing. Pre-hearing suspension is allowed only for certain offenses, and the suspension and revocation hearing must be convened within 30 days.

Two new categories have been added to the list of offenses for which merchant seamen can be summoned to a suspension and revocation hearing. Charges can now be based on offenses that would prevent the issuance or renewal of a license, certificate or document.

Realizing that undesirable shore-side activities are not necessarily left on the pier when a merchant seaman crosses the gangway and heads to sea, Congress expanded the list of suspension and revocation offenses to include unsafe conduct on the highways. A merchant seaman who is convicted of operating a motor vehicle while under the influence of alcohol or drugs, or of traffic violations arising in connection with a fatal traffic accident, reckless driving or racing on the highways may be summoned to a Coast Guard suspension or revocation hearing for those offenses.

By identifying persons with such problems and preventing them from serving on United States flag vessels, the Coast Guard will ensure safer operations of vessels, resulting in fewer accidents and oil spills.

Photographs accompanying this article are courtesy of the Seafarers International Union.

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How tugs can prevent pollution

By LCDR Tim Healey

The use of tugs is not new. They have been a key fixture in seaports throughout the world for more than a century. Bustling about harbors, pushing, pulling and directing large vessels in docking and undocking, tugs help the deep-draft ships maneuver at slow speeds in confined areas.

OPA 90, under section 4116(c), takes tug duties a step further -- escorting loaded oil tankers operating in United States designated waters.

Purpose

The intent of Congress in requiring tug escorts for loaded oil tank vessels over 5,000 gross tons is to have immediate capacity to regain control over a tanker should it suddenly lose steering or propulsion control.

By being on scene, a towing vessel can respond to a tanker's distress call in a matter of a few minutes instead of a few hours. The proximity of two escorts gives the tanker master additional resources to help keep the stricken vessel off the rocks and the cargo in the tanks.

Current practice

This general escort practice is already in use in Puget Sound, Washington; Valdez, Alaska and overseas in major oil ports, including Sullom Voe in the Shetland Islands. A 1975 Washington state law requires an escorting towing vessel for loaded oil tankers over 40,000 deadweight tons (dwt). In Valdez, outbound loaded tankers over 20,000 dwt have been escorted since mid-1989.

Other domestic port administrations, harbor safety commissions and other interested safety-conscious bodies are examining the use of escorts for loaded tankers to help prevent oil spills. Philadelphia, Pennsylvania, and the California ports of San Francisco Bay and Los Angeles/ Long Beach are areas of high tanker traffic density where state and local officials have taken a pro-active, spill prevention stance by addressing the possible use of towing vessels as tanker escorts.

Responsibilities

It is generally held that the ultimate responsibility for the safe navigation of a tanker rests with its master. But the master has a supporting cast of professional mariners who have their responsibilities as well. They include pilots, licensed officers and unlicensed crew members on the tanker, and the licensed operators of the escorting towing vessels and their crews.

The Coast Guard will address the issue of defining who is responsible for what in it's rule-making activity.

Benefits and limits

Numerous studies and tests have demonstrated benefits that can be obtained from having tanker escorts. Within certain parameters, towing vessels can effectively influence the direction and speed of a loaded tanker that is no longer controlled by its own propulsion or steering machinery.

The importance of these parameters or limitations cannot be overlooked. Variations in tanker size and speed, wind speed and direction, wave height and swell direction, tide level and currents, the presence of ice, tug shaft horsepower and bollard pull, tug propulsion and steering design, tug draft and other factors can, alone or in combination, radically alter the needs of a tanker to safety transit a given body of water.

Photo at left courtesy of Crowley Maritime Corp.

Photo below courtesy of FOSS Maritime.

Total system

Because of such limitations, the use of escorts cannot guarantee the prevention of all oil spills. The drafters of OPA 90 recognized that escorting is an important element of total vessel operation that provides a more comprehensive envelope of protection for the environment, the ship and the crew.

While not part of the tug escort rulemaking project, the regulatory thrust of OPA 90 clearly shows concern for a total system approach to the safe transportation of oil by ship. Crew size, training, aids to navigation, improved electronic position fixing, human factors, hull configuration and vessel routing are but a few of the other items addressed by OPA 90. The interplay of these elements, the owner's commitment to safety, the actions of the classification societies and the response of the Coast Guard are all essential to a safe transportation system.

The Coast Guard's rulemaking for escorts for certain tankers will seek to strike a balance between all viewpoints that is beneficial without being excessively burdensome. It must also be useful and enforceable, logical and prudent.

Conclusion

This relatively tiny section of OPA 90 (11 lines out of 92 pages) concerning escorts for certain tankers has uncovered a multitude of real considerations, all of which must be addressed and many of which are competing or contentious.

In many ways, section 4116(c) is a microstudy of the rulemaking demands on the Coast Guard by OPA 90. The potential environmental, economic and societal impact of Coast Guard actions are staggering when one notes that OPA 90 also requires double hulls and increased financial responsibility, among other things. These have already placed most of the world tanker operators at the edge of their corporate seats, while underwriters are threatening to refuse to do business in the United States. And without the cooperation and input of all interested parties, any resulting rules cannot succeed in the manner intended by our elected officials or desired by the public.

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OPA 90 regulations . . . *costs and benefits*

By Mr. Bruce P. Novak

Introduction

The OPA 90 mandate requires the Coast Guard to develop and carry out regulations that will have a lasting impact on the marine industry.

For example, included in more than 40 rulemakings under OPA 90 are requirements for tankers to be accompanied by escort vessels in certain United States waters; a phase-out of single-hull vessels trading in United States waters; and operational and structural retrofit rules for single-hull vessels until they are phased out.

Economic impact

These and other requirements will impose construction and operational costs on the marine industry. Presumably, most of these costs will be passed on to consumers in the form of increased energy charges.

However, there may be adverse short-term effects on smaller, weaker companies. Even large companies which can absorb short-term expenses will need to carefully assess the value of their existing equipment, the costs of complying with the new regulatory requirements, and whether the equipment will earn enough to justify keeping it in service.

Consider the expense of building a new vessel as an example. As existing single-hull tankers are phased out, they must be replaced by double-hull vessels.

Building new tankers is expensive, and this expense is reflected in their operating costs. A very large crude oil carrier needs to earn about $50,000 per day to justify its $100 million cost of construction. However, today's rates for tankers run only about $20,000 a day. Assuming that a company wants to remain in the United States trade, it must carefully balance the cost of construction against the expected earning potential of newly constructed vessels.

Clearly, there are important economic considerations facing the industry. Most of the oil shipped in the world market passes through United States ports. This is a powerful inducement for ships to service the United States market. While it may be profitable for some operators to stay in this market, it may not be worthwhile for others to do so.

These economic considerations are of great interest to the Coast Guard. Executive Order 12291 requires government agencies to consider the costs of regulations in relation to their social benefits. Good government practice demands that the "net benefits to society" from rulemaking outweigh the costs.

Environmental benefits

In the environmental arena, it is not always easy to assign dollar values to public benefits. Some benefits are relatively easy to quan-

". . . it is difficult to put a value on the beauty of beaches. . . "

tify, such as the cost of cleanup operations which are avoided by reductions in oil spills. However, it is difficult to put a value on an otter's life, the beauty of beaches or the protection of rookeries.

Many of the perceived social benefits of clean water are very difficult to quantify. Nevertheless, the Coast Guard must estimate these values as closely as possible.

Analyses

Many OPA 90 requirements are interactive, affecting one another. For example, the National Academy of Sciences estimates that double bottoms could prevent about 50 percent of the oil spilled as a result of vessel accidents. However, if increased use of tanker escorts and vessel traffic services will reduce the likelihood of casualties by 20 percent, that would reduce the proportional value of double hulls.

If the Coast Guard conducted a benefit analysis for each individual rule required by OPA 90, certain benefits would be double counted. Therefore, a more accurate way to estimate net costs and benefits is to look at the total network of regulations.

It is impossible, however, to produce such an overview without first examining each individual piece of the regulations. The Coast Guard does not have the resources to develop all of the 35 to 40 required rules simultaneously, nor can it do so and still meet the statutory deadlines specified in the law.

In order to assess the aggregate costs and benefits of OPA 90 mandated rules, the Coast Guard is developing a comprehensive regulatory impact analysis, to look at individual rules or blocks of rules that apply to the same areas. As these building blocks of the umbrella analysis are completed, they will be made available for public review and comment through a notice in the *Federal Register*.

Eventually, all of the component parts of the regulatory impact analysis will be made available to the public, commented on and modified. Since the most critical and demanding regulatory tasks are being tackled first, the major portion of the umbrella analysis should be completed by January 1993.

Subsequently, minor revisions will continue until all tasks required by OPA 90 are accomplished. When this lengthy process is completed, the Coast Guard will be able to consolidate all of the parts into the final, comprehensive analysis.

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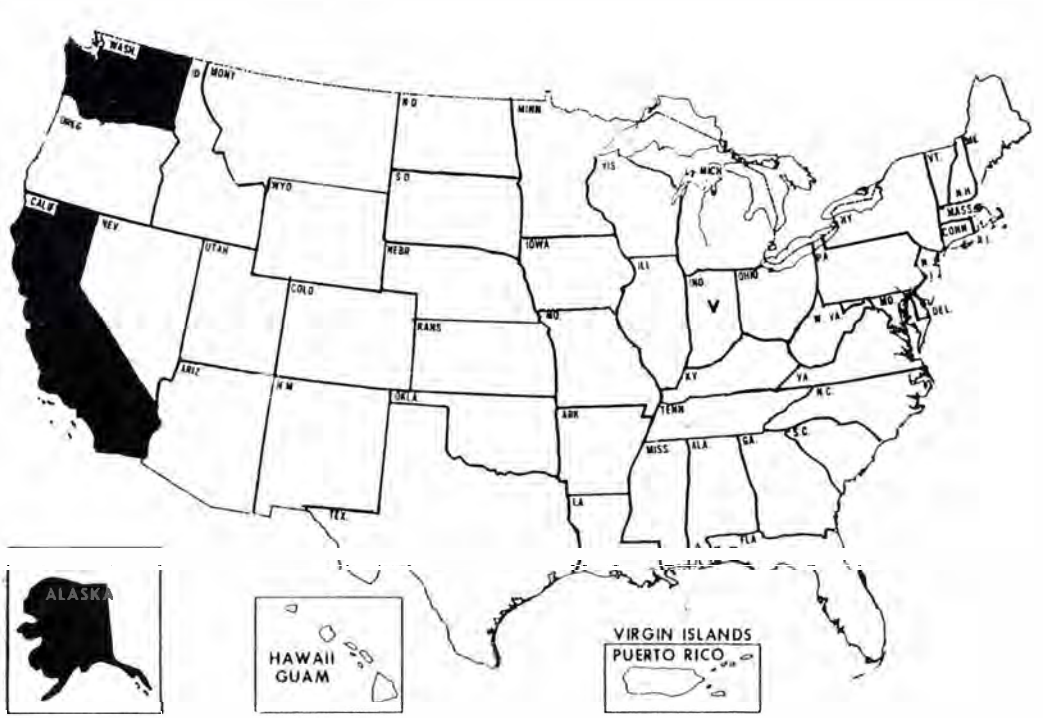

State regulations bring *problems and opportunities*

By LCDR Rhae Giacoma

OPA 90's effect on the United States oil industry has been under debate again and again as regulations are being developed to carry out the act's provisions. One specific area of concern is a federal nonpreemption clause in OPA 90 concerning state regulations. What this means is that OPA 90 allows the states the authority to impose any additional liability or requirements beyond what the federal government requires, with respect to the discharge of oil or other pollution by oil within the state, or any removal activity in connection with such a discharge.

Under the recognized rules of constitutional construction, federal law will preempt state law, unless a federal statute specifically states otherwise. When OPA 90 was being developed, the states lobbied to secure the right to impose their own pollution regulations to protect their interests. They were successful in this effort, and, thus, can establish regulations which are stricter than the federal requirements.

Several states have already enacted pollution legislation as a result of OPA 90, or are in the process of doing so. Some states have focused on specific issues. Virginia, for example, recently issued regulations on tank vessel financial responsibility requirements and oil discharge contingency plans for facilities and tank vessels. Other states, such as Washington, are enacting legislation which is far more reaching. Washington addresses the issue of natural resource damage assessment in its legislation.

There is a major concern regarding inconsistency in legislation and regulations from state to state. This can be seen in such areas as limits of liability, contingency plan standards and requirements for response equipment.

Alaska

Alaska recently enacted pollution regulations with very specific requirements. Any tank vessel or oil barge operating within the state must have an oil discharge prevention and contingency plan approved by the Alaska Department of Environmental Conservation. In addition, the holder of the plan must maintain, or have available under contract, sufficient oil discharge containment, storage, transfer and clean-up equipment, personnel and resources to meet specific response planning standards.

For example, tank vessels and oil barges carrying crude oil and having a cargo volume of less than 500,000 barrels must be able to contain or control, and clean up a 50,000-barrel discharge within 72 hours. Those having a volume of 500,000 barrels or more must be able to contain or control, and clean up a 300,000-barrel discharge within 72 hours.

Those carrying non-crude oil must be able to contain or control 15 percent of the maximum capacity of the vessel or barge, or the realistic maximum oil discharge, whichever is greater, within 48 hours and clean up the discharge within the shortest possible time consistent with minimizing damage to the environment.

Washington

A requirement of Washington's oil pollution legislation is that a vessel covered by the 1990 Oil and Hazardous Substance Spills Act, as amended by the 1991 Spill Prevention Act, shall have a contingency plan for the containment and clean-up of oil spills from the vessel.

As a follow-up to this legislation, Washington developed standard vessel contingency plan rules, effective January 1, 1992. These rules describe 33 areas which must be addressed in each contingency plan.

California

California recently enacted the Lempert-Keene-Seastrand Oil Spill Prevention and Response Act, which requires that vessels entering state waters must submit a contingency plan at least three days earlier. The act details specific requirements for the development of these contingency plans.

Inconsistencies

The differing contingency plan requirements of Alaska, Washington and California are examples of the inconsistencies faced by vessels attempting to comply with state regulations. Vessels transiting the coast must be in compliance with all state requirements when entering state waters. These same vessels must be in compliance with the federal requirements once the OPA 90 regulations are in place.

Some tank owners have indicated that they will boycott certain state waters, while others say they will boycott United States waters all together rather than attempt to comply with the myriad of regulations.

What is the answer?

Some industry officials have suggested that Congress place a federal preemption clause into OPA 90. The Coast Guard is concerned with this and other problems, and will be looking at ways to coordinate federal and state rulemaking. The OPA 90 staff has designated state liaisons to work on the coordination effort.

The discussions at the state level thus far have been positive. Many states have agreed to wait out the federal rulemaking to see how they fare in the end. They will then decide whether or not to issue regulations, depending on how they feel about the necessity for more stringent requirements to protect their state resources.

The Coast Guard is looking at establishing memorandums of agreement with the states to address some of the issues. While this cooperative effort may not solve all of the problems, it appears to be a step in the right direction -- -- achieving rules we can all live with.

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Area committees . . . *to respond before oil spills*

By LTJG Timothy D. Denby and Mr. Robert M. Gauvin

"The 11-million-gallon spill from the Exxon Valdez in Prince William Sound, Alaska, and the three spills within a 24-hour period just months later in the coastal waters of Rhode Island, the Delaware River and the Houston Ship Channel have demonstrated that oil pollution from accidental tanker spills is a real and continuing threat to the public health and welfare and the environment."

These words from the Senate report on the legislative history of OPA 90 and many similar statements have been published since August 1989, when the country's largest oil spill occurred in Prince William Sound.

Many of these statements have been critical of our ability to clean up coastal oil spills of more than one million gallons using current resources and technology. Others point to the need for quick and effective actions, which must be preplanned today, and not evolve as a clean-up response is required.

New federal requirements under OPA 90 ordain that the Coast Guard carry out a preparedness planning regime to serve as a cornerstone of all spill response activity.

History

Since the early 1970s, oil and hazardous material response activities have been conducted according to the national contingency plan, which assigned the Coast Guard and EPA the responsibility for coordinating all pollution contingency planning and response. The Coast Guard worked at the local level in the coastal zone with individuals and organizations of state and local communities to coordinate their pollution response activities.

Coast Guard Captains of the Port (COTPs) worked diligently preparing local contingency plans to address the myriad of difficulties involved in mounting an effective response to a spill incident. The response capabilities and concerns of other federal, state and local agencies, and the marine community were incorporated in the plans, although the agencies and community members did not actively participate in the planning process. This lack of participation sometimes generated a lack of commitment, which resulted in contingency plans that were unable to provide alternative solutions to extremely difficult operational issues.

Potentially controversial operations, such as the use of dispersants and the disposal of recovered spill material, were not fully dealt with for a number of reasons. For example, in many spills the quantity of discharged oil was too small to create controversies. In other cases, the agencies in charge did not have sufficient comprehensive information to formulate overall policy. Consequently, they agreed to evaluate appropriate courses of action on a case by case basis.

Throughout the 1970s and 1980s, this system served the nation well in most spill response operations. However, in March 1989, when the *Exxon Valdez* struck Bligh Reef and inundated Prince William Sound with Alaskan crude oil, the national response system was stressed to the limit.

Those undecided, potentially controversial issues arose all at once. The federal, state and local government, and industry response structure was faced with the enormous task of making a multitude of detailed process decisions in a crisis environment.

To address these issues, the Coast Guard and EPA led the administration's efforts in Congress to enact legislation to mandate comprehensive preparedness planning as a critical element in protecting the environment.

Area committees

Section 4202(a)(6) of OPA 90, which amends section 311(j)(4) of the Federal Water Pollution Control Act (33 U.S.C. 1321) formalizes the relationship between federal, state and local environmental protection agencies. It requires these agencies to cooperatively form "area committees," which will develop comprehensive area contingency plans in which each agency has an ownership interest.

The committees must directly confront and resolve controversial issues early in the planning process so that the response community can aggressively manage a crisis when the oil hits the water, instead of being delayed by arduous decision making.

Coast Guard notice 57 FR 1933, published in the *Federal Register* on January 16, 1992, proposes a mechanism for the appointment of members to coastal zone area committees, and outlines their roles and responsibilities.

The geographic boundaries for the coastal area committees will be the COTP zones as defined in the national contingency plan. A Coast Guard notice of intent (56 FR 33481), published in the *Federal Register* on July 22, 1991, proposed the boundaries of the coastal area committees.

Area committees will be preparedness planning forums and will not convene during response situations. The committees are not intended to be local response advisory groups, although many members will be involved in response operations. Their participation in the planning process will unquestionably enhance the collective response effort.

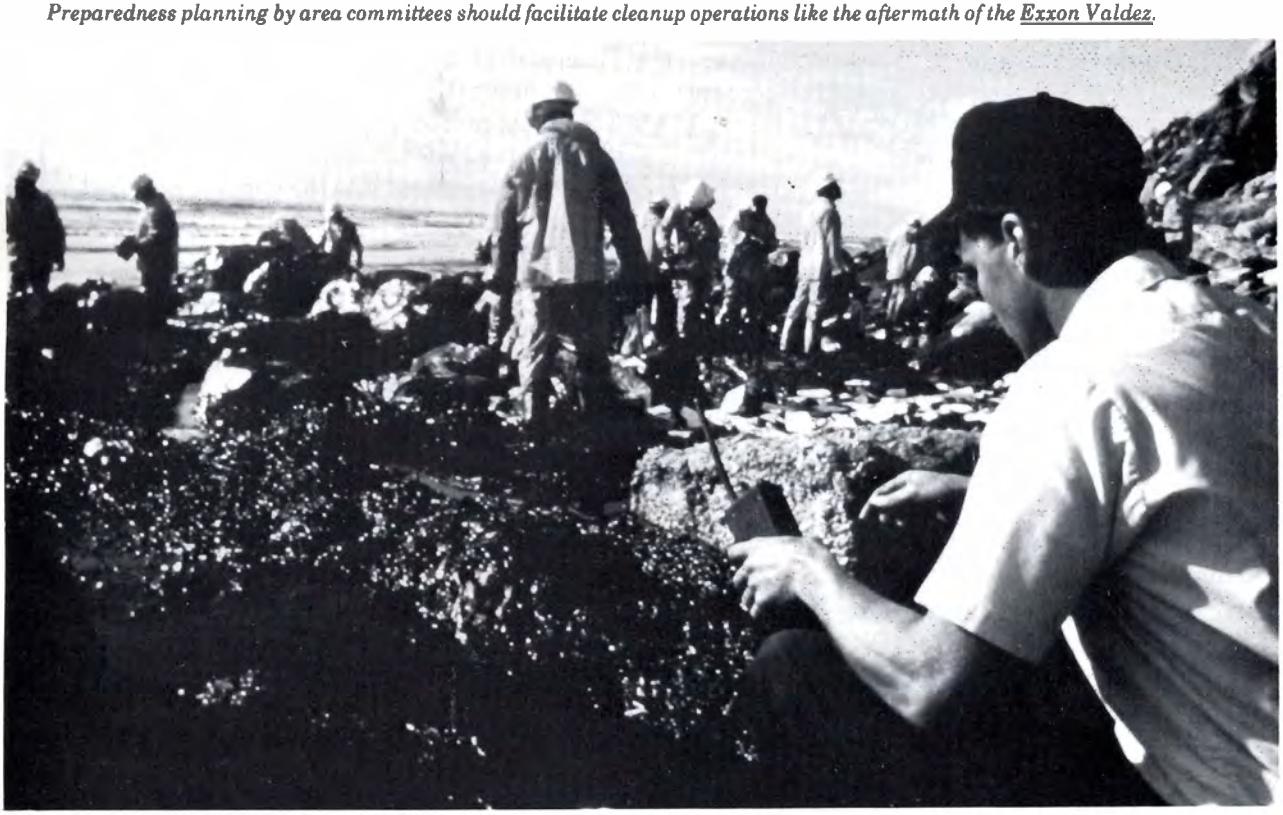
Members

The Coast Guard intends that the 47 federal on-scene coordinators be delegated the responsibility to appoint area committee members from representatives of federal, state and local agencies of the designated coastal areas.

While area committee members will be drawn from government agencies, the committees will solicit advice and guidance from all appropriate resources. The Coast Guard believes that these sources should include a broad spectrum of the community: bulk liquid facility owners/operators, environmental groups/ specialists/consultants, response organizations, shipping company representatives, concerned citizens, emergency response officials, cleanup contractors, port interests and academia.

Continued on page 38

Preparedness planning by area committees should facilitate cleanup operations like the aftermath of the Exxon Valdez.



Continued from page 37

A COTP, as federal on-scene coordinator, will chair each area committee. The National Strike Force, the scientific support coordinator, and members of the Coast Guard district response advisory team may serve as consultants to area committees.

Federal government members of area committees will be appointed from the 15 agencies which comprise the National Response Team. Under the national contingency plan, each state governor will be asked to name a state agency as a principal point of contact for pollution preparedness planning and response. This agency will provide the primary state representatives to the area committees. Other state agencies will be considered for membership, especially if nominated by the designated primary state agency member.

Local county, city and town officials considered for appointment will be drawn from agencies with environmental and emergency response responsibilities in the coastal zone. Whenever possible, agencies having similar or related interests will be encouraged to agree on representation by a single agency.

Role

The area committee will provide focus for pollution preparedness, and act as the focal point for comments and advice on the concerns and responsibilities of industry and the local community. Committee members can incorporate this valuable information into their area contingency plan, thereby ensuring that local environmental, social and economic concerns are considered.

The committees may, and will be encouraged to, establish specific issue-related subcommittees, which could include communication systems, sensitive environmental areas, response strategies (mechanical versus chemical or biological clean up), recovered waste storage and disposal, exercise participation, navigation safety, and fish and wildlife rescue. Chaired by area committee members, these subcommittees can be staffed by non-members with special interests and expertise.

Conclusion

Area committees are changing the way we plan and prepare for oil and chemical spill responses. They provide an outstanding opportunity to form and foster cooperative relationships between federal, state and local government agencies, and the community. Involvement in area committees by local representatives will enhance the development of comprehensive oil spill response plans by defining and addressing the unique capabilities, needs and concerns of each local area. The committees will provide forums for open discussions of local environmental, social, economic and geographic issues. Such discussions will be critical in achieving universally agreed upon, cohesive response structures, which can act decisively in emergency situations.

Under Executive Order 12777, the administrator of the EPA has been authorized to establish area committees for inland zones of the United States. The EPA plans to publish its policy concepts in a separate notice in the *Federal Register*.

Similarly, the Coast Guard intends to finalize its concepts and policies through a final notice in the *Federal Register*. This policy will also be incorporated into the ongoing national contingency plan revision required by section 4201(c) of OPA 90.

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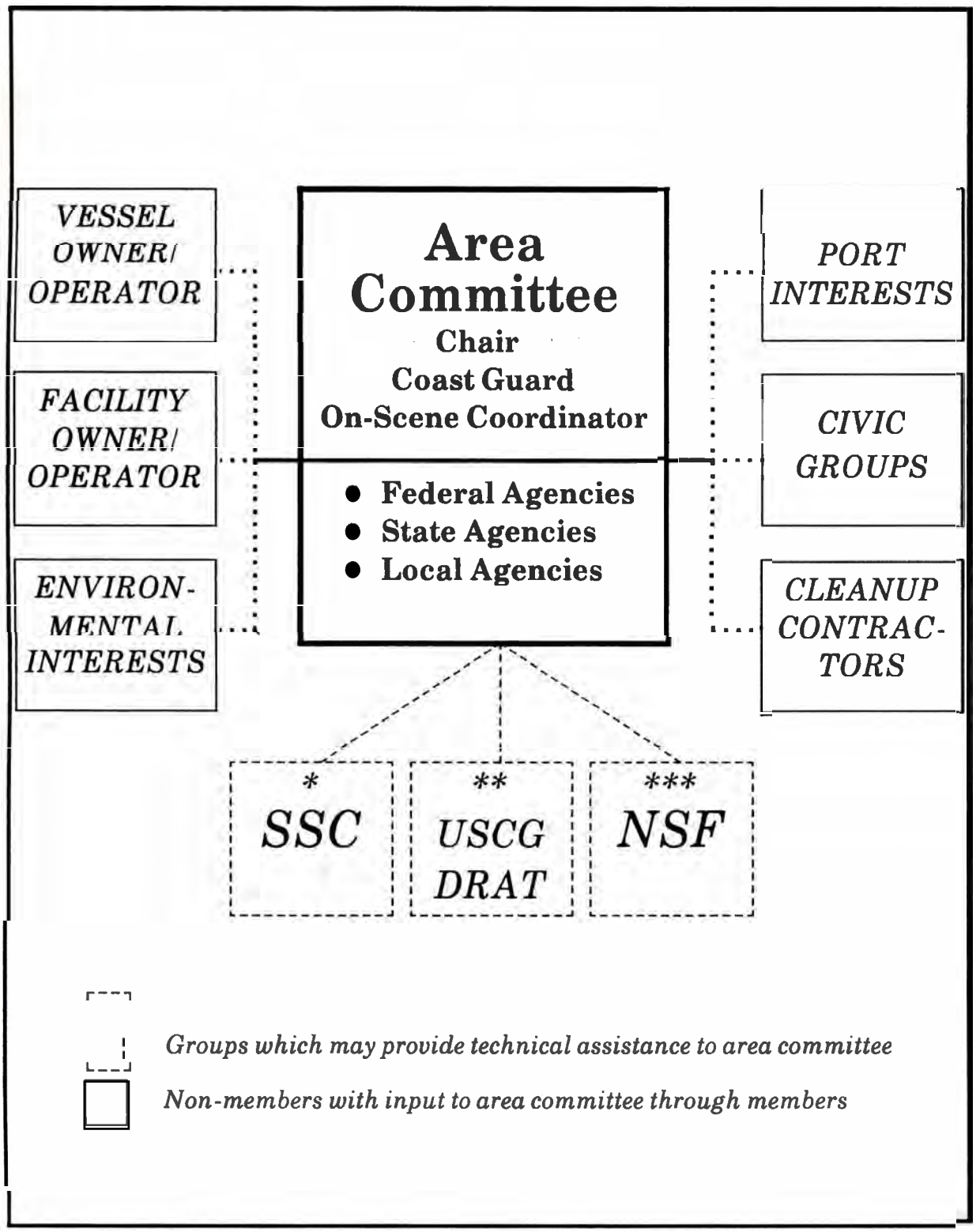

* *Scientific support coordinator*

** *Coast Guard district response advisory team*

*** *National Strike Force*

Staffing stitch in time

By Mr. Jim Bennardo

About a year ago, the Coast Guard faced what business and academic individuals call "an organizational start-up," which stemmed from the major regulatory requirements of OPA 90. There was an immediate need for expert staff to carry out the act as mandated by Congress. OPA 90's two-year charter didn't leave much time for normal start-up delays.

IPA

To have the OPA 90 staff up and running with quality personnel as quickly as possible, the Coast Guard took advantage of the Intergovernmental Personnel Act (IPA) of 1970 to fill a portion of its billets. Administered by the Office of Personnel Management (OPM), this act allows government agencies to "borrow" experienced personnel from federal and state government agencies, accredited academic institutions and OPM-designated nonprofit organizations. Personnel are detailed knowing that they will return to their parent organizations upon completion of their one- or two-year assignments.

The IPA is designed to encourage a sharing of regulatory and technical expertise at all levels of government, academia and the nonprofit sector. To be eligible for an IPA detail, a candidate must be a permanent, full-time employee of such an institution for at least 90 days before the assignment.

Following a conflict of interest review, a person hired through the IPA works under a negotiated contract. The salary is shared about 50-50 between the providing organization and the borrower. Moving, work-related travel and administrative costs are paid by the borrower.

In the case of the Coast Guard, an IPA billet must meet the approval of the secretary of transportation, ensuring that the assignment is for sound public purposes and that it furthers the goals of the participating organization.

Benefits

The IPA process benefits both the Coast Guard and the parent organization. By "loaning" personnel to the Coast Guard, the parent group gains back staff members with valuable hands-on experience in drafting federal transportation, safety and environmental regulations with global impacts.

Government agencies, like the Coast Guard, also benefit from fresh insights to everyday problems. This strengthens their management capabilities, and also is an effective way to involve state governments in developing and carrying out federal policies and programs.

State government and nonprofit hirees benefit from exposure to the federal system with which they must deal effectively. Academics are able to apply conceptual models to authentic situations. Such "real world" experience helps academics keep their perspective and makes their subjects "come alive" for their students.

"Fit"

The "organizational fit" of the diverse IPA group is a natural for the OPA 90 staff whose work requires flexibility and the ability to compromise in finding solutions among potentially conflicting priorities of various segments of society. The IPA hirees come from those sectors.

After normal start-up difficulties, an integrated OPA 90 staff got organized. Contacts and processes were identified, resulting in fewer false starts. Both IPA and Coast Guard personnel are now meeting the challenge of OPA 90's strict mandates.

Summary

The IPA agreement provided the OPA 90 staff with the opportunity to solve short-term problems in both staffing and regulation writing. In addition to mutual technical advantages, there is important goodwill gained when hirees return to their parent organizations. Although public relations is a secondary benefit, the IPA is an excellent way to convey the Coast Guard message on OPA 90.

Mr. Jim Bennardo is an IPA hiree from Assumption College in Worcester, Massachusetts, where he is an assistant professor of management. He is the assistant coordination and clearance manager on the Coast Guard's OPA 90 staff.

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Safety Alert

Chemical incompatibility

Acrylonitrile/caustic soda solution

Recent laboratory tests indicated a potentially hazardous reaction between acrylonitrile (group 15) and caustic soda solution (group 5). This combination is considered compatible for adjacent stowage by current regulations (46 CFR part 150). While a review of the data used to construct the compatibility chart in these regulations showed no reactivity between these two chemicals at test temperatures up to 100 °C, the new data indicates that a delayed reaction may occur, which generates large amounts of heat if the mixture is vigorously stirred. The regulations are being amended to reflect this incompatibility. Meanwhile . . .

DO NOT LOAD

ACRYLONITRILE AND CAUSTIC SODA SOLUTION

IN ADJACENT TANKS.

If you or your company should experience any reactivity with these or similar products, please notify:

Hazardous Materials Branch (MTH-1)
Marine Technical and Hazardous Materials Division
Office of Marine Safety, Security and Environmental Protection
Coast Guard Headquarters
2100 Second Street, S.W.
Washington, D.C. 20593-0001
Telephone: (202) 267-1577

Chemicals of the month

4/C Dustin Hammacher and 4/C Robert Pefferly

Olive oil

The history of olive oil goes back to the age of the pyramids, when the Egyptians used it as a lubricant to move heavy building materials. However, it was first used as a cooking oil and made into soap in ancient Greece and Rome.

Today its principal uses are in cooking. It is also used in preparing canned fish, such as sardines and tuna, and in the manufacture of soaps, textile lubricants, sulfonated oils, cosmetics and pharmaceutical applications.

Olive oil is a pale yellow-green liquid with a slight taste, considered a "plastic fat," as it is a liquid at room temperature. It is only slightly volatile, accounting for its slight odor, and is characterized as a "nonessential oil." It can be synthetically produced by a reaction between an alcohol (glyercol) and fatty acids.

The major components of olive oil consist of oleic acid (83.5%), palmitic acid (9.4%) and linoleic acid (4%), with other insignificant minor ingredients. Olive oil is insoluble in water, but soluble in ether, carbon disulfide, chloroform, carbon tetrachloride, petroleum benzine and benzene. According to the iodine test, olive oil registers between 77 and 88, classifying it as non-drying. It can become rancid when exposed to air.

Olive oil's boiling point is very high, making it useful in cooking. Its freezing point is undetermined, but it turns granular below 0°C.

The effect of olive oil on aquatic life is unknown, fouling is imminent on shorelines and it could be dangerous if it were to enter municipal water intakes. A spill must be first mechanically contained before it can be removed. Although there is no threat from overexposure to olive oil, care should be taken in handling it and the use of eye protection is suggested.

Olive oil is produced by boiling or pressing. The former consists of boiling whole olives, then skimming the oil off the top of the pot. In a press, the olives are first heated to increase the flow of oil, then crushed in runner mills and pressed in open hydraulic presses. It is made in Mediterranean countries, with Spain the largest producer.

Castor oil

The foul tasting nightmare of childhood, castor oil is actually an important chemical with numerous useful purposes. Besides being an excellent laxative, the oil is used in the production and synthesis of synthetic fibers, resins, dye, soap, cosmetics and in the manufacture of sebacic acid. The liquid is also used for hydraulic brake fluid, cracking oil and as a plasticizer.

Castor oil is also known as ricinus oil, oil of Palma Christi, tangantangan oil, neoloid, ricinoleic acid ($C_{18}H_{34}O_3$), cis-12-hydroxyoctadic-9-enoic acid and 12-hydroxyoleic acid.

One of the oldest inedible products known to man, this fatty oil is derived from the castor plant, ricinus communis, which is a member of the euphorbiaceae family. Initially native to Africa, this plant grows in temperate and tropical regions, and is often used as foliage and a replacement crop where the land is too poor to grow a large cash crop. Brazil and India produce most of the castor bean supply.

Castor oil is produced by pressing the seeds of the castor plant. The seeds contain a highly poisonous alkaloid called ricin, which is often used in insecticides. The ricin, however, is removed from the bean before the oil is pressed.

The oil is flammable, but a minimal threat as long as it is stored at ambient temperatures. In battling a castor oil blaze, use a dry chemical and cool the surroundings with water. Care should be taken in handling castor oil and the use of eye protection is suggested. If the oil comes in contact with the eye, just rinse for 15 minutes. The only other hazard is ingesting more than two tablespoons of the liquid. If that happens, consult a physician.

Because the oil is a biological derivative, it is hard to trace in the environment, despite its floating upon water. It is not believed to pose much of a threat, because of its naturally rapid decomposition. Yet if a spill should occur, local health officials should be contacted along with local wildlife and water intake officials.

The Coast Guard regulates both olive and castor oil under subchapter D of 46 CFR.

Olive Oil

Chemical name: Olive oil
Formula: Mixture of glycerides of fatty acids
Synonyms: Sweet oil
Chemical family: Ester
Description: Pale yellow-green liquid

Physical properties:
- Boiling point: 285°C
- Freezing point: 0°C
- Vapor pressure: 2 mm Hg @ 20°C

Threshold limit value:
- Time weighted average: N/A
- Short-term exposure limit: N/A

Flammability limits in air:
- Lower flammability limit: N/A
- Upper flammability limit: N/A

Combustion properties:
- Flashpoint: 437°F
- Autoignition temperature: 650°F

Densities:
- Vapor (air = 1): Not pertinent
- Specific gravity: .915 @ 20°C
- Density (at 50°F): 57.740 lbs/ft^3

Identifiers:
- IMO class: Unassigned
- U.N. number: Unassigned
- CHRIS code: OOL
- CAS registry number: 8001-25-0
- Cargo compatibility group: 34

Castor oil

Chemical name: Castor oil
Formula: Same as olive oil
Synonyms: Ricinus oil, oil of Palma Christi, tangantangan oil, and neoloid
Chemical family: Ester
Description: Same as olive oil

Physical properties:
- Boiling point: 312°C
- Freezing point: -12°C
- Vapor pressure:
  - 40°F .016 lbs/in^2
  - 100°F .099 lbs/in^2

Threshold limit value:
- Time weighted average: N/A
- Short-term exposure limit: N/A

Flammability limits in air:
- Lower flammability limit: N/A
- Upper flammability limit: N/A

Combustion properties:
- Flashpoint: 445°F
- Autoignition temperature: 840°F

Densities:
- Vapor (air = 1): Not pertinent
- Specific gravity: .96 @ 25°C
- Density (at 50°F): 60.860 lbs/ft^3

Identifiers:
- IMO class: Unassigned
- U.N. number: Unassigned
- CHRIS code: OCA
- CAS registry number: 8001-79-4
- Cargo compatibility group: 34

Dustin Hammacher and Robert Pefferly were fourth class cadets at the Coast Guard Academy, when these articles were written as special chemistry projects for LCDR Thomas Chuba.

These articles were reviewed by the Hazardous Materials Branch of the Marine Technical and Hazardous Materials Division of the Coast Guard's Office of Marine Safety, Security and Environmental Protection. Telephone: (202) 267-1577.

Nautical queries — *May - June, 1992*

The following items are examples of questions included in the third assistant engineer through chief engineer examinations and the third mate through master examinations.

Engineer

1. According to the Coast Guard regulations (46 CFR 31.37), for inspection of cargo gear,

A) mechanical brakes are required for all electrical winches fitted with electro-magnetic brakes.
B) current for electric winch operation during proof tests must come only from the ship's own generators.
C) all cranes and winches shall be equipped so that a failure of the electric power will stop the motion and set the brakes without any action by the operator.
D) shore current may be used for proof tests if it is bypassed around the ship's switchboard.

2. Some of the hazards associated with air operated power tools may be avoided if the operator would _____.

A) inspect the hoses for cracks and other defects
B) remove jewelry and loose clothing
C) bleed air pressure from the lines before breaking the connections
D) all of the above

3. Compensating needle valve adjustments to an hydraulic governor should be made with the engine _____

A) running at normal operating temperature without load
B) running at half speed and at normal temperature
C) running at maximum power and load under normal conditions
D) developing maximum power at normal load

4. A small leak in the auxiliary desuperheater of an operating boiler could cause an ____.

A) immediate increase in superheater outlet pressure
B) immediate decrease in superheater outlet temperature
C) immediate drop in boiler water level
D) inability to maintain boiler water chemistry

5. When working on machinery with a portable drop light, you should insure that the

A) bulb is protected by a shield or guard.
B) extension cord is yellow and clearly marked.
C) bulb capacity does not exceed 75 watts.
D) all of the above.

6. What will occur when the economizer temperature is below the acid dew point of the flue gases?

A) Hairline fractures.
B) Efficiency loss.
C) External corrosion.
D) Hydrogen embrittlement.

7. If a centrifugal bilge pump were operated with the discharge valve closed, the _____

A) motor overload would open
B) relief valve would open
C) pump would overheat
D) motor would overheat

8. In reducing engine speed to an efficient propeller speed by reduction gears, _____

A) speed and torque are both reduced
B) speed is reduced and torque remains unchanged
C) speed is reduced and torque is increased
D) speed is sometimes unchanged, while torque is increased

Deck

1. INLAND ONLY- Which term is NOT defined in the Inland Navigation Rules?

A) Seaplane.
B) Restricted visibility.
C) Underway.
D) Vessel constrained by its draft.

2. What is the calling and distress frequency on a single side band marine radio telephone?

A) 1492 kHz.
B) 1892 kHz.
C) 2082 kHz.
D) 2182 kHz.

3. An air mass that has moved down from Canada would most likely have the symbols _____.

A) mPk
B) cPk
C) cTk
D) cTw

4. A great circle crosses the equator at 157°W. It will also cross the equator at what other longitude?

A) 157°E.
B) 57°E.
C) 23°E.
D) 57°W.

5. All of the following can be determined by use of a stabiloguage EXCEPT _____.

A) metacentric height
B) mean draft
C) moment to trim one inch
D) deadweight

6. The purpose of bilge keels is to _____

A) lower the center of gravity of the ship
B) reduce the amplitude of roll
C) reduce pitching
D) reduce yawning

7. A holder of a license as operator of uninspected towing vessels may navigate a towing vessel each day for a period not to exceed _____.

A) six hours
B) 12 hours
C) 18 hours
D) 24 hours

8. On a cargo vessel, fire and boat drills must be held within 24 hours of leaving port if the percentage of the crew replaced was more than _____.

A) 5%
B) 10%
C) 25%
D) 40%

9. INTERNATIONAL ONLY - A vessel constrained by its draft may display_____

A) three all-round red lights instead of the lights required for a power-driven vessel of its class
B) the same lights as a vessel restricted in its ability to maneuver
C) three all-round red lights in addition to the lights required for a power-driven vessel of its class
D) the lights for a power-driven vessel which is not under command

10. A vessel's "quarter" is _____

A) abeam
B) dead astern
C) just forward of the beam
D) on either side of the stern

Answers

Engineer

1-C, 2-D, 3-A, 4-D, 5-A, 6-C, 7-C, 8-C.

Deck

1-D, 2-D, 3-B, 4-C, 5-C, 6-B, 7-B, 8-C, 9-C, 10-D.

If you have any questions concerning "Nautical Queries," please contact U.S. Coast Guard (G-MVP-5), 2100 Second St., S.W., Washington, D.C. 20593-0001. Telephone: (202) 267-2705.

Request for applications

CGD 92-008, National Offshore Safety Advisory Committee (February 21).

The Coast Guard seeks applicants for appointment to membership on the National Offshore Safety Advisory Committee (NOSAC). This committee advises the Secretary of Transportation on rulemaking matters related to the offshore mineral and energy industries. The committee charter calls for the membership to represent particular segments of the offshore industry. Five members will be appointed for terms commencing in January 1993, representing the following segments of the industry: offshore supply vessels, offshore drilling, petroleum production, construction of offshore and recovery facilities, and offshore operations.

To achieve the balance of membership required by the Federal Advisory Committee Act, the Coast Guard is especially interested in receiving applications from minorities and women. The committee will meet at least once a year in Washington, D.C. or another location selected by the Coast Guard. The committee charter calls for members to serve without compensation (neither travel nor per diem) from the federal government.

DATE: Applications should be received by May 31, 1992. Application forms may be obtained by contacting the executive director at the address below.

Address: Persons interested in applying should write to Commandant (G-MVI-4) room 1405, Coast Guard headquarters, 2100 Second Street, S.W., Washington, D.C. 20593-0001.

For further information, contact: CDR M.M. Ashdown, Executive Director, National Offshore Safety Advisory Committee, room 1405, Coast Guard headquarters. (202) 267-2307.

Request for applications

CGD 92-009, Towing Safety Advisory Committee (February 21).

The Coast Guard seeks applicants for appointment to membership on the Towing Safety Advisory Committee (TSAC). This committee advises the Secretary of Transportation on rulemaking matters related to shallow-draft inland and coastal waterway navigation and towing safety.

Seven members will be appointed as follows: Three members from the barge and towing industry, reflecting a geographical balance; one member from port districts, authorities or terminal operators; one member from maritime labor and two members from the shipping industry.

To achieve the balance of membership required by the Federal Advisory Committee Act, the Coast Guard is especially interested in receiving applications from minorities and women. The committee will meet at least once a year in Washington, D.C. or another location selected by the Coast Guard.

DATE: Requests for applications should be received by May 15, 1992.

Address: Persons interested in applying should write to Commandant (G-MTH-2) room 1300, Coast Guard headquarters, 2100 Second Street, S.W., Washington, D.C. 20593-0001.

For further information, contact: CDR Robert Letourneau, Executive Director, Towing Safety Advisory Committee (G-MTH-2), room 1300, Coast Guard headquarters. (202) 267-2206.

Request for applications

CGD 92-012, Commercial Fishing Industry Vessel Advisory Committee (February 24).

The Coast Guard seeks applicants for appointment to membership on the Commercial Fishing Industry Vessel Advisory Committee (CFIVAC) established by the Coast Guard as required by the Commercial Fishing Industry Vessel Safety Act of 1988. The committee acts in an advisory capacity to the Secretary of Transportation and the Commandant of the Coast Guard on matters relating to the safety of commercial fishing vessels.

Applications will be considered for five expiring terms. The committee consists of 17 members as follows: ten from the commercial fishing industry who reflect a regional and representational balance, and have experience in the operation of vessels to which chapter 45 of title 46, United States code, applies, or as a crew member or processing line worker on an uninspected fish processing vessel; one member representing naval architects or marine surveyors; one member representing manufacturers of equipment for vessels to which chapter 45 applies; one member representing education or training professionals related to fishing vessel, fish processing vessel, or fish tender vessel safety, or personnel qualifications; one member representing underwriters who insure vessels to which chapter 45 applies; and three members representing the general public, including, whenever possible, an independent expert or consultant in maritime safety and a member of a national organization composed of persons representing owners of vessels to which chapter 45 applies and persons representing the marine insurance industry.

Terms are expiring in the following categories: fishing industry (three positions), general public (one position) and equipment manufacturers (one position). The membership term is three years. A limited portion of the membership may serve consecutive terms. Those persons who have submitted applications in the past must reapply. No application received prior to this solicitation will be considered.

To achieve the balance of membership required by the Federal Advisory Committee Act, the Coast Guard is especially interested in receiving applications from minorities and women. The members of the committee serve without compensation from the federal government, although travel reimbursement and per diem is provided. The committee normally meets in Washington, D.C. with subcommittee meetings for specific problems on an as-required basis.

DATE: Applications should be received by May 31, 1992. Application forms may be obtained by contacting the executive director at the address below.

Address: Persons interested in applying should write to Commandant (G-MVI-4) room 1405, Coast Guard headquarters, 2100 Second Street, S.W., Washington, D.C. 20593-0001.

For further information, contact: LCDR Ed McCauley, Executive Director, Commercial Fishing Industry Vessel Advisory Committee, room 1405, Coast Guard headquarters. (202) 267-2307.

Final rule

CGD 90-055, Documentation of certain vessels for purposes of oil spill cleanup (46 CFR part 68) RIN 2115-AD65 (March 3).

The Coast Guard is issuing procedures for documenting certain vessels with a limited coastwise endorsement. This final rule implements provisions of the Oil Pollution Act of 1990, under which the United States citizenship requirements for vessel documentation are relaxed for vessels which are used to clean up and transport oil discharged into the navigable waters of the United States or the Exclusive Economic Zone. These regulations will improve oil spill cleanup resources.

DATE: These regulations were effective April 2, 1992.

For further information, contact: Mr. Thomas L. Willis, Chief, Vessel Documentation and Tonnage Survey Branch, (202) 267-1492.

Advanced notice of proposed rule

CGD 91-036, Facility response plans (33 CFR part 154) RIN 2115-AB82 (March 11).

The Coast Guard is soliciting comments relating to facility response plans and required pollution response equipment. This advance notice of proposed rulemaking addresses all marine transportation-related offshore facilities, except pipelines, and marine transportation-related on-

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shore facilities that could reasonably expected to cause substantial harm to the environment by the discharge of oil into or on the navigable waters of the United States, adjoining shorelines or the exclusive economic zone. Regulations requiring response plans and discharge removal equipment are mandated by the Federal Water Pollution Control Act, as amended by the Oil Pollution Act of 1990. The purpose of requiring response plans and discharge removal equipment is to enhance private sector planning and response capabilities to minimize the environmental impact of spilled oil.

DATE: Comments must have been received by April 27, 1992.

For information concerning comments, call (202) 267-1477. The executive secretary of the Marine Safety Council (G-LRA-2) maintains the public docket for this rulemaking. Comments will be available for inspection or copying at room 3406, Coast Guard headquarters.

For further information, contact: LCDR Walter Hunt, project manager, OPA 90 staff (G-MS-1), (202) 267-6740. This telephone will record messages on a 24-hour basis.

Public comment period reopens

CGD 91-030, Direct user fees for inspection or examination of United States and foreign commercial vessels (33 CFR part 143; 46 CFR part 2) RIN 2115-AD78 (March 24).

On December 18, 1991, the Coast Guard published in the *Federal Register* a notice of proposed rulemaking to establish user fees for services related to the inspection or examination of United States and foreign commercial vessels. Because of public requests, the Coast Guard has reopened the comment period and held nine public hearings on the proposal.

DATES: Written comments must be received on or before May 18, 1992. The hearings were held from April 13 to May 1, 1992.

Addresses: Written comments may be mailed to the Executive Secretary, Marine Safety Council (G-LRA/3406), Coast Guard headquarters, or delivered to room 3406 between 8 a.m. and 3 p.m., weekdays. Telephone (202) 267-1477.

For further information, contact: LCDR Jack Kelly, Office of Marine Safety, Security and Environmental Protection (G-MP-1) Room 2420. Telephone: (202) 267-0009.

Notice of meeting

CGD 92-021, Commercial Fishing Industry Vessel Advisory Committee Meeting (March 24).

Notice is hereby given of a meeting of the Commercial Fishing Industry Vessel Advisory Committee on May 4-5, 1992, in room 4234 at the Department of Transportation, 400 Seventh Street, S.W., Washington, D.C. The meetings, which are open to the public, will be held daily from 9 a.m. to 5 p.m.

For further information, contact: LCDR Ed McCauley, Fishing Vessel/Offshore Activities Branch, Merchant Vessel Inspection and Documentation Division (G-MVI-4), room 1405, Coast Guard headquarters. Telephone (202) 267-2307.

Notice of proposed rule

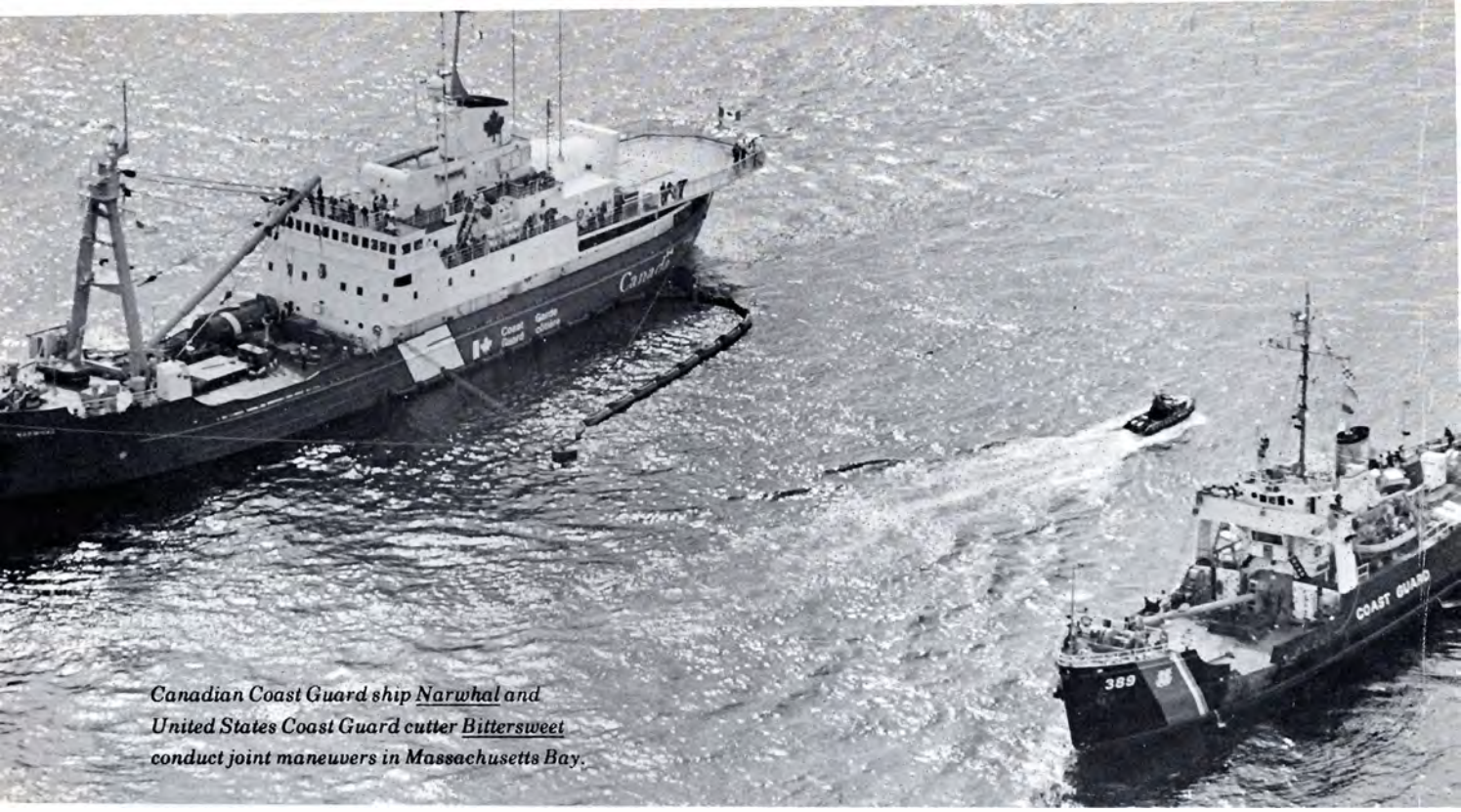
CGD 89-007, Documentation of vessels, recording of instruments (46 CFR part 67) RIN 2115-AD29 (March 26)

The Coast Guard proposes to establish new recording practices to fully implement the provisions of the codification of the Ship Mortgage Act. It also proposes to simplify the procedures for documentation of vessels. The proposed revision, if adopted, would make the regulations easier to use by the affected public and would more fully implement statutory requirements.

DATE: Comments must be received on or before June 24, 1992.

Addresses: Comments must be in writing and may be mailed to the Executive Secretary, Marine Safety Council (G-LRA/3406), Coast Guard headquarters, or delivered to room 3406 between 8 a.m. and 3 p.m., Monday through Friday. Telephone (202) 267-1477.

For further information, contact: Mr. Thomas L. Willis, Chief, Vessel Documentation and Tonnage Survey Branch, Merchant Vessel Inspection and Documentation Division. Telephone: (202) 267-1492.



Canadian Coast Guard ship Narwhal and United States Coast Guard cutter Bittersweet conduct joint maneuvers in Massachusetts Bay.

Canada and United States team up against oil pollution

By Mr. Rick Booth and LCDR Donald S. Delikat, USCGR

OPA 90 presents one of the greatest regulatory challenges for the Coast Guard in more than 200 years. The first district, covering the New England states and eastern New York, will feel the impact because of the large oil ports serving the energy-dependent northeast.

A major provision of OPA 90 requires tank vessel owners to plan and have resources available for a major oil spill response in each port their ships visit. Using the relatively small seaport of Portland, Maine, as an example lends perspective to the magnitude of the change. In 1991, 397 tankers and 406 tank barges delivered 122,567,515 barrels of petroleum products to the port. This represents a significant four-fold increase for tankers since 1989, along with an approximate 30 percent increase for tank barges.

CANUSLANT

Planning and preparedness clearly are enormous tasks, but not new ones for the first district, which has been taking part in large-scale major oil-spill response training since the early 1980s. At that time, the United States and Canada began carrying out the practical response aspects of the Canadian-United States Joint Marine Pollution Contingency Plan and its Atlantic Annex (CANUSLANT).

This agreement was an outgrowth of United States-Canadian accord originating in the Great Lakes region. On April 15, 1972, the two nations signed the Canada-United States Agreement on Great Lakes Water Quality. Subsequently, the need was recognized to include other waters of joint interest in a contingency plan. The result was CANUSLANT, which has been updated as needed. The latest version of the Atlantic Annex was signed in December 1991.

CANUSLANT activities are joint United States-Canadian full-response exercises to evaluate both the plans, and the facilities and personnel who would execute them in the event of a catastrophic spill. Northeast United States Coast Guard facilities and personnel are largely under the commander of the first Coast Guard

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MSO Boston Coast Guardsman inspects boom about to be deployed during oil containment exercises in Boston Bay.

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district, and the Canadian maritime regional facilities and personnel are under the regional director general of the Canadian Coast Guard-Maritimes.

First district units in concert with Canadian counterparts are completing the final plans for CANUSLANT '92 exercises, which will take place in Nova Scotia from October 26 to 30. Previous exercises were conducted in Boston, Massachusetts; Portland, Maine; Dartmouth, Nova Scotia and Saint John, New Brunswick. The exercises occur in even-numbered years, alternating between United States and Canadian ports. The waters involved, however, include those of both nations.

Challenges

CANUSLANT '92 exercises will introduce new challenges and new participants:

- A new Canadian Coast Guard operations center is established at Dartmouth.
- New district response advisory teams will participate for the first time.
- The Coast Guard's new Atlantic Strike Team and the Canadian Coast Guard's hazardous material assessment team will each respond to a hazardous material spill in their respective country.
- Communication devices, including facsimile (FAX), computer electronic mail and teleconferencing, will be evaluated.
- OPA 90 legal ramifications, especially placing of responsibility for cleanup of spills from foreign-flag vessels in offshore United States waters, will be investigated.
- Scientific and environmental aspects of spill response will be tested by scientists from Environment Canada and their United States counterparts from the National Oceanic and Atmospheric Administration, EPA, and the Department of Health and Human Services. These scientists will supply pertinent data to the on-scene coordinator and regional response team representatives, who, in turn, will decide on issues, such as whether to use dispersants on a spill.
- Units of both Coast Guards and, most likely, the United States Navy and the Canadian Armed forces will be involved in rigorous mobile hardware tests.
- The National Pollution Fund Center in the United States and the Ship Source Oil Pollution Fund in Canada will participate in exercises for the first time.

Not every exercise of CANUSLANT '92 will fall directly under OPA 90, however. Planners expect to evaluate the international aspects of safety and health issues. They also hope to investigate whether differences exist between United States and Canadian safety and health priorities, and, if so, how to resolve them; and how Canadian and United States resources will respond to the need for public affairs support, as would be the case in a major incident.

Oil cleanup exercises are conducted in Maine's Penobscot Bay.

The players

United States federal agencies

Air Force
Army Corps of Engineers
Coast Guard
Customs Service
Department of Agriculture
Department of Commerce
Department of Defense
Department of Energy
Department of Health and Human Services
Department of Interior
Department of Justice
Department of Labor
Department of State
Department of Transportation
Department of Treasury
Environmental Protection Agency
Federal Emergency Management Agency
Fish and Wildlife Service
General Services Administration
Immigration and Naturalization Service
Maritime Administration
Minerals Management Service
National Marine Fisheries Service
National Oceanic and Atmospheric Administration
Navy
Occupational Safety and Health Administration

United States state and local agencies

Maine Department of Environmental Protection
Massachusetts Department of Environmental Protection
New Hampshire Department of Emergency Services
Rhode Island Department of Environmental Management

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Canadian federal agencies

Canadian Coast Guard
Canadian/Nova Scotia Gas Lands Administration
Canadian Ports Corporation
Department of Energy, Mines and Resources
Department of External Affairs
Department of Fisheries and Oceans
Department of National Defense
Department of National Health and Welfare
Emergency Preparedness Canada
Environment Canada
Revenue Canada Customs and Excise
Transport Canada

Canadian provincial agencies

Province of New Brunswick:
Department of Municipal Affairs
Province of Nova Scotia:
Department of Environment
Emergency Measure Organization

Miscellaneous organizations

Clean Casco Bay Spill Coop
Gulf of Maine Council
Major oil companies
Marine Spill Response Corporation
Petroleum Industry Emergency Response

Conclusions

It is expected that CANUSLANT '92 will do the following under OPA 90:

- involve the district response advisory team in a major spill;
- activate the newly-formed United States Coast Guard Atlantic Strike Team;
- improve communication between Canada and the United States, with regard to technical and language differences;
- define scientific support systems, such as the use of dispersants;
- Test state, provincial, local and industrial response mechanisms to maximize resources on every level;
- Improve logistics, such as the movement of resources, including cutters, aircraft, personnel and equipment;
- Increase awareness of public affairs; and
- test the National Pollution Fund Center on a broad scale.

This year, CANUSLANT should be the most complex and exciting exercise to date. The United States and Canada will continue working together to prepare for any catastrophic oil or hazardous material spill affecting their respective countries. Only by meeting potential spills head-on with planning can we hope to minimize tragic consequences.

Photographs accompanying this article were taken by coauthor Mr. Rick Booth, editor of the first district's monthly magazine, First Word.
LCDR Donald S. Delikat, USCGR, is a regional response team coordinator, also with the first Coast Guard district office, 408 Atlantic Avenue, Boston, Massachusetts 02110-3350.
Telephone: (617) 223-8444

FLIR-equipped Coast Guard RG-8 aircraft in flight.

Aircraft "push the envelope"

By CDR Scott Cooper

Introduction

It has been three years since the Exxon Valdez disaster. Popular opinion holds that the nation was not prepared for such a spill, and that we were using 20-year-old technology to cope with containment and cleanup.

OPA 90 acknowledged these shortcomings, and established research and development goals to enhance the nation's ability to deal with such incidents. However, despite a number of initiatives spawned by this legislation, the arsenal of pollution response equipment and techniques remains extremely limited, particularly in the inshore and fresh water environments.

8th district challenge

In keeping with the spirit of OPA 90 and the strategic vision of the commandant of the Coast Guard, the commander of the eighth Coast Guard district challenged his units to "push the envelope" of their capabilities to find ways to improve their preparedness with available tools. His challenge inspired several cooperative projects between the MSO and the air station in New Orleans, Louisiana.

The projects address the assessment and containment improvements which could be employed in the early stages of an oil spill response. Two projects capitalize on aviation components. The first involves the use of forward looking infrared receivers (FLIRs), and the second explores the possibility of deploying containment boom by helicopter.

Aviation

As the *Exxon Valdez* and other spills have demonstrated, the early hours of a response are the most crucial. Early action to contain a spill can save threatened habitats, thereby reducing the cost of cleanup and environmental damage. The critical element is time. The MSO sought ways to minimize the time needed for the initial assessment and containment.

Aircraft provide the only means of rapid response in the remote reaches of the Mississippi River delta. The terrain is shallow freshwater and brackish bays, bayous and canals lined with low moist alluvial flats often covered with tall grasses. Access to the many oil production facil-

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FLIR-equipped Cessna Citation is used by the Coast Guard and United States Customs Service to track oil spills in Louisiana.

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ities that dot the area is limited to boats and seaplanes. The tall grasses limit visibility from surface craft. Oil, which may have penetrated behind the shoreline, is nearly impossible to detect without wading into the fragile ecosystem.

Consequently, the Coast Guard depends heavily on air assets for initial assessment. Aircraft, however, are only useful in good visibility conditions. Spills that occur in darkness, or within an hour or so of sunset, typically cannot be assessed until daylight, resulting in the loss of valuable response time. The opportunity for environmental damage is multiplied greatly while responders wait for first light. In trying to solve this problem, the MSO looked into available surveillance equipment.

The Coast Guard's AIR-EYE Falcon jets have proved useful in open waters. However, their side-looking airborne radars (SLARs) with infrared and ultra violet light enhancement devices are not effective in inland marsh areas.

FLIR

An answer to this question came from former Department of Defense (DoD) pilots now on active duty with the Coast Guard. While with DoD, the pilots had worked with infrared sensing equipment, like the FLIR, which senses temperature variations of objects displayed on a monitor to produce what appears to be a black and white video image. In reality, the picture is a thermal image which can show the "hotter" objects as darker or, with the flip of a switch, as whiter than the surroundings.

In recent months, the MSO experimented with FLIR equipment mounted in Coast Guard RG-8 surveillance aircraft, and in United States Customs Service turboprop and jet aircraft based in New Orleans. The results were so successful, that the MSO entered into a special agreement with the Customs Service for assistance during a spill, and FLIR-equipped aircraft have proven useful in several actual spill situations. (The Coast Guard's FLIR-equipped aircraft are based in Miami, Florida, and are not immediately available in Louisiana.)

The experiments provided valuable insight into the capabilities and limitations of FLIR. To the untrained eye, it is easy to react to the FLIR image as a visual image. This can lead to misinterpretation of the display and, consequently, poor assessment of the spill. Bottom sediments, currents or other phenomena can produce contrasting thermal zones displayed by the FLIR, but cannot be seen visually. These localized disturbances can confuse the untrained sensor operator working a spill in shallow water. Therefore, some experience in tracking spills in daylight is necessary. Also weathered oil may have a different thermal image than fresh oil.

Another important observation made by the Coast Guard's RG-8 crews involved heated water discharge from machinery aboard ship or from industrial outflows. "Hot" water appears very similar to spilled oil on the FLIR monitor. Oil, however, usually has a very distinct edge, while hot water has a fuzzy edge and is less persistent the further one moves from the source.

As we continue to "push the envelope," future initiatives may involve FLIR-equipped helicopters. In addition, a colorized version of the infrared sensing technology will be evaluated. This version shows different temperatures as different colors on the monitor. This type of display may allow sensor operators not only to track the oil, but also estimate the thickness. A handheld version of this equipment now on the market could relieve the need for aircraft alterations.

For now, it appears that the success of FLIR in spill response will depend on the abilities of the sensor operators. Future developments could include image downlinking to response personnel on the ground. Additional research needs to be done on real-time transmission of surveillance data to spill control personnel. One simply needs to recall the picture transmitted from a speeding missile during Desert Storm to appreciate the present state-of-the-art and to realize the potential application to spill response efforts.

Helicopter delivery

The second initiative began with the air station's desire to help with the initial stages of spill response. The sight of oil closing perilously on fragile wetlands and sensitive wildlife refuges, and the aircrew's strong desire to optimize their capabilities, inspired flight personnel to speculate about aerial delivery of response equipment. Attention soon focused on containerized boom available commercially. The containers hold inshore boom, sorbent material and miscellaneous handling gear.

The several different models of containerized boom vary in subtle ways, such as container size and the weight of the boom. These differences may seem slight, but they can create significant problems for the different deployment aircraft. For example, one brand of container is too large to fit inside the HH-65 helicopter, therefore, the boom has to be flaked out on the deck of the cargo bay or loaded on a sling.

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HH-65 "Dolphin" helicopter. *Photo by Jim Reid.*

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Four prepacked containers were purchased for deployment testing with funding from the eighth district. The air station in conjunction with the MSO is testing different deployment options. The current philosophy is to drop the boom by helicopter into clean water to block off a narrow passage in the wetlands or to protect sensitive wildlife habitats, such as nesting areas of endangered birds. The containers could be dropped intact or lowered to personnel on the ground. If no response personnel arrive right away, a rescue swimmer could possibly be lowered to anchor the boom.

Summary

These projects are largely in the "drawing stages," and may require specific authorization before testing or implementation. However, the projects represent creative and cooperative ways in which the air station and the MSO are trying to improve the operational effectiveness of available assets.

Clearly, pollution investigation and response has become a major support mission for Coast Guard aviation. Pilots and spill response personnel are developing operating and reporting standards on an ad hoc basis. In the future, procedures for surveillance flights may become standardized much like the well known search and rescue procedures. These standardized methods could include search patterns to identify a spill's movement, progress of cleanup or effectiveness of dispersants. The air station in New Orleans has already experimented with various search patterns to optimize spill detection and tracking under a variety of conditions.

Clearly, the aviation support for routine pollution response has great potential. If it is done well in a cooperative spirit with the surface response community, we can achieve that synergy -- or force multiplying effect -- so important for highly successful operations.

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United States Customs Service Cessna Citation with FLIR equipment.

LT Donald T. Noviello swims from grounded Ei Jyu Maru No 21 to shore.

Photo by SK2 Ladeen Schillinger.

Before OPA 90 . . .
Delays confound Kayangle

By LT W. Vance Bennett and LT Donald T. Noviello

When a fishing vessel grounds in United States waters, the Coast Guard responds -- first to insure the safety of the crew -- second to protect the environment from the release of fuel and lubricating oil that may result if the vessel breaks up. Normally, the removal of oil from a small grounded fishing boat is easily handled by local cleanup contractors, monitored by the Coast Guard.

However, when the fishing vessel happens to ground on a reef next to the isolated Kayangle Island group in the United States trust territory of Palau, words like "normal," "easy" and "routine" are stricken from a responder's vocabulary. Recently, MSO Guam personnel and the Pacific Strike Team responded to just such an incident. The experience highlights the wisdom and need for the new provisions of OPA 90.

Scenario

On December 1, 1991, the fishing vessel *Ei Jyu Maru No. 21* ran aground in a rain squall on Ngarapalas Island in Palau. It was returning to Japan with a cargo of tuna. The newly-built 70-foot fiberglass longliner of 70 gross tons is a common vessel in the Western Pacific.

Palau government officials from the National Emergency Management Office and the Environmental Quality Protection Board responded initially by sending people to the scene to evaluate the situation. They rescued the crew, who were stranded on a small island to which they had swum after abandoning their vessel.

The Palau respondents realized that the remaining fuel represented a threat to the shallow coral back reef around the vessel. They also knew that they were not capable of removing the oil. Therefore, they requested Coast Guard assistance.

Personnel from MSO Guam were immediately deployed to Palau, where they met with local officials and assessed the situation first hand. From a chartered small plane, they saw that the vessel was resting in about five feet of water with an extreme list to port. An occasional three-to-five-foot wave smashed on the stern with a plume of spray extending 30 feet into the air. The vessel seemed to be largely intact.

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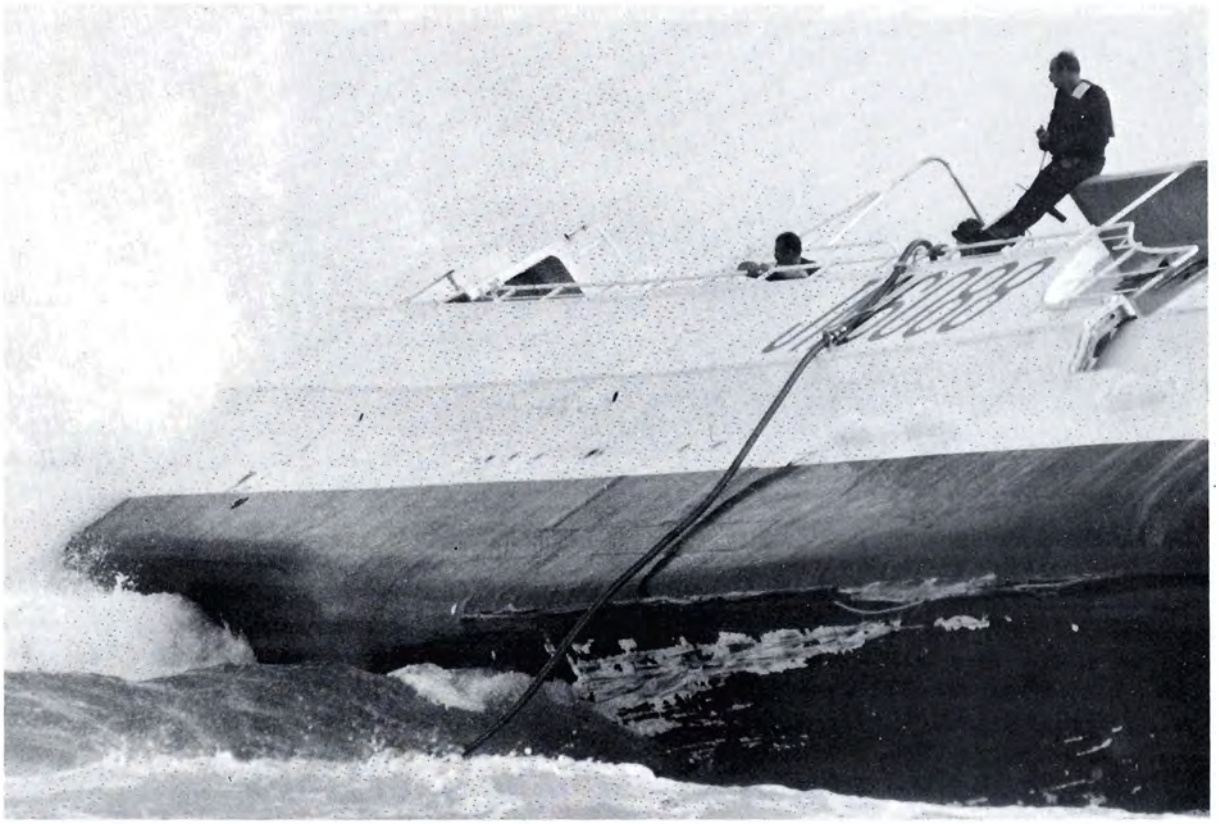

LT Noviello coordinates operations from the grounded vessel via hand-held radio, while MK2 Donald M. Cummings monitors the impact of waves on the vessel's stern. Photo by SK2 Ladeen L. Schillinger.

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It was too shallow and rough even for a small boat to approach the vessel, so the Coast Guard responders swam and waded through the surf. They were concerned that sharks could be attracted to the thawing tuna. The thawing process was about over, and the responders had more problems with bad odors than with sharks.

The responders determined that the remaining fuel could be pumped out through vent and fill tubes. The problem was how to find the necessary equipment. After conferring with local government and industry officials, they found that there was not an operational fuel pump anywhere on the island. Also, there wasn't enough fuel hose to transfer the oil from the stranded boat to shore or to an offshore vessel.

The necessary equipment was ordered from MSO Guam and the Pacific Strike Team. Delivery from Guam was hampered by a lack of available space on commercial airplanes. Delivery from the strike team involved a Coast Guard C-130 flight from California to Hawaii, on to Guam and then to Koror, Palau - a 48-hour trip.

Then the pumps, hose and other items had to be transported more than 50 miles north to the grounding site. This delivery had to be made by sea, because there are no airports or roads in Kayangle, and not a single helicopter in the territory. Arrangements were made to transport the equipment and operators via a small boat and chartered landing craft. The latter became stranded, causing more delay.

Eventually, the remaining fuel was pumped off, in time to prevent it from leaking. There had been great concern that the oil would strand on the nearby beach and endanger the local sea bird population. Also, residents of Kayangle feared that the toxic effect of the oil would damage a highly productive lobster ground located near the site of the wreck.

OPA 90 to the rescue

This needless delay and confusion could have produced disastrous consequences had it been a major oil spill, instead of a potential small leakage.

Local officials had drafted an oil spill contingency plan, but had not identified an on-scene coordinator. Nor had they itemized available response equipment, where it was located and who was responsible for it. This caused the Coast Guard responders to waste valuable time searching for equipment that either did not exist or was not operational.

The lack of adequate equipment to deal with this relatively minor incident suggests that a large spill could not be dealt with in a timely manner. With no local cleanup contractors and a two- to three-day delivery of equipment from the mainland, a great deal of otherwise preventable damage to the environment would doubtless have taken place.

OPA 90 provisions will help solve these problems. Oil containment boom already has been ordered for delivery to Palau by MSO Guam. Also, an OPA 90-mandated area committee is being formed to develop a contingency plan to include the identification of equipment needs and to organize available resources. Finally, more precise data will be collected on the location of sensitive environmental habitats.

When OPA 90 is fully implemented, tankers delivering oil to Palau will have a plan that identifies and contracts for the necessary equipment to deal with a loss of cargo. The combination of these two plans will make it easier to obtain oil spill response equipment, and will clearly define how it is to be used.

Palau has been designated one of the top underwater wonders of the world. OPA 90 will help ensure that it stays that way.

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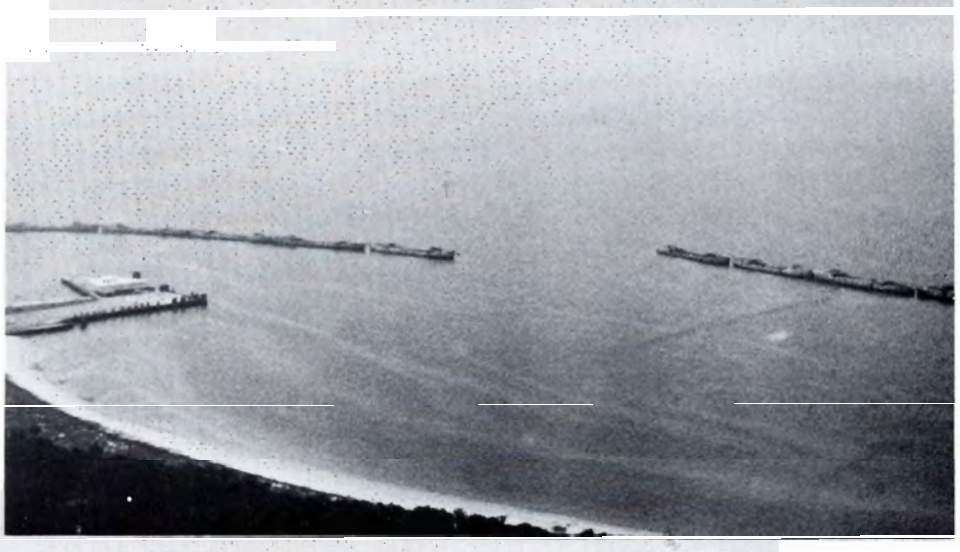
Salvage tug Seiha Maru No. 2 pulls bow of L.C.U. Dragon 1 off the beach where it was stranded for two weeks. Ei Jyu Maru No. 21 is at the right of Dragon 1, a landing craft utility boat, which was delivering Pacific Strike Team equipment to the fishing vessel when it got stuck on a reef. *Photo by LT Noviello.*

Spill prevented
in concrete ships off Kiptopeke

By LTJG Linda J. Garlington



(Right) Aerial view of concrete ship breakwaters.

(Below) Severe deterioration of ships heightened the need for oil removal.

In 1948, nine cargo ships constructed of concrete were sunk to serve as breakwaters for the Kiptopeke Beach Ferry Terminal, located on Virginia's Eastern Shore. The ferry service was closed in the 1960s, but the ships remained.

In November 1989, the Coast Guard on-scene coordinator at MSO Hampton Roads in Norfolk and the Virginia State Water Control Board surveyed the conditions of the World War II-era vessels to determine if a pollution threat existed. An estimated 30,000 gallons of oil was determined to be on board the old vessels. Laboratory tests indicated that over time the oil had severely weathered.

Both the Coast Guard and the water control board agreed that in light of the vessels' deteriorating conditions, their susceptibility to severe winter weather and hurricanes, and the environmental sensitivity of the Eastern Shore, the oil should be removed.

The Coast Guard located an apparent owner of the vessels, and issued notices of federal interest requiring demonstrated cleanup actions on three separate occasions from August 1990 to April 1991. By May 1991, this action had still not begun, and the apparent owner was issued a letter of federal assumption, indicating that if appropriate action was not taken by June 14, 1991, the

Coast Guard would hire a contractor to commence cleanup activities.

The on-scene coordinator let the deadline slip when the apparent owner began to show an interest in exploring cleanup alternatives. By early October, site visitations revealed that the ships' conditions had further deteriorated, and allowing the oil to remain on board during the winter months was now an unacceptable risk. A contractor was selected and cleanup work began on October 14, 1991.

Preliminary procedures

A number of procedures are followed when accessing federal funds for cleanup. Because private contractors are "employed" by the federal government, and because additional federal employees are on scene for monitoring activities, the need for clearly established safety standards is paramount. Site safety plans for both contractors and Coast Guard personnel are required by the Occupational Safety and Health Administration. A Coast Guard site safety officer is assigned to ensure compliance with these plans.

In this case, the Coast Guard's Atlantic Strike Team provided the manpower and equipment to assist in all cleanup activities. Strike team members were on site for all phases of the cleanup and gave expert advice to the on-scene coordinator on removal techniques and safety issues.

Cost accounting was another important detail. On-scene coordinator representatives are required to account for all contractor and Coast Guard expenses for personnel and equipment to ensure that OPA 90 funds expended for pollution response can be billed to the spiller for reimbursement.

The on-scene coordinator's representatives play a vital role in monitoring contractor actions. Although the contractor performs the cleanup, the Coast Guard authorizes the type of equipment used. In this case, the contractor experimented with three different pumping methods for recovering oil thickened by age and colder fall temperatures, and containing large amounts of

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Heavy weathered oil and debris on the ships created removal and disposal problems.

Concrete ship cleanup operations in progress.

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debris. In each case, the Coast Guard played an essential role in the research, authorization and evaluation of the new equipment use and costs.

Interaction by the on-scene coordinator with the National Oceanic and Atmospheric Administration's scientific support coordinator and the Coast Guard industrial hygienist helped ensure accurate environmental and personnel risk assessments. (See "Coast Guard faces workplace risks," page 13, in the March-April 1992 *Proceedings* for a description of the responsibilities of these industrial hygienists.)

Coast Guard officer and Virginia State Water Control Board representative survey concrete ship holds and tanks upon completion of cleanup.

Cleanup efforts

The scientific support coordinator assessed the potential environmental impact of a 30,000-gallon spill on the Kiptopeke Beach area. When pockets of hydrogen sulfide gas were released as a result of pumping operations, the Coast Guard industrial hygienist conducted frequent assessments to ensure a safe working environment for contractor and Coast Guard personnel.

During the actual cleanup operation, a severe "nor'easter" passed over Chesapeake Bay. The high-water levels and wave action caused a small amount of residual oil to be washed out of two vessels' holds, where, just days before, more than 4,000 gallons of oil had been recovered. Clearly, the cleanup had begun none to soon!

Operations at the Kiptopeke site were completed on December 18, 1991, with 36,000 gallons of oil recovered at a cost of $270,000. Follow-up surveys are now being conducted to assure the long-term effectiveness of the cleanup efforts. Cost recovery procedures are also in process.

The project was a success and provided solid validation of the merit of the heightened response posture established by OPA 90.

Photographs accompanying this article were taken by MK3 Andrew Bridges.

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GM3 Ken Marsh is braced for the elements on that cold December day.

Coast Guard "can do" in new role

By LCDR Steve P. Garrity

The winter wind was harsh and the cold bitter last December, when nine Coast Guardsmen bundled in bright orange exposure suits, attempted to deploy 200 feet of oil containment boom in Boston Harbor, Massachusetts. They worked as hard as they could, but the fierce winds and weather put their frustration and inexperience to a harsh test. The fast surface delivery sled from which they worked was tossed about like a toy by the wind.

The men were not alone. Crew members of two boats from Coast Guard Station Boston assisted them, and they all worked under the watchful eyes of the newly-commissioned Coast Guard Atlantic Strike Team from Fort Dix, New Jersey.

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Bundled in exposure suits, the MSO crew, loaded with boom, embark on their oil spill practice cleanup operation in Boston Harbor.

(Right) Huddled in the shadow of the frigate U.S. Constitution, the MSO Boston crew keeps at it.

(Below) Lowering the boom, the nine crew members work under the watchful eye of a Station Boston Coast Guardsman.

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If this had been a response to a real oil spill, Marine Science Technician Chief (MSTC) Larry Alheim would have had his hands full. "You learn by doing," notes Chief Alheim, who directed the operation as the assistant chief of the MSO's Marine Environmental Response Division.

In his 13-year Coast Guard career, MSTC Alheim had monitored response efforts for hundreds of cleanup operations. He spent years training others in Coast Guard response procedures. In this instance, though, he is a novice, learning by doing through a hands-on exercise in boom deployment.

Before OPA 90, the Coast Guard's role during an oil spill was to ensure that the responsible party took adequate measures to clean up the discharge and mitigate its effects. Under the new law, the Coast Guard must agressively montor and actively direct the spiller's cleanup operations.

As before, if the spiller does not clean up, the Coast Guard hires a contractor to do so, and seeks reimbursement from the spiller later on. In addition, the Coast Guard must now maintain a "first aid" response capability to an oil spill.

Learning first-hand about boom deployment, MSTC Alheim and the other members of MSO Boston have $54,000 worth of new oil-spill response equipment to master.

To step up the response posture in the port,the Boston MSO has conducted numerous meetings with local cleanup contractors and oil-spill cooperatives, emphasizing that anything less than an immediate response to a spill is not acceptable. As a result of OPA 90, industry representatives have purchased more boom and vessels to deploy it. The MSO itself has relocated its response sled from the dock to the water, and has pre-deployed two trailers filled with pollution response equipment in Boston and Gloucester, Massachusetts.

OPA 90 teaches an old lesson to a new generation of Coast Guard personnel. During the spill exercise, that lesson was cold and hard, but such lessons make the difference between what was and what will be.

The fact that the Coast Guard is a dynamic, continually evolving agency is expressed in the buoyant, "can-do" optimism of Chief Alheim and his troops, and their willingness to learn anew.

Photographs accompanying this article were taken by Mr. Rick Booth.

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National Strike Force builds up

By PAC Rick Woods

Eighteen months after the passage of OPA 90, the National Strike Force, the Coast Guard's premier pollution response organization, has nearly doubled in size and has taken on many new missions.

Background

The Coast Guard has been involved in environmental protection for some 170 years, according to Dr. Robert Scheina, the Coast Guard historian. His 1985 "History of the Coast Guard" notes some early environmental missions performed by the Revenue Marine Service. These include: protecting the Navy's live oak timber reserves on public lands in 1822, monitoring fur seals in the Pribilof Islands in Alaska in 1870, safeguarding food fish propagation in the Gulf of Mexico in 1885 and then sponges in the same waters 20 years later.

Clean water has been a federal concern for decades. The first attempt to address the growing problem of pollution was the Refuse Act of 1899, which was jointly enforced by the Army Corps of Engineers and the Revenue Cutter Service. The present framework for the Coast Guard's Marine Environmental Protection Program is the Federal Water Pollution Control Act of 1972.

In 1973, following the passage of the Federal Water Pollution Control Act and the national contingency plan, the National Strike Force was established as a special Coast Guard-manned force designed to combat oil spills and hazardous substance releases. Three strike teams were formed, one each on the Atlantic, Gulf and Pacific coasts.

Since their establishment, the teams of highly trained personnel with an array of sophisticated equipment have been deployed to hundreds of oil spill and hazardous substance release sites all over the world. They fought oil spilled from tankers, including the *Metula* in the Straits of Megellan in August 1974, the *Showa Maru* in the Straits of Malacca in January 1975, the *Olympic Games* in the Delaware River in December 1975 and the *Argo Merchant* in December 1976.

Recent notable pollution incidents with heavy strike team involvement include: the tanker *Puerto Rican*, which split and sank off San Francisco in 1984; the *Exxon Valdez*, which was grounded in Alaska's Prince William Sound in 1989; and the tanker *Mega Borg*, which caught fire and burned for a week in the Gulf of Mexico in 1990. Most recently, the National Strike Force was closely involved with the *M/V Santa Clara I*, which threatened several East Coast ports with its cargo of hazardous materials in January 1992.

In 1989, CAPT Robert L. Storch was assigned to study the structure of the National Strike Force. He wrote: "As the federal response mechanism matured, the character of the National Strike Force has changed. A broadened concept of special forces evolved . . .each provid-

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Atlantic Strike Team and Coast Guard cutter Hornbeam personnel deflate and retrieve deployed open-water oil containment boom. Photo by PA1 Glenn Rosenholm.

Two strike team members in level B hazardous chemical exposure suits are hoisted by crane aboard the M/V Santa Clara 1 to investigate a magnesium phosphide spill last January.

Photo by PA2 Dennis Uhlenhopp.

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ing a specific area of support to the on-scene coordinator." The current national contingency plan identifies the National Strike Force and its Public Information Assist Team as "national resources available to support all predesignated federal on-scene coordinators in carrying out the provisions of the national contingency plan."

OPA 90 mandates

Prior to the passage of OPA 90, the National Strike Force consisted of only two teams. (Due to budgetary constrictions in 1987, the Atlantic and Gulf teams were consolidated into a single unit at the Coast Guard Aviation Training Center at Mobile, Alabama. The remaining two units were called the Pacific Area Strike Team and the Atlantic Area Strike Team.)

OPA 90 provided mandates resulting in two major changes to the National Strike Force, significantly increasing the scope of its missions. The changes were:

- an increase in the number of strike teams from two to three. The Atlantic Strike Team was reestablished in Fort Dix, New Jersey, and
- the establishment of the National Strike Force Coordination Center in September 1991 at Elizabeth City, North Carolina, to provide central management of the three teams, along with new initiatives in contingency planning and preparedness.

The transition was not easy. In March 1991, the coordination center was only a desk manned by a lieutenant at headquarters. The site for the Atlantic Strike Team had not been determined. By June, the coordination center was a spare room staffed by a chief warrant officer and a yeoman at the support center in Elizabeth City. Nevertheless, by September 5,

both the new strike team and the center were in commission. The Atlantic Strike Team responded to its first case just days later.

Today

Today, each strike team consists of 35 individuals (seven officers and 28 enlisted personnel), all of whom are trained in response techniques. The Gulf team is located at the Coast Guard Aviation Training Center in Mobile, Alabama, and the Pacific team is at Hamilton Field, Novato, California. As a result of OPA 90, their inventories of special response equipment has been significantly updated and expanded.

A Public Information Assist Team assigned to the coordination center staff provides a pool of four public affairs specialists trained in response techniques and issues. They lend rapid support to on-scene coordinators in dealing with the me-dia at the scene of a pollution incident.

Centralized management of the three teams has generated a "seamless" National Strike Force and has improved standardization of equipment, training and response techniques. Multi-team response to incidents, sharing both expertise and learning opportunities, is now common.

Santa Clara I

All three teams and the coordination center sent personnel and specialized equipment to assist on-scene coordinators when arsenic trioxide containers were lost at sea and deadly magnesium phosphide spilled in holds aboard the *M/V Santa Clara I* last January.

The Atlantic Strike Team sent documentation and response specialists to help locate the containers of arsenic trioxide lost overboard during a storm while the *Santa Clara I* was midway between New York and Baltimore. The Gulf team sent truckloads of equipment and trained operators to Charleston, South Carolina to assist in the cleanup of the spilled magnesium phosphide. The Pacific team sent personnel to both sites to augment the staff.

Strike teams use a variety of equipment, packaged and stored as "ready loads" for quick transport by truck or air. Ready loads sent to the *Santa Clara I* included a special purpose boat, mobile command posts, hazardous material response vehicles, air monitoring equipment, chemical sampling equipment, communications equipment, personnel protection gear, and documentation camera equipment.

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Emergency responders don chemical exposure suits and check gear before entering a hazardous atmosphere aboard the ~~Santa Clara 1~~. *Photo by PA2 Dennis Uhlenhopp.*

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New missions

The coordination center also performs several new Coast Guard missions, including:

- maintaining a computerized list of all national and international oil spill response resources to be available to on-scene coordinators responding to a pollution incident. The data base is being designed with the help of the Coast Guard Research and Development Center and will be operational in FY 1993. It will provide on-line data support for both incident response and contingency planning.

- developing a logistics network to expedite the shipment of spill response resources to the scene of the incident. This will include reviewing all logistics-related memorandums of understanding and interagency agreements, and developing detailed lists of private industry capabilities and procedures.

- developing and administering a national preparedness exercise program. This will include the tabletop exercises, now conducted by the Marine Safety School at Yorktown, Virginia, and a new unannounced equipment deployment exercise, which will require the actual use of spill response resources. These exercises will begin in October 1992.

Conclusion

CAPT Donald S. Jensen, commander of the National Strike Force, developed a strategic plan. He said, "The plan includes broad guidance from the commandant's strategic agenda and Marine Environmental Protection Program policy, and includes several specific objectives which we are required to achieve and that I want to accomplish during my tenure. This plan represents the first generation of a strategic agen-da to guide the direction and development of the National Strike Force."

As a result of the new programs and missions, the National Strike Force will remain at the forefront of pollution incident response and will ensure that the Coast Guard fulfills all its marine environmental protection responsibilities in a true "Semper Paratus" manner.

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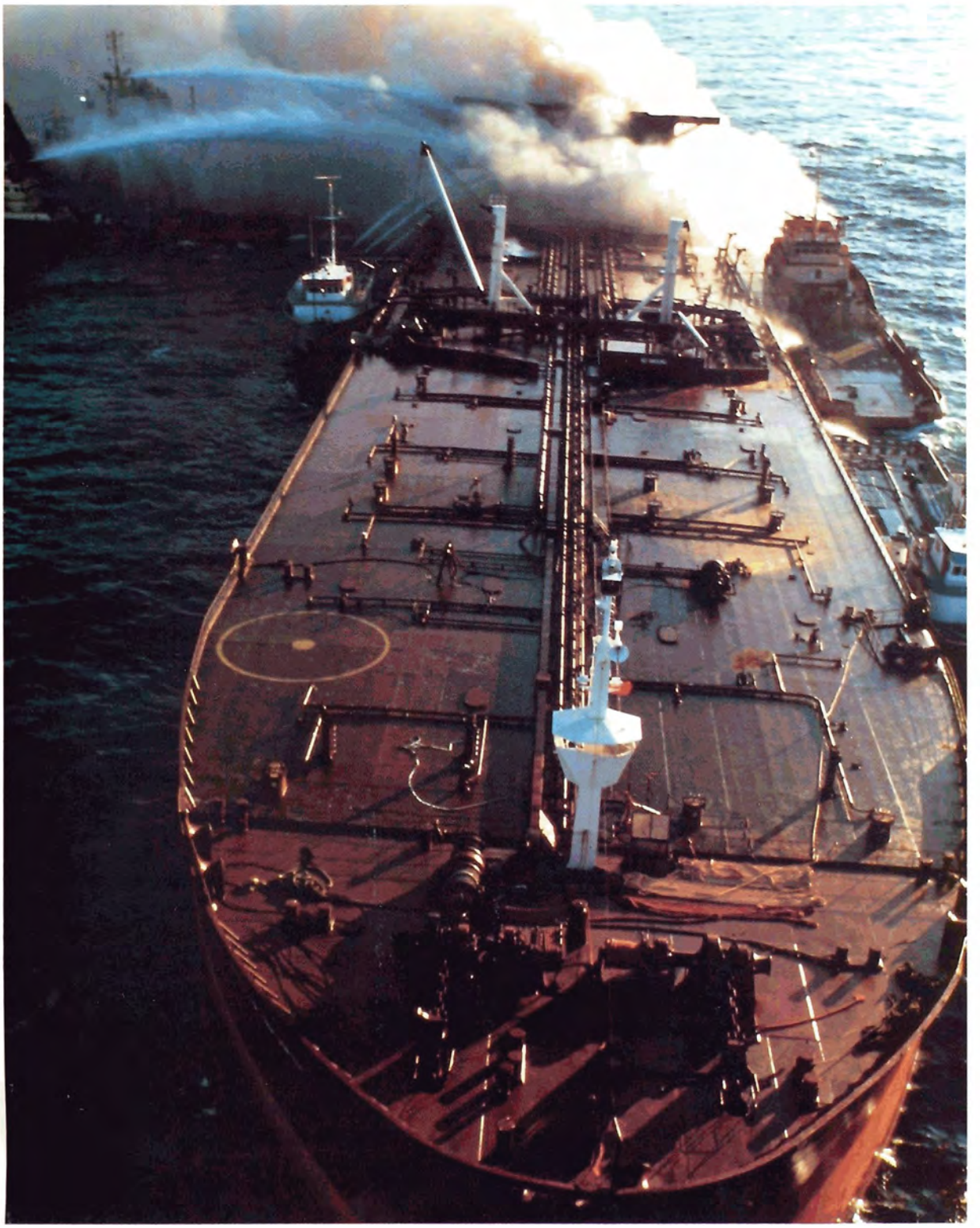
National Strike Force members tie pump float to oil containment barrier during exercises. Photo by PA1 Glenn Rosenholm.



Front Cover: Coast Guard helicopter from Air Station Houston observes firefighting boats tackling flames aboard Mega Borg, which exploded in June 1990 in the Gulf of Mexico.

Above: Mega Borg contained about 38 million gallons of raw crude oil when the explosion ignited the fire. The world's largest oil spill could have occurred if the blaze had not been controlled.