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FEDERAL RESPONSE

TO

COASTAL OIL POLLUTION

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Federal Regional Council of New England

February, 1977

U.S. DEPARTMENT OF COMMERCE NOAA
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FEDERAL RESPONSE TO COASTAL OIL POLLUTION

Introduction

The purpose of this paper is to provide an overview of existing Federal laws, regulations, and programs which are aimed at either reducing the threat, or mitigating the effects, of pollution of the waters in and around the United States by oil. It is a complex and evolving subject which has received sustained attention only within the last twenty years. Current laws and regulations may be amended or supplemented in reaction to the series of tanker accidents which occured in late 1976; at the same time, the United States continues to be deeply involved in the negotiations of the United Nations Law of the Sea Conference, as well as a number of other international committees, and any convention which results from those negotiations could significantly affect the shape of U. S. regulatory programs. Thus, the following discussion should serve primarily as a review and outline of the Federal government's involvement in oil spill prevention and response as of late 1976. It is not intended as an analysis either of the Federal response to particular incidents, or of the capability to respond to future spills.

I. Spill Prevention

1. Waters Defined

Since various U. S. laws and treaties apply to different portions of U. S. waters, it is important to understand the distinctions made. The following terms will be used throughout:

(a) Navigable Waters - all waters of the United States, including the territorial seas (and including also for purposes of Water Pollution regulation all lakes, rivers, streams, etc.)

(b) Territorial Seas - the belt of the seas measured from the line of ordinary low water along that portion of the coast which is in direct contact with the open sea, and extending seaward a distance of three miles; i. e., the so-called "three mile limit" within which the U. S. claims nearly complete jurisdiction.

(c) Contiguous Zone - a zone of the sea extending nine miles beyond the Territorial Sea, or a total of twelve miles from the base line dividing inland waters from the Territorial Sea, within which the U. S. may (by international agreement) legislate for "sanitary" purposes.

(d) High Seas - the ocean beyond the Territorial Sea

(e) Coastal Waters (not a legal term) - generally, those U. S. waters subject to tidal influence and navigable by deep draft vessels, the Territorial Sea and the high seas (including the Contiguous Zone) near the coast line.

(f) Inland Waters - generally those waters upstream from coastal waters.

2. Regulation of Vessels and Facilities

Historically, the United States began regulating vessels engaged in trade and fishing in the 1790's, under the Commerce Clause of the Constitution. The original purpose of these shipping laws was to foster commerce. Later, in the 19th century, as trade by sea increased and the American Merchant Marine grew dramatically, laws were passed under the same authority requiring vessel inspection, minimum lifeboat, safety and fire prevention appliances, loadline and buoyancy standards, minimum competency standards for officers, etc. -- all for the purpose of insuring the safety and health of passengers and crew. In 1882 Congress extended the application of certain inspection and safety laws to foreign vessels carrying passengers from U. S. ports. As ships grew larger and more complex, and more dangerous kinds of cargo were carried by sea, the safety and inspection laws of necessity grew more complex. Originally applied principally to passenger vessels, these inspection laws eventually came to apply to cargo vessels as well. They were administered by an agency of the Commerce Department until 1942 when responsibility for merchant vessel safety was transferred to the Coast Guard. The first law to apply specifically to tankers was the Tank Vessel Act of 1936 which, too, was aimed at safety of life and property; among other things, it empowered the Coast Guard to set certain design and construction standards for tankers, a provision not contained in earlier inspection laws. (The Tank Vessel Act of 1936 was amended and re-enacted by Title 2 of the Ports and Waterways Safety Act of 1972.)

3. Regulation of Navigation

Laws regulating navigation, as distinct from ships, also have a long history. In general, their purpose initially was also to promote commerce, and later to insure safety at sea. As maritime commerce boomed in the 19th century, the government fostered it by financing and constructing improvements in rivers and harbors -- building canals, breakwaters, locks and dams, dredging channels, establishing lighthouses and buoys, etc. With the increase in shipping, international conventions adopted rules for the prevention of collisions at sea (the so-called Rules of the Road), and these were incorporated into U. S. law. In 1899, the Refuse Act of that year prohibited the discharge of refuse into navigable waters by ships or shore and waterfront facilities -- principally to prevent damage to, or impairment of, navigation. Thus navigation laws, as well as shipping laws, were generally aimed at promoting, and insuring the safety of, commerce.

4. Laws for the Protection of the Marine Environment

As the shipment of oil in tankers increased, especially after World War II, the problem of pollution of the sea by oil began attracting the attention of many nations. In 1954, an International Convention for the Prevention of the Pollution of the Sea by Oil was drafted; this convention, which was ratified by the United States in 1961 and implemented by the Oil Pollution Act of 1961, marks the beginning of a series of international agreements and U. S. laws intended to reduce the threat of pollution of the seas and coastlines by oil discharges from ships and offshore structures. Because most current authority to deal with oil pollution of the seas derives from these recent laws, each one is discussed separately in the following paragraphs.

(a) Oil Pollution Act of 1961 (as amended 1973)
33 USC 1001 et seq; regulations at 33 CFR Part 151

This Act, which incorporates into U. S. law the provisions of the International Convention for the Prevention of the Pollution of the Sea by Oil, 1954 (as amended) prohibits the discharge of oil or oily mixtures from ships and tankers within 50 nautical miles of the nearest land (defined as the baseline from which the territorial sea is measured), and in certain other areas (including New England) 100 miles. Exceptions to the prohibition include discharges which are made "for the purpose of securing the safety of a ship, preventing damage to a ship or cargo, or saving life at sea", and discharges which occur as a result of "damage to a ship or unavoidable leakage, if all reasonable precautions have been taken after the occurrence of the damage or discovery of the leakage for the purpose of preventing or minimizing the escape". Thus the law is aimed at preventing accidental or deliberate discharges of oil by such routine activities as pumping ships' bilges, ballasting and deballasting, and cargo transfer. The Act (as amended in 1973) also sets standards for new U. S. tanker construction aimed at preventing discharges.

The law also requires that U. S. and foreign vessels maintain an "Oil Record Book" to record all ballast operations, bilge pumping, cargo transfers, etc., and provides penalties for failure to maintain the book properly and for making false entries. Civil penalties for prohibited discharges are provided for, and the Coast Guard may board foreign ships in territorial waters in insure compliance with the Convention. It may also deny access to U. S. ports to the tankers of other countries if they do not comply with the construction standards set by the Convention (although this applies only to new tankers built after the 1973 amendments were adopted).

(b) Tank Vessel Act (as amended, 1972, 1973, and 1974)
46 USC 391a; regulations at 33 CFR Part 157 and
46 CFR Parts 30-40

As mentioned above, this law was first enacted in 1936 for safety reasons, but has been substantially amended in recent years to include environmental objectives as well. The most extensive revision was made by the Ports and Waterways Safety Act of 1972 (see below), which included the following declaration of policy:

> ". . . it is necessary that there be established for all such vessels documented under the laws of the United States or entering the navigable waters of the United States comprehensive minimum standards of design, construction, alteration, repair, maintenance, and operation to prevent or mitigate the hazards to life, property, and the marine environment."

The Act authorized the Coast Guard to establish rules and regulations governing design, construction, maintenance, etc., of tank vessels, both for safety and for protection of the marine environment, and made it clear that the rules made for environmental protection would apply to both foreign vessels and U.S. vessels. It also allowed for the possibility of international agreement on tanker standards, and authorized the Coast Guard, in its discretion, to accept foreign certificate and document as evidence of compliance. Civil penalties may be imposed against the owner, master, or person in charge, and criminal penalties are provided for willful violation.

The Act also includes a requirement for "standards to improve vessel maneuvering and stopping ability and otherwise reduce the possibility of collision, grounding, or other accident, to reduce cargo loss following collision, grounding, or other accident, and to reduce damage to the marine environment by normal vessel operations such as ballasting and deballasting, cargo handling, and other activities." To date, the Coast Guard has issued rules requiring "segregated ballast" systems (no oil tanks to be used for water ballast) for new tankers larger than 70,000 tons, certain other standards for smaller new tankers, and still others for existing tankers (which would require modification under the law).

In summary, this Act is intended to provide for safer ships, both U.S. and foreign flag; rules and regulations under it are issued and enforced by the Coast Guard.

(c) Ports and Waterways Safety Act of 1972
33 USC 1224; Regulations at 33 CFR 160

Title II of this law is discussed in (b) above, as its purpose was to amend the Tank Vessel Act. The stated intent of Title I is:

> ". . . to prevent damage to, or the destruction or loss of any vessel, bridge, or other structure on or in the navigable waters of the United States, or any land structure or shore area immediately adjacent to those waters; and to protect the navigable waters and the resources therein from environmental harm. . ."

To carry out this purpose, the Coast Guard is authorized by the law to establish and operate "vessel traffic services and systems for ports, harbors, and other waters subject to congested vessel traffic", to control vessel traffic in especially hazardous areas; and take various other measures, including the issuing of appropriate rules and regulations necessary to the law's implementation. The law provides a civil penalty for any violation, and criminal penalties for willful violation.

It should be noted that this law applies to all vessels, is aimed particularly at congested ports and hazardous areas, and is designed to protect both life and property (safety) and the navigable waters (environment). To date, the Coast Guard has established vessel traffic services in San Francisco, Puget Sound, and Houston-Galveston, and is developing them in New Orleans, Valdez (Alaska) and New York. Two other areas, Chesapeake Bay and the Gulf Intracoastal Waterway, are under study.

(d) Federal Water Pollution Control Act Amendments of 1972
33 USC 1321, regulations at 33 CFR Part 153, 154, 155 and 156 (USCG); at 40 CFR 110, 112, 113, and 114 (EPA), and at 40 CFR 1510 (CEQ)

This law constitutes the major authority for all water pollution programs of the United States. It is an unusually comprehensive law, dealing with such diverse subjects as sewage treatment, mine water pollution, thermal discharges, etc., and the only section of concern in this paper is 311, "Oil and Hazardous Substance Liability".

This section applies to both navigable waters and, for certain purposes, the contiguous zone as well, and among other things provides for --

(i) mandatory immediate notification to the U.S. Government by the operator of any vessel or facility causing an oil spill in harmful quantities;

(ii) removal action by the Federal government, whenever it is not satisfactorily taken by the spiller;

(iii) preparation of a National Contingency Plan for removal of oil and hazardous substances; including the establishment of Strike Forces, surveillance systems, and provision for State reimbursement for cleanup costs;

(iv) U.S. action to remove pollution threats resulting from a marine disaster, including removal or destruction of a vessel if necessary (navigable waters only);

(v) liability of the owner or operator of a vessel for costs incurred by the government in cleanup operations (see II. 3. (b) below);

(vi) issuance of regulations establishing equipment, methods, and procedures, for the prevention, containment, and removal of spills from vessels and facilities, and governing the inspection of tankers in order to reduce the likelihood of spills, including penalties for violation;

(vii) establishment of a revolving fund of $35 million to pay for cleanup costs, research, and administration; and

(viii) mandatory evidence of financial responsibility for vessels over 300 tons sufficient to meet the liability for cleanup costs (see (v) above).

Note that the law applies not only to vessels but to onshore and offshore facilities as well; for purposes of issuing and enforcing regulations for oil spill prevention, the President by Executive Order gave the Environmental Protection Agency responsibility for non-transportation-related onshore and offshore facilities, and the Department of Transportation responsibility for transportation-related facilities. The Contingency Plans and Strike Forces required by the Act are discussed in Part II of this paper.

(e) Intervention on the High Seas Act of 1974
33 USC 1471 et seq

This Act, which incorporates into U.S. law the provisions of the International Convention Relating to Intervention on the High Seas in Cases of Oil Pollution Casualties, 1969, empowers the Secretary of Transportation to take measures on the high seas to prevent, mitigate, or eliminate a "grave and imminent danger to the coastline or related interests of the United States from pollution or threat of pollution of the sea by oil "when such threat occurs due to a marine accident, without liability for damages. Actions permitted include salvage or, if necessary, destruction of the ship, provided that the Secretary first consults with other countries involved, the EPA Administrator, and any other interested parties, and that his actions are reasonable. The revolving fund established under 33 USC 1321 (See (d) above) is available to cover costs of such actions.

5. Laws Relating to Offshore Facilities

Although it is clear that regulation of offshore facilities not located in navigable waters -- that is, those beyond the "three-mile-limit" -- is not covered by Section 311 of the FWPCA, it is covered by two other laws, as outlined below. It should also be noted that the FWPCA regulates pollutant discharges seaward of navigable waters.

(a) Outer Continental Shelf Lands Act of 1953 (as amended)
43 USC 1331 et seq; regulation at 30 CFR 250.43 and 33 CFR Part 147

This law, the main purpose of which was to bring oil and mineral exploration and production activities on the outer continental shelf under U.S. jurisdiction, also sets the terms and conditions for leasing of oil and mineral tracts. These conditions include requirements that the lessee not pollute, that he must take certain preventive actions, and if pollution occurs he must make appropriate notifications and is totally liable for cleanup costs. The law is administered by the Department of the Interior, which by agreement with the Department of Transportation has given the Coast Guard responsibility for acting as On-Scene-Coordinator for spills resulting from oil exploration activities.

(b) Deepwater Port Act of 1974
33 USC 1501; regulations at 33 CFR Parts 149 and 150

This law defines "Deepwater Port" as a facility "located beyond the territorial sea and off the coast of the United States and which is used... as a port or terminal for the loading or unloading and further handling of oil...", including all associated pipelines, pumping stations, etc. A Federal license

(issued by the Secretary of Transportation) is required to establish and operate such a port, and the Act authorizes the Secretary to prescribe rules for vessel movement, oil handling procedures, equipment, personnel qualifications, etc., in order to prevent pollution and facilitate cleanup if spills occur. It also makes the port operator liable for cleanup costs in the event of a spill, up to $50 million, and vessel operators liable up to $150 per gross ton or $20 million for spills within a designated "safety zone" around the port. (See II.3.(b) below.)

6. Laws Relating to Competency of Personnel
46 USC 224 and 224a

In contrast to the complexity of laws and regulations governing shipping and navigation, the laws concerning competency of the persons manning the ships are quite simple. The master, all officers in charge of a watch, and engineers of all U. S. vessels over 100 tons must be examined and licensed by the Coast Guard, and a minimum number of licensed officers is also required -- a master and at least three mates on any vessel over 1,000 tons. Pilots are also examined and licensed by the Coast Guard, and any vessel (U. S. or foreign) entering U. S. ports must have a pilot on board; pilotage is regulated by the individual States. With respect to foreign vessels, the U. S. is party to the Officer Competency Certificates Convention of 1936 which provides that officers of vessels be examined and licensed by their country; the Coast Guard may inspect foreign vessels for compliance and detain any which it finds to be in violation of the convention. The convention does not, however, set standards or minimum manning requirements, and U. S. authority is thus limited to insuring that ships' officers do hold valid licenses. As noted above, the Deepwater Port Act authorizes rules prescribing qualifications for personnel employed at Deepwater Ports, and the Coast Guard has issued such rules in 33 CFR Part 150.

II. Response to Oil Spills

1. Contingency Planning

(a) National Oil and Hazardous Substances Pollution Contingency Plan
40 CFR Part 1510

This plan, prepared by the U. S. Council on Environmental Quality in compliance with Section 311(c)(2) of the FWPCA (see 4(d) in Part I, above), provides for an extensive organization to protect the environment from the

damaging effects of pollution discharges. It would be impossible to summarize all of the provisions of the plan in this paper, but a brief review of its major points follows. The plan --

(i) covers "the navigable water of the United States and adjoining shorelines and the contiguous zone and the high seas where a threat to the United States waters, shoreface, or shelf bottom exists";

(ii) identifies five primary and five advisory Federal agencies responsible for carrying out the plan;

(iii) establishes a National Response Team (NRT) to serve as an emergency response team in major pollution incidents and to recommend policy changes as needed; when activated the NRT is chaired by either EPA (inland spills) or USCG (coastal spills);

(iv) establishes a National Response Center (NRC), located in Coast Guard Headquarters in Washington, continuously manned and equipped with extensive communications facilities;

(v) requires establishment of a Regional Response Team in each standard Federal region, with membership from the same agencies making up the NRT, and of a Regional Response Center similar to the NRC;

(vi) encourages States to furnish liaison to the RRTs for planning and preparedness activities and to participate in RRT deliberations during pollution emergencies;

(vii) requires preparation of Regional Contingency Plans, including provision that Federal On-Scene Coordinators (OSC) be pre-designated within each region to initiate and carry out containment and cleanup measures in response to oil spills;

(viii) provides for a National Strike Force of specially trained and equipped Coast Guard and EPA teams to be ready for deployment in pollution emergencies; and

(ix) requires that all Federal agencies support the plan and coordinate their response actions with the OSC in the event of spills.

(b) Regional Contingency Plans

In New England (Standard Federal Region I) there are two Regional Contingency Plans: one for dealing with coastal spills, prepared by the Commander, First Coast Guard District; and one for inland spills prepared by the Regional Administrator of the Environmental Protection Agency. There are also two Regional Response Centers; the coastal RRC located at Coast Guard District Office in Boston and the Inland RRC located at the EPA Regional Laboratory in Lexington, Massachusetts. For all practical purposes there is one Regional Response Team, which is led by the Coast Guard representative (Chief of the Marine Safety Division, First Coast Guard District) for coastal spills and by the EPA representative (Director of the Surveillance and Analysis Division, Regional Office) for inland spills. Current membership of the RRT is listed in Appendix A.

The RRT has two roles, which parallel those of the National Response Team. When not activated for a pollution emergency, it has a planning and preparedness function aimed at improving response capabilities within the region, recommending changes to contingency plans, increasing coordination - especially with State, local and private agencies, and in general maintaining a high state of readiness to deal with spills. When activated, the team monitors and evaluates reports from the OSC, recommends courses of action, requests other Federal, State, local or private agencies to take action when necessary, and acts as a focal point for public information on the incident. The members of the team are selected so as to provide the broadest possible range of expertise in the field of pollution prevention, containment, and recovery and related fields. State representatives to the RRT are responsible for liaison with their own Governors' offices and all concerned State agencies.

Within the coastal plan, the Coast Guard has identified five subregions for the five coastal New England States, and designated five On-Scene-Coordinators. The OSC for Maine and New Hampshire is located at Portland, Maine; for all of Massachusetts except the Buzzard's Bay area, at Boston; for Buzzard's Bay and Rhode Island, at Providence, Rhode Island; for eastern Long Island Sound, at New London, Connecticut; and for western Long Island Sound, at New Haven, Connecticut. Because of a difference between Coast Guard Districts and Standard Federal Regions, spills in Connecticut Coastal Waters are handled by a Regional Response Center in the Third Coast Guard District Office at Governors' Island, New York, and the membership of the RRT is also somewhat different for the same reason.

2. Response Capability

In general, immediate response to spills in the Coastal Zone is accomplished either by the spiller taking action himself (if he is known), by regular Coast Guard units in the vicinity of the spill, or by private contractors to either the spiller or the Coast Guard. This is almost always true for small spills (which constitute the vast majority) and in such cases the Regional Response Team normally is not activated (although the RRT may be activated for any spill if requested by any member).

When major spills occur which require a response beyond the capabilities of the forces available in the region, the assistance of the National Strike Force may be requested. The Coast Guard maintains three Strike Teams within the NSF, one on each major coast (Atlantic, Gulf, and Pacific); the Atlantic Strike Team is located at Elizabeth City, North Carolina. These teams are manned and equipped to provide communications support, advice, and assistance for oil and hazardous substances removal, and include expertise in ship salvage, diving, and removal techniques and methodology. They are capable of rapid deployment at the request of the OSC or the RRT.

3. Cleanup and Liability

(a) Containment and Cleanup

As noted above, the FWPCA places responsibility for action to contain and clean up oil spills with the spiller and, if he fails to take adequate action or cannot be identified, with the Federal government. When the spiller is identified, the Federal government may sue to recover removal costs from him pursuant to Section 311(f) of the Act. The Federal OSC may authorize State and local governments to take action if Federal agencies are unable to do so or if they can do so at substantially the same cost as Federal agencies. The Revolving Fund established by the Act may be used to reimburse both Federal and State (including local) governmental agencies for costs incurred in containment and cleanup operations, provided that the spill occurs in navigable waters or in the contiguous zone (vessels only), and the Federal OSC certifies that he authorized the actions and that the costs are reasonable. For spills from ships on the high seas, the Intervention Act (see I. 4. (e) above) authorizes Federal action and makes the Revolving Fund available to reimburse the government for cleanup costs.

(b) Liability for Cleanup Costs

The laws already discussed contain various provisions making the spiller liable to the government for its costs in cleaning up a spill; however, there are some important limits and exceptions. The FWPCA limits liability

to $100 per gross ton or $14 million, whichever is lesser, for spills from vessels, and to $8 million for spills from onshore and offshore facilities, unless willful negligence or misconduct can be shown, in which case liability is unlimited. There is no liability, however, if the spill occurs as the result of an act of God, an act of war, or negligence on the part of the U. S. government. The Deepwater Port Act sets higher limits ($150 per gross ton or $20 million for spills from ships in the safety zone, $50 million for spills from the facilities themselves), and excepts acts of war or negligence by the U. S. government (but not acts of God). It also establishes a $100 million Liability Fund to pay all cleanup costs in excess of the liability limits. In contrast to these laws, the Outer Continental Shelf Lands Act makes OCS lessees totally liable for cleanup costs without limit or exception.

For spills on the high seas, no U. S. law establishes any liability for cleanup costs. It is worth noting, however, that two international agreements -- neither of which has been ratified by the United States -- provide for such liability: the International Convention on Civil Liability for Oil Pollution Damage (1969) and the International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage (1971). The Civil Liability Convention covers spills from tankers and sets limits at $144 per gross ton or $15 million, with roughly the same exceptions as U. S. law; the Fund Convention establishes a supplementary fund, comprised of contributions from cargo owners, which is available to cover acts of God, damages in excess of the limits of the Civil Liability Convention (up to approximately $30 million), and spills when the tanker owner is financially incapable of meeting his liability (similar to automobile "uninsured motorist" coverage). In addition to cleanup costs, these conventions cover private damage claims as well (see (c) below).

Finally, two non-governmental agreements establish liability for oil pollution. The Tanker Owner Voluntary Agreement Concerning Liability for Oil Pollution (TOVALOP) which covers the vast majority of the world's tanker tonnage, reimburses national and local governments for cleanup costs up to $100 per gross ton or $10 million; it does not, however, cover ecological damage, and thus is mainly for the purpose of paying for beach and shore cleanup. CRISTAL, or Contract Regarding an Interim Supplement to Tanker Liability for Oil Pollution, is a fund established by cargo owners and oil companies for cleanup liability not covered by TOVALOP, and is available for damages as well; limits are $125 per gross ton or $30 million per incident.

(c) Liability for Damages

In general, the only recourse available for recovery of property damage or economic loss resulting from oil spills is by bringing suit in the civil courts. This, of course, is practicable only if the source of the oil pollution can be identified, and in the case of spills from vessels (either U. S. or foreign) the Federal Limitation of Liability Act of 1851 (46 USC 183-189) limits the owner's liability to whatever value the vessel may have at the termination of its voyage -- which, if the ship is wrecked, lost, or damaged in a collision, may be negligible. Individual States, on the other hand, have in many cases enacted laws establishing both cleanup and damage liability for spills within their jurisdiction. See also Part IV, below, concerning Federal assistance programs available for relief in certain cases.

III. Research and Development

Pollution related Research and Development is carried on cooperatively by three Federal agencies, the U. S. Coast Guard (U. S. Department of Transportation), the National Oceanic and Atmospheric Administration (U. S. Department of Commerce), and the U. S. Environmental Protection Agency. The Coast Guard and EPA generally concentrate on methods of coping with oil spills in the ocean, while NOAA's research is on the effects of oil on the marine ecology. Within NOAA is a group based in Stonybrook, Long Island, New York, known as Marine Ecosystems Analysis which coordinates research activities of NOAA's Sea Grant Program and National Marine Fisheries Service with those of EPA and the Coast Guard. The Sea Grant Program supports a wide range of marine research with matching grants to universities accepting assignments from the fishing industry and other "users of the sea", and oil spills are among the several fields of investigation.

In somewhat more detail, the Coast Guard and EPA research and development focuses on:

1. Development of mechanical recovery equipment and study of theory behind mechanical recovery systems.

2. The use of chemical agents, dispersants, surface collecting agents, biological treatment, agents for dissolving, gelling, burning and sinking.

3. Shoreline protection and restoration or rocks, sand and marshlands,

4. Disposal of recovered material, including oil, debris, contaminated sand, flotsam and jetsam.

5. Damage assessment, degree and effect of contamination, development of systems approach to damage assessment.

6. Development of methods for spill identification and quantification.

7. Spill prevention.

8. Training personnel in oil spill response.

9. Oil spill containment.

10. Oil spill recovery.

11. Oil spill detection.

12. Modeling oil spill disposal.

National Oceanic and Atmospheric Administration research focuses on:

1. Effect of oil on water column populations, as well as benthic populations, onshore, subtidal and intertidal populations. (Actually did some sampling on and near Nantucket for base studies in anticipation of possible pollution by Argo Merchant shortly after she went aground.)

2. Physiological effects and genetic effects especially on larval stages of fish and shellfish.

3. Physical modeling of pathways of spills (Report on Argo Merchant due for publication in March).

4. Study of sediments and organic tissues for effects of oil pollution. (Cruise is planned in March 1977, on University of Rhode Island Research Vessel Endeavor to study this in area of Argo Merchant spill.)

(One of the results of the Argo Merchant spill was the determination by MESA that a handbook is needed on the characteristics of oil types, how to handle them and what impact they have on the environment.)

IV. Federal Programs for Affected Areas

1. Non-disaster Assistance

The initial Federal agency response is provided by the Regional Response Team supplemented by the National Strike Force (see page 11) and other Federal agencies, as required, such as:

National Marine Fisheries Service (Department of Commerce) can make grants available to restore commercial fishery resources which have been damaged or destroyed by a disaster. (16 USC 779-779f)

National Weather Service (NOAA) provides information and public warnings on hazardous weather phenomena, as well as tides and currents.

Public Health Service (HEW) can aid States and local communities in emergency health and sanitation measures. The Food and Drug Administration can work with State and local governments in establishing public health controls through decontamination or condemnation of contaminated food and drugs.

U. S. Army Corps of Engineers has authority to assist in rescue operations and to protect, repair and restore Federally constructed flood-control works.

In areas designated as eligible by the Secretary of Agriculture under his own statutory authorities, the Farmers Home Administration may make emergency loans to oyster planters. (7 USC 1961 et seq)

The Small Business Administration can provide both direct and bank-participation disaster loans to qualified homeowners and businesses to repair or replace damaged or destroyed private property when the SBA Administrator declares a "disaster loan area" under his own statutory authority. Economic injury loans can help small firms suffering economic losses as a result of a disaster.

Economic Development Administration (Department of Commerce) can provide assistance, in the form of developmental and implementation grants, to areas impacted or anticipating impact from economic dislocations involving structural changes in the economy which might be brought about by a major spill. (42 USC 3241)

Department of Housing and Urban Development can make emergency community development grants to assist communities having emergency community development needs which are essential for the immediate restoration or maintenance of community health, safety or economic stability. (42 USC 5307)

The Internal Revenue Service (Department of Treasury) can assist individuals in obtaining tax refunds for uncompensated casualty losses.

U. S. Fish and Wildlife Service (Department of Interior) provides assistance and programs to prevent wildlife damage as well as rescue and life-saving operations.

2. Federal Disaster Assistance

The Disaster Relief Act, Public Law 93-288, provides for a declaration of "Emergency" or "Major Disaster" by the President to assist States in coping with natural disasters. The Federal response authorized by this Act is coordinated under the Federal Disaster Assistance Administration. By Executive Order 11795, the President delegated primary responsibility for administering the Disaster Relief Act to the Secretary of HUD, who, in turn, has assigned program responsibility to the Administrator of FDAA. In Region 1 the FDAA Regional Director is located at 150 Causeway Street, Boston, Massachusetts 02114.

(a) An "emergency" means any hurricane, tornado, storm, flood, high water, wind-driver water, tidal wave, tsunami, earthquake, volcanic eruption, landslide, mudslide, snow-storm, drought, fire, explosion, or other catastrophe in any part of the United States which requires Federal emergency assistance to supplement State and local efforts to save lives and protect property, public health and safety, or to avert or lessen the threat of a disaster.

While there is no specific mention of oil spills in the above definition, any catastrophe of sufficient severity and magnitude that warrants Federal emergency assistance, upon request by the Governor defining the particular type and specific extent of Federal aid required, the President may declare an "emergency".

The emphasis here is on Federal supplementation to save lives and protect property, public health and safety, or to avert or lessen the threat of a disaster.

Assistance triggered by a Presidential declaration of "emergency" includes:

(1) directing Federal agencies to provide technical assistance and advisory personnel to the affected State to assist in:

a. the performance of essential community services,

b. warning of future risks and hazards,

c. public information and assistance in health and safety measures,

d. technical advice on management and control,

e. reduction of immediate threats to public health and safety.

(2) distribution of food, medicine and other consumable supplies or emergency assistance

(3) other assistance under the Act as the President deems appropriate

(b) A "major disaster" means those causes cited in the definition of an emergency above, in any part of the United States which, in the determination of the President, causes damages of sufficient severity and magnitude to warrant major disaster assistance under the Act, above and beyond emergency services, to supplement the efforts and available resources of State and local governments and disaster relief organizations in alleviating the damage, loss, hardship, or suffering caused thereby.

The emphasis here is damages and supplemental assistance to alleviate damage, loss, and suffering.

In addition to the programs listed under paragraph 1 above, assistance usually provided under a declaration of a "major disaster" includes:

(1) disaster unemployment assistance and job placement assistance for those unemployed as a result of a major disaster

(2) disaster loans to individuals, businesses and farmers for refinancing, repair, rehabilitation or replacement of damaged real and personal property not fully covered by insurance

(3) individual and family grants of up to $5,000 to meet disaster-related necessary expenses or serious needs of those adversely affected by a major disaster when they are unable to meet such expenses or needs through other programs or other means

(4) legal services to low-income families and individuals

(5) crisis counseling and referrals to appropriate mental health agencies to relieve disaster caused mental health problems

(6) clearance of debris on public or private lands or waters

(7) emergency protective measures for the preservation of life and property

(8) repair or replacement of damaged public facilities including: roads, streets and bridges; water control facilities; public buildings and public utilities

(c) The FDAA also provides assistance to States in the development of State and local capabilities to respond to disaster needs and to avoid or reduce potential disaster hazards and effects. It encourages the development of comprehensive plans for coping with disasters, and provides initial funding up to $250,000 per State, plus $25,000 per year, for developing, improving, maintaining and updating such disaster plans. FDAA also provides technical assistance for plan development. To the extent that a major oil spill could be declared a major disaster, such plans could include provisions for coping with them.

APPENDIX A

REGIONAL RESPONSE TEAM FOR COASTAL SPILLS

(Note: Initial reports of oil spills should be made to the Duty Officer at the National Response Center, telephone toll-free (800) 424-8802.)

Primary Agencies

Chief, Marine Safety Division First Coast Guard District 150 Causeway Street Boston, Massachusetts 02114	(617) 223-6915
Director, Surveillance and Analysis Division Environmental Protection Agency, Region I 60 Westview Street Lexington, Massachusetts 02173	(617) 861-6700 extension 202
Staff Operations Officer Fourth Naval District Philadelphia, Pennsylvania 19112	(215) 755-3871 FTS 485-3871
Chief, Navigation Branch U.S. Army Corps of Engineers New England Division 424 Trapelo Road Waltham, Massachusetts 02154	(617) 894-2400 extension 330
Coordinator of Environmental Programs U.S. Geological Survey Office of Marine Geology Woods Hole, Massachusetts 02543	(617) 548-8700
Regional Director National Marine Fisheries Service Federal Building 14 Elm Street Gloucester, Massachusetts 01930	(617) 281-3600 extension 250

Advisory Agencies

Regional Director
Energy Research and Development Administration (617) 223-5706
150 Causeway Street
Boston, Massachusetts 02114

Regional Director
Federal Disaster Assistance Administration (617) 223-4271
150 Causeway Street
Boston, Massachusetts 02114

Regional Environmental Officer
Department of Health, Education and Welfare (617) 223-5485
John F. Kennedy Federal Building - Room 2403
Boston, Massachusetts 02203

State Liaisons

The following State agencies provide representation on the RRT as appropriate:

* Connecticut Department of Environmental Protection
Water Compliance and Hazardous Substances Section
122 Washington Street
Hartford, Connecticut 06115

Department of Environmental Protection
Augusta, Maine 04330

Massachusetts Division of Water Pollution Control
100 Cambridge Street
Boston, Massachusetts 02134

New Hampshire Water Supply and Pollution Control Commission
105 Loudon Road
Concord, New Hampshire 03301

Department of Health
Division of Water Pollution Control
State Office Building
Providence, Rhode Island 02903

Department of Water Supply and Pollution Control
State Office Building
Montpelier, Vermont 05602

* Note: For coastal spills, Connecticut provides representation to the New York RRT (see Section II. 1. (b) of report).

APPENDIX B

Sequence of events and actions taken in response to a pollution discharge (excerpted from the National Contingency Plan, 40 CFR Part 1510, Subpart D)

Phase Groupings

The actions taken to respond to a pollution discharge can be separated into five relatively distinct classes or phases. For descriptive purposes, these are: Phase I - Discovery and Notification; Phase II - Evaluation and Initiation of Action; Phase III - Containment and Countermeasures; Phase IV - Removal, Mitigation and Disposal; and Phase V - Documentation and Cost Recovery. It must be recognized that elements of any one phase may take place concurrently with one or more other phases.

Phase I - Discovery and Notification

(a) A discharge may be discovered through: (1) A report submitted by a discharger in accordance with statutory requirements; (2) through deliberate search by vessel patrols and aircraft; and (3) through random or incidental observations by government agencies or the general public.

(b) In the event of a deliberate discovery, the discharge will be reported directly to the RRC. Reports of random discovery may be provided by fishing or pleasure boats, police department, telephone operators, port authorities, news media, or others. Reports generated by random discovery should be submitted to the nearest USCG or EPA office. Regional plans shall provide for such reports to be channeled to the RRC as promptly as possible to facilitate effective response action. Reports of major and medium discharges received by either EPA or USCG shall be expeditiously relayed by telephone to the other agency. Reports of minor discharges shall be exchanged between EPA and USCG as agreed to by the two agencies.

(c) The Agency furnishing the OSC for a particular area is assigned responsibility for implementing Phase I activities in that area.

Phase II - Evaluation and Initiation of Action

(a) The OSC shall insure that a report of a discharge is immediately investigated. Based on all available information, the OSC shall: (1) Evaluate the magnitude and severity of the discharge; (2) determine the feasibility of removal; and (3) assess the effectiveness of removal actions.

(b) The OSC shall, when appropriate and as soon as possible after receipt of a report, advise the RRC of the need to initiate further governmental response actions. This may be limited to activation of the RRT or a request for additional resources to conduct further surveillance or initiation of Phase III or Phase IV removal operations.

(c) The OSC shall insure that adequate surveillance is maintained to determine that removal actions are being properly carried out. If removal is not being done properly, the OSC shall so advise the responsible party. If, after the responsible party has been advised and does not initiate proper removal action, the OSC shall, pursuant to section 311(c)(1) of the act, take necessary action to remove the pollutant.

(d) If the discharger is unknown or otherwise unavailable, the OSC shall proceed with removal actions pursuant to section 311(c)(1) of the act.

Phase III - Containment and Countermeasures

(a) These are defensive actions to be initiated as soon as possible after discovery and notification of a discharge. These actions may include public health and welfare protection activities, source control procedures, salvage operations, placement of physical barriers to halt or slow the spread of a pollutant, emplacement or activation of booms or barriers to protect specific installations or areas, control of the water discharge from upstream impoundments and the employment of chemicals and other materials to restrain the pollutant and its effects on water related resources.

Phase IV - Cleanup, Mitigation and Disposal

(a) This includes actions taken to recover the pollutant from the water and affected public and private shoreline areas, and monitoring activities to determine the scope and effectiveness of removal actions. Actions that could be taken include the use of sorbers, skimmers and other collection devices for floating pollutants, the use of vacuum dredges or other devices for sunken pollutants; the use of reaeration or other methods to minimize or mitigate damage resulting from dissolved, suspended or emulsified pollutants; or special treatment techniques to protect public water supplies or wildlife resources from continuing damage.

(b) Pollutants and contaminated materials that are recovered in cleanup operations shall be disposed of in accordance with procedures agreed to at the State or local level.

Phase V - Documentation and Cost Recovery

(a) This includes a variety of activities, depending on the location of and circumstances surrounding a particular discharge. Recovery of Federal removal costs and recovery for damage done to Federal, State or local government property is included; however, third party damages are not dealt with in this Plan. The collection of scientific and technical information of value to the scientific community as a basis for research and development activities and for the enhancement of understanding of the environment may also be considered in this phase. It must be recognized that the collection of samples and necessary data must be performed at the proper times during the case to fix liability and for other purposes.

APPENDIX C

Oil Spill and Oil Pollution Reports, a quarterly publication of the Environmental Protection Agency, reviews current scientific and technical publications and research projects in the field of oil pollution. Following are selected projects reported in the issue for February-April 1976, and will show the range of research work under way and some of the results which have been achieved.

Research on oil spills in the ocean falls into five categories:

Oil Pollution Detection and Evaluation
Oil Pollution Prevention and Control
Effects of Oil Pollution
Effects of Oil Prospecting and Production
Fate of Oil in the Environment

Oil Spill Detection and Evaluation

Coast Guard and EPA analyzed samples from 250 suspected ships in order to identify the vessel that discharged more than 40,000 gallons of crude near Key West, Florida. Chemical and Engineering News 53 (46) : 7 -- 1975.

U.S. National Research Council reports that six million tons of petroleum hydrocarbons enter the world's oceans each year, 35 per cent of which comes from transportation activities. Tar masses have appeared in formerly unpolluted areas worldwide. They are caused by tanker washings and bilge discharges. The Dock Harbour Authority 55 (651) : 323 -- 1975.

Study of 50,000-ton oil spill by VLCC tanker Metula in Straits of Megellan concluded that essentially all of the oil that floated ashore was still there and biological impact was severe. Marine Technology Society Journal 9(10):43-44 -- 1975.

Shell International Marine reports on grounding and salvage of VLCC Metula, plans for preventing more pollution and refloating the vessel, and states that pollution effects were minimal due to weather patterns and isolation of the area. Marine Engineering - Log 80 (4): 54-55 -- 1975.

A 25-ship NOAA fleet has been organized as a part of the UN program, Integrated Global Ocean Station System, to monitor slicks and other pollutants in inshore and offshore waters and collect tar balls for periodic assessment of ocean contamination. Marine Technology Society Journal 9(10) : 44-45 - 1975.

Maritime Administration specifies anti-pollution design for subsidized oil tanker construction, gathers baseline information to be used in formulating oil discharge regulations for ships. National Bureau of Standards Special Publication, No. 409, pp. 33-40 --1974.

No oceanic monitoring program is yet effective enough to support a regulatory function. NBS Special Publication No. 409, pp. 3-8.

Automatic remote detection device, based on infrared reflectance properties of water surfaces, can detect oil 24 hours a day, all weather. NBS Special Publication No. 409, pp. 93-94.

Oil Pollution Prevention and Control

A total of 237 entires under this heading, mostly describing patents, development work and operating equipment for oil spill containment and recovery.

American Society for Testing and Materials has established a committee to investigate oil spill control systems. See National Petroleum News 68 (1): 67 -- 1976.

Oil spill control and recovery equipment is also listed in Pollution Control Directory 1975-1976 published by Environmental Science and Technology. 9(11): 88p.

Skylab and ERTS-1 -- capabilities for oil detection. Evaluation of methods to analyze data for pollution detection. Final Report USCG-D-117-75 -- 1975.

The Coast Guard has developed highly sophisticated systems for high seas oil spill control and removal. It was described by LCDR Donald S. Jensen of the Coast Guard Pollution Prevention Projects Branch at a symposium last October 29 and 30 at Williamsburg, Virginia. It includes an Air-Deliverable Anti-Pollution Transfer System (ADAPTS) for pumping oil out of a stricken tanker and was tested successfully in 40-knot winds and 8- to 10-foot seas.

A thousand-foot oil containment barrier built to Coast Guard specifications has worked well in calm conditions and in rough seas with waves up to five feet. The air-deliverable barrier will stand up under rougher seas but oil containment diminishes with oil washing over and under the barrier. Oil is also lost by wave action at the leading edge of the slick dispersing oil droplets downward into the water column. This accounted for a 33 per cent loss in one test.

Three oil spill recovery devices have been developed and tested (one series of tests was conducted at EPA's Oil and Hazardous Materials Simulated Environmental Test Tank off Edison, New Jersey). As of October, steps had been taken to procure equipment for deployment to Coast Guard Strike Teams.

The ADAPTS equipment was tested successfully in 1974 when the Coast Guard pumped 140, 500 tons of crude from the VLCC Metula aground in the Straits of Magellan. (51, 000 tons had been lost before the Coast Guard arrived. Shell Oil, owner, did not know of U. S. National Strike Force and was using a European salvage company.)

ADAPTS passed another severe test in the offloading of oil from the VLCC Showa Maru, which grounded off Singapore in 1975.

Effects of Oil Pollution

EPA made a $1. 9 million grant to University of Rhode Island to build nine 6' by 15' tanks in which to study effects of pollutants on marine life. Environmental Science and Technology 10(1) : 11.

Two studies of Searsport, Maine, oil spill show high mortality of clams and high incidence of gonadal tumors in clams living in areas contaminated by oil. Marine Pollution Bulletin 6(11) : 164-166 and 171-174 -- 1975.

Studies of hypothetical offshore drilling sites show that Atlantic spills would cause no significant biological damage to near shore inhabitants. Technology Review 78 (4) : 61-67.

Crude Oil and petroleum substances contain water soluble components which inhibit chemically triggered feeding and reproductive responses of marine organisms. Louisiana State University. LSU-SG-73-01.

Effects of Oil Prospecting and Production

Much of this category deals with OCS technology and with major emphasis on the effects of "drilling mud", a drill lubricant, on marine life.

Discussion of oil spills from offshore production. Technology Review 78(4) : 47-59 -- 1976.

Numerous entries on actual effects of oil exploration in Scotland, Santa Barbara Channel and Beaufort Sea.

Environmental Statements of Bureau of Land Management (DOI) on OCS ventures are reviewed. (Copies can be obtained from Massachusetts Governor's Energy Office, Henry Lee.)

Fate of Oil in the Environment

Extensive research is under way on biological degradation of oil by naturally occurring and induced micro-organisms, but these have little application to the short-term protection of marine life or onshore amenities.

The movement of oil slicks also is extensively investigated. A three-year study of San Francisco Bay is reported in National Bureau of Standards Publication No. 40[redacted]

Techniques for [redacted] and even controlling the movement of oil in ocean water are discussed in American Society of Chemical Engineering Vol. 3:2245-2259 and University of Delaware Sea Grant Project, DEL-SG-15-74.

Offshore Applications of Modeling Techniques indicate that Georges Bank spill would have 5 per cent chance of coming ashore in summer and none in winter. Northern Offshore 4(10):#43-44.

An MIT study based on a computer model analyzes the behavior of oil spill trajectories for a number of potential offshore production regions in the Atlantic and Gulf of Mexico, including the probability of spills coming ashore. MIT Technological Report No. MIT-SG 74-20, pp. 213-403 -- 1974.

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