Control of HAZARDOUS MATERIAL SPILLS

Proceedings of
1978 NATIONAL CONFERENCE ON
CONTROL OF HAZARDOUS MATERIAL SPILLS

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CONTROL OF HAZARDOUS MATERIAL SPILLS

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FOREWORD

As these Proceedings are being assembled for printing, indications are that the long-awaited regulations on hazardous material spills—mandated by Section 311 of Public Law 92-500,"The Federal Water Pollution Control Act Amendments of 1972"—may already have been promulgated. In the regulations, EPA is expected to designate approximately 300 materials as hazardous substances.

The law also provides that, when a harmful quantity of any designated hazardous substance is spilled into a watercourse, first, the spiller will be assessed, as a minimum, a civil penalty just for having had the spill. Second, if the chemical spilled has been designated as "removable," the law requires its removal. Further, if the chemical is designated as "non-removable"—and this will apply to most materials—the spiller is not relieved of responsibility in doing all he can to protect the water environment and to mitigate ecological damage.

Added to these costly efforts are the costs associated with loss of product, need for makeup production, possible damage to production, transport, or storage facilities, damage payments to injured property owners, cleanup costs, compensation to injured workers, etc. As one paper in these Proceedings estimates, such costs can easily amount to $50,000 per spill incident.

Prevention of, and contingency planning for, hazardous material spills by the chemical process and other industries and businesses are discussed in several papers; obviously, the cheapest spill is the one that is prevented. Nonetheless, even the best contingency planning and safety procedures of environmentally concerned industries will not stop all their potential spillages; further, there will always be the "mystery" spills.

The need for technically advanced response systems is recognized by all those involved with chemical spills and, especially, by those participating in this Conference. Only a few systems are currently available for handling out-of-plant spills of hazardous materials. Among those are the Mobile Physical/Chemical Treatment System, a mobile analytical laboratory, and several hands-on leak plugging and spill control devices that were developed by EPA. Obviously, the chemical processing industry has not been idle in developing equipment and procedures for in-plant spills; groups of manufacturers have long ago banded together to provide not only expert advice, but also spill control technology. A quick perusal of the Conference Proceedings reveals the wide spectrum of organizations actively engaged in the hazardous spills problem: the U.S. Coast Guard, US Army, US Navy and other Federal Agencies, many universities, municipalities, and States, as well as a number of management and consulting organizations and professional, technical and trade societies. The registration list will even better reflect the ever-growing interest in, and concern with, the prevention and control of hazardous spills.

As in previous conferences, case histories of spills and reports on how specific incidents were attacked with equipment—novel, conventional and makeshift—are the subjects of several presentations. Some courageous contributors also reveal what failed! These individuals certainly deserve accolades as much as those who can bask in the sunlight of success. We all will profit from what has been learned from the attempted containment and cleanup of the environmentally disastrous spills of Kepone, pentachlorophenol (PCP), hexachlorocyclopentadiene, etc.

Since the 1976 Conference, many of the systems and technologies described in the three previous Conferences were put to actual use in real world spill cleanup and mitigation. Undoubtedly, by the time the next Conference in this series is at hand, the techniques and systems discussed in these Proceedings will have had their day in the court of the practical world, and more advanced devices and protocols will be ready and waiting for their debut.

ACKNOWLEDGMENT

Many people, agencies and institutions were involved in the promulgation and implementation of this conference. We would like to acknowledge the roles of each of the individuals and the respective organizations.

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A special thanks also goes to the Information Transfer Conference Coordinator, Bobbie Zucker for her dedication and effectiveness in serving everybody and for coordinating all the activities of the Conference.

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INTRODUCTION

Last December the President signed the Clean Water Act of 1977.[1] This law amended the Federal Water Pollution Control Act[2] which previously had been extensively rewritten by Public Law 92-500.[3]

This paper will first address briefly those parts of these laws that concern the discharge of hazardous substances. It will then discuss the regulations promulgated by EPA in compliance with these laws.

The Law

The objective of the law is to eliminate the discharge of pollutants into the navigable waters of the U.S. by 1985. Section 311 deals with the discharge of hazardous substances. It provides for the Executive Branch:

1) to designate elements and compounds that are hazardous when discharged into the waters of the U.S.;
2) to make a determination of which of them are removable;
3) to designate harmful quantities;
4) to exercise a variety of powers to regulate the discharge of hazardous substances, and mitigate their effects;
5) to collect the costs of such removal from the owners or operators of the responsible facility, which costs can run very high;
6) to assess fines for discharging substances that are not removable. These fines either may be between $500 and $5,000, or alternatively may range up to $500,000 for discharges from shore facilities and $5 million for discharges from vessels, in accordance with a schedule to be established, based on the quantity and the identity of the discharge. The application of this alternate schedule of fines is discretionary;
7) to assess an additional civil fine of up to $5,000 administered by the Coast Guard for any spill of oil or hazardous material.

Section 311 also provides for a variety of other items including the establishment of a revolving cleanup fund and a trained strike force, and a $10,000 fine or one year imprisonment for failure to report, as required, the discharge of oils or hazardous materials.

The Clean Water Act of 1977 enacted last December amended Section 311 in several ways.

First, it clarified the status of mitigating action when nonremovable substances are discharged. Up to that time it had been clear that the Coast Guard could charge a civil penalty of up to $5,000 for discharges of oils and all types of hazardous materials, and that spills of oil or removable hazardous substances could be cleaned up at the expense of the owner or operator; and that EPA could collect one of the two alternate additional penalties if the substance discharged was not removable. The law was silent on whether EPA could act to mitigate effects of nonremovable substances by means of the contingency fund. The 1977 Act specifically adds the authorization for EPA to act to mitigate damages to public health and welfare resulting from discharges of nonremovable substances, and to assess the costs to the dischargers. These are examples of such costs:

1) Containment,
2) Measures to warn and protect the public,
3) Monitoring of temporary water supplies,
4) Monitoring the spread of pollution,
5) Efforts to raise sunken vessels,
6) Emergency treatment facilities, and
7) Dredging, such as occurred in one area of a harbor in the case of spillage of PCB's, a substance determined to be not removable.

The Clean Water Act also revises liability charges.

1) Cleanup liability for vessels is now generally limited to $150 per gross ton unless they carry oil or hazardous substances, in which case the cleanup liability is at least $250,000. Special limits have been set for inland oil barges.
2) Cleanup liabilities for onshore facilities are now subject to a $50,000,000 maximum in lieu of the old $8,000,000 maximum. The President may lower the maximum for specific categories of facilities.
3) There is no maximum cleanup liability in case of unlawful misconduct or negligence.

The Clean Water Act also extends the area of applicability far out into the ocean beyond the contiguous zone to include activities under the Continental Shelf Land Act, or the Deepwater Port Act of 1974. However, on the outer continental shelf the Coast Guard $5,000 penalty is limited to vessels under U.S. jursidiction, as is the $10,000 penalty or up to one year imprisonment for failure to report a discharge.

New Regulations

On March 3, 1978, in conformance with an Executive Order,[4] EPA published four regulations that have been determined by the Agency to be key to the establishment of a hazardous substances regulatory program. The program is based on the dual concepts of encouraging proper handling and cleanup through civil penalties for unauthorized discharges and assessment of costs incurred in cleanup and removal.

Prior to promulgating these rules, EPA had published proposed rules for public comment.[5] More than 160 comments were received and carefully considered.

The first of the rules, 40 CFR 116, designates as hazardous 271 chemical substances together with any hydrates, isomers, and solutions or mixtures containing these substances. That does not imply that among the millions of known chemical compounds there are not many others that are also hazardous; it is just a start. To make the list manageable, priority has been given to those substances meeting EPA toxicological criteria, which are produced in large quantities and are sold at low unit prices or have past histories of spillage.

The classification scheme originally proposed for defining harmful quantities was somewhat similar to that of IMCO.[6] It included aquatic animal toxicity, oral mammalian toxicity, dermal mammalian toxicity, inhalation toxicity, and phytotoxicity. As it turned out the more than 300 substances on the original list exhibited aquatic animal toxicity at or below the upper aquatic toxicity limit of 500 ppm and only a very few met any of the other toxicological criteria. In response to comments by the public, a total of 36 substances that had been proposed are not listed in the final rules, mostly because of the limited usage or marginal toxicity. The final 271 substances all qualify on the basis of aquatic toxicity. Expanding on the criteria to include carcinogenic, mutagenic, teratogenic, or radioactive substances is being planned for the future.

Section 311 also requires EPA to determine whether any such designated substance "can actually be removed." Rule 40 CFR 117 makes that determination, and based upon public comments, physical data and existing oil removal technology, designates ten of the hazardous substances as removable. All of them resemble petroleum oils in their behavior when discharged to water. They are cohesive, they float, and they dissolve in water at a ratio of less than one part to a thousand parts of water. The remaining 261 designated hazardous substances were not determined to be removable and their discharges are subject to the two schedules of civil penalties of $500 to $5,000 or up to $500,000 for shore facilities and $5 million for vessels.

Rule 40 CFR 118 determines harmful quantities. This regulation is a fine example of the extent to which constructive public comments can contribute to improve significantly both concept and formulation. Because subjective judgment is required in using IMCO type guidelines, they were not used in the defining of harmful quantities in the final rulemaking. When first proposed, part 118 had divided all designated materials into four categories, A B C and D, covering toxicity ranges 1 ppm and below, greater than 1 to 10 ppm, greater than 10 to 100 ppm, and greater than 100 to 500 ppm, respectively. Harmful quantities for these categories were then defined as 1, 10, 100, and to 500 lbs, so that the least toxic substance in each category theoretically could do equivalent damage to equal volumes of water. It was pointed out by several commenters that this scheme did not give the desired results.

These public comments noted that Category A, by covering all designated substances which kill fish at concentrations of less than 1 ppm, in fact lumped together a much wider toxicity range than the other categories. As a result the designation of harmful quantities was seen to be unnecessarily biased against the less toxic substances. For example, it was stated that 500 pounds of a typical D substance could be expected to do less harm than 1 pound of a typical A substance.

A new category, Category X, has therefore been introduced. It covers substances with median lethal concentrations below one part in 10 million. Harmful quantities for Categories X A B C and D are now 1, 10, 100, 1,000, and 5,000 pounds respectively. This will probably reduce the number of discharges that will have to be reported, but will not affect those large discharges that most seriously endanger the public welfare.

Public comment also resulted in changing the proposed regulation with respect to the effective date. The water borne shipping industry commented that it would be difficult for members to obtain certification for proof of financial responsibility in a 90-day period, because first the insurance industry will have to establish rates, and then documents will have to be processed for thousands of ships. The regulations therefore become effective 90 days after publication, except for vessels for which the period is 180 days after publication.

EPA has received many questions about the relationship between Section 311 and the NPDES permit system. Some persons think that Section 311 applies only to accidental transportation spills. That is not the case. Discharges of a given material can be equally harmful whether they come out of a pipe or out of an overturned railroad car.

The rules now make that quite clear. Discharges of designated hazardous substances which are in compliance with an NPDES permit are exempted. Note the word "compliance". An NPDES permit is not a license for indiscriminate discharges. A discharger is in compliance when the discharge does not exceed the maximum daily amount expressly allowed, nor exceed the average daily discharge not limited expressly in the permit, but is as disclosed in the permit application.

The fourth of the rules, 40 CFR 119, covers the penalty rates. The penalty either may be in the $500 to $5,000 bracket or alternatively may be based on the quantity of the discharge, in which case it is based on the identity and the quantity of the substance discharged. Penalties in the latter case range between $100 and $1,000 per harmful quantity, depending on factors such as solubility, volatility, and whether the substance sinks or floats. This alternate penalty for nonremovable substances may range up to half a million dollars for on- or off-shore facilities and 5 million dollars for vessels. The choice of the penalty, according to the law, is at the "Discretion of the Administrator." The proposed rules used "gross negligence" as the discriminator for determining whether or not to impose penalties from

the high penalty schedule. Proving or disproving gross negligence would have resulted in much litigation and have taken away the Administrator's "discretion." Therefore the rules now state that he will make the determination based on "the gravity of the offense."

Finally, the rules now contain administrative procedures. They provide for notices of violation; for opportunities for interested third parties, including the State, to submit written comments; for a hearing, including a prehearing conference; and for appeal procedures.

We must now see how well the rules will work in practice. If the rules are found to have excessive shortcomings, consideration may be given to amending them. In any case, the list of designated materials will be expanded. An additional list of 28 substances has already been prepared for public comments to be published simultaneously with the final rulemaking for the 271 substances. Included on it are several substances such as Kepone, Mirex, and carbon tetrachloride the discharge of which has occurred since publication of the initial proposed lists and has attracted nationwide attention.

One fringe benefit we will derive from the rules published in March is data on spill frequencies. Since spills of hazardous materials have not been reportable, the magnitude of the problem is unknown. We may all be surprised, one way or the other.

Future designations of hazardous substnaces may be expected to include additional materials on the sole basis of aquatic toxicity. But you may also expect the designation criteria to be expanded so as to include other types of hazardous materials. No firm decisions have as yet been made, but additional emphasis on non-degradable substances does not seem unreasonable, while the Agency defines more clearly the hazards of carcinogenic, mutagenic and teratogenic substances.

One thing is clear: the extent of amemdments to these regulations and the quality of future regulations will likely depend on the inputs EPA obtains from the public, industry, and the scientific community.

REFERENCES

1. Public Law 95-217, Clean Water Act of 1977, December 27, 1977.
2. Public Law 21-224, Water Quality Improvement Act of 1970, April 3, 1970.
3. Public Law 92-500, Federal Water Pollution Control Act Amendments of 1972, October 18, 1972.
4. Executive Order 11735, "Assignment of Functions under Section 311 of the Federal Water Pollution Control Act, as Amended," August 7, 1973.
5. Environmental Protection Agency, "Hazardous Substances," 40 CFR 116-119. Federal Register (Dec. 30, 1975), 59959-60017.
6. U.S. Senate Committee on Commerce, "1973 Intergovernmental Maritime Consultative Organization Conference." Hearings, 93rd Congress, First Session, Series 93-52, Governmental Printing Office, Washington, 1973.

A Dynamic Regional Response Team

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INTRODUCTION

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) is one of the most enlightened documents to emerge from the Federal Establishment in a number of years. Developed by the Council on Environmental quality in compliance with the Federal Water Pollution Control Act (FWPCA), and in concert with specified primary and advisory agencies, the National Plan "provides for a pattern of coordinated and integrated response by Departments and Agencies of the Federal Government to protect the environment from the damaging effects of pollution discharges." A precise understanding of the entire plan is essential for all those having responsibility for response to oil and hazardous substance spills.

One of the most important elements of the National Plan is the provision for Regional Response Teams (RRT) to conduct pre-planning, prepare Regional Contingency Plans and to provide the Federal On-Scene Coordinator (OSC) with advice and assistance during a pollution incident or threat of pollution. The Regional Response Team is comprised of representatives of the Primary Agencies and selected (situation oriented) Advisory Agencies named in the National Plan, and is chaired by either the Coast Guard or U.S. Environmental Protection Agency, depending on the site or impact of the spill, coastal or inland. (The OSC is similarly pre-designated based on geographic area as specified in regional plans.)

REGIONAL RESPONSE TEAM COMPONENTS

Primary	Advisory
U.S. Coast Guard	Department of Energy
U.S. Environmental Protection Agency	Department of State
Department of Defense	Department of Justice
Department of Interior	Department of Housing and Urban Development
Department of Commerce	Department of Health Education and Welfare

Impacted State (not mandatory)
Impacted Municipality (not required by the NCP)

The Regional Response Team is a highly effective mechanism for ensuring adequate response to spills of both oil and hazardous substances. Properly organized, activated and operated, the Team can provide the On-Scene Coordinator with a broad range of contingency data, experience and technical information vital to a successful cleanup or, of particular importance in the case of hazardous substance spills, mitigating action. National, even international contacts, are also accessible through the RRT when, in itself, the Team does not possess the required talent or expertise.

However, the mere designation of a Regional Response Team does not insure, even imply, its effective utilization. On too many occasions teams have not been properly organized before a spill, not been activated in a timely manner or not activated at all, or once activated the members unsure of their responsibilities. Budgetary restraints, priorities, workloads, rotation of personnel, and simple failure to grapple with the situation all contribute to the problem which must be dealt with if a dynamic spill response is expected.

Pre-Planning

Organizational relationships which are well defined in the Regional Contingency Plan are key to a dynamic multi-organizational response effort. Of particular importance is the establishment of each Agency's specific spill related responsibilities as well as its overall structure including geographic boundaries. Clearly defined roles of chairmanship and boundaries which affect chairmanship of the RRT (and OSC) must be concise. There should never be a doubt as to the identity of the pre-designated OSC or Chairman of the RRT, either by agency or by name. The Regional Plan must also contain a directory of representatives on the Team with full information about whom they represent and how they can be contacted on a twenty-four hour, seven day a week basis. The directory should also include others who may be called on for specialized assistance.

Meetings of the Regional Response Team should be held at least quarterly and should not necessarily always occur at the same location. Moving about the region will spread travel costs equally and acquaint the team with the region as a whole. Use of different meeting points will also act as a stimulus for the State and municipal members of the host area to attend, though all States and major municipalities within the region should be actively encouraged to participate at each meeting.

Occasionally an agency will be detected which is not

giving full support to the meetings and the Regional Plan. There should be no reluctance to invite, at the administrator level, the attention of that agency to its mandate under the FWPCA and the National Contingency Plan. Recalcitrant States or municipalities can be tactfully induced to participate more fully if their attention is drawn to potential lack of meaningful response at a spill and the political results therefrom.

The agenda at RRT meetings must, of course, be tailored to the individual needs of the region. Following are but a few possibilities for discussion at such a session.

- Are there any changes to membership on the RRT or which should otherwise be made in the directory of the Regional Plan? If so, an immediate correction should be made followed by formal change by the custodian of the Plan.
- All significant spills which have occurred since the last meeting should be reviewed in order to identify where better pre-planning could have improved the response effort. Corrective action should be taken where necessary.
- Review of at least one sub-regional contingency plan should be undertaken. Intersessional distribution of the plan will aid in this effort. It might be useful to invite the custodian of the sub-regional plan to the discussion. NOTE: An annual review of each sub-regional plan is desirable whether or not it occurs at an RRT meeting.
- If a communication exercise or other drill has been held between meetings it should be thoroughly discussed and corrective action taken. Plans for future exercises should be made.
- Each member should review his field situation and the Team should ensure that field liaison to the OSC has been firmly established and is adequate.
- Jurisdictional boundaries should be reviewed for adequacy and possible change.
- Definition of special projects which would keep the Team functioning, as well as provide operational advantages, should be discussed. For example, is there a high risk area which demands a special pre-planning by the OSC and how can the RRT assist with the effort?

The possibility for discussion at the meetings is practically endless but the important point is that the Team does meet, that the members do know each other and that there is a dialogue about how to improve contingency planning and spill response.

Activation

Activation of the Regional Response Team is obligatory, under the terms of the National Contingency Plan, "in the event of a major or potential major discharge," or upon "oral request from any primary agency" during a pollution emergency. Activation may mean telephone or telegraphic notification followed by consultation and updates by similar means, formal assembly of the Team at the Regional Response Center or assembly of the Team near the site of the discharge.

What activation does not mean is scattered notification followed by spotty amplificaton and failure to act as a team. Each spill has different characteristics with varying levels of participation by RRT members. However, failure to fully involve all agencies will result in apathy at quarterly meetings and in poor response to future spills. It may also prove disruptive if the situation enlarges and later impacts a member who has not been adequately briefed. Then too, in fast moving situations, a member whose agency is not greatly impacted can assist another who is seriously affected.

Notification should be made first by telephone and so recorded. Aside from the speed at which this can be accomplished there is the advantage in knowing that the contact has been made. Though telegraphic notification should follow, it should not be relied upon for initial contact, for it may inadvertently reach a staff member who does not perceive its full implication. Hence, the means for notification should be in the hands of RRT members at all times. Specifically the Regional Contingency Plan, or at least its directory, should always be in the possession of the team members. The information contained in the directory must be current. Though activation is executed by the chairman of the Team, even in the event of a members request as noted above, each member should be prepared to assist in notification.

The chairman of the Team, and even members, should have access to pre-positioned telegraphic message blanks which can be easily used. Pre-addressed, and with simple "fill in or cross out the blank construction," prepared forms for formal notification. Exercises using such a message have great utility in identifying and eliminating communication problems and in keeping the attention of all members of the Team.

Once activated, each member of the Team should consider it obligatory to comply with the activation request and, if so requested, quickly proceed to the assembly point. Arrangements for agency approval, funding etc., should be accomplished prior to the incident.

The activation may include a request for individual assistance; this request should be acted on concurrently with travel to the point of assembly. Notification of the agency's field representative to the OSC should also be confirmed by the RRT member with minimal delay.

Conduct of Activity

The Regional Response Team members may function from their normal offices or homes, at the Regional Response Center or near the site of the discharge. The procedure used is largely a function of the Team's opinion on how best it might assist the OSC. Ordinarily the Team should assemble at the Regional Response Center or should be pre-designated in the Regional Contingency Plan; the center should have excellent communications and support equipment.

Generally it will not be necessary for the Team to travel to the site of the discharge unless there is a compelling reason to do so, or unless requested to do so by the OSC. If the Team does assemble near the discharge, or visits the area for a briefing, it must make a conscious and deliberate effort not to interfere with the duties of the OSC. It is equally important to avoid the implication to the press, the public, or the OSC that there is other than one person in charge, that being the On-Scene-Coordinator.

Upon assembly of the RRT the first order of business is a briefing, for the situation will undoubtedly have changed since initial notification of the members. Assuming that the Team has been functioning on a regular basis, introductions will not be necessary nor will any member be unsure of what his responsibilities are.

Following the initial briefing, Team members should, consistent with their own special qualifications carry out their tasks as mandated by the situation. Particular emphasis should be placed on ensuring that field support to the OSC is adequate. Plenary sessions should be called by the Chairman or any member through the Chairman, at such time as a significant development occurs or at least twice daily. At these plenary sessions discussion should focus on what has been done by the OSC and field representatives of the RRT, how the actions have affected the situation and if adjustments should be recommended by the Team. Priorities given to the protection of communities and environmentally or economically sensitive areas should receive special attention. Requests for assistance by the OSC should receive the prompt consideration of the Team and the OSC informed of progress on any such action item.

At the close of each plenary session, the Team should try to reach a consensus opinion on the effectiveness of the cleanup or mitigating action and future plans of the OSC. Views should be recorded, either in the minutes of the meeting or in a telegraphic message to the National Response Center. The Team should take particular care to ensure that the State and municipal representatives have an equal voice and impact at the meetings or, if they are not present, follow up on notification with a specific request for their attendance.

Of particular value is a daily, or occasional, joint expression of opinion on the situation. Hopefully the OSC will be doing his job well; if so the vote of confidence conveyed to the National Response Team will have a favorable impact on the morale of those in the field and help quench unjustified "Monday morning quarterbacking."

However, if a change in the OSC seems appropriate, that too should be discussed and an appropriate recommendation made. Views on the level of expenditures are also useful for those to whom stewardship of the National Revolving Fund is charged.

If the Team has been assembled, it should continue to meet until it is clear that the situation warrants otherwise. Rarely, if ever, should a stand down occur over the objections of the OSC. On the other hand, depending on the seriousness of the situation, certain members may designate temporary replacements of even receive temporary leaves of absence from the Chairman. However, such deviations from the norm must be tempered with good judgement and must clearly not affect the effectiveness of the Team. Conversely, if the Team has been activated at a low profile, (not assembled) there should be no reluctance to assemble if the situation warrants, or particularly, if requested to do so by the OSC.

Agency Responsibility During a Spill or Potential Spill

The Regional Response Team, as stated earlier, is not restructed to one mode of conducting business but may operate from parent activities (having not been assembled), at the Regional Response Center or near the site of the discharge. Agency responsibilities also extend from the RRT member to the field representatives assisting the OSC. This paper does not attempt to provide guidance on each mode or how actual field work should be executed, but does provide terms of reference which can be generally applied to agency responsibilities during activation of the RRT. Since the participation of Advisory Agencies is largely situation oriented, only activities of the primary agencies will be addressed.

RRT Chairman

The Chairman of the Regional Response Team will be the member from the U.S. Coast Guard or U.S. Environmental Protection Agency depending on where the spill occurs or which area it has impacted, coastal or inland. Coastal and Inland waters are defined in the National Plan and specified in Regional Plans. The Coast Guard of course will chair the Team for coastal waters and the EPA for inland waters.

The Chairman is responsible for activating the Team, either in compliance with the National Plan or at the request of the OSC. He is also charged with coordinating all functional elements of the Team, assuring through those elements that all available Federal resources requested by the OSC are provided. These resources include, but are not limited to vessels, aircraft, vehicles, personnel, expertise and funds. He should assure that the Team addresses the matter of impact assessment and coordinate any related efforts, establishing liaison with the academic and environmental community to ensure a timely and efficient scientific investigation.

The Team, under the leadership of the Chairman, should identify any techniques not in use by the OSC and advise him of their potential. These could include burning, chemical treatment, jelling or dispersal as well as any more conventional methods which have eluded the attention of the OSC. Advice to the local community, usually through the OSC, on advisability of personnel evacuation might be appropriate.

The Chairman should assist the OSC in meeting public information demands created by the incident. He should arrange for primary members of the Team, as well as the State and municipal representatives, to assist the OSC in press conferences and public forums to the extent requested by the OSC. The value of a taped recorded message for public information use, special daily reports to cognizant Federal and State government offices and evaluation of promising input from the public may be pointed out to the OSC if necessary. The Team might assist the OSC in preparation of a public information release detailing how affected citizens can help themselves pending arrival of Federal cleanup or mitigation teams.

The Chairman should ensure that information recall systems and status displays are provided including minutes of meetings, telephone logs, recordings and visual displays of the current situation. He is of course responsible for the general conduct of the Team and for de-activation when it occurs.