

PLANNING AND PREPARING FOR RESPONSES TO  
HAZARDOUS MATERIAL EMERGENCIES

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On a summer evening, after stopping at a truck stop outside of a busy metropolitan area, a truck driver discovers that the fuming sulfuric acid that he is hauling is leaking steadily from his truck. It is running across a parking lot into a gutter which leads to a storm drain.

In another incident, shortly before midnight, 24 cars of a train derail within a large town. Eleven cars are filled with propane, three with styrene, four with caustic soda, three with toluene and one with 90 tons of liquid chlorine. Within minutes, one propane car bursts in a BLEVE (a particularly wide ranging violent explosion known as a Boiling Liquid Expanding Vapor explosion). In the next half hour, two other propane cars explode, one car becoming a projectile and flying more than 600 meters. There are over a quarter million persons in the community and evacuation appears imminent.

And finally, elsewhere, in the middle of a major port, two ships collide. One of the vessels is a fully laden tanker containing more than 2 million gallons of highly flammable oil. The second is a container ship with a variety of general cargo, including a large quantity of hazardous materials such as poisons, corrosives and explosives. As a result of the collision, fires break out aboard both vessels. The engine room of the freighter fills with smoke and is abandoned by the crew, causing the ship to lose power and fire fighting ability. Oil spilling from the tanker ignites and is burning on the water. Both vessels are soon engulfed in flames. Surviving crewmen abandon ship as the two burning hulks drift to shore.

I have just described three incidents with varying degrees of seriousness - each of them having the potential to cause loss of life, injury, and environmental and property damage. Hazardous material spill incidents can be far more serious than oil spills in that health and environmental hazards are generally much more immediate, dramatic and often unseen. When there is a hazardous materials spill, traditional measures of fire fighting or of combatting spills may not be adequate or even possible because of the specific hazards involved. Using water may cause even more problems because of spreading and water reactivity of many chemicals. Personnel who respond to such incidents must be specially trained if they are to be safe, be effective and be able to ensure the safety and health of the surrounding community.

In the United States, millions of tons of hazardous materials are safely transported each day and worldwide, this would be multiplied many times. The majority of these shipments are transported by ship, barge, rail or highway. Many of the products carried are highly toxic to both man and the environment and the accidental release of even small quantities can have serious consequences. The ever present dangers, inherent in handling these materials have forced increasing emphasis on environmental protection since the mid 1970s. During the course of this growing interest, legislation and regulations have been written and implemented; subsequently amended and new laws now passed. Systems of preparedness have been developed and continue to undergo refinement to keep pace with expanding areas of concern.

Throughout the entire evolutionary process, one major element has always persisted - Planning is a vital aspect of response. In fact, the title of this paper Planning and Preparing for Responses - could be better stated as Planning is Preparing for Responses. Any experienced response organization will affirm - that no matter how severe an incident is, if a contingency plan exists, it provides organization, stability and control to what could otherwise be a real disaster.

Of course there are different levels of contingency planning such as - national, regional, local and even specialty team plans. Today, I want to concentrate on the first two - national and regional. I will use the U.S. Plan to illustrate a working example.

Hazardous chemical spills can be extremely complex from both a political and ecological perspective. The U.S. has found that no one person or Federal agency has the experience or the expertise to adequately respond to these incidents alone. Indeed, we found that the experience and expertise was available to address these problems, but that it was maintained in separate agencies and not easily accessible. Therefore, a method had to be devised whereby these resources could be rapidly brought to bear upon a hazardous chemical release in order to quickly mitigate the dangers that arise. This circumstance provided the impetus to develop a National Oil and Hazardous Substances Pollution Contingency Plan. Today it forms the basis for all Federal action to minimize pollution damage from discharges of oil or hazardous substances. It was first published as an interagency agreement in November 1968, and assumed its present format in August 1973 to comply with

legislative mandate under the Federal Water Pollution Control Act (or FWPCA). The plan has undergone several revisions since then in order to improve it. The Plan includes but is not limited to:

- (1) The assignment of duties and responsibilities among Federal departments and agencies;
- (2) Identification, procurement, maintenance, and storage of equipment and supplies;
- (3) Establishment of a national strike force to provide necessary specialized services to carry out the Plan;
- (4) Establishment of trained and equipped emergency task forces in major ports;
- (5) A system of surveillance and reporting designed to insure the earliest possible notice of discharges to the appropriate Federal agency;
- (6) Establishment of a national response center to provide coordination and direction for operations in carrying out the Plan;
- (7) Procedures and techniques to be employed in identifying, containing, dispersing, and removing hazardous substances;
- (8) A schedule, prepared in cooperation with the States, for identifying dispersants and other chemicals, if any, that may be used in carrying out the Plan; and
- (9) A system whereby the State or States affected by a discharge may be reimbursed for reasonable costs incurred in the removal of such discharges.

It is also important to note here that our laws and regulations are designed to encourage the spiller to clean up chemicals released in an accident. Here we have found several important roles for government:

-Prevention - Ensure transportation practices and methods are safe and professionally carried out in order to reduce the probability of spills occurring

-Oversight - Ensure the spiller is cleaning up properly and with a minimum of damage to the environment, and

-Response - Assume responsibility for the clean up if the spiller refuses, is unable to, or is unknown. Pollution trust funds have been established under our laws to provide for this. (The government hires a clean up company from the private sector and the spiller is held liable for the costs incurred.)

The primary thrust of the U.S. National Contingency Plan is to provide a coordinated Federal response capability to the scene of unplanned or sudden, and usually accidental, discharges of oil or hazardous substances that pose a threat to public health or welfare.

The Plan accomplishes this by establishing a flexible organization consisting of individuals designated as Federal On-Scene Coordinators (OSCs), and advisory groups capable of providing expertise and assistance as required. The latter groups consist of Regional Response Teams (RRTs), a National Response Team (NRT), and a National Strike Force (NSF).

Every square meter of U.S. territory is assigned a Federal On-Scene Coordinator. Generally speaking, the Coast Guard is responsible for the coastal region, the Great Lakes, and ports and harbors, and the Environmental Protection Agency is responsible for inland areas.

The Coast Guard and Environmental Protection Agency (or EPA) are also responsible for developing and implementing Regional Contingency Plans for their respective areas of responsibility. These plans are utilized for the purpose of identifying potential problems within the region; for identifying the environmental resources which would be jeopardized should a discharge occur; and procedures, equipment and techniques to protect and/or reduce damage to the environment in the event of a polluting discharge.

The National Response Team (NRT) draws its membership from many Federal Agencies at the national level such as the Department of Transportation, Defense, Commerce, and Interior, to name but a few.

The NRT may be activated as an emergency response team in the event of a discharge which (a) exceeds the response capability of the region in which it occurs; (b) transects regional boundaries; (c) involves significant numbers of persons or nationally significant amounts of property; or (d) when requested by any primary Agency representative. This Team is capable of providing such services as the use of Air Force cargo planes or Naval salvage assistance.

When the National Team is not activated, its members meet monthly to discuss and review matters pertinent to the Nation's response posture. The NRT is specifically charged with maintaining a continuing review of the National Plan and providing suggested revisions of the Plan to the EPA. Except for periods of activation because of a pollution incident, the representative of EPA acts as chairman of the NRT, and the representative of the USCG acts as vice-chairman. When the Team is activated for a pollution incident the chair is assumed by either EPA or USCG depending upon which agency has the responsibility to provide the OSC.

Regional Response Teams (RRTs) draw their membership from the Federal Agencies at the regional level. Additionally, appropriate State agencies are actively encouraged to participate as full members of the RRTs. The RRT acts within a region on an emergency basis to provide advice and assistance to the OSC as necessary. The RRT can assist the OSC in any number of ways. For example, it could arrange for the use of local law enforcement officials to keep sightseers under control at the scene of a pollution incident, or for State Fish and Game Officials to place bird scaring devices at appropriate locations to reduce the possibility of water fowl becoming contaminated.

The RRT also provides advice and assistance in the development of Regional Contingency Plans. These regional plans provide detailed information on responsibilities and capabilities of each agency in executing the plan; inventories and locations of equipment; location and telephone numbers for clean up contractors and their capabilities; contact numbers for each Federal, state and local agency having direct or peripheral responsibilities in



executing the plan; and action plans for specific geographical locations within the region. To supplement the regional plans, the Coast Guard and the EPA have directed their OSCs to develop local plans in high risk areas such as ports, harbors and commercial waterways.

The RRTs are chaired by the Coast Guard or the Environmental Protection Agency, depending on which of the two agencies has the responsibility to provide the OSC. The RRT is activated for the same reasons as the NRT as it relates to the regional organization.

The OSC concept is vital to making this system work. The on-scene coordinator is that Federal official, pre-designated by the Coast Guard or the EPA, with responsibility for coordinating and directing all Federal pollution control efforts in any given incident in a given area. He is responsible for carrying out the duties of on-scene coordinator specified in the plan in accordance with the policies and procedures established by his parent agency. The RRT and NRT are advisory bodies who provide advice and specialized assistance as the OSC may request. Their role is not to direct the OSC but to help solve the OSC's problems - provide advice, extra resources, and assistance of that nature.

Whenever a pollution incident occurs, the Federal on-scene coordinator for the area is notified. It is the OSC's responsibility to insure that a prompt and accurate assessment of the situation is made. The OSC will monitor the situation where the responsible party is known and is found to be taking all the steps possible to contain and cleanup the pollutant. If the identity of the responsible party is unknown or the party is not considered to be taking

adequate steps to contain and cleanup the pollutant the OSC shall initiate whatever steps are necessary.

The OSC conceivably can be confronted with an unlimited number of problems when carrying out a Federal response action. In like manner however, by maintaining close coordination with the RRT, the OSC can avail himself of the many resources and numerous disciplines available within the Federal and State establishments. Further, this capability can be supplemented at the National level if required.

Under the National Plan, the National Strike Force is maintained under the auspices of the Coast Guard. It consists of three Strike Teams; any or all of these teams being available to advise and provide assistance to the OSC. Members of these teams have specialized training in personnel protection for hazardous substance incidents, pollution containment and removal, diving, and vessel damage control. Each team is equipped with specialized pollution control equipment.

The National Contingency Plan is a dynamic document that undergoes continual evaluation. It has built-in mechanisms to provide for review of its provisions on a periodic basis and after the conclusion of each major pollution discharge requiring a federal Response action. This is accomplished through the deliberations of the National Response Team and through the review of OSC reports by the NRT and RRT as appropriate.

In summary, the U.S. National Contingency Plan provides a flexible and capable organization that is able to provide a timely, effective, well coordinated effort to control and mitigate the effects of any polluting discharge.