

FORCES THAT PROMOTE OR IMPEDE PERFORMANCE

During any emergency for which human intervention is required (e.g., search and rescue, fire, spill), cooperation among all involved increases the possibility that such intervention will make a difference in the outcomes of an event. In the case of oil spill response, there are a number of factors that can improve or impede performance. This section will examine the following:

- current perspectives in spill response,
- factors that promote response performance, and
- factors that impede response performance.

These factors are examined to define performance issues, identify solutions, and make recommendations to improve performance.

4.1 CURRENT PERSPECTIVES IN SPILL RESPONSE

As the 1990s end, the current state of spill response must be examined. This subsection provides an examination of spill management, media relations, and application of Net Environmental Benefit Analysis (NEBA). In recent years, spill management has received much attention throughout the response community. Media relations are and always will be an important issue. Finally, NEBA is emerging as a method for determining the effectiveness of spill response strategies.

SPILL MANAGEMENT PERFORMANCE FACTORS

Lindstedt-Siva (1992) and Ott *et al.* (1993) divide spill management into three phases: emergency phase, overhaul or project management phase, and investigative phase. The **emergency phase** occurs immediately following a spill while resources are being deployed and rapid decisions are being made. The **project management phase** occurs after oil has spread and shorelines are contaminated. It includes prolonged oil collection from the water surface and shoreline cleanup. The **investigative phase** refers to those activities required to assess a spill's causes and impacts.

There are different management styles for each of these phases (Ott *et al.*, 1993). For the emergency phase, authoritative decision making is recommended, i.e., a management structure similar to a search and rescue or a forest fire with a small number of decision makers and heavy reliance on experts. In contrast, the project management phase involves

many jurisdictions and interests and is not as critically constrained by time. More entities may be involved in decision making, and a consensus management style may be possible. The investigative phase requires what the authors call methodical decision making by scientists.

Hereth (1997) stresses the importance of setting spill management objectives for response. In his view, these objectives must be consistent with the "national response priorities" of the US NCP:

1. Preserve safety of human life.
2. Stabilize the situation to prevent the event from worsening.
3. Use all necessary containment and removal tactics in a coordinated manner to ensure a timely, effective response that minimizes adverse impacts on the environment.
4. Address priorities 2 and 3 concurrently, not sequentially.

Walker *et al.* (1995), in their paper on spill management systems, discuss critical factors that "must go right" if the spill response operation is to succeed. These critical success factors were developed at scenario-based exercises conducted by Harald (1994) during a USCG OSC course. Most critical success factors relate to the operations element of response:

1. The salvage operation for a vessel spill or emergency response operation at a facility must minimize spillage of oil and not interfere with pollution response operations. The best way to minimize the environmental impacts of a spill is to secure the source.
2. The immediate response by an RP and the USCG must mobilize appropriate response resources to contain most of the oil at or near the source and to protect sensitive areas. Minimizing the spread of oil from the source and protecting the most sensitive areas are critical steps in minimizing the overall spill impacts.
3. A response organization must be able to communicate and manage information internally and externally. The importance of external communications is recognized.
4. Coordination between federal, state, and local organizations and an RP must be preplanned, account for the interests of affected and interested parties, and ensure a response organization that will be cohesive and effective. Again, the need is stressed for all involved to work together in advance.

5. A response organization must be capable of sustained operations, that is, must be expandable to accommodate a large event.
6. A response organization must meet the public's realistic expectation for pollution response, which means to be seen as effective by the media/public. A zero impact response is unrealistic. An educational effort should be advanced to develop realistic expectations.

MEDIA RELATIONS

Responders face great difficulty when trying to explain highly complex, technically complicated situations to the media and public. Because of the media's importance during spill events, most government and RP contingency plans have strengthened their media and community relations elements.

Meidt (1991) reviews media coverage of major spills in 1989 and 1990 and finds patterns. Responders' actions tended to be characterized by contradiction and misunderstanding. There were questions about leadership and failure of responders to act in a timely manner. It mattered little that there might have been justifiable reasons for all of these actions. Meidt (1991) makes recommendations to improve media relations:

- **Access.** An OSC should have a 24-hour public information office during the early phases of the spill. Community relations programs should be part of this effort. Information must be accurate, and misinformation should be dealt with immediately.
- **Focus.** Chaos and confusion are inherent in all crises. They can be dealt with only by acknowledging their presence. An OSC should identify those issues that are most significant to an overall spill event and cleanup and deal with them. Strive to be media-directive rather than media-driven. Maintain focus rather than be driven by media questions and tangential issues.
- **Coordination/control.** Daily fact sheets should be used to dispense information, correct errors, summarize action taken, and communicate other significant information about a spill.

In contrast with *Exxon Valdez* and *Mega Borg*, effective media communications have contributed to judgments of favorable performance in a number of large spills. The large 1996 *Sea Empress* spill in the UK attracted the attention of the worldwide media. The UK Coastguard Agency held press briefings twice a day during the first week and issued frequent press notices. Hundreds of interviews and other media contacts were arranged. A press office with its own logistical support was set up to accomplish this. Harris (1997) concludes that the response performance would be judged favorably based on the implementation of the NCP and effective communications.

DeLong (1997) reports on media relations during the *Buffalo 292* fuel oil spill in Galveston Bay. The response was covered by the national media and, in DeLong's view, was covered fairly and accurately. He attributes the quality of the coverage to a public relations contingency plan and the rela-

tionships developed with the media during the planning process.

Milbury (1997, p. 333) places the importance of public relations during spills on equal footing with response itself:

"A successful spill response must win two battles, both of equal magnitude. The first is the battle of response and recovery of oil. The second is winning the support of the public through accurate communication of the response efforts through the news media. To be successful in the second battle, you must prepare and implement your media response strategy just as effectively as your pollution response plan."

White (1997), a public relations consultant, acknowledges that public perception and resulting pressure can drive spill response actions. She stresses the importance of prespill planning and training on communications issues. White also explores options during a spill situation, from disclosing very little to full disclosure with no quality control. Her premise is that any major oil spill response will likely not meet public expectations. The public sees a major spill as an environmental disaster that should not have happened. The public relations effort, therefore, is not starting from ground zero but from 10 feet down. Starting from this point, the media and public often search for scapegoats and where to place blame when a spill is not being cleaned up fast enough. She recommends that RPs and government agencies work together on communications so that, as much as possible, information on critical issues is presented consistently. Lawyers generally want to restrict communications to minimize the risk of liability and litigation, while the media want unfettered access.

Wilkerson and Lauder (1997), crisis management consultants, emphasize the importance of a risk communication program to integrate community and media relations. Such a program should address how to communicate before, during, and after an oil spill. It should be an ongoing process and begin during contingency planning. They suggest the following elements of effective communication during a crisis:

- involving the public in decisions that affect them;
- sharing control of a situation;
- responding to public concerns;
- communicating openly and honestly;
- acknowledging and understanding outrage;
- acting to reduce the uncertainty of risk when possible; and
- building alliances when possible.

Common throughout this discussion on media relations is: (1) the need to plan ahead and practice media and public relations; (2) the need for open, honest, accurate information; and (3) frequent communication.

APPLICATION OF NET ENVIRONMENTAL BENEFIT ANALYSIS

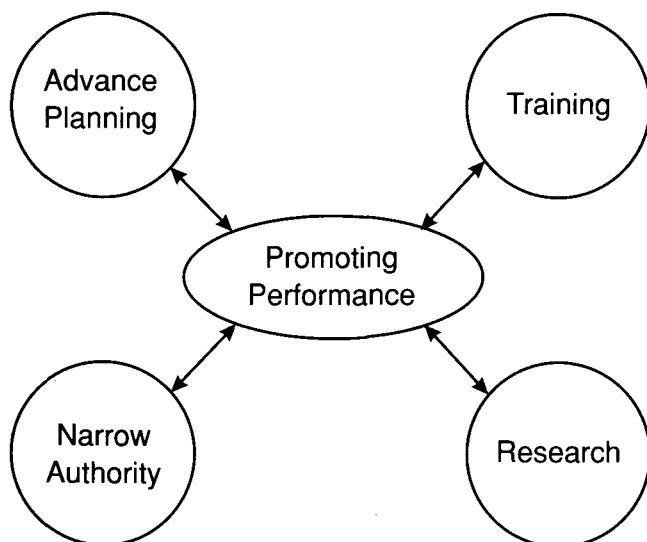
Baker (1995, 1997) proposes the NEBA concept as a means to examine the advantages and disadvantages of various response strategies. This method has appeal because it is quantifiable. There are five steps in the NEBA process:

1. Collect information on ecology, physical characteristics, and human use of environmental resources of the habitat proposed for response and details of a proposed response method.
2. Review previous spill case histories and experimental results that are relevant to an area and response method being assessed.
3. On the basis of previous experience, predict the likely environmental outcomes if a proposed response method is used and compare it with those of natural cleanup.
4. Compare the advantages and disadvantages of a proposed response method with those of natural cleanup.
5. Weigh advantages and disadvantages with reference to the ecological value and human use of environmental resources to arrive at optimum response. All parties must recognize that optimum response cannot avoid all disadvantages. It is always a trade-off.

4.2 FACTORS THAT PROMOTE PERFORMANCE DURING RESPONSE

This section examines the factors that promote performance: advance planning, training, research, and narrow authority (Figure 2). Spill response involves employment of massive amounts of equipment and personnel under emergency conditions. The entire focus is on taking the most effective actions to limit impacts of spilled oil on the environment. Advance

FIGURE 2.
FACTORS THAT PROMOTE PERFORMANCE



planning is necessary to ensure availability of necessary equipment and personnel and outline tactics for deployment. Training ensures that management, operational, and logistics personnel are familiar with their own responsibilities and roles. Research is necessary to identify and prioritize sensitive environments and aid in selecting optimum response strategies. Narrow authority empowers decision makers to act quickly in the best interests of effective response performance.

ADVANCE PLANNING

Spill response planning and training are required in every area of the world where oil is produced, handled, and transported. These requirements were strengthened in most countries after the *Exxon Valdez* spill. Equipment stockpiles were expanded, and response times for equipment and personnel decreased. Today's contingency plans provide details of spill management systems and support functions that will be used during an emergency. Plans also specify response equipment and personnel that will be activated and identify environmentally sensitive areas with detailed strategies to protect them or minimize oil contamination. The management structure may involve just one government agency or an RP and several elements or levels of government, supported by technical, legal, and communications specialists. The planning process gives ample opportunity for development of common response goals and priorities. To the degree that these are achieved, the chances of success are increased.

Contingency planning is conducted in a non-crisis atmosphere when there is plenty of time for discussion; reviewing scientific and technical literature on logistics, effectiveness, and effects of various response methods; and weighing options and trade-offs. There are opportunities to involve as many outside experts and groups or individuals (e.g., citizens groups and local officials) as have an interest. These individuals and groups may be involved in the planning process itself or as reviewers and commenters on draft plans.

Presumably, completing these required contingency plans should allow those involved to develop a unified team approach to the response process. As much as possible, they should consider those factors likely to impede performance and address them. Developing overall response goals and priorities in advance (in the US, within the national response priorities listed in the NCP) should save time because they will not have to be debated during an emergency. Advance planning provides ample time to develop basic response strategies and agreements. For example, the question of whether to use dispersants and *in situ* burning as first response options or only if mechanical recovery is not feasible, and decide where their use will be acceptable and unacceptable, can be decided in advance. Ideally, many response decisions can be made during the planning process based on the best available scientific information, which saves critical time if a spill occurs. At this time also, criteria by which response will be assessed should be developed and agreed on by stakeholders.

TRAINING

Most countries require exercising contingency plans through drills and training. Scenario-based exercises have the added benefit of allowing parties to work together, get to know each other, and resolve differences and conflicts. During these exercises and the contingency planning process, some level of trust will develop among the people that must work together during an emergency. There is much less chance today that the first time an RP and government regulators meet is on the day of a spill. Another benefit of exercises is the chance to involve various interested parties outside the planning process, including the media.

RESEARCH

There has been much research and development since the *Torrey Canyon*, Santa Barbara, and *Exxon Valdez* spills. Today's contingency plans may be based on large technical and scientific databases covering every aspect of spill response from performance and specifications of equipment to effectiveness and effects of shoreline treatment methods. Although there are always more questions and a need for more research, there is enough information available to enable responders to base contingency plans on sound science and make informed, science-based decisions. Currently, the fate and effects of spilled oil and recovery times for several habitat types are much better understood. Continuing research is targeted toward examining spill response strategies on various habitats.

NARROW AUTHORITY

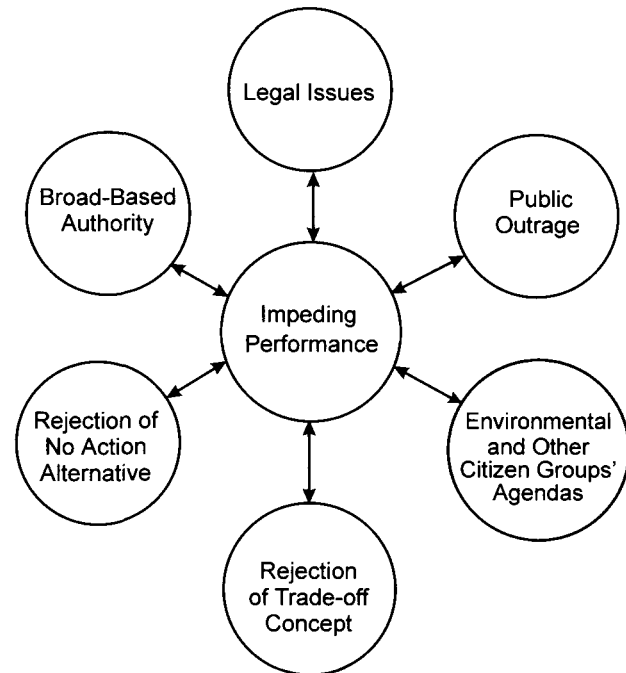
Countries with more authoritarian decision-making processes during spills seem to be able to mount more rapid responses using more techniques during the emergency and project management phases of response, attacking the oil when it is concentrated near the source of release. In the UK, for example, the government assumes responsibility for spill response, and there is one Local Commander responsible for operational decisions (Harris, 1997). Norway has a similar system (Guénette, 1997). It does not appear to be by accident that the term Commander, rather than Coordinator, is used in these management systems.

4.3 FACTORS THAT IMPEDE PERFORMANCE DURING RESPONSE

As illustrated in Figure 3, this subsection examines the factors that impede performance and cause polarization during response: cumbersome decision making by broad-based authority, legal issues, public outrage, environmental and other citizens groups, rejection of trade-off concept, and rejection of no action alternative.

Polarization makes public discussion of various response alternatives and compromise quite difficult, if not impossible. For example, scientists from government agencies and an RP may agree that the most ecologically sound response for a

FIGURE 3.
FACTORS THAT IMPEDE PERFORMANCE
AND STIMULATE POLARIZATION



shoreline is no cleanup because leaving a small amount of oil will do less damage than would the methods required to remove it. Environmental activists or even local citizens may allege that an RP just wants to save money by not cleaning up a spill. Spill managers may be pressured into cleanup, contrary to recommendations by scientists. Meidt (1991) describes this as pressure “to be seen to be doing something.”

BROAD-BASED AUTHORITY

Countries where response decision making is allocated among multiple agencies and other interests may encounter difficulty in reaching decisions. Broad-based authority often expands to include other OSCs as well, such as local governments and interest groups like fishermen. Since *Exxon Valdez*, there have been attempts to streamline broad-based authority structures in the US, and improvements have been made. The very involvement of several entities that must agree on decisions makes a broad-based system less efficient than a narrow authority structure.

LEGAL ISSUES

Anything that interferes with free, open communication among responders or creates an adversarial atmosphere impedes response and reduces the chance of a successful response. Legal issues often create such interference. It is vital that, *during the event*, all parties responding to the spill exchange information. This includes everything from visual observations or data on the presence and amount of oil on the water surface, in the water column and on shorelines, observed impacts,

observed concentrations of sensitive organisms, to the presence and performance of equipment. It is important to share information so that response operations may be launched, curtailed, or modified based on that information.

PUBLIC OUTRAGE

Another impeding factor during large spills is public outrage. Public outrage brings media attention and elected officials who want to help "solve the problem." All of a sudden, spill managers may be on the nightly news, along with environmental groups and scenes of oiled birds or seals. Rapport built during training may be lost as the opportunity to posture for cameras presents itself. Media presence almost by itself fosters controversy. The media are not spill experts. They get their information from interviewing "sources" from all "sides," thus setting up an adversarial situation from the beginning. Presenting differing perspectives is a more common pattern for the media than attempting to determine actual facts — that is, questioning the sources' perspectives, doing analysis, and coming to a conclusion regarding the validity of claims.

ENVIRONMENTAL AND OTHER CITIZENS GROUPS' AGENDAS

Environmental and other citizens groups have their own agendas and particular interests. Most of these groups are especially anxious to attract the media to promote their particular message. They may stage an event or take advantage of a scheduled event such as a town meeting to present a photo opportunity (e.g., demonstration, confrontation). They have been equally critical of government agencies as of industry. Such tactics increase the distrust and polarization that can exist in these volatile situations.

REJECTION OF TRADE-OFF CONCEPT

The concept of compromises or trade-offs in a spill is one that environmental groups do not seem to accept based on examination of their writings and public statements as well as the author's discussions with them. Other stakeholders may share this attitude as well. Not recognizing the need to consider trade-offs can hamper or even prevent effective decision making.

Once a spill has happened, it is part of the environment. The response decision-making process must be one of evaluating trade-offs, i.e., comparing relative impacts of various response choices, rather than between a spill and no spill. There usually are not enough resources available (trained **people**, ready and available **equipment**, or, probably most important, **time**) to prevent all impacts once oil is spilled. In any response, the most human intervention can achieve is some influence on where and what type of impacts there will be. Acceptance of the trade-off concept during planning as well as during response will greatly enhance the opportunity for a response to be judged successful.

REJECTION OF NO ACTION ALTERNATIVE

There may be times when no action is the most ecologically appropriate response alternative to minimize spill impacts. One

example is shoreline cleanup using heavy equipment, which may cause more damage than oil itself. The most ecologically sound strategy may be to allow oil to degrade naturally, but there may be tremendous pressure for action. Scientists may be the only advocates for the no action alternative, but they may be overruled, leading to increased environmental impacts.

4.4 RECOMMENDATIONS FOR IMPROVING PERFORMANCE DURING RESPONSE

The following recommendations integrate factors for promoting performance and overcoming impediments during oil spill response:

- teamwork and streamlined management,
- decision making by spill experts, and
- effective communications.

TEAMWORK AND STREAMLINED MANAGEMENT

Spill managers (On-Scene Commanders and/or On-Scene Coordinators) are understandably concerned about how well different entities involved in response decision making and operations work together. Unless some level of teamwork is achieved, it will not be possible to reach and implement decisions in time to minimize the spread of oil and protect sensitive resources. Most papers reviewed emphasize the importance of training, practice, and team building and ensuring that those involved in the planning process will be those involved in an actual spill. The latter does not always happen, whatever the intention, especially during large spills. The importance of a streamlined, rapid, effective decision-making process cannot be overstated. If decisions cannot be reached quickly at a command center, they cannot be implemented quickly in the field. Streamlining management during the emergency phase of a spill by minimizing the number of decision makers and relying heavily on spill experts is recommended.

DECISION MAKING BY SPILL EXPERTS

The goal of human intervention in a spill event is to reduce its impacts versus what would happen if there was no intervention. The most effective way to accomplish this to ensure that decisions are made by those most knowledgeable on the fate and effects of spilled oil, effectiveness of various response options, and capabilities of response equipment (spill scientists and operations professionals). Local input and interested parties' concerns must certainly be factored into these deliberations, but these concerns must not be allowed to unduly delay or obstruct decision making.

EFFECTIVE COMMUNICATIONS

After every drill or training exercise as well as actual spill events, better communications is nearly always identified as a major need. As Roosen (1997, p. 117) states, "In a crisis, infor-

mation is everything.” This includes internal communications during the event where problems are usually resolved. A workable system evolves if it is not already in place. The primary problem is usually external communications with the media, communities, elected officials, and citizens groups. Media and community relations have been the focus of many studies and workshops, and several recommendations emerge.

Access. A 24-hour public information office for media and community relations is recommended during the early, emergency phases of a spill event. This office should aid information seekers in obtaining answers to their questions and make information sources available whenever possible.

Frequent, regular updates. This public information office should make fact sheets and information available on a regular basis, updating the status of a spill and activities to combat it. Daily press conferences, daily or twice daily updates, and fact sheets are possible approaches.

Accuracy. Information should be honest and accurate. If mistakes are made, they should be corrected as soon as possible.

Joint public information office. A public information office maintained jointly by an RP and lead government agencies managing a spill is recommended. Whenever possible, a “united front” on critical issues and decisions is most effective. Differences should be explained, along with the reasoning behind each position.

The Internet. A factor that has not been considered in many publications on the media during crises, nor used extensively during spill events, is the Internet. The Internet now plays a major role in disseminating information, and it will

play a major role in the next big spill. The Internet provides an opportunity for nearly instant dissemination of information. The web page format makes it possible to post lengthy technical documents, graphs, charts, and even video and audio files. For example, it would be possible to post a data set on concentrations of oil in the water column, measured that day, or maps showing the location of surface oil and response equipment that can be updated every few hours. This kind of information is not likely to be provided by the traditional media.

The Internet is interactive. Bulletin boards can be established to accept and respond to questions from interested citizens and receive their observations. Such bulletin boards also could be major sources of background information for the traditional media.

The Internet is democratic. Anyone with a computer and modem can access it. All interested individuals have the same opportunity to open web pages and disseminate their observations, opinions, and data. Some of this information may be inaccurate, but the more information is available, the greater the chance that an interested individual will be able to make an informed judgment as to accuracy. It is recommended that response planners incorporate dissemination of information via the Internet into contingency plans. For example, an RP could establish a spill response update link from their home page, along with a discussion forum. A government agency, tourist bureau, environmental group, or other citizens groups could do the same. The more information available, the greater the possibility that the various stakeholders, media, and interested public can make informed judgments.