



**NRT Science & Technology Committee**  
**FACT SHEET: RISK COMMUNICATION FOR MARINE IN SITU**  
**BURNING: ADDRESSING ISB AT PUBLIC MEETINGS**  
**September 1998**

This fact sheet provides guidance on communicating the risks of in situ burning (ISB) to the public. It is a follow-up to the more general risk communication fact sheet on oil spill response which the Committee produced in February, 1997. It is intended to assist RRTs, OSCs and other Regional and local staff involved in planning and implementing marine/open water ISB.

In-situ burning is viewed with growing interest as a response tool. Under the right conditions, burning may provide a rapid and efficient way of removing oil from the water surface. Moreover, under some conditions, burning may be the preferred or only method to remove the spilled oil from the water surface. ISB produces large quantities of smoke, which may cause public concern. Effectively communicating ISB risk information to the public is critical to a successful response effort. Incomplete or inaccurate public information about risks associated with ISB can limit the range of options available to responders.

Information about risk can be communicated through a variety of channels from media reports to public meetings. It is important to cater your risk information to different types of media. For example, television reporters often request graphics and other visual aids.

Risk communication is an ongoing process that must be addressed in both spill response planning as well as during the spill event. Providing the public and media with information on ISB in advance will educate them on ISB, assist in directing their questions, and serve as a useful reference tool. Many federal, state, and private organizations have developed background papers or handouts on ISB. A number of these documents are listed in the reference section.

### **Public Meetings:**

For the purposes of this fact sheet, we will focus on one method of risk communication; public meetings. Public meetings are commonly held to inform and directly convey risks to the public. Before the public meeting takes place it is important to:

- evaluate the information you have about the risks of ISB and know the strengths and weaknesses of that information
- classify and segment the various groups in your audience and aim your communications at specific subgroups in your audience
- recruit a credible spokesperson
- anticipate questions and rehearse responses
- consult with others beforehand to determine who is best able to answer questions about risk
- determine the materials you will need (audiovisuals, handouts)

### **Opening Statement:**

The following is an example opening statement that could be made to establish the purpose of the public meeting:

I am Captain Willard of the United States Coast Guard and I am the Federal On Scene Coordinator here in Woodstock directing the activities of the federal response organizations here to assist the local, state, and private response teams working at the oil spill.

Representatives accompanying me are from the Coast Guard and/or Environmental Protection Agency, Mayors Office, the Fire Department, Environmental Affairs Department, Health Department, and the Emergency Management Agency. We are here to announce that we have decided to employ a burning procedure to reduce the amount of oil currently floating on the water 3.6 miles outside of Hamlet Cove. This procedure is the safest and most effective way of rapidly removing the oil, keeping it from reaching the shore.

The procedure we will be following was developed by the members of the National Response Team and approved at the state and federal level. The procedure is rather simple in concept. Two boats will gather oil into a boom, which is fire resistant. The oil will be towed to an area away from the main release. The oil will then be ignited when it is in a safe location. The burning will last for approximately 45 minutes after which the process will be repeated. The burning will eliminate up to 98% of the oil. Smoke may be visible for several miles as it moves out to sea. The smoke near the fire will be very black because of the soot but it will start to dilute over time changing to gray and then disappearing.

During the procedure there will be continuous monitoring of the weather conditions and the environment to ensure that the smoke will not enter areas where the public could be exposed. We have run computer models for the area to test the predictions and, as you are aware, we have closed the immediate area to all boat and air traffic. Should the situation change we can, and will, immediately extinguish the fires. We feel that the use of this procedure is the safest and most effective way to protect the environment and the public.

Are there any questions?

The example opening statement outlined above contains the following key elements:

- it uses simple, non-technical language
- it includes a discussion of actions that are under way or can be taken
- it states collaboration with local, state, and private entities, avoiding conflicting messages
- it is short and succinct, there are no unimportant details
- it explains the effects of the response

### **Answering Questions:**

Answering questions during a public meeting can be challenging. Keep in mind the following:

- If you do not know an answer or are uncertain, say so. Get back to people with answers
- Do not speculate or respond to unrealistic ‘what if’ questions
- Establish a dialogue with questioners and commenters
- Take advantage of credible sources that are present

Some examples of questions that could be asked during a public meeting and possible answers to these questions are outlined below. We received these questions from the general public. Reviewing these questions and potential answers will be a useful preparatory exercise. Further questions and answers may be found in the reference section.

Q. Is ISB dangerous?

A. When well planned, burning spilled oil is a very safe clean-up method. The burning will be planned, controlled, and monitored and will occur over a short period of

time. The byproducts of burning oil are similar to the burning or combustion of other products such as gasoline in cars, firewood, home and industrial heating and power generation. The by-products from the oil burn will not pose a threat to populated areas. If there is a concern that the general public may be exposed to smoke from the burning oil, we will monitor particulate concentrations in populated areas.

Q. How long will the smoke stay in the air?

A. How long the smoke stays in the air depends on the wind direction and weather conditions at the time of the burn. Some parts of the plume may stay in the general area of the burn for several hours after the burn is completed--and in unusual circumstances, days--but the thickest part of the plume will usually dissipate within a few hours.

Q. What health standard will responders be using when considering a burn?

A. The primary human health concern is the particulate matter in the smoke plume. Of specific concern are the very small particles 10 microns or less in diameter (a micron equals one-millionth of a meter, or 0.0004"). These particles are commonly referred to as "PM 10" and are small enough to lodge in human lungs. It is generally long-term exposure, over months or years, to PM 10 that affects human health. However, short-term exposure to high concentrations can aggravate symptoms in sensitive individuals with heart or lung ailments. The current national and state health standard is a maximum concentration of 150 micrograms of PM 10 per cubic meter of air averaged over a 24-hour period. However, our policy incorporates a more restrictive guideline recommending a maximum concentration of 150 micrograms of PM 10 per cubic meter of air averaged over a 1-hour period.

Q. What will be released into the environment when you burn the oil?

A. Burning the oil will produce a dense cloud of black smoke. Depending on wind direction and weather conditions, you might be able to see the smoke from the shore. The smoke is black because of the black particles of carbon. An oil fire also produces water vapor and invisible gases, mainly carbon dioxide, carbon monoxide, sulfur dioxide, and oxides of nitrogen. Scientists have studied gases from oil fires. These studies have shown that the concentration of gases produced during in-situ burning, are within safe levels for humans beyond three miles downwind of the source. The burn is planned so that the smoke should not travel over any populated areas. The gas concentrations will not be around long enough nor at levels high enough to cause harm.

Q. What are the risks to human safety and what precautions should be taken?

A. A lot of planning is done in preparation for in-situ burning. The protection of public health is a key factor when planning a burn and because of this there should be no public health risks. If there is a chance that the burn will exceed federal and/or state air quality standards, the burn will not take place.

The current national and state health standard, based on EPA's National Ambient Air Quality Standard, is a maximum concentration of 150 micrograms of PM 10 per cubic meter of air averaged over a 24-hour period. However, our policy follows the National Response Team guidelines which recommend a more restrictive maximum concentration of 150 micrograms of PM 10 per cubic meter of air averaged over a 1-hour period. This concentration is a guideline, not a standard. If the NRT maximum concentration guideline is substantially exceeded, it may justify termination of the burn but if particulate levels remain generally below the recommended limit, there is no reason to believe that the

population is being exposed to particulate concentrations above the EPA's National Ambient Air Quality Standard.

Q. I am pregnant, what effects will this have on my unborn child?

A. Burning will result in no adverse impacts to you or your unborn baby. The protection of human health is of utmost importance to us. Plans, controls, and monitoring will be set in motion so that no one will be exposed to the smoke or vapors from the burning oil.

Q. What effect will this have on shoreline contamination?

A. Because we have decided to burn the oil, the shoreline affects will be minimized. If properly planned and implemented, in-situ burning will prevent or significantly reduce the extent of shoreline impacts, including exposure of sensitive natural, recreational, and commercial resources.

Q. What clean-up methods are possible?

A. There are three clean-up methods: in-situ burning, dispersants and mechanical methods. In-situ burning burns the spilled oil on the water, safely removing nearly all of the contained oil from the water. Dispersants are specially designed products that break the oil slick into small particles. Mechanical response uses physical barriers and mechanical devices, such as containment booms and skimmers, to redirect and remove oil from the surface of the water. There is also the option of doing nothing, allowing natural recovery.

Responders will determine what clean-up methods to use based on the potential shoreline and natural resource impacts, the size, location, and type of oil spilled, weather, and other variables. In a major spill it may be possible for all response techniques to be used simultaneously. The goal is to find the right mix of equipment, personnel, and techniques that will minimize the spill's environmental, socioeconomic, and cultural impacts.

Q. What effect will this burn have on the fishing industry?

A. One of the reasons we decided to burn the oil is to prevent adverse effects to marine life, including fish. The burning should not have any adverse effects on the fishing industry.

### **Conclusion:**

There are no easy prescriptions for effectively communicating risk on ISB but this fact sheet and list of references is intended to guide you in the right direction. The Committee has recently completed a Q & A document that is a compilation of previous Q & A documents. It also contains many new questions and answers that we received from the public.

Remember that trust and credibility are the key factors in successful risk communication. In addition to utilizing these references, we urge you to review public affairs guidance produced by EPA and the USCG; work with risk communications specialists; and meet with newspaper editors beforehand to ensure they have the necessary information to write objective, well-informed articles.

### **Selected References:**

### General

Covello, Vincent and Frederick Allen. 1992. *Seven Cardinal Rules of Risk Communication*. U.S. Environmental Protection Agency. EPA 230-K-92-001.

National Institute for Chemical Studies. 1995. *Communicating about Environmental Risks: A Case Study*. Prepared for U.S. Environmental Protection Agency, Office of Policy, Planning and Evaluation.

NRT Science and Technology Committee. 1997. *Risk Communication for Oil Spill Response*.

Sandman, Peter. 1987. *Explaining Environmental Risk*. U.S. Environmental Protection Agency. EPA 230-09-066.

Hartman, Norman. 1993. *The Media & You: A Basic Survival Guide*. Prepared by the National Public Health Information Coalition. Funded by the Centers for Disease Control.

### Questions and Answers

Barnea, Nir and Gary Shigenaka. 1993. *Questions about In-situ Burning as an Open-Water Oil Spill Response Technique*. Prepared by the Hazardous Materials Response and Assessment Division of the National Oceanic and Atmospheric Administration. HAZMAT Report 93-3.

1994. *Northwest Focus: Burning an Oil Spill*. Prepared cooperatively by the Washington State Department of Ecology, the Department of Environmental Quality, the State of Idaho, The U.S. Environmental Protection Agency, and the U.S. Coast Guard.

1998. *In-situ Burning of Oil: Questions and Answers for Communicating with the Public*. Prepared by the NRT Science and Technology Committee.