National Response Team
Science and Technology Committee
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Questions and Answers for Communicating with the Public

Introductory Note:

Response situations can be potentially hazardous to the public. Effectively communicating risks associated with In situ burning (ISB) to the public is critical to a successful response effort. This document is intended to assist Regional Response Teams, On-Scene Coordinators and other Regional and local staff involved in planning and implementing ISB, by providing a compilation of questions and answers from two previous documents: Questions about In-situ Burning as an Open -Water Spill Response Technique and Northwest Focus: Burning an Oil Spill. It also contains questions and answers that we obtained from surveying the public. It is important to note that some of the answers within this document are educational in nature and would not be appropriate to use as is in a public meeting or news report. These sample questions and answers are intended to provide you with background information and practice so that you can formulate your answers accordingly.

The focus of this document is marine/off shore ISB, although many of the answers can be tailored towards inland/nearshore ISB. For more complete information on risk communication please refer to the Committee's fact sheets on Risk Communication for Oil Spill Response and Risk Communication for ISB.

This document was developed by representatives from the following agencies: Centers for Disease Control and Prevention (CDC); Environmental Protection Agency (EPA); National Oceanic and Atmospheric Administration (NOAA); National Institute of Standards and Testing (NIST); Occupational Safety and Health Administration (OSHA); US Navy, Supervisor for Salvage (SUPSALV); and the United States Coast Guard (USCG).

Any questions or comments should be sent electronically to the NRT_s Science and Technology Committee via their First Class account or internet account.

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QUESTIONS AND ANSWERS FOR COMMUNICATING WITH THE PUBLIC

GENERAL

Q. What is in situ burning?

In situ burning is the combustion of an oil spill on the water (in situ is Latin for in place). In situ burning (or ISB) involves controlled burning of spilled oil. Typically, the oil is contained within a fire-resistant boom and ignited using an igniter from a helicopter. The burn continues only as long as the oil is thick enough, usually about 1/10 of an inch or 2-3 millimeters, so containment is important to sustain the burn. When conducted properly, in situ burning significantly decreases the amount of oil on the water, reducing the extent of shoreline impacts, including exposure of sensitive natural, recreational, and commercial resources.

ISB is viewed with growing interest as a response tool. Burning can rapidly remove a large volume of oil from the surface of the water, reducing the magnitude of subsequent environmental impacts. In areas such as high-latitude waters where other techniques may not be possible or advisable due to the physical environment (e.g. ice flows and extreme low temperatures) or the remoteness of the region, burning may represent one of the few viable response choices besides no action. In addition, the magnitude of a spill may overwhelm the containment and storage equipment deployed or available for a region, necessitating the consideration of other response methods.

ISB may offer a logistically simple, rapid, inexpensive, and relatively safe means for reducing the shoreline impacts of an oil spill. Moreover, because a large portion of the oil is converted to gaseous combustion products, the need for collection, storage, transport, and disposal of recovered material can be subsequently reduced. For these and other reasons, ISB is gaining attention and favor as an oil spill response technique.

While this document is focused on marine/off shore ISB, in situ burning can be a valuable response option for oil spilled in inland and upland habitats. In situ burning may be appropriate in inland and upland habitats when 1) oil needs to be removed quickly to prevent the spread of contamination or further environmental damage 2) spill locations are remote or have restricted access due to terrain or other factors and 3) other cleanup options prove ineffective or threaten to be more harmful to the environment.

Q. Is in-situ burning an effective way to remove oil from the water?

Although the efficiency of ISB is highly dependent on a number of physical factors, test burns and applications in actual spill situations suggest that ISB can be very effective in removing large quantities of oil from the water. Under the right environmental and oil conditions, burning can remove up to 95-98% of the oil contained in the fire-resistant boom. While all spilled oil cannot generally be burned, especially in large spills, ISB can remove large quantities of oil from the water, significantly reducing the extent of shoreline impacts.

ISB is more effective in removing crude oil than other types of oil from the water surface; with lighter, lower viscosity oils it is difficult to maintain the necessary slick thickness and heavier, less volatile oils are difficult to ignite.

Q. What are the controlling and limiting factors for in-situ burning?

Although ISB is a relatively simple technique, spill circumstances can limit its safe and efficient application. Whether and how oil burns is the result of a number of physical factors related to the oil itself and the extent to which the oil has been exposed to the environment. Critical factors such as oil thickness, degree of weathering, and extent of emulsification generally change with the passage of time, and the changes that occur make it more difficult to burn the oil. As a consequence, ISB is most easily and effectively implemented during the early stages of a spill (generally the first 12 hours for marine ISB; on land time is less critical).

The basic criteria applied when considering using ISB are the following:

1. That human populations will not be exposed to smoke that exceeds state and federal health standards

2. That the burn will be monitored for the safety of cleanup crews and potentially affected populations and will be stopped if safety standards can not be maintained. That sea and weather conditions must allow for an effective burn

3. Optimal environmental conditions:
   - winds less than 20 knot (23 mph or 37 km/hr)
   - waves less than 2-3 feet (62 to 92 cm)
   - currents less than 3/4 knot (0.9 mph or 1.4 km/hr) relative velocity between the boom and the water

4. Required oil conditions:
   - minimum thickness:
     - 0.08 to 0.12 inches (2 to 3 mm) for fresh crude oil
     - 0.12 to 0.2 inches (3 to 5 mm) for diesel and weathered crude
     - 0.2 to 0.4 inches (5 to 10 mm) for emulsions and Bunker C
   - less than 30% evaporative loss (for most crude oils)
   - water content less than 25% (for oil-in-water emulsions with water contents greater than 25% an emulsion breaker may be needed to obtain ignition)

Q. Why would you want to conduct ISB?

Oil is harmful to the environment. ISB is an effective technique for removing oil from the water surface. An oil spill can have adverse effects on a variety of natural resources: fisheries, terrestrial and marine mammals, shellfish beds, recreational beaches, and birds. This, in turn, can have significant impacts on the people who rely on these natural resources for their economic, cultural, and recreational well-being. ISB offers a practical method for removing large quantities of oil very quickly, thereby minimizing the environmental exposure to oils' long-term effects.

Q. Shouldn't we be more worried about preventing the spill instead of burning?

Preventing spills is our number one priority. The oil industry and certain state and federal agencies are working hard to prevent spills from happening. There are both federal and state laws and regulations that address prevention. Despite everyone's efforts, however, spills happen, and the response community must be prepared to use all appropriate tools to respond effectively.

Q. Is ISB the answer to all spill response?

ISB is a useful spill response tool in certain circumstances. There are situations where burning may be the only means of eliminating large quantities of oil quickly and safely. There are also situations in which burning cannot be used. No two spills are the same. Burning should only be used where it can be done safely. Because of the decisions involved in using ISB, certain approvals must be obtained prior to its use. Agreements between state and federal regulatory authorities establish areas and necessary conditions where rapid decisions on ISB may be made by the Federal On-scene Coordinator and/or State On-scene Coordinator.

Q. How quickly can ISB remove oil from the water?

For thick layers of oil (greater than 0.5 inches) the oil removal rate is approximately 4.2 gallons of oil per hour for every square foot of oil on fire. For example, a fire covering 50 x 50 feet (2.500 square feet) would consume about 10,500 gallons of oil per hour under optimal conditions.

Q. What are the emissions from an oil fire?

The primary constituents of an oil fire are gases and particulates. The most abundant combustion products of crude oil are carbon dioxide and water vapor, which account for 70-85% of the combustion products. Particulates comprise 5-15% and carbon monoxide, sulfur dioxide, oxides of nitrogen, aldehydes, ketones, and other combustion products are present in the sub % range. The particulate portion of the smoke is mostly carbon which produces the dark color of the

smoke. The emissions from the fire can also include hydrocarbons, including very low levels (less than 0.1 parts per million) of polyaromatic hydrocarbons.

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

How long the smoke stays in the air depends on the weather conditions at the time of the spill. 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 happens to the smoke when the fire occurs?

Because of the intense heat, the smoke plume usually goes up into the atmosphere several hundreds to several thousands of feet, depending on the size of the burn and on the wind speed. It then levels off and is blown by the wind and moves according to the weather conditions at the time. Some parts of the plume may dip back down toward the surface but the majority of the smoke usually stays well up in the air.

Q. Is it dangerous?

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. However, an in situ burn is less efficient than the burning or combustion of gasoline in cars, which is why the fire produces a lot of smoke. An oil fire produces black particles of carbon, water vapor and invisible gases. These 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. What will be released into the environment when you burn the oil?

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. The most abundant combustion products of crude oil are carbon dioxide and water vapor, which account for 70-85% of the combustion products. Particulates comprise 5-15% and carbon monoxide, sulfur dioxide, oxides of nitrogen, aldehydes, ketones, and other combustion products are present in the sub % range. 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 public harm.

Q. How long will the burn last and how rapidly will the oil burn?

The oil burning and the smoke it produces will be visible for only a few hours. The smoke will dissipate within these few hours. Burning removes oil from the water surface at a rate of 4 gallons of oil per hour, for every square foot of oil on fire. For example, a fire covering about 2,500 square feet (50 by 50 feet of oil), would consume about 10,500 gallons of oil per hour, under optimal conditions.

Q. What clean-up methods are possible?

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, which then disperse into the water column. 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 oil 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. Is it possible to recover the oil?

Yes, but because effective mechanical containment and removal is severely restricted by wind, waves and currents, only a small percentage of spilled oil has historically been recovered using mechanical means, however, it is important to note that in some cases mechanical recovery has been very successful. Mechanical recovery tends to be slow, and involves a lot of equipment. In situ burning is also limited by wind, waves, and currents.

Q. What are the favorable conditions to conduct an oil burn?

The following factors are evaluated and must be just right before burning: weather conditions, wind speed and direction, wave height, oil type, location of oil, oil thickness, and the degree of oil weathering.

Q. If the decision is made not to burn the oil, then what happens to it?

At this time the decision has been made to burn the oil. Should conditions change and the process can no longer be safely performed, then we will respond using other procedures.

Q. Will this cause panic among those who see this burning from afar and are unaware of the cause?

This is the reason we are meeting with you. People who see the smoke from the burn will have questions. The public should be aware of the spill and that this procedure is designed to reduce the oil in the environment in the most efficient and safest manner possible. Questions should be directed to a hotline, if one exists.

Q. How are you going to clean up the oil?

As we have stated, we plan to initiate a burning procedure which will greatly reduce the volume of spilled oil. We will also be using oil collection equipment (and oil dispersion).

Q. Does all the oil burn off? Is burning the best, cheapest, safest way to get rid of the oil if feasible?

Although the efficiency of ISB is highly dependent on a number of physical factors, test burns and applications in actual spill situations suggest that ISB can be very effective in removing large quantities of oil from the water. Under the right environmental and oil conditions, burning can remove up to 95-98% of the oil contained within the fire-resistant boom, which is the most efficient removal procedure available. While all spilled oil is not generally burned, especially in large spills, ISB can remove large quantities of oil from the water, significantly reducing the extent of shoreline impacts.

ISB is more effective in removing crude oil than other types of oil from the water surface; with lighter, lower viscosity oils it is difficult to maintain the necessary slick thickness and heavier, less volatile oils are difficult to ignite.

Q. How accurate are the models that predict where the smoke plume will go?

The models have been developed and tested over the last several years. At this time we are quite confident in their results, however, we always monitor the air to ensure the models' accuracy.

Q. Has there ever been an ISB where the wind changed directions, blowing the smoke over somewhere unexpected?

To date, only a few burns have been conducted. I am aware of one test burn in which the wind direction changed. However, we continually monitor the burn, the oil release, and the weather to detect any changes. If a change starts to occur we can stop the burn.

Q. Why does the oil have such a terrible smell to it?

Oil is made up of many different chemical components, some of which evaporate into the air. These are the components that smell and are burned.

Q. Will this burn endanger any pets who spend a great deal of time outside and eat grass/plants?

No, because the smoke will not be in the community.

Q. Will the burn take place at low or high tide?

The status of the tide does not matter, however, during a high tide there tends to be more wave action and that can be a major factor in deciding whether or not to burn.

HUMAN HEALTH CONCERNS

Q. What are the human health concerns related to ISB?

Heavy smoke produced during an oil burn represents both a perceived and potential human health threat to people exposed to it. However, there is little information on toxicological effects of exposure to oil smoke. There is little incentive for such studies since large oil fires are relatively uncommon, the general population tends not to be exposed to the smoke, and fire fighters are equipped with respiratory protection.

The smoke produced by burning crude oil is a mixture of heated gases and coated carbon particles, which are products of combustion and pyrolysis. Gaseous combustion products include carbon monoxide, carbon dioxide, sulfur oxides, nitrogen dioxide, various polynuclear aromatic hydrocarbons, and acid aerosols such as sulfuric acid, aldehydes, and acrolein. The primary human health concern, however, 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 be inhaled into the 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.

To adequately protect human health, federal and state governments are refining ISB guidelines. A key objective of these guidelines is to ensure that concentrations of PM 10 do not exceed permissible exposure levels for people. Currently, federal regulations state that PM 10 levels should not exceed 150 micrograms of PM 10 per cubic meter of air averaged over a 24-hour period. The National Response Team has developed more restrictive PM-10 guidelines for ISB. The NRT recommends a maximum concentration of 150 micrograms of PM 10 per cubic meter of air averaged over a 1-hour period, instead of a 24-hour period.

Although ISB presents a series of health concerns, an oil spill causes air pollution whether or not it is burned. Analysis of the physical behavior of spilled oil has shown that up to 50% of a light crude oil spill can evaporate fairly readily, and that it is the acutely toxic lighter fractions of a crude oil mix that quickly move into the atmosphere. The volatiles released from spilled oil contain aromatic hydrocarbons including benzene, a known human carcinogen, and toxic vapors such as toluene, xylene, butane and propane. Whether the oil is burned or allowed to evaporate, air quality will be compromised for a certain period of time. Responders must consider the relative risks of evaporating vapors against the smoke created by burning.

Q. Can the smoke plume ever reach the ground?

It is possible for a smoke plume that has been in the air to dip down to the ground. Because of this, our burn policy, establishes “safe distances” from populated areas to ensure that people’s health is protected. The burn will be monitored to ensure that it can continue to be conducted safely and appropriately. This will give responders information so that they can decide if it is necessary to stop the burn.

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

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 be inhaled into the 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, instead of a 24-hour period.

Q. Why are you using a particle standard that is more restrictive than existing law?

Some health professional do not believe that the current standard of 150 micrograms per cubic meter of air averaged over a 24 hour period adequately protects the health of sensitive individuals such as children or those with heart or lung disease. New research has prompted a review of the existing standard which could lead to a more protective standard. The U.S. Centers for Disease Control and Prevention (CDC) has completed a preliminary review of information about ISB and air quality standards. The CDC has recommended to federal response officials that the interim guideline be set at 150 micrograms per cubic meter of air averaged over one hour, which is much more stringent than the 24-hour measurement. We will use this general guidance and apply the
more stringent recommended maximum concentration until the CDC recommends a new standard.

Q. How will this standard be applied?

Meteorologists will use information on current weather conditions, forecasts and sophisticated computer models to predict the smoke plume path and rate of dispersion. This information will enable federal and state on-scene coordinators to determine whether the PM 10 levels will exceed air quality standards in populated areas.

Q. Why are you considering burning an oil spill when people are not allowed to use their wood stoves on some days during the winter?

Wood stoves represent a continuing, persistent source of airborne pollutants that can have a detrimental effect on human health. In situ burning of accidentally spilled oil will occur very infrequently, and will last for a short period of time--typically a few hours. Moreover, an oil spill is an emergency situation that may require extraordinary measures. Those responsible for responding to a spill may conclude that a temporary source of airborne pollutants is necessary to achieve the overall goal of reducing the environmental effects of spilled oil.

Q. Will I have to leave my home if a burn is conducted near where I live?

Ordinarily those in charge of responding to a spill would not approve in situ burning if it is necessary for people to leave their homes. It is possible, however, that in unusual situations burning the oil would be necessary even if it meant that people needed to leave their homes. If that were to occur, the local and state health departments would be consulted to ensure people_s safety.

Q. What are the long-term effects?

There should be no long-term health effects to the public. The particles and vapors, which are by-products of burning, will dissipate into the air very quickly.

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

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, instead of a 24-hour period. This concentration is a guideline, not a standard. If the NRT recommended maximum concentration 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. Can the vapors hurt me?

We are continually breathing in low levels of particles and vapors, produced as a result of the combustion of many things in our communities. The public will not be exposed to any more particles or vapors because of the burning of the spilled oil. The burning will be planned so that these burn products will not come into contact with populated areas. If there is concern that the general public may be exposed to smoke from the burning oil, we will monitor particulate concentrations in populated areas.

Q. What is considered a safe air reading?

Based upon current scientific knowledge, the components of the smoke that present the greatest risk to the population are particles 10 microns or less in size (these are very small particles; one-millionth of a meter or 0.0004th of an inch). During a burn, there would be models and/or monitors in place to ensure that particles from the burn would not result in human exposure to harmful quantities of small particles.

Q. When can I resume fishing and what fish are safe to eat?

The burning should not affect the fish in the area. The restricted area was established for safety reasons and not for fish contamination reasons.

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

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. If there is oil burning, will people end up getting sick like those with Gulf War Syndrome?

This procedure is not related to the Gulf War syndrome issue. We have established many safety and monitoring measures to ensure that the smoke and vapors from the burning oil do not come into contact with people.

Q. What will be the air quality during the burn?

The air quality in your community will be no different than it would be in normal situations. The burning procedures require that the smoke from the fire travel away from populated areas and that the burn be terminated should the wind

direction change.

Q. What public health information do I need for my family?

The burning procedure we will be using has been developed over time and approved by the appropriate local, state, and federal agencies. The plans provide for public health and safety, control of the burn and ongoing monitoring to ensure that the process is followed. Your local public officials will keep you informed about what is happening with regard to the burn.

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

The burning procedures do not pose a risk for the general population.

Q. If it is decided to burn this oil, what effect will the vapors have on those of us who live in the area?

If we decide to burn the oil there will be no effect on the population.

Q. Will this affect any future generations of people who were living in the area at the time?

No.

Q. If I or anyone else gets the oil on my skin, what should be done? and what are the effects of the penetration?

The spilled oil is not in a location where you or anyone else could be exposed, however, if you or anyone else gets oil on your skin, including motor oil, you should wash it off with soap and water. If you experience any prolonged irritation or have any questions you should consult your physician.

Q. Will the residue from the oil affect populations up and down the coast who were not even near the spill?

If the burning procedure is successful, there will be a small quantity of residue left (less than 2% of the original oil volume), which will be collected, but may sink in the area of the burn. The amount and characteristics of the residue will vary according to oil type.

Q. Does it matter what kind of oil has spilled with regard to the public's health and environmental concern?

There are many different types of oil and each has different chemical constituents. For example, lighter fuels (diesel, home heating fuel and light crude oils) will evaporate quickly, but tend to be more toxic and penetrate the shoreline sediments to a greater degree. Heavy oils (bunker C, #6 and heavy crude oils) are less toxic to shoreline ecosystems and do not penetrate finer sediments, but they are very persistent, difficult to clean, and may smother shoreline organisms. If oil is released into the environment the response team will take actions necessary to protect public health and the environment.

Q. What precautions or emergency actions do I need to take to prevent any harmful effects?

We have closed the immediate area from all boat and air traffic where the oil is located. I would ask that residents comply with the closure and remain out of the area. If additional actions are required we will notify everyone. The burning procedure we are announcing today is designed to safely reduce the amount of the spilled oil, while limiting any special actions that need to be taken by the public.

Q. Are my young children at any more risk than adults after breathing the oil fumes?

The burning procedure will reduce oil vapors because the vapors will be consumed in the combustion.

Q. What is a safe level of particulates and how can you prove it?

The PM-10 air quality criteria we use is more stringent than the values used by the Environmental Protection Agency for particulate matter. The U.S. EPA values were adopted following detailed scientific procedure and are used on a daily basis to measure air pollution.

Q. Will I get sick from breathing the air if it smells?

We have restricted access to the area to prevent human contact with any vapors from the oil. If there is a concern that the general public may be exposed to oil vapors, we will monitor populated areas.

Q. Will the smoke from burning oil cause cancer?

The scientific literature does not indicate that smoke from the burning of oil, from a release such as this, is linked to causing cancer.

Q. What will happen to my son who has asthma?

Your son will not be exposed to the smoke from the burn. As stated in the burn procedures, the burn will be terminated if it appears that residents will be exposed to the smoke.

Q. If I feel nauseous, what do I do?

If you feel ill, I would suggest that you see a physician.

Q. I picked up some tar balls on the beach. Will I get sick?

We would not expect you to get ill, however, some people have reported getting rashes after prolonged exposure to oil.

Q. I have had a headache since the spill. Should I go to the doctor?

If you are concerned about a headache you should consult your physician. However, the safety actions taken by the response teams are designed to prevent any exposure that could result in a health impact.

Q. I have some fish that smells funny. Is that because of the spill?

I have no way of determining whether the smell is a result of the spill. If the fish smells “funny” you should dispose of it. This should be done whether or not an oil spill occurs.

Q. Will the government pay for a motel for me so I will not have to stay here and get sick?

There is no reason for relocation from your homes at this time.

Q. Won_t the fire put harmful chemicals into the air that will make us sick?

There are many different chemicals in oil and the smoke when it is burned. We have defined an area where the public should not go until the response is over. The burning procedure is designed to remove the oil in the safest and most efficient way possible. The burning will be stopped if it appears that residents will be exposed to the smoke.

Q. Is it safe to drink water from the tap coming from the city water department?

The water supply for the city does not come from the ocean. The oil spill will not impact the water processing of the city.

Q. Can we eat the tomatoes from our garden?

Yes. We have no reason to believe that your tomatoes will be affected.

Q. Is it safe to eat the fish?

We have issued a fish consumption advisory at this time. This is a precaution until we have completed monitoring and can fully assess the impact of the spill.

Or

We have not issued any fish consumption advisories at this time. We believe that the response procedures will remove significant amounts of spilled oil from the water.

Q. What exactly in the smoke is dangerous to my health?

There are hundreds of chemicals that make up oil and the smoke that will be generated. The fine particulates in the smoke, generally carbon based or soot, are small enough to be inhaled into the human lungs and cause irritation.

SAFETY CONCERNS

Q. What are the safety concern related to in situ burning?

Burning presents some unique safety concerns for workers and response personnel. Many of these are addressed in greater detail in operationally oriented references and include, but are not limited to, the following:

Fire hazard: ISB is a process that involves setting fires. Extreme care must be taken so that the fires are controlled at all times, and will not harm personnel or equipment.

Ignition hazard: Planners must carefully consider the ignition of the oil slick. Aerial operations to ignite oil with gel or other ignition methods must be well-coordinated. Weather and water conditions should be kept in mind, and proper safety distances should be observed at all times. Communication with all personnel is essential.

Vessel safety: ISB at sea will involve several vessels, working in relatively close proximity to each other or in poor-visibility conditions. Such conditions are hazardous by nature, and require practice, competence and coordination.

Other hazards: Personnel involved in ISB may be exposed to extreme heat from the compounded effects of hot weather and fire, or extreme cold in places like Alaska. Working under time constraints may impair judgment or increase the tendency to attempt costly shortcuts. Good, thorough training and strict safety guidelines must be part of any ISB operation.

Q. How do you control an ISB and avoid spreading of the fire?

The fire is usually contained in a fire resistant boom. Oil can be burned in an area physically remote from other sources of oil, or a boom can be used to isolate oil for burning. The goal of ISB is to avoid accidentally igniting oil outside the boomed
area. If there is a potential of igniting oil outside the boomed area, burning will not be conducted.

Q. If the weather changes can the fire be put out?

Monitoring will be conducted to ensure conditions remain appropriate for burning. If the conditions are no longer appropriate, a burn can be extinguished very quickly by releasing the end of the boom containing the oil. This allows the oil to spread to its natural thickness, which is ordinarily too thin to sustain combustion. A burn can also be extinguished by dragging the boom at a faster speed.

Q. Can the burn be stopped?

Yes. An ISB takes place only when response personnel are able to conduct it safely and with control. Termination procedures are always developed in advance. A burn can be extinguished very quickly by releasing the end of the boom

containing oil. This allows the oil to spread to its natural thickness, which is ordinarily too thin to sustain combustion. A burn can also be extinguished by dragging the boom at a faster speed.

Q. Is burning the oil safer than other clean-up methods?

All clean-up methods have safety concerns for the responders. Those involved in the response have been trained to perform their mission and safety and human health specialists will be monitoring their operations. Safety concerns are considered when making the decision to burn. Because the burn will be away from the public and can be controlled, and stopped if necessary, we decided the advantages of rapid large scale removal of the oil through burning was the best option at this time.

Q. Will the burning of this oil cause other fires to start elsewhere?

This will be a very controlled burn. If there is any sign of danger from the burn, workers can very quickly extinguish the fire.

Q. Will the personnel responsible for the burning suffer long-term health effects since they will be closer to ground zero?

The response personnel working in the immediate area of the burn are trained and outfitted to conduct this procedure in a safe manner (i.e. they will wear the appropriate protective gear, such as respirators). There are also individuals on the team whose job it is to monitor team actions for safety.

Q. My friend is part of the emergency response team at the spill. Will he/she or his/her clothes make his/her family sick?

No. As a part of the response team he/she will be following the safety procedures of his/her response group. All response team members change their clothing before leaving the area.

Q. Is it safe to go in the water?

We have closed an area around the spill to ensure that the public is protected and to facilitate response actions. We have boats and equipment that need to be able to move freely in the area.

ENVIRONMENTAL IMPACTS

Q. What are the potential ecological effects of in-situ burning?

One of the primary reasons we have decided to use ISB is to protect the coastline and the birds and mammals that inhabit the area. Oil that comes into contact with mammals and birds can destroy the insulating ability of fur and feathers, reduce buoyancy, and be ingested as the animal cleans itself. These animals can die of exposure, drowning, internal bleeding, and suffocation. When conducted properly, in situ burning significantly decreases the amount of oil on the water, reducing the extent of shoreline impacts, including exposure of sensitive natural, recreational, and commercial resources.

The potential ecological impacts of ISB have not been extensively discussed or studied. Burning oil on the surface of the water could adversely affect organisms at or near the interface between oil and water, although the area affected would presumably be small relative to the total surface area and depth of a given body of water. Organisms that may be affected by ISB include those that use the uppermost layers of the water column, those that might come into contact with residual material, and possibly some benthic (bottom-dwelling) plants and animals.

Burn residues could be ingested by fish, birds, mammals, and other organisms, and may foul gills, feathers, fur, or baleen. However, these impacts would be expected to be much less severe than those resulting from exposure to a large, uncontained oil spill.

Q. What are the impacts of spilled oil on the environment?

Oil is harmful to the environment. An oil spill can destroy fisheries, contaminate shellfish beds, injure archeological sites, coat recreational beaches, harm or kill wildlife and destroy coastal habitat. Oil that comes into contact with mammals and birds can destroy the insulating ability of fur and feathers, reduce buoyancy, and be ingested as the animal cleans itself. These animals can die of exposure, drowning, internal bleeding and suffocation. Wildlife vulnerable to oil spills include shorebirds, bald eagles, sea otters, sea lions, harbor seals and terrestrial mammals that may feed on oiled carcasses. There is also some evidence suggesting that oil spills may be linked to whale deaths.

Q. Do similar things happen in nature?

Yes, things in nature do catch on fire and the smoke that is generated contains basically the same kinds of particles and vapors as in an oil fire. We are continually exposed to particles and vapors from gasoline engine exhaust, fireplaces, industry, etc., which are the same kinds of particles and vapors produced during an oil fire.

Q. How long before the environment recovers?

Ecosystems are dynamic. It is very difficult to determine when an environment has recovered from an oil spill or other events, such as an unusually warm summer. Under the right conditions, in situ burning of spilled oil will remove almost all of the oil contained within the fire-resistant boom. There will be a small amount of residue from the burning and it may take a few months for the residue to be degraded by nature. In many cases, all the oil spilled cannot be burned and other response techniques will be used. Some of this oil may contaminate shoreline environments of which recovery is based on a number of factors such as the type of shoreline, season, biological communities present, and cleanup techniques used.

Q. What effect will the burn have on marine life?

The burning may have a very small adverse effect on the localized marine life that is found in the upper layers of the water column, those organisms that may come into contact with residual material, and possibly some benthic (bottom-dwelling) plants and
animals. However, these impacts would be expected to be minimal compared to those resulting from exposure to a large, uncontained oil spill.

Q. What effect will this have on shoreline contamination?

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

Q. Will this affect any future generations of fish (which we eat)?

We are not aware of any impacts on the fish in the area.

ECONOMIC CONCERNS

Q. How soon after the burn can recreational boating resume?

We will establish a 5-mile zone around the burn. Boats may continue to be used outside of this area and other response operation areas, as directed by the USCG. The zone will be opened as soon as the area is clear.

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

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

Q. What will be the water quality after the burn?

Because burning the oil will remove almost all of the contained oil from the water surface, the water quality should not be affected. After the burn, we will sample the water which will provide us with a better overall assessment of the water quality in
the area.

Q. What do I need to do to my house/business in order to protect it during this emergency?

At this time, there is no need for you to take any special actions to protect your homes or businesses. As we have stated, when conducted properly, in situ burning significantly decreases the amount of oil on the water, preventing or significantly reducing the extent of shoreline impacts, including exposure of sensitive natural, recreational, and commercial resources. We will keep you updated during the response and notify you if there are any measures you should take.

Q. How can we be assured that our town is going to be OK?

The local, state, and federal response organizations, along with members of the oil shipping industry are doing everything possible to minimize the impact of this spill to your community. To achieve this goal, we have decided to burn the oil to reduce the quantity of oil on the water in a safe, rapid, and efficient manner.

Q. Are the gas/heating oil prices going to rise now in our area?

I have no way of assessing that question. In general, that has not been the case.

Q. What legal recourse do individuals have if personal property is damaged by smoke from an oil burn? Who can we sue?

As I have previously stated, the burning procedure will be used only when the smoke moves in a direction away from the population. The smoke should not damage personal property because the smoke will be over water. However, if you are concerned about damage to personal property or other legal matters, you always have the right to consult with an attorney.

Q. Will the oil get into the air and fallout on my car or house and damage them?

No. The current burning procedure will greatly reduce the amount of oil spilled into the water. The procedure also calls for the smoke from the burn to travel away from the community. Should the smoke direction start to change, the burn will be terminated.

INSTITUTIONAL CONCERNS

Q. Who makes the decision to conduct a burn?

The use of ISB, as an oil spill response tool, is regulated by both federal and state law. Regional Response Teams, made up of federal and state agencies, have developed guidelines that provide a common decision-making process to evaluate the appropriateness of using ISB during a spill response. The Federal On-Scene Coordinator, in consultation with the State On-Scene Coordinator, has the authority to approve ISB. When deciding whether to conduct ISB, the coordinators consult with air quality experts, meteorologists, response contractors and experts on burning.

Q. How soon does the decision to burn have to be made?

The decision to burn should be made within the first several hours following the spill. Because spilled oil rapidly emulsifies, it becomes more difficult to ignite with time. If the weather and sea conditions are very calm, this time frame may be extended. However, it takes time to assemble the personnel and equipment necessary to conduct a burn.

Q. Will I be notified if there is going to be a burn in my area?

Any time oil is spilled, local, state, and federal representatives make every effort to inform the public about the effects of the spill and the actions being taken to combat the spill. If burning were determined to be an appropriate response tool, officials involved in the response, would make every effort to inform the public about the burn.

Q. Who will pay for the cleanup?

The Federal government will insure that the area is cleaned; generally, the spiller will be responsible for all of the costs associated with the cleanup.

Q. Who makes the decision on how best to get rid of the oil? Is this the responsibility of the local, state or federal authorities?

The local, state, and federal response teams, with the responsible company teams, make all response decisions. The teams operate under a unified command structure. This ensures that all concerns and expertise are involved in the decision making during a response.

Q. How will my neighborhood be notified if there is an ISB in nearby coastal waters?

The local, state, and federal response organizations will meet with elected officials, the public, and the media on a routine basis to discuss the response and the activities currently taking place. I would suggest that you monitor your newspaper, radio and television for current reports and announcements of meetings in your area.

Q. Does the community have any say on whether the oil can be burned, considering there are community health risks?

The decision to burn is based on the risk to the public and is made in concert with local, state, and federal response organizations.

Q. How come no one is telling us anything? I called the Town Hall and there's no comment from the Commissioners' office. Who should be talking to us?

We are currently meeting with you and will continue to do so. Our procedures call for a single point of contact for the dissemination of spill information and that may be the reason you did not receive any comments from the Commissioners' office. We will do everything in our power to keep you informed of the situation and the activities of the response teams.

ENVIRONMENTAL TRADEOFFS (ISB vs. other response techniques or no action)

Q. What are the potential environmental tradeoffs relevant to the use of in-situ burning?

As is the case with all response methods, the environmental tradeoffs associated with in situ burning must be considered on a case-by-case basis and weighed with operational tradeoffs. In situ burning can offer important advantages over other response methods in specific cases, and may not be advisable in others, depending on the circumstances of a spill.

Pros:
In situ burning is one of the few response methods that can potentially remove large quantities of oil from the surface of the water with minimal investment of equipment and manpower.
Burning may offer the only realistic means of removal that will reduce shoreline impacts in areas where containment and storage facilities may be overwhelmed by the sheer size of a spill, or in remote or inaccessible areas where other countermeasures are not practical.
If properly planned and implemented, in situ burning may significantly reduce the extent of shoreline impacts, including exposure of sensitive natural, recreational, and commercial resources.
Burning rapidly removes oil from the environment, particularly when compared to shoreline cleanup activities that may take months or even years to complete.
In situ burning moves residues into the atmosphere, where they are dispersed relatively quickly.
Control of burn activities is relatively simple, provided containment is appropriate.

Cons:
In-situ burning, when employed in its simplest form, generates large quantities of highly visible smoke that may adversely affect humans and other exposed populations downwind.
Burn residues may sink, making it harder to recover the product and to prevent the potential exposure of benthic organisms.
Plant and animal deaths and other adverse biological impacts may result from the localized temperature elevations at the sea surface. While these effects could be expected to occur over a relatively small area, in specific bodies of water at specific times of the year, affected populations may be large enough or important enough to reconsider burning as a cleanup technique.
The long-term effects of burn residues on exposed populations of marine organisms have not been investigated. It is not known whether these materials would be significantly toxic in the long run. The burn must be carefully controlled in order to maintain worker safety.

Q. Isn't burning just trading water pollution for air pollution?

The overriding response goal is to protect human health and the environment to the maximum degree possible. Air pollution from an in situ burn is usually short-lived and consists mainly of smoke particulates. In certain concentrations, these particulates may be harmful to some persons. However, unburned oil is also a source of air pollution, mainly from evaporating hydrocarbon compounds that also present health hazards. These compounds also contribute to the formation of smog.

Uncollected oil can harm wildlife, fish, recreational beaches, and the rest of the marine environment. It can be taken by the currents to contaminate a wide geographic area, potentially covering hundreds of miles. A smoke plume from burning oil will usually be confined to a narrow band that may stretch several miles.

Q. Does ISB preclude other spill response measures?

There are three primary clean-up methods: in situ burning, dispersants and mechanical methods. Whether or not burning would limit the use of other spill response measures depends on the circumstances of a spill. 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. Why do we have to burn the oil? Why not just clean it up?

Spill responders almost always start mechanical recovery immediately after a spill occurs, deploying booms, skimmers and other equipment. Responders like to have a variety of response tools available during a spill. In situ burning is one of the few response methods that can potentially remove large quantities of oil from the surface of the water with minimal investment of equipment and manpower. In situ burning may significantly reduce the extent of shoreline impacts, including exposure of sensitive natural, recreational, and commercial resources. When it is safe and environmentally wise to use in situ burning, the environment benefits because more oil will be removed from the water.

Q. Are there long-term impacts to the environment from spilled oil?

Yes. Oil spills can have serious long-term impacts to the environment. The long-term impacts to birds and mammals include lower reproduction rates and physical mutations in offspring. Once oil is trapped in sediments it can be recirculated into the water and remain in the food chain for many years. Some research indicates that oil can remain in sediments for hundreds of years. Harmful oil components can contaminate fish that in turn are eaten by other fish, seabirds, and humans, thus passing these harmful components up the food chain.