

# Frequently-Asked Questions

## Human Health Questions

Here are answers to some questions people have asked about in-situ burning and human health.

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

A. 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, and various polynuclear aromatic hydrocarbons. **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.

Although ISB presents some 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 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 polyaromatic hydrocarbons, including benzene (a known human carcinogen) and toxic fumes, 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 fumes against the smoke created by burning.

### **Q. What health standard do responders use when considering a burn?**

A. The current national and state health standard, based on EPA's National Ambient Air Quality Standard, states 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 (NRT) has developed more restrictive PM 10 guidelines for in-situ burning. **The NRT recommends a maximum concentration of 150 micrograms of PM 10 per cubic meter of air averaged over a 1-hour period.**

### **Q. Why do you use a particle standard that is more restrictive than existing law?**

A. 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. Restricting the measurement period from 24 hours to 1 hour better protects these members of the population.

**Q. What residue will remain after a burn?**

A. 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. What will be the air quality during a burn?**

A. 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. Why would you consider burning an oil spill when people are not allowed to use their woodstoves on some days during the winter?**

A. Woodstoves represent a continuing, persistent source of airborne pollutants that can have a detrimental effect on human health. In-situ burning of accidentally spilled oil occurs 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?**

A. 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.

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