



A few facts about Burning of Oil

What is in-situ burning of oil?

In-situ is Latin for "in place". In-situ burning of oil is the burning of oil in place, at the site of the spill. In-situ burning may be set intentionally, if it has been determined that it provides the best response option, or it may occur on its own, as was the case in the pipelines rupture and burning in Houston.

What happens when oil burns?

When oil burns it combines with oxygen in the air to form carbon dioxide and water, a process that releases a lot of energy in the form of heat. Those are the main products of oil burning in cars, trucks, homes, and industry. Very much the same thing happens during in-situ burning of oil in the open air: most of the oil becomes carbon dioxide and water. However since oil doesn't burn in the open air as efficiently as in your car, part of the oil does not burn completely and is emitted as carbon particulates, which we see as smoke.

What is in the smoke plume?

Scientists studied many oil fires to answer that question. What they found is that most of the oil (85 to 95 percent) become carbon dioxide and water. One percent or so is made up of other gases such as carbon monoxide, sulfur dioxide and nitrogen dioxide and 5 to 15 percent of the oil becomes particulates, made up of carbon (soot particulates). Those particulate are black in color, which gives the plume its dark color.

Is the plume hazardous?

Scientists and public health officials have determined that the major hazard from the smoke plume are the small particulates, the gases having dissipated to a concentration that is considered safe a short distance from the plume. Smoke particulates are very small, which means two things: they will stay suspended in the air for a long time and be carried over long distances, and they may be inhaled by people and reach their lungs. Therefore, if the plume goes overhead chances are that people are not exposed to the smoke and the particulates in it, but if the smoke touches down people may actually breathe in the particulates in the smoke.

A point to remember is that we are all exposed to particulates all the time: from traffic on the freeway, from industry, and from dust and pollen in the air. Exposure to particulate in the smoke plume is not different than other sources. While "how much exposure" could be measured by doing air sampling, the fact that during most of the burning the smoke plume was well overhead and didn't touch the ground suggests that there was not much exposure to it.