Gulf oil spill threatens public health

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The ongoing spill of millions of gallons of crude from the BP oil rig into the Gulf of Mexico is an enormous environmental disaster, threatening fish, birds, and shallow water species like oysters, shrimp and crayfish. Human beings are part of the environment, and the oil slick poses major risks to public health.

In the past few days, residents of southwestern Louisiana have complained about odors causing headaches and burning eyes and nausea. The state health department has ordered testing of water systems near the Gulf for oil contamination.

Major oil spills have caused billions of gallons of oil to pour into the environment in the last several decades. As the World Health Organization has pointed out, there are hardly any studies following the effects on the health of residents who live near those spills.

Oil is a mix of complex chemicals. It contains hydrocarbon compounds, some of them cancer-causing, others causing neurological and reproductive damage, as well as skin and lung problems. Sometimes crude oil has traces of mercury, lead and arsenic.

There are several ways an oil spill is harmful to human health. From evaporation or smoke as oil is burned, people can inhale volatile organic compounds and other hydrocarbons. Oil vapors can cause headaches, dizziness, nausea, vomiting, eye and throat irritation, and breathing difficulties. People who inhale large amounts of fumes are in danger of a chemical poisoning called hydrocarbon pneumonia.

"Smoke from burning oil contains many chemicals; some are potentially lethal poisons and some are nuisance irritants, but even these nuisance irritants can trigger breathing problems in people with asthma or emphysema or other lung disease," stated Dr. Marcel Casavant, chief of Pharmacology and Toxicology at Nationwide Children's Hospital in Columbus, Ohio.

The smoke from burning oil contains carbon dioxide, carbon monoxide, sulfur dioxide, nitrogen oxides, volatile organics, polycyclic aromatic hydrocarbons (PAHs), hydrogen sulfide acidic aerosols and soot, solid particles embedded in tar. Particulate matter is very harmful to the lungs. Once inhaled, these particles can damage the heart and cause other serious health effects, including premature death in people with heart or lung disease.

Volatile organic compounds can lead to respiratory problems, allergic reactions and weakened immune systems. They are also associated with harmful effects on the gastrointestinal tract and liver.

According to Dr. Gina Solomon, a senior scientist at the Natural Resources Defense Council and an associate clinical professor of medicine at the University of California, San Francisco, some of the volatile chemicals have been linked to miscarriage, premature births and low birth weight.

The oil spill can also damage human health indirectly, through absorption into the food chain. Oil floating on the water contaminates plankton, very small plants and animals. Small fish eat plankton, larger fish eat small fish, animals and humans eat large fish and other seafood: all ultimately ingest oil.

The Water Encyclopedia states, "Oil waste poisons the sensitive marine and coastal organic substrate, interrupting the food chain on which fish and sea creatures depend.... Wildlife other than fish and sea creatures, including mammals, reptiles, amphibians and birds that live in or near the ocean, are also poisoned by oil waste."

As people eat some of the components of the oil that is contaminating these food sources, the risk of getting cancer increases. "Contaminants in oil can persist for years and accumulate in the food chain, causing elevated cancer risks or neurological risks from exposure to heavy metals such as mercury," writes Dr. Solomon.

Some scientists are downplaying the real threats to

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human health from the massive oil spill. “This is an ecological event, rather than a human health problem,” says LuAnn White, professor of environmental health and toxicology at Tulane University in New Orleans, Louisiana.

But oil-producing communities have complained about the health impacts linked to environmental toxins used in production. For instance, residents in Conecuh County, Alabama, have experienced headaches, open sores, miscarriages and other health effects, believed related to air and water contamination. In March 2006, an oil and gas company operating in Conecuh County was fined for releasing various compounds without permits, including hydrogen sulfide, a potentially deadly gas often associated with oil production in south Alabama. Residents have also noticed thick, unidentified foamy substances in water connected to their water wells.

The Oil and Gas Accountability Project describes the experience of a Colorado landowner who said, “When a well was being drilled near my house, the fumes were so strong that I passed out.”

In 2006, a Colorado Air Quality Control Commission report stated that oil and gas developments are the primary sources of the Denver region’s air pollution. In the Rocky Mountain region, the emission of sulfur dioxide has increased by 147 percent as a byproduct of petroleum production. The chemical aggravates heart and lung diseases and is poisonous at high levels.

The Environmental Working Group and The Endocrine Disruption Exchange reported that 430 million gallons of chemical-laced fluids have been injected into oil and gas wells in Colorado, mainly to force out the petroleum. Halliburton Corp. has threatened to leave the state of Colorado if forced to disclose the chemicals it uses. The giant energy services company is responsible for cementing the deepwater drill hole in the current BP oil spill, which may have contributed to the failure of the well.

Oil and gas companies are not required by state or federal law to disclose what chemicals they employ during drilling. More than 2,500 chemicals are being used by the oil and gas industry today. Some of these oilfield chemicals are endocrine disruptors. They can trigger biological changes at very, very low concentrations, and have been implicated in health problems such as cancer and genetic mutations.

An online report by BBC News in August 2000 looked at the legacy of pollution in Kuwait from its oil spills and fires in 1991. Iraqi troops spilled oil into the Persian Gulf during the Gulf War. They then set fire to hundreds of wells. The oil spill, by some estimates the largest in history, involved tens to hundreds of million gallons.

In 2000, scientists said that parts of the desert were still heavily polluted with oil. Doctors reported a significant increase in patients with heart disease and cancers. Dr. Badria al-Awadi, a lawyer and the Kuwait representative for the International Union for the Conservation of Nature, said health statistics since 1991 were alarming. “A lot of diseases which we never had before, now we are having,” she said. The incidence of cancer “is much higher that it was before.” There are also growing numbers of people with respiratory diseases and allergies.

As with all industrial pollution, the oil industry will deny responsibility for the toxicity of its products and the devastating impact these poisons have on the health and lives of millions of people. The full impact of the Gulf of Mexico spill may not be known for many years.

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