August 16, 2024

Oil-Dispersant Mixtures — Can They Harm *ME*?

What are oil-dispersant mixtures, and what are the ingredients?[1]

Corexit dispersants 9500A and 9527A are health hazards that can cause harm at very low levels. As such, these products as a whole, and some of the individual chemicals in them like 2-butoxyethanol (in 9527A) and dioctyl sodium sulfosuccinate (DOSS in both), • can trigger multiple cancer pathways; • can affect the health of a developing fetus; • are respiratory and skin sensitizers that can cause chronic breathing difficulties and reoccurring skin rashes; • are potent neurotoxins affecting memory, emotions, and behavior; and • are toxic to multiple body systems, leading to chronic conditions such as blood cancers, asthma, chemical pneumonia, reactive airway disease, and increased risk of coronary heart disease, among other diseases. When crude oil is present with either of these Corexit dispersants, the resulting oil-dispersant mixture is more harmful than oil alone.

Did deep sea dispersant injection for nearly three months keep oil from rising to the sea surface during the BP Deepwater Horizon oil disaster "field test" of this untried technology?[2]

No. The great bulk of oil released from the damaged wellhead rose from the seafloor through nearly a mile (over 5,000 feet) of water column to the sea surface. Only about 5% or less of the liquid oil droplets remained trapped in the deep intrusion layer, and this was with *or without* dispersant use.

Did massive aerial spraying of surface oil for nearly three months during the BP Deepwater Horizon oil disaster keep the crude oil from coming ashore?[3]

No. Once the oil reached the sea surface, it was subjected to rapid weathering by photo-chemical oxidation that occurred within four hours in hot Gulf of Mexico conditions and within about 2 miles from the offshore source. Weathering changes the physical and chemical nature of the oil in ways that greatly reduce the effectiveness of spraying dispersants onto surface oil by plane or boat, calling into question the utility of such application more than 2 miles from the source.

Did aerial spraying of surface oil during the BP Deepwater Horizon disaster make *the air more dangerous* to breathe?[4]

Likely yes. Lab studies on crude oil with and without dispersant (Corexit 9500A) at working concentrations used in the BP Deepwater Horizon oil disaster found dispersant use *aerosolized* the polycyclic aromatic hydrocarbons (PAHs), a particularly hazardous fraction of crude oil. As aerosols, PAHs can travel longer distances and penetrate more deeply into the alveoli region of the human lungs than as larger particles—yet the increased health risk from the *smaller size* of the PAH aerosols is undetectable using traditional methods of analysis, because the *concentration* remained unchanged. One study found increased risk of cancer from ambient air levels of benzene and fine particulate matter in southeast Louisiana coastal areas during the BP Deepwater Horizon disaster.

Can people in coastal areas be exposed to oil-chemical mixtures created offshore?[5]

Yes. Once aerosolized, the oil-dispersant droplets were transported *above* and *within* the marine boundary layer downwind of the spill and over 80 miles inland, affecting air quality in downwind communities. Much of the surface oil that wound up on the beaches was weathered oil-dispersant mixtures, present as fine coatings of sand grains, residual tar balls and weathered materials, and submerged sediments or coarsely aggregated material in coastal waters where people walked, waded, and swam throughout the spill area during the response.

Can people in coastal areas be exposed to dangerous levels of oil-chemical mixtures?[6]

Yes. Weathered oil-dispersant mixtures were readily absorbed across human skin, especially moist or wet skin. Who doesn't have wet or moist skin at the beach in the summer? Human uptake was evidenced by extraordinarily high levels of oil contaminants found in the blood of response workers and coastal residents, from children to elders. During the five months of peak oil spill emissions from the BP Deepwater Horizon disaster, the levels of oil contaminants in the blood of exposed workers and residents was higher than levels in 95–99 percent of the general population—high enough to damage organs and cause long-term illnesses and cancers.

What do initial symptoms of oil-dispersant exposure look like?[7]

Many initial symptoms of oil-dispersant exposure mimic common cold or flu symptoms, including difficulty breathing, coughing, dizziness, headaches, fatigue, and tightness in chest. Other initial symptoms resemble allergic reactions like skin rashes or ulcers. These symptoms persist, and they don't respond to treatment with antibiotics since the cause was chemical, not biological like a virus.

Can my regular doctor treat me for oil-dispersant symptoms?[8]

Likely no. Doctors must be trained in a specialty field, Occupational and Environmental Medicine, to understand the environmental exposure history. Successful treatment of long-term harm from oil-dispersant exposures and the other exceptional health hazards depends on early intervention.

Who is liable for harm caused by Corexit dispersants?[9]

Likely multiple parties. The federal government: A court found Corexit Manufacturer was not liable for harm caused by its product during oil spill response—*because the federal government (EPA and the U.S. Coast Guard) authorized use of Corexit dispersants* under the National Contingency Plan. However, states may be liable for use in state waters, as the authorizing entity, while the spiller may be liable if health and safety regulations were not followed.

How do we get EPA to ban Corexit dispersants?[10]

Under 2023 rules driven by a citizen lawsuit, products used in oil spill response can now be removed with cause from the list of products authorized for use. In August 2024, ALERT and allies petitioned EPA to remove Corexit 9527A and 9500A from the authorized list. But EPA needs to hear from YOU. These Corexit dispersants are stockpiled for immediate use in every coastal state. Write a letter using ALERT's template.

Can my state lead agency for oil spill response refuse to use Corexit dispersants?[11]

Yes. Under 2023 rules driven by a citizen lawsuit, states are now required to be part of the decision-making process to determine what dispersants, if any, can be used safely in their area—and a state can *withdraw its approval of preauthorized use* of Corexit or other dispersants. YOU will live with or die from the consequences of these decisions. This is why your state lead agency for oil spill response and governor need to hear from YOU. Write a letter using ALERT's template.

[1] **What are oil-dispersant mixtures, and what are the ingredients?**
... health hazards: OSHA § 1910.1200 Appendix A – Health Hazard Criteria (Mandatory), at A.0.4.2.
For list of health impacts and studies that found oil-dispersant mixtures are more harmful than oil alone, see summary of findings and tables in ALERT petition Appendix A, 2024.

[2] **Did deep sea dispersant injection for nearly three months keep oil from rising to the sea surface…?**
... great bulk of oil: Paris CB, et al., 2018. BP Gulf Science Data reveals ineffectual subsea dispersant injection for the Macondo blowout. *Front Mar Sci* 5:389.
... 5% or less: National Academies of Sciences, Engineering, and Medicine (NASEM), 2020. *The Use of Dispersants in Marine Oil Spill Response* (Washington, DC: The National Academies Press). ""[O]nly a small fraction of liquid oil was trapped in the layers with and without SSDI," at 46. https://doi.org/10.17226/25161

[3] **Did massive aerial spraying of surface oil… keep the crude oil from coming ashore?**
... rapid weathering: Ward CP, et al. 2018. Partial photochemical oxidation was a dominant fate of *Deepwater Horizon* surface oil. *Environ Sci Technol.* 52, 1797–1805. doi: 10.1021/acs.est.7b05948
... reduces the effectiveness: Ward CP, et al. 2018. Photochemical oxidation of oil reduced the effectiveness of aerial dispersants applied in response to the Deepwater Horizon spill. *Environ Sci & Technol Lett* 5:226-231.

[4] **Did aerial spraying of surface oil… make *the air more dangerous* to breathe?**
... aerosolized the PAHs: Afshar-Mohajer N, et al. 2020. Impact of dispersant on crude oil content of airborne fine particulate matter emitted from seawater after an oil spill. *Chemosphere* 256; 127063.
... increased the health risk: Afshar-Mohajer N, Fox MA, Koehler K. 2019. The human health risk estimation of inhaled oil spill emissions with and without adding dispersant, *Sci of the Total Environ* 654:924-932.
... increased risk of cancer: Nance E, et al. 2016. Ambient air concentrations exceeded health-based standards for fine particulate matter and benzene during the BP Deepwater Horizon oil spill. *J Air Waste Manag Assoc.* 66(2):224-36.

[5] **Can people in coastal areas be exposed to oil-chemical mixtures created offshore?**
... droplets were transported: Middlebrook AM, et al., 2012. Air quality implications of the Deepwater Horizon oil spill. *Proc Nat Acad Sci Phys Sci* 109:20280–5, at Figure 8; Conception Media, 2020. *The Cost of Silence*. Investigative documentary film trailer, at 1:13–1:29.
... sand grains and tar balls: Bociu I, Shin B, Wells WB, et al., 2019. Decomposition of sediment-oil agglomerates in a Gulf of Mexico sandy beach. *Scientific Reports* 9:10071.
... submerged sediments: Kirby J III. 2012. Findings of persistency of polycyclic aromatic hydrocarbons in residual tar product sourced from [the BP oil disaster]. Supported by Surfrider Foundation, April 14; Combs C. 2010. Photos: Glowing oil could aid Gulf spill cleanup. *National Geographic.* July 7, 2010.

[6] **Can people in coastal areas be exposed to dangerous levels of oil-chemical mixtures?**
... readily absorbed: Kirby, 2012, at 8. Supported by Surfrider Foundation, April 14.
... high levels: Summarco PW, et al. 2016. Concentrations in human blood of petroleum hydrocarbons associated with the BP/Deepwater Horizon oil spill, Gulf of Mexico. *Arch Toxicol.* 2016 Apr;90(4):829-37.
... 95th percentile and long term-harm: Wilma Subra Affidavit, 2012; In: Government Accountability Project, 2013, Deadly Dispersants Addendum Report; Nance et al. 2016. Ambient air concentrations exceeded health standards.

[7] **What do initial symptoms of oil-dispersant exposure look like?**
... Aguilera F, Méndez J, Pásaro E, Laffon B, 2010. Review on the effects of exposure to spilled oils on human health. *J Applied Tox* 30(4):291–301.

[8] **Can my regular doctor treat me for oil-dispersant symptoms?**
... early intervention: Take a free health assessment test to determine if you are chemically sensitive. Learn more. Reduce toxic exposures in your home and workplace.

[9] **Who is liable for harm caused by Corexit dispersants?**
... governments: McEvoy, 2012. Nalco skirts lawsuits over Corexit [dispersant] use after BP oil spill. *Law360.*
... spiller: Loller T, M Phillis, 2024. BP defeated thousands of suits by sick Gulf spill cleanup workers. But not one by a boat captain. *Associated Press News* 4/19/2024.

[10] **How do we get EPA to ban Corexit dispersants?**
... driven by a lawsuit: *Earth Island Institute v. Regan,* Case No. 3:20-cv-00670 (N.D. Cal. 2021)
... removed with cause: 40 CFR §300.970. Removal of a product from the NCP product schedule…
... ALERT sample EPA letter: https://alertproject.org/wp-content/uploads/2024/08/template-EPA-LTR-1.pdf

[11] **Can my state lead agency for oil spill response refuse to use Corexit or other dispersants?**
... states are required, states can withdraw approval: § 300.910(a). Authorization for agent use.
... ALERT sample STATE letter: https://alertproject.org/wp-content/uploads/2024/08/template-states-LTR-1.pdf