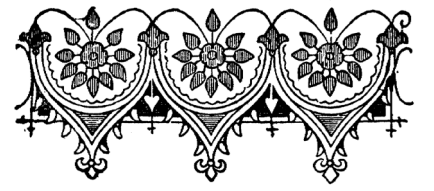


# Health & Wellness



## This Scenario May Be Coming Soon to a Neighborhood Near You!



Dr. Kate Thomsen and Silky

On February 3, 2023 38 cars of a Norfolk Southern train derailed in East Palestine, Ohio. The train had 150 cars total. A Ring doorbell camera on a building near the tracks captured at least one car of the train on fire at least 20 miles before it reached East Palestine. It has been reported that a wheel bearing on the train overheated to a dangerous level which was detected by a track wayside defect detector. The crew was putting on the emergency brakes to stop the train when it derailed. No one was injured from the crash, but the fire grew and chemicals were burning and being released into the soil, air and nearby water. Firefighters worked for days to control the blaze.

Twenty of the 150 cars on this train carried hazardous materials and 11 of these were involved in the derailment. These cars contained: vinyl chloride, ethylene glycol, ethylhexyl acrylate, butyl acrylate and isobutylene. These chemicals can all cause respiratory irritation and neurological symptoms like headache and dizziness. Butyl acrylate will also cause nausea.

Vinyl chloride is a gas at room temperature and it is transported as a compressed liquid. Inhalation of the gas can cause shortness of breath, dizziness and headache. Chronic exposure to high levels of vinyl chloride has been associated with liver, brain and lung cancers, lymphoma and leukemia. There were 5 of the derailed cars that contained vinyl chloride, one of which was reaching high enough temperatures to explode and send shrapnel as far as a mile from the site. Other toxic chemicals can be formed when vinyl chloride is burned including hydrogen chloride and phosgene (a nerve

gas used in WWI). On February 6, with the residents in a 1 – 2 mile radius from the derailment site already evacuated, the crew released the vinyl chloride from the derailed cars into a ditch and burned it off in a “controlled explosion”. The image of a small town filled with plumes of black smoke was on every news show for days. The fire was over on February 8 and residents were allowed to come back into town. East Palestine has 48,000 residents. This derailment didn’t happen in Cleveland, which relieved many officials, but each of these 48,000 residents will now be living every day with the fear of long-term health and economic consequences of this tragedy - which should not have happened and for which they will probably not ever be fully compensated

The EPA has been testing water, soil and air in the area since the accident. The chemical release into the ditch reached the local creeks and caused the deaths of 3500 fish in the days immediately afterward and the EPA says there has not been any fish killed since. On 2/23 the Ohio Division of Natural Resources has reported 38,000 fish killed. Videos of the local creek show a rainbow sheen in the water (along with the dead fish and amphibians). EPA monitored water samples showed “very low levels” of 2 contaminants – butyl acrylate and ethyl hexyl acrylate but no vinyl chloride. The chemical plume reached the Ohio River but the EPA stated that since the Ohio River is so large, it will dilute the pollutants very quickly. They have found the municipal water sources safe to drink but have cautioned against using well water until each one is tested.

The EPA has tested air samples outside and inside buildings and deemed the air safe. Nonetheless, the residents have been complaining of nausea, headaches, rashes, eye irritants, and strong smells. Residents claim that within minutes after lifting the evacuation and allowing residents to come back to town, Norfolk Central had a train running through. Tracks were rebuilt very quickly and the residents feel that railroad profits were prioritized over their safety

– maybe the town was not and is not safe to be living in.

A federal lawsuit against Norfolk Southern filed on 2/15/2023 alleges that 1.1 million pounds of vinyl chloride were released into the environment. The law firm filing the suit estimated this based on a calculation of the total volume in the five 25,800 gallon tank cars at 8.6 pounds per gallon. They claim that Norfolk Southern released more vinyl chloride into the environment in one week than all industrial emitters combined did in 2021. But that’s not the worst of it. Chlorine based chemicals combined with heat, oxygen and combustion creates dioxins and difurans. These are the most toxic synthetic chemicals produced gram per gram next to radioactive nuclear waste. Surely the EPA knows this and yet they chose not to test for dioxins in East Palestine. Outside pressure reversed that choice and the EPA announced they would have dioxins measured – but not by them. They handed the task to none other than - Norfolk Southern Railroad, who is also in charge of the clean-up. Any suspicion that Norfolk Southern has incentive to find low or no dioxin contamination and that the clean-up will be less than stellar?

The clean-up has produced 4600 cubic yards of contaminated soil and 1.7 million gallons of contaminated water which have been hauled out of East Palestine and scattered around in very deep holes. Obviously there is no good place to put it and, you know, the “nimby” expression, but it has to go someplace. The Indiana Department of Environmental Management released a document stating that the dioxin content in the soil they received was, cumulatively 43.63 parts per billion and that the 2,3,7,8-TCDD (the most toxic dioxin compound) was present at 0.2 ppb. TCDD is toxic at levels one trillionth of a gram. The Food and Drug Administration recommends against eating fish and shellfish with levels of 2,3,7,8-TCDD greater than 50 parts per trillion (50 ppt). This soil is very heavily contaminated and so are the people of East Palestine. Dioxins are endocrine disruptors, neural

disruptors and immune disruptors. These people are at high risk of infertility, diabetes, thyroid and adrenal diseases, developmental and neurodegenerative diseases, heart disease and cancer. They should be moved out of that town and re-established in a safe environment. It didn’t happen fast enough at Love Canal or Times Beach but we can learn from our mistakes in East Palestine because this heavy toxic exposure was such an acute event. The first order of toxicology is: remove the person from the toxin exposure. And the relocation should be paid by Norfolk Southern Railroad instead of their offer of \$1,000.00 for each person living in the 44413 zip code. The railroad established a \$1 million community support fund established to help rebuild the community and \$300 thousand commitment to the East Palestine school district. Does that seem very generous for a \$55 billion dollar company?

Train derailments have decreased in frequency overall since 1970 but derailments of trains carrying hazardous materials has increased. In 2012, an 84-car train derailed in Paulsboro, NJ while crossing a swing bridge that failed to operate correctly. Seven cars derailed and four tanker cars containing vinyl chloride fell into the creek leaking 23,000 gallons of vinyl chloride gas into the air. 2 more derailments have made headlines since the East Palestine debacle. On March 30, 2023 a train with 10 cars carrying ethanol derailed in rural Minnesota. Four of the cars carrying ethanol ruptured and caught fire forcing the evacuation of nearby residents. On April 8, 2003 five cars on a Norfolk Southern train derailed in Pittsburgh. It is believed that trains derail in the US 3 times per day!!!

A number of factors are contributing to this increase in train derailments. Railroads have been criticized for focusing on profits over safety. The industry has recently adopted “precision scheduling railroading,” mixing a variety of commodities that can be carried on one train and increasing the length of trains. Currently seeing trains with 200 or more cars is common. There

were 20,000 railroad workers who lost their jobs in 2022 so sometimes there are only 2 operators on a 200 car train. A lower workforce also leads to fewer inspections of train cars in the freight yard. The railroads have also lobbied their way out of improving their infrastructure. They could have placed track wayside defect detectors closer together so that a critical issue could be detected earlier. They could have installed new model electro-pneumatic brakes. The Federal Railroad Administration defines what trains can be called “high-hazard flammable trains” (HHFT) and regulates their operations (eg., speed restrictions, braking systems, and routing...). The Norfolk Southern train that derailed in East Palestine, compromising the life and health of 48,000 residents, was not designated an HHFT.

Why is a train carrying 700,000 pounds of vinyl chloride travelling 1600 miles from OxyVinyl, a chemical plant near Houston Texas, to another OxyVinyl chemical plant in Pedricktown NJ? As was advised to Dustin Hoffman’s Benjamin Braddock in the movie, *The Graduate*, “just one word, plastics.” The vinyl chemicals shipped by OxyVinyl were key ingredients in PVC which would be used in the manufacturing of furniture, floor tiles, packaging, and pipes to carry water. As the petroleum industry is seeing the possibility of declining demand for oil as fuel, it sees the future in plastics – our insatiable desire for plastics. Ultimately we all may carry some blame.

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