Drax: Health and Environmental Justice Briefing

“When I go out, I can’t hardly catch my breath. Everything is worse since Drax came here.” - Helen Reed, Gloster 2025

Drax Power Station in Yorkshire is the UK’s single largest carbon emitter. In 2025 alone Drax emitted over 14 million tonnes of CO2 - and burned 7.5 million tonnes of wood, much of it from the clear-felling of biodiverse forests in the Southern USA, Canada and Europe, with catastrophic impacts on forests, wildlife, communities and the climate. Drax sources less than 1% of its wood pellets from the UK.

Wood Pellet Production

Wood pellets are small, uniform, and cylindrical, with a denser configuration of wood fibers, which can be burned to release energy. They are made by turning trees and tree products into wood chips and sawdust. These chips then go through a drying process that requires intense heat, usually from a combustion reaction, which releases NO2, volatile organic compounds (VOCs) and other hazardous air pollutants (HAPs) into the air. After drying, rotating hammermills create a fine fiber, which is then pressed into a compressed wood pellet. Wood pellet manufacturing plants release harmful air pollution, like nitrogen oxides and fine particulate matter (PM2.5).

“We’re being poisoned slowly, right before our eyes,” Carmella Wren-Causey said through tears. “God gave me breath when he gave me life. Drax took it away.”

Photograph: Kathleen Flynn/The Guardian

Air Pollution

Pellet mills emit harmful PM2.5, nitrogen oxides, volatile organic compounds (VOCs) and other hazardous and toxic pollutants linked to cancer, respiratory and pulmonary issues. Surveys of community members living locally to pellet production sites find that the **majority** of people living close to pellet mills experience dust every day and that air pollution and dust concerns prevent them from regularly doing things outdoors. In four out of five communities surveyed, **86% of households** reported **at least one family member** diagnosed with one or more diseases associated with wood pellet mill pollution.

"It takes my voice and it's hard for me to breathe." - Gloster resident, 2025

Burning wood in UK power stations also releases harmful fine particulates, which according to the World Health Organisation, there is **no safe level** of these particulates for human health. Drax was found to be one of the top 5 emitters in Europe of PM10 air pollution from power stations, with PM10 being linked to heart and lung diseases. Due to the health concerns associated with woody biomass combustion the American Lung Association formally opposes this industry.

It's cutting my life short. Please do not let them cut my life any shorter. Shut them down." - Carmella Wren-Causey, Gloster

Community leader Krystal Martin shows a photo of the Gloster facility. Photograph: Kathleen Flynn/The Guardian

Environmental Injustice

Wood pellet production is twice as likely to be located in 'environmental justice' communities, predominantly rural, Black, low-income and politically marginalised communities already disproportionately harmed by polluting industries.

In its 2023 Resolutions the National Association for the Advancement of Colored People, (NAACP) called upon environmental organisations to immediately cease their support of the forest biomass industry on policy proposals and instead to recognise and acknowledge the "environmental racism", adverse climate change impacts, and forest degradation caused by the industry.

In Mississippi, the hazardous air pollutants released by Drax into the air above Gloster include methanol, acrolein, and tons of formaldehyde - a chemical that's carcinogenic, mutagenic and neurodegenerative. One Gloster resident was diagnosed with cancer, while her granddaughter was diagnosed with precocious puberty after starting her menstrual cycle at just eight years old; a condition that may be linked to chemical exposure after doctors '*found a bunch of hazardous air pollutants in her*'.

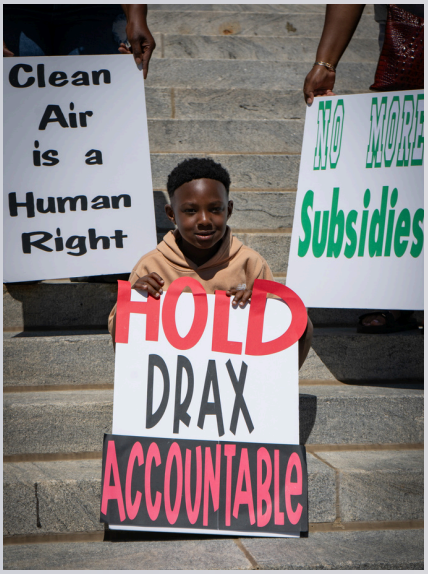
"Noise disrupts your sleep, disrupts your mood, and sets off a stress response that's like your 'fight or flight' response, which makes your body ready to fight a threat or run from it," Walker said. "The constant stimulation of that response can cause all kinds of health problems."

A 2024 study on noise pollution in Gloster, Mississippi, found noise levels from the pellet plant approach those of big cities, while residents of Urania report the Drax owned mill seeming loudest at night and in the early morning. Research on the impacts of noise pollution have linked chronic exposure to high blood pressure, heart attacks, anxiety and depression.

A 2023 study found that wood pellet mills emit 2.8 times more pollution than coal and oil-burning power plants on average. The mills emit 55 toxic pollutants ranging from nitrogen oxide to volatile organic compounds that disproportionately impact environmental justice communities.

Researchers report that 55 hazardous pollutants collectively exceeded by two times the allowable pollution permitted by state air-quality agencies. Higher concentrations of this pollution adversely impact social justice communities, or mainly poor, minority communities where the pellet plants are located.

Forest degradation also destroys natural barriers that mitigate the most severe consequences of weather events; with forest loss leaving communities more vulnerable.



Pictured: A young child from Gloster, Mississippi, holding a sign outside a Capitol Day protest demanding clean air and that Drax is held accountable for its air pollution. Photo credit: Sophia Knight

Drax harms workers health

"It was scary. I was literally gasping for air."

It's not just communities abroad impacted by Drax's pollution. An investigation by Land & Climate Review found Drax has faced lawsuits from 10 workers in the UK over industrial air pollution, with four ongoing. Claimants' roles varied, including managers who spent time in offices as well as on the site floor.

Workers at Drax Power Station were unaware that sustained exposure to wood dust can cause serious health problems, including asthma, dermatitis and nasal cancer. Workers have been diagnosed with industrial asthma linked to biomass, hospitalised multiple times and some remain housebound with disabling conditions.

"It's a mucky, dangerous job, and they're exposing us to carcinogens and not protecting us."

"You cannot comprehend how much stress this has caused us! How many times does a person have to be ill before a company does what is fundamentally right?"

Unions report concerns that the full scale of health problems amongst staff may be going unnoticed, as fear of losing work discourages workers from speaking out. Experts involved in these cases state that there can be long delays before symptoms develop, and that *'we may not yet know the full extent of those affected by past exposure to harmful, biofuel-linked substances such as wood dust.'*

Internal company documents show Drax has long been aware of the health risks from wood dust, although internal health and safety material is conflicting and in 2019 stated in a presentation 'Biomass pellets are not harmful to health.' At the time of this presentation medical specialists had diagnosed five Drax workers with industrial asthma linked to biomass exposure.

Workers report that despite numerous interventions by HSE and some changes, such as more staff wearing FFP3 masks, it's not enough and staff are still exposed to dangerous wood dust throughout the site. Even after eventually leaving, former workers report improvements of their symptoms but all relying on medications for ongoing health conditions.

Legal Violations

Drax has violated environmental regulations over 18,000 times since 2014 at its pellet production facilities in the USA, and pellet mills Drax now owns in Canada have breached environmental laws 189 times since Drax began sourcing from them in 2012.

In Gloster Mississippi, Drax has received multiple fines for violating environmental regulations:

- **2019: fined $110,000** for improper operation, recordkeeping failures, and monitoring deficiency
- **2020: fined $2.5 million and $80,000** a month until new controls were installed for excess emissions (VOC emissions exceeding the legal limit since 2016)
- **2024: fined $225,000** for exceeding permit limits for total and individual HAPs (methanol) and failures to conduct required emissions test, to maintain proper records and maintain pollution controls.

Pictured: The Gloster, Mississippi, trailer park community Blackmon Hole sits just metres away from Drax's Amite Bioenergy pellet plant. Photo: The People's Justice Council

In Bastrop, LA, Drax has received multiple fines for violating environmental regulation including:

- **2020: $20,000** fine for exceeding emission limits for SO2, VOCs, and HAPs (methanol, formaldehyde and acetaldehyde) and failure to meet opacity monitoring requirements, several unpermitted emission sources, unregistered access to radioactive material
- **2022: $1.6 million** fine for exceeding emission limits for VOCs and HAPs (methanol, formaldehyde and acetaldehyde) on multiple occasions, alongside exceeding annual hours of operation of Fire Pump Engine, failure to use/maintain control devices in proper working order, exceeding annual pellet production rate
- **2025:** consolidated compliance order for exceeding legal emission limits for PM, CO, unauthorised emissions from bypassing pollution controls alongside failure to conduct opacity monitoring, operating outside parameters for pollution controls, operating unpermitted emission source, failure to conduct required stack tests, excess fugitive dust

In Urania, LA, Drax has received fines and violated environmental regulation multiple times, including:

- **2016:** Failure to submit required emissions inventory for 2014 and 2015
- **2022: $1.6 million fine** for exceeding legal emission limits for VOC and various HAPs (formaldehyde, methanol, acetaldehyde) on multiple occasions alongside exceeding annual hours of operation of Fire Pump Engine; failure to use/maintain control devices in proper working order; exceeding annual pellet production rate
- **2024:** consolidated compliance order for 381 instances of bypassing control technology, resulting in unauthorised releases of VOC and CO alongside hundreds of instances of deviations from required equipment parameters, including for air pollution controls and failure to conduct monitoring on several occasions

Sawdust piles up at Drax's wood pellet mill near Urania, Louisiana. (Photo by Eric J. Shelton/Mississippi Today)

What do these pollutants do?

Pollutant	Impact
Volatile Organic Compounds (VOCs)	• Eye, nose and throat irritation • Headaches, loss of coordination and nausea • Damage to liver, kidney and central nervous system • Some organics can cause cancer in animals, some are suspected or known to cause cancer in humans. Key symptoms associated with exposure to VOCs include: • conjunctival irritation • nose and throat discomfort • headache • allergic skin reaction • dyspnea • declines in serum cholinesterase levels • nausea • emesis • epistaxis • fatigue • dizziness
PM 2.5	Short-term exposures (up to 24-hours duration) have been associated with premature mortality, increased hospital admissions for heart or lung causes, acute and chronic bronchitis, asthma attacks, emergency room visits, respiratory symptoms, and restricted activity days. These adverse health effects have been reported primarily in infants, children, and older adults with preexisting heart or lung diseases. In addition, of all of the common air pollutants, PM2.5 is associated with the greatest proportion of adverse health effects related to air pollution. Long-term (months to years) exposure to PM2.5 has been linked to premature death, particularly in people who have chronic heart or lung diseases, and reduced lung function growth in children. Some of the particulate matter found indoors originates from the outdoors, especially PM2.5. These particles enter indoor spaces through doors, windows, and “leakiness” in building structures.
PM10	Short-term exposures to PM10 have been associated primarily with worsening of respiratory diseases, including asthma and chronic obstructive pulmonary disease (COPD), leading to hospitalization and emergency department visits. Several studies suggest a link between long-term PM10 exposure and respiratory mortality.
Hazardous Air Pollutants (HAPs)	Hazardous air pollutants (HAPs), also known as toxic air pollutants or air toxics, are air pollutants that are known or suspected to cause cancer or other serious health impacts. They are associated with elevated cancer levels and other adverse health effects, such as reproductive effects or birth defects.
Nitrogen Oxides (NOx)	NOx causes significant damage to the respiratory system over time. Common symptoms include coughing and throat and chest irritation commonly develop and asthma is aggravated because their bronchial passages become inflamed and hyperactive. People begin to find it hard to breathe due to permanent damage to their lungs caused by chronically inflamed tissue. A 2022 review of multiple studies found that elevated levels of NO2, as well as elevated particulate matter and sulfur dioxide, were strongly associated with heart and lung harm, affected pregnancy and birth outcomes, and were likely associated with increased risk of kidney and neurological harm, autoimmune disorders and cancer

What do these pollutants do?

Pollutant	Impact
Formaldehyde	Formaldehyde is classified as a known human carcinogenic by the International Agency for Research on Cancer, US National Toxicology Program and the US Environmental Protection Agency who classified formaldehyde as "carcinogenic to humans by the inhalation route of exposure." The EPA states that evidence demonstrates an increased risk of nasopharyngeal cancer, nasal sinus cancer, and myeloid leukemia, and evidence suggests an increased risk for some other types of cancer. Exposure to Formaldehyde can also cause: watery eyes; burning sensations of the eyes, nose and throat; coughing; wheezing; nausea; and skin irritation.
Methanol	Inhalation of methanol can cause a wide range of adverse health effects. This includes: • Neurological: headache, dizziness, agitation, acute mania, amnesia, decreased level of consciousness including coma, and seizure. • Gastrointestinal: Nausea, vomiting, lack of an appetite (anorexia), severe abdominal pain, gastrointestinal bleeding (hemorrhage), diarrhea, liver function abnormalities, and inflammation of the pancreas (pancreatitis). • Ophthalmologic: visual disturbances, blurred vision, sensitivity to light (photophobia), visual hallucinations (misty vision, skin over the eyes, snowstorm, dancing spots, flashes), partial to total loss of vision, and rarely eye pain. Visual examination may reveal abnormal findings. Fixed dilated pupils are a sign of severe exposure to methanol. • Other: Electrolyte imbalances. Kidney failure, blood in the urine (hematuria), and muscle death at the cellular level (rhabdomyolysis) have been reported in severe poisonings. Fatal cases often present with fast heart rate (tachycardia) or slow heart rate (bradycardia) and an increased rate of respiration. Low blood pressure (hypotension) and respiratory arrest occur when death is imminent.
Acetaldehyde	Acute (short-term) exposure to acetaldehyde results in effects including irritation of the eyes, skin, and respiratory tract. Symptoms of chronic (long-term) intoxication of acetaldehyde resemble those of alcoholism. Acetaldehyde is considered a probable human carcinogen (Group B2) based on inadequate human cancer studies and animal studies that have shown nasal tumors in rats and laryngeal tumors in hamsters. Acetaldehyde has been shown, in animals, to cross the placenta to the fetus.
Sulfur Dioxide (SO2)	Short term exposure can cause harm to the respiratory system and make breathing difficult, particularly for people with asthma and children. High concentrations of SO2 in the air generally also lead to the formation of other sulfur oxides which can react with other compounds in the atmosphere to form small particles which contribute to PM pollution. Small particles may penetrate deeply into the lungs and in sufficient quantity can contribute to health problems.
Carbon Monoxide (CO)	Breathing low levels of CO can cause: headaches, nausea, dizziness, weakness, confusion and disorientation. Breathing high levels of CO can also cause sleepiness, nausea, anxiety or depression, vomiting, confusion, impaired vision, impaired coordination and disorientation. Breathing CO at low levels regularly may cause permanent mental or physical problems

What do these pollutants do?

Mabel Williams is a Gloster resident. She said:
"I've started coughing inside and outside. The plant might be helping people make a living, but we want a clean environment so we can breathe. That's what we need. I had a friend that stayed with me, and she died because of this environment that was around here. It was cancer. We need the plant to clean up its act. I think I would feel better if they did. At night, something heavy comes out of that plant. I have to sleep with my ventilator to try to stay alive."

Pollutant	Impact
Acrolein	Acrolein's high reactivity is the basis for its health risks. It readily modifies proteins and DNA, leading to a range of cellular dysfunctions and pathological conditions. The severity of the effect depends on the dose, duration, and route of exposure. • Respiratory Irritation: Inhalation of acrolein, even at low levels, causes immediate irritation of the eyes, nose, and throat. Higher concentrations or repeated exposure can lead to coughing, shortness of breath, and more severe lung damage, including pulmonary edema. • Chronic Lung Diseases: Chronic inhalation of acrolein is a major risk factor for chronic obstructive pulmonary disease (COPD). It promotes inflammation and damages the respiratory epithelium, contributing to the progressive destruction of lung tissue. • Cardiovascular Disease: Studies have linked acrolein to an increased risk of cardiovascular diseases. It can induce oxidative stress and endothelial dysfunction, and it modifies lipoproteins, which can accelerate atherosclerosis. • Cancer Risk: The International Agency for Research on Cancer (IARC) classifies acrolein as 'probably carcinogenic to humans' (Group 2A). This classification is based on sufficient evidence of carcinogenicity in experimental animals and strong mechanistic evidence. • Neurodegenerative Disorders: Acrolein-induced oxidative damage and protein modification have been implicated in neurodegenerative diseases like Alzheimer's and spinal cord injury. Its toxic effects on neurons and other brain cells disrupt cellular function and promote damage. • Gastrointestinal Effects: Ingesting acrolein can cause irritation and inflammation of the stomach lining. While less common, this route of exposure is still a concern, especially from some foods.

Drax has caused me great health issues. It's caused me to not be able to do what I used to do in life. This is my life. This wasn't me before Drax came. I'm cooped up in the house on oxygen. This wasn't me before Drax came. Put yourself in my shoes. Drax walk a mile in my shoes. - Mr. Curtis Harris.

Curtis Harris, a Gloster resident who was forced to spend the last years of his life having to sit near an electrical outlet to plug in his oxygen machine. Mr. Curtis Harris sadly passed away in May 2026.