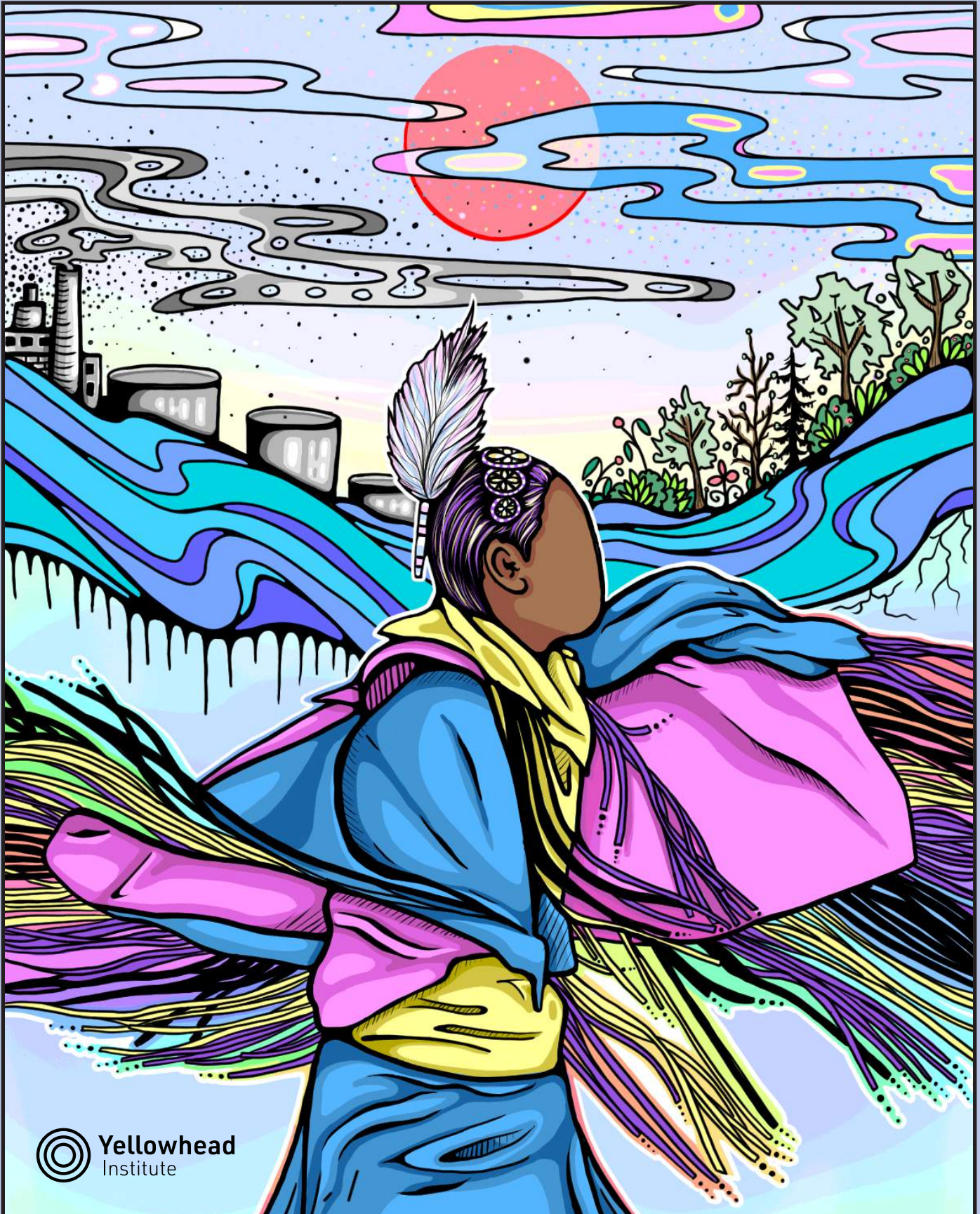


DATA COLONIALISM IN CANADA'S CHEMICAL VALLEY

Aamjiwnaang First Nation and the Failure of the Pollution Notification System



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ABSTRACT

This report explains and evaluates how petrochemical companies in Ontario's Chemical Valley inform Aamjiwnaang First Nation about pollution events, such as spills, flares, and air releases, in bad faith. It considers how the information provided about environmental violence is another form of settler colonialism and uses this information to document the cumulative and ongoing practice of polluting Indigenous lands.

Chemical Valley occupies traditional Anishinaabek land, where the Aamjiwnaang First Nation resides. Yet the provincial and federal governments allow companies, many of which are multinationals, such as Shell or ExxonMobil, to form their own industry associations that decide and oversee the information provided to the community and the public. One form of this information is the "notifications" of spills, releases, accidents, and flares that happen regularly in Chemical Valley.

Since 2004, community members from Aamjiwnaang First Nation have collected data on the notifications they received from industry associations. We present their data visualizations to reveal how companies purposefully provide information about pollution events in ways that hide and obscure their harmful activities and the well-known and long-lasting effects of pollutants. Our examination reveals further how the bad faith practices of pollution data evident in Chemical Valley are part of a long history of industrial colonialism.

While Aamjiwnaang First Nation is most directly affected by how companies and states enact a colonial entitlement to pollute in Chemical Valley, pollution data misinformation is a global project headed by some of the biggest multinational oil companies in the world (e.g., ExxonMobil, Shell, Saudi Aramco), all of which created Chemical Valley. While data will not end pollution, fossil fuel capitalism, or colonialism, environmental evidence, and community expertise can be used to imagine other futures for collecting, managing, and governing pollution data.

This report is a collaboration between Yellowhead Institute and the [Technoscience Research Unit \(TRU\)](#) at the University of Toronto.

The Technoscience Research Unit acknowledges Social Sciences and Humanities Research Council (SSHRC) for its funding support.



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We acknowledge the land and water.

Aamjiwnaang is the connection and meeting place for our people. We are part of the Great Lakes System, and our current homelands span the entire southern tip of Ontario, but all of our homelands exceed the US-Canada border, surpassing the colonial border that cuts through our waters. The land was here before Canada's Chemical Valley and is still sacred. We are taught that when we receive the gift of clean water, we hold a collective responsibility to protect it.

Our community's survival, resilience, and strength inspire our strive for health and environmental justice.

We acknowledge the unspoken beings of Aamjiwnaang, the animals, the river critters, and the birds.

It is to all these relations that we show gratitude through this report.

We also acknowledge the guidance of Elders, Ada Lockridge, the members of Aamjiwnaang First Nation Environmental Committee and Youth Committee, and all who came before us.

— Vanessa and Beze Gray,
Aamjiwnaang First Nation



Introduction

“Generations of community members have and continue to live alongside the operations of Chemical Valley and have expert knowledge and countless stories of the impacts of pollution exposure from unknown levels of unknown chemicals.”

THE LANDS of Aamjiwnaang First Nation are known for the blue water of the St. Clair River, the forest sustaining species at risk of surviving, surrounded by historic industrial colonialism (Environment – Community Outreach & Education – Aamjiwnaang, 2021). Ontario’s Chemical Valley, the largest concentration of petrochemical refining¹ in Canada, completely surrounds Aamjiwnaang First Nation.

When you stand anywhere in Chemical Valley, the intensity of pollution and industrial activities is immediately evident. You can see the plumes of smoke in the sky, the bright flares on top of stacks, the pipelines crisscrossing the land, the railways cutting across roads, and the hundreds of rusty unlabelled tanks. Sometimes, you can smell something in the air, feel a sensation on the skin, experience disrupted breathing, or have a mysterious headache interrupt your day. Community members of Aamjiwnaang have long felt the outcome of colonial violence on the land and the intergenerational exposure from industries throughout the years.

Long-time community and environmental advocate Ron Plain was outspoken about the colonial connection between excessive chemical exposures and cancer in Aamjiwnaang (Mackenzie, 2017). There is no doubt that the amount of pollution in Chemical Valley is not just harmful in the present but will persist long after the industry is gone.

Anishinaabek culture and traditions are directly connected to the health of the land. Community

members of Aamjiwnaang First Nation are sacred knowledge keepers of survival and resilience. Generations of community members have and continue to live alongside the operations of Chemical Valley and have expert knowledge and countless stories of the impacts of pollution exposure from unknown levels of unknown chemicals.

While traditional medicines are still used in Aamjiwnaang First Nation for ceremonies, community members know the creek should not be touched, there are fewer wild strawberries, and the fish are not safe to eat.

This report began with the work of Aamjiwnaang First Nation community members Vanessa and Beze Gray, both of whom are also members of the Indigenous Environmental Data Justice Lab at the Technoscience Research Unit. This report is written in collaboration with other lab members and with community consultations. It examines the information (or lack thereof) that Aamjiwnaang First Nation is provided about pollution events in Chemical Valley, the site of Canada’s highest concentration of petrochemical refining, which reveals that the public pollution reports and notifications provided by companies and the Canadian state intentionally withhold important information from Aamjiwnaang First Nation.

More broadly, it demonstrates how the politics of colonial environmental disinformation related to fossil fuel pollution affects many Indigenous communities in Canada.² The purposeful lack of information helps petrochemical companies continue to violate land and life by contributing to climate change and enacting ongoing colonialism through pollution that affects the health of communities as well as the planet.

¹This report uses the term “petrochemical” to refer to petroleum (oil) refining, fossil fuels, and their associated chemical plants.

²In this report, references to Canada include all Crown agencies, such as the province of Ontario, which has delegated authorities to regulate environmental matters.

"When you stand anywhere in Chemical Valley, the intensity of pollution and industrial activities is immediately evident. You can see the plumes of smoke in the sky, the bright flares on top of stacks, the pipelines crisscrossing the land, the railways cutting across roads, and the hundreds of rusty unlabeled tanks. Sometimes, you can smell something in the air, feel a sensation on the skin, experience disrupted breathing, or have a mysterious headache interrupt your day.."



Background & Context

“This report is based on the intergenerational work of community members from Aamjiwnaang First Nation who have been documenting the pollution events using notifications and their own experience in their community and the lack of data about those events for many years.”

Canada and Permission-to-Pollute Colonialism

LOCATED IN Anishinaabek territory and home to Aamjiwnaang First Nation, Ontario’s Chemical Valley is where some 40 percent of Canada’s petrochemicals are processed and refined. Chemical Valley is one of many instances of permission-to-pollute colonialism, which Aamjiwnaang First Nation are experts in understanding and confronting. Community members of Aamjiwnaang have been defending and taking care of their inherent land surrounded by petrochemical activity for over 150 years.³

Chemical Valley exists because of settler colonialism, which imposed policies and laws over Indigenous peoples and their lands. The idea that land, water, plants, and animals should be owned and treated like resources is at the core of colonialism’s political and legal domination. From timber to mining to oil, Canada continues to violate the rights of Indigenous peoples and their lands using a permission-to-take and a permission-to-pollute governance system.

Canada gives companies permission to forcibly extract from and pollute lands. This permission is often granted without proper consultation and is governed by Canada through an outdated, flawed, and fatal

understanding of pollution’s harmful, intergenerational, and cumulative effects. Canada’s permission-to-pollute policies are reflected in unregulated abuse of land and life but also insidiously in the lack of information that companies provide to Indigenous communities about the true extent of their polluting activities.

In Chemical Valley, information about pollution events, such as spills, flares, air releases, and even everyday cumulative exposures, is sparse. The lack of information is not accidental; it is by design. Community members are consistently left in the dark about the extent and nature of such events and forced to rely on their own senses, knowledge, and efforts for information.

Federal and provincial governments have few regulations on how companies report their pollution activities to the public. Instead, the government allows companies, many of which are multinational—those

In Canadian and U.S. environmental law, it is legal for some pollution to occur *even for the most harmful pollutants*. For example, according to environmental health, there is no “safe” amount of benzene to be exposed to, yet companies are still allowed to release benzene.

Further, the benzene exposure limit is still 0.5 ppm in Alberta and Ontario, 1 ppm in Quebec and 10 ppm in Yukon. As this report details, Canada’s current toxics governance also relies on industries to self-report their emissions and regulate themselves. This puts all of our communities at risk.

³EcoJustice. 2007. “Exposing Canada’s Chemical Valley: An Investigation of Cumulative Air Pollution Emissions in the Sarnia, Ontario Area.” Toronto, ON: Ecojustice.

Pollution is Colonialism because:

1. Land is at the center of colonialism; 2. Pollutants are material forms of harm; and 3. The state gives permission-to-pollute.

(EDAction 2017; Liboiron 2021).

with operations in two or more countries—such as Shell or ExxonMobil, to form their own industry associations that decide and oversee the information provided to the community and the public. One form of this information is “notifications” of spills, releases, accidents, and flares that happen regularly in Chemical Valley. These “notifications” typically have little information—usually one sentence with minimal detail—and are in formats that are hard to find and rarely preserved.

The findings in this report are based on the intergenerational work of Aamjiwnaang First Nation community members who have been documenting the pollution events in their territory and the lack of data about those events for many years. Their methods use industry notifications supplemented by their own experiences. From 2004–2023, community members collected and documented notifications about spills, releases, accidents, and other events. In that same period, community member Ada Lockridge carefully recorded pollution events and available information provided by Aamjiwnaang community members on handwritten calendars. From 2013 onwards, land defenders and community researchers Vanessa and Beze Gray collected the industry-created notifications provided to their community and collaborated with the Indigenous Environmental Data Justice Lab at the University of Toronto to analyze the data, create an interactive map, and write this report.

This report uses these two sets of information to:

- document how pollution data is made available in bad faith
- demonstrate how we can, nonetheless, use this information to expose colonial environmental violence

The ongoing practices of disinformation in Ontario's Chemical Valley are but one example of how data is part of Canada's ongoing colonial practices. Every Indigenous community dealing with extraction and the petrochemical industry has its own story of disinformation created by Canada's overarching permission-to-pollute system.

Here, we highlight how the notifications in Chemical Valley work in two ways:

First, industries themselves create and circulate notifications about pollution events. Companies purposefully provide data in ways that hide and obscure their harmful activities, telling the community very little about what is actually happening. In this way, the notifications tell us about the bad faith practices and deceptive nature of pollution data.

Second, community members collect and document these pollution events and their notifications, refusing to let them disappear. They have also used the notifications to create a useful dataset that holds polluting perpetrators responsible for their actions by finding patterns about companies, seasons, and kinds of events reported. Despite their flaws, this report uses these notifications to demonstrate how this confusing colonial infrastructure of disinformation and self-policing works and to better understand companies' polluting activities.

What is Chemical Valley?

How did one well, drilled in 1858, turn into what is now known as Canada's Chemical Valley?

IN 1842, more than two decades before the Confederation of Canada, colonial geological surveyors learned that the Anishinaabek in the southern Great Lakes region, where the water is noticeably blue, had been utilizing surface oil's “gum beds” for millennia. Soon, land speculators arrived. The first commercial oil well was drilled in Anishinaabek territory in 1858, and the first large-scale oil spill was recorded in 1862. It spilled crude oil into the land and creeks nearest to the well for a staggering ten months. Over 400 wells were



A VIEW OF THE DAYCARE AND PLAYGROUND AT AAMJIWNAANG FIRST NATION

PHOTO BY YUMI NUMATA

drilled into the nearby lands two years after the spill.

Many processes, policies, and laws opened up Anishinaabe land to petrochemical capitalism. In order to clear their region for petrochemical refining, treaties were ceded, land was stolen, and a reserve system was established. One such example is the Huron Tract Treaty, No. 29, which initially proposed ceding 712,000 acres, but actually took 1,470,049 acres. Parts of these ceded and stolen lands became the first oil field, then named Oil Springs. Moreover, Chemical Valley was made possible by the genocidal and assimilative policies that worked to take land and children from Indigenous communities, including Aamjiwnaang First Nation, undermining Indigenous sovereignty and life—the effects of which are still felt today.

⁴Environmental Data Justice Lab.. "The Refinery and the World's Biggest Oil Company." The Land and the Refinery (blog). 2019. <https://www.landandrefinery.org/imperial-oil-refinery/the-refinery-and-the-worlds-biggest-oil-company>

Today, Aamjiwnaang is surrounded by Chemical Valley on three sides by industrial fence lines, above by smoke plumes, and below by waste caverns and pipelines, some of which are over 100 years old.

Chemical Valley remains Canada's largest and oldest cluster of petrochemical industries.⁴ It comprises 50-plus petrochemical companies, including some of the world's most powerful multinationals, and their numerous refineries, storage facilities, pipelines, railroads, shipping chains, and flare stacks. These companies operate 24/7, just feet away from the homes of Aamjiwnaang First Nation.

Chemical Valley's proximity to the homes, daycare, band office, and community spaces of Aamjiwnaang First Nation is visibly striking. Even more concerning than what can be seen of Chemical Valley is what stays hidden: a rusty, aging, and under-regulated maze of infrastructure allowed to pollute the area's air, soil, and waters.

What is Indigenous Environmental Data Justice?

THE CONCENTRATION of companies in Chemical Valley working with oil and chemicals results in the steady and consistent occurrence of spills, flares, chemical releases, train derailments, and other pollution-generating events. These are in addition to the ordinary emissions levels companies expel in their operations. The Canadian government allows for pollution to occur here through regulatory practices that favour companies over Aamjiwnaang First Nation and allow for pollution to occur, even for pollutants for which there are no “safe” levels. A recent report for the Aamjiwnaang Environmental Committee comparing air emissions of large facilities in Chemical Valley with air emissions from similar facilities in Indiana and California found emissions in Chemical Valley to be up to 100 times higher for highly toxic releases such as sulphur dioxide and benzene (Foley Environmental and C&S Grant Environmental Inc., 2022).

In Aamjiwnaang First Nation, where the enormity of pollution is evident to one’s senses and does not need data to prove its existence, the cumulative effects are not even regulated.

Yet the data provided by companies and the government about what is happening is not only inadequate; it hides what is evident to the senses of anyone living in Aamjiwnaang First Nation. This report uses Indigenous Environmental Data Justice methods to understand the politics of data in Canada’s permission-to-pollute colonialism. Indigenous Environmental Data Justice affirms the need for Indigenous sovereignty over the data created and collected on, about, or by Indigenous peoples’ own land and lives. Following this principle, this report critically analyzes how environmental data can be a tool of colonialism while simultaneously building from Indigenous community values to imagine other futures for environmental data and governance.

There are three main colonial sources of data about pollution in Chemical Valley:

1. **Industry-Governed Notification System**
2. **Air Monitors**
3. **National Pollution Release Inventory (NPRI)**

Each source is limited in what they reveal to community members. Moreover, each source is largely controlled by the companies making the pollution themselves. Therefore, community members and allies have had to create other sources of data and knowledge about Aamjiwnaang. Their data guides how this report understands environmental data and pollution.

Industry-Governed Notification System

First, and the source of data this report focuses on, are the notifications companies provide about spills, releases, and accidents through their industry-governed notification system. These notifications are often brief, with little to no information, and tend to be vague. The notifications are not preserved, and their form has changed over time: sometimes they have been in the form of a phone line you can call, other times through an email or text system you can sign up to. More recently (since 2022), they are kept online. What is helpful about these notifications is that they give a sense of individual pollution events that are serious enough that companies feel compelled to report them, even if the notifications purposely hide the details of what is happening.

Air Monitors

A second source of information is a small number of real-time air monitors, where the results have been posted online since February 2018. Air monitors are useful because they can give information about current high levels of harmful pollutants measured at those locations. However, in Chemical Valley, these real-time air monitors, which are maintained by recently merged industry association, the Bluewater Association for Safety, Environment, and Sustainability (BASES), only measure a handful of the thousands of pollutants.

The real-time data about pollution levels only gives a snapshot of a moment and does not capture maximum pollution levels nor the cumulative impacts of multiple sources and chemicals.

In addition to the BASES air monitoring system, six companies were forced to install air monitors on their fence lines because they have high emissions of two harmful chemicals—Benzene or 1,3-butadien—beyond provincial standards.⁵ These monitors are not in real-time but take samples over a two-week period. We can assume that the pollution registered by these fenceline monitors comes from specific companies (such as Imperial Oil, INEOS Styrolutions, and Shell) because of their immediate proximity to their facilities. Yet, because fenceline monitors are based on two-week samples, they cannot tell you the day and time a specific exposure happened. In contrast, the general BASES real-time air monitors located around Chemical Valley, including in Aamjiwnaang First Nation, may detect pollution as it is happening⁶ but cannot determine which company is doing the pollution.⁷ This makes it impossible to hold polluters accountable using this kind of air monitoring data.

Air monitors can tell you something is happening right now, but not who is responsible or how pollution adds up.

⁵ Clear Air Sarnia and Area (CASA). 2022. "Property Line Monitoring." Clean Air Sarnia and Area Real-Time Air Quality Monitoring Site.

⁶ Real-time air monitors can often miss things that are happening. For example, monitors will only detect pollution measurements if they align with the wind direction of where they are coming from. Monitors can only ever act as indicators at that location but cannot be relied on to detect maximum concentrations.

⁷ In a December 2022 report completed for Aamjiwnaang First Nation comparing air pollution regulations and monitored air emissions from the Ada Lockridge-Rogers Monitor (located near the Aamjiwnaang First Nation Band Office) with similar facilities and communities in the U.S., researchers found the Ontario and Canadian governments to be negligent when it comes to regulating air pollution (Foley Environmental, and C&S Grant Environmental Inc. 2022. "Air Quality Data Comparison Report for Aamjiwnaang First Nation)."

National Pollution Release Inventory (NPRI)

The third source of information is the federal National Pollution Release Inventory (NPRI). This source is useful because each company is required by federal law to publicly report the annual amount of pollutants they release each year. However, it is vital to remember that no regulatory oversight of the values reported exists. In other words, whatever figures are submitted by industry to Environment and Climate Change Canada are accepted and included. It is one of the only sources directly linking pollution types to specific companies. However, there are many problems. For example, while the NPRI asks companies to report on their annual total release of some 322 pollutants (as of 2023), this represents only a small amount of the many pollutants they actually emit. Even more problematically, the pollution data that companies submit to the NPRI is rarely based on any physical measure of pollution at a company facility. Instead, these emission numbers are often based on mathematical estimates using a calculation method designed by the industry associations themselves.

In sum, this data is deeply flawed and inaccurate, even if companies admit to polluting with particular substances.

Through community consultations and the work of the Indigenous Environmental Data Justice Lab at the University of Toronto, co-led by Aamjiwnaang community researchers, we critically use and analyze these notifications to reveal pollution patterns and accountabilities. This lack of data and understanding of the community's health and environment supports Canada's toxic permission of unrestrained power for petrochemical companies, even as these companies' profound planet-altering climate impacts are well known.

20 Nothing on CAER hot line
 AFN CUECO rail car leaks - cyclohexane near via Rail at 125 Green St. It's frozen, contained & isolated 10:57am
 Jeff saw and reported around 8am stuff leaking out and freezing.
 21 MOECC's Shell pre-trial conference 2013 incident 10:30-11:30
 not open AFN 1131 Sunco doing drill AFN 1134 Air Products testing spheres deluge system
 22 AFN 1143 Pembina pipeline testing emergency siren through out the day
 AFN 334 all clear at testing.
 First Day of Autumn
 Yom Kippur
 23 CUECO into Sunco on site fire-train
 CUECO info Nova Maintenance on radio

27 AFN Alert 10:09am
 Stylolutions
 28 AFN Sunco conducting fire training 10:2-4:5
 Full Moon
 29 CUECO & MOECC Plans Midstream for a brine and odour
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"...if you write it all down, you remember it, but you have to write it down right away. And that's what I did. I wrote down every phone call, what time they called and everything. What their concerns were—I'm glad people trust me in that. But I'm not the one that they're supposed to be calling. You know? I'll do it, but they shouldn't have to be calling all over to find out anything."
 — ADA LOCKRIDGE, COMMUNITY MEMBER

From 2004–2023, Ada Lockridge carefully recorded pollution events and available information provided by Aamjiwnaang community members on calendars.

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 FULL MOON: 4
 LAST QUARTER: 11
 NEW MOON: 18
 FIRST QUARTER: 26
 NOVEMBER
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Industry & Data

"Understanding notifications tells us about the purposeful lack of information companies provide to Aamjiwnaang First Nation. It also reveals the general politics of environmental disinformation related to petrochemical pollution in Canada more broadly."

How do Notifications Work in Chemical Valley?

UNDERSTANDING NOTIFICATIONS tells us about the purposeful lack of information companies provide to Aamjiwnaang First Nation. It also reveals the general politics of environmental disinformation related to petrochemical pollution in Canada more broadly. Public announcements or notifications sent to community members are communicated by the company's liaison or from the Chemical Valley Emergency Coordinating Organization, also known as CVECO. Community members can register for emergency alerts through My Community Awareness and Emergency Response Notification Network online (CAER). Aamjiwnaang First Nation Emergency Planning also shares alerts with the community sent to the Emergency Management Planner through the community's Facebook page.

A Typical Notification

ON AN ORDINARY Thursday, February 11th, 2021, community members in Chemical Valley received this notice:

"A CAER Information Code 8 has been issued by Imperial. There was an equipment malfunction during the startup of a process unit. Downwind air monitoring so far has not detected elevated readings."

What is happening? What does Code 8 mean? What equipment malfunctioned? What particular process is involved, and what happens when it starts up? What kind of chemicals are expected and/or being monitored? What kind of measurements are being taken, and with what instruments? What threshold counts as an elevated reading? What is the impact on the community?

Why does this notification have so little information? Who made it, and who is responsible for its confusing form and content?

Between 2004 and 2023, the frequency of notifications has varied, sometimes occurring daily. Given the constant churning of Chemical Valley facilities, any lack of notifications is not due to a lack of events but to companies' inconsistent commitment or requirement to report over time. Even when a notification is made, the language used is minimal and serves more to obscure than reveal.

For example, companies often report "noise" or "increased noise." Yet what is missing from the notification is what caused the noise, how long it will last, and which processes, chemicals, risks, and releases are involved with or related to it. Without specificity, Aamjiwnaang residents are left wondering what the generic notification of "noise" might mean.

Another frequent notification is “flaring,” “increased flaring,” or “elevated flaring.” The term “elevated flaring” does not provide specific information about the kind of gas being combusted or the specific pollutants it generates. The term “elevated flaring” does not provide details about the duration or size of the flare. We do not know the threshold for how intense a flare must be before it is reported to the public. Notices about flaring also do not describe *why* the elevated flaring occurs: Did the plant decide to increase a flare for safety purposes? Was there a problem? Is the problem recurring? If so, what was it? Was a decision involved in saving wear on the plant by flaring, and therefore putting cost-saving ahead of pollution risks to the community?

Sometimes, company notifications describe a flare in general and minimal terms. For example, on April 13, 2023, at 11:26 AM, NOVA Chemicals sent a notification declaring both “elevated flaring” and “some increased noise” with a lengthier description of a flare:

“Flares are important safety devices that safely burn excess hydrocarbon gasses [sic] that cannot be recovered or recycled. Our flare systems must meet strict environmental controls as well as NOVA Chemicals' process safety and Responsible Care standards. When you see flaring, please be assured that flares play a key role in keeping our facilities running safely. We strive to minimize flaring, keeping it to times necessary for our continued safe operation.”

While the elevated flaring described here *sounds* normal, companies' insistence that the burning of hydrocarbon gases is necessary and even safe rests on what Michif scholar Max Liboiron (2021) calls the threshold theory of pollution, or the idea that it is acceptable for our bodies, lands, waters, plants, and animals to absorb, assimilate, and dilute a certain amount of pollution *before* harm occurs. In reality, the burning of hydrocarbon gases is always harmful.

What this notification does tell us, however, is that when it comes to elevated flaring, the safety of facilities is prioritized and protected over the well-being of residents and the land. Many notifications from companies do not actually consist of emergencies

Michif scholar Max Liboiron has used the **threshold theory of pollution** to describe how most state-based environmental regulations are “premised on the logic of assimilative capacity, in which a body—water, human, or otherwise—can handle a certain amount of contaminant before scientifically detectable harm occurs” (2021, 5).

However, we know that with pollutants like benzene, our bodies and lands cannot and should not have to handle any amount.

but routine procedures, including “Planned Startup/Shutdown,” “Maintenance,” and “Flares.” However, companies deliver the same formulaic, vague, and generally unhelpful notifications when an actual emergency occurs.

The term “hydrocarbons” also appears frequently in notifications. Hydrocarbons describe a broad class of chemicals entirely composed of hydrogen and carbon atoms. Thousands of hydrocarbons are present worldwide and can be gases, liquids, or solids. Methane, ethane, propane, butane, benzene, toluene, xylene, and naphthalene are hydrocarbons, but each has its own level and toxicity. In other words, the use of “hydrocarbons” tells us very little about the pollutant and its possible harms. While it sounds like we might be getting information about a kind of chemical pollutant, this term hides more than it says. Vaguer still are words like “sheen,” which describes a soft, visible layer on a surface of water but little else, or “unit upset,” which reveals that something has happened but nothing more.

Routine procedures and emergency incidents occur regularly, sometimes more than once a day; however, notifications are irregularly sent, and the community is often notified after the incident occurs. Community members in Aamjiwnaang First Nation are forced to sign up for notifications from various sources, including emails, texts, Facebook, and local news.

Occasionally, community members are given no notice of an incident and are forced to call the Ministry of the Environment, Conservation and Parks' public pollution reporting hotline (also known as Ontario's Spills Action Centre) when they are experiencing signs

of a leak or spill. Pollution events can happen anytime because the industry is always in operation, while the ministry's office, located in the nearby town of Sarnia, only operates Monday to Friday during the day. The most alarming incidents occur when community members are given no notice and are unaware of it.

Both the poorly executed notification system and the lack of information are a harm and a burden to Aamjiwnaang First Nation.

Surrounded by a maze of pipelines, tanks, and facilities whose contents, purposes, and operations are hidden, notifications are a vital source of information for community members in Aamjiwnaang. When emergencies and spills happen, notifications can be life-saving. But when notifications are vague and inaccessible, it is hard for community members to understand what is happening and respond appropriately. Our research concludes that notifications typically offer little useful information and are purposefully made hard to locate and understand.

Understanding the Data Analysis

“At community meetings about this project, spreadsheets of data were printed as posters and put on the meeting room walls. Seeing the cumulative number of notifications is emotional, as they testify to petrochemical companies’ ongoing violation of land and life in Chemical Valley and elsewhere.”

The Pollution Notification Map and Data

UNDERSTANDING THE MISINFORMATION within Chemical Valley notifications reveals Canada’s deep commitment to a colonial permission-to-pollute system. Yet, despite all the inaccuracies with the notification system, the data is still an important record of companies’ responsibility for pollution in Chemical Valley. We can critically analyze the lack of communication, even with all their problems, to give insights into Chemical Valley petrochemical pollution and the ways disinformation works.

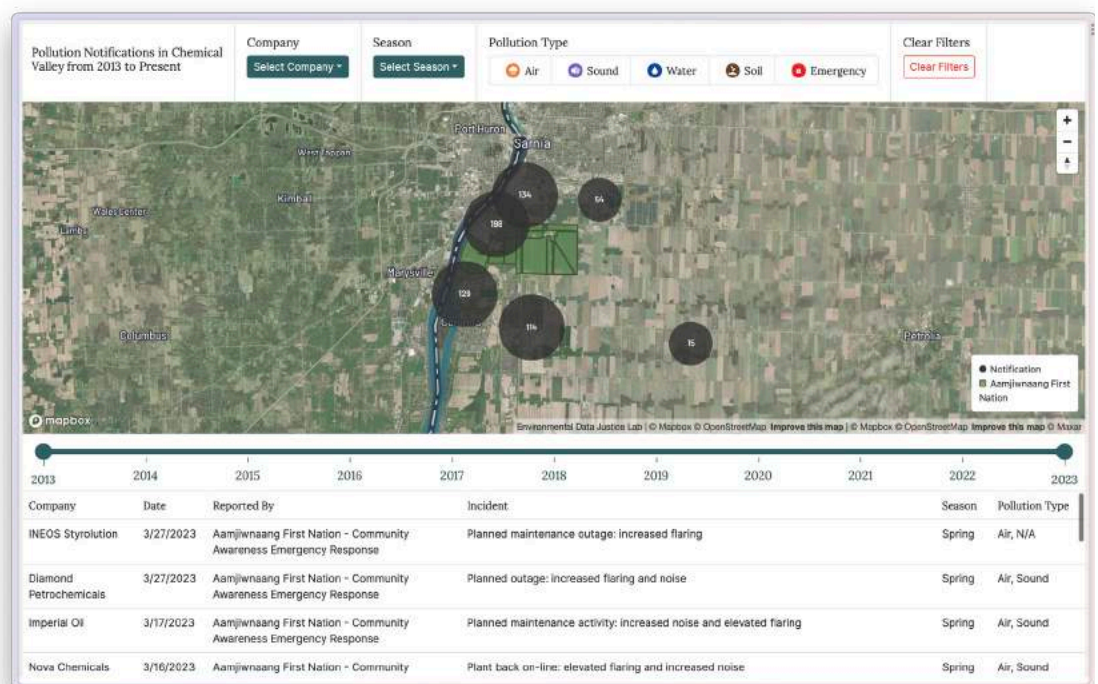
Using the data collected by Beze and Vanessa Gray, we have made an interactive map and graphics that offer insight into the density of pollution events in Aamjiwnaang. The map visualizes notifications from 2013 until the 2023 publication of this report. What is overwhelmingly apparent from the map (and even the raw data compiled in the spreadsheets) is the sheer number of reported

events: 645 in ten years. At community meetings about this project, spreadsheets of data were printed as posters and put on the meeting room walls. Seeing the cumulative number of notifications is emotional, as they testify to petrochemical companies’ ongoing violation of land and life in Chemical Valley and elsewhere.

The map helps us see a few key points about pollution events reported in notifications.



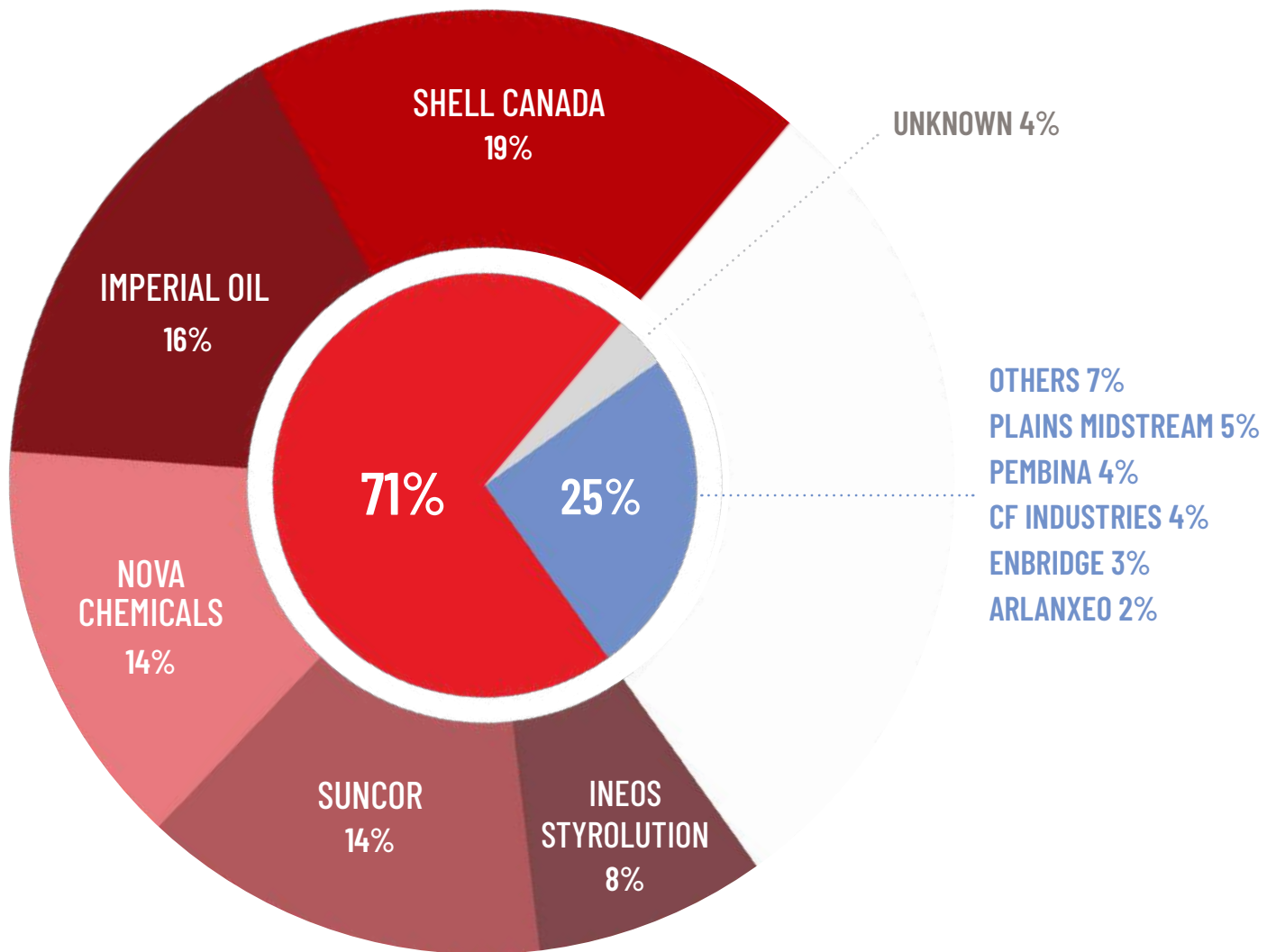
USE THE POLLUTION NOTIFICATION MAP AT
WWW.LANDANDREFINERY.ORG/MAP



01. Companies Most Responsible for Notifications

Five companies are overwhelmingly responsible for most notifications, accounting for **71%** of the notifications documented: Shell Canada, Imperial Oil, Suncor, Nova Chemicals and Ineos Styrolution.

These are the biggest companies in the area. Concerningly, these companies also govern the Bluewater Association for Safety, Environment, and Sustainability (BASES), which is responsible for real-time air monitoring and emergency response in Chemical Valley.



02. Type of Pollution Most Commonly Reported

The most commonly reported pollution event notification type is an **airborne** event.

This is due, in part, to some of the water quality agreements and regulations made in the 1970s and '80s, such as the Great Lakes Water Quality Agreement of 1972. These agreements led to a decrease in water-released pollution but an increase in airborne releases. Airborne releases can be done under cover of night and move large distances in the atmosphere with winds and can thus be hidden more quickly than water pollution.

AIR



75%

UNKNOWN



7%

WATER



5.4%

EMERGENCY



5.4%

SOIL



4.4%

SOUND



3.3%

03.

Named vs. Unnamed Pollutants

Notifications carry **little information** about the kind of chemical pollution released.

80 percent of the notifications did not mention a particular chemical or material. The ones that did, such as the 23 notifications that mentioned hydrocarbons (and it is important to remember that “hydrocarbons” does not tell us which chemical was used), still told us nothing about what was actually happening or the possible dangers.

NAMED UNNAMED

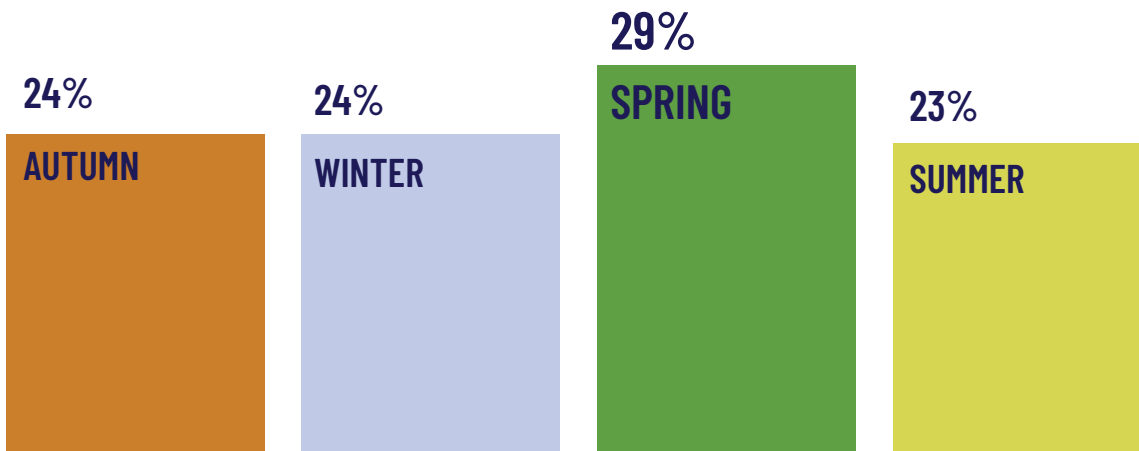


It is also important to note that **some companies do not provide notifications at all**. This does not mean that there are no spills, flares, and accidents to report at these facilities; it means that the Industry-controlled notification does not ensure that all pollution events are reported.

04. Seasonal Timing

Spring, a time of renewal and rebirth, when fish are spawning, animals are born, and plants are reawakening and budding, is **the most dangerous time** in Chemical Valley.

Spring is the time of year with the most notifications: over 29 percent of the total. Spring is when many facilities have their “start-up” activities after the winter, increasing production and expanding their activities for the summer.



The Reality of Notifications

NOTIFICATIONS ARE not timely. A notification may come hours or a day after an event has occurred. Sometimes, an air monitor can offer real-time information, but the archive of this data is not shared.

2022 saw the most notifications, which appears to coincide with the launching of BASES, the recently merged industry association that manages and governs notifications, real-time air monitoring, and emergency response in Chemical Valley.

The number of notifications is not a good indicator of the number of incidents but rather is a signal of the political maneuvers by industry associations around obligations to report. For example, due to the COVID-19 emergency, 2020–2021 saw fewer notifications. From the early summer of 2020

through March 2022, the Ontario government used COVID-19 as an excuse to suspend environmental regulations, including the Environmental Bill of Rights. Oil company associations, like the Canadian Oil and Gas Producers Association, requested federal and provincial governments to suspend a wide slate of environmental oversight and regulation (2020 memo⁸). Most provinces overwhelmingly obliged (Goodday 2021).

Crucially, even as the data we have collected helps us understand patterns of misinformation around reporting on pollution events that affect Indigenous communities and land, it also overwhelmingly demonstrates Canada’s permission-to-pollute structure and the density of pollution to which Aamjiwnaang First Nation is subjected.

⁸Access the leaked letter here: Tim McMillan on behalf of Canada’s Oil & Natural Gas Producers, “Re: COVID-19 Crisis Response – Actions Required Regarding Federal Policy and Regulations,” March 27, 2020. <https://canadians.org/wp-content/uploads/2020/04/leaked-COVID-19-Regulatory-Impact-Request-0320.pdf>

A History of Misinformation and Endangerment

A COMPLEX WEB of industry associations, companies, media formats, and regulations produces notifications. This web has changed over time. Chemical Valley has existed for over 150 years; consequently, there is a long history of how industries have dealt with fires, spills, and accidents.

During and after World War II, Chemical Valley expanded as an industrial area of national importance, making polymers part of the war effort and then bringing in oil from the prairies for refining. In 1951, a major explosion at the Polymer Corporation could be seen as far away as Detroit and London. This explosion prompted the formation of the first industry association for dealing with emergencies in Chemical Valley: The Chemical Valley Emergency Control System.

In 1971, it expanded to become the Chemical Valley Emergency Coordinating Organization (CVECO). In 1986, CAER was founded (though, initially, the “E” stood for “Executive” rather than “Emergency,” reflecting its purpose of supporting industry needs). A 12-siren system was built as a public warning system, and to this day, it is tested every Monday. This was the first form of public notification.

For a long time, community members had to call the number provided in the notification to listen to a recording that would only be temporarily available.

Email notifications began in 2019. To receive them, community members needed to have a computer or a cellphone and to sign up.

⁹Jeffrey, Tara. “Speaking in code: Does new emergency system go far enough to warn the public?” The Sarnia Journal, February 24, 2016. <https://thesarniajournal.ca/speaking-in-code-does-new-emergency-warning-system-go-far-enough-to-protect-the-public/>

In May 2021, the **Bluewater Association for Safety, Environment, and Sustainability, or BASES**, was formed through the merger of three different industry associations, each with its own acronym and history:

1. **CAER (Community Awareness Emergency Response)**, the association responsible for notifications
2. **SLEA (Sarnia-Lambton Environmental Association)**, responsible for overseeing Chemical Valley’s air monitors
3. **IEC (Sarnia-Lambton Industrial Educational Co-operative Corporation)**, serves local industries by offering a common place for workplace safety training

In 2021, BASES began archiving their notifications on their website, ten per page, and launched the BASES phone line.

When the sources and formats of notifications change, the labour and persistence required to keep up with how to stay notified continues to fall to community members. For example, in 2020, we learned that the emergency codes used in the notification system had been changed without notifying the public.⁹ Even if a community member did everything right to get information, the information provided was still lacking.

Consider this notification on July 14, 2020. At 8:48 PM, AFN-CVECO sent out a notification that read,

“A CVECO Code 10 has been issued by Shell Canada for a possible spill of unknown product to Talfourd Creek with the potential to reach the St Clair River. For further information please contact Shell at (519) 481-1245.”

CVECO Code numbers are supposed to categorize the kind of incident being reported from Code 5 to 9. Thus, when the notification came in, no one knew what Code 10 meant. No website we could find listed a Code 10. CVECO had changed the codes but not notified the public.

TRU Lab members then called the Industry Update Line. A temporary recording that said,

“There is a sheen noticed on the creek to the north of Shell. The sheen is contained, and a vacuum truck is deployed to remove the sheen. The investigation into the cause is ongoing. No action required from the community.”

The notification advised the caller to contact one of Shell’s liaisons for further information. When we called them, the representative described what was “probably diesel oil or diesel oil product” but would not say from which process or part of the plant. We asked for test results and did not receive them. All this took hours of effort, and we gained little concrete information.

Companies consistently put Aamjiwnaang at risk through their vague notifications.

Phrases such as “Process Upset” and “Operational Disruption” provide little to no information about potential dangers or exposures. Community members of all ages could be sleeping during an incident or be outside on the land, completely exposed and unaware of what they are exposed to.

Who is Responsible for Notifications?

One of the most striking things about notifications is that they are organized by Industry associations that, in turn, are governed by the same companies that are polluting. Consider the companies behind BASES and CAER, which are responsible for most notifications.

BASES is funded and formed by 28 member companies, which include:



NINE Petrochemical and Chemical Companies



FIVE Pipeline Companies



FIVE Oil and Gas Companies



FOUR Railway Companies



TWO Waste Management Companies



TWO Power-Generating Companies

BASES Member Companies:

- Air Products Canada (gas)
- Arlanxeo (chemicals)
- Cabot Canada (petrochemicals)
- Cando Rail and Terminals (rail)
- CF Industries (petrochemicals)
- CleanHarbors (hazard waste treatment and landfill)
- CN Rail (rail)
- Diamond Petrochemicals Canada (petrochemicals)
- Dow Canada (petrochemicals)
- Enbridge Energy (pipelines)
- Ethos Energy (energy infrastructure)
- GFL Environmentals (waste management)
- HC Stark (metals)
- Imperial (oil-petrochemicals)
- INEOS Styrolution (petrochemicals)
- LamSar (pipelines)
- Nova Chemicals (petrochemicals)
- Origin Materials (chemicals)
- Pembina (pipelines)
- Plains Midstream Canada (pipeline)
- Procor (rail)
- Shell Canada (oil-petroleum)
- Sun-Canadian Pipeline Company (pipeline)
- Suncor Energy (oil-petroleum)
- Suncor Ethanol (energy)
- TransAlta (power station)
- VIP Rail (rail)

CAER, in turn, is run by a 2021 Board of Directors representing some of the world's biggest petrochemical companies:

- **Imperial Oil**, owned by ExxonMobil, the world's largest multinational oil company
- **Suncor**, with the Royal Bank Of Canada as its largest shareholder
- **Shell**, the world's second-largest multinational oil company
- **Nova Chemicals**, currently owned by Mubadala Investment Company of the Emirate of Abu Dhabi, owned by the ruler of the United Arab Emirates
- **Arlanxeo**, owned by Saudi Aramco, the world's largest and most powerful national oil company owned by the government of Saudi Arabia

These five companies are the top 100 global producers of greenhouse gas emissions and some of the world's most significant contributors to climate catastrophe.

Saudi Aramco is the world's largest contributor to climate change, ExxonMobil is the 3rd largest, Shell is the 6th largest, Abu Dhabi the 15th, and Suncor the 60th (Carbon Majors Report). It is well documented that both ExxonMobil and Shell have funded large-scale scientific disinformation campaigns around climate change and pollution (Frumhoff and Oreskes 2015; Franta 2018; McGreal 2021). For that reason, when we look at the companies charged with

organizing and running the notifications system in Chemical Valley, it begins to make sense why the notifications are so obscure and contain such little information about their spills and releases.

Just like when the police govern complaints about police violence and then tend to find police officers innocent, industry self-regulation results in notifications that tend to obscure the harms enacted by companies.

While section 201 of the *Canadian Environmental Protection Act of 1999* (CEPA) and Ontario Regulation 675/98 of the *Ontario Environmental Protection Act* require companies to report spills and releases to the public, **it does not specify the process by which the public is informed.** This leaves legal loopholes for companies to provide incomplete and cursory information about events.

With little to no explanation provided by companies for most of the incidents at their facilities, the most valuable information for holding companies accountable comes from reports made on the ground when the incident occurs. Spills and releases are not always visible or detectable with available air monitoring technologies. However, the effects of harmful chemicals—such as, but not limited to, headaches, dizziness, skin rashes, eye irritation, asthma and bronchitis in children and youth, and nausea—are felt by all community members.

Our bodies and our senses tell the most accurate form of off-site impacts.

"Over and over, Indigenous communities state the need for access and control to better data and information about industry disruptions to land and life, but this call goes unanswered.

Polluters on Indigenous territories must respect Indigenous jurisdiction over their activities and lands, including providing pollution data and environmental information."



Conclusion

"Indigenous environmental data sovereignty, and not just data, leads to air, land, and water protection."

THIS REPORT demonstrates that environmental data is being used as a colonial theatre of misinformation, obscuring the petrochemical industry's capitalism and ongoing violence. Such data will not end colonial violence; it is a product of it. Where companies and the Canadian state provide information, it is woefully inadequate and intentionally obscure, yet it illuminates the intensity of cumulative pollution in Chemical Valley and shows ongoing colonial violence by some of the world's largest companies. It is clear, then, that Canada and Ontario's ongoing colonial governance includes a permission-to-pollute and more dedication to multinational oil and petrochemical companies and maintaining fossil fuel colonialism than nation-to-nation, government-to-government relationships recognized and affirmed in Section 35 of *the Constitution Act, 1982*.

No community should have to work so hard for such little information and accountability.

Over and over, Indigenous communities state the need for access and control to better data and information about industry disruptions to land and life, but this call goes unanswered. Polluters on Indigenous territories must respect Indigenous jurisdiction over their activities and lands, including providing pollution data and environmental information.

While this report was made first and foremost to serve Aamjiwnaang First Nation, its findings have relevance to other communities. Pollution misinformation is a global project headed by some of the world's biggest multinational oil and petrochemical companies. The misinformation in Chemical Valley is a story that is repeated elsewhere. Petrochemical and fossil fuel emissions not only harm Anishinaabek lands but also contribute to the disruption of the entire earth's ecosystems and lives with dire consequences. Indigenous environmental data sovereignty, and not just data, leads to air, land, and water protection.

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Recommendations

Harm-Reducing Recommendations for Industry

When pollution events happen, community members deserve to know the specifics of what is happening, the potential risks involved, who or what is responsible for the alarm, and what steps are being taken to prevent it from happening again. Companies should provide transparent and timely answers to the following questions when incidents occur.

In the event of “noise” or “increased noise,” companies must disclose:

- When did the noise begin, and when is it expected to end?
- What caused the noise?
- Which processes, chemicals, risks, and releases are involved with or related to the noise?
- Is this issue a recurring event? What is being done to prevent it from happening again?

In the event of a “release,” companies must disclose:

- When did the release begin, and when is it expected to end?
- What is the cause of the release?
- Is this issue a recurring event? What is being done to prevent it from happening again?
- What are the specific chemicals involved?
- What is the potential risk to the community?

In the event of “flaring” or “elevated flaring,” companies must disclose:

- How intense is this flaring event that is leading to this reporting?
- What chemical is being burned off?
- What is the risk to the community?
- What is the duration of the flaring?
- What is the size of the flare?

- What is causing the flaring? Was there a problem? If so, what was it?
- Has this or a similar event happened before? What is being done to prevent it from happening again?
- Did the plant decide to increase flaring for employee safety purposes?
- Was a decision involved in saving wear on the plant by flaring, and therefore, put cost-saving ahead of pollution risks to the community?

Most of these questions are also applicable to other pollution events, from planned and unplanned “disruptions” to “unit upset” to “equipment failure.”

Recommendations for the Federal and Provincial Governments

- 01. Rather than allowing** multinational oil and petrochemical companies to govern the notification and air monitoring systems, ensure accountability to Aamjiwnaang First Nation by centering community expertise and governance, upholding the *United Nations Declaration on the Rights of Indigenous People* (UNDRIP).
- 02. Include Indigenous governance** over the terms and measures of pollution notifications, monitoring, and regulation in Chemical Valley, as well as support to create community decision-making institutions and capacities to exercise their own regulatory authority over environmental matters in order to meet the terms of Canada’s Action Plan for UNDRIP as outlined in sections 32 and 34.
- 03. Ensure upcoming** Federal Bill C-226, *A National Strategy to Assess, Prevent and Address Environmental Racism and to Advance Environmental Justice*, instigates a full review and reform of notifications and pollution information systems in Chemical Valley and ensures community recommendations lead this process.

04. Amend Ontario Regulation 675/98 of the *Ontario Environmental Protection Act* to specify the process by which companies can report spills and releases to the public. This process of deciding new criteria for reporting should be community-led by First Nations Nations, and all industry information must be shared.

05. Strengthen the right to a meaningful community consultation process required in environmental decisions in Ontario by enacting the Auditor General's recommendation to clarify the right to a public consultation period in the *Environmental Bill of Rights, 1993*.

06. Demand the Ontario government to stop tolerating spills, environmental impacts, and non-compliance, and enforce existing environmental laws and regulations through the penalties outlined in Environmental Penalties (O. Reg. 222/07). In 2022, the provincial government made 8 orders to 5 companies totaling \$292,788.50 in fines; four were to Shell and Suncor in Chemical Valley.¹⁰ Enforcing environmental laws is an obligation to respect the impacts on Indigenous land.

07. Require companies to release their plans for starting up and shutting down facilities and for high flaring in advance. Our report demonstrates higher occurrences of reported pollution events in spring when plants are “starting-up.” Companies are well aware of these pollution-causing events and should be required to share their expected disruptions with the community in advance.

08. Require companies to appoint a point person with applicable knowledge to provide community members with detailed information about a pollution event before, during, and after it occurs. This person should be able to provide answers to the suggested questions outlined above.

09. Following a pollution event, investigate the responsible facilities to ensure companies fully comply with all environmental laws and standards and share this information with impacted First Nations.

Recommendations for the Bluewater Association for Safety, Environment, and Sustainability (BASES):

01. Be accountable to members of the Aamjiwnaang First Nation and the public. This includes being responsive to requests for information.

02. Archive, centralize, and make accessible all past and future notifications of pollution events on their website.

03. Create a detailed, descriptive, and science-backed guide that explains all of the terms and codes used in their notifications, e.g., “noise,” “elevated flaring,” “maintenance,” “startup,” and “shutdowns,” CVECO codes, and community risks.

04. Include the timing of events in all future notifications.

05. Follow up each notification with details:

- How is the industry addressing this problem?
- What actions are the industry taking to prevent future incidents?
- What actions is the industry taking to ensure the community's safety
- How are these issues dealt with in other jurisdictions, such as the United States Environmental Protection Agency and other state agencies?

06. Provide a monthly and annual report that summarizes:

- All incidents reported by each industry
- What follow-up actions were taken to address the incident
- What is being done to prevent it from recurring
- What the risks to the community were and how community concerns are being addressed.

¹⁰Ontario, Ministry of Environment, Conservation and Parks. “2022 Environmental Penalty Annual Report.” March 2022. <https://data.ontario.ca/en/dataset/environmental-penalty-annual-report>



FAQs about our Data and the Pollution Notification Map

01. What is a notification?

Notifications are messages sent by industries to the public reporting pollution, and disruptive or emergency activities (spills, releases, accidents, and flares). Industries typically send them through an industry association communication system. These “notifications” typically have little information and are in formats that are hard to find and rarely preserved. They are typically the length of a sentence and give little precise information about what is happening.

02. Does the industry have to submit notification reports every time an incident occurs?

While Section 201 of the *Canadian Environmental Protection Act of 1999* and *Ontario Regulation 675/98 of the Ontario Protection Act* require companies to report spills and releases to the public, how this should be done is not specified. This leaves legal loopholes for companies to purposefully provide incomplete, delayed, and cursory information about events.

03. What are the consequences for the industry when an incident is reported?

Notifications are only informational. Depending on the event, industries may have other obligations to report activities to the Ontario Ministry of the Environment.

04. Where does the data from this map come from?

The data is collected by intergenerational work of community members and land defenders from Aamjiwnaang First Nation who have been documenting the pollution events using different notification channels and their own experiences. The map represents notifications, not all pollution incidents. It is important to remember that not all incidents are reported through the notification system.

05. Are all incidents “bad”?

Incidences come in many forms, including noise pollution, releases to air and water, or disruptive activities. There is little information in a notification about the amount of chemicals involved in an incident, so it is impossible to know their severity based on the notification. The accumulation of many incidents over many years is a testament to the cumulative harms in Chemical Valley. The notifications are also inadequate in terms of the limited information they provide. Clear, informative, timely notifications are desired and “good,” but better still would be fewer pollution events to report.

06. How accurate is the data for this map?

The data in the map has some limitations. It is based on notifications collected by community members between 2013 and 2023. Some notifications could have been missed. We requested that BASES send us their dataset of notifications but did not receive a response. The notifications also have limited information, so there is a built-in lack of precision in the notifications themselves.

07. What are the limitations of data in this map?

The data in the map has limits built into the notifications themselves. The notifications rarely share information about the particular chemical or pollutant released, nor the specific reason for the release. There are also limits in terms of giving the specific timing of incidents. Notifications do not necessarily come at the precise moment of an incident, nor do they specify at what time an event occurred. A notification might come hours or a day later, or even before, in the case of a planned start-up.

08. How often is this map updated?

Community researchers collect the data in the map, and BASES does not directly provide it. Therefore, updating the map reflects this labour and is not automatic.

09. Is there a way to submit or add notifications to this map?

Currently, there is no way to add notifications to this map. However, users are encouraged to use the Pollution Reporter app to submit complaints, which creates a report and provides meaningful data to hold the industry responsible.

10. What are the top-cited incidents?

The most common type of pollution event reported by notifications is an airborne event.

11. What are the potential impacts of these incidents?

The effects are wide-ranging. Air pollution can cause acute effects at the time of an incident and chronic effects related to continuous and cumulative exposures. Connecting notifications to health and land effects is difficult without accurate information about the chemicals released. The Pollution Reporter App can be consulted for information on the effects of chemicals released in Chemical Valley.

11. What is flaring? What is venting?

A gas flare is a combustion device used in petrochemical refineries, chemical manufacture, and other facilities to burn off flammable gas. Flares often happen during the start-up and shutdown of processes or are “safety” releases from unexpected over-pressuring during processes. As part of the safety infrastructure of a facility, flares keep the facility “safe” by emitting pollution into the air while burning flammable gas.

12. What could odours signify?

Many chemical pollutants are odourless. If you smell something strange, the Pollution Reporter App can be searched by smell (e.g., burnt, oranges, eggs, sweet) to see if it might match a common chemical pollutant.

13. Which companies report the highest number of incidents?

The top three companies with the highest notification rates (2013-2023) are Shell (120 notifications), Imperial Oil (101 notifications), and Nova Chemicals and Suncor (90 notifications each).



**Learn More &
Use the Pollution Notification Map:
WWW.LANDANDREFINERY.ORG/MAP**

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