



**Securing safe drinking water for Canadians
and reducing potential risk to the community**

We acknowledge that Chemtrade operates
on the unceded territory of the Squamish,
Tsleil-Waututh, and Musqueam Nations

Agenda

- A quick overview of Chemtrade and the North Vancouver facility
- Significant role our facility plays in securing Canadian drinking water and protecting Canadian supply chain, and supplying critical Canadian industries
- Building awareness of our efforts, the risk, and the opportunity
- A history of safe operations
- Planned further safety improvements
- Engaging with the community to raise awareness
- Summary, next steps and questions



A look at the cell room in North Vancouver, which contains the specialized units where chlorine is created

Chemtrade across Canada

- Chemtrade has operations in seven provinces: **BC, Alberta, Saskatchewan, Manitoba, Ontario, Quebec, and New Brunswick**, including our head office located in Toronto, Ontario
- We **operate 16 facilities, creating dozens of products** – from products critical to **safe water treatment**, to products that support the **energy sector, pulp and paper, manufacturing, and steel production**
- We have **almost 600 direct employees**, who live and work in various communities across Canada
 - *In total, we have 1,400 employee across Canada, the US and Brazil, with 60+ locations*
- **In 2024:**
 - Our annual **Canadian payroll was just over \$81.3 million**
 - We paid over **\$8.1 million** to various municipalities through **municipal taxes**
 - We **injected almost \$208 million into the economy** through our spend with suppliers, contractors, and vendors



Chemtrade North Vancouver overview



- Chemtrade’s North Vancouver chlor-alkali facility is the **largest producer of liquid chlorine in Canada**.
- The site has **operated safely since 1957**, and since 2010, **over \$500 million has been invested to improve safety, reliability and modernize the facility**.
- The facility has **118 direct, full-time employees** with an **annual payroll of over \$23.3 million**. The facility **also injects an additional \$140 million into the BC and Canadian economy** through spending with suppliers, contractors, and businesses.
- In 2024, Chemtrade paid the **District of North Vancouver over \$3.7 million in taxes**, and over **\$2.7 million in municipal water fees**.
- The North Vancouver facility is a modern chlor-alkali plant, **which produces chlorine, caustic soda, and hydrochloric acid**, supporting industries like water treatment, Canada’s energy industry, innovation and technology, pulp and paper, industrial manufacturing and the automotive industry.
- The facility also creates **clean, carbon neutral hydrogen** as a co-product – some of which is harnessed and sold as a clean energy source, and some of which is used as a power source for the facility.
- **The facility has a low carbon footprint**, and uses renewable hydroelectricity, self-produced hydrogen, and natural gas. The salt used in production is solar-dried, and imported via ocean barge from Mexico.
 - The facility is one of **BC Hydro’s largest customers, spending almost \$30 million annually** with the Crown corporation

Why are we engaging now?

Responsibility to raise concerns regarding Canadian chlorine supply, as we produce up to 70 per cent of the chlorine for Western Canada, which equates to 40 per cent of all liquid chlorine available in Canada. Our product is critical for the treatment of municipal drinking water supplies across Canada.

- A 2015 Stats Canada survey showed that 96 per cent of Canadian municipalities (supplying 30.7 million people) use chlorine to treat water

Global geopolitical conditions have changed significantly - making it important for Canada to secure domestic production.

- Canada is focusing on strengthening its economic and manufacturing independence - our facility has a critical role to play in supporting that work as support clean drinking water, the energy sector and industrial manufacturing
- In recent years, several US chlor-alkali facilities have closed, and recently passed US legislation is expected to impact the potential ongoing operations of several more facilities - restricting the US supply chain
- The pandemic taught us the importance of having secure domestic sources, and the recent change in US administration is furthering highlighting the need for secure Canadian-based manufacturing and supply sources

Intention to continuing investing in the facility with significant capital upgrades aimed at reducing potential risk to the community and improving safety.

- Developing capital safety projects (tens of millions of dollars worth of investment in the next four years) aimed at reducing risk to the community, increasing safety and removing development impediments for the District of North Vancouver

In order to proceed with the planned capital improvements, and secure future operations, we are applying to have the production of liquid chlorine listed as an allowable activity at our facility. From there - we can then apply for development permits, and move forward with the planned safety projects.



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**Understanding the
important role chlorine
plays in securing
Canada's safe drinking
water supply**



Importance of chlorine in water treatment

Chlorine is critical for safe drinking water

- **Waterborne diseases remain leading causes of human morbidity and mortality worldwide.** Over 95% of waterborne diseases are preventable (*Source: Researchgate.net, Sciencedirect.com*)
- **96 per cent of Canadian municipalities use chlorine to treat their drinking water supply** (*Source: StatsCan*)

Chlorine is the preferred treatment option for Canadian municipalities because it:

- **Is highly effective:** chlorine is a highly effective disinfectant, capable of killing or inactivating most microorganisms that can cause waterborne diseases.
- **Provides residual protection:** chlorine provides a residual disinfectant in the water distribution system, helping to prevent the growth of bacteria and other pathogens within the pipes.
- **Is extremely cost-effective:** compared to other disinfection methods, chlorine is relatively inexpensive, making it a practical choice for large-scale municipal water treatment.
- **Has a long history of successful use:** since first being introduced into water systems in Canada in 1917, the use of chlorine in drinking water has been instrumental in significantly reducing waterborne illnesses.

Our location is ideal:

- **We have Port access:** we import 30,000 tonnes of solar dried sea salt every five to six weeks from the Baha region of Mexico. This salt is a critical raw material is required to produce all of our products.
- **We have access to major rail lines:** We transport our liquid chlorine using purpose-built railcars, to customers across Canada and the Western US. The only way to transport liquid chlorine in Canada and the US is by pipeline or rail.

What happens if Chemtrade's facility closes?

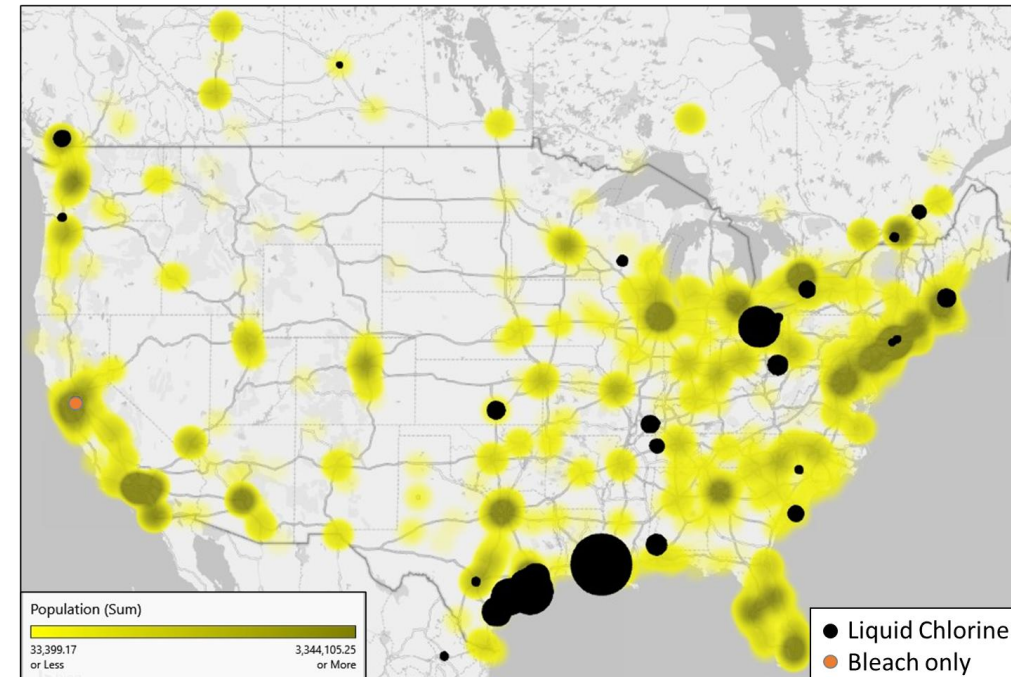
High risk to reliable chlorine supply in Canada

- **US will secure domestic chlorine supply before exporting to Canada**
- Western US demand is ~10 times western Canadian demand
- US protectionism and change in recent US administration putting trade agreements in question
- **Removal of our production will further stretch US market to meet domestic needs**

If Chemtrade stops producing chlorine?

- **Canada will become dependent on imports to meet domestic supply**
- **The other three Canadian chlor-alkali facilities don't have capacity to replace Chemtrade's production**
- **US population will likely exhaust available US manufactured chlorine supply**
- Any chlorine that was able to be imported from the US could be subject to tariffs – increasing costs for municipalities and tax payers
- The bulk of production resides in the Southern US or Eastern Canada, creating logistical challenges in getting chlorine to municipalities across Canada, particularly Western Canada – it should be noted that chlorine can only be shipped using specialized rail cars and that chlorine would need to be shipped significantly longer distances

Water treatment demand vs. chlorine production locations



- *Black/orange circles represent chlorine production sites and size of capacity*
- *Yellow to grey heat map represents population density (drinking water consumption)*

US mandating chlorine to drinking water

The US will protect its own drinking water, limiting available supply for export. This, paired with the recent closure of several US chlorine plants, and current geopolitical uncertainty, puts the ability of Canada to import chlorine at high risk.

- In 2021, due to hurricanes in the Gulf region of the US impacting chlor-alkali production, the EPA and Department of Homeland Security were concerned re: reliable supply of chlorine for safe drinking water – issuing a request to all producers (including Chemtrade) to prioritize chlorine production for us in protecting drinking water supplies
- **Approximately five per cent of the North American chlorine supply shut down in 2020 & 2021 – with up to eight additional closures planned before 2029 due to EPA ruling on asbestos membrane use**
 - Plants had asbestos diaphragm technology, unwilling to convert will need to close by 2029
 - These additional eight facilities represent 30 per cent of US supply
 - The cost to replace or upgrade the facilities is significant – costing up to \$1 billion per facility
 - Result is a **stretched chlorine supply chain across North America that is sensitive to any disruptions**

Why does this matter to Canadians?

- Any additional strain on US supply from either permanent closures of chlor-alkali facilities in the US, will further reduce available chlorine from the US supply chain – **making it critical that Canada secures its own domestic supply**



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**We are proud of our
safety record and
are committed to
ongoing
improvements**



Overall site safety

Since 2010, over \$500 million has been invested to modernize the facility, resulting in improvements to safety and reliability

- Plant is fully automated and is continuously monitored by a state-of-the-art system
- Automatically notifies operators of any abnormality in operation
- If the system detects something outside of the normal operating ranges, it will notify operators and begin to implement automatic shut down and isolate the area of production
- Equipped with 72 sensors capable of detecting chlorine as low as 0.1ppm
- In the case of a power outage, the system will automatically close all valves, securing the chlorine within the system.

We have strict safety protocols in place that start with our production and continue through to our products reaching customers.

- We provide comprehensive training for employees, rigorous safety protocols and procedures at all stages of production, facility safety drills, and emergency response planning.
- We have a group of employee volunteers who are highly trained to respond to a chlorine or caustic soda transportation incident, including specialized equipment and training – the primary Chlorex Team in BC and Alberta.
- Industry and railroad-specific procedures followed by Chemtrade include employee training, train speeds, inspections, rail yard practices, locomotive operation, and adhering to hazmat shipping routes. All of this is regulated through provincial and federal regulations.

Chemtrade has never experienced a release of chlorine during transportation from our North Vancouver facility

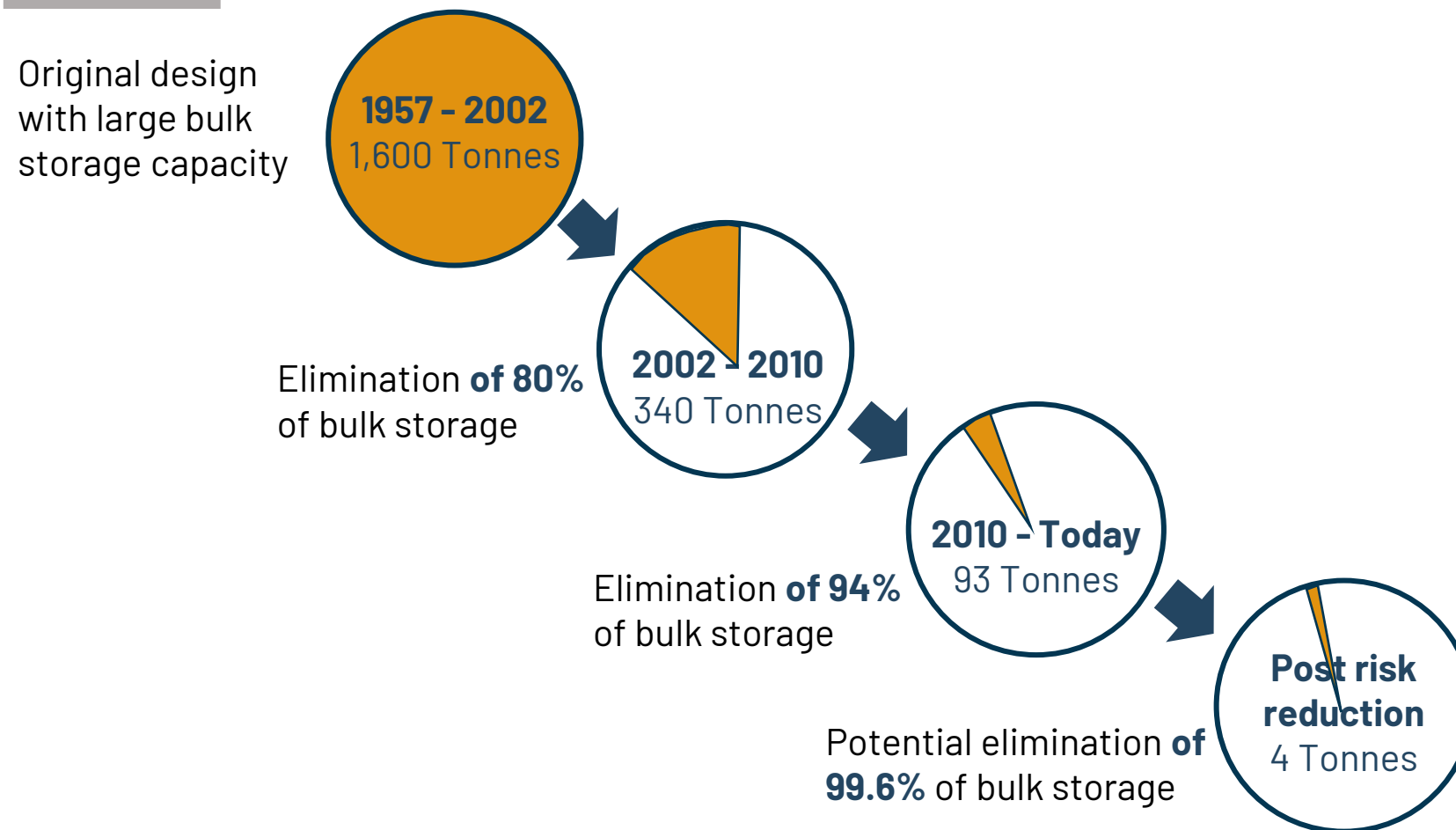
- Use custom built railcars designed to securely store and ship liquid chlorine

Significant operational changes, reducing onsite storage of liquid chlorine by over 94 per cent using year 2000 as the benchmark

- An effective way to reduce risk from liquid chlorine is to minimize the quantity of liquid chlorine onsite
- If rezoning approval is obtained, we are committed to additional operational changes and capital improvements projects aimed at reducing risk even further



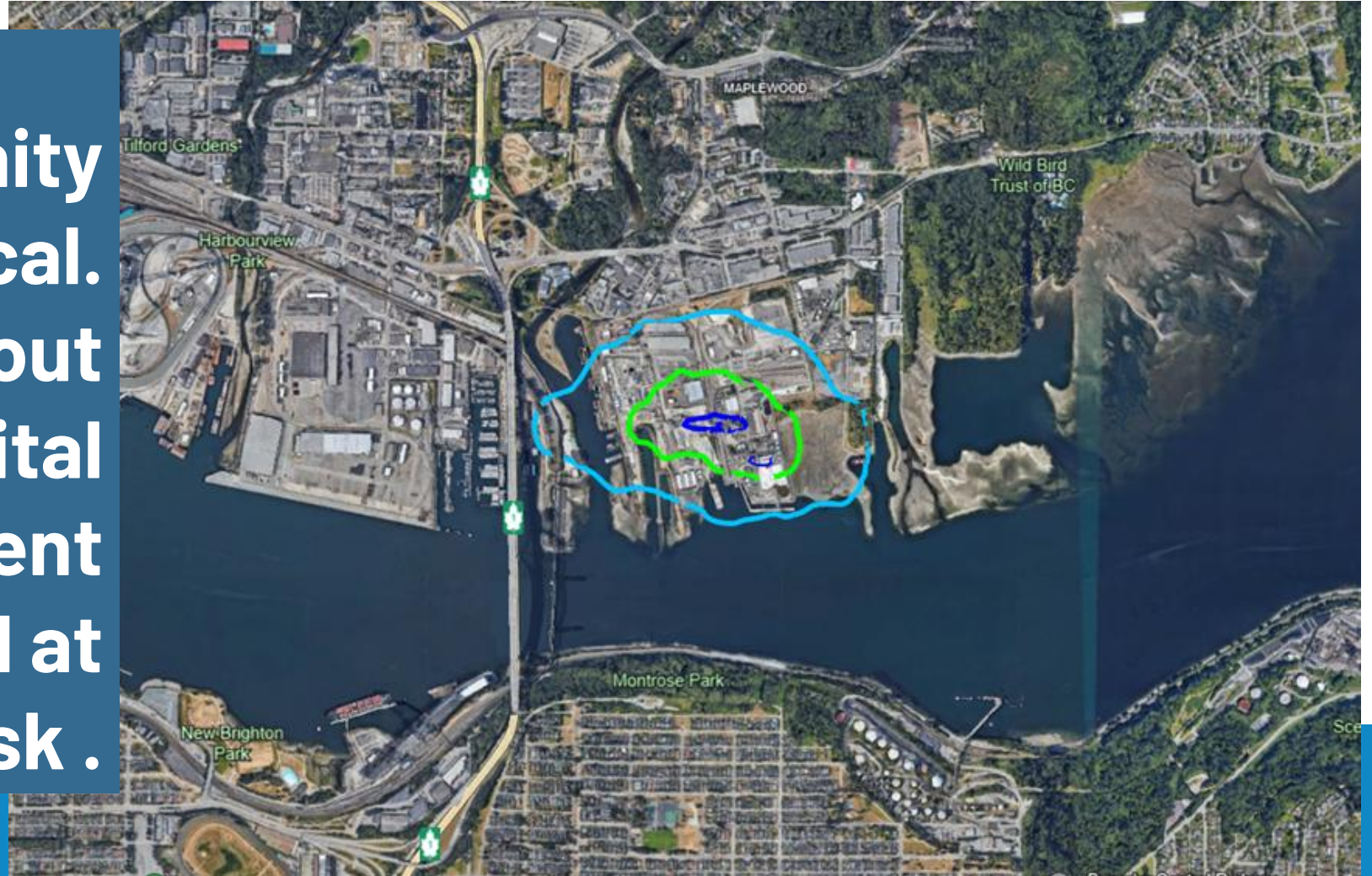
Reduction in liquid chlorine storage onsite





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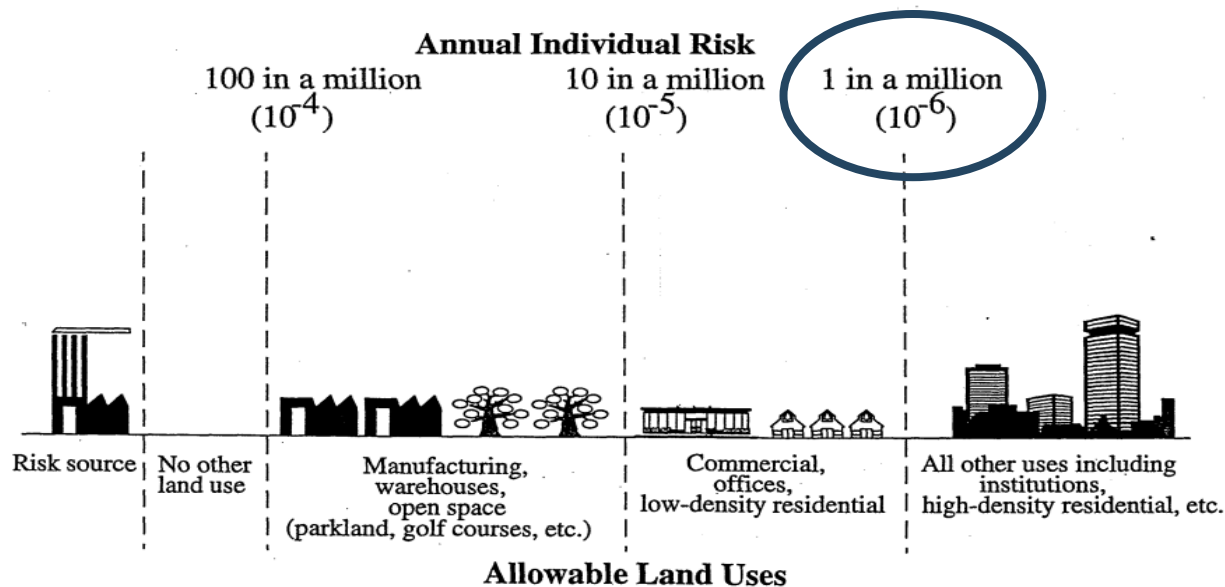
Community safety is critical. Carrying out capital improvement work aimed at reducing risk.



Steps to further increase safety to community

If we are able to secure rezoning approval from the District of North Vancouver, Chemtrade plans to implement a series of risk reduction capital projects intended to drastically reduce the risk that liquid chlorine poses to the surrounding area.

Major Industrial Accidents Council of Canada (MIACC) Guidelines

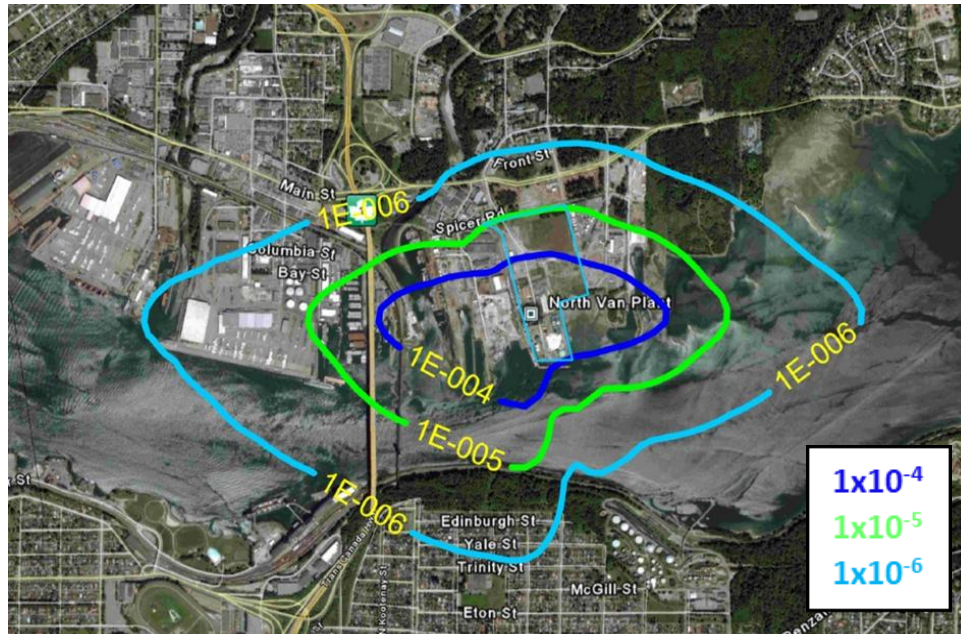


Steps to further enhance safety:

- Reduce liquid chlorine storage onsite to absolute minimum by remove all bulk storage and loading liquid chlorine directly into railcars (manufacture and ship model)
- All rail loading activities in a sealed building with air scrubbing
- Install seismically activated safety shutoff valves

Reducing the risk to the surrounding community

Current QRA curves



Potential risk curves following proposed operation changes and capital improvements



In 2006, quantitative risk assessment (QRA) risk curves (above left) were developed using what was then considered state of the art technology and practices. The updated curves (above right) reflect the proposed operational and capital improvements, and were developed by BakerRisk using improved modelling software, enhanced techniques, and using a more conservative approach, resulting in a more accurate map.

Potential risk reduction curves

- To help provide context, **outside of the 10^{-6} curve**, you would have a **better chance of being hit by lightning (one in 775,000)** than being harmed by our North Vancouver operations (one in 1,000,000)
- There would be **very limited restrictions on land development outside of Chemtrade fence line** and **potential risk to the surrounding community would be greatly reduced.**





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Engaging the community, raising awareness, building support

CHEMTRADE Safety Clean Drinking Water FAQs Get Involved

Chemtrade safely supplies liquid chlorine essential for the treatment of Canada's drinking water.

Chemtrade's North Vancouver chlor-alkali facility is one of Canada's largest providers of liquid chlorine – accounting for 40 per cent of all liquid chlorine available in Canada. Regionally, this equates to over 70 per cent of the liquid chlorine available in BC and Alberta. Chlorine is the most common component in the treatment of safe drinking water.

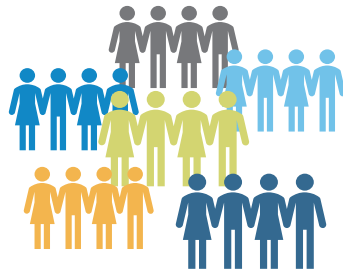
[Learn more](#)

Overall engagement summary

Since the fall of 2023, we have:



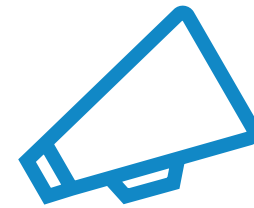
Hosted over 75 information update meetings with all levels of elected officials, First Nations, stakeholders, special interest groups, community members



Held two open house meetings in 2024, attended by over 65 residents with **overwhelmingly positive support**



Initiated over 450 interactions (letters, emails, phone calls, meetings, presentations) with **overwhelmingly positive feedback** received



Created two new engagement tools [AskChemtrade.ca](https://askchemtrade.ca), and every second month **community newsletter**



Started a public tour program To date, **over 150** members of the public have **toured our facility**



Hosted first Community Day **Over 350** members of the public attended and had the opportunity to tour facility

Securing long-term operations in North Vancouver

Port Negotiations

- Half of our facility is located on land leased from the Vancouver Fraser Port Authority (the Port)
- Our current lease with the Port expires in 2032, within the terms, there is a restriction on chlorine production beyond mid 2030
- **In April, 2025, Chemtrade reached a non-binding LOI with the Port, with terms running to Dec 31, 2044**

District of North Vancouver rezoning application

- Rezoning application for the District of North Vancouver (DNV) has been submitted, it includes **nine major studies ranging from traffic and parking impacts to environmental assessments and archeological traditional use – all show minimal to no impact, with the exception of the QRA report, which shows a significant reduction in risk for the community**
- The rezoning process is required so that we can proceed with development permits for our planned safety upgrades, **which will reduce risk for the surrounding area to at or near our property line**

Engagement and Government Relations

- **Hundreds of engagement opportunities have been completed** – information sharing updates/open meetings, public tour program, meeting with local First Nations, letters, calls, presentations, and emails
- So far, seeing **overwhelming positive support from all audiences once the role of the facility in securing safe drinking water for millions is understood**
- Receiving **letters of support – most notably from the Premier of BC, David Eby, the Federal BC Caucus, MLA Susie Chant, and the Vancouver Fraser Port Authority.**
- We have also received letters of support from the local union – **Unifor**, the **Government of Alberta**, several **BC municipalities, industry associations, local Community Association and individual community members**

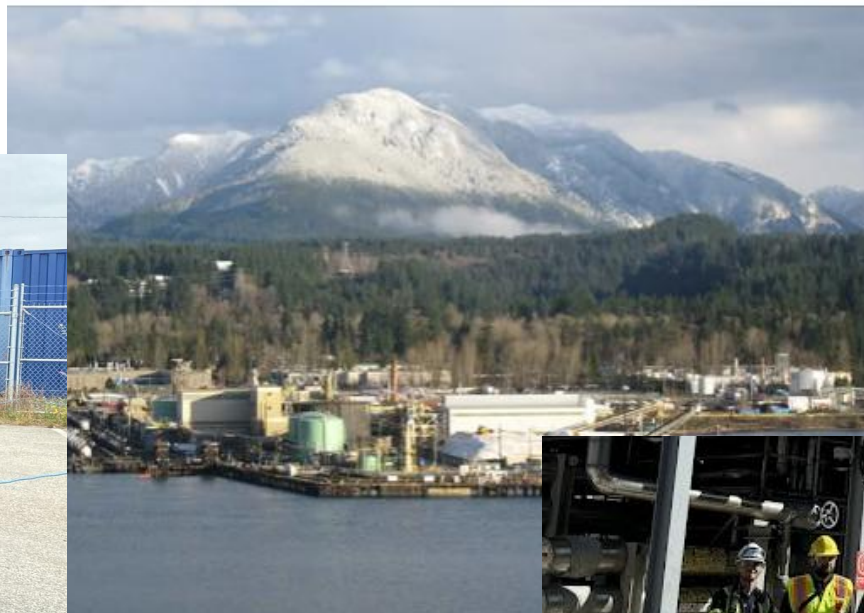


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Chemtrade's site has operated safely in North Vancouver for more than 65 years. Learn more about our facility and our critical role in keeping Canada's drinking water supply safe.




**Proudly made
in Canada**



Summary

Summary

Once our rezoning is approved, our intentions are to further invest in the facility with the goal of eliminating risk to the community at the property line of our facility once we secured necessary approvals and a long-term lease renewal.

- There is **strong a case to be made to continue liquid chlorine production in North Vancouver.**
- Our **facility supplies over 40 per cent of all liquid chlorine in Canada**, which equates to **over 70 per cent in BC and Alberta.**
- **96 per cent of Canadian communities rely on chlorine to treat municipal water supplies.**
- It is **unlikely that the other three Canadian facilities or US producers will be able to replace this demand** if the facility closed.
- Our other products have a **role to play in supporting other Canadian industries, critical to Canadian economic independence.**
- We have a **long history of safe operations**, and are **committed to working with the community, local Nations, government and stakeholders.**



Questions

