



Joffre Site **Community Information Handbook**

Working with our neighbours



Taking Care



Responsible Care®
Our commitment to sustainability.

About this handbook...

We have prepared this Community Information Handbook for our neighbours who live within five kilometres of the Joffre Site.

As our neighbour we want you to have accurate information on our facilities and operations, our emergency preparedness program and the Responsible Care® ethic and values that govern everything we do.

Just as importantly, we want you to feel that you can contact us at any time — to ask about our operations, or to tell us about any concerns or suggestions you have.

We're committed to being open and honest with our communities and working co-operatively over the long-term with our neighbours and stakeholders.

We welcome and encourage your input.



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Responsible Care® is a registered trademark of the Chemistry Industry Association of Canada and a registered service mark of the American Chemistry Council in the United States.

NOVA Chemicals' mission:

To be the leader in innovation that enables our customers to deliver plastic products that make everyday life healthier, easier and safer.

NOVA Chemicals is a trusted supplier to the world's leading plastic converters. Our employees develop and manufacture materials in collaboration with our customers worldwide who produce consumer, industrial and packaging products.

As a leader in Responsible Care[®], we have an unwavering commitment to sustainability, health, safety, and the environment — including stewardship of our products throughout their life cycles.

NOVA Chemicals and our employees practise a culture of dignity, respect, openness and honesty with one another and in the communities where we live and work.



Our manufacturing facilities at the Joffre Site are among the world's largest. Our site is located on just over 405 hectares (1,000 acres) in Central Alberta.

1 We Started in Alberta

We're proud of our start in Alberta. Today, NOVA Chemicals employs over 1,300 people as well as hundreds of contract personnel in Alberta.



An ethylene plant in Joffre, Alberta, commissioned in 1979, was the foundation for what today is one of the largest ethylene and polyethylene production complexes in the world.

Today, NOVA Chemicals has production facilities located in Canada and the United States, and we license proprietary technologies to leading petrochemical manufacturers around the world. We are primarily an ethylene / polyethylene producer.

NOVA Chemicals, headquartered in Calgary, Alberta, Canada, is wholly-owned ultimately by Mubadala Investment Company of the Emirate of Abu Dhabi, United Arab Emirates.

Our Research & Development Centres located in Calgary support our manufacturing facilities, our technology licensees and our customers.



1 We Started in Alberta

2 Responsible Care® and Sustainability

We are a Responsible Care company. We are committed to Responsible Care and sustainability in our daily operations as well as our future growth.

Responsible Care is the chemistry industry's commitment to sustainability — the betterment of society, the environment and the economy. It was launched in 1985 by the Chemistry Industry Association of Canada (CIAC).

Member companies commit to continuous improvement in their performance and to openness about activities and achievements, seeking out stakeholder concerns and addressing them.

Our Taking Care framework reflects our particular approach to putting Responsible Care and sustainability into practice.



NOVA Chemicals was a founding member and leader of the original Responsible Care ideals and is strongly committed to those and the expanded sustainability ideals. **For more information, please visit www.canadianchemistry.ca.**

Responsible Care Reverification Process

NOVA Chemicals takes part in regular reverification processes since we received Responsible Care status in 1994.

Through this process, CIAC regularly assesses member companies for credibility with peers and the public, and for continuous improvement in the implementation of the Responsible Care ethic and principles. The CIAC-appointed team includes a community representative. The Joffre Community Advisory Panel (JCAP — see Section 6) provides input into the selection of the community representative.

We provide a summary of each reverification report in our community newsletter and at our Open Houses.



3 Safety: A Priority

In our operations, we take care to attract and develop talented people committed to the safety and well-being of themselves and others. We also foster relationships that promote community safety.

We believe in a zero-injury workplace.



We work to minimize risk throughout the product life cycle, including risk to health, safety and the environment.

Emergency preparedness and security are cornerstones of NOVA Chemicals' Responsible Care program. Our emphasis is on prevention, but as a chemical manufacturer we recognize that each facility must be ready to respond to emergency situations in order to protect the safety of our workers, the community and the environment.

We emphasize process safety in order to prevent catastrophic accidents particularly explosions, fires and toxic releases, and also minor accidents, associated with the handling of chemicals.

Facility Loss Prevention

Each facility is designed to prevent incidents that could cause harm or an extended operating outage. For example:

- facilities are designed to minimize impact of prevailing winds or hazards from a flammable leak;
- combustible gas detectors are placed throughout each facility and monitored by control rooms to detect vapour releases;
- automatic fire protection is provided by sensor-operated, remote sprinkler systems; and
- high pressures within manufacturing processes are controlled by automatically venting the gas to elevated flare systems (the principal safety device for near-complete combustion of hydrocarbons when in upset operating conditions or during a shut-down or re-start).

4 Communicating with You

Communication and open dialogue with you is a priority. We are accountable and responsive. We make concerted efforts to understand and respond to your concerns.

We create opportunities for open dialogue with our communities and neighbours to share information, seek input, respond to concerns and to continually be a socially responsible neighbour. These include:



- **Joffre Community Advisory Panel (JCAP)** — Section 6.
- **Community Open Houses** — Each spring and fall we provide an update on our operations, and discuss with you any new developments, issues and opportunities. INEOS and other operations partners at the Joffre Site are fully involved in these events.
- **Annual Neighbour Event** — A chance for you and other five-kilometre neighbours to come to the site, meet leaders and employees, and discuss topics of interest. The event has a safety and emergency preparedness focus.
- **Regular Neighbour Visits** — Our representatives visit our five-kilometre neighbours to provide information about our facilities, hear from you and update your confidential emergency contact information. Please let us know if your contact information changes outside of these visits.
- **Community Newsletter** — Published several times per year to provide you with updates on Joffre Site operations and plans. Each fall we publish an Annual Environmental Review edition to provide you a summary of our environmental initiatives and performance.
- **Community Website** — At our community web site, www.novachemicals.com/joffre, we also provide specific Joffre Site news and background information. You can also email us at joffresite@novachem.com and follow us on social media.

4 Communicating with You

5 Contact Us Anytime

There are many ways you can get in touch with us to discuss anything that is on your mind, or to alert us to a situation that is concerning you.



One Site — One Window of Contact: The Joffre Site is an integrated site which includes operations by INEOS which owns and operates a Linear Alpha Olefins (LAO) facility, and a cogeneration power plant, jointly owned by NOVA Chemicals with other partners. We also employ many contractors, some on an ongoing basis, others for specific projects or turnarounds. In all cases, you can contact us regarding any activities at or related to the Joffre Site.

If we haven't met your expectations around managing impacts, or you have an immediate concern, we have a responsive Complaint / Request for Information Process that is activated by calling our 24-hour emergency number at 403-314-8767.

For Joffre Site INFORMATION call

403-314-2882	Joffre Site Operations Information Line
403-314-8611	NOVA Chemicals Reception Desk (Business hours: 8:00 am - 4:30 pm)

For Joffre Site EMERGENCIES or CONCERNS call

403-314-8767	Joffre Site Emergency Line (24 hours)
1-800-561-6682	Transportation Emergency
1-800-780-6682	Pipeline Emergency

5 Contact Us Anytime

6 Joffre Community Advisory Panel (JCAP)

The Joffre Community Advisory Panel (JCAP) has served as a community liaison to NOVA Chemicals Joffre Site operations for more than 35 years.

JCAP includes community representatives from around the Joffre Site to promote and enhance two-way communication between site partners (NOVA Chemicals, INEOS, AltaGas, OMERS Energy, cogeneration facility) and the community.

JCAP meets quarterly with NOVA Chemicals and other site representatives. A wide range of topics is covered including input on emergency preparedness, business results, operational challenges, growth projects, environmental performance, community concerns, and contributions and outreach activities.



JCAP Purpose

A community liaison committee for the Joffre Site working to identify and address local issues related to our site.

An integral part of the site's overall Community Outreach Program, the group complements other consultation / communication activities like open houses and our community newsletter.



Please feel free to contact any of the members for more information, or to provide your views or suggestions regarding the Joffre Site.

Visit www.novachemicals.com/Joffre to find current contact and background information on community representatives.

7 Environmental Performance and Regulatory

We take care to conserve, protect and enhance natural resources. Through innovation, operational excellence and environmental stewardship, we seek to protect life and to continuously improve our environmental performance.

We operate our manufacturing facilities responsibly, adhering to Responsible Care. Our Responsible Care approach is supported by policy, a management structure and a comprehensive Environmental Management System that helps us track performance and communicate our progress to stakeholders.

Our ongoing focus is on

Air quality management	Waste management
Noise management	Soil & groundwater protection
Water management	Light management
Land conservation and reclamation	Health and occupational hygiene
	Safety

Working with Others

NOVA Chemicals has co-operative working relationships with groups and agencies that have a specific mandate related to environmental issues.

Alberta Environment and Parks (AEP) is among the key agencies that provide us with operating approvals and standards. We remain focused on ensuring our emissions are below all regulatory compliance limits and objectives.

Our co-operative working relationship with Lacombe County focuses on realizing opportunities and minimizing impacts on the community and encompasses such aspects as traffic management and land use.

We are also actively involved in a number of multi-stakeholder working groups with an environmental focus, for example: Clean Air Strategic Alliance (CASA), Parkland Airshed Monitoring Zone (PAMZ) and Red Deer River Watershed Alliance (RDRWA).

8 Partners with Our Community

We invest in the well-being of our communities by lending a hand to organizations dedicated to making a difference and improving the overall quality of life in Central Alberta.

Starting in the late 1970s, when we first located here in Central Alberta, Joffre Site leadership recognized the importance of building sound community relationships based on trust, mutual respect and mutual benefits.

Today, we continue to build on this solid framework:

- working to be a socially responsible neighbour;
- contributing to the quality of life in our communities; and
- operating within the ethical framework and principles of Responsible Care.



We invest more than \$1.4 million dollars annually in our Central Alberta community through financial support, “gifts-in-kind”, employee volunteer hours and our annual employee / corporate United Way Central Alberta campaign.

8 Partners with Our Community

9 Joffre Site Facilities / Operations

At our Joffre Site we primarily produce ethylene and polyethylene — lots of it! Each year we produce more than \$2 billion in products for our customers who create a wide range of products.



Joffre Site Operations

Ethylene: Each year our three ethylene plants can produce over six billion pounds* of the product that is used by our customers to create products such as automobile components, shampoos, synthetic fibers and even cosmetics.

*includes Dow Chemicals 50% position in Ethylene 3

Polyethylene: Our two plants produce over 3.4 billion pounds each year for our customers to produce anything from protective food packaging, trash and merchandise bags, consumer and industrial product packaging, and shrink and stretch films.

Co-Products: Excess hydrogen from ethylene production is sold locally for agricultural fertilizer production. Other products are sold to manufacturers of consumer products such as nylon rope, rubber, household plumbing and specialty chemical applications.

On-Site Infrastructure: Cooling and water treatment systems, pipelines and rail and truck handling for product distribution, and a cogeneration power plant owned with other partners all contribute to efficient site operations.

Linear Alpha Olefins (LAO) facility: Owned and operated by INEOS, this plant uses ethylene from our plants to produce LAOs, some of which we in turn purchase to manufacture polyethylene.

We are committed to growth, and helping our communities grow with us.

Joffre Site operations bring jobs and economic value throughout Alberta. We contribute greatly to the production of value-added products from Alberta's natural gas resource. The Joffre Site annually puts about \$288 million directly into Central Alberta's economy in the form of salaries, goods and services and municipal taxes.

9 Joffre Site Facilities / Operations

10 Activities Noticeable to Our Neighbours

To provide you with real-time information on site activities that could be noticeable off the site, we have a Joffre Site Operations Information Line (JSOIL).

JSOIL provides information on planned activities such as facility shut-down flaring or steam venting, or unplanned process upsets.

Just call 403-314-2882 and you will hear a voicemail message with current information.



The information line complements, but doesn't replace, our Automated Community Notification System (see Section 15). This system can quickly contact all residents within five kilometres of the site if an incident resulting from our operations has the potential to affect you.

Regular Tests of On-Site Alarms

The Joffre Site tests emergency alarms every Tuesday at about mid-day. Each year we also conduct a more thorough test of the alarm system.

The following sounds may carry to nearby residences:

- A **“wailing” siren** — indicates an alert situation on the site and emergency response activities are underway.
- A **short “yelp” siren tone** — tells employees to evacuate to designated safe areas.
- A **long “steady” tone** — indicates the alert is over and the status is “all clear.”



11 Scheduled Maintenance Turnarounds

Turnarounds offer us the opportunity to conduct maintenance and renewal of our facilities outside of our day-to-day maintenance activities.

Specifically turnarounds provide an opportunity to clean equipment, conduct pressure vessel inspections to comply with Alberta Boilers Safety Association regulatory requirements, make process optimizations / improvements and conduct preventive maintenance.

We typically have a turnaround on the site each year as units are scheduled on a rotating basis. Turnarounds range in size and duration.

Responsible Care procedures related to safety, the environment and the community guide proactive turnaround planning. As in all major site activities, we work to reduce potential impacts on you and our community such as increased traffic, flaring and noise. Staggered work schedules, for example, reduce traffic impacts on our neighbours. Noisier activities are planned outside of typical sleeping hours where possible. During turnaround workforce orientations, there is a focus on safe driving and sharing the roadways with our agricultural community.



Turnarounds provide significant business and economic benefits to the area related to labour, materials and rental costs. Most entail multi-millions of dollars in maintenance work and capital improvements. At peak, more than 500 additional contractors are on site.

11 Scheduled Maintenance Turnarounds

12 Chemicals & Materials Used at the Joffre Site

At the Joffre Site, many products and materials are used for a variety of purposes including water treatment, equipment cleaning, painting, welding and vehicle fuel.

Proper use and disposal of chemicals is a key component of our mandatory employee and contractor training through courses in Responsible Care Orientation, Occupational Health and Safety Act and Regulations, Workplace Hazardous Material Information System (WHMIS) and Safety Data Sheets (SDS).

Industrial Hygiene

At NOVA Chemicals, Industrial Hygiene programs anticipate, recognize, evaluate and control chemical, physical and biological hazards in the workplace.

These programs maintain a healthy workplace and protect employees, contractors and members of the community living near our facilities from the risk of developing a workplace-related illness.

Product Transportation

Products to and from the Joffre Site are transported by rail, truck and pipeline. The NOVA Logistics Emergency Response Team (NOVALERT), created in 1989, provides NOVA Chemicals with Emergency Response (ER) capability associated with the transport of products and co-products into and out of our manufacturing facilities.

Safety is one of the prime considerations in the design, installation, operation and maintenance of the pipeline systems servicing the Joffre Site. As a responsible pipeline operator, we have comprehensive Pipeline Integrity Management and Damage Prevention Programs that include aerial patrols, ground patrols, inline inspections and corrosion protection. Because of these practices, pipeline incidents rarely occur. Pipeline operations have an emergency response plan in place to effectively deal with any potential incidents.

For more information visit www.novachem.com/Pages/company/pipeline-operations.aspx

13 Our Products and Their Properties

Products produced at the Joffre Site are primarily based on ethane, a component of natural gas transported to the site by pipeline. The products are primarily ethylene and polyethylene, and co-products of the ethylene process.

The precautionary statements below reference exposures many times higher than a worker or the community would encounter. Detailed Safety Data Sheets (SDS) are found on the NOVA Chemicals website at www.novachemicals.com under “Products & Applications.”

Product	Use	Properties
Ethylene: Produced by thermally cracking ethane. Colourless gas in liquid form.	About 50% is used for production of polyethylene on site; rest is transported by pipeline and sold to third parties.	Flammable. Avoid contact with eyes and skin—can cause frostbite-type injuries.
Polyethylene: Produced by linking ethylene molecules into chains creating a polymer or plastic.	Shipped in pellet and granular form to customers in North America and globally. Used in wide range of consumer and industrial applications.	Inert, non-hazardous material that does not decompose or react.
Aromatic Concentrates: C5-pale yellow liquid consisting of 50% benzene, 20% highly odorous dicyclopentadiene (DCPD) and 30% other aromatics.	Stored in tanks on site / shipped via rail to North American customers. Used to make nylon and specialty chemical applications.	Reactive and flammable. Eye and skin irritant. Benzene is a known carcinogen in high concentration, long duration exposures.
Butadiene Crude: C4-gas or liquid. Approximately 70% butadiene with the remainder butane and butene.	Stored in spherical vessels on site and shipped via rail / road to North American customers. Used to make rubber, plumbing applications, an additive in high octane gasoline.	Flammable gas. Avoid contact with eyes and skin. Can cause frostbite-type injuries. An asphyxiant / carcinogen in high concentrations.
Carbon Dioxide: Removed from the ethane feedstock stream. Contains trace amounts of hydrogen sulphide, a gas with a rotten egg odour.	Compressed on site and shipped via pipeline for enhanced oil recovery.	Asphyxiant at high levels. Hydrogen sulphide inhalation hazards range from loss of smell at low levels to respiratory arrest at high concentrations.
Hydrogen: A co-product of ethylene production. Clean burning fuel gas.	Purified on site and shipped by pipeline for further processing into agricultural fertilizer. Also shipped by truck for cooling applications and laboratory use.	Highly flammable. Acts as an asphyxiant at high levels.
Octylene: Co-product of polyethylene production. Up to 50% octene, up to 10% xylene and up to 5% other hydrocarbons.	Stored on site and shipped in bulk to North American customers. Used as a feedstock to make other chemical products.	Avoid inhalation or contact with eyes / skin. Toxic at high concentrations or extended exposures.
Propylene crude: C3-gas or liquid under pressure with a faint pleasant odour. About 20% propane / 80% propylene.	Stored in spherical vessels on site and shipped via rail / road to North American customers. Used to make polypropylene plastic.	Flammable gas. Can cause frostbite-type burns with contact. An asphyxiant at high concentrations.
Pyrolysis Fuel Oil: Black liquid consisting of heavy hydrocarbons. Contains highly odorous dicyclopentadiene (DCPD).	A chemical feedstocks or can be burned as an industrial fuel. Stored in tanks on site and shipped via rail to North American customers.	Combustible liquid. Avoid contact with eyes and skin. Contains an untreated mineral oil that is a known carcinogen.

13 Our Products and Their Properties

14 Emergency Preparedness & Response

Our philosophy is “One Site... One Emergency Response Plan.” All site facilities and infrastructure are included within a common, integrated emergency response plan.

NOVA Chemicals’ Loss Prevention professional primary care paramedics and firefighters are on duty 24 hours a day, 365 days a year. They are trained and prepared to respond to both on-site and off-site emergencies. Their capabilities include fire, medical, hazardous materials and a registered ambulance service.

Training response personnel and testing of emergency preparedness capability is critical. We have about 100 drills at the site each year to practise, test and document opportunities to improve.



On site, we have more than \$5 million of emergency response equipment including three fire trucks (rapid response, aerial capacity and foam delivery) and two licensed ambulances. An Emergency Operations Centre in our security building provides leaders a state-of-the-art facility to manage incidents in co-operation with field personnel.

As a charter member of the Lacombe County Mutual Aid Organization, we work with area emergency preparedness organizations to train and test the effectiveness of emergency response plans and equipment to ensure we can work well together. As official signatories to the Mutual Aid Agreement, site emergency response personnel respond to assist with local emergencies until the municipal response is on scene.

Community members are requested to call the 911 system in the event of an emergency.

911 will request NOVA Chemicals response if they determine we are in the best position to do so. We will also respond to calls to our 24-hour number 403-314-8767 if we receive them directly.

15 Emergency Community Notification System

A unique telecommunications service can quickly notify you and other residents within five kilometres of the Joffre Site if an incident resulting from our operations has the potential to affect you.

In the unlikely event the nature and size of an emergency requires warning the community, NOVA Chemicals' automated personal telephone notification system is designed to quickly inform residents and advise you of any steps to take to ensure your safety, such as Shelter in Place procedures (see Section 16). When initiated, this system automatically calls the homes within the five-kilometre radius and relays a recorded message.

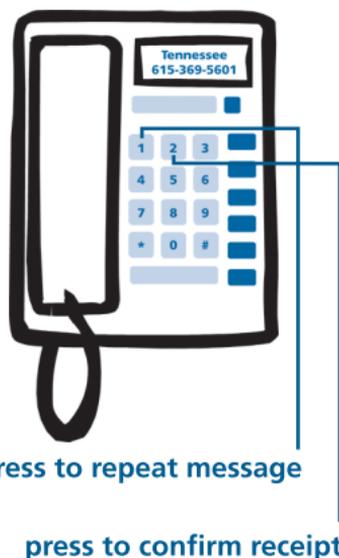
Testing Twice a Year

We conduct testing of this notification system twice a year — on the longest day of the year (June 21), and the shortest day of the year (December 21).

If you are a resident within the five-kilometre radius (see map) and you are not receiving these test calls, please notify us and we will add you to our contact list.

If you are a resident in our five-kilometre notification zone, here's what to do when you receive a call:

- Note that your caller ID will display Tennessee and / or the phone number 615-369-5601
- Press any key to hear a pre-recorded message (listen to the entire message)
- Note: if you fail to press a key, it will hang up and re-dial your number
- Press '1' to repeat message
- Press '2' to confirm receipt of the message.



Why Five Kilometres?

Our defined five-kilometre zone is a very conservative emergency response radius that takes into account identified potential hazards from Joffre Site operations.

We do regular facility risk assessments of potential hazards such as fire, hazardous liquid spills, explosion, toxic vapour releases and railcar incidents.

16 Shelter in Place

The Lacombe County Mutual Aid Organization implemented Shelter in Place in 2002. It consists of a five-step life safety approach for residents in the event of severe weather, a tornado, or an industrial emergency.

NOVA Chemicals' Emergency Community Notification System (Section 15) reflects the five-step approach.

Shelter in Place Steps

1. Go inside. Turn on local radio or TV.
2. Close all windows and doors.
3. Shut off furnaces, air intakes and fans that draw outdoor air inside.
4. Listen to radio or TV for further instructions. Keep phone lines free. You will be kept current through the notification system as conditions change.
5. If odour is strong, seal an inside room with wet towels at the base of the door. Breathe through a damp towel to filter air.

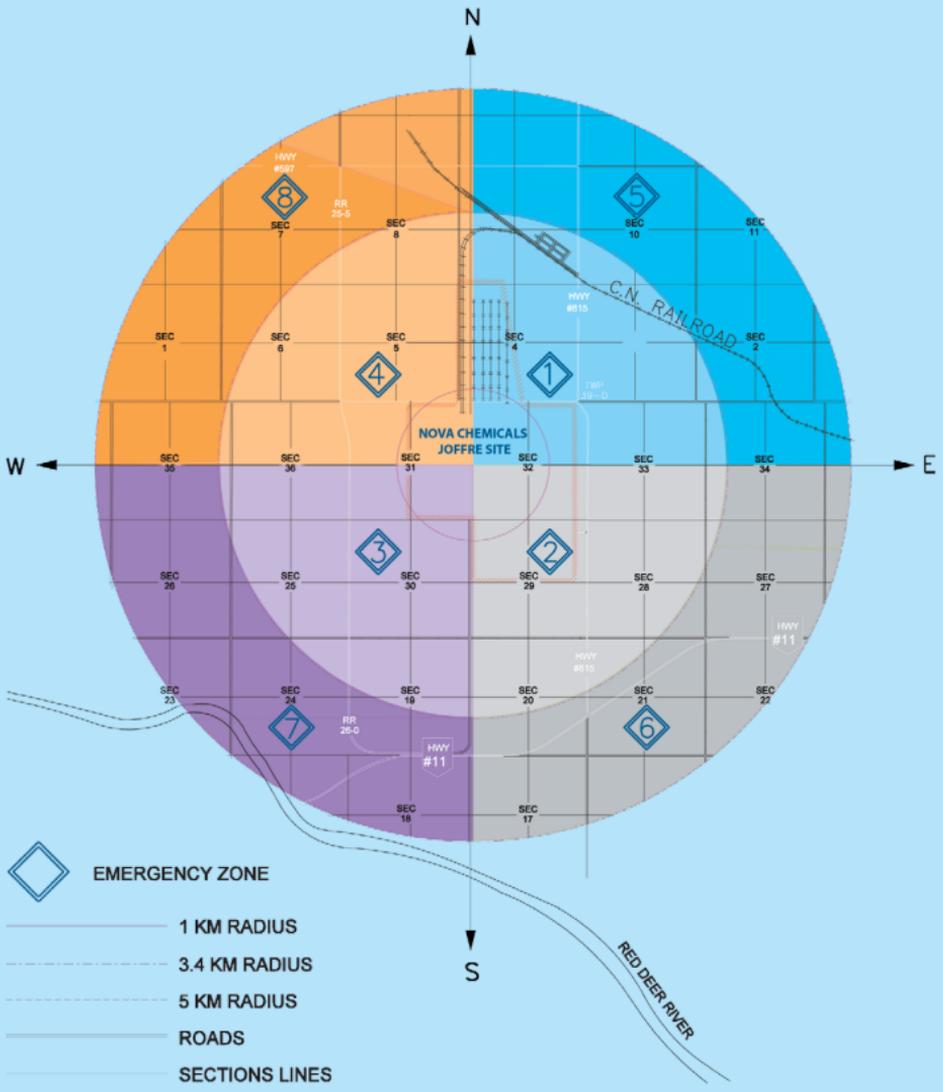


Sample Message from NOVA Chemicals' Community Notification System — Shelter in Place

This is an emergency message from NOVA Chemicals. There is an emergency situation at the Joffre plant site. It is recommended that you shelter in place. Please remain indoors, close all doors and windows, shut off all furnaces and air intakes, and listen to local radio or TV for further instructions. Please avoid unnecessary use of your telephone, as you will be kept current as conditions change.

Do you want to repeat this message?
Press 1 for yes or 2 for no.

Joffre Site Community Emergency Response Five-Kilometre Map



Residents in this five-kilometre emergency response zone would receive an automated telephone notification in the unlikely event an emergency at the NOVA Chemicals Joffre Site requires warning the community (please see Section 15 Emergency Community Notification System). **If you are a resident within the five-kilometre radius and you are not receiving test calls twice each year, please notify us and we will add you to our contact list.**

Please feel free to contact us at anytime with any questions, concerns or comments.

For Joffre Site INFORMATION call

**403-314-2882.....Joffre Site Operations
Information Line (JSOIL)**

**403-314-8611.....NOVA Chemicals Reception Desk
(Business hours: 8:00 am - 4:30 pm)**

For Joffre Site EMERGENCIES or CONCERNS call

**403-314-8767.....Joffre Site Emergency Line
(24 hours)**

1-800-561-6682Transportation Emergency

1-800-780-6682Pipeline Emergency

Email: joffresite@novachem.com

www.novachemicals.com/Joffre

Connect with us!



The NOVA Chemicals Community Nature Trail, our Polyethylene 1 Expansion environmental legacy project, is a wonderful resource for the community and our employees. It is just north of the Joffre Site.

