NOVA Chemicals®

2016
Sustainability Report




Taking Care

Operations Communities Products Environment

Contents

All amounts in this report are in USD unless otherwise specified.

On the cover: From product production to use and recycling, our mission is to help deliver plastic products that make everyday life healthier, easier and safer.

Responsible Care® and Sustainability

When Responsible Care was developed in 1985, it was an expression of the chemistry industry's commitment to safety. Over the years it has evolved to include the industry's commitment to sustainability — the betterment of society, the environment and the economy.

Responsible Care®
Our commitment to sustainability.

A way to think and a way to work

Taking Care

Our work at NOVA Chemicals results in plastic products that take care of food, water and other goods vital to life. To enable these products, we must first take care of the people, places, materials and processes that make them possible. We take care with respect to our operations, communities, products and the environment. Taking Care is a way to think and a way to work. It's our particular approach for putting Responsible Care into practice.

A Message from the NOVA Chemicals Management Board

NOVA Chemicals Management Board

Back, from left to right: Chris Bezaire, Julie Beck, Arnel Santos.

Front, from left to right: Todd Karran, Naushad Jamani.

All of us at NOVA Chemicals play a part in shaping a world where products vital to humankind's health and happiness are even better tomorrow than they are today. Being better is both a promise and a practice. We see this report as a tool for enhancing our commitment to transparency, and share not only our achievements but also challenges that we continue to address.

Looking back on 2016, there are many reasons to be proud of our performance. We sold record polyethylene volumes of just over 1.8 million tonnes and achieved several production records across the company. We completed the start-up of a new polyethylene reactor at our Joffre Site, which increases our polyethylene capacity by 25 percent. These positive operating and financial results are accompanied by our unwavering commitment to Responsible Care® and Sustainability.

Sustainability is no small undertaking. To be effective, we must prioritize our efforts. In 2016, we conducted several workshops with internal teams representing each of our primary stakeholders to determine our sustainability priorities. This report focuses on the economic, social and environmental dimensions of our performance considered most relevant to our stakeholders and to the success of our business. The most material topics for NOVA Chemicals include personal, process, transportation and product safety, greenhouse gases and air emissions, business ethics and product sustainability.

Reflecting on the past year would be incomplete without remembering the tragic loss we experienced in April 2016 when a contractor at the Joffre Site was fatally injured. We are committed to doing everything possible to keep our workers safe and to strive towards Goal Zero. This tragedy urged us to redouble our actions towards that commitment.

In 2016, we launched the 1NOVA Program, our effort to establish one set of best practices and systems to optimize how we work together and provide a foundation for growth. Our growth strategy leverages our ability to deliver game-changing technology and create an exceptional customer experience to help meet the growing consumer demand for polyethylene in the Americas. As part of this strategy, in 2017, we completed the acquisition of Williams Partners L.P.'s ownership interest in the Geismar, Louisiana olefins plant. This plant and adjacent land in the U.S. Gulf Coast marks our entry into this petrochemical production hub allowing us to better serve our customers in the Americas.

NOVA Chemicals strives to be a socially responsible global citizen. Helping to reduce food waste is one way we can make a positive global contribution. We work with customers to enable food packaging solutions that help to reduce food waste for both retailers and consumers. We are also working to develop safer, lighter and more recyclable products.

Our corporate values — be responsible, be passionate, innovate and collaborate — are reflected in this report. Thank you to our employees for consistently demonstrating those values.

– NOVA Chemicals Management Board

Key Company Changes in 2016

Expanded polyethylene facility at our Joffre Site in Alberta.

- Changes in leadership were made to the NOVA Chemicals' Management Board: Julie Beck joined NOVA Chemicals as Senior Vice President and Chief Financial Officer; and Arnel Santos as Senior Vice President, Operations.
- In late 2016, we successfully completed the Polyethylene 1 (PE1) Expansion (R3) Project. This is the first new reactor of its kind in the Americas in over a decade. The new capacity allows NOVA Chemicals to meet the growing demand for flexible films used in food packaging, heavy-duty sack and can liners.
- A significant company change occurred subsequent to the reporting period for this report. In July 2017, NOVA Chemicals completed the acquisition of Williams Partners L.P.'s ownership interest in the Geismar, Louisiana olefins plant. The plant produces approximately 880,000 tonnes of ethylene annually and is located in the largest refining and petrochemical production hub in North America. With riverfront access, our adjacent 525 acres of undeveloped land represents a significant opportunity for future growth.

2016 Corporate Highlights

Our Centre for Performance Applications in Calgary, Alberta.

- In May, we celebrated the grand opening of the transformed Centre for Performance Applications in Calgary, a facility that supports the development work we do with our key customers.
- We sold record polyethylene volumes of over 1.8 million tonnes, which is the result of continued outstanding operating performance and production at our plants.
- NOVA Chemicals completed the development of four new products.
- We achieved several monthly, quarterly and annual polyethylene production records and our expandable styrenics manufacturing reached a cup production record.
- In October, we joined Borealis and Borouge as participants at the K-Fair, the world's premier fair for the plastics and rubber industry, held in Dusseldorf, Germany.

About NOVA Chemicals

NOVA Chemicals is helping to shape a world where the products vital to human health and happiness are even better tomorrow than they are today. Where our customers can count on us to help them shape products that consumers trust. Where our employees can shape their future and the future of our planet. Where our communities and stakeholders shape how we interact and advance together.

We empower our employees to fulfill our mission: to be the leader in innovation that enables our customers to deliver plastic products that make everyday life healthier, easier and safer.

We manufacture chemicals and plastic resins at our facilities in North America. Our polyethylene and expandable styrenic polymer resins are used in a wide range of consumer and industrial packaging applications including rigid and flexible food and liquid packaging, protective packaging for electronics and other durable goods, as well as rigid insulating construction products. Customers use our resins to make flexible, lightweight products that keep food safe and fresh as well as rigid containers like drums and intermediate bulk containers.

The vast majority of our products are sold in Canada and the United States. Our strategy leverages our ability to deliver game changing technology and create an exceptional customer experience to help meet the growing consumer demand for polyethylene in the Americas.

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

We are helping to shape a world where the products vital to human health and happiness are even better tomorrow than they are today.

We produce resins that are used in food packaging, bottle closures, shrink wrap, protective packaging, heavy duty sacks, trash and liner bags, bulk storage and more.

Locations

Sarnia-Lambton, Ontario

- Our **Corunna Site** produces ethylene and co-products
- Our **St. Clair River Site** converts ethylene into polyethylene resins and operates a polyethylene pilot plant
- Our **Moore Site** converts ethylene into polyethylene resins
- Our **Manufacturing East Corporate Centre** is located in Sarnia, ON, close to our Ontario plant sites

Joffre, Alberta

- Our **Joffre Site** is one of the largest ethylene and polyethylene production complexes in the world

Red Deer, Alberta

- The **Red Deer Executive Place Office** houses project management and support teams in the Alberta region

Painesville, Ohio

- Our **Painesville Site** manufactures expandable polystyrene (EPS) resins

Monaca, Pennsylvania

- Our **Beaver Valley Site** manufactures EPS and ARCEL® advanced foam resin
- The **Beaver Valley Technology Center** contains an applications lab, along with a pilot plant, for testing and customer demonstrations

Calgary, Alberta

- The **NOVA Chemicals Head Office** in Calgary is our company headquarters
- The **Centre for Performance Applications** is dedicated to plastics applications development and customer technical support
- The **Centre for Applied Research** is dedicated to providing research and development services on product and process improvements to NOVA Chemicals and our development partners

Pittsburgh, Pennsylvania

- Our **U.S. Commercial Center** is located just outside of Pittsburgh, PA in Moon Township

Geismar, Louisiana

- Recently acquired **olefins facility**, located in the U.S. Gulf Coast region, the largest refining and petrochemical production hub in North America

Manufacturing Operating and Sales Centers Technology Centers

Learn more about our company at www.novachemicals.com

NOVA Chemicals® Value Chain

$3.5 billion 2016 Revenue **2,700** Employees

OLEFINS/ POLYETHYLENE

NATURAL GAS/OIL PRODUCTION

Oil and natural gas from North American producers

GAS PROCESSING

Ethane and other Natural Gas Liquids (NGLs) are extracted

NGL TRANSPORTATION

2,300 km of pipelines

We operate 3 pipeline systems that transport ethane from Alberta and North Dakota to our Joffre facility. We have a pipeline connection from the Marcellus Shale Basin to our Corunna Facility.

4 Manufactuing sites

ETHYLENE AND POLYETHYLENE PRODUCTION

We convert NGLs and other raw material into ethylene and then ethylene into polyethylene

3 Research centers

RESEARCH AND DEVELOPMENT

2,700 Suppliers

VALUE CHAIN MANAGEMENT

RESPONSIBLE CARE

EXPANDABLE STYRENICS

NATURAL GAS/OIL PRODUCTION

OTHER INPUTS

Styrene is produced from ethylene and benzene

TRANSPORTATION

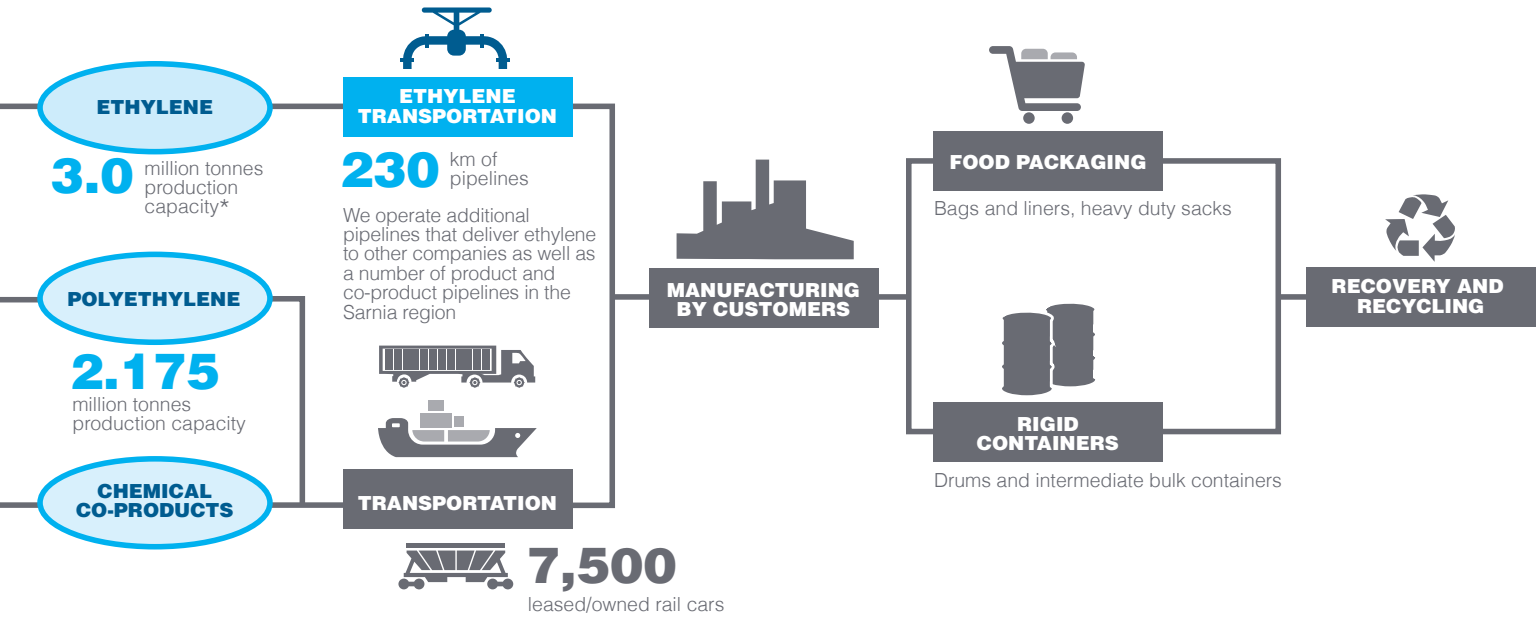
2 Manufactuing sites

EXPANDABLE POLYSTYRENE AND ARCEL® RESIN PRODUCTION

We convert styrene into expandable polystyrene and ARCEL resin

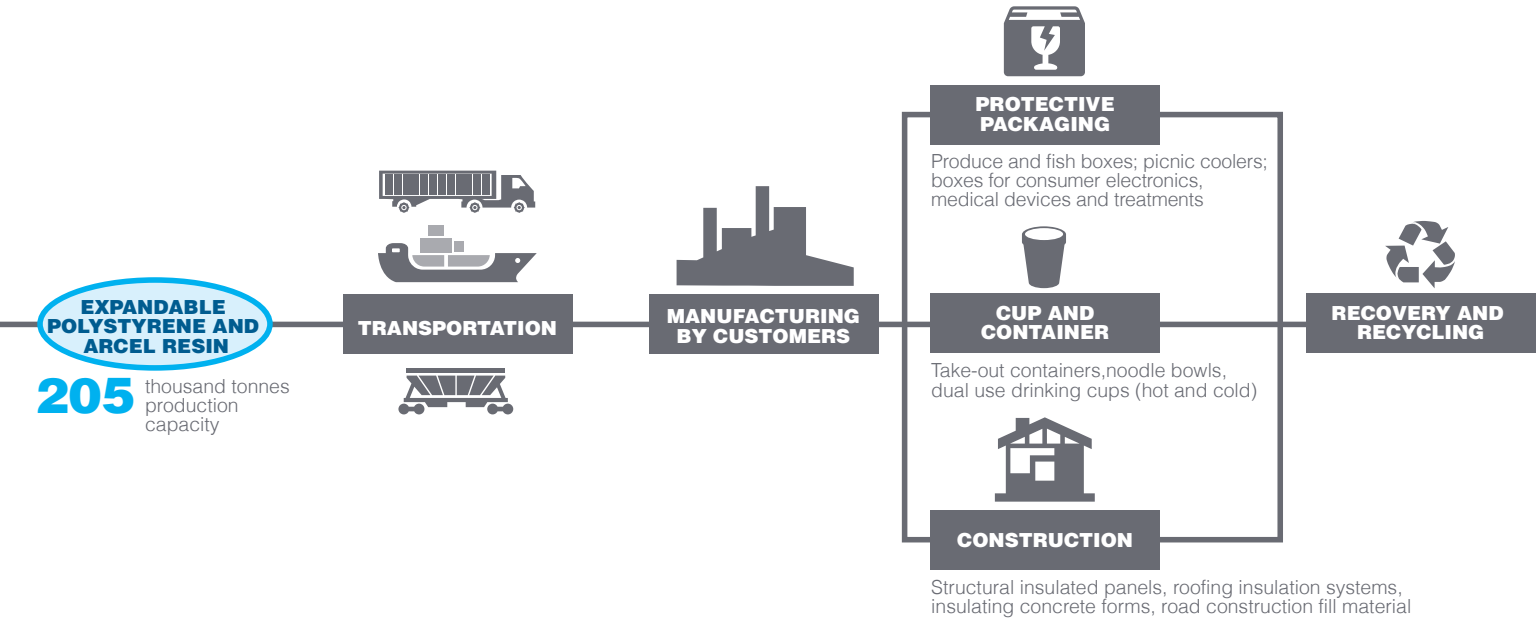
Directly Controlled Assets
Non-Controlled Areas

Statistics shown as of December 31, 2016
** Includes NOVA Chemicals' 50 percent share of joint venture facility (E3)*



MARKET LEADERSHIP

450 Customers



About this Report

- Unless otherwise noted, this report covers performance for 2016, with historical data dating back to 2012, for NOVA Chemicals and our subsidiaries covered in our consolidated financial statements.
- We include data for our portion of joint ventures.
- This report is prepared in accordance with the Global Reporting Initiative (GRI®) G4 Sustainability Reporting Guidelines – Core Option.
- This is our third annual sustainability report. Our most recent previous sustainability report was released in July 2016.
- We start each section of this report with a brief discussion on Highlights and Challenges. Highlights are achievements or successful initiatives. Challenges generally reflect areas for performance improvement or new stakeholder expectations. Closing each section we share some of our focus areas Moving Forward.
- Data is based on permanent employees. When noted, safety data includes contractors.
- Techniques for data measurements and calculations, if not industry standard, are stated with the data.
- Financial data is in U.S. dollars and environmental data is in metric units.
- We continually strive to better define performance indicators and improve our measurement systems. Although we have reduced reporting limitations and exceptions, any occurrences are noted with the data.
- Senior management and relevant staff have reviewed all information and believe it is an accurate representation of our performance. Third-party assurance of our sustainability report was not conducted.
- The terms NOVA Chemicals, our, we, the company and the corporation refer to NOVA Chemicals Corporation and its subsidiaries as a whole.

We empower our employees to fulfill our mission: to be the leader in innovation that enables our customers to deliver plastic products that make everyday life healthier, easier and safer.

Our employees have diverse opportunities to help them grow in their roles and careers, and initiatives to support their desire to enjoy a better, balanced life.

Defining Report Content

This report provides information on the topics that are most relevant to our stakeholders and that can impact the success of our business. To prioritize sustainability topics, we conducted our second materiality assessment in late 2016. Through the process, we engaged more than 50 employees in seven workshops.

Many of our employees engage on a regular basis with external stakeholders: customers, community members, suppliers, and regulators. The purpose of the workshops was to leverage those connections and receive critical input from key employee groups, including the NOVA Chemicals Management Board.

An independent consultant presented each of the groups with a list of more than 20 sustainability topics extracted from reporting guidance and industry reports, and facilitated the workshops. The groups discussed each topic and agreed to its priority level. The results were then consolidated into a list of material topics for the company. Topics considered highly relevant to both the company and our stakeholders were considered material: Air Quality; Ethics and Compliance; Greenhouse Gases; Occupational Safety; Process Safety; Product Safety; Product Sustainability; and Transportation Safety.

For each of these material topics we provide our management approach, an indication of performance, and discussion of related actions and philosophies. These are important topics and, accordingly, they receive greater attention than other topics in this report. For topics not considered most relevant, we still provide discussion of our related initiatives, and in some cases, quantitative performance figures.

Many of the material topics touch not only our own operations, but can have a significant impact on external stakeholders. Although we do not report quantitative figures for performance beyond NOVA Chemicals' internal boundaries, we do provide qualitative discussion about how we are managing our impacts on stakeholders. We recognize that each of the material topics can have impacts broadly, but the table below depicts where impacts related to our material topics predominantly occur.

Material Topics

Air Quality
Ethics and Compliance
Greenhouse Gases
Occupational Safety
Process Safety
Product Safety
Product Sustainability
Transportation Safety

Where Impacts of Material Topics Predominantly Occur

Topic	Within NOVA Chemicals	Outside of NOVA Chemicals			
		Suppliers/ Contractors	Communities	Customers	Society
Air Quality	Manufacturing Facilities	✓	✓	✓	
Ethics and Compliance	All Employees	✓			
Greenhouse Gases	Manufacturing Facilities	✓		✓	✓
Occupational Safety	All Employees and Contractors	✓			
Process Safety	Manufacturing Facilities	✓	✓		
Product Safety	Product Management			✓	✓
Product Sustainability	R&D, Manufacturing Facilities			✓	✓
Transportation Safety	Manufacturing Facilities & Supply Chain Management	✓	✓	✓	✓

The Foundations of Sustainability

Sustainability performance is essential for our long-term business success. The two are interdependent. The foundations of a sustainable company include strong governance, a rigorous management approach, solid business ethics and meaningful stakeholder engagement. These cornerstones guide our actions in becoming a more sustainable company.

The Foundations of Sustainability

2016 Highlights

- Adopting an anti-corruption policy
- Improving our role and responsibility in ensuring ethical conduct from our vendors and customers

2016 Challenges

- Ensuring meaningful stakeholder engagement at every stage of our operations
- Ongoing monitoring of third parties allowing for proactive risk management

Responsible Care and Sustainability

When Responsible Care was developed in 1985, it was an expression of the chemistry industry's commitment to safety. Over the years it has evolved to include the industry's commitment to sustainability — the betterment of society, the environment and the economy.

NOVA Chemicals was a founding member of Responsible Care and supports the original Responsible Care ideals and their commitment to sustainability. Today, Responsible Care is practiced in more than 60 countries.

Responsible Care addresses stakeholder concerns about the potential effects of chemicals and chemical facilities on human health and the environment. This includes near neighbors, as well as social concerns about the safety of products used every day, and their potential impact on the environment.

Sustainability at NOVA Chemicals, as defined within our Taking Care framework, reflects our particular approach to putting Responsible Care into practice. These two are interwoven. Our own internal standards, policies and processes align with Responsible Care.

NOVA Chemicals' Responsible Care Council oversees and provides guidance on all aspects of Responsible Care and Sustainability. The Council reports results to and receives direction from the NOVA Chemicals Management Board. Eleven functional councils (e.g., environment, product stewardship) oversee function-specific monitoring, goal setting, compliance and related initiatives, and report to our Responsible Care Council.

Every three years, independent assessors conduct a Responsible Care verification audit of the majority of our Canadian operations. In 2016, we worked to address the findings of the most recent Responsible Care audit conducted in 2015. One of the required action items was to ensure near neighbors understand the actions they should take when a "shelter in place" instruction is activated. The manufacturing sites continue to leverage existing outreach programs to communicate this information and to work with regional Chemical Industry Association of Canada members and other organizations on effective community engagement and emergency response and outreach.

To learn more about Responsible Care and Sustainability at NOVA Chemicals click here.

At our Joffre Site we are in the midst of refurbishing nine furnaces targeted for completion by 2020. We expect air quality and ambient noise benefits as a result.

Governance

The Board of Directors, not a separate committee, addresses sustainability matters. The NOVA Chemicals Management Board (NMB) is composed of members of senior management and reports directly to the Board of Directors (the Board). The Board meets on at least a quarterly basis and has established two standing committees: the Audit Committee and the Remuneration Committee.

Our Responsible Care and Sustainability Policy outlines our commitments to communities, customers, employees and other members of society. Our Business Conduct Policy, which we refer to as our Code of Conduct, outlines a set of expectations, obligations and responsibilities relating to ethical conduct for all directors, officers and employees. In addition, we have adopted a Code of Ethics that applies to our Chief Executive Officer and Senior Financial Officers, which establishes additional expectations, obligations and responsibilities for such officers. To learn more about Governance at NOVA Chemicals, click here.

Management

Sustainability is a specific focus of many functions within NOVA Chemicals, including: Environment; Human Resources; Health and Safety; Product Stewardship; and Community Relations among others. These corporate functions work to monitor best practices, develop company-wide programs, and support our facilities in adhering to the company-wide direction.

We foster a culture of continual improvement by completing comprehensive reviews of the effectiveness of systems and programs and by setting annual performance and improvement objectives. We use stakeholder input and consider best available science and practices to responsibly manage issues. The Moving Forward sections in this report highlight specific plans for continual improvement throughout the company.

Our Values

Responsible — We conduct ourselves with honesty and integrity, and take accountability for our actions.

Passionate — We are motivated and energized to help shape a world that's even better tomorrow than it is today.

Innovative — We fuel our success with every day curiosity, imagination and creativity.

Collaborative — We proactively reach across boundaries to partner with each other as well as our customers, suppliers and communities.

Ethics and Compliance

One of the basic tenets of our company is to act with integrity and uphold high ethical and professional standards. Each one of us is accountable for our decisions, actions and results. We are committed to treating each other with dignity and respect. Our focus on ethics does more than simply fulfill a legal requirement; it helps to preserve our corporate culture and core values.

Our Code of Conduct (Code) sets forth the ethical standards by which we conduct our operations, and helps guide our daily decisions. The Code is a comprehensive set of expectations, obligations and responsibilities relating to ethical conduct and compliance with law. Online Code training is mandatory for all permanent employees and required for new hires as part of their onboarding process.

We have two helplines for reporting possible Code violations: the Ethics Line (1.800.985.7423) to make a report or raise a question anonymously, and the Anti-Harassment Line (1.800.361.6471) for issues related to respect in the workplace. In addition to phone reporting, concerns can also be reported online through our Workplace Alert Program, or to Legal or Human Resources staff or employees' leaders.

Written quarterly reports are provided to the NMB and the Board. The report includes metrics on matters received and highlights from the quarter. On an annual basis, a cumulative report is prepared and presented to the Board.

In 2016, we updated the Code training course to include short case studies and real scenarios. Because employees engaged more deeply with the revised content, our ethics and compliance group received an increased number of questions from employees seeking to better understand the concepts.

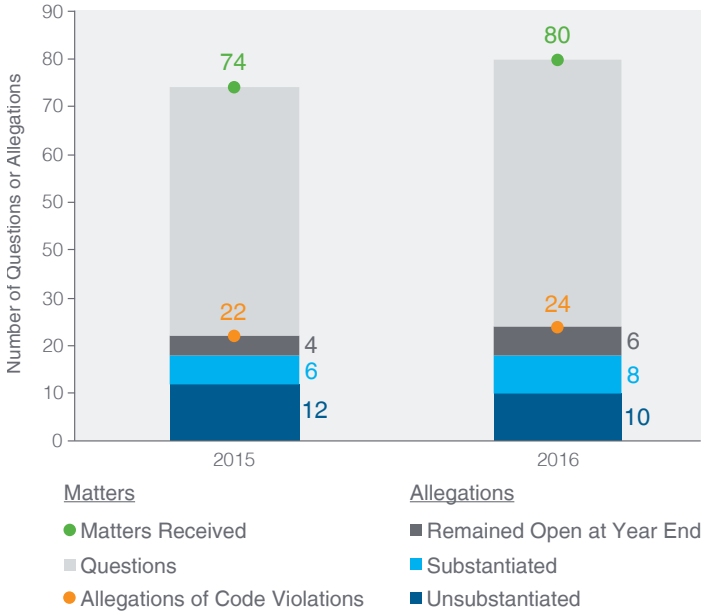
In 2016, we reviewed 80 matters, compared with 74 received in 2015. The majority of inquiries were received through channels other than the helplines. The most frequent topics raised in 2016 were discrimination/harassment, conflict of interest and trade compliance. We believe the continued upward trend in matters received is positive since it indicates greater awareness and is on par with our industry peers.

The majority of matters we reviewed were questions raised in the ordinary course of business rather than allegations. Accordingly, we seek to address trends in the topics of concern and distribute relevant company-wide communications or point to online resources. This year we re-emphasized our commitment to non-retaliation using various communication tools.

In recent years, the United States and Canada have aggressively enforced their existing anti-corruption laws, and countries formerly without such laws are now enacting them. To ensure our employees understand exactly what corruption is, in 2016 we launched a stand-alone Anti-Corruption Policy. In conjunction with the rollout of this policy, a new course was added to the ethics and compliance training online library. All leaders were encouraged to complete the course and ensure all relevant team members do the same.

In our continuing implementation of best practices, we are improving our role and responsibility in ensuring ethical conduct from our vendors and customers. In 2017, one of our focus areas will be providing tools to our purchasing and sales departments to pre-screen new parties and evaluate existing business relationships from a compliance perspective.

Ethics and Compliance Activity



Of the 80 matters reviewed, 24 were alleged violations of our Code. None were deemed material. All allegations are investigated, and when necessary, corrective action is taken.

Stakeholder Engagement

Our continued success depends on understanding and respecting the needs and interests of stakeholders at every stage of our operations. We think of stakeholders as persons or groups who are directly or indirectly affected by our operations, as well as those who have the ability to influence outcomes.

The table on the next page illustrates the range of stakeholders with whom we interact, the concerns they have raised, and how we engage with them.

We continue to engage with the Canadian federal and provincial governments, and U.S. regulatory agencies to ensure that prospective regulations on water, waste, air emissions and chemicals reflect a balance between environmental protection, financial constraints and technical feasibility. As well, we have provided our input to governments on tax structures, among other socio-economic issues. More often than not, we work through industry associations to address industry-wide challenges and to provide feedback on proposed regulations.

We welcome input from stakeholders on all aspects of our operations. Events such as open houses and meetings provide opportunities for meaningful dialogue with our local communities.

Our continued success depends on understanding and respecting the needs and interests of stakeholders at every stage of our operations.

Moving Forward

- Launch an *Ethics Ambassador* program to integrate ethics throughout our organization
- Integrate vendor and customer information to allow ethics pre-screening of new parties, as well as evaluation of existing business relationships

Stakeholder Engagement

Stakeholder Group	Topics and Concerns	How We Engage
Communities and First Nations	Public safety Environmental and social impacts Employment Noise, light, traffic Support for community programs Cumulative effects of production Plastics sustainability	Call out system and phone number Conversations Community advisory panels Neighbor events/Open houses Volunteer activities Newsletters Website community information Responsible Care verification
Employees	Fair total compensation Safe work environment Career development Work/life balance Impact their work has on society	Newsletters Employee Sessions Quality Conversations Engagement surveys Intranet and direct emails Volunteer opportunities
Customers	Cost Quality On-time delivery Mutual development benefits Safety Lifecycle of products	Sales and marketing calls Joint development programs Collaboration at the Centre for Performance Applications Product information Training/Technical support Innovation
Suppliers	Stability Growth plans Fair treatment Mutual development benefits	Meetings Joint development programs Training Technical support
Owner	Return on investment Responsible Care performance Strong governance and succession Strategic planning	Board meetings Board site visits Regular correspondence Reports
Governments/Regulators	Impact to communities Corporate responsibility Investment Compliance requirements	Reporting Periodic conversations Policy advocacy
Debt Investors	Long-term success Return on their investment Cash generation/Interest payments	Conference calls Quarterly and annual reporting Conversations

Operations

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

Operations

2016 Highlights

- Achieving an overall engagement score of 87 percent in our employee survey
- Launching 1NOVA Program to standardize processes across locations
- Hosting a 3-day event on transportation safety with internal and external experts

2016 Challenges

- Regretfully experiencing a fatality of a contractor at our Joffre, Alberta site

Employee Experience

We are passionate about the role of plastic products in making everyday life healthier, easier and safer. We are equally passionate about caring for the people, places, materials and processes that make these products possible.

Talented people are a foundation of our business. We view employment at NOVA Chemicals as a partnership. We foster employee commitment to NOVA Chemicals, our mission and to our collective success through this relationship. Leadership strives to involve the right people to address the right problems. We encourage everyday innovation through collaboration and support for a learning culture.

In 2016, we transformed our approach to performance management. Our new approach, called Shaping Success, minimizes administrative tasks and emphasizes regular high-quality conversations between leaders and employees. Our goal is to directly impact the key drivers of performance and development.

We encourage everyday innovation through collaboration and support for a learning culture.

Addressing sustainability challenges in our business and in the world around us depends on people working together to find solutions. It also depends on the ability of people to enjoy balance between personal and professional interests. That is why we strive to create a culture designed to help us inspire one another to do our best work and to create great customer solutions.

Every two years, we gather employee perceptions of the NOVA operating environment and use the data and insights to inform ongoing strategic initiatives and priorities that drive employee engagement. In 2016, our overall employee engagement score was 87 percent which confirms we continue to focus on the things important to our employees.

Our health and wellness programs focus on ergonomics, disability management and medical surveillance to ensure employees are fit to do their jobs. In 2016, we introduced the Total Well-Being concept to the organization which looks at wellness holistically. Total Well-Being encompasses physical, emotional, financial, social and environmental wellness. In 2016, a large percentage of our employees participated in initiatives related to this program:

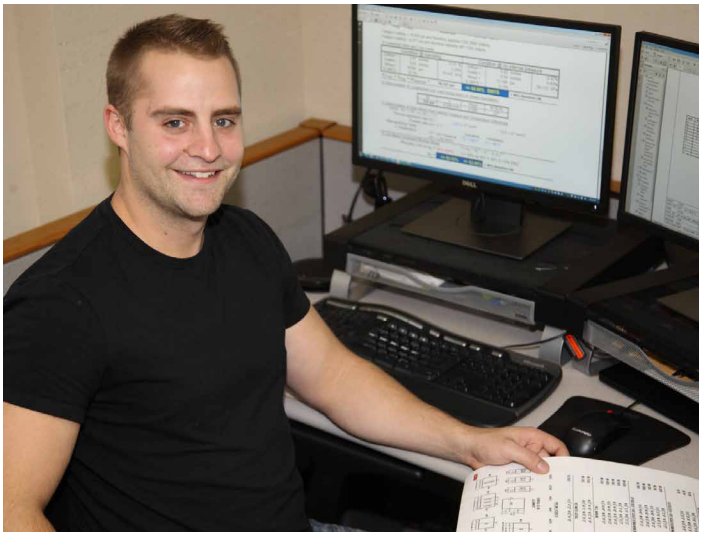
- 44% took advantage of on-site biometric screening;
- 25% attended standardized flu clinics; and
- 80% of employees completed health risk assessments.

Additionally, we developed an online Leader Resource Center with tips to position leaders for success in promoting and supporting Total Well-Being.

We are increasing our communications to employees about what NOVA Chemicals produces so they can speak informatively about plastics. In essence we are taking an 'educate to advocate' approach.

Please see page 52 for statistics on employee retention, gender diversity and other employee-related metrics.

We strive to create a culture designed to help us inspire one another to do our best work and to create great customer solutions.



Occupational Safety

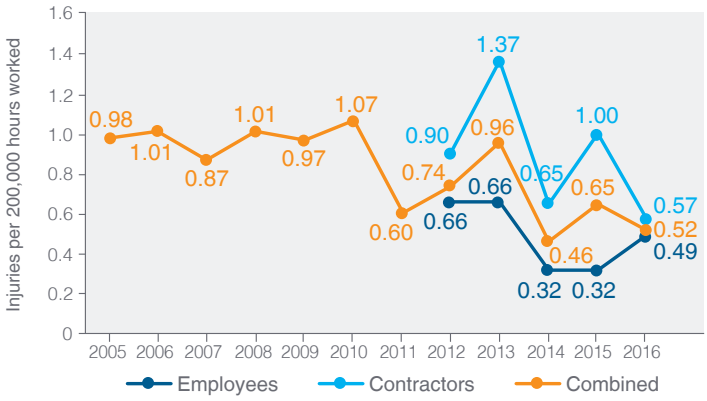
At NOVA Chemicals, we believe we are responsible for our own personal safety and for the safety of the people around us. The individuals who work at our company are expected to contribute their time and talent to our purpose and in turn expect to return home safely each day. Improving our safety performance requires organizational and personal commitment. Our aspirational goal for safety is zero injuries, we refer to this as Goal Zero.

In 2016, a tragic incident occurred during a crane dismantling that resulted in a contractor fatality at our Joffre Site in Alberta. Our leadership provides ongoing support to our emergency and crisis management processes; and in the face of this tragedy, stepped up to provide support to the internal and external investigations that were conducted. We also set up a task force of experts to investigate the incident and implement learnings. One of the outcomes is a new, company-wide crane and hoisting standard. This standard was rolled out in April 2017 to all sites. Additionally, we established a Crane and Hoisting Council to provide technical expertise and support.

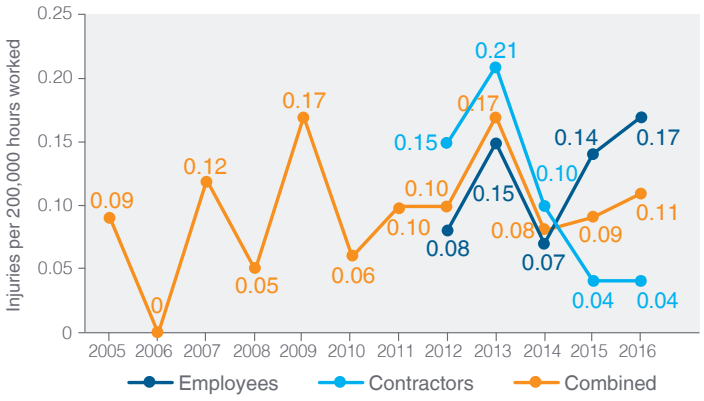
Creating and sustaining a workplace that continually improves performance requires a culture that values learning and accountability. The underpinning of this mindset is the Responsible Care Management System (RCMS). This system consists of company-wide standards that define "what" we need to focus on, along with procedures that address "how" to carry out the work that is essential to operational excellence.

The individuals who work at our company are expected to contribute their time and talent to our purpose and in turn expect to return home safely each day.

Recordable Injury Rates



Lost-Time Injury Rates



In 2016 we did not meet our desired safety performance for employee injury rates. We remain steadfastly committed to improving our safety performance after our 2016 experience, especially as we continue to work to embed the learnings from the contractor fatality at our Joffre site into the organization. We continue to work to improve our ability to learn and reflect on the causes of our performance, and balance our focus on near term work and effective use of our safety programs, while preparing for the future by improving and standardizing our critical safety programs across the organization.

Currently, we have multiple safety procedures, practices, programs and guidelines that are focused at the department or regional level. We believe that a company-wide RCMS that emphasizes the use of best practices, a future focus and continual improvement can lead to clearly aligned metrics that enable every employee to understand our performance and how they connect to our Goal Zero.

We are updating our RCMS to ensure we have company-wide standards and procedures. Our company's purpose and that of individuals within it are becoming increasingly aligned. We believe that standardization and a learning mindset can help us open doors for new ways to focus our efforts, to identify causes of undesired performance and to get our workforce involved in a meaningful way.

During our everyday tasks, we continue to ask ourselves "Am I Ready?" and use Safety Interactions (a conversation that highlights and then recognizes safe or at-risk behavior) as ways to improve our safety culture and maintain a state of vigilance. On average, every employee has 18 safety interactions each year, amounting to approximately 50,000 company wide. Am I Ready? is an internal philosophy that reminds employees to consider if they have the right training and equipment, are responsive to changing conditions, and are in the right mental and physical state to undertake the work.

At NOVA Chemicals, industrial hygiene programs designed to anticipate, recognize, evaluate and control chemical, physical and biological hazards in the workplace, are another way of ensuring workplace safety. Chemical management and hazard communications programs, worker training, worker exposure assessments, engineering control solutions and personal protective equipment are integrated to minimize workplace hazards.

During our everyday tasks, we continue to ask ourselves "Am I Ready?" and use Safety Interactions as ways to improve our safety culture and maintain a state of vigilance.

Contractor Safety

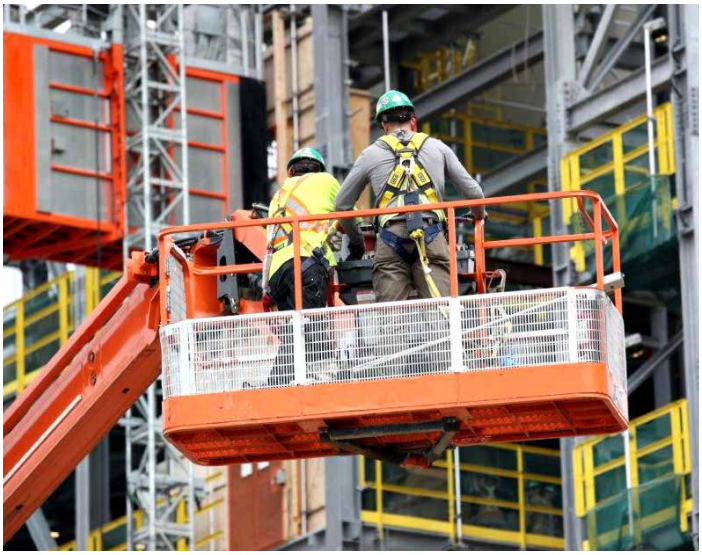
Our policies require all employees and contractors to understand their responsibilities to integrate Responsible Care and Sustainability into their daily work activities. Contractor safety begins well before our contractors start working. To become qualified for work at NOVA Chemicals, contractors must meet or exceed our stringent pre-qualification criteria that is managed by a third-party provider.

Contracted companies develop and implement management systems and programs that meet or exceed our Responsible Care standards. They provide company-specific onboarding to their workers and verify all valid technical training. To ensure alignment on key values and procedures, all contractors are assigned a NOVA Chemicals Designated Site Representative who is responsible for identifying accountability for work deliverables and managing Responsible Care performance expectations.

Responsible Care is embedded throughout our Maintenance and Construction Project lifecycles. We work directly with our contractors to develop schedules, safe work plans and job safety analyses that identify hazards and ensure controls that effectively manage risk. At the beginning of each shift, part of these plans are reviewed by construction crews at 'toolbox talks'. Simultaneously, we prepare process areas to provide contractors with a 'safe work envelope' in which they can complete their work.

Once at the work location, contractors assess area conditions, review tasks and identify adjacent work as they document hazards and controls on a field level hazard assessment, reviewed by the supervisor. Before any type of work begins, all of our employees, visitors and contractors are asked to pause and ask: *Am I Ready?*. Throughout the day, NOVA Chemicals leaders conduct routine tours of contractor work areas and engage in direct dialogue with workers.

On selected large-scale projects, we establish Worker Trades Committees that conduct inspections and contribute to Responsible Care program development. We also share a contractor balanced scorecard weekly at our sites. The scorecard includes lagging and leading indicators such as quality of contractor toolbox talks, safety meetings, hazard recognition, learning/improvement and participation in our Ultimate Safety Champion (USC) program. The USC is a peer-based recognition program focused on positive stories of workers helping other workers. This positive reinforcement is intended to take us beyond compliance-based programming to a safety culture of interdependency.



Our policies require all employees and contractors to understand their responsibilities to integrate Responsible Care and Sustainability into their daily work activities.

To become qualified for work at NOVA Chemicals, contractors must meet or exceed our stringent pre-qualification criteria.

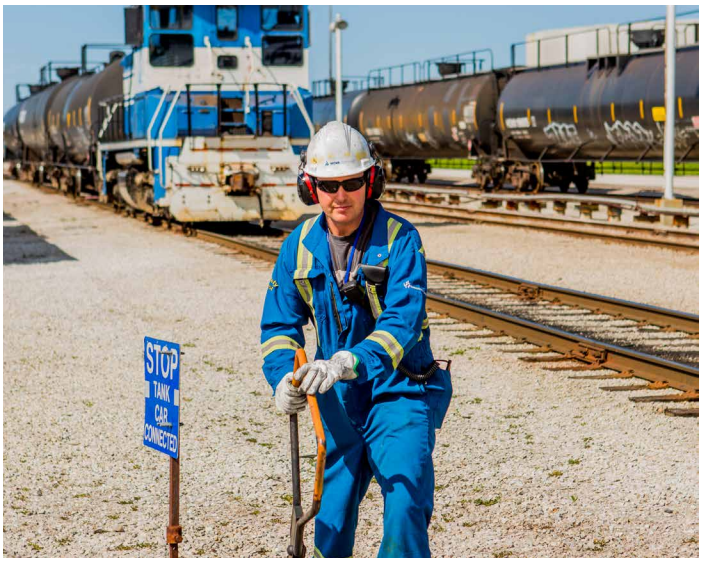
Process Safety

For NOVA Chemicals, 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. We believe our operations can be managed to ensure that personal and process incidents that could harm people, property or the environment, are prevented.

"Layers of protection" is the engineering, operating, and maintenance management model we follow for preventing process safety incidents.

We actively monitor more than 34,000 potential hazard scenarios as part of our ongoing five-year Process Hazard and Risk Assessment Program. We assess the risk probability, frequency and severity of these scenarios using methodologies consistent with guidance from the Center for Chemical Process Safety, ensuring we apply industry-leading approaches and science in making decisions.

For safety, we believe culture complements engineering. We can make each safeguard work better, but we also need to make sure people play their part. Employees must remain vigilant, ask thoughtful questions, and consider when early preventive actions are required, without relying on effective design and failsafes alone.



We believe our operations can be managed to ensure that personal and process incidents that could harm people, property or the environment, are prevented.

Layers of Protection Model

This model is based on the concept of multiple lines of defense, and addresses safety in layers that start at our facilities to protect employees and contractors working onsite and extend to communities near our areas of operations.

Emergency Preparedness

To ensure community safety, we develop emergency response plans, processes and teams for each manufacturing site. Every plan addresses responsible parties and decision-making, resource mobilization and communication, among other procedures. Our plans involve site-specific training that can include testing and inspection for a variety of emergencies. The list of potential threats that are addressed is comprehensive and includes spills and releases, natural disasters, fires and explosions, bomb threats and security breaches.

Emergency response exercises and fire drills are key components to emergency preparedness. In 2016, we conducted 138 tabletop and 176 in-person emergency response exercises, which included fire drills, fully-functional exercises and site evacuations.

In Alberta, NOVA Chemicals has its own licensed ambulances and operates under a special agreement with Alberta Health Services. In the event of an emergency, where we are in the best position to do so, these ambulances will respond to neighbors within a five-kilometer radius of our Joffre Site.

Through regional mutual aid agreements, NOVA Chemicals provides firefighting and rescue response to surrounding community and industry members. In Alberta, this is done through the Lacombe County Mutual Aid Agreement and in Ontario through a Sarnia-Lambton Community Awareness and Emergency Response organization. In Pennsylvania and Ohio, we are actively engaged and maintain relationships with community emergency responders.

In 2015, we renewed our cross-company Crisis Management Team. The team coordinates and responds in the case of a significant event (e.g., fire, explosion, natural disasters). This team received training in 2015 and 2016 specific to incident management systems and conducted emergency response exercises specific to their responsibilities.

Employees at our sites participated in more than 300 emergency response exercises in 2016.

We have our own emergency response fleet and licensed ambulances at the Joffre Site.

Training is an essential aspect of our corporate and mutual aid emergency preparedness.

Transportation Safety

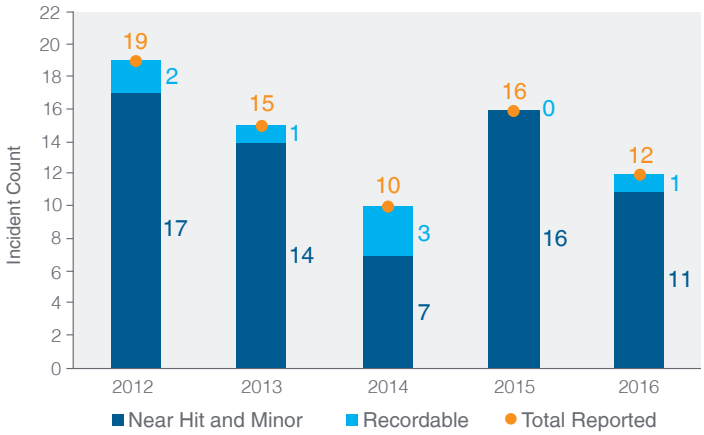
Transportation safety and security extends from our own operations to communities. It starts with the loading of products at our sites. In 2016, we conducted three internal audits and three external audits of the loading processes at our facilities to ensure safety and regulatory compliance.

Since we depend on carriers for the transportation of our products, we engage and review their operations extensively to help ensure safety. We ask carriers to do a self-assessment on their handling, routing, security and other safety aspects. We use industry-leading vendors to obtain third-party screening as well. Most of our carriers are Responsible Care designated suppliers.

Following onboarding, we engage suppliers and carriers through our supplier outreach program. The program specifies how often we audit carriers and bulk facilities, and how to work through corrective actions together.

In 2016, a third party conducted motor carrier evaluations at five of NOVA Chemicals' carrier locations. These audits are conducted to ensure the carriers adhere to industry-recognized procedures and policies. The auditors identify best practices and opportunities for improvement, which are reviewed at regularly scheduled stewardship meetings.

Transportation Safety Incidents



All incidents reported to our 24-hour emergency number are documented and reviewed regardless of severity. Recordable incidents are those classified as serious, major, or critical, and are reviewed to determine potential root cause. NOVA Chemicals' incident reporting is a key performance indicator that helps us focus on safe transport of our products and chemicals.

Transportation Emergency Response Training

The NOVA Chemicals Logistics Emergency Response Team (NOVALERT) maintains emergency response plans and capabilities for all of the commodities shipped via all modes of transportation to or from all NOVA Chemicals' facilities. The team is on-call 24-hours-a-day.

NOVALERT conducts regularly scheduled meetings and table-top exercises coupled with external hands-on training each year to maintain proficiency in emergency response capability. In 2016, the NOVALERT Technical Advisors (TA) hosted a face-to-face meeting with all Regional TAs, coupled with internal and external resources who support the NOVA Chemicals

Emergency Response Assistance Plan. The event was attended by 24 advisors and representatives from service providers and contracted emergency responders. The 3-day event provided an opportunity for team building and sharing of lessons learned.

In North America we engage with TRANSCAER® (Transportation Community Awareness and Emergency Response), an initiative that makes sure that communities are informed about the products moving through their area by road and rail, and what measures are in place to ensure their safe transportation. TRANSCAER provides an education platform for employees at chemical companies, volunteer firefighters and other first responders. In 2016, TRANSCAER hosted 25 events and trained 1,599 people in the Prairie Provinces and Ontario. NOVA Chemicals provided financial support for six of those events.

To help ensure the security of our international supply chain, we are a registered partner of the U.S. Customs-Trade Partnership Against Terrorism (C-TPAT) and the Canada Border Services Agency Partners in Protection program.

In 2016, the U.S. Customs and Border Protection Agency audited NOVA Chemicals to verify the effectiveness of the security criteria and initiatives we implemented as members of the C-TPAT voluntary program. The revalidation audit identified opportunities for improvement, but the overall assessment determined we met the highest level of requirements (Tier III).

A non-accident release (NAR) is the unintentional release or leak of a product during loading, dispensing or transportation of the product that is not caused by an accident. We achieved zero NARs in 2016 for the third consecutive year and for five out of the past six years. We believe this is an industry best practice and continue our focus on NAR prevention through recurrent training, railcar specifications and maintenance programs.

Working with Carriers to Ensure Transportation Safety

Vendor Screening

- Vendor completes self-assessment before conducting business
- Assessment of commitment to Responsible Care, emergency response, security, handling, routing

Onboarding

- Expectations are discussed and mutually agreed upon

Ongoing Outreach

- Regular stewardship and performance reviews
- Training
- Jointly address corrective actions

Audits

- We check standards, procedures, policies
- Internal and external auditors used

Moving Forward

- Evaluating our current systems and procedures to ensure the physical security of our assets and personnel, and the security of shipments of our products
- Assessing risks in our supply chain as we are increasingly working with more international suppliers

Communities

In our communities, we take care to be a neighbor that promotes dialogue, understanding and involvement. We contribute to the economic vitality of our communities through social investment and more importantly by creating jobs, purchasing local goods and services, and paying taxes.

Communities

2016 Highlights

- Hosting two open houses in Sarnia, Ontario as part of our long-term expansion project
- Maintaining significant investment and local employment, as a result of our growth projects

2016 Challenges

- Meeting increasingly complex regulatory processes and associated stakeholder consultation, to support operations and growth
- Supporting the higher level of interactions required during expansion construction projects

Our Approach

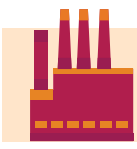
We aspire to be a socially responsible neighbor by making decisions that create value for NOVA Chemicals and the communities where we have a presence. To build lasting relationships with communities, we invest in their development, engage with stakeholders and aim to create a positive economic impact. We believe these three elements go hand in hand.

Each of our sites has a local **Community Advisory Panel** that meets regularly throughout the year.

Good Neighbor Strategy helps to proactively identify opportunities and issues related to construction in our manufacturing sites.

2016: Invested more than **$2.3 million** to support community organizations; over **1,000 employees** volunteered **6,800 hours** lending a hand in our communities.

Focused on three core areas: education and science, health and community service, and the arts.



$1.2 billion Corunna

We have invested nearly $1.2 billion over the past 10 years in our Ontario manufacturing facilities to ensure ongoing safe, efficient and reliable operations that will remain globally competitive.

A large amount of these financial investments benefit the local communities through equipment purchase, fabrication and a local construction workforce.

$1.8 billion Joffre

We have invested more than $1.8 billion over the past 10 years to maintain and grow Alberta manufacturing facilities.

Community Outreach

We create opportunities for open dialogue with our communities and neighbors to share information, seek input and respond to concerns.

A company-wide standard helps our manufacturing sites customize outreach programs, focusing greater engagement around larger-scale facilities with potential for higher external impacts. Each of our manufacturing sites engages in local Community Advisory Panels that meet throughout the year. Site leadership meets regularly with local groups. Information about our manufacturing facilities is available more broadly through local newsletters and site webpages. In 2016, we started publishing regular newsletters for our local stakeholders in the Sarnia-Lambton area to cover a wide range of topics, from permit applications that support growth plans to community and volunteering events.

When we undertake a sizeable facility change or expansion project, our outreach efforts expand to include consultation with the community to ensure they are aware of our plans, to incorporate suggestions whenever practical and to proactively address issues and opportunities. More details of our interactions with stakeholders in the Alberta, Ontario, Pennsylvania and Ohio regions are available on our website.

Consultation on growth projects planned for our Ontario facilities continues with communities, partners, near neighbors and First Nations. To encourage public input we hosted two open houses in June and October 2016. Approximately 140 community members attended the events and provided positive feedback about the potential for growth in the region. We recognize that the First Nations communities located in this region bring a unique and valuable perspective to our community outreach, involvement and engagement practices. We work with the councils, environment committees and others to strengthen and expand this important relationship.

Our increased engagement program with our Sarnia area community reflects the significant capital investments and upgrades we continue to make to our Corunna, Ontario ethylene facility.

Our Joffre Site holds an annual Emergency Preparedness Awareness BBQ for neighbors that includes tours of emergency equipment, information booths and kids' events.

We create opportunities for open dialogue with our communities and neighbors to share information, seek input and respond to concerns.

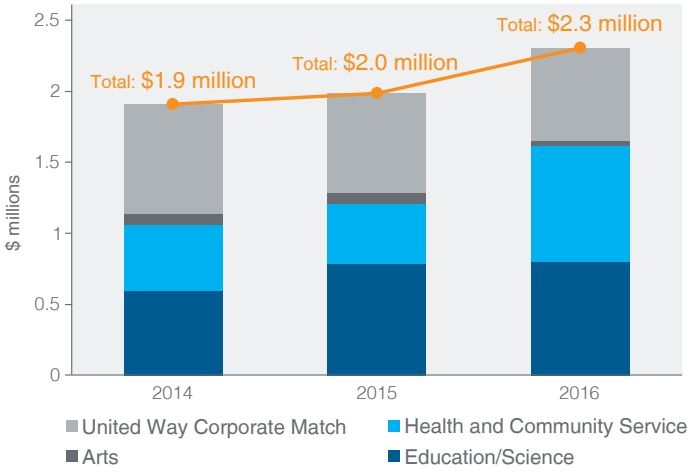
Community Investment

NOVA Chemicals invests 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. Our community investments address identified community needs and focus on three core areas that support our business strategy and are aligned with our principles: education and science (including environmental initiatives); health and community services, and the arts.

NOVA Chemicals has long-standing partnerships with non-profit organizations and local colleges in Canada and the United States. In 2016:

- We participated in the groundbreaking ceremony for the new NOVA Chemicals Health & Research Centre at Lambton College in Sarnia, Ontario. Our $2 million multi-year investment is helping build a 60,000 square foot building to host health simulation labs, interactive learning studios and research space;
- 60 of our employees volunteered and NOVA Chemicals was a signature sponsor of the MasterCard Memorial Hockey Cup in Red Deer, Alberta. Half of the proceeds of this event went to support the Central Alberta community;
- Nearly 30 employees across our sites assembled hands-on science kits to engage local students. The kits are meant to support STEAM education (science, technology, engineering, arts and mathematics). We piloted the science kits at several locations and events with more than 800 students;

Community Investments



- We donated a total of $700,000 to the United Way. Together with employee and Canadian retiree campaign pledges and events proceeds, our collective effort saw $1.4 million invested in the communities where we live and work.

Investing is of course more than just monetary. We provide gifts-in-kind and encourage employee community involvement and volunteering. In 2016, NOVA Chemicals employees volunteered 6,800 hours through the United Way Day of Caring® and other programs.

By supporting hands-on learning at the Carnegie Science Center in Pittsburgh, NOVA Chemicals employees help to inspire young students to consider careers in Science, Technology, Engineering and Math (STEM) fields.

Preparing clothing for global distribution is one of the many ways that employees provided 6,800 service hours in our local communities.

Examples of How We Invest In Our Communities

Garage Sale After Facility Expansion

In October 2016, our Joffre Site hosted a “Never Refuse to Reuse” event in conjunction with the United Way. One of the key goals of the event was to keep surplus furniture and office equipment out of the landfill. On the first day of the two-day event, run by 40 employee and contractor volunteers, staff were able to purchase used furniture and electronics. The proceeds from the sale, as well as NOVA Chemicals’ matching dollars, benefited the United Way. The second day was a “free and carry” day offered to non-profits in the area, benefiting 36 agencies including six schools. At the end of the event, Habitat for Humanity® picked up remaining items to stock their new Habitat Re-Store® warehouse for its grand opening. This initiative was a prime example of sustainability: engaging employees, helping non-profits and minimizing waste to landfill.

Supporting First Nations Youth

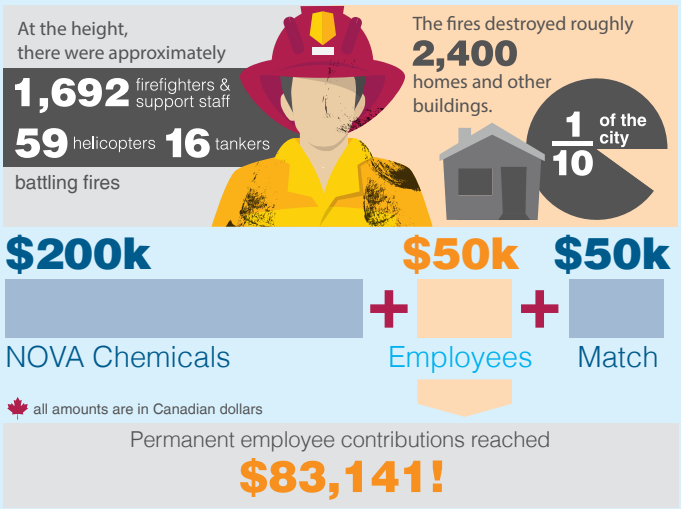
In the Sarnia-Lambton region, we are a key supporter of the YMCA Youth Aboriginal Leadership initiative and the Leaders of Tomorrow program. Offered to First Nations youth aged 14 to 17, these programs are a unique blend of outdoor adventure, community involvement and skill development, helping to build self-awareness, leadership and problem solving skills, communication and teamwork. Through NOVA Chemicals’ involvement over the past three years, the YMCA is able to offer the program free to First Nations youth and extend it across the region — reaching more than 400 youth in three neighboring First Nation communities.

Helping Albertans during Wildfires

In 2016, Fort McMurray and the surrounding area in Northern Alberta faced the largest wildfire evacuation in Alberta's history, with roughly 90,000 evacuees. The wildfires destroyed entire neighborhoods and businesses.

In May, NOVA Chemicals announced it would make a $200,000 corporate donation to assist with immediate and ongoing relief efforts. In addition, we announced that we would match up to $50,000 of employee contributions to the Canadian Red Cross.

In the true spirit of giving, within the first 24 hours after announcing the matching program, employees donated close to $25,000. We are proud to share that nearly 400 employees from across the regions participated in the matching program, which reached $83,141.



Economic Impact

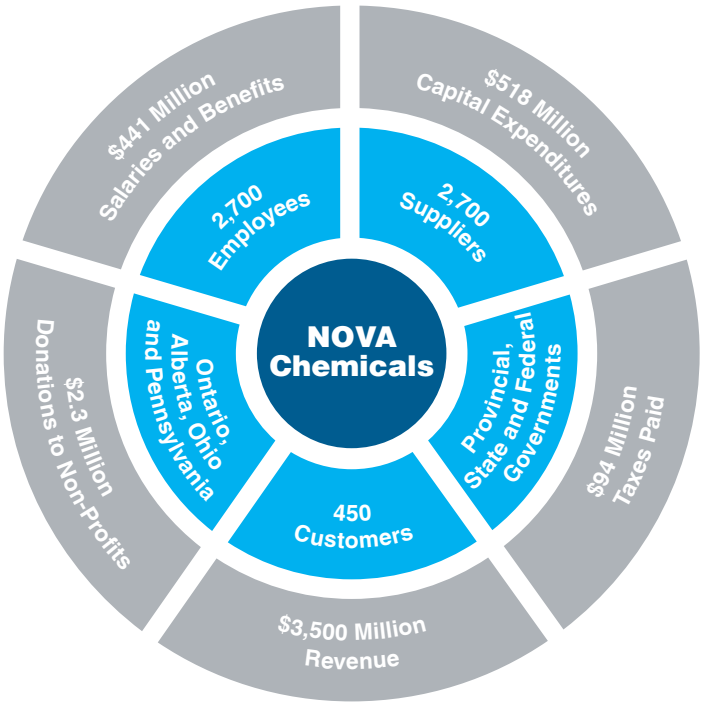
Our work at NOVA Chemicals results in plastic products that take care of food, water and other goods vital to life. In short, we add significant value to raw natural resources such as natural gas.

We create a positive economic impact by generating value and reinvesting it to benefit a variety of stakeholders. Our business activities with more than 2,700 suppliers and vendors worldwide generate considerable economic impacts. The taxes we pay to governments provide support to public services and infrastructure development in various jurisdictions. Each of our facilities creates skilled employment and other business opportunities in the surrounding region, which is often less developed and sometimes lacking in other economic opportunities compared with large urban centers.

In the past 10 years, we have made considerable capital improvements exceeding $3 billion at our sites. A large amount of these investments benefits the local regions through equipment purchase, fabrication and employment of local construction workforces.

The diagram to the right shows how our operations benefit numerous stakeholders economically.

Generating Economic Value Throughout Society (2016 data)



We create a positive economic impact by generating value and reinvesting it to benefit a variety of stakeholders.

Moving Forward

- Supporting the 2019 Canada Winter Games and a related new facility at Red Deer College through our $2 million Platinum Sponsorship
- Facilitating mutually beneficial business/employment opportunities for First Nations communities in the Sarnia-Lambton area

Products

In our products and those we enable, we innovate to improve people's lives. We take care to promote the safety, security and value of products throughout their life cycle.

Products

2016 Highlights

- Developing a testing protocol for products coming from the new production line at our Joffre, Alberta site
- Providing product safety information to more than 1,000 stakeholders

2016 Challenges

- Adopting stricter global regulations for chemical registration and for end uses (e.g. food contact)
- Implementing and leveraging our investment in systems to manage product safety information

Better Tomorrow than Today

We are committed to managing the health, safety, environmental and security impacts of our products across their life cycles. Our product stewardship program addresses product safety and sustainability in new product design, market development, raw material selection, product manufacturing, distribution and sales, product applications, recovery or reuse, and disposal.

We believe we can continue to innovate better performing products that are not only safe, but also reduce environmental impacts and increase value to society.

Product Safety

Our product safety and information program is designed to understand and communicate safety impacts of our products, address product regulations and manage risks. We conduct systematic evaluations of our products so they deliver their intended benefits, while protecting public health and the environment. Our products are evaluated for overall risk internally, with our trade associations, and by governments and other groups. Consistent with the American Chemistry Council's Product Safety Code and the Chemistry Industry Association of Canada's Stewardship Code, we continuously evaluate and improve the safety performance of our products by reducing hazardous components and substituting lower hazard raw materials.

To coincide with the start-up in 2016 of the new polyethylene production line at our Joffre, Alberta site, we devised a protocol for testing and assessing new product coming from the line to confirm its purity and regulatory compliance. In 2016, we also completed many tests to verify the physical properties of our products and an eco-toxicity study of several styrenics products. These results have been used to substantiate our products' classifications according to the Globally Harmonized System of Classification and Labelling of Chemicals classifications, incorporated into our product information, and communicated to our stakeholders.

We engage our suppliers and customers to help ensure product safety through our Responsible Care Outreach program and other initiatives. Suppliers and raw materials are checked for compliance with chemical control regulations, quality, Responsible Care and integrity expectations, and trade compliance. We strive to do business with suppliers that adhere to the Responsible Care ethic.

NOVA Chemicals does not use conflict minerals (i.e., tungsten, tantalum, tin, and gold sourced from specified conflict areas) in our products. Also, we do not knowingly manufacture or sell product that will be converted into microbeads for use in personal care applications. Microbeads are plastic materials often used in consumer products such as exfoliating cleansers. These products are discharged into the environment via municipal sewer systems, which do not remove the microbeads, where they can end up in the food chain. In 2016, the Canadian government issued a ban on the sale of shower gels, toothpaste and facial scrubs containing plastic microbeads, effective July 1, 2018.

NOVA Chemicals began trials to replace the use of TNPP (an industry standard antioxidant) in some of our film resins. The replacement antioxidant is approved for use in food contact applications by major regulatory agencies worldwide.

NOVA Chemicals maintains subscriptions to comprehensive regulatory databases and participates in trade associations. When necessary, we employ expert consultants to support and advise on global chemical and product regulations.

We also employ tracking systems to prevent inadvertently selling noncompliant products. Our systems compare purchase and sales orders with jurisdictional requirements, provide warnings, and if necessary, block transactions.

NOVA Chemicals has developed a versatile all-polyethylene multilayer film structure design for use in the popular stand-up pouch package format. Unlike the majority of the food packaging and stand-up pouch market, our design is fully recyclable into the #2 HDPE recycling stream.

We engage our suppliers, carriers and customers to help ensure product safety through our Responsible Care Outreach program and other initiatives.

Product Information

We believe it is essential for people who use our products to have access to clear information on their contents and safe handling. In 2016, we conducted more than 1,000 stakeholder interactions, providing them with updated product safety and Responsible Care information.

Based on our prioritization process that considers hazard properties, along with exposure and use information, of the various products that NOVA Chemicals produces, we have designated two products as “high priority.” We provide public product risk profiles for these, and select other products. Our product risk profiles provide general risk information (i.e., physical and health hazards; human and environmental exposure) of our products.

NOVA Chemicals also creates safety data sheets and labels for all of our chemical and polymer products. This information includes the product’s hazard properties, how to use it safely, and what to do in an emergency. We also produce brief Product Backgrounders and Product Risk Profiles.

To further strengthen our compliance efforts and to position the company for future growth, we invested nearly $1 million in an SAP® solution to support development and distribution of safety data sheets, labels and other product documents. The project is scheduled to be fully implemented in 2017.

Product Sustainability

Product sustainability goes beyond risk management and aims to address long-term environmental and social impacts of our products and the products that we enable. NOVA Chemicals takes a proactive and collaborative approach to product sustainability. We ensure new product development reviews consider sustainability: adding value to society; conserving raw materials; avoiding inputs of concern; and minimizing energy use, waste and pollution associated with the manufacture of products and their end use. We work with suppliers, equipment manufacturers, customers, brand owners, industry associations and other members of our value chain to understand product sustainability needs and seek viable solutions.

A recent study conducted by Trucost® for the American Chemistry Council suggests that replacing plastic in consumer products and packaging, with alternative materials, such as glass, tin, aluminum or paper, would increase total environmental impacts and costs by about 4 times. These results challenge common misconceptions about plastics. The study also proposes opportunities for the industry to pursue improvements of its environmental performance. Suggested areas of opportunity include raw material and energy use, manufacturing, logistics, material use, package design, recycling and recovery. This is a challenge that our industry and our company are undertaking. At NOVA Chemicals, two elements that enable product sustainability are innovation and customer collaboration.

By innovating, NOVA Chemicals is making a commitment to the future, to the long term. Innovation helps us to reduce our production costs, environmental impacts and safety risks, and to stay competitive. We strive for “everyday innovation”, where employees throughout the company are encouraged to bring forth their ideas for processes and products. We also aim for incremental and breakthrough innovation in product design such as developing products that enable lighter weight packaging, material substitution for increased recyclability of packaging and prolonged shelf life of packaged goods to reduce food waste.

The resins that NOVA Chemicals produces make it possible for our customers to develop products that protect valuable goods in transit, reduce energy use and food spoilage, enhance safety and otherwise improve people’s lives.

We collaborate and innovate with our customers to understand their needs, and the suitability of our products for their particular application (e.g., food applications). Each new NOVA Chemicals' resin is developed to meet market requirements for performance.

Our Calgary technology centres (the Centre for Applied Research and the Centre for Performance Applications) are the largest private research facilities in Western Canada. They also greatly enhance NOVA Chemicals’ ability to collaborate with our customers to bring better-designed, better-performing products to market more quickly.

We look at opportunities to improve the sustainability of our products in many stages of the lifecycle. The following pages describe some our recent projects in this area.

Moving Forward

- Finalize the multi-year SAP project to upgrade our systems to manage product safety information
- Respond to international regulatory requirements by replacing additives we use in our polyethylene manufacturing, like the phosphite antioxidant TNPP
- Focus R&D efforts towards higher performing new products for further packaging lightweighting and material substitution for structure simplification; with emphasis in the food and beverage packaging markets

Recent Projects that Contribute to Product Sustainability

NOVA Chemicals works within our own operations, and with customers and industry associations to improve product sustainability throughout the lifecycle. Many improvements have multiple benefits, but they all start with product design.

Raw Material Selection

Global producers of polyethylene use a variety of feedstocks derived from crude oil and natural gas. The vast majority of polyethylene products produced by NOVA Chemicals are derived from natural gas. Natural gas is a cost-effective option and has the environmental benefit of creating fewer emissions than other fossil fuels.

EPS Recycling Projects

NOVA Chemicals is a primary funding member of the Canadian Plastics Industry Association (CPIA), which sponsors plastics recycling research and integrated waste reduction strategies for Canadian municipalities. The CPIA is working with the Alberta Plastics Recycling Association to support the Town of Cochrane and the City of Airdrie in their efforts to recycle EPS. Cochrane is diverting approximately a tonne of EPS from landfills every month and Airdrie has diverted 4.2 tonnes of EPS since 2014.

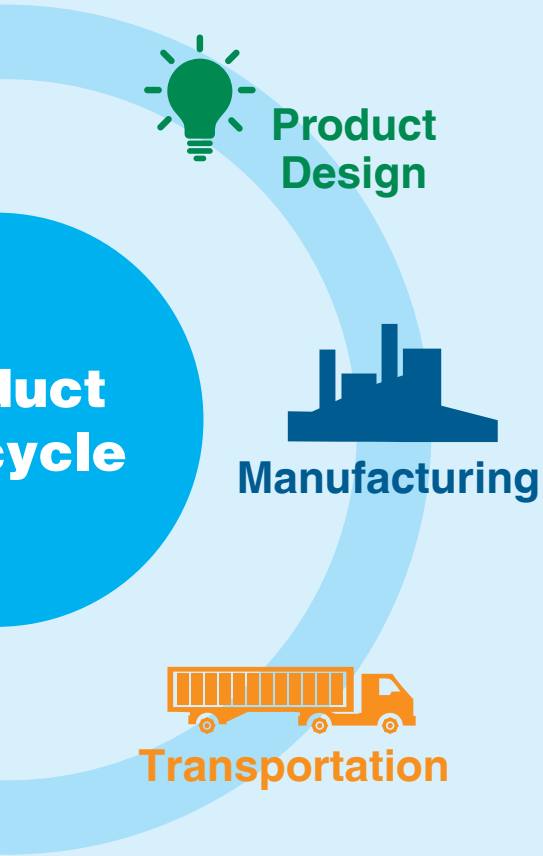
Similar efforts in the U.S. have demonstrated excellent results. For instance, our Beaver Valley, Pennsylvania site is actively engaged with the Pennsylvania Resources Council and other organizations to advance EPS recycling. In 2016, approximately 9 tonnes of densified foam were diverted from landfills through these efforts.

Enabling Products that are Recyclable

All of NOVA Chemicals' polyethylene resins can be recycled. Within our manufacturing facilities, we reclaim and recycle resins that do not meet our specifications. End-use products made of the resins we produce include plastic films and rigid products. Film products, especially grocery, retail and dry cleaning bags, are being recycled or returned directly to retailers. Rigid products, such as plastic containers, tubs, trays and lids, are being collected by communities and recycled. Through different processes, these products can be recycled into composite lumber or detergent containers and sometimes reprocessed into small pellets that are reused for manufacturing.

Enhancing Application Development Capabilities

In 2016, NOVA Chemicals opened an expanded Centre for Performance Applications, including additional equipment intended for the production of plastic parts and packages. These new capabilities allow our Application Development Specialists to work with customers and brand owners to design new packaging solutions aimed at packaging weight reduction, structure simplification, improved recyclability, and prolonged shelf life of the packaged goods. These capabilities also help to identify end-use needs to inform NOVA Chemicals' product development programs.



Material Simplification

A majority of stand-up pouches are currently not recyclable, as they are made of mixed materials which cannot be easily separated for recovery.

Now, our customers can produce an all-polyethylene stand-up pouch based on our film structure design and resins that stands out because of its versatility and full recyclability. The all-PE structure matches the performance and cost competitiveness of existing mixed material structures, but is more easily recycled. This new structure design recently was tested and approved to carry the How2Recycle® "in-store drop off" package label.

Reducing Packaging Weight

A common area of focus for NOVA Chemicals is developing resins that allow customers to reduce the amount of material necessary to produce packaging. When reducing material use, maintaining package performance (e.g., durability, stability) is essential. A reduction in weight leads to a reduction in transportation fuel, emissions and cost, as well as a reduction in waste after the packaged product is consumed.

Contribution to Global Food Waste Reduction

Food waste is a growing global concern. As a key contributor in the food packaging chain, NOVA Chemicals recognizes the impact that packaging design and durability can have on this issue. One packaging improvement that NOVA Chemicals is collaborating with a customer on is "saddle bag" packaging for poultry. This enables poultry pieces to be packaged individually, allowing consumers to use only what they need, freeze the rest and reduce food spoilage.

Environment

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

Environment

2016 Highlights

- Establishing a Greenhouse Gas Steering Team
- Receiving recognition from the Ontario government for environmental improvements at our Corunna Site

2016 Challenges

- Defining the implications of upcoming more stringent air emissions regulations
- Understanding water scarcity and advancing the dialogue on responsible water use management
- Broadening our perspective of potential improvements in our operations, feedstocks and products, as a result of recent climate change regulations

Environmental Management

NOVA Chemicals' environmental management systems include corporate policy, standards, programs and procedures. Standards provide the guidance as to why certain activities are undertaken. Programs provide details of what activities are managed. Procedures are specific instructions as to how environmental programs are delivered.

In support of NOVA Chemicals' long-term strategy, we adopted our 2020 Environment Plan in late 2014, and communicated it broadly throughout the company in 2015. It includes a series of internal goals and actions to support continual improvement in priority areas. The plan is structured around three major categories and nine theme areas.

To implement our plan, we have established a number of key teams:

- GHG Steering Team — includes representatives from NOVA Chemicals' Responsible Care Council, and the following departments: Sustainability, Feedstocks, Legal, Government Relations, Operations, Engineering, Risk Management, Project Management and Finance;
- Resource Conservation Team — focused on identifying the best options for waste reduction across the company; and
- Regional Teams — focused on nitrogen oxides and other air emissions, including compliance with new equipment emission standards for boilers and heaters in Canada.

A key consideration in our growth strategy is to leverage equipment advances. whenever possible, that can have the dual benefits of improved economics and improved environmental performance.

In 2016, NOVA Chemicals was proud to have received the Minister's Award for Environmental Excellence from the Ontario Ministry of Environment and Climate Change. We were recognized for our work to transition our Corunna facility from oil-based to primarily ethane-based feedstock. We have already realized significant reductions in emissions of sulfur dioxide and nitrogen oxides (key air pollutants) and carbon dioxide (a greenhouse gas).

Air Emissions

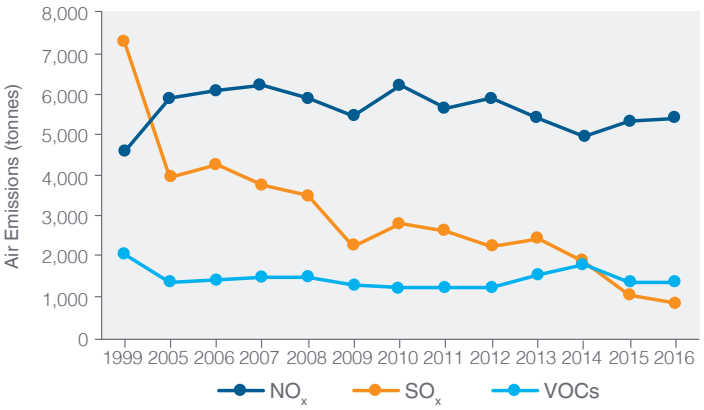
NOVA Chemicals' facilities have been successful in lowering air emission levels over the past 20 years. Air emissions regulations vary by province, state and country. Recently there has been an increased focus on local air emission reductions, both in setting new standards and meeting regional levels (e.g., particulate matter limits in Red Deer, Alberta).

In our Environment Plan we set targets for emission intensity reductions by 2020 over a 2010 baseline:

- Nitrogen oxides — 15 percent;
- Sulfur dioxide — 65 percent; and
- Volatile organic compounds (VOCs) — 15 percent.

In most cases, air emissions like nitrogen oxides are regional issues, so we manage them at the facility level. We focus our improvements on combustions processes, since they are the source of most of our air emissions.

Air Emissions



In 2016, increased production at both our Joffre and Corunna facilities resulted in a slight increase in NOx emissions from 2015 levels. VOC emissions are primarily due to fugitive emission and flaring activity and remained relatively constant from 2015 to 2016. Since 1999, we were able to significantly reduce sulfur dioxide emissions due to fuel switching and this downward trend continued in 2016.

NOVA Chemicals' facilities have been successful in lowering air emission levels over the past 20 years.

Due to the closure of the adjacent, independently operated, coal-fired power and heat plant that supplied our Beaver Valley, Pennsylvania site, we installed new boilers in 2015. Although this will slightly increase air emissions from our plant, the conversion results in a significant net reduction of local nitrogen oxides emissions.

The proposed emissions reduction project at our Moore, Ontario site will reduce emissions of ethylene and other VOCs.

We converted our Corunna, Ontario ethylene manufacturing facility in 2015 to enable use of up to 100 percent natural gas liquids as feedstock. NOVA Chemicals was the first petrochemical company to use Marcellus shale ethane as feedstock. The feedstock shift, along with process improvements, has already begun to reduce the facility's emissions of sulfur dioxide and nitrogen oxides. From 2010 through 2016, we have reduced sulfur dioxide emissions by 67.4 percent and nitrogen oxides emissions by 37.6 percent. In 2016, this project earned NOVA Chemicals the Award for Environmental Excellence from the Ontario Ministry of Environment and Climate Change.

The proposed emissions reduction project at our Moore, Ontario site involves installing new equipment to oxidize off-gases created during the manufacturing process. The new equipment will reduce emissions of ethylene and other VOCs. Planned completion of the project is 2018.

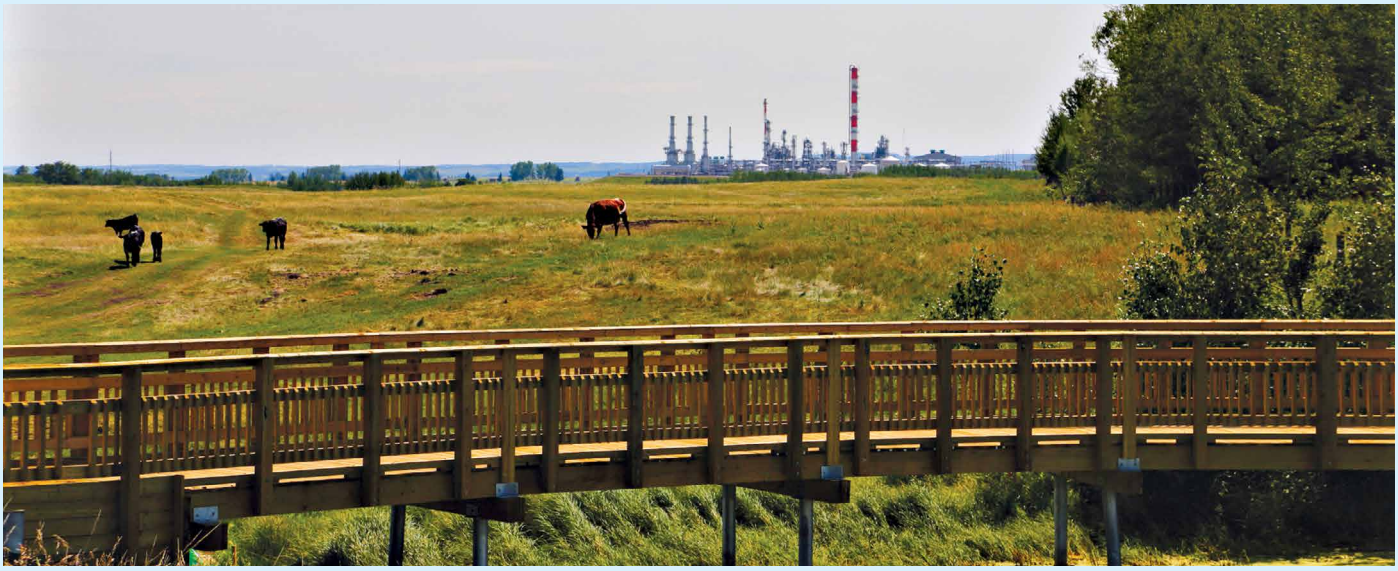
At our Joffre Site we are in the midst of refurbishing nine furnaces which will be completed by 2020. We expect air quality and ambient noise benefits as a result.

Nature Trail Nominated for Alberta Emerald Award

In 2016, the NOVA Chemicals Community Nature Trail around our Joffre Site was opened to the public. This valuable community resource is a tangible example of our commitment to Taking Care in all that we do.

From concept to reality, this project demonstrates environmental leadership. Our trail was one of three Alberta Emerald Award™ finalists in the large business category. The Emerald Awards celebrate outstanding environmental achievements that demonstrate a significant ongoing commitment to the environment, social responsibility and exceed normal practices or statutory duties.

In this video, developed by the Alberta Emerald Award Foundation, we explain the inspiration and motivation behind the trails development.



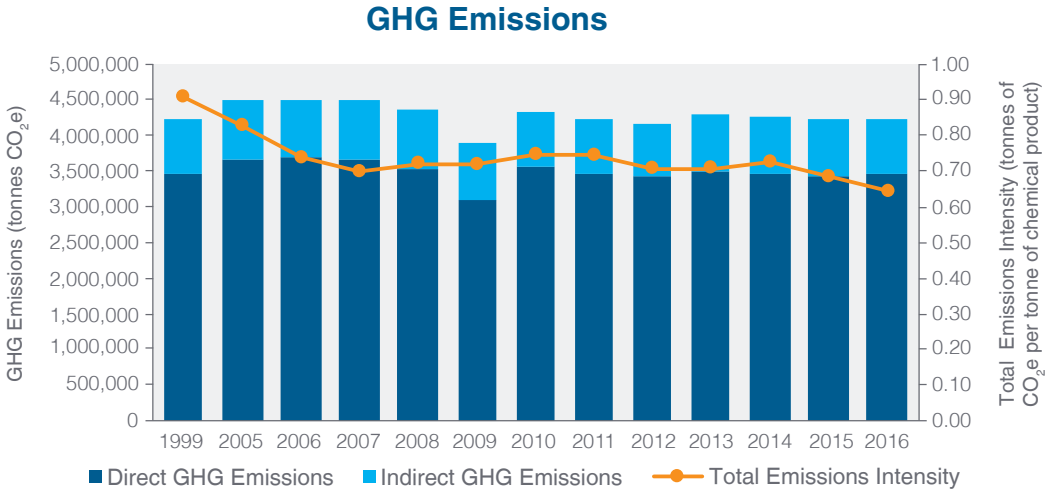
Greenhouse Gases

In the past two years, we have seen new climate change regulations — including the Alberta Carbon Levy and Ontario Cap and Trade — that further advance expectations for GHG emission reductions from industry and society. In our 2020 Environmental Plan, we had set a target for NOVA Chemicals to reduce our GHG intensity by 10 percent from 2010 to 2020. In light of the current dynamic regulatory environment, NOVA Chemicals is redefining its GHG emissions management objectives. We are using a combination of operational excellence and best practice strategies and assessing appropriate emissions avoidance and mitigation targets across our complex and expanding operations portfolio.

The majority of our GHG emissions occur in Canada, and 95 percent of these emissions are related to ethylene manufacturing. Our GHG reduction strategy focuses on this key fact, but also recognizes other avenues for improvement. Technology is an important area of focus as we look for incremental and step-change opportunities to improve on our manufacturing processes. NOVA Chemicals believes that GHG reduction solutions must protect the environment and enable economic benefits.

Our GHG Steering Team addresses how we align our operations growth projects with our GHG reductions objectives. The team is currently developing a comprehensive strategy with input from all areas of the company. Efforts to expand our portfolio of internal and external opportunities to reduce GHG emissions, such as capital projects, innovation and operational optimization, are progressing. Beyond our operations, we are also considering alternative feedstocks and fuels, and independent projects, as well as purchasing offsets.

NOVA Chemicals believes that GHG reduction solutions must protect the environment and enable economic benefits.



Although our absolute GHG emissions have remained relatively stable over the years, emissions intensity (tonnes of emissions per tonne of production) has declined significantly due to feedstock conversion, and the addition of high efficiency plants that resulted in a significant increase in production and a small increase in emissions. Direct emissions are generated onsite, from burning natural gas and other fuels, or from processes at our operations. Indirect emissions are from the offsite generation of purchased electricity, steam and heat. The above figures do not include direct emissions from cogeneration facilities.

To influence GHG emissions in our value chain, we prefer rail transportation to truck, because of its lower emissions intensity. When possible, we procure inputs from local suppliers to reduce transport costs and related emissions.

NOVA Chemicals has reported our GHG performance publicly for more than 20 years. Prior to regulations requiring reporting, NOVA Chemicals voluntarily reported our performance. In keeping with regulatory requirements, a third-party verifies our Alberta and Ontario GHG emissions data annually.

We are also working on energy efficiency projects as part of our commitment to continual improvement.

We prefer rail transportation to truck, because of its lower emissions intensity.

NOVA Chemicals & Greenhouse Gases

Performance and Ambition

Context

Annual GHG emissions: **4 megatonnes**

95 percent from ethylene manufacturing

Majority of emissions in **Canada**

Our Intensity Target

Intensity = emissions per tonne of product

10 percent reduction by 2020, with 2010 base year

13.7 percent reduction since 2010

How We Make Progress

Within NOVA Chemicals

Reduce fuel consumption:
- Increase energy efficiency
- Continual improvement

Modify processes:
- Fuel switching
- Catalysts

Research product and process step changes

With Others

Develop new technologies, products and processes

Support the creation of offset markets

Advocate with governments and within our industry for sustainable long-term solutions

Water Use and Quality

Water is important to our industrial operations. Our management programs focus on minimizing our impact on this valuable resource. We withdraw the water we require for our industrial processes from the St. Clair, Red Deer and Ohio rivers. When possible, our manufacturing sites reuse water multiple times, and many of our sites capture and use precipitation.

The majority of water we use is returned to the environment, often through evaporation from cooling towers. Water returned to surface water bodies goes through testing before discharge to meet regulatory requirements and environmental standards. Some water requires treatment before discharge.

At our Joffre manufacturing facility, a treatment process helps to remove phosphate from the water returned to the Red Deer River. Phosphate is a nutrient that can lead to damaging and excessive plant and algal growth in river systems. Also at Joffre, caustic wastewater that is generated from acid gas scrubbing is not suitable for discharge to the river, and is instead disposed securely via a disposal well system ten times deeper than surface and groundwater sources.

Water availability varies across the different regions in which NOVA Chemicals' manufacturing facilities operate, which can create challenges in how we prioritize water use and conservation. There is an opportunity to further understand water scarcity and advance the dialogue on water use within NOVA Chemicals in the future.

Water is important to our industrial operations. Our management programs focus on minimizing our impact on this valuable resource.

Construction of a new stormwater retention pond at the Joffre Site got underway in 2016 with completion scheduled for 2017. The new pond incorporates best practices and will allow us to more effectively capture run-off from major storm events. Water from our retention ponds is re-used in operations once it is softened and clarified.

Plastics Recovery

Although plastics contribute to packaging weight reduction, reduce energy consumption in transport, are highly reusable and durable and can have additional environmental benefits, they also have ongoing environmental considerations.

According to a recent World Economic Forum report, almost one third of global plastic packaging escapes collection. Plastic litter in the environment is not only a waste of resources, it reduces the biological productivity of natural systems such as the ocean, harms wildlife and clogs urban infrastructure.

The responsible use, capture and reuse of plastic products as a resource are important to NOVA Chemicals. We support capture and recycling of plastic materials within our own operations and through engagement in industry and community organizations. We also collaborate with customers to improve the recyclability of their products.

At our manufacturing facilities, we reclaim and recycle our resins that do not meet our product specifications. Through membership in Operation Clean Sweep®, NOVA Chemicals has made a commitment targeting zero loss of plastic pellets at our operations and during product transportation.

Even with advances in plastics recycling, a portion of the plastic waste stream is not easily recycled due to contamination, lack of markets, or difficulty in mechanically separating plastics. In some cases, our focus is on package redesign to enable recycling. In other cases, NOVA Chemicals is working with leaders in the industry to evaluate pyrolysis and other technologies that could aid decomposition.

We support capture and recycling of plastic materials within our own operations and through engagement in industry and community organizations.

Compliance

NOVA Chemicals operates our facilities to meet or exceed the letter and spirit of industry codes of practice, regulations and legal requirements. We and our stakeholders expect no less. Our manufacturing facilities are subject to complex and varied local, provincial, state and federal environmental regulations relating to air emissions, water quality, waste management, spills reporting and several other environmental aspects.

In 2016, NOVA Chemicals facilities incurred 5 Regulatory or Permit Exceedances (RPEs) that were reported to regulatory agencies. Our historical performance in this area and working definition for RPEs is included in page 53 of this report.

Moving Forward

- Evaluate and upgrade our data gathering and management systems to improve our tracking capabilities with a focus on water and waste
- Further engage trade organizations to facilitate plastics recovery
- Continue to adapt and refine our greenhouse gas emissions strategy

Disclosures on Management Approach

Disclosures on Management Approach (DMA) explain why we consider certain topics material, and illustrate how we address these topics to achieve continual improvement. They describe fundamental management elements such as policies, responsibilities, strategies, training and reviews and provide context for associated performance information.

How We Manage Ethics and Compliance	
Why is this a material topic?	**Ethics and compliance is central to business strategy; assists in ensuring and sustaining integrity in our performance and our reputation as a responsible business; reduces the risk of wrongdoing and mitigates penalties imposed by regulatory and governmental authorities for violations, should they occur.**
Plan	• Our Code sets forth the ethical standards by which we conduct all our activities • Develop and communicate annual objectives to the Board/Leadership • Develop a communication and training strategy
Do	• Ensure our employees confirm their adherence to the Code and understand its content by completing the online training every year • Present in-person training and discussions on the Code and recent compliance matters. • Maintain and monitor two helplines for reporting possible Code violations: the Ethics Line and the Anti-Harassment Line • Investigate and follow-up on matters reported to the helplines
Check	• Provide regular reporting to the Board of Directors and executive leadership on compliance performance and audit results • Maintain third party due diligence processes that screen business partners for integrity • Collaborate with internal partners to ensure that the program takes into account emerging issues • External and internal audit performed annually
Adjust	• Baseline measures are in place to assess improvement over time in rate of misconduct; effectiveness of response and detection and control effectiveness. Key risk areas are identified through a continuous risk assessment process.

This disclosure on management approach applies to the ethics and compliance aspect identified as material on page 11, and addresses internal and external boundaries.

How We Manage Occupational and Process Safety	
Why is this a material topic?	**We undertake chemical processes that involve hazardous substances and could result in injury or significant hazardous outcomes.**
Plan	• Leadership is provided by the Occupational and Process Safety Councils • Set annual performance objectives on leading and lagging indicators • Understand legal and stakeholder requirements
Do	• Use Safety Interactions, *Am I Ready?* and other safety tools as means of establishing and communicating safe behavior • Provide hazard recognition and incident learning tools and training • Follow a “layers of protection” model for process safety • Conduct personal hazard and process safety risk assessments • Use operational management systems that align with Responsible Care
Check	• Incident investigations to learn • Occupational and Process Safety Council reviews incidents • Internal audits conducted at company facilities based on a risk assessment process • External audits (e.g., Responsible Care, ISO) conducted less frequently
Adjust	• Regular management review to evaluate risks, assess incident trends, deviations from targets, and changing regulations, and to develop management system modifications

This disclosure on management approach applies to the occupational safety and process safety aspects identified as material on page 11, and addresses internal and external boundaries.

How We Manage Transportation Safety

Why is this a material topic?	We receive and ship large quantities of hazardous substances that could cause damage to people and the environment if accidentally released.
Plan	• Leadership is provided by the Supply Chain Council, and Emergency Preparedness and Security Council • Set annual objectives; have a target of one or fewer non-accident releases • Establish criteria for carrier and mode selection • Understand legal and stakeholder requirements • Provide input on design of railcars used • Develop an emergency response plan for transportation and for each manufacturing site • Maintain Transport Canada approved Emergency Response Assistance Plan
Do	• Have internal transportation, distribution and emergency response standards that guide implementation • Each manufacturing site has a transportation safety team that receives ongoing training on non-accident releases and other issues • Work through TRANSCAER to communicate information about shipments to communities • Have NOVALERT and contracted emergency response services along transportation routes wherever our products are shipped • Test our emergency plans by conducting regularly scheduled tabletop and live drill exercises throughout our operating areas • Engage carriers, suppliers and others in our Responsible Care Outreach program
Check	• Incident investigations • Supply Chain Council review of top transportation risks • Internal and external inspections/reviews/audits conducted regularly. In 2016, we conducted three internal audits and three external audits of our facilities. • Safety check-ins with key carriers. In 2016, a third party conducted motor carrier evaluations at five locations.
Adjust	• Regular management review to assess incident trends, deviations from targets, and changing regulations, and to develop management system modifications

This disclosure on management approach applies to the transportation safety and emergency preparedness aspects identified as material on page 11, and addresses internal and external boundaries.

How We Manage Product Safety

Why is this a material topic?	**Our customers, regulators, society and NOVA Chemicals all expect safe products.**
Plan	• Leadership is provided by a company-wide Product Stewardship Council and Product Integrity Councils • Understand regulatory and stakeholder requirements • Set internal objectives
Do	• Maintain product safety documents (e.g. safety data sheets) and labeling • Test and register products as required • Engage customers and suppliers in our Responsible Care Outreach program • Conduct product and raw material integrity checks
Check	• Annual review of issues and risks by Product Integrity and Product Stewardship Council • Internal and external inspections/reviews/audits conducted regularly
Adjust	• Ongoing management review to assess trends, deviations from targets and changing regulations, and to develop management system modifications

This disclosure on management approach applies to the product safety aspect identified as material on page 11, and addresses internal and external boundaries.

How We Manage Product Sustainability

Why is this a material topic?	**Due to concerns about food waste and environmental impacts, the sustainability of plastic products is becoming a more important component of customer and end-user satisfaction.**
Plan	• Incorporate sustainability requirements for evaluation of new products during R&D stage • Prioritize product sustainability projects during annual planning with market focus teams and suppliers • Work with industry associations to plan annual product sustainability work
Do	• Conduct early product lifecycle risk reviews considering sustainability and adding value • Manage product waste streams and manufacturing waste responsibly • Invest in customer engagement teams to evaluate feasibility and solve challenges
Check	• Conduct stage gate reviews addressing sustainability benefits and risks • Internal and external audit of related Responsible Care standards
Adjust	• In 2014, we modified our Responsible Care R&D Standard to incorporate sustainability criteria

This disclosure on management approach applies to the product sustainability aspect identified as material on page 11, and addresses internal and external boundaries.

How We Manage Environmental Performance

Why is this a material topic?	The manufacture of petrochemicals results in emissions that can adversely affect the environment.
Plan	• Factors that affect our environmental management include: Responsible Care, regulations, growth, economics, stakeholder perceptions and engagement, societal expectations, technology, and overall environmental performance • NOVA Chemicals 2020 Environment Plan was created considering these factors and focuses on nine internal performance areas • Responsible Care Council and Environment Council provide direction
Do	• Five Responsible Care environmental standards are core requirements in all regions • Each facility follows Responsible Care and has an environmental management system designed to meet specific regional environmental issues • Use comprehensive environmental management information systems and Responsible Care Learning System
Check	• Environmental monitoring systems help ensure compliance • Facility self-assessments are conducted internally, and external Responsible Care verification audits are completed to validate systems are performing in accordance with regulations and internal requirements • Performance is measured on an ongoing basis and reported periodically to senior leadership
Adjust	• Ongoing management review to assess trends, deviations from targets, and changing regulations, and to develop management system modifications • Regulatory changes require internal program revisions to meet compliance expectations

This disclosure on management approach applies to the air quality and greenhouse gas aspects identified as material on page 11, and to internal operations only.

Performance Summary

	Units	2012	2013	2014	2015	2016
Foundations of Sustainability						
Business Ethics						
Matters Received	count	n/a	n/a	70	74	80
Code Violation Allegations	count	n/a	n/a	n/a	22	24
Unsubstantiated	count	n/a	n/a	n/a	12	10
Substantiated	count	n/a	n/a	n/a	6	8
Remained Open at Year End	count	n/a	n/a	n/a	4	6
Operations						
Employee and Contractor Safety						
Recordable Injury Rate — Employees	count per 200,000 exposure hours	0.66	0.66	0.32	0.32	0.49
Recordable Injury Rate — Contractors	count per 200,000 exposure hours	0.90	1.37	0.65	1.00	0.57
Combined Recordable Injury Rate	count per 200,000 exposure hours	0.74	0.96	0.46	0.65	0.52
Lost-Time Injury Rate — Employees	count per 200,000 exposure hours	0.08	0.15	0.07	0.14	0.17
Lost-Time Injury Rate — Contractors	count per 200,000 exposure hours	0.15	0.21	0.10	0.04	0.04
Combined Lost-Time Injury Rate	count per 200,000 exposure hours	0.10	0.17	0.08	0.09	0.11
Fatalities — Employees and Contractors	count	0	0	0	0	1
Vehicle Incidents	count	83	100	102	149	76
Near Misses	count	1,199	1,861	693	572	502
Hazardous Conditions Reporting	count	6,458	10,882	3,009	1,032	1,164
Process Safety						
Total Process Fires	count	26	24	14	13	13
Transportation Safety						
Non-Accident Releases	count	0	2	0	0	0
All Reported Material Distribution Incidents	count	19	15	10	16	12
Recordable Distribution Incidents	count	2	1	3	1	1
Employees						
Total Number of Employees	count	2,397	2,472	2,565	2,663	2,724
Full-Time	count	2,330	2,402	2,497	2,587	2,657
Part-Time	count	67	70	68	76	67
Female	count	584	619	633	669	700
Male	count	1,813	1,853	1,932	1,994	2,024
Employees in the U.S.	count	451	440	438	427	434
Employees in Canada	count	1,946	2,032	2,127	2,236	2,290
Employees Covered by Collective Bargaining Agreements	percent	12.3	12.0	11.7	12.1	12.0
Total New Hires	count	218	208	187	193	184
Rate of New Hires	percent	9.1	8.4	7.3	7.3	6.8
Voluntary Turnover Rate	percent	5.4	3.2	3.1	4.5	3.3

	Units	2012	2013	2014	2015	2016
Communities						
Community Investment and Volunteering						
Community Investment	$ millions	n/a	n/a	1.9	2.0	2.3
Volunteerism	hours	n/a	n/a	4,800	5,200	6,797
Economic Value Generated and Distributed						
Revenues	$ millions	5,055	5,278	5,159	3,580	3,512
Taxes Paid	$ millions	185	168	241	261	94
Salaries and Benefits	$ millions	447	484	473	439	441
Capital Expenditures	$ millions	269	487	595	490	518
Products						
High Priority Products with Product Risk Profile	percent	100	100	100	100	100
Incidents of Non-Compliance (e.g., Product Recalls and Allegations) Concerning the Health and Safety of Products	count	0	0	0	0	0
Products Subject to Information Requirements	percent	100	100	100	100	100
Environment						
Environmental Compliance						
Regulatory/Permit Exceedances[1]	count	2	3	3	4	5
Air Quality						
Nitrogen Oxides (NO_x)	tonnes	5,894	5,403	4,976	5,344	5,388
Sulfur Oxides (SO_x)	tonnes	2,274	2,460	1,924	1,100	921
Volatile Organic Compounds (VOCs)[2]	tonnes	1,278	1,614	1,851	1,383	1,392
Climate Change and GHG Emissions						
Direct GHG Emissions (Scope 1)	tonnes carbon dioxide (CO_2)	3,437,000	3,514,000	3,493,000	3,454,000	3,471,000
Energy Indirect GHG Emissions (Scope 2)	tonnes CO_2	760,000	798,000	799,000	785,000	793,000
Direct GHG Emissions Intensity[2]	tonnes CO_2/tonne of product	0.71	0.71	0.73	0.69	0.65

n/a – not available

NOTE

1. *Regulatory/Permit Exceedance (RPE): includes reportable spills and other non-compliances with federal, provincial/state, or municipal approval, permit, or regulatory requirements with potential for adverse impact. This metric excludes administrative non-compliances and reports to the regulator related to minor issues such as instrument downtime, labeling and signage.*
2. *The 2015 figures have been updated since the publication of our 2015 Sustainability Report due to further data verification.*

GRI Index

This report has been prepared in accordance with the Global Reporting Initiative's (GRI) G4 Sustainability Reporting Guidelines – "Core" option. Third-party assurance of the following indicators has not been conducted. For more information on the GRI please visit www.globalreporting.org

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NA – not applicable

NOTES

1. *Although NOVA Chemicals has not formally adopted the precautionary principle, our consistent implementation of Responsible Care demonstrates a commitment to proactively identify, and prevent or mitigate negative impacts.*
2. *Interpreted for application to NOVA Chemicals as: percentage of high priority products (based on our prioritization process) with a product risk profile available to the public.*
3. *Interpreted for application to NOVA Chemicals as: incidents of non-compliance specifically limited to US EPA TSCA allegations, US FDA product recalls and Canadian equivalents. Non-compliance with voluntary codes is not included.*

Advisory

The information contained herein is provided for general reference purposes only. By providing the information contained herein, NOVA Chemicals makes no guaranty or warranty and does not assume any liability, with respect to the accuracy or completeness of such information, or product results in any specific instance, and hereby expressly disclaims any implied warranties of merchantability or fitness for a particular purpose or any other warranties or representations whatsoever, expressed or implied. Nothing contained herein shall be construed as a license to use the products of NOVA Chemicals in any manner that would infringe any patent. Nothing herein shall be copied, reproduced, distributed or otherwise used without the express written permission of NOVA Chemicals.

Affiliations

- American Chemistry Council
- Canadian Plastics Industry Association
- Chemistry Industry Association of Canada
- TRANSCAER (Transportation Community Awareness and Emergency Response)

Endorsements

NOVA Chemicals is a signatory and/or endorser of the following environmental, safety and sustainability charters and commitments:

- International Council of Chemical Associations – Global Responsible Care Charter
- Responsible Care
- Operation Clean Sweep

Awards

- Ontario Ministry of Environment and Climate Change *2016 Minister's Award for Environmental Excellence*

GRI Reporting Standards

GRI® is an international independent organization that has pioneered corporate sustainability reporting since 1997. GRI helps businesses, governments and other organizations understand and communicate the impact of business on critical sustainability issues such as climate change, human rights, corruption and many others. With thousands of reporters in over 90 countries, GRI provides the world's most trusted and widely used standards on sustainability reporting, enabling organizations and their stakeholders to make better decisions based on information that matters. Currently, 38 countries and regions reference GRI in their policies. GRI is built upon a unique multi-stakeholder principle, which ensures the participation and expertise of diverse stakeholders in the development of its standards. GRI's mission is to empower decision-makers everywhere, through its standards and multi-stakeholder network, to take action towards a more sustainable economy and world.

To learn more about NOVA Chemicals, please visit:
www.novachem.com

For questions or comments, please contact:
care@novachem.com

NOVA Chemicals®

Taking Care

Responsible Care®
Our commitment to sustainability.