

# Journey Together Sudbury 2023 >> 2024

Learn how Vale Base Metals is working with the communities to transform critical minerals into prosperity and sustainable development in Ontario



### Land acknowledgment

We respectfully acknowledge that Vale Base Metals' Sudbury Operations are located in Robinson-Huron Treaty Territory and we operate on the ancestral lands of Atikameksheng Anishnawbek First Nation, Wahnapitae First Nation, Whitefish River First Nation and Sagamok Anishnawbek First Nation. We also acknowledge that the lands where we operate are now home to diverse First Nations, Métis and Inuit People from across Turtle Island. We are committed to advancing the spirit of Truth and Reconciliation with actions that build a better future with Indigenous community partners.

### Vale Base Metals

We are a global mining company committed to safely delivering the nickel, copper, cobalt and platinum group metals essential for the world's energy transition. Our workforce of 15,000 is dedicated to transforming these critical minerals into prosperity and sustainable development across the countries in which we operate, including Canada, Brazil, Indonesia, the United Kingdom and Japan.

Our purpose is to improve life and transform the future, together. Applying leading-edge technology to sustainably mine critical minerals that drive mobility and material solutions is at the heart of what we do.

### Our economic contribution

Vale Base Metals is proud to call Ontario home investing in safe, responsible, and sustainable mining that contributes to a strong Canadian economy.

\$1.86B

in labour income over the past 3 years.

Over the last 15 years, our investments in Ontario:

\$7.5B capital investments

\$27.8B operating expenses

Billion total

### In 2023:

Vale Base Metals directly employed:

Ontario.



86%

higher than the average salary in Ontario.

The average Vale

Base Metals salary

At our Ontario Operations we produced:

57,833 tonnes of refined nickel.

tonnes of copper

Message from **Gord Gilpin** 

Our team continues to be amongst the best in the industry and it is an honour to be on this journey with them. They work every day to build a safer and more sustainable operation.

Today, I want to take a moment to share some important updates and reflections with you, touching upon the core values that bind us together.

Safety is and always will be our top priority. It is our unwavering commitment to ensure the well-being of every member of our workforce. I am proud to announce that Vale Base Metals has been recognized by the Canadian Institute of Mining, Metallurgy, and Petroleum (CIM) with the John T Ryan Award Trophy for safety at both our Voisey's Bay operation and the Coleman Mine in Sudbury. This accomplishment is a testament to the collective efforts of our team in upholding the highest safety standards, while building a strong safety culture. Additionally, our Ontario Operations were recently awarded the Towards Sustainable Mining (TSM) Bronze Leadership Award by the Mining Association of Canada.

Beyond safety, our connection with the community runs deep. We are actively engaged in building and strengthening relationships with Indigenous partners and local communities. We continue to partner with local indigenous owned businesses, support the National Indigenous Peoples Day Celebration, and participate in the Truth & Reconciliation Journey. Meaningful engagement is our goal.

Our involvement in community events, such as the Greater Sudbury Chamber of Commerce, the Christmas Parade, Jill of All Trades, and our support for charitable causes like the United Way Centraide North East Ontario and the Mood Disorder Society of Canada, reflects our broader commitment to the well-being of the Greater Sudbury community.

Looking ahead, projects like the Creighton Phase 5 expansion and the decommissioning of the Copper Stack and Superstack underline our commitment to responsible development, environmental sustainability, and our enduring impact on the local economy.

I want to express my sincere gratitude to each and every one of you for your unwavering dedication and contributions. Together, we are not just a mining operation; we are a community, leaving a positive imprint on the places we call home.

Thank you for being an integral part of the Vale Base Metals community.

### **Gord Gilpin**

Director, Ontario Operations — Vale Base Metals



On the cover: Captured by photographer James Hodgins, this image features Vale Base Metals employees engaged in a knowledge-sharing moment at Creighton Mine in Sudbury — Ontario.



N'swakamok National Indigenous Peoples Day Pow Wow.

# Indigenous relations

A major focus within the Sudbury Operations is our ongoing commitment to advancing relationships and improving the existing agreements with local Indigenous communities.

Central to deepening these relationships is establishing new partnership opportunities.

In June, Vale Base Metals was the title sponsor of the N'Swakamok Native Friendship Centre's National Indigenous Peoples Day Celebration in Bell Park. Vale Base Metals representatives were able to participate in the ceremonies and pow wow and meet with event participants at our on-site booth. Vale Base Metals also provided education sessions and a day of reflection to its employees across Canada during the National Day for Truth & Reconciliation in September.

Vale Base Metals also worked closely with First Nations in Sudbury over the past year to identify new business opportunities with local First Nations. We are seeing new Indigenous partnerships and joint ventures forming to participate in major capital projects. We are also seeing more contracts awarded to existing Indigenous-owned businesses already working with Vale Base Metals' Sudbury Operations, including the recent award of a sand fill contract to Sagamok Anishnawbek First Nation's Z'gamok Construction company.



N'swakamok National Indigenous Peoples Day Pow Wow.

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# **Annual Open House**

Vale Base Metals was excited to invite members of the Sudbury community to learn more about our operations. Held at Vale Base Metals' North Atlantic Operations Centre (NAOC) in Copper Cliff, we hosted over 400 families, students, pensioners, and community members.

Visitors were invited to learn more about Vale Base Metals at a series of booths that showcased all aspects of our business, with a particular focus on our projects and mines. Themes included our environmental activities, low carbon initiatives, ongoing safety measures, and our commitment to "circular mining" — an approach that helps reduce waste. Representatives from our HR department were on hand to discuss job opportunities at Vale Base Metals and accepted resumes.





400+ people attended the open house. 200+ people attended the Chamber of Commerce event.



### **Gord Gilpin Speaks to Chamber of Commerce**

In March, the Director of Ontario Operations, Gord Gilpin, spoke to the Greater Sudbury Chamber of Commerce about the organizational changes at Vale Base Metals, and our new projects in the region as Vale Base Metals. These investments in new capital projects will help create new opportunities for cities like Sudbury and our commitment to the environment. More than 200 people were in attendance and expressed their gratitude to Gord for sharing these important updates.







# We give back

### Santa Claus (and Harry Potter!) Parade

Vale Base Metals helped kick off the Christmas season in style this year, winning 2nd place in the Large Corporate category for our Harry Potter Quidditch float. Created to bring an unexpected and magical twist to the parade's "Sudbury Sports" theme, the float featured 20 of our employees on board, a variety of Harry Potter props and graphics, and a "Merry Quidditch Christmas" banner.

With a long tradition of bringing floats to the parade, this was our first entry since 2019, after the three-year postponement of the parade due to COVID 19. Our entry was one of more than 70 floats registered for the event, and a hit with children and adult Harry Potter fans alike. More than 20,000 excited spectators lined the chilly downtown Sudbury parade route.

\$110,000 in donations raised in 2023





Representatives of Vale Base Metals, USW, Edgar Burton's family and other institutions at the check presentation.

### The Edgar Burton Christmas Food Drive

In 1987, Vale (then INCO) Divisional Shops employee Edgar Burton began what would be his first annual food drive in support of Sudbury families in need. In 2023, the campaign was proud to raise over \$110,000, with \$100,000 donations from Vale Base Metals and Wheaton Precious Metals Corp., local business participation across the city, and "at the gate" contributions by Vale Base Metals employees of over \$10,000.

Burton's early personal campaign quickly grew to include businesses and schools from across the Sudbury area and is now one of the largest per-capita food drives in Canada. A longstanding source of community pride, the campaign helps thousands of families and individuals every year through its support of the Sudbury Food Bank.

The United Steel Workers Local 6500 — of whom Edgar Burton was a member — also plays a significant role in the annual campaign. Vale Base Metals also donates approximately two months' time of two USW Local 6500 employees to organize the initiative.



### Over \$747,000 Raised for **United Way Charities**

Vale Base Metals' Sudbury operations raised a remarkable \$747,000 for the United Way Centraide North East Ontario in 2023. With a dollar-todollar matching commitment of up

to \$350,000 from Vale Base Metals, employees rallied and raised an additional \$397,000!

Barbecue, dress down days, 50/50 raffles and several other small events were held throughout the year to raise money for the cause, augmenting

the significant commitments from payroll deductions made by individual employees. Funds raised will be used by several charities within the United Way network. All monies stay in the Greater Sudbury area, helping improve the lives of people in the communities where we live and work.

\$747,000 raised by \$397,000 sudbury Employees







### Safe Ride Home Sudbury

Vale Base Metals is proud to be a founding partner of the Safe Ride Home Sudbury annual campaign. This volunteerbased ride service helps Sudburians avoid drinking and driving after holiday festivities in December by providing free rides home. Previously known as Operation Red Nose, Safe Ride Home Sudbury reflects Vale Base Metals' commitment to safety in all aspects of our community and echoes the goals of our own HomeSafe workplace safety campaign.

In addition to our \$15,000 donation to Safe Ride Home, members of our Health & Safety team will be working with the Sudbury Chief of Police this year to create a committee addressing the effects of impaired driving on our community.

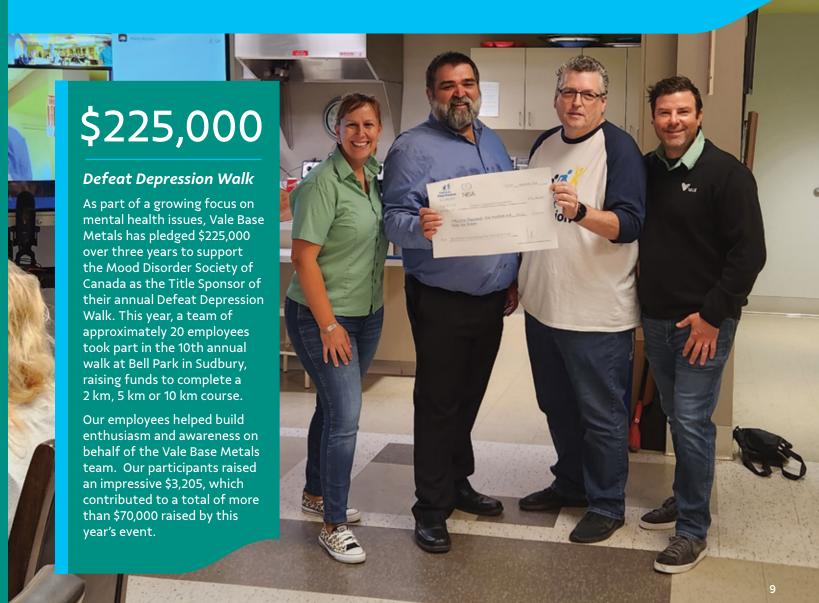
\$15,000 donated by Vale Base Metals



### Jill of All Trades

Vale Base Metals participated as both a sponsor and panelist at the Jill of All Trades (JOAT) event that took place at Cambrian College in October. Our Director of Operations, Gord Gilpin, participated in the panel discussion along with four other panelists. Jill of All Trades is an initiative to encourage girls from grades 9 to 12 to consider a career in trades.

This full-day event was packed with activities and hands-on learning, designed to foster in girls a better understanding and appreciation of the skilled trades and inspire them to consider a rewarding career in the skilled trades.



# Health and safety

### **Emergency Preparedness Week**

Vale Base Metals mailed out information and advice to the community as part of Emergency Preparedness Week, focusing on how to be better prepared for emergencies, including conducting hazard assessments, planning evacuation routes, and having the necessary weather-appropriate tools to support an emergency response. Vale Base Metals encouraged both employees and contractors to participate — at home and at work — by taking actions to better prepare and protect themselves in the event of an emergency.

Critical to emergency preparedness is having a plan in place to deal with potential risks — like earthquakes, floods and storms — and to regularly practice and test emergency evacuation plans at home, as well as on the job site. Information on preparing emergency kits was also shared, so that families would have the means to respond should disaster strike.



Always go indoors



Close all doors and windows



Turn off furnace, air conditioners or other air intakes



### 2023 Ontario Mine Rescue Competition

Our Vale Base Metals East Mines team performed brilliantly at this year's Ontario Mine Rescue Competition, held at the Canadian Gypsum Company's Hagersville Mine. The team took home both the Team Firefighting and Team Special Equipment awards

(Rope Rescue), in a tightly matched competition staged in actual underground mining conditions. Vale Base Metals technician, Jean-Yves Doiron, earned First Place in the Individual Technician Competition.

This week-long annual competition pits eight District Championship teams from across Ontario against each other

in a series of knowledge and physical skill challenges. Technical knowledge is tested in written exams, while high-angle rope rescue, emergency management, advanced mine rescue breathing apparatus, firefighting, and first aid response are tested in an underground mock emergency, demanding physical work and decision-making ability under stress.



Vale Base Metals Mine Rescue team performing first aid during the 2023 Provincial Mine Rescue Competition.



### Health and safety



Vale Base Metals Employees at CCNR.

### Vale Base Metals wins John T Ryan Trophy for Safety

Vale Base Metals was recognized by the Canadian Institute of Mining, Metallurgy and Petroleum (CIM) with the John T Ryan Award Trophy for safety in two separate categories. The Coleman Mine in Sudbury won in the Metal Mines category, achieving a remarkable 0.42 injury rate over 1.2 million hours of work for the year 2022, in addition to our Voisey's Bay operation in Newfoundland winning in the Select Mines category.

Director of Ontario Operations, Gord Gilpin, congratulated the 500 employees at Coleman Mine for their commitment to a strong safety culture founded on robust safety routines, open and transparent dialogue, innovation, and Vale Production System compliance.

"We work hard every day to enhance safety in our operations. To be recognized for this fills us with pride and assures us that we are on the right track," Gilpin said. "I'd like to congratulate all employees at Coleman for this amazing achievement and also give special recognition to the leadership team for setting the example."

Mine Manager Ryan Roberts added that we must always be continually vigilant to ensure we continue to operate safely, and but it is a credit to each worker we have been recognized for our safety performance.



1.2 M

hours worked

0.42 injury rate

The Coleman Mine in Sudbury won in the Metal Mines category, achieving a remarkable 0.42 injury rate over 1.2 million hours of work.

# Ontario Safety Award Recognition Program

After a few years' hiatus due to the COVID-19 pandemic, our Ontario Safety Award Recognition Program relaunched this year, recognizing the operations and departments that achieved the best safety performance in the previous year.

To reflect the unique challenges across different areas of our operation, top performers in 2022 were selected in three separate categories. In the Mine category, the winner was Garson Mine. In Processing, the award went to the Clarabelle Mill. And for Operational Services, top honors went to the Water Treatment Plant.

In addition to celebrating performance, this recognition seeks to highlight our shared commitment to the safety of our people and to ensuring everyone goes HomeSafe.





# **Future developments**

### The Future of Copper Stack and Superstack

With the construction of two new 450' stacks as part of our \$1 billion Clean AER project, the Copper stack and Superstack are no longer required and have been decommissioned from service. With the Copper stack demolition plan now approved, disassembly will begin in 2024. The process should be completed in 2025.

After a period of internal review and community consultation, plans for the future of the now-decommissioned Superstack will be announced publicly by mid-2024.





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### **Creighton Phase 5**

After mapping rich, new deposits of nickel ore found at depth, advanced development has already begun on the Phase 5 expansion of our Creighton Mine, ensuring a continuing long and productive life for this historic Sudbury mine. Further development will also see a shift to an entirely batteryexhaust generated underground, and lowering ventilation and cooling costs.

From its current depth of 8500 feet, exploratory drilling has shown a consistently rich ore body extending beyond at least 9760 feet. Early construction has already begun as further engineering progresses in parallel, with an intent to turn over electric vehicle fleet, reducing heat and the new region to Operations by 2032.

Mining to this new depth virtually guarantees the mine's continued operation until at least 2040, and likely longer, as further drilling continues to probe the limits of the ore body.

The strength and sustainability of the Creighton Mine will extend Vale Base Metals' continuing presence as a key employer and driver of the local





# Mines site extension projects

These projects are a mix of short-term and long-term development prospects. The short-term projects include Stobie Pit and Copper Cliff Mine Pit. The longer-term projects consist of Copper Cliff Mine and Creighton Mine.

All these projects fall into the category of brownfield extension projects. It is important to emphasize that projects in the feasibility study phase are subject to approval by Vale Base Metals' Board of Directors and have no guarantee of execution.

Coleman

**Totten** 

### **Copper Cliff Pit**

- Currently conducting pre-feasibility study
- Open pit operation
- · Pit dewatering has begun and will continue over the next two years
- Life of mine estimated to be approximately 8 years
- If approved, project estimated to commence in 2026

# Garson



Ocopper Cliff- Phase 3

Stobie Pit

Copper Cliff North

Opper Cliff- Phase 4 Copper Cliff South

Mine South Project in the fall 2022

Stobie Pit

· Currently conducting a pre-feasibility study

· Life of mine estimated at

to accelerate to 2024

3 years with potential for expansion

• If approved, project estimated to

commence in 2025, with potential

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Open pit operation

- Phase 2 on hold and under evaluation
- Phase 3 & 4 currently in study phase
- Life of mine is approximately 20 years

# **Copper Cliff Mine**

### Creighton Mine - Phase 5

- Currently in feasibility study phase
- Advance development construction to started in early 2023
- If approved extends the life of Creighton Mine to 2038

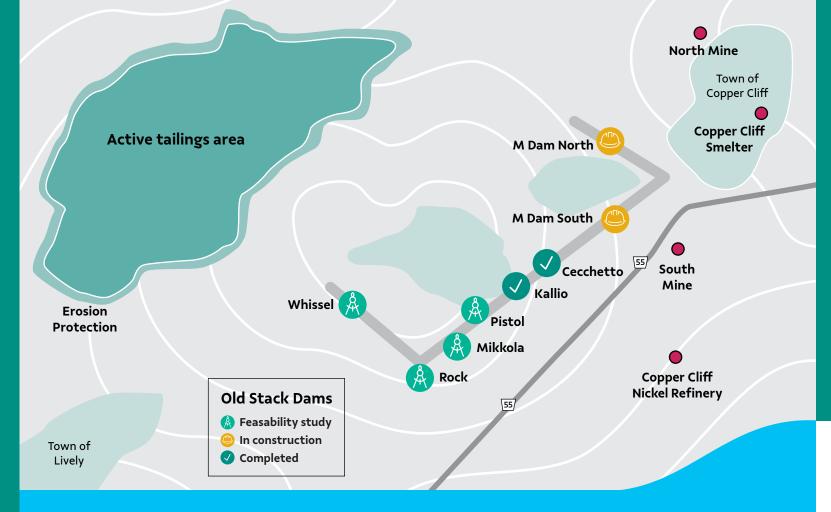
- · Completed Phase 1 of Copper Cliff



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Creighton (



# **Surface Plants Projects**

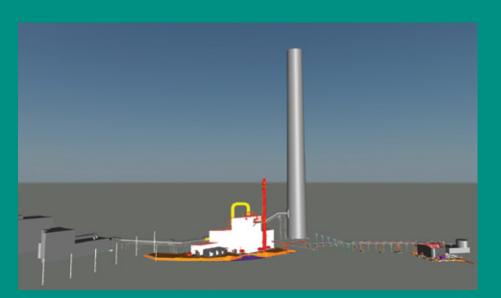
While we've been intensely focused on studying the feasibility of multiple mining projects, we've also been studying ways to improve our surface operations. This includes massive investment in studies for our Smelter Complex as well

as environmental improvements for the Copper Cliff Nickel Refinery. Capital investments and study work has also been occurring on our hydro-electric facilities and within our Central Tailings Area. These projects are all occurring on brownfield sites. It is important to note that all projects in feasibility study phase are subject to approval by Vale Base Metals' Board of Directors and are not guaranteed to proceed to execution.



### **Tailings**

- Approximately \$1 billion in tailings improvement projects planned over the next 10 years
- 5 of 11 dams have been completely refurbished since 2007. The remaining 6 dams will be rehabilitated over the next 6 years
- Primary activities include buttressing, erosion control and dredging



Rendering of scrubber project facilities.

### Nickel Refinery SO, Scrubber

- This is an environmental improvement project that will construct a facility that will clean (scrub) the off gas from the Nickel Refinery prior to atmospheric discharge
- Ensures Vale Base Metals remains compliant with new SO<sub>2</sub> emission regulations
- Investment is estimated at approximately \$200 million
- Construction of the facility is underway.

### **Nickel Rim South Extension**

- Collaborative approach with Glencore to access at-depth orebodies.
- Would utilize the existing facilities of Nickel Rim South
- Currently the feasibility and operational details are being studied and evaluated
- If approved this would mark a significant step in cooperation between the two companies

### Slag East

- Designed to collect and treat ground water from Vale's Smelter slag pile.
- The execution of the project will likely impact traffic on Big Nickel Mine Road, through lane reductions or closures

### 16 million gallon tank

- Vale Base Metals has a large
   16 million gallon water tank in
   Copper Cliff that stores potable
   water from Vale Base Metals'
   Vermilion Water Treatment facility.
- The project will build a new 5 million gallon tank to allow for inspection and repairs of the 16 million gallon tank. It will also include a new booster pump station to meet the water pressure demands for smelter operations.
- Tank erection will begin early 2024 and expected to be complete during 2024

# CAWMS (Central Area Water Management System) Upgrades

 This study will provide options to improve collection and treatment performance of the CAWMS to

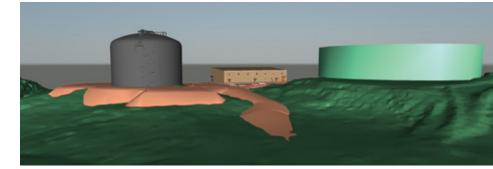
- reduce potential off-site migration of surface run-off, considering current and future environmental and operational projects.
- The results of the feasibility study will determine the preferred option and associated schedule for implementation.



An aerial view of the Nairn Falls generation station.

### Hydro-electric facilities

- Last year replacement of the spillway and side dams at our Wabagishik Generating Station were completed to replace aging infrastructure.
- Construction of new spillway also began at the Nairn Generating Station and will be completed Q3 2025.
- A feasibility study is also underway to evaluate a variety of options for refurbishment of the Nairn Generating Station.



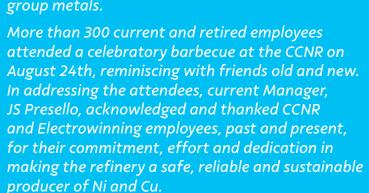
16 million gallon tank.

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Aerial view of Copper Cliff Nickel Refinery.

# Happy 50th!

This year marked the 50th anniversary of the Copper Cliff Nickel Refinery and Electrowinning. Construction of the refinery began in 1970 and was completed in 1973 at an original cost of \$140 million, equivalent to nearly a billion dollars today. Over five decades of operation the refinery has produced more than 5.4 billion pounds of nickel, 730 million pounds of copper, as well as significant amounts of cobalt, precious metals and platinum group metals.







The triangle, magazine from Inco, November 1973 — shows CCNR Launched.

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### **Women in Trades**

In September, the second annual "Women in Trades, Mining & Friends Social" was held at Dynamic Earth at Science North in Sudbury, with the support of Vale Base Metals and our partners at United Steel Workers. Recognizing the growing influence of women in traditionally male-dominated workplaces, the event brings together women at all career levels for panel discussions and networking opportunities linked to careers in mining.

Approximately 200 people turned out for the event, which also featured mining-related booths and opportunities for attendees to explore job openings in our industry. Several exhibitors displayed new designs for women's PPE, helping eliminate concerns that equipment and clothing was not designed to properly fit female workers.









### Take our Kids to Work Day — Sudbury

In November, our Sudbury Operations staff commemorated National Take Our Kids To Work Day by hosting a number of opportunities for kids to get first-hand experience with different aspects of the mining process. The annual even hosted more than 40 Grade Nine students in Sudbury and Port Colborne combined, helping inspire the next generation to learn more about the array of careers available within our industry.

Our Sudbury team led an informative tour of our Copper Cliff North Mine, before exploring the Smelter, Clarabelle Mill and IROC, giving participants a broad view of the intricate operations involved in mining and refining critical minerals.

At left: Grade 9 students at Copper Cliff North Mine U/G Garage learning about maintenance of mining equipment, typical day at the shop supporting operations.



# IROC integration across all 5 Ontario mines

With Vale Base Metals' Copper Cliff mine coming online in September of 2023, the Integrated Remote Operations Centre (IROC) now provides full remote monitoring of all five of our Ontario mines. Like an "air traffic control system" for mines, IROC allows operators to monitor a wide range of mining operations in real time, including the location and status of vehicles and people, as well as levels of ore and waste. This central coordination provides a high-level view

of mine operations, helping maintain productivity and increase overall mine performance.

Located on Power Street in Copper Cliff, IROC employs a staff of more than 30 experts from diverse career backgrounds to provide support to superintendents, supervisors and managers. The center helps streamline operations by helping troubleshoot issues or adjust plans as work progresses, 24 hours a day, seven days a week.

Expansion plans are continuing with further investment in LTE cabling

and additional mobile equipment telemetry, adding bolters, drills and jumbos to the current fleet of connected scoops and haul trucks. More smart phones will be deployed to stay connected with more employees, providing seamless movement of people as workflow changes.

The Creighton mine was the first to go online in April of 2021, followed by Coleman in March 2022 and Totten in April 2023, with Garson in June and Copper Cliff in September of 2023.







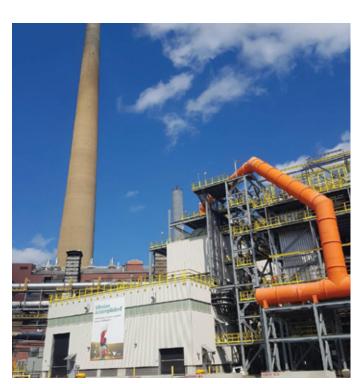
# **Sustainability**

# ISO 14001:2015

### **Environmental Management Systems (ISO 14001:2015)**

ISO 14001 is the internationally recognized standard for environmental management systems (EMS). It provides companies with a framework for designing and implementing an EMS, and continually improving their environmental performance. After our Newfoundland and Labrador sites were certified under the ISO 14001:2015 standard in early 2023, our Ontario and Manitoba operations followed suit in August and November 2023, respectively.

One of the Environment Department's goals is to develop a culture of continual improvement with respect to the environment at our plants and mines, by increasing awareness and engaging employees at all levels at our Sudbury Operations.



### Smelter at Copper Cliff.

### Community

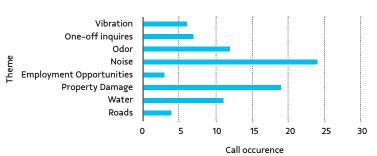
The Sudbury Operations received 110 calls to its Community telephone line in 2023, which is fewer than in years prior. Concerns related to noise and property damage were the top two areas of concern for residents.

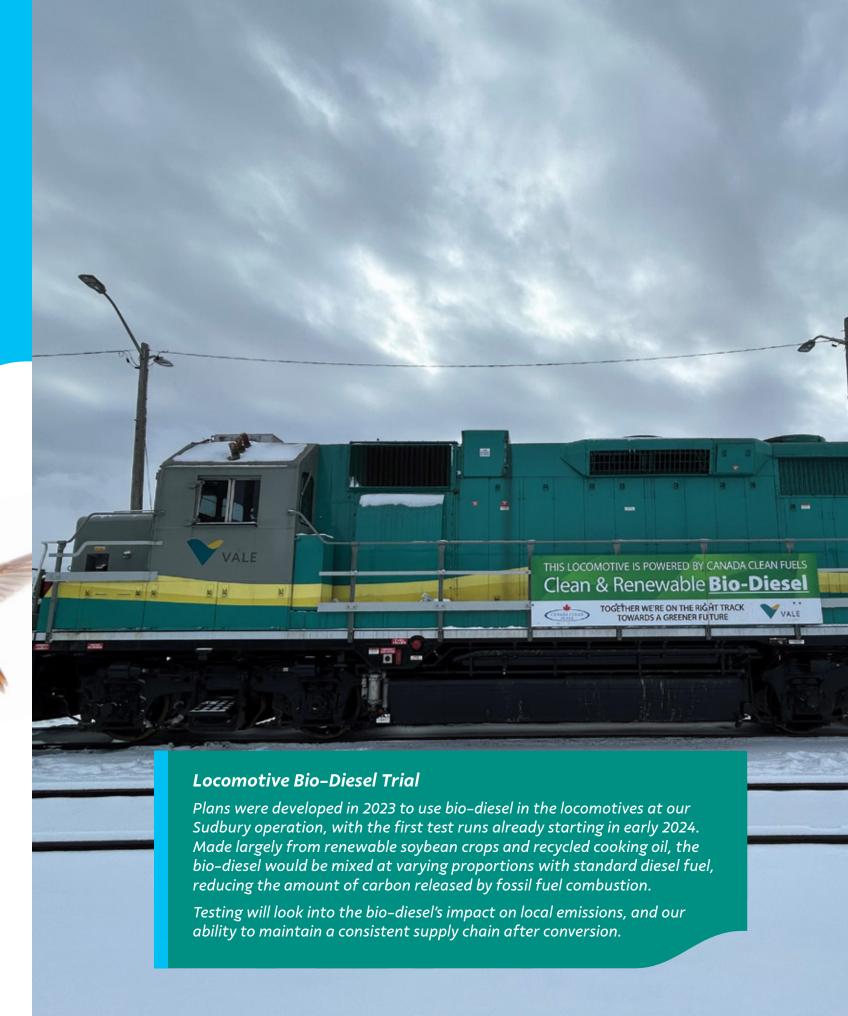
### **Emissions Reduction Studies**

Studies began this year to examine low-carbon alternatives to burning petroleum coke in the furnace at our Copper Cliff smelter. Engineers are looking at the energy production efficiency and costs of two potential options, and the upgrades to our facility that would be required to make the conversion.

One option is to use biocarbon, a form of charcoal made from sawmill waste, forestry residue & other biomass sources. The other is renewable natural gas, a gas recovered from the methane vents at landfills, from gases produced at large scale composting facilities or other innovative means of capturing organic gases. In both cases, the burning of new fossil fuels would be eliminated or reduced through the use of renewable carbon fuels.

### 2023 Community Feedback — Top Areas of Concern





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### Sustainability



### **Battery-Electric Pilot Program**

Our green energy vehicle pilot program continued in 2023 with 40 pieces of equipment now running on battery power at our Sudbury operations. Underground loaders and haul trucks are operating at depth at our Creighton Mine, where they are slated to play a key role in our mine expansion. In addition to reducing climate emissions, the elimination of diesel exhaust improves air quality for miners working nearby and generates less heat. Cleaner, cooler, air below also eases ventilation supply challenges and the associated costs of bringing that air from the surface.

40 分

pieces of equipment now running on battery power.







### **Contact us:**

If you have a question or concern about our Sudbury Operations, please call our Community Concerns Line at 705-222-VALE (8253) for 24 hour service, seven days of the week. You can also email us at ontario.operations@vale.com