

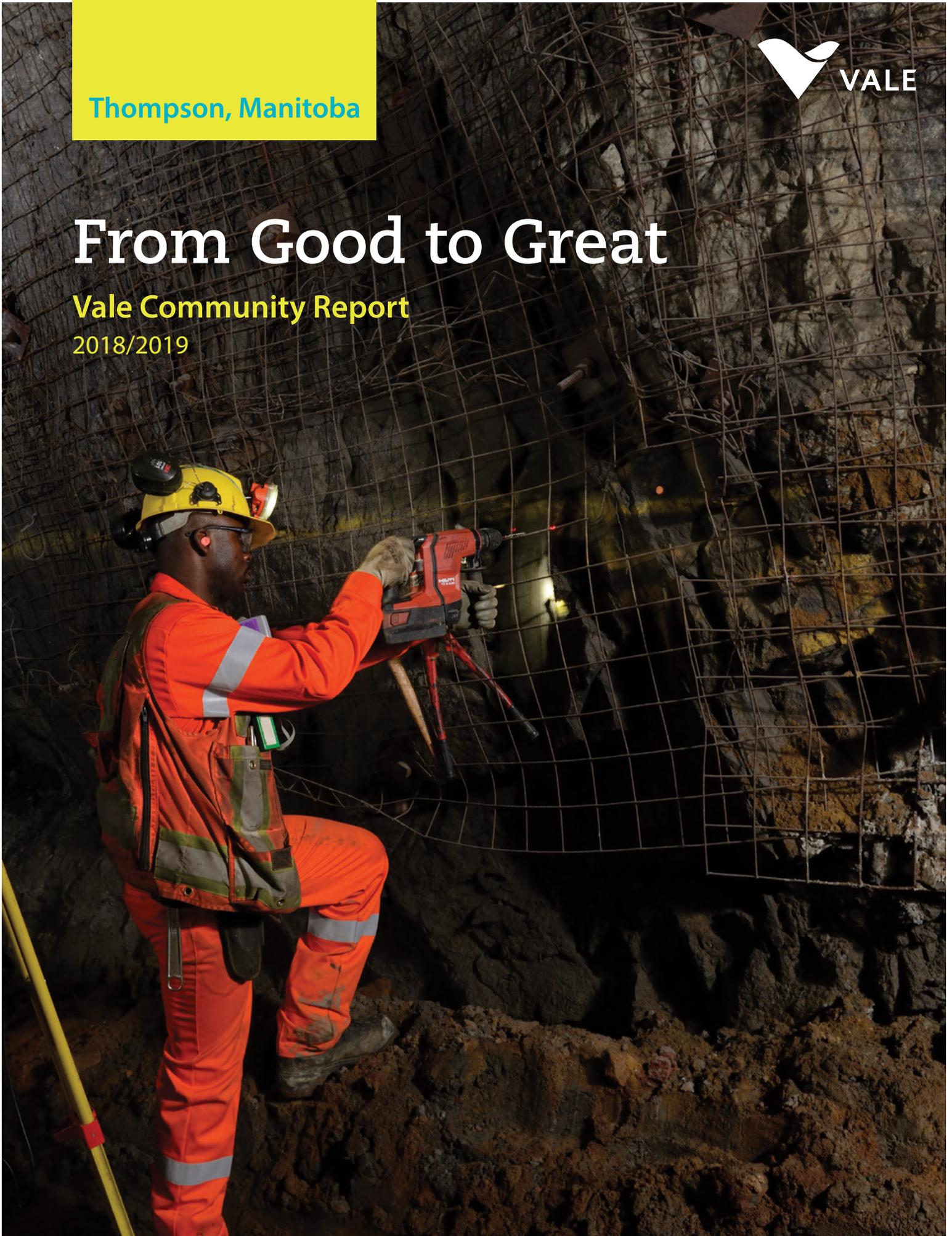
Thompson, Manitoba



From Good to Great

Vale Community Report

2018/2019



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This view looks west towards our T1 Mine site from the Cell B Tailings sampling location.

Mission

To transform natural resources into prosperity and sustainable development.

Vision

To be the number one global natural resources company in creating long-term value, through excellence and passion for people and the planet.

Values

- Life matters most
- Value our people
- Prize our planet
- Do what is right
- Improve together
- Make it happen

Kawītotamāhk

Ta othas ta yāhk aski apaciḥkowīna mina kita mithopathik tapitawī pasikonikiwin.

Ka isi wapāhtamāhk

Tanikana kisowāhk misiwī aski ka isi ayāmakāhk atoskiwin ikota ta ohcipathik kinwākac isi ohtisiwin kwayask isi akwa sakihiwiwin ithiniwak akwa aski ohci.

Kistitamowina

- Pimātsiwin māwac nikānithiḥtākwan
- Ki tithinimināwak ta nikānithih ta kosicik
- Ta kistithiḥtāk wāhk kitāskinaw
- Kwayāsk tatotamāhk ka isi mithwāsik
- Āwasimī tamithonakohcikiyāhk isi māmawīyahk
- Totāhtan takihīkihk



Brumadinho
January 25, 2019
We will never forget

On the cover:

Make it Happen. One of our mine survey technicians drills pins into the wall, which helps pinpoint drill patterns of ore deposits for our Operations crew.

A message from Dino Otranto

This past year, I transitioned from Director, Technology & Development for Vale's global Base Metals business into my new role as Chief Operating Officer (COO), and it has been an extraordinary experience, both personally and professionally.

My first priority as COO was to put on my boots to get to know the business and our employees firsthand to grasp the complexities and opportunities before us. As I visited our North Atlantic operations in Thompson, MB; Sudbury and Port Colborne, ON; Long Harbour and Voisey's Bay, NL; and Clydach, UK, I was humbled, inspired and excited to discover the business through our people and our communities. What is clear to me is that our people are committed, and our communities are counting on us to live by our values.

There is so much heart and history in each of our operations and so much strength in our communities. You will see proof of this within the pages of this report as we share our highlights, milestones, performance results, improvements and partnerships. I am proud to be leading our operations during a time of extraordinary transformation.

The most important work we do every day is getting everyone home safely. In our industry, managing risk is a critical part of our daily lives. On that note, it has been a

difficult year; the dam failure at Brumadinho in Brazil impacted an entire community and took the lives of hundreds of people, many of them our employees. Naturally, a tragic event of this magnitude demands a high level of introspection on how we do business — in terms of our approach to safety and risk management, who we are as a company, and who we need to become. I commit to working tirelessly to understand and address the risks we face, the key controls we need, and ways we can work together to assure our loved ones that we will return safely after each shift and bring our communities peace of mind.

There has been much change in our business and I will continue to foster the stability that is necessary to deliver on our commitments. At this pivotal time in our history, I commit to lead with care, respect and integrity and look forward to working with all of you to realize the best possible future for our people, our families and our communities.

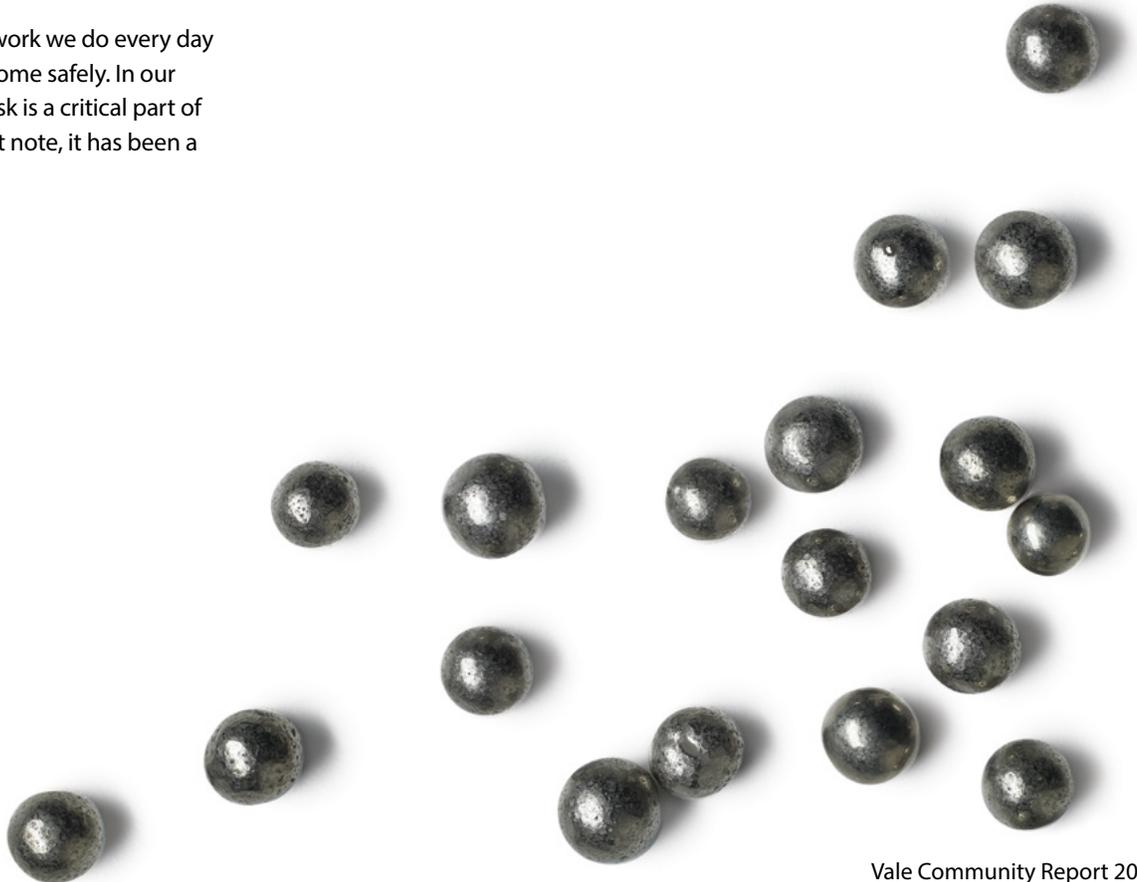
Dino Otranto

Chief Operating Officer — North Atlantic Operations and Asian Refineries



Meet Dino Otranto

A native of Germany, Dino now lives in Sudbury, Ont., with his family. He brings with him many years of operational leadership and experience with global mining companies, including BHP and South 32, where he served as Vice President of Operations of the company's Worsley Alumina business.



In focus: Our future

I want to start by acknowledging that our operations in Manitoba are located on Treaty 5 land, traditional Nisichawayasihk Cree Nation territory, and homeland to the Métis people.

From the moment I embraced this exciting opportunity to join Vale in Thompson, late last February, I've been impressed by the energy and passion of the people I interact with every day.

Their voices echo a clear determination to make our mines and mill here successful, as a vital contributor to Vale's nickel business, to the City of Thompson, and to the Province of Manitoba.

Without our committed people — an experienced and diverse workforce — our resource amounts to no more than

minerals in the ground. The health and safety of our friends and colleagues are paramount to our success, above all.

While our operations, and the community, are right to hold onto a proud history, it is now our responsibility to create an equally proud, productive and safe future.

To this end, I am committed to making sure that our workplace has the tools, equipment, processes, training and skilled employees fit for the purpose of every task, each and every day.

I am honoured to be part of this company and community, as we unlock and realize our potential, together.

Gary Eyres
Head of Manitoba Operations



Milestones

World's best nickel

This has been a year marked by transitions and mixed emotions following the end of production in our smelter and refinery. We produced the world's best nickel for nearly 60 years.

New direction

We celebrated our first full year of operations as a dedicated mine and mill operation, with new facilities to prepare nickel and copper concentrate for shipment. Our company has already invested more than \$100 million into the new facilities, and continues to employ approximately 800 people.

Investing in exploration

Vale is aggressively investing in exploration. We are revitalizing the Thompson Mine Extension studies (formerly 1-D project) to potentially extend mine life by 20 years, and exploring promising new ore bodies. See more on page 4.



We've invested in new and upgraded technology to be more sustainable, and reduce risk at work.



One of our company core values is, Improve Together. Here, participants learn *mino-pimatisiwin* teachings at Mile 20 during a two-day Vale Cultural Proficiency and Indigenous Perspectives Training.



Core samples.



Our Mill has a new open-space work area that helps improve collaboration and integration between teams.

Improving together

We continued to implement our Vale Production System (VPS), a way of working based on the idea that small, continual improvements make a big difference. It counts on teamwork and openness, and flips the traditional organizational triangle upside down, putting employees at the pinnacle to take ownership of operational excellence — especially when it comes to SafeProduction.

A safer workplace

In September 2018, a regular maintenance shutdown of our operations in Manitoba was extended by four weeks to improve the workplace and safety. The extra time was used for the following:

- Every employee took part in **safety training and exercises** to view operations with a fresh perspective, identify hazards and brainstorm solutions.
- We introduced “5S,” a unique methodology that helps enable a high-quality work environment and practices

to help **spot potential hazards at a glance**. 5S stands for: sort, set in order, shine, standardize and sustain.

- Representatives from our mill, T1 and T3 Mines and support areas participated in “sprints,” intense, two-week periods of work focused on specific tasks. More than two dozen projects were identified and completed, including a **review of high-hazard procedures** for the mines, boilers and effluent plant.

The end result? Employees confirmed a deeper commitment to operational excellence and SafeProduction.

Good changes by good people

We introduced the VPS Challenge, a recognition program for employee-driven



ideas and solutions to promote safety, reduce costs and eliminate waste. Every improvement is known as a *kaizen*, a Japanese term meaning “change for the better.” Our employees came up with more than 450 *kaizens* in twelve months, and finalists from our local challenge presented theirs in Toronto to colleagues from across our North Atlantic operations. More on page 7.

We have a new, smart hub

We’ve improved how we listen, learn, collaborate and take action together — from underground, up.

Last October, employees from our mines, mill and administration literally tore down walls. They transformed 10 small offices in our mill into one large open space, bringing together cross-functional teams to discuss goals and problem solve. Live video streams on large screens and teleconferencing connect everyone to production on the floor, and to colleagues in Canada and abroad.

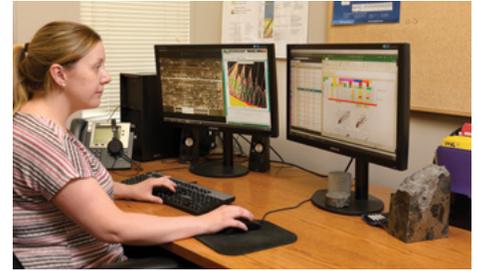
Stepping up exploration

The future of mining in Thompson looks bright

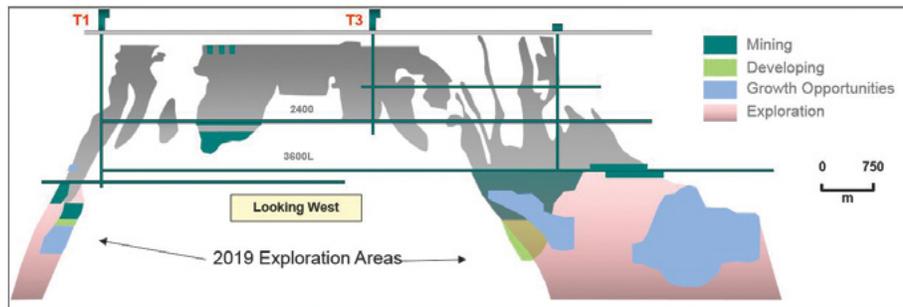
After more than 60 years of exploration, Vale still considers the Thompson Nickel Belt as one of world's most promising resources. The discovery of new ore deposits will drive the long-term success of our sustainable mining operations, adding significant value to Vale Base Metals, and economic viability for the City.

Computer-assisted mining

Our team is using analytics and advanced computing to map potential orebodies in 3D, and to hone-in on targets for further exploration through 2019. These terabytes of fresh geological data will guide our exploration programs for years to come.

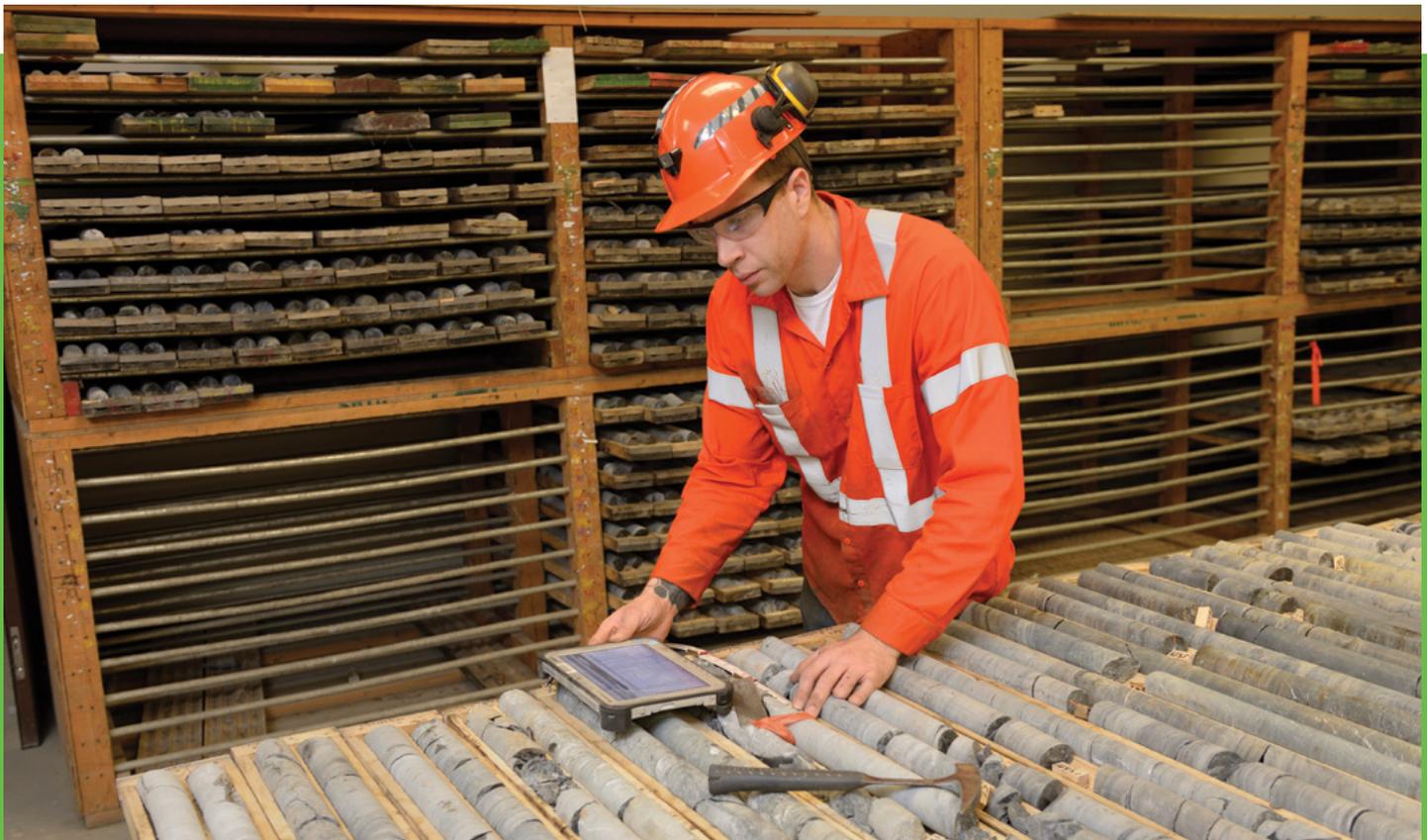


Information from core samples and geotechnical surveys is used to map potential ore deposits using computer 3D modelling.



Exploration efforts for 2019 have been centered on the T1 Extensions and Hanging Wall Extensions of the Thompson ore body.

Diamond drilling produces thousands of meters of core each year. Drill core is visually analyzed, prepared for laboratory analysis, logged and catalogued. It is the foundation for mapping orebodies.





Looking north towards T3 Mine and 378 headframe.

Extending our Thompson Mine

Phase One drill plan — done

We completed drilling and planning for the first phase of expansion to extend the life of the Thompson Mine. Our mines' Geology and Exploration team confirmed recommended targets to continue drilling the current Thompson orebody at T3, known as Foot Wall Deep — potentially adding 15 years or more of production.

Phase One execution planning

A FEL-3 engineering study, started in October 2018, is nearing completion to define infrastructure needed for the Foot Wall Deep orebody to be mined. This would include a new backfill plant, a high voltage transmission line and substation, and ventilation upgrades.

\$80 million

Investment in Thompson's new Load-Out Facility.



Thompson Concentrate Load-Out Facility.

Phase Two drill plan — underway

Exploration drilling is continuing to expand and define the mineral resources for the Phase Two future mine development.

Phase Two feasibility study

A more detailed engineering study is currently underway and will continue into early 2020. The outcome will determine which integrated mining approach will proceed from the various options.

Thompson Concentrate Load-Out Facility Project — check!

Since it began operations on June 24, 2018, the Thompson Concentrate Load-Out Facility (TCLO) has secured our future as a mine and milling operation for years to come. Our new facility was built on time, on budget, without a single lost-time injury — and all without missing a beat in production. The mill now produces a single high-quality bulk concentrate of nickel and copper that's shipped from the TCLO to our operations in Sudbury.

How we rate

Towards Sustainable Mining (TSM) is a performance system developed by the Mining Association of Canada (MAC), and utilized by mining companies across the globe.

It provides a set of tools and protocols that helps companies like Vale engage with our communities, drive world-leading environmental practices, and commit to the health and safety of employees.

It also allows us to demonstrate accountability to evaluate and manage compliance across six common areas, highlighted in the circle graph. In each protocol, Vale undertakes dozens of tasks to meet or exceed TSM objectives and government regulations.

Crisis Management

Maintained above-average AAA rating.

Safety and Health

In most indicators we achieved a AA rating, as we continually strive to improve safety for our employees, and the community. See facing page for examples of recent safety improvements.

Energy Use and Greenhouse Gas Emissions

Improved, year-to-year, to AA in most areas. In response to an identified need to conduct general awareness training, an annual presentation is being created for all employees.

Biodiversity Conservation Management

Most improved, year-to-year, across all indicators, including introduction of a biodiversity plan in 2018.

Aboriginal and Community Outreach

Maintained above-average AAA rating.

Tailings Management

Achieved A or AA in all indicators. The safety of our tailings dams continues to be a top priority. Our aim is to improve our TSM scores even further by convening an Independent Tailings Review Board to provide third-party expert oversight on dam safety management.



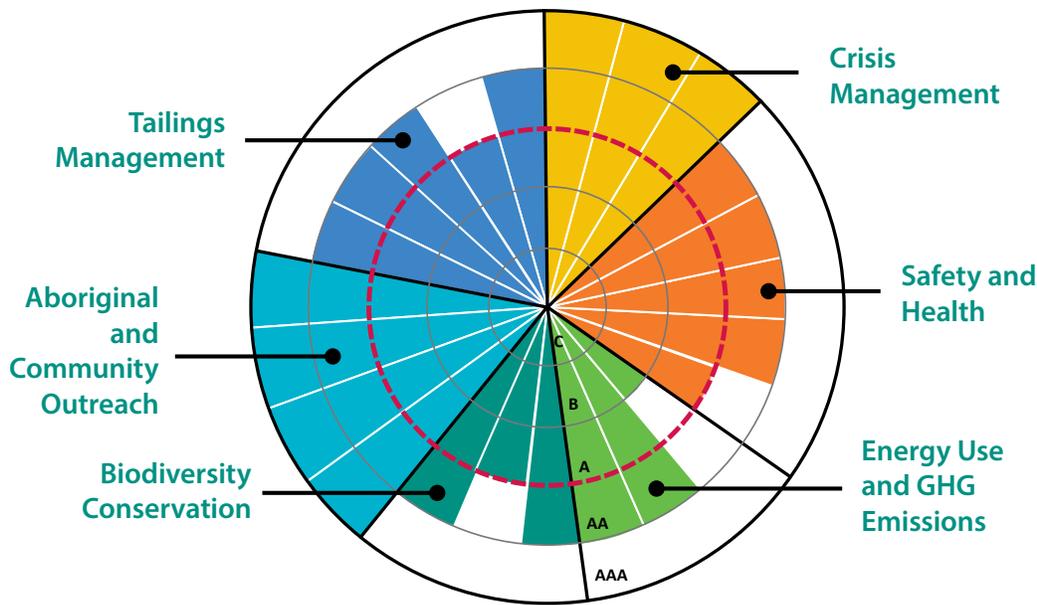
Good news for bees!

Our landscape is changing for the better, as we decommission buildings and return land to a natural state. See more on page 8.

Independently verified

In 2018, TSM ratings were externally verified by an independent advisory panel.

Thompson 2018



The dashed red line represents MAC's goal for member facilities to achieve a Level A or better in all indicators.

First-hand views on safety

The introduction of Vale Production System (VPS) training in our workplace over the past year is empowering employees to share ideas and continually improve safety. As a result, employees at every level have seen — and are demonstrating — how even small changes matter. Hundreds of *kaizens* (see definition on page 3) have emerged from the shop floor, underground, in offices and in the mill.

The VPS effect

Members of our Thompson mining team noticed shorter colleagues strained to climb a common type of mobile equipment in our T1 and T3 Mines. They welded three extra handholds and placed them to suit all heights — reducing risk of strains and injury.

Markers of good health

Putting the “care” in healthcare

Our employees have the option to participate in a health surveillance program conducted by a local medical provider. This year, we had 91% voluntary participation rate.

A high-energy commute to work

For six years running, our team has helped the city of Thompson win the national title for its population category for *The Commuter Challenge* — a week-long, Canada-wide competition that encourages biking, running, and walking to work. This year? We have our sights set on title number seven.

Taking strides for mental health

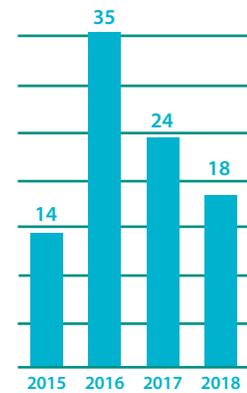
Last September, 45 Thompson employees took part in the Defeat Depression walk that raised more than \$5,400 to support local mental health programs. In March 2018, Vale leadership received Mental Health First Aid training. This course is also offered to employees throughout the year.



Community Concerns Line

Effective September 1, 2019, Vale is broadening the scope of our Environmental Hotline, renamed the Community Concerns Hotline. Call 204-778-2888.

Our Environment Hotline received 18 calls in 2018 — a 25% reduction from 2017. Concerns we’re addressing include reducing fan noise in some areas.



We Value Our People. These Vale employees participated in the first annual VPS Challenge.



Seeding a fresh landscape

Our landscape is improving, in more ways than one. As we began to decommission our Thompson Smelter and Refinery in 2018, we kicked off plans for a multi-year project to reclaim and naturalize the site.

A heap of green

The first and most visible activity is work to re-grade and contour the slag pile. This will set the foundation to transform a longtime landmark with a natural carpet of greenery.

Reclamation

The next phase over the coming year will be to cover the slag pile with a cap of clay, and then prepare the surface with soil

that can sustain plants and vegetation to extend the habitat for area wildlife such as great blue herons, commonly seen in the site wetlands. New vegetation will be selected with pollinators in mind.

On the horizon

The smelter and stack will remain in view for a few more years, before eventually being taken down. However, work has already started behind the scenes to clean out and prepare the structures for demolition.

Why *bee* friendly?

Take away the bees, and the magic that happens through pollination and a host of nutritious foods such as pumpkins, peaches, blueberries, cherries, chives and cucumbers, would be compromised.



There's a buzz about our bees.

In 2018, we welcomed a local beekeeper to set up honeybee hives on our decommissioned Soab North Mine site, about 70 km south of Thompson. The land, which we began to revegetate in 2003, includes recreational trails and is now lush with sweet clover and alfalfa that pollinators find irresistible, surrounded by natural boreal forest.

In 2019, we also granted space for a second local honeybee keeper to manage hives at five other sites: two locations on the Birchtree Mine site, two locations on the T3 Mine site and one location within the T1 Mine site.



Water watchers



Looking out over Area 3 of the Tailings Management Area.

Essential to our daily life, and the health of every living thing in our surrounding watersheds and environment, water quality is the focus of our daily practices and capital improvements in our Tailings Management Area.

By inviting external review and oversight, we are providing a greater level of assurance that the work in our tailings operations is being conducted in the most responsible and sustainable way. We're also focused on the best available technologies.

Capital projects

By keeping tailings materials well submerged underwater, we are able to prevent oxidation and can better manage water chemistry. A multi-year project to raise the perimeters around the tailings basin and increase water capacity is nearing completion, and has raised water levels by about three feet.

Innovation in a "pipeline"

We're evaluating designs for a new way to distribute tailings inside the Thompson basins — a floating pipeline system. If constructed, environmental benefits include reduced waste from filling temporary roads and a better flow in the basin for more effective liming and water treatment.

Best-available technology review

We've commissioned an external review of the technologies and techniques used in our tailings system to identify if anything can be improved to meet industry best practices in comparable situations.

Independent review

We took the initiative to convene an independent tailings review board session. This invites external experts to audit our site and facilities, evaluate our technology and procedures, and make recommendations.



Good water chemistry

We sample water that flows through our operations and tailings facilities weekly, at three final points of discharge, to reduce threats to fish and their habitat, and ensure we meet environmental standards. We are pleased to report that compliance to the Federal Metal and Diamond Mining Effluent Regulation was 100% at our Weir and Birchtree Effluent Treatment Plant locations in 2018. At our Station B testing area, one sample exceeded Total Suspended Solids (TSS) limits, and one sample exceeded pH. Both were brought back into compliance for the next weekly sample, with no adverse impact to aquatic life.



TSM Performance Score – 2016-2018



Listening and reflecting

Vale has been a long-term partner of the Thompson Aboriginal Accord and 2019 marks its tenth anniversary, affirming our commitment to strengthen relationships with our Indigenous partners.

Throughout this decade, as a partner in the Accord, we have been fortunate to learn a great deal from Indigenous leaders, community organizations and also the growing number of self-identified Indigenous people who've joined our workforce or taken part in our events.

We supported the second annual Truth, Reconciliation and the Road to Wellness Conference in March 2018, centred on the implementation of the Truth and Reconciliation Commission's 94 Calls to Action.

Encouraging leaders to listen and learn

To implement the Truth and Reconciliation Calls to Action, Vale leadership attended two days of training in May and September 2019. This training focused on Indigenous and Northern Perspectives, Historical Treaty Education, Corrective History, and Cultural Proficiency to help create meaningful and respectful working relationships.

Part of our role in the reconciliation process is to provide meaningful

opportunities for Indigenous peoples in the areas of employment and business. Here's how:

Formal accountability

In 2018, our operations in Manitoba added the Business and Reconciliation calls to action to our Community Liaison Committee (CLC) Terms of Reference. The CLC connects Vale, Thompson and neighbouring communities by holding quarterly stakeholders' meetings on sustainable mining matters: environmental monitoring, economic development, careers and training and more.

Fostering northern economic development

We collaborated with the Thompson Urban Aboriginal Strategy to sponsor the Northern Urban Reserves Municipalities and Economic Development Forum organized by Manitoba Keewatinowi Okimakanak and Look North.

Supporting the growth of Indigenous business

Vale is committed to increasing Indigenous procurement opportunities. Currently, we are exploring such opportunities with Nisichawayasihk Cree Nation (NCN).

Celebrating life

Our support for cultural and educational events, whether through participation or sponsorships, allows us to show our respect for, and to authentically interact with, Indigenous ways of life.

Two examples:

Every December we support the annual Fur Tables hosted by the Manitoba Trappers Association, when First Nations, Métis, and regional trappers gather in Thompson from across the province to sell their furs.



Heralded by the Summer Solstice each June, the annual Indigenous Peoples Day Celebration is a wonderful opportunity to become better acquainted with the cultural diversity of Inuit, Métis and First Nations peoples. Vale has proudly supported this event for many years.



Another Vale value is, Make It Happen. Pictured here are attendees at the Northern Urban Reserve, Municipality & Economic Development Forum.



Vale was in attendance at the World of Choices Career Event in Tataskweyak Cree Nation.

Proud to work together

Vale is proud to currently sit on the following committees, where we can exchange knowledge, pool resources and facilitate important work in the community:

- Thompson Aboriginal Education Advisory Committee
- Thompson Urban Aboriginal Strategy Committee
- Thompson 2020 (an initiative launched to assist workers affected by changes in Thompson's mining sector, and to help our community transition towards a more diverse, self-sustaining economy)
- MAMI's Indigenous Relations committee
- Northern Job Fairs hosted by University College of the North (UCN) and Northern Manitoba Sector Council in Thompson
- Manitoba Keewatinowi Okimakanak's (MKO) Community Feast (below)



Employment and training

Vale intends to apply the success of the Northern Employment Strategy to underground mining. Through many partnerships with local stakeholders, and our work with the Northern Workforce Development Centre, we are committed to providing education, training and jobs for northern people.

Vale supports and attends many career events, including:

- Manitoba Keewatinowi Okimakanak's (MKO) Indigenous Skills Employment Training Program
- MKO's Youth Career Event
- University College of the North (UCN) Career Event
- Frontier School Division Regional Career Days
- Young Men And Women's Skilled Trades Conferences

Four scholarships

Our operations in Manitoba offers four scholarships, named in honour of Indigenous elders and contributors.



Workforce Adjustment Services

We assisted employees whose jobs were affected by changes in our operations in Manitoba. More than 200 people made good use of available Workforce Adjustment Services, including training and help to write resumés. Vale collaborated with USW Local 6166, the Northern Manitoba Sector Council and Thompson 2020 to help create these new pathways to employment. Read more about Thompson 2020 on page 13.



We're getting out there!

We actively participate in our communities by supporting a wide range of events and initiatives through the year, including more than 30 local community organizations and groups that provide opportunities for youth, culture, education and health.

Through our outreach — and by supporting the good deeds of our employees — we are proud to help raise the quality of life in our community.



Youth and education

- Thompson Boys and Girls Club
- YWCA Thompson
- Manitoba Theatre for Young People
- Heritage North Museum
- Boreal Discovery Centre
- Skills Manitoba
- Northern Envirothon



Prize Our Planet. Our company presented a cheque to the Boreal Discovery Centre.

Culture

- City of Thompson Concert Series
- Thompson Festival of the Arts
- Nickel Days Inc.



This is the Vale float in the Nickel Days parade.

Sports and recreation

- Thompson Relay for Life
- Thompson Ski Club
- Vale Golf Tournament
- Vale Curling Bonspiel
- Knights of Columbus Track Meet



Vale Day at Mystery Mountain Winter Park was a huge success.

Mental health and well-being

Vale is the title sponsor of the Defeat Depression Walk/Run, a campaign by the Mood Disorders Association of Canada. We also support the Thompson Crisis Centre Inc. and the annual HOPE Forum, organized by the Hope North Suicide Prevention Committee, which marked its 10th year in 2018.



Committed to our communities

“Thank you for taking the time to introduce us to VPS, what you’ve learned from it and the benefits to your business. The enthusiasm and morale of your team was infectious, and was made very clear to the City team.”

—Anthony McInnis, City Manager

Boots on!

In March, Vale welcomed 10 senior City of Thompson administrators and Council officials, to tour our operations and learn about our Vale Production System (VPS). They hope to learn from our success with VPS, and discuss whether a similar model could be applied at the government level.

Highlights

Vale Manitoba Operations voluntarily topped up an additional \$600,000 to its first-year Grant-in-Lieu payment in 2019 to the City of Thompson.

Vale is part of the steering committee for **Thompson 2020**. This is a project to strengthen the community by coordinating economic and community development initiatives to develop the sustainability of Thompson and the region, supported by The City of Thompson, Vale, the Province of Manitoba and the



We opened our doors to distinguished guests from the City of Thompson to share our VPS methodologies with them.

Government of Canada. These initiatives support the recommendations and strategies previously developed through the Thompson Economic Diversification Working Group (TEDWG) Plan, which Vale directly supported.

Vale continues to advance the project’s underlying goal: a diversified, sustainable future for Thompson and the north.

Save the date!

We’re hosting our free annual community Open House in conjunction with Vale Night with the Norman Northstars, and everyone is welcome to attend. Family activities, including public skating, are from 5:30 – 8:30 p.m., and the puck drops for the (free) Norman Northstars hockey game at 7:30 p.m.

Mark your calendars:

Date: **Sat., Nov. 16, 2019**
Time: **5:30 p.m. to 8:30 p.m.**
Location: **Thompson Regional Community Centre
274 Thompson Drive South**



Vale employees participated in the Community Clean up, collecting 120 bags of garbage!

Vale is a proud supporter of the Boreal Discovery Centre (BDC). This spring saw the BDC's first annual Walk, Run, Bike for the Boreal.

Thompson Zoo Boreal Discovery Center

Contact us

For more information on the Community Liaison Committee or any topic in this report, contact Tara Ritchie at tara.ritchie@vale.com or (204) 778-2094.