Towards Sustainable Mining
Vers le développement minier durable

TSM Verification Summary Report

Facility Information

Name of company	Vale
Name of facility	Long Harbour Operations
Address	1 Nickel Road, Long Harbour, NL A0B 2J0
Country of operation	Canada
Products/metals produced on site	Nickel rounds, cobalt rounds, copper cathodes
Types of operations included in scope:	
Mining	☐
Milling	☐
Smelting	☐
Refining	☒
Other (*please explain*)	Hydrometallurgical facility
Types of infrastructure included in scope:	
Roads	☒
Rails	☐
Ports	☒
Other (*please explain*)	

Verifier and Verification Information

Verification firm	Rubinoff Environmental Inc.
Confirmation that all verifiers involved in the verification are accredited TSM verifiers	*Yes*
Date(s) of verification activities (dd/mm/yyyy – dd/mm/yyyy)	30/06/2022-22/09/2022
Verification period	Year prior to Verification end date
Summary of the verification methodology	All Protocols were verified for this facility
Summary of the verification activities	Planning: Site Visit: Opening meeting, virtual tour, interviews with corporate and site personnel, document review, interviews with COI, closing meeting; Follow-up; Reporting

Summary of Findings

Criterion	Rating *C, B, A, AA or AAA (unless otherwise indicated)*	Comments
Biodiversity Conservation Management		
1. Corporate biodiversity conservation commitment, accountability, and communications	AAA	The Vale Sustainability policy includes a commitment to biodiversity. The policy is supported by the Guidelines and Processes for Biodiversity Management and its appendix Biodiversity Management Manual. Programs in place indicate a commitment consistent with MAC Framework. An Environmental Protection Plan (EPP) and Environmental Monitoring Plan (EMP) have been prepared. Commitment has been communicated to employees and COI. Responsibilities and resources have been assigned. An internal audit on biodiversity was conducted in 2020. Vale's commitment includes a stated ambition of no net loss. Vale actively partners with other organizations (e.g., DFO and Memorial University for Green Crab study, DECC for air and water monitoring). Facility meets the requirements of Level AAA.
2. Biodiversity conservation planning and implementation	AAA	Long Harbour Operations developed baseline data as part of its Environmental Impact Study. The EPP, EMP and the Rehabilitation and Closure Plan outline the components of a biodiversity conservation plan. Global and site-specific biodiversity objectives exist related to reduction of impacted land. Responsibilities are assigned. Communities of Interest are engaged. Budgeting takes place. An internal audit was conducted in 2020. Vale supports the Green Crab studies and is involved in enhancing biodiversity outside the facility (e.g., construction of artificial rock reef).

Criterion	Rating *C, B, A, AA or AAA (unless otherwise indicated)*	Comments
		Facility meets the requirements of Level AAA.
3. Biodiversity conservation reporting	AAA	Biodiversity is included in Senior Leadership monthly meetings as appropriate. Biodiversity is included in the Report to the Community and the Vale Sustainability Report. The Marine Habitat report is reviewed by the DFO (Fisheries and Oceans Canada). Real time water quality data is available to the public. COI input on reporting is evidenced by the feedback and addendum to the Second Cycle EEM Design. Sustainability Reports (vale.com) Facility meets the requirements of Level AAA.
Crisis Management and Communications Planning (Indicate YES or NO)		
1. Crisis Management and Communications Preparedness	YES	The Top Process Safety Risks and the Severity Matrix identifies credible threats and plans exist to respond. EMQnet is used to manage the crisis plan including roles and responsibilities. A stakeholder list identifies key stakeholders. A media list is available and the Communications Coordinator has a background in communications. Everbridge is used to alert the Crisis Team and is also used to communicate with employees. Facility meets all criteria for this indicator.
2. Review	YES	EMQnet acts as a document control system for crisis documents. The Crisis Management Plan is reviewed during table top exercises and after actual events and updated as required. The notification system is tested twice a year (through drills, actual events, bus

Criterion	Rating C, B, A, AA or AAA (unless otherwise indicated)	Comments
		issues, virtual huddles). The facility's plans are shared with corporate through EMQnet. Records indicate team members were familiarized with the plan. Facility meets all criteria for this indicator.
3. Training	YES	Crisis team was activated in January 2022 for Snowmaggeddon, March 2020 for Covid and September 2021 for Hurricane Larry. A table top drill was conducted in June 2022 involving seepage at the dam. Facility meets all criteria for this indicator.
Energy Use and GHG Emissions Management		
1. Energy Use and GHG Emissions Management Systems	AAA	The Sustainability Policy and Climate Change Policy demonstrates senior management commitment. An Energy Use and GHG emissions management system is in place. Energy data is disaggregated by operation. Standard factors are used for conversions and are described in a GHG Manual. Operators take appropriate actions to minimize energy and GHG emissions. General and specific energy and GHG training has been provided. An internal audit of the ISO 14001 management system has been conducted and included GHG. Vale has made voluntary corporate investments through the Low Carbon program and has invested in wind projects at Voisey's Bay, in hydro-electric infrastructure in Sudbury and in electrification of the boilers at Long Harbour. Facility meets the requirements of Level AAA.

Criterion	Rating *C, B, A, AA or AAA (unless otherwise indicated)*	Comments
2. Energy Use and GHG Emissions reporting systems	AAA	Energy use and GHG emissions are reported regularly to employees, senior leadership and the public. The energy use and GHG emissions reporting system is internally verified by Vale personnel. Aggregate Vale performance against targets and Vale's corporate strategy are included in Vale's Sustainability Report. Scope 1 GHG Emissions are externally verified as part of the regulated GHG programs and some scope 3 emissions are included in corporate reporting. Facility meets requirements of Level AAA. Sustainability Reports (vale.com) *include link to public disclosure or reference the form of public reporting if no web link available*
3. Energy Use and GHG Emissions performance targets	AAA	Vale has set corporate targets for GHG reductions (33% by 2030) and for zero-net GHG emissions by 2050. Energy use and GHG emissions performance has been externally verified. The facility has met its GHG targets for the past 3 years. The facility has some performance strategies that meet an additionality test. For example, the Boiler Project considered NPV (a proxy for ROI) and has made investments in new technologies (battery electric vehicles). Facility meets the requirements of Level AAA

Criterion	Rating C, B, A, AA or AAA (unless otherwise indicated)	Comments
Indigenous and Community Relationships		
1. Community of Interest (COI) Identification	AAA	Communities of Interest are identified and documented on the Stakeholder List. There is a documented process in place for COI identification and is described in corporate documents. COI were identified in the Environmental Impact Statement process. Open Houses and Community Liaison Committee (CLC) polling to identify other groups that could be considered COI. Facility meets the requirements of Level AAA.
2. Effective COI Engagement and Dialogue	AAA	The facility provides assistance to ensure COI are able to participate. The facility makes the CLC meetings at a time/location to ensure COI are able to participate. A formal process for engagement is provided in the Terms of Reference for the Community Liaison Committee (CLC) which were collaboratively developed. Accountability has been established. Facility has a consistent history of meaningful engagement with COI. Through the CLC, Vale is engaged in joint decision making on matters that affect the COI. Facility meets the requirements of Level AAA.
3. Effective Indigenous Engagement and Dialogue	AAA	There is demonstrated senior management commitment to Indigenous engagement on the Vale website. All Canadian personnel have access to the Indigenous Foundations training module. Facility-wide education and awareness on Indigenous topics occurs.

Criterion	Rating C, B, A, AA or AAA (unless otherwise indicated)	Comments
		Long Harbour Processing Plant's (LHPP) Canadian Environmental Assessment Act Screening Report (accepted by the Impact Assessment Agency of Canada in 2008) did not identify Indigenous groups in the area of influence of LHPP. The Screening Report identified no impacts to Indigenous treaty rights, known Indigenous interests, or current use of lands and resources for traditional purposes near the LHPP. Facility meets the requirements of Level AAA.
4. Community Impact and Benefit Management	AAA	Vale's Sustainability Policy commits to being a Sustainable Operator, Local Development Catalyst and Global Sustainability Agent. Social impacts are identified and controlled through BWise Mitigation Controls. Vale contributes to a number of organizations to benefit a broad spectrum of the community. Contributions are discussed in the CLC. Benefits include consideration of procurement and employment. Decisions on how to direct contributions (including a new pool in Placentia) were made with the provincial government for funds provided through amendments made to the Voisey's Bay Development Agreement in 2015. These contributions are noted in the Report to the Community and benefit a broad spectrum of the community and can be self-sustaining. Facility meets the requirements of Level AAA.
5. COI Response Mechanism	A	A Long Harbour Community Concerns line and email concerns line is in place. Concerns are also raised through the CLC and meetings with the Long

Criterion	Rating C, B, A, AA or AAA (unless otherwise indicated)	Comments
		Harbour Town Council. Concerns from the Concerns Line and Email are documented and followed-up and tracked. Reports are provided monthly to the Base Metals Executive Committee. Questions raised at the CLC are documented and responded to in the minutes. COI are proactively informed on how to access the response mechanism Facility meets the requirements of Level A.
Preventing of Child and Forced Labour (Indicate YES or NO)		
1. Preventing Forced Labour	YES	Vale's Human Rights Policy states "We prohibit the use of any types of employment practice that may be construed as equivalent to forced or mandatory labor." Vale's Supplier Code of Conducts requires "All suppliers must prohibit and renounce the use of child labour, forced labour and slave-like labour." Vale meets all the requirements of a Yes.
2. Preventing Child Labour	YES	Federal regulation prohibits children under the age of 17 from working in an underground mine. Various Provincial regulations (including Ontario, Manitoba and Newfoundland & Labrador) prohibit children under the age of 18 from working in an underground mine. Vale's Human Rights Policy states "We prohibit the use of child labor…" Vale's Supplier Code of Conducts requires "All suppliers must prohibit and renounce the use of child labour, forced labour and slave-like labour."

Criterion	Rating C, B, A, AA or AAA (unless otherwise indicated)	Comments
		Vale meets all the requirements of a Yes.
Safety and Health		
1. Commitments and Accountability	AA	The Sustainability Policy defines the policy commitments. A senior management representative is accountable for safety and health. The Policy has been communicated to employees and contractors. An internal VPS audit was conducted by Vale in 2021. Facility meets the requirements of Level AA.
2. Planning and Implementation	AA	A formal Safety and Health Management System (Vale VPS) is in place including documented safety standards and procedures, objectives, risk assessments, workplace inspections, defined roles and responsibilities, maintenance of records. The industrial hygiene program is overseen by a qualified hygienist. An internal audit of the management system was conducted in 2021. Facility meets the requirements of Level AA.
3. Training, Behaviour and Culture	AAA	A robust training system is in place. Senior leadership demonstrates a commitment and a safety-based culture is encouraged. Trainees are assessed for competency and trainers are qualified and evaluated for effectiveness. The facility promotes health and wellness with programs to support work mental heath. The commitment to safety and health is visibly embedded and management demonstrated the commitment through one-on-one interactions.

Criterion	Rating *C, B, A, AA or AAA (unless otherwise indicated)*	Comments
		Facility meets the requirements of Level AAA.
4. Monitoring and Reporting	AA	S&H metrics are monitored and reported including leading and lagging indicators. A weekly Safety Performance Report is circulated to all supervision. S&H data is publicly reported in the Vale Sustainability report. An internal VPS audit was conducted by Vale in 2021. Sustainability Reports (vale.com) Facility meets requirements of Level AA.
5. Performance	AA	Targets are set for leading and lagging indicators and performance is regularly reviewed and communicated. Facility benchmarks its performance against its peers. Facility meets the requirements of Level AA.
Tailings Management		
1. Tailings management policy and commitment	A	The Dam Safety Group conducted an internal audit using the MAC TSM requirements as its criteria. The internal audit confirmed MAC requirements were met. The commitment is presented in the orientation and all tailings-related training. The commitment (i.e., Policy for Dam Safety and Geotechnical Mining Structures) was also communicated to all Canadian employees, with employees, contractors and consultants understanding the policy to a degree appropriate to their roles. There is budget allocation. Facility meets requirements of Level A.

Criterion	Rating C, B, A, AA or AAA *(unless otherwise indicated)*	Comments
2. Tailings management system and emergency preparedness	A	The Dam Safety Group conducted an internal audit using the MAC TSM requirements as its criteria. The internal audit determined the tailings management system has been developed and implemented and conforms with the MAC Guide. The Emergency Response Plan has been developed and is in conformance with the MAC Guide. The ERP is tested. Facility meets requirements of Level A.
3. Assigned accountability and responsibility for tailings management	A	The Dam Safety Group conducted an internal audit using the MAC TSM requirements as its criteria. The internal audit determined the MAC requirements were met. Facility meets requirements of Level A.
4. Annual tailings management review	A	The Dam Safety Group conducted an internal audit using the MAC TSM requirements its criteria. The internal audit determined the MAC requirements were met. Facility meets requirements of Level A.
5. Operation, maintenance, and surveillance	A	The Dam Safety Group conducted an internal audit using the MAC TSM requirements as its criteria. The internal audit determined an OMS Manual has been developed and is in conformance with the MAC Guideline. Facility meets requirements of Level A.

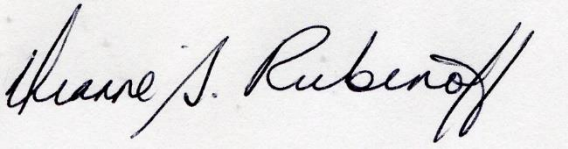| Criterion	Rating *C, B, A, AA or AAA (unless otherwise indicated)*	Comments
Water Stewardship		
1. Water Governance	AA	There is demonstrated senior management through the Sustainability Policy and the Water and Water Resources Policy, consistent with the MAC Water Stewardship Framework. The commitment is communicated through Huddles. Roles and responsibilities are defined in the Management of Water and Water Resources document. Risks are identified in the HIRA and integrated into business planning and budgeting. An internal audit was conducted for ISO 14001 and included wastewater and water consumption. Facility meets requirements of Level AA.
2. Operational Water Management	A	The site has identified facility-level risks related to surface water and ground water and critical controls identified and verified. A real-time water balance is available. Processes are established to monitor water performance for both surface water and groundwater. Ground water is modelled. Records of water quality and quantity are maintained. The facility has a site wide water balance that is reviewed regularly. Controls have been established. Response and contingency plans have been established for water related risks and incidents. (MDMER ERP). Relevant employees and contractors have been provided with appropriate training. Vale has identified climate change risks. The 5-year plan and the Rehabilitation and Closure Plan include long term water management considerations. Facility meets requirements of Level A.

Criterion	Rating C, B, A, AA or AAA (unless otherwise indicated)	Comments
3. Watershed-scale Planning	AAA	The EIS identifies the watershed that the LHO is located in and the adjacent watersheds. LHO is the only facility located within the Rattling Brook Watershed. The EIS and the Water Baseline Sampling program assessed how the operational water management contributes to the watershed. Facility works with government regulators (COI) on collaborative monitoring. Facility meets requirements of Level AAA.
4. Water Reporting and Performance	AAA	Vale's water performance target is documented on the Vale website. Public reporting of performance against target is included in the Vale Sustainability report. The data in the Sustainability report was independently verified. The water reduction target was met in the reporting year. Real-time water data is publicly available and the MDMER results are published. A 5-year plan has some implemented and some planned projects to achieve the 2030 water target. Sustainability Reports (vale.com) Facility meets the requirements of Level AAA.

Statement of Verification

Statement of Verification	
The external verification was conducted in accordance with the *Terms of Reference for Verifiers* and, accordingly, consisted primarily of interviews, data analysis, and examination (on a sample basis) of other evidence relevant to management's assertion of conformance to the	☒ The external verification was conducted in accordance with the *TSM Verifier Terms of Reference*.

requirements of the TSM performance indicators.	
The scores indicated in this report are verified as being accurate based on the evidence reviewed during the external verification of this facility.	☒ The scores in this report are considered accurate based on this verification.
Limitations	Even though the information provided by the company was thoroughly reviewed, Rubinoff Environmental Inc. was required to rely on this information without being able to independently verify its accuracy.
Additional comments	
Name of lead verifier	Dianne Rubinoff, P.Eng.
Date of statement of verification	14/12/2022
Signature of lead verifier	

1.   Verification Evidence

This section presents a summary of the key evidence used to verify the self-assessed levels.

1.1 Biodiversity Conservation Management

Key Personnel Interviewed:

- Vale NL Environmental Superintendent
- Vale Long Harbour Environmental Advisor
- Vale Sustainability and Government Relations Specialist

Documents Reviewed:

- POL-0019-G Vale Sustainability Policy
- PNR-0029 Guideline and Processes for Biodiversity Management
- Vale News June 2, 2021 re: Green Crab research
- Fortnightly Focus January 2022 -
- Environmental Awareness LHO 2021 presentation
- Sustainability Week Email 6/23/2022
- Environmental Protection Plan
- Environmental Monitoring Plan
- Environmental Advisor – Job Description
- Environmental Budget
- Internal Audit by Dennis Martin Nov 25/2020
- Agreement/contract with provincial government for ambient air monitoring
- Agreement/contract with provincial government for water monitoring
- Long Harbour Real-Time Water Quality Deployment Report 2021
- Real-Time Water monitoring Website
- EIS Long Harbour Commercial Nickel Processing Plant Full Report 2008
- SEA: Natural Ecosystems – One Pager
- Aspects Register
- Rehabilitation and Closure Plan
- EEM Studies
- Community Liaison Committee June 2022 meeting minutes
- Boreal Felt Lichen study – Fall 2009-Fall 2019
- Senior Leadership Team Updates – November 2021
- Championing the Environment slide
- Vale Report on Sustainability 2020-2021
- ESG Databook
- Addendum to Second Cycle EEM Design for the LHO Nickel Processing Plant Sep 2018

1.2 Crisis Management and Communications Planning - Facility

Key Personnel Interviewed:

- Vale NL Environmental Superintendent
- Vale Long Harbour Health, Safety and Risk Manager

- Vale Long Harbour Process Safety Engineer
- Vale NL Public Affairs Lead for Vale Newfoundland and Labrador Operations
- Vale Disaster Management Specialist for Base Metals
- Vale Sustainability and Government Relations Specialist

Documents Reviewed:

- Material Unwanted Events
- Emergency Response Plan June 6, 2022
- EMQnet
- EMQnet Emergency Management Team (i.e., Local Crisis Management Team)
- Vale Base Metals Crisis Management Severity Matrix
- EMQnet Long Harbour sections including Profile Packs (e.g., for Janiene Peddle, Jared Saunders)
- Stakeholder contact list for Long Harbour (EMQnet contact manager section)
- Email alerts from Everbridge (re: buses and virtual Huddles)
- Training Status Report August 31, 2022
- NL Media Contact List 2022
- EMQnet Luis Report re: 2020 re; Snowmaggeddon
- EMQnet Luis Report re: 2021 re: Hurricane Larry
- Hurricane Larry email
- EMQnet Luis Report re: 2022 re: training exercise RSA seepage
- June 2022 Training exercise scenario and interjects

1.3 Energy Use and GHG Emissions Management

Key Personnel Interviewed:

- Vale Energy Management Lead North Atlantic
- Vale Long Harbour Process Engineer.
- Vale Long Harbour Environmental Advisor
- Vale NL Environmental Superintendent
- Vale Sustainability and Government Relations Specialist

Documents Reviewed:

- POL-0019-G Sustainability Policy (with healthy, safe work environment and to zero harm)
- POL-0012-G Climate Change Policy
- LHO GHG Emissions Procedures Manual
- Visitor Orientation
- Sustainability Week Behaviour Share 2022
- Senior Leadership Team presentation November 2021
- GRI-EN15 2022-05 Reagent Usage
- NL GHG Reporting Form 2021
- Boiler Operational SOPs
- ValeForms_Form_221 - Boiler Room
- Anode Management System presentation
- ISO 14001 One-Pager – Air and GHG

- PNR-0077 Management of GHG Emissions and Removals
- WSP Golder 2022 Internal Audit Report
- WSP Golder 2022 Internal Audit Plan
- Low Carbon Forum presentation March and June 2022
- Vale Report on Sustainability 2020-2021
- ESG Databook
- Vale website – Vale Days
- Stantec GHG Verification Report RY2020
- Stantec GHG Verification Report Appendix Statement of Verification
- US Stock Exchange Net Zero Commitment

1.4 Indigenous and Community Relationships

Key Personnel Interviewed:

- Vale NL Corporate Affairs Specialist Vale Newfoundland and Labrador Operations
- Vale NL Corporate Affairs Advisor
- Vale Sustainability and Government Relations Specialist
- COI Representative Mayor Town of Long Harbour

Documents Reviewed:

- PNR 79 Vale's Social Performance
- PNR 65 Listening and Response Mechanism
- PNR 70 Health, Safety, Environment, Community and Operational Event Management
- Vale SDI (Stakeholders Demands and Issues) System
- Vale Newfoundland and Labrador Stakeholders spreadsheet
- Vale Newfoundland and Labrador Stakeholder Map
- EIS Volume 3 Socio-Economic Environment
- Long Harbour Community Liaison Committee (CLC) Terms of Reference
- EMQnet Stakeholder List
- List of Communities Employment Statistics
- Industrial and Employment Benefits Report April 2022
- Community Assessment and Risk Register
- Energy Ministers Mining Conference tour social media post July 2022
- Female Recruitment Campaign posters
- Women's Employment Plan
- Informational email to Long Harbour Mayor re: female recruitment
- SDI database for Community Concerns (e.g., Entry 75945 Complaint re: Skids, 4/22/2022)
- Long Harbour Tax Agreement
- Industrial and Employment Benefits Agreement
- Monthly Performance Meeting VNL – Corporate Affairs Update slides May-June 2022
- First Nation Profiles Map
- Email re: Applicability of VPS Social Indicator 5 Related to Indigenous Peoples
- Indigenous Foundations training module
- Indigenous Foundations Training Stakeholder Feedback
- Sustainability Policy Poster
- BWise Mitigation Controls for Sustainability Risks

- Newfoundland and Labrador Operations Update 2019-2020
- CLC Slides for June 2021 meeting
- CLC Minutes April 27, 2022
- CLC Minutes and Action Items June 2021
- Voisey's Bay Cultural Awareness presentation
- Indigenous Peoples and Traditional Community section on Vale.com website
- Job postings showing equal opportunity employer
- National Day of Truth and Reconciliation 2021 Huddle picture
- Teams background for Missing and Murdered Indigenous Women and Girls Red Dress Day
- June 2022 Indigenous Heritage Month shares
- Sustainability and Corporate Affairs Dashboard – Social Management Indicators Aug 2021
- VPS Self-assessment for Social Indicators 2021
- 2021 Social Performance KPI Report
- Communities Risk Assessment
- HIRA June 7, 2022 Community Risks
- Material Unwanted Events for Environment and Bowties
- Vale.com Application for Community Funding
- Community Investment Criteria
- Town of Long Harbour Agenda for June 2022 Quarterly meeting with Vale
- Community Investment slide for CLC
- 2023 Community Investment Planning
- Placentia Bay Food Bank thank you to Vale for donation
- Pictures of Beach cleanup
- News Release for Funding for Community Initiatives
- Closure Plan
- Team Huddle Ask a Question QR code posters

1.5 Prevention of Child and Forced Labour

Key Personnel Interviewed:

- Vale HR Manager NA
- Vale PMO Analyst for HR Team
- Vale Analyst Talent Acquisition
- Vale Procurement Manager
- Vale Sustainability and Government Relations Specialist

Documents Reviewed:

- Human Rights Policy
- Human Rights Guide
- Supplier Code of Ethics and Conduct
- General Service Agreement (Section 15)
- Terms and Conditions
- Vendor Registration requiring Vendors to accept Supplier Code of Ethics

1.6 Safety and Health

Key Personnel Interviewed:

- Vale Long Harbour Health, Safety and Risk Manager
- Vale Long Harbour Process Safety Engineer
- Vale Long Harbour Learning and Development Superintendent,
- Vale Long Harbour Advisor Industrial Hygienist
- Vale Sustainability and Government Relations Specialist

Documents Reviewed:

- POL-0019-G Sustainability Policy (with healthy, safe work environment and to zero harm)
- LHO Visitor Orientation
- Long Harbour General Orientation
- Various copies of the Sustainability Policy posted throughout site
- HomeSafe Share – Safety Shutdown – June 2022
- HomeSafe Share – Clarification on Removal of Isolation Boundaries – January 2022
- HSER Fortnightly Focus – Heat Stress and Hydration Awareness June 2022
- HSER Fortnightly Focus - Floor Gratings, Guardrails, Openings and Trapdoors
- HomeSafe Launch (replacing Safe Production) October 2021
- FMDS Boards (POL and Utilities)
- Safety and Health Advisor, Process Safety Specialist/Engineer and Health and Safety Lead Job Descriptions
- HS&R Manager Job Posting
- Long Harbour HS Advisor Routine Agenda
- Leadership in the Field and Critical Risk Management for Supervisors Training presentation March 2022
- Leadership in the Field and Critical Risk Management Implementation – Communication #1 March 2022
- Risk Management Awareness presentation
- VPS Manual
- VPS Formal Assessment Report for LHO
- SH Budget Report
- Process Safety Management – DCS Critical Controls
- PNR-0022 HIRA Standard
- HIRA Bowtie for Cl2 or H2S, for loss of fuel containment
- HIRA CC02, CC03, CC05, CC17 and CC18 Critical Control One Pagers and Verification Checklists
- One Pager – Adherence to SOP for Flex Hose connection/disconnection and associated Verification Checklist
- HIRA Actions Tracking
- Email listing SOP (permit to work, confined space entry, lifting and rigging)
- Risk Assessment Form
- SLAM book – Clean out cells 192 July 7, 2022
- SLAM book – Isolate filter wash pump to clean – July 11, 2022
- PHA Report (HAZOP) Operation of the H2SO4 Day Tank Bypass Line
- Field Level Risk Assessment (FLRA) Washing Loader June 2022
- CuSX Expansion Concrete and Ductwork – JHA Worksheet

- Workplace Inspections Calendar for Safety Teams
- 226 EW Workplace Inspection Schedule
- Building 228 Workplace Inspection for June 1, 2022
- LHO Daily Summary (previous day's events) 2022-07-12
- ERT Response to H2S Release in Cadmium Removal Building
- SEG Exposure Assessment 2022
- SEG Scenario Exposure Risk Analysis sample
- 2022 OEMP Annual Sampling Plan
- Occupation Health Report for individual employee Personal Noise Sampling March 2022
- Occupational Exposure Monitoring Summary Ni Co EW (226) Jan 2022
- Personal Exposure Monitoring Neutralization Building Nickel Insoluble Inhalable Aug 2021
- IH Monitoring Qualitative and Quantitative Risk Evaluation Matrix
- CIH Certificate for Lori Rice
- June 23, 2022, July 7, 2022, October 28, 2021 and October 25, 2021 Virtual Huddle Presentation
- July 14, 2022 Virtual Huddle
- New Individual Development Plan (IDP) Training presentation
- Long Harbour Common Core training
- Long Harbour General Orientation
- Weekly training report
- VES
- Course EW Copper Parent
- Train-the-trainer certificates for Anthony McDonald and Philip Lewis
- Certified Training and Development Professional Certificate for Rod Hynes
- On-the-Job training signoff – Acid Transfer Pump for MS
- Neutralization CRT Oral Board template
- EW Solutions Oral Board template
- Forklift Competency template
- Hightek Confined Space test template
- WorkPlace NL OHS Committee Training Approval Letter and Trainer Assessment for Jeremy Mercer
- Mines for Mines Training
- NA HSER Report
- Injury Status Report – LH
- Newfoundland and Labrador Operations Update 2019-2020
- Community Liaison Committee presentation October 20, 2021
- STRAWTS KPI Screenshot Nov 15, 2021
- North Atlantic HS&E September 2021 Analysis – Atlantic Operations
- Power BI Dashboard screenshot
- SAP-IM July 21, 2022 Event with No Loss screenshot
- Oct 2021 Alarms Reports
- Base Metals HSER Term 2022 Strategic Initiatives
- Email with 2022 Targets from Kelly Queiroz March 9 2022
- NA HSER Dashboard
- AIP Presentation at Huddle July 7, 2022
- Long Harbour TRIF and Target 2015-2019

1.7 Tailings Management

Key Personnel Interviewed:

- Vale Long Harbour Responsible Tailings Person
- Vale Geotechnical Engineer
- Vale Manager Tailings and Dams North Atlantic
- Vale Sustainability and Government Relations Specialist

Documents Reviewed:

- POL-0037-G Policy for Dam Safety and Geotechnical Mining Structures
- PNR-0096 Tailings and Dams Management System
- Internal Audit Report and completed Tables of Conformance – July 2022
- Area Orientation (including commitment)
- Sustainability Communication (July 26, 2022) re: Policy for Dam Safety and Geotechnical Mining Structures
- Emergency Training for Water Retaining Structures personnel
- Tailings Budget (OpEx and CapEx)

1.8 Water Stewardship

Key Personnel Interviewed:

- Vale NL Environmental Superintendent
- Vale Long Harbour Environmental Advisor
- Vale Sustainability and Government Relations Specialist

Documents Reviewed:

- POL-0019-G Sustainability Policy
- POL-0032-G Water Resources Policy
- PNR-0035 Management of Water Resources and Effluents
- Environmental Protection Plan
- Environmental Monitoring Plan
- 2021 EEM Monitoring, Water Quality/Quantity Report 2021
- Investigation Report – Port Operations Lift Station Environmental Release 2021
- A3 (water stewardship goals) for L. Kelly, Head of Environmental Affairs
- A3 (water stewardship goals) for P. James, Head Health, Safety, Environment and Risk
- Huddles – Sustainability Slide May 2021
- CLC Meeting Minutes April 27, 2022
- HIRA MUE 43 Discharge of Acutely/Chronically Toxic Effluent (including groundwater) from Ponds to Ocean
- HIRA MUE 14 – Pond Overtopping
- 5-year Process Water Reduction Plan to Meet LHO Sustainability Commitments
- 2022 Internal ISO 14001 Audit Report
- 2022 Internal ISO 14001 Audit Plan showing water consumption and wastewater
- Vale Day US Stock Exchange presentation showing corporate water consumption reduction target
- Groundwater monitoring monthly report from Stantec – March 2022

- Industrial Water Survey
- Environmental Monitoring – Real-time water balance
- 374 ETP Polishing Pond – MDMER Daily Samplings SOP
- MDMER Emergency Response Plan
- Training to Take Samples records
- Monthly Dam Safety Report – March 2021
- Vale Climate Change Risk Assessment of Canadian Portfolio June 2021 by Jupiter
- CoA One Pager
- Risk Verification Table 2022
- Bowtie for CoA Noncompliance
- Rehabilitation and Closure Plan
- EIS
- Job Description – Water Retaining Structures Analysis
- 2013 Terrestrial/Freshwater Baseline Sampling Program
- Vale Sustainability Report
- ESG Databook
- Real-time water monitoring website
- Status Report on the Performance of Mines Subject to MDMER in 2018