

Supplement Training: Environmental Management System Awareness Orientation

1. Environmental Management System Awareness

1.1 Environment Management Systems



1.2 Table of Contents



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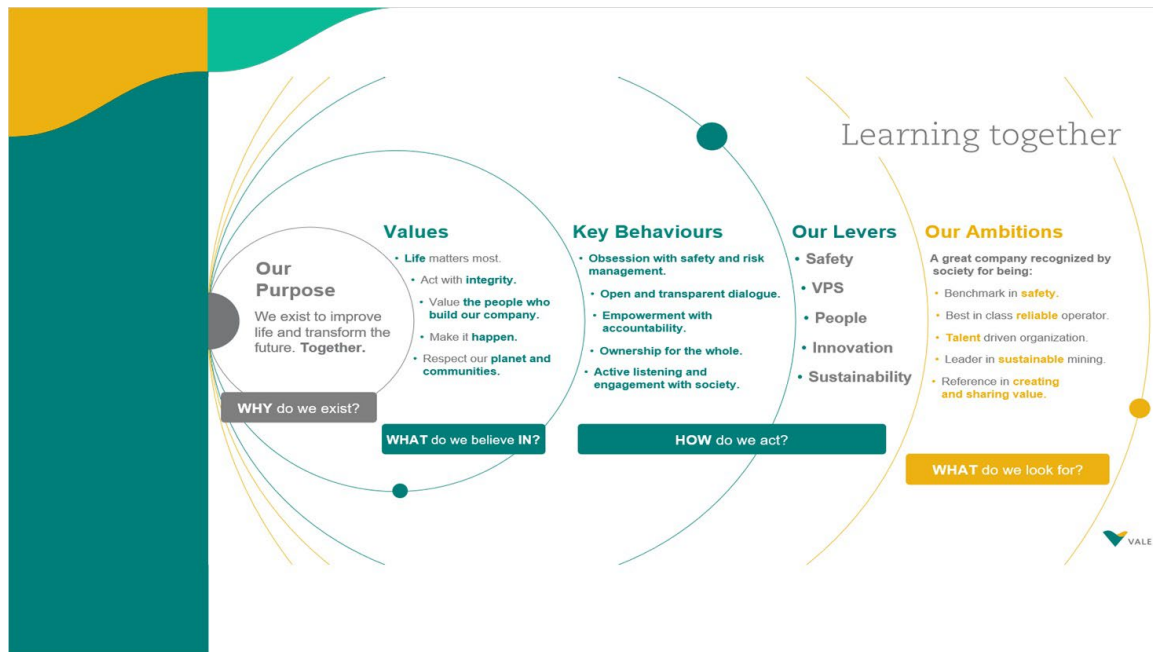


Learning Objectives:

This course will provide a general overview of the Environmental Management System (EMS) for Vale Canadian Operations. At the end of this course, each person will be aware of:

- Vale's commitment to protection of the environment, including the Environmental Policy;
- Significant Environmental Aspects that apply at Vale Canadian sites;
- Contributions and responsibilities of all employees with respect to the EMS and protecting the environment;
- The implications of not following EMS requirements and compliance obligations.

1.4 Learning Together



1.5 The Role We Play

The Role We Play



Replanting efforts in Thompson's Experimental Tailings Remediation Site

- Be Aware**
Be aware of my surroundings and the risks around me
- Apply Good Work Practices**
Apply good work practices and knowledge, skills, and experiences to safely complete tasks assigned to me
- Ask for Help**
Apply others' experiences and ask for help when needed
- Stop & Correct**
Be my brother and sister's keeper and 'stop & correct' when required
- Follow Policies & Procedures**
Our internal policies and procedures guide us in doing our work in a manner that reduces risk
- Follow Rules & Regulations**
Rules and regulations have been established to help us achieve zero harm and can be legislated or internal

2. Environmental Policy

2.1 Environmental Policy

2. Environmental Policy

2.2 Application and Commitment

Application and Commitment

Application:

This Environmental Policy **applies to Vale operating sites within Canada**, where mining, milling, smelting and/or refining activities take place to produce nickel, copper, cobalt and precious metal products.

Commitment:

Vale Canadian Operations are committed to the **protection of the environment**, through pollution prevention, sustainable use of water and energy, and effective management of our waste streams. We will act responsibly, respecting the local environment and communities where we operate.

Long Harbour Operations, NL



Totten Mine, Sudbury, ON

2.3 Vale Canada will

Vale Canadian Operations will:

- establish, maintain and continually improve an **environmental management system** for operating sites within Canada
- routinely assess the **environmental aspects** of our activities, products and services under normal, abnormal and emergency conditions, to ensure that the environmental risks and opportunities of our operations are managed effectively
- fulfill our **environmental compliance obligations**
- establish **environmental objectives**, identify actions and measure progress towards achieving identified targets, with the goal of **continuous improvement** of environmental performance
- promote **awareness, involvement, and competence** in environmental management for all employees and contractors whose actions have the potential to impact the environment
- **communicate** our environmental performance to local communities and other stakeholders

2.4 Accountability



Thompson T1 Mine

Port Colborne Refinery, ON



Voisey's Bay Mine, NL

Accountability

The **leadership teams** for the Newfoundland and Labrador, Ontario and Manitoba environmental management system jurisdictions are **accountable for environmental performance**, through the implementation of an effective environmental management system.

This will be achieved by **integrating environmental risk management** into Vale's business processes, providing resources, communicating the importance of environmental risk management within the workforce, and promoting continual improvement in environmental performance.

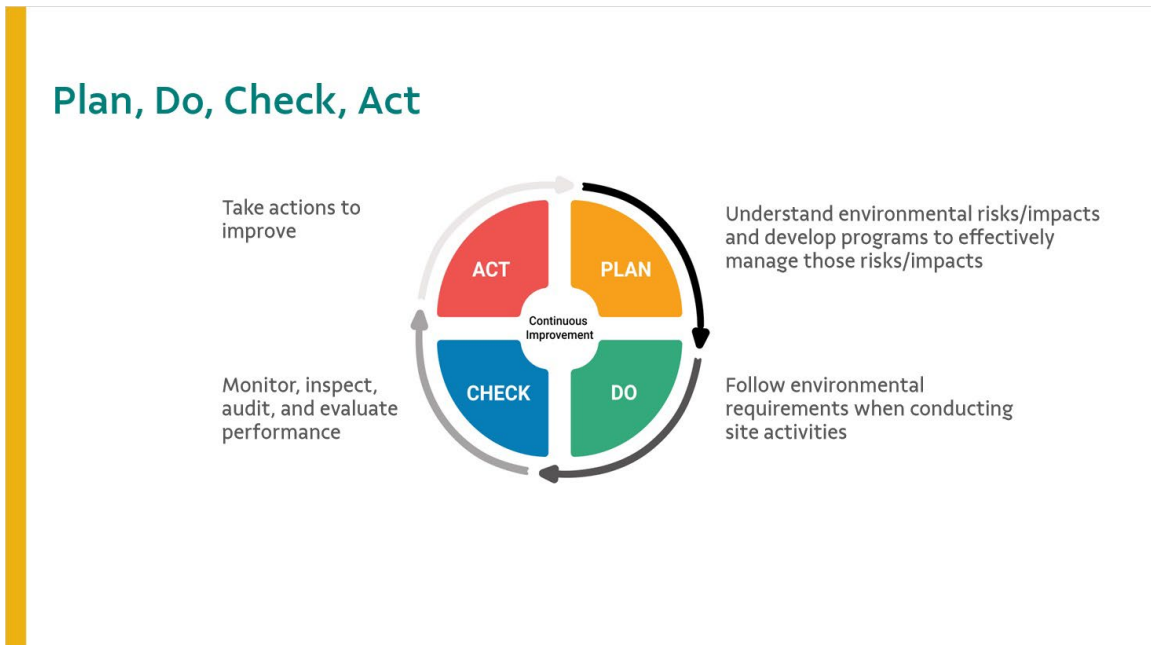
Employees and contractors are responsible for taking the actions necessary to **protect the environment** within the scope of their work activities and in accordance with this policy.

3. Environmental Management System

3.1 Environmental Management System



3.2 Plan, Do, Check, Act

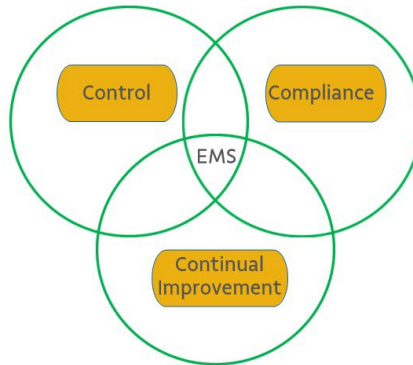


3.3 The Three Cs Test

The Three "C"s

Vale's Environmental Policy and Environmental Management System are focused on the three "C"s:

All **three** of these components are required for a **successful environmental management system**.



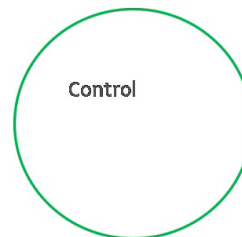
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Control (Slide Layer)

The Three "C"s

Control:

- Work activities, procedures, maintenance and other actions to prevent or minimize impacts to the environment

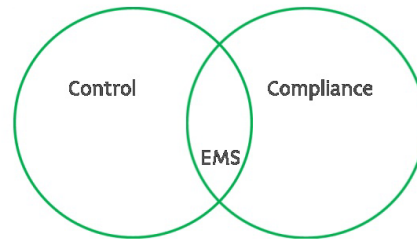


Compliance (Slide Layer)

The Three "C"s

Compliance:

- Legal requirements for protection of the environment and other environmental commitments Vale has made to its stakeholders

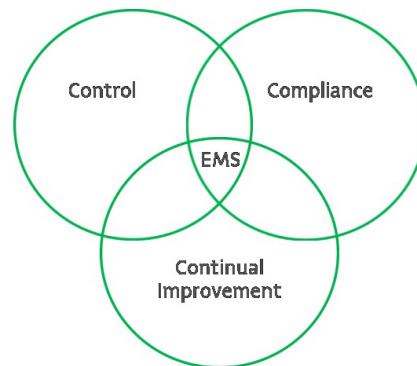


Continual Improvement (Slide Layer)

The Three "C"s

Continual Improvement:

- Seeking opportunities to improve environmental performance



3.4 EMS and VPS

Vale Production System

This dimension provides technical process guidelines and requirements for managing assets and dealing with risks inherent to our business to ensure safe operations and sustainable results.



The elements governed by this dimension include routines, methodologies and structured management tools to sustain and improve results.

The VPS provides a set of leadership practices expected to reinforce key behaviours and shape organizational culture and discipline.

The Environmental Management System is an integral component of Vale Production System (VPS). Many of the current procedures and work practices of VPS are relevant to environmental management.

4. Significant Environmental Aspects

4.1 Significant Environmental Aspects

4. Significant Environmental Aspects

4.2 Air Emissions



Copper Cliff Smelter, ON



Street Sweeper Clearing Dust from Road, ON



Ambient Air Monitoring Station, ON

Air Emissions



Air emissions can include gases, metals and dust. They can be emitted from point sources, such as stacks, vents and return air raises. Air emissions can also result from outdoor activities, such as material handling, track-out of material, stockpiling and driving on site roads. This significant aspect also includes greenhouse gas emissions and noise.

There are legal requirements for maintaining air emissions within acceptable ranges. Many **sites with significant dust sources** also have a **Dust Management Plan**. Workers must **follow these requirements** to reduce dust emissions from site activities.

Explore options to reduce dust emissions, such as wetting the material, avoiding the activity during windy conditions or handling the material in a different way.

4.3 Energy Consumption



Voisey's Bay Diesel Power Plant, NL



Hydroelectric Power Generation, ON



Renewable Energy Projects

Energy Consumption



Mining and mineral processing are energy-intensive processes. Vale is committed to conserving energy and reducing emissions of greenhouse gases where possible, while continuing to maximize production. A Low Carbon Forum team is evaluating energy usage and determining appropriate conservation projects.

It is important for all **workers to be mindful of electricity, natural gas and fuel usage and to conserve where possible.**

Just like you do at home to save money on your electricity bills, turn off the lights or equipment when not in use. Don't idle vehicles.

4.4 Water Consumption



Vermillion Water Treatment Plant, ON

Water Consumption

Vale is committed to conserving water usage in its operations.

It is important for all **workers to be mindful of water usage** in their daily activities and to conserve where possible.



Report sources of water leaks and unnecessary water usage

4.5 Wastewater



Long Harbour Operations, NL

Wastewater

Wastewater is generated from mining and processing activities. This water must be stored, treated and monitored, and can only be released back to the environment if it meets legal requirements.

Vale Canadian Operations are located in areas next to important and highly valued freshwater and marine environments. It is important to ensure that Vale's activities do not result in contamination of these aquatic environments.



All workers should take extra precautions when performing work near natural water bodies.

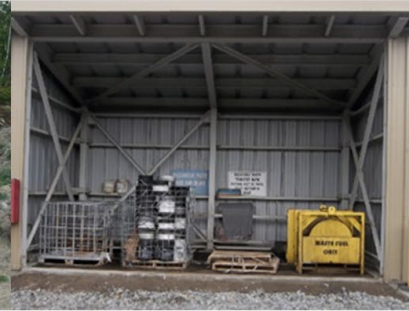
4.6 Solid and Hazardous Waste



Waste Incinerator, Voisey's Bay, NL



Waste Recycling, ON



Waste Oil and Hazardous Waste Storage, Coleman Mine, ON

Solid and Hazardous Waste

What can you do?

Waste management is a legal requirement at all Vale Canadian sites. Waste management plans are in place at all sites and specific details are communicated to workers in site-specific environmental training.

All workers should **follow the specific site requirements** and place waste into the correct bins to allow for effective reuse, recycling, landfilling and/or transportation to a licensed waste facility. **Hazardous waste must only be placed in designated hazardous waste storage areas.**

Take the effort to separate wastes and dispose of them in the correct bins. If you need more or different types of waste bins in your work area, talk to your supervisor.

4.7 Spills



Voisey's Bay, NL

Spills

What can you do?

Releases to the natural environment are regulated by law. Workers must report all surface spills to their supervisor/coach and spills must be cleaned up by qualified individuals. It is important to follow the spill response procedures of the site you are working on, which are communicated to you through site-specific environmental training. The environmental team will determine the need to report spills to regulatory agencies, depending on the nature and extent of the spill and legal requirements.

Spills are preventable. All workers should take precautions to prevent spills when handling fuels and chemicals. **Report spills** to your supervisor/coach.

4.8 Natural Ecosystems



Natural Ecosystems

Natural Ecosystems is a term used to describe natural areas that have not been impacted by site activities. This includes aquatic and terrestrial habitats and the wildlife that live in these areas. It is important to preserve natural ecosystems. Natural areas are monitored as part of site and legal requirements.



If you see **wildlife on-site**, **report** it to the environmental team. Work should **not be conducted in natural areas without review** by the environmental team to ensure proper permitting and mitigation plans are in place.

4.9 Closure Planning



Rehabilitated Slag Management Area, MB

Pollination, Thompson, MB

Seedlings at Copper Cliff Greenhouse, ON

Closure Planning

Planning for site closure after operations have ended is a legal and corporate requirement. Each site has a closure plan, which is a living document that reflects current site conditions and describes the activities that will be performed during operations and at closure to reduce long-term safety and environmental hazards.



Changes to site infrastructure should be **communicated** to the environmental team. **Unused areas** of active sites may be **rehabilitated** or **"regreened"** during operations. It is important not to disturb these areas.

5. Continual Improvement

5.1 Continual Improvement



5.2 Environmental Objectives

Environmental Objectives

Every year, Vale Canadian Operations establishes environmental objectives and targets for continual improvement.

Vale has global long-term objectives for the following:

- **Reduction** of greenhouse gas emissions
- Water **conservation**
- **Rehabilitation** of degraded areas

Performance against environmental objectives and targets is actively tracked and reported, with the goal of improving environmental performance over time.



5.3 Environmental Non-Conformities

Environmental Non-Conformities

An environmental non-conformity is a **failure** to follow an **environmental requirement**.

Non-conformities may be identified through **site audits and inspections** or directly as a **result of a specific event** (such as a spill).

Non-conformities are **investigated** to **identify the root causes and corrective actions** are put in place **to prevent** it from happening again.

Addressing the root causes of non-conformities is another way of **improving the environmental management system**.



If you **see something** you think might be a non-conformity, **report it to your supervisor/coach**, who can discuss it with the environmental team.

See Something, Say Something!

6. Contributions and Responsibilities of Workers

6.1 Contributions and Responsibilities of Workers

6. Contributions and Responsibilities of Workers

6.2 Contributions of Workers

Contributions of Workers

The effectiveness of the Environmental Management System and environmental performance at Vale Canadian Operations **depends on the contribution of all workers.**



Copper Cliff Smelter Converter Aisle Control Room, Sudbury, ON



If you have a **suggestion** for an environmental improvement in your work area, **discuss it with your supervisor/coach** or submit a Kaizen.

Get involved in environmental events and activities.

Do **what you can in your daily activities** to protect the environment.

Report spills and other events that may negatively impact the environment.

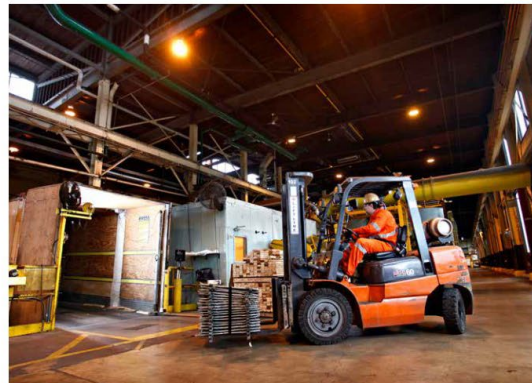
6.3 Responsibilities of Workers

Responsibilities of Workers

It is important to **understand your responsibilities** within the environmental management system. If you are **unsure, stop and ask.**

Site-specific environmental training is provided to all workers to further **define the specific environmental requirements at each site.**

Failure to follow site environmental requirements will **jeopardize the success of the environmental management system** and may result in legal penalties to Vale and to individuals.

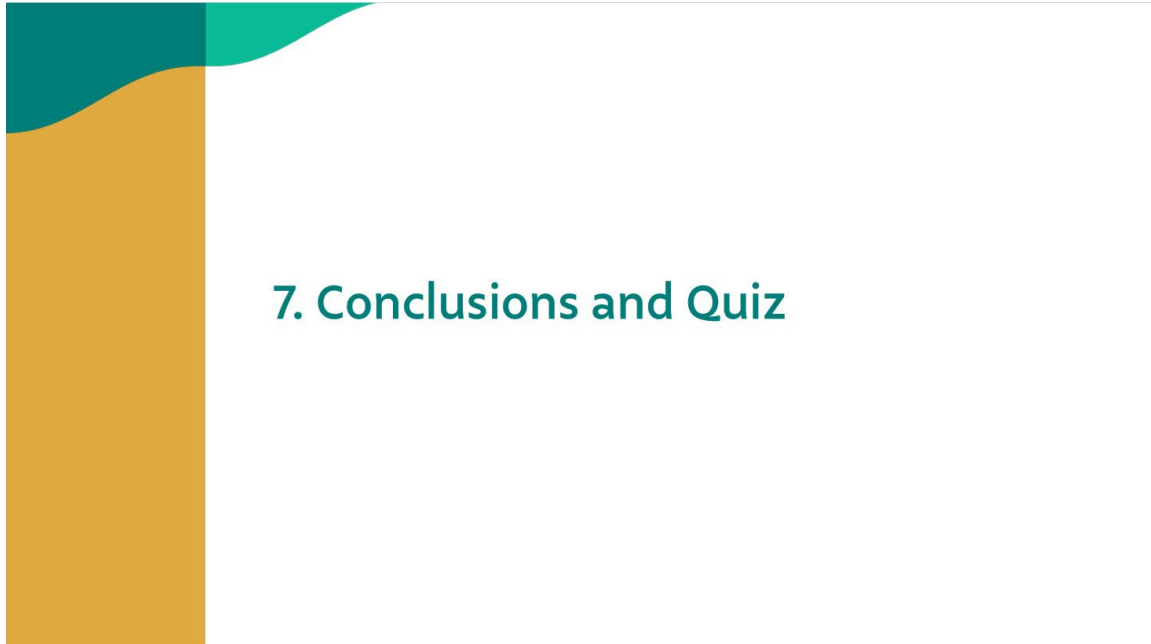


Port Colborne Refinery, ON

Remember, we all have a role to play in the success of Vale's Environmental Management System!

7. Conclusions

7.1 Conclusions and Quiz



7.2 Conclusions Cont'd



