

28. Environmental Management System

28.1 CONTEXT

This chapter describes the initial Environmental Management System (EMS) that Pretium Resources Inc. (Pretivm) has in place, in support of their commitment to undertaking the proposed Brucejack Gold Mine Project (the Project) and in a sustainable manner that accords with their guiding principles on environmental management.

As a matter of principle, Pretivm will make every reasonable effort to minimize the long-term environmental impacts of the Project, while ensuring that lasting benefits accrue to local communities, and that economic and social advantage is generated for shareholders, employees, and the community at large. To this end, Pretivm is committed to the development of resources in a sustainable manner that achieves a balance between the environment, society, and the economy. Pretivm's Environmental Policy (Pretivm 2013) that underpins this EMS is described in more detail in Section 28.4 below.

With reference to the Application Information Requirements (AIR; BC EAO 2014) for the Project, a description of the EMS is required such that the various discrete and subject area-specific Environmental Management Plans (EMPs) have a point of departure and are aligned with the overarching environmental management objectives that Pretivm is committed to. Additionally, it is a requirement of permits issued under the *Mines Act* (1996) in British Columbia that an EMS will provide the high-level supporting framework for the EMPs.

For an EMS to be effective, it needs to be integrated within the company so that it can be applied in a structured manner. An EMS should thus enable a company to formulate and implement a policy and objectives that take into account the legal and information requirements of relevance to significant environmental aspects of the company's activities. The success of the system will depend on all levels and functions within the organization, and particularly executive management, committing to the EMS. Pretivm recognizes sound environmental management as a corporate priority and are intent on integrating it into all aspects of their organization.

This chapter is structured according to Pretivm's environmental objectives, generic EMS principles, overarching policy commitments, allocation of roles, responsibilities and associated resources, and the way forward with the initial EMS and the currently envisaged EMPs.

28.2 OBJECTIVES

Pretivm's overarching objective is to maintain, as far as possible, the integrity and functionality of the current ecosystem¹ during the entire development cycle, i.e., throughout Construction, Operation, Closure, and Post-closure of the Project. This objective will be met by:

- averting undesirable impacts, where feasible;
- mitigating undesirable impacts that are unavoidable; and
- ameliorating where possible those undesirable impacts that cannot be mitigated.

¹ Implicit in the concept of ecosystem functionality is that it encompasses both the biophysical as well as the human environments.

It is intended that Pretivm will treat the disturbed areas upon Closure and reclamation of the Project such that a level of ecological productivity is established that will match the pre-development conditions as far as possible, while complying with regulatory requirements and applying methodologies that are technically proven and economically feasible.

Fundamental to achieving any stated objective is the demonstration that the means are available for adequate engagement with affected communities on Project issues that could potentially affect them, and that relevant environmental and social information is freely disclosed and disseminated.

28.3 GENERIC ENVIRONMENTAL MANAGEMENT SYSTEM PRINCIPLES

A typical EMS, such as the ISO 14000 series of standards, is based on the principle of continual improvement. To achieve continual improvement, an iterative process of planning, implementing, checking, and acting is undertaken, as follows:

- planning - during which objectives are established and processes defined that accord with the company's ethos, typically represented in an Environmental Policy;
- implementing - during which the defined processes are carried out;
- checking - during which the processes carried out are monitored, measured against the objectives, and reported; and
- acting - during which additional actions are undertaken, if necessary, to achieve continual improvement in the company's environmental performance.

The EMS thus needs to organize and guide all the Project activities throughout the entire life cycle of the mine. This will coordinate and facilitate safe, orderly, compliant, and environmentally and socially responsible operations that can minimize the Project's effects on both the biophysical and human environments. In this way, a systematized framework will be provided within which the discrete, subject area-specific EMPs will be developed, implemented, maintained, and updated.

28.4 COMPANY POLICY

Pretivm's Environmental Policy (Pretivm 2013) is an indication of their commitment to exemplary environmental management. The following italicized text is an extract from the policy:

Corporate Priority

Recognize environmental management as an important corporate policy and establish policies, programs and practices for conducting business in an environmentally sound manner.

Integrated Management

Integrate environmental policies, programs and practices into all activities of the organization.

Environmental Management

Monitor the performance of environmental programs and management systems to ensure compliance with Pretivm's and regulatory requirements.

Continual Improvement

Establish an ongoing program of review and improvement of environmental performance, taking into account technical and economic development and scientific understanding of environmental effects of operations.

Efficiency

Develop, design and operate facilities based upon the efficient use of energy, resources and materials.

Risk Management

Identify, assess and manage environmental risks.

Incident Management

Develop and maintain emergency preparedness plans to ensure protection of the environment, workers and the public.

Public Policy

Work with the appropriate authorities to develop effective, efficient and equitable measures to protect the environment based on sound science.

Contractors and Supplies

Require contractors to comply with corporate environmental requirements and work co-operatively with suppliers to identify opportunities to improve environmental quality and performance.

Communications

Encourage dialogue on environmental issues with employees and the public and be responsive to concerns.

Employees

Ensure that all employees understand and are able to fulfill their environmental responsibilities.

Closure

Reclaim sites in accordance with site specific criteria in a planned and timely manner.

Against this set of policy commitments, Pretivm's allocation of resources and responsibilities are now described.

28.5 RESOURCES AND RESPONSIBILITIES

28.5.1 Human Resources

The President and Board of Directors carry the ultimate responsibility for environmental management, both in terms of statutory compliance as well as corporate citizenship, and will direct, instruct, and approve the execution of such management for the Project. Pretivm's executive management will

appoint an Environmental Manager for the Project, and will ensure an effective environmental management system is developed, applied, and monitored.

The Environmental Manager will provide line-function accountability to Pretivm's executive management and staff-function accountability to the Mine Manager. The Mine Manager will carry line-function accountability for the Project's environmental performance, with the support and advice of the Environmental Manager, which will include planning, oversight, monitoring, awareness training, and reporting. The Project's Environmental Manager will be supported by Pretivm personnel assigned to defined tasks as required.

28.5.2 Material Resources

The undertaking of an EMS requires material resources to be allocated for particular actions and procedures. The current policy provides for material resources via the mandates contained in the responsibilities allocated to identified personnel. This is manifested in the commitment to implement various environmental actions such as protection measures, remedial practices, closure work, etc.

28.6 WAY FORWARD

In summary of this chapter, the degree to which the typical elements of an EMS are attended to is now described, and the currently envisaged EMPs that have been prepared for the Project are listed.

28.6.1 Initial Environmental Management System

A typical EMS requires that the following generic elements or actions are in place or undertaken:

- an environmental policy;
- the identification of risks and their related effects;
- specific subject-area EMPs;
- the allocation of resources;
- the allocation of roles and responsibilities;
- arrangements for emergency preparedness;
- arrangements for stakeholder engagement; and
- systematic monitoring and review.

28.6.1.1 Environmental Policy

As described in Section 28.4 above, Pretivm has an environmental policy in place, which will evolve further as the principle of continual improvement is applied over time.

28.6.1.2 Identification of Risks and Related Effects

Each subject-area EMP considers risk as a consequence of the preceding effects assessment carried out for the particular subject area. Risk is also considered in detail in Chapter 31, Accidents and Malfunctions, which reflects on the application of a Failure Modes and Effects Analysis (FMEA) undertaken for the Project in its entirety.

28.6.1.3 Specific Subject Area Environmental Management Plans

Specific subject-area EMPs have been prepared for the Project and are listed in Section 28.6.2 below.

28.6.1.4 *Allocation of Resources, Roles, and Responsibilities*

The allocation of roles and responsibilities, and the resources to carry them out, is described in Section 28.5 above. Refinement and confirmation of these will emerge as the permitting process progresses.

28.6.1.5 *Emergency Preparedness*

Emergency preparedness is addressed in a purpose-designed EMP in Section 29.6, Emergency Response Plan.

28.6.1.6 *Monitoring and Review*

Each subject area EMP listed below makes reference to a scheduled system of monitoring and review for the particular discipline.

28.6.2 **Currently Envisaged Environmental Management Plans**

As described previously, the EMS provides a supporting framework for a series of written plans outlining the scope of environmental management for the Project that will ensure compliance with both regulatory requirements and Pretium's environmental policy. These currently comprise the following:

- Air Quality Management Plan;
- Aquatics Effects Monitoring Plan;
- Avalanche Management Plan;
- Ecosystem Management Plan;
- Emergency Response Plan;
- Hazardous Materials Management Plan;
- Heritage Management Plan;
- Invasive Plants Management Plan;
- ML/ARD Management Plan;
- Noise Management Plan;
- Rare Plant Management Plan;
- Soils Management Plan;
- Spill Prevention and Response Plan;
- Tailings Management Plan;
- Transportation and Access Management Plan;
- Waste Management Plan;
- Waste Rock Management Plan;
- Water Management Plan;
- Wetlands Monitoring Plan; and
- Wildlife Management and Monitoring Plan.

Chapter 29, Environmental Management and Monitoring Plans, contains each of the EMPs and each EMP makes reference *inter alia* to regulatory and policy framework, performance objectives, protection measures, monitoring, scheduling, and reporting. The EMPs thus provide continuity in the progression from the overarching EMS described in this chapter, to the physical execution of the Project as proposed.

REFERENCES

1996. *Mines Act*, RSBC. C.293

BC EAO. 2014. *Brucejack Gold Mine Project: Application Information Requirements for Pretium Resources Inc.'s Application for an Environmental Assessment Certificate*. Prepared by the British Columbia Environmental Assessment Office: Victoria, BC.

Pretium. 2013. *Environmental Policy*. http://www.pretium.com/files/doc_downloads/sustainability/Environmental-Policy.pdf (accessed September 2013).