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**ISSUE/REVISION INDEX**

Issue Code	Revision					Revision Details
	No.	By	Rev'd.	App.	Date	
RC	01	SC	DT	DT	Dec 20, 2020	Annual review. added Manitoba reference
RC	02	SC	DT	DT	Feb 24,2021	Correction to Manitoba regulation
RC	03	SC	DT	DT	Mar 10, 2021	Addition of Manitoba Golden Rules

Issue Codes: RC = Released for Construction, RD = Released for Design, RF = Released for Fabrication, RI = Released for Information, RP = Released for Purchase, RQ = Released for Quotation, RR = Released for Review and Comments.

**Note:** This document is the Health and Safety (H&S) Plan for NAPG Projects. The specific Environmental and Community aspects will be assigned as separate document plans.

This document contains overall H&S standards and guidelines to be followed on NAPG Projects. This incorporates high-level documentation of Vale standards for construction. A detailed Project-specific HSE Manual will be issued for specific work activities on the Project site not covered by this Plan.

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**LIST OF APPENDICES**

**Appendix A: DEFINITIONS**

**Appendix B: NAPG HSE Policy**

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## 1.0 INTRODUCTION

### 1.1 Purpose and Scope

The purpose of the Health and Safety Plan is to document the intent, commitment, strategy, systems, processes, standards, procedures and guidelines for managing health and safety (H&S) that represent the minimum standards to execute projects by the Vale North Atlantic Projects Group (NAPG).

This H&S Plan applies to all underground and surface work under the care, custody and control of NAPG which typically includes:

- Front End Loading (FEL) studies and early works where a NAPG construction island is established, or a greenfield site where NAPG manages the work, and
- The execution phase up to hand-over to operations.

This H&S Plan applies to all Vale employees and contractor personnel assigned to NAPG Projects.



This H&S Plan does not apply at contractors' home offices or fabrication shops where their H&S program is in force. Visiting or seconded Vale employees are expected to follow the host's H&S requirements at these locations.

The document details the H&S management processes to be used on NAPG projects in alignment with Vale's requirements to establish and maintain ongoing safe operations. Where hazards cannot be eliminated the residual risks associated with the hazard will be managed to *as low as reasonably achievable*(ALARA).

This H&S Plan prescribes:

- Policy, i.e. broad statements of intent for managing H&S;
- Strategy for H&S management and goals, objectives and targets to measure and track all aspects H&S performance;
- Plans, i.e. processes and actions that must be undertaken to manage H&S risks and the accountabilities of key project roles to take these actions;

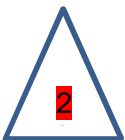


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- The H&S programs to be used for project execution;
- The roles and responsibilities of employees and contractors working on projects;
- The H&S program elements that must be developed on a local or project-specific basis.
- Requirements for the measuring and auditing of performance and objectives;
- Standards which shall be measured against this H&S Management Plan and Vale H&S Standards as applicable to a construction project;
- Detailed procedures for how projects will conduct administrative management activities of the Project;
- Detailed procedures for how contractors will conduct activities where Vale requires a common process;
- Guidelines where the NAPG requires a common approach across activities conducted by contractors;
- The use of NAPG-specific reporting templates to be utilized; and
- The establishment and ongoing development of a H&S Risk Register.

This H&S Plan does not set out all prescriptive requirements for contractors undertaking specific construction activities, but sets minimum standards that all contractors must meet or surpass.

This H&S Plan is based on risk management principles and mitigation of personal at-risk behaviours. Continual improvement in H&S performance is achieved through the competency of NAPG personnel and contractors, as follows:



- To identify hazards in the workplace and to be risk aware;
- To conduct risk assessments of the potential hazards during execution of a project;
- To implement mandatory controls to meet legislation and conditions assigned by the project to the H&S Risk Register;
- To implement additional controls to ensure that identified hazards are managed according to the hierarchy of controls.(see s. 3.2.2)
- To ensure accountability is in place to monitor risk, H&S performance.

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- The NAPG revises the plan, its policy, systems and procedures as part of the continual improvement process to respond to the changing needs of the workplace and business development to reduce or manage risk.

## 1.2 Sustainability Policy and Management Principles

Vale’s Sustainability Policy (see Appendix B) commits NAPG to be a sustainable operator, i.e.,

*“manage risks and impacts, meet legal requirements, continuously improve our processes and products, pursue technological innovation and promote a healthy, safe and respectful working environment which will allow us to achieve zero harm to our workers and communities.”*



In addition, NAPG is committed to the following:

- *Having no higher priority than the value – “Life Matters Most”*
- *Plan all work using risk management tools*
- *Accept Boundaries, following all legislated requirements, training, procedures and capabilities*
- *Care about yourself and co-workers as a team*
- *Lead by example*

*We believe that zero harm in areas of safety, health and environment is achievable on all NAPG Projects.*

*All employees will work together to achieve this goal without compromise.*

The H&S principles expressed in this document have been demonstrated effective on NAPG projects and represent the minimum standard to be achieved. Where it is not possible to achieve 100% compliance with NAPG requirements both NAPG and the prime contractor/constructor must manage any additional risk. Controls must be documented, approved, and communicated to, and understood by impacted workers.

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### 1.3 Goals and Objectives

The primary goal of this plan is to reduce injuries, property damage, community impacts, equipment damage, and loss of production on NAPG projects to “as low as reasonably achievable” (ALARA). The plan is based on the proactive identification of H&S hazards associated with project execution and eliminating or controlling potential H&S risks including construction impacts on operations. Zero harm for all is the intent and standard that all NAPG personnel and contractors will achieve through continual improvement. All work is planned with risk management tools and processes to prevent harm. All personnel should be able to answer the following 3 questions with respect to their work:

- What can go wrong?
- How bad could it be?
- What has to be done to manage it? and is it enough?

All personnel shall subscribe and strive to achieve the following objectives:

- Accept boundaries established in training, and work within your capabilities ;
- Care about yourself and co-workers, work as a team to prevent harm;
- Lead by example; have the courage to lead by example and help others to maintain a safe and healthy work environment, be your brother/sisters keeper.
- Leaders must encourage personnel to take ownership of the Project's commitment to HSE through strong and visible leadership, positive reinforcement and recognition;
- Comply with all statutory and regulatory requirements, rules and procedures;
- Work toward eliminating all injuries, occupational diseases and incidents through a process of reporting, analysis and continual improvement; and
- Protect not only project personnel, but also operations personnel, visitors and the general public from hazards associated with executing projects.

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## 1.4 Legal Requirement

### 1.4.1 Role of Owner, Constructor or Prime Contractor

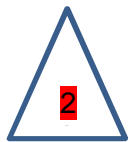
The role of Owner, Constructor and Prime Contractor are legally defined depending on the jurisdiction of the project and carry mandatory obligations. For NAPG projects, which party assumes these roles must be predetermined at the FEL3 stage. Throughout the project each party's activities must be conducted according to their predetermined roles and should not overlap.

In addition, H&S Legislation governing the project must be determined. For example in Ontario the applicable legislation would include; Other regulations as applicable:(Confined Space, Global Harmonization System, etc.):

[Ontario]

- Ontario Occupational Health and Safety Act;
- Ontario Regulation 213/91 Construction Projects; and where more conservative,
- Ontario Regulation 854 Mines and Mining Plants.
- Ontario Regulation 490/09 Designated Substances.

[Manitoba]





- Manitoba Safety and Health Act W210/10/02
- Manitoba Operations of Mines Regulation MR 212/2011
- Manitoba Workplace Safety and Health Regulations MR 217/2006
- Hazardous Product Regulations
- 2012- American Conference of Governmental Industrial Hygienist (ACGIH) threshold limit values(TLV's) and Biological Indices (BEI's)

[Newfoundland]

- Newfoundland and Labrador Regulation 5/12



### 1.4.2 Interaction with Local Authorities

For NAPG projects, Vale will maintain its existing relationship with local authorities for all Health, Safety, Environmental and Community issues.

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**1.5 NAPG Project Sustainability Policy**

See Appendix B for the current version of the NAPG Sustainability Policy

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## 2.0 LEADERSHIP AND COMMITMENT

### 2.1 Intent



Leaders at all levels must lead by example, be accountable for their actions and demonstrate a consistently safe attitude such that they provide a visible, pro-active commitment to Health and Safety. In addition, they must plan their work with risk management in mind and ensure that they are looking out for the health and safety of everyone involved on the Project at all times.

As a minimum requirement, NAPG management shall demonstrate visible leadership through an annual review the H&S Plan.

### 2.2 Leadership

Together, NAPG, vendors, contractors and their personnel demonstrate leadership by visibly supporting Vale’s value that “Life Matters Most” and working according to the following principles:

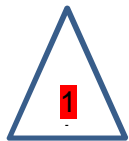
- We are all responsible to take action to prevent harm;
- We never accept or condone substandard work practices or equipment;
- We sustain a positive pro-active culture where the management of risk will not be compromised;
- We provide a healthy, safe and environmental responsible workplace by striving to identify and eliminate workplace hazards;
- We promote the assessment of risk and the elimination of fundamental causes that result in losses;
- We provide the tools and resources to effect safe practices;
- We meet or exceed all applicable legislative requirements;
- We engage employees in risk management through involvement and consultation;
- We encourage and support safe work behaviours;
- We make all levels of management individually accountable for identifying hazards, assessing risk and developing & implementing controls to manage risk;

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- We orient and train employees and contractors so that they are aware of and work in accordance with this Health & Safety Plan;
- We sustain a continuous improvement focus by regularly monitoring, auditing and reviewing the objectives contained within this plan and our performance towards fulfilling the objectives to achieve the goals.

### 2.3 Commitment

Visible commitment is essential to providing a safe work environment. All project personnel shall demonstrate their commitment by:





- Ensuring that decisions and practices are consistent with this plan.
- Adopting a risk management approach to all work activities;
- Participating in hazard identification, risk studies, risk assessments and risk mitigation;
- Wearing the required personal protective equipment (PPE) and adjusting PPE to account for specific situations;
- Following up on action items to reduce risk to ALARA in a timely manner;
- Ensuring that all incidents, including unsafe conditions and near misses are reported and analyzed;
- Being part of incident analysis teams if needed;
- Participating openly in regular Interactive Discussions, H&S meetings, inspections and audits.

### 2.4 Roles, Responsibilities, and Accountability

This H&S Plan and supporting documents sets the requirements of the various project participants, including all project employees, consultants, contractors and subcontractors working on NAPG projects i.e. NAPG project personnel. The responsibilities of NAPG personnel are directly proportional to their operational authority.

The roles listed in this section should be considered as role descriptions rather than job titles. Job titles may vary among NAPG projects and from contractor to contractor. Regardless of job title, various individuals will assume these roles in the course of performing their jobs and will be held accountable for meeting NAPG requirements.

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#### 2.4.1 Project Management Accountability

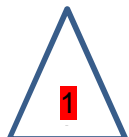
The Project’s Senior Management ensures an appropriate and competent NAPG safety team is in place. Line Management are accountable to implement and adhere to the program and are responsible for the health & safety of their direct reports. All Project personnel including contractors are required to plan all work to manage risk to ALARA, work within the boundaries set forth in legislation and this Plan, care for and help one another, and lead by example.

#### 2.4.2 Project Manager



The Project Manager (sometimes called Project Director for larger projects) role has overall responsibility for project execution performance including health and safety. The Project Manager represents the employer and holds his or her subordinate managers, other supervision and contractors accountable to carry out the obligations of their roles. The Project Manager is ultimately accountable for H&S performance on a project. With the assistance of the H&S staff the Project Manager is responsible to deliver a suitable, adequate and effective H&S program and meet performance standards.

The Project Manager will be accountable for the following tasks:

- Leading the overall direction and support the implementation of the Project H&S Plan
- Providing adequate H&S resources, services, and facilities to effectively implement and manage the initiatives related to the H&S Program;
- Ensuring the H&S Plan and supporting documents are reviewed on a scheduled basis;
- Reviewing audit findings and delegating a responsible person(s) to close out corrective actions;
- Regularly monitoring the Project H&S performance and Project inspection reports;
- Initiate Project risk-based studies and other such risk assessments; ensure records are adequately managed and maintained via risk registers;
- Comply, as required with the Vale Critical Activity Requirements (RACs), Golden Rules, and Permit to Work, which are mandatory for all projects;
- Report of H&S performance in regular Project reports and ensure H&S administrative actions are completed;





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- Conduct interactive discussions to improve risk management culture and hold to account, through coaching and other means all persons reporting to this position; and
- Influence positive contribution to H&S matters from all Project personnel.



### 2.4.3 Supervisor Accountability

Supervision in most jurisdictions have legal obligations to ensure the health and safety of their subordinate workers. Generally, a supervisor has charge of a workplace and authority over workers. Therefore, supervisor obligations are imposed at all levels of a project's organization. All jobs that have a supervisory component will have the following obligations.

Supervisors are accountable for their area's risk management performance and to lead and promote an effective H&S program within the scope of their jobs. They ensure work conforms with the requirements of this H&S Plan and they are responsible for integrating procedures and controls into all activity they manage or supervise.

In order to effectively and efficiently execute a project, supervisors must adopt the available risk management tools, including, but not be limited to:

- Pre-planning of work to manage risk to ALARA;
- Implementing risk-based management tools: assessing all risks through a Pre-Mobilization Risk Assessment (PMRA), Job Hazard Analysis (JHA), Field Level Hazard Assessments (FLHA) and other risk management tools; identifying hazards, assessing risk and developing controls;
- Personal risk management interactions, leading area toolbox talks and being present when work within their scope is taking place. Regularly communicate workplace risk; Coach personnel to continuously improve hazard identification, risk assessment and control implementation
- Appropriate scheduling of workers;
- Appropriate selection and training (orientations, workplace and task specifics) of contractors and subcontractors;
- Inspecting workplaces, activities and equipment; participating in audits;
- Establishing preventative maintenance programs;

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- Complying with all applicable project procedures, Vale standards, and local legislation;
- Implementing policies, procedures and best work practices including safe work method plans and ensuring workers are adequately informed, trained, supervised and equipped to perform the work;
- Handling, storing and controlling of materials appropriately;
- Thoroughly analyzing incidents in a timely fashion to determine root causes, in particular systemic deficiencies, and implement corrective actions from the lessons learned.



#### 2.4.4 Construction Manager

The Construction Manager has overall accountability for construction activities. Depending on the size and execution strategy the role may have subordinate area managers, may work for the constructor/prime contractor or the role may be integrated with the Project Manager role.

The Construction Manager actively manages all H&S risk mitigation activities, continually monitors the Project's H&S performance through the analysis of leading and lagging indicators, measures the results against project's objectives and targets and takes appropriate corrective actions to ensure continual improvement.

The Construction Manager is accountable for:

- Leading the implementation of the project's H&S Plan during the construction phase; managing contractors to work safely on the Project.
- Ensuring that all personnel and the general public are protected from harm through the implementation of the H&S Plan
- Ensuring the proactive participation of all personnel in activities related to the H&S Program;
- Ensuring appropriate skills training is provided to develop the necessary competencies for all employees;
- If required, providing detailed communication with Plant Operations concerning project/operation interfaces such that effective risk management can be maintained;



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- Ensuring all project related workers' compensation claims and compensation are effectively managed;
- Participating in audits and planned inspections of the site on a regular basis; reviewing all on-site audit reports;
- Ensuring the analysis of all incidents and near incidents where personal injury, property damage, environmental releases and loss of production occurs (or could have occurred) and ensure all follow up action is completed in a timely manner;
- Regularly monitoring the Project's H&S performance indicators (Leading and Lagging Indicators), High Potential Incidents, Near Miss reporting requirements, Injury Trends, Project inspection reports, and resolution of non-conformances;
- Monitoring the completion of hazard and risk assessments (Technical Risk Register, PMRAs) against the Project schedule;
- Attend and actively participate in H&S meetings; and
- Conducting periodic interactive discussions to improve the risk management culture and through coaching and other means, ensure all persons reporting to this position also engage in H&S activities as described or outlined in this Plan.

#### 2.4.5 Area Construction Managers

The Area Construction Managers report to the Construction Manager and are accountable for construction performance within their area including H&S. They perform project management activities ensuring efficient and safe construction process. Area construction managers are accountable for:

- Implementing the H&S management system and monitoring conformance with requirements;
- Ensuring risk is managed to ALARA;
- Ensuring contractor workforce and the contractor construction management team are competent. Ensuring contractor management is providing for:
  - Planning, organization, leading and controlling of work
  - Particular technical competencies for critical or specific work.
  - Supervision and control on each shift.
  - Regular monitoring and assessment.
  - Regulatory and project-specific workplace.



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- Ensuring PMRAs and other risk studies are completed in a timely manner and adequately supported.
- Reviewing, approving and monitoring Contractor Specific H&S Plans and JHAs to ensure compliance and completeness and to ensure contractors follow mitigation actions;
- Establishing and communicating risk managed work methods for designated hazardous activities;
- Leading pre-start shift meetings, incorporating discussion that highlights the hazards, risks and controls directly concerning the work to be undertaken;
- Regular formal inspections of the areas within their immediate area of responsibility.
- Interactive Discussions with the workers in their areas of accountability; and
- Monitoring the overall status of inspection, audit findings, incident analyses corrective actions, and timely resolution of non-conformities in their areas.

#### 2.4.6 Superintendents

The Superintendent's role is entirely supervisory or managerial and does not involve hands-on field work, i.e. does not work "on the tools". The role requires detailed knowledge of the work being done in the area and direct supervision of trades and other workers. The role is accountable for construction performance for the team under his supervision including the following H&S requirements:

- Implementing, H&S standards and procedures, and monitoring conformance with their requirements;
- Managing risk to ALARA;
- Ensuring the workforce is competent and providing for:
  - Planning, organization, leading and controlling of work
  - Particular technical competencies for critical or specific work.
  - Supervision and control on each shift.
  - Regular monitoring and assessment.
  - Regulatory and project-specific workplace.

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- Ensuring PMRAs and other risk studies are completed in a timely manner and adequately supported.
- Implementing Contractor Specific H&S Plans and JHAs to ensure compliance and completeness. Ensure contractors and workers follow risk mitigation actions;
- Establishing and communicating risk managed work methods for designated hazardous activities;
- Leading pre-start shift meetings, incorporating discussion that highlights the hazards, risks and controls directly concerning the work to be undertaken;
- Regular formal inspections of the areas within their immediate area of responsibility.
- Interactive Discussions with the workers in their areas of accountability; and
- Ensuring the completion of inspections, audits, incident corrective actions, and timely resolution of non-conformities in their areas.



#### 2.4.7 Foreman/Lead Hand

The Foreman or Lead Hand role has front-line supervisory duties and may also perform direct field work, i.e., “on the tools”. As such, the role will have the H&S supervisory accountabilities as well as fulfilling the requirements for “All Personnel”

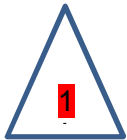
#### 2.4.8 HSER Manager & HSE Coordinator

These roles represent the project management with respect to H&S issues. They develop the content H&S Plan and its implementation. The HSER Manager is accountable for:



- Promoting a culture wherein Health and Safety is a value that will never be compromised;
- Providing advice, strategies and problem solving to project personnel on all Occupational Health and Safety issues to achieve the goal of zero harm during the project, including:
  - Determining the roles and size of the project H&S team, including additional support if contractors have minimal H&S programs.

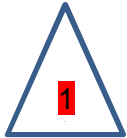
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- Providing assistance and advice in all pre-contract, tender assessment and contract administration for work packages associated with a project in relation to H&S requirements and expectations;
- Defining local legislative and regulatory requirements and communicate throughout the Project; Providing assistance with regulators and monitoring for regulatory compliance on H&S;
- Reviewing, identifying and communicating gaps and recommending approval of Contractor's H&S Management Plans and Safe Operating Procedures, as required, before work commences;
- Ensuring H&S representation in the PMRA and other risk assessment processes across all Project disciplines;
- Providing and assisting with application of workplace H&S systems support and procedures for use by the project team;



- Together with Project and Construction Managers, developing and implementing this H&S Plan including the supporting documents which are aligned with the Project Instruction Manual;
- Compiling specific H&S procurement documents aligned with the a project's Health and Safety requirements;
- Developing, implementing and coordinating the project's Health and Safety reporting, including;
  - Ensuring the project's Health and Safety reviews of indicators are planned, implemented and reported;
  - Measuring compliance with the project's H&S rules, management plans, initiatives, programs etc. as outlined in the H&S Management Plans ;
- Reviewing and providing comment on the project's Emergency Response Plans;
- Scheduling, implementing and managing H&S Audits for work within the scope of the project;
  - Auditing the performance of the project H&S initiatives;
  - Auditing compliance of H&S training needs for personnel.
- Conducting daily interactive discussion and at a minimum weekly site inspections;
- Recruiting and orienting Project H&S staff as required;

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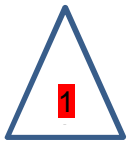


- Managing the process to identify training needs and deliver required training, such as site orientation, to project personnel, including project staff, secondees and contractors.

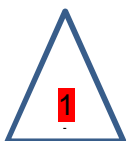
#### 2.4.9 HSE Advisors

HSE Advisor role, whether they work for the project team or contractors, ensure the H&S Plan is implemented in the field. HSE Advisors are accountable for:



- Promoting a culture where risk management related to health and safety is a value that will never be compromised;
- Providing advice, strategies and problem solving to project personnel and all Health and Safety issues to achieve the goal of zero harm;
- Implementing and maintenance of the project H&S plan and supporting documents in accordance with the applicable Vale policies and standards as well as pertinent local legislation and regulatory requirements;
- Providing assistance in all pre-contract and tendering for the Project in relation to H&S;



- Participating in H&S training of personnel, including the integrated Project team and Contractors as required;
- Participating in the PMRA, JHA and Risk Assessment processes across all Project disciplines;
- Review and monitor hazardous substances register and in conjunction with Vale, approve hazardous substances procured to the site utilizing the Vale Procedure for Hazardous and Dangerous Goods Control Standard and associated documents;
- Regularly attending contractors' Tool Box meetings and weekly H&S meetings and assist with presentation of material and training;
- Conducting daily interactive discussions and site inspections;
- Reviewing and implementing the process of Project Health and Safety reporting;
- Reviewing and implementing emergency response plans. As required; conduct drills of the Response Plan ;



- Reviewing and identifying H&S training needs for Project staff and contractors.
- Developing and delivery of site orientation training, if required;

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- Leading and participating in incident analysis and reporting;
- Measuring implementation of corrective actions from incident analysis;
- Reporting on Project incident statistics;
- Acting as a custodian of risk, H&S and training registers;
- Setting up, maintaining and update site H&S Notice Board(s);
- Ensuring Safety Data Sheet registers are developed and maintained.

#### 2.4.10 Package Engineer

The Package Engineer Manager role must ensure all procurement documents are complete including appropriate references to the project's relevant H&S requirements. The role ensures:

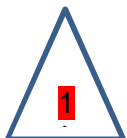
- Equipment meets specific legislated requirements and obligations for manufacturers and suppliers of plant, equipment and materials,
- Equipment requirements, including SDSs for chemical products contained in the equipment are provided to the contractors.
- If applicable, those documents are included in the Request For Proposal sent to bidders.

#### 2.4.11 Contracts Manager



The Contracts Manager is accountable to manage contracts between the project and contractors after award. Responsibilities include coordinating site visits, bid reviews, establishing and running regular progress meetings, initiating the invoicing process, tracking field work instructions and closing out contracts.

The role ensures:

- Bidders receives all required H&S documents.
- Ensure al CAR requirements are implemented in the his/her project areas.
- All bids are complete including H&S information, forms and liability insurance.





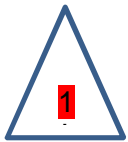
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- H&S discussion is included in progress meetings
- H&S performance is included in Contract Completion Lessons Learned Close-out Report

#### 2.4.12 Engineering Manager

The Engineering Manager role manages the development of the project’s technical specifications to meet the project’s purpose, legislative requirements and best practices, including H&S standards.

The Engineering Manager is accountable for:

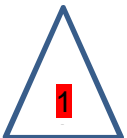


- Leading HAZOP(design PHR) processes, Engineering Management of Change process and providing engineering design to meet and/or surpass Vale Critical Risk Activities (RACs) and H&S requirements.
- Developing the Pre-development review if required by regulation.
- Design for safety by eliminating potential hazards in the design.
- Validation of the H&S requirements in the Construction Scope of Work.



#### 2.4.13 Contractors

The following provides only an outline of key accountabilities and activities. Complete details of contractor and subcontractor H&S requirements are contained in contract agreements and terms and conditions, signed acknowledgement of which is required prior to the award of any work.

Contractors shall comply with all project H&S management plans, and associated documents as well as all applicable regulatory requirements as a minimum.

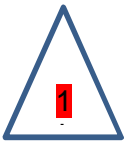


Contractors shall use NAPG H&S templates and forms for specific H&S reporting, any deviations from using these forms must be approved by the NAPG HSE Manager.

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Contractors shall ensure adequate and competent supervision, and H&S support is provided at all times for all workers providing services under their supervision. Contractors agree that they are solely responsible for providing supervision of contractor employees as required by law and the project standards. Contractors should provide at least one HSE advisor per 50 contractors working on-site. HSE advisors must be certified (NCSO or equivalent) and have at least 5 years' experience in a similar work environment. Underground projects will require appropriate underground certifications. Contractors should identify HSE advisors in their bids and provide résumés.



Contractors shall develop and implement effective H&S programs for all work areas and activities outlined in their contract that are consistent with this H&S Plan. Contractors must have a documented process and records for workers' fitness for work. For critical jobs, contractors shall provide workers who have current critical job medical certificates (personnel hoist, crane, mine rescue, etc.) and manage renewals and records as required. The program and records are subject to audit by the project.



Contractors shall ensure that all their subcontractors are familiar with and comply with all project, contractor, H&S, environmental, security, and emergency response plans requirements.

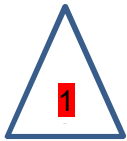
Contractors shall ensure that all of the subcontractor's personnel are adequately trained and assessed for competency, that tools and equipment comply with relevant requirements, and that the subcontractor's work is planned and performed to manage risk to ALARA.



Contractors shall develop and present construction PMRAs and develop construction methodologies, work method statements and JHAs for all work. Contractors must determine the need for stricter standards based on hazard identification and risk assessment for the relevant hazards on the project-specific risk register, their contractor-specific HSE plan and situations where the absence of documented procedures is likely to have an adverse impact on their H&S performance. Contractors shall develop any procedures for specific construction activities in compliance with H&S Plan requirements as a minimum.

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Contractors are accountable to their designated Project Superintendent/Area Construction Manager for:

- Informing all workers of hazards, risks and mitigation processes in their work area. Ensuring their personnel understand and comply with their health and safety responsibilities; Enforcing all elements of H&S plans and supporting documents, including, but not limited to:
  - Being present in the work areas;
  - Utilizing formal JHAs, complete with approved method statements, work procedures and permitting where necessary, and supplementing with a FLHA risk tool for all tasks; Conducting reviews of the JHA and FLHA for all of their personnel;
  - Leading PMRAs; As requested, developing risk, hazard and effects registers and implementation plans for their activities as well as leading the periodic PMRA review;
  - Conducting daily Tool Box/Line-up meetings and weekly H&S meetings supplemented with material supplied by the project;
  - Conducting inspections required by regulations and participating in project sponsored interactive discussion, inspections and routine workplace walk throughs.
  - Implementing maintenance and inspection schedules for vehicles, plant and equipment in accordance with site and legislative requirements;
  - Engaging in interactive discussions to establish a high standard of H&S risk management culture;
  - Ensuring work area, equipment and substances meet site requirements, and individuals are authorized to undertake specific tasks and activities;
- Compliance with project, client and regulatory requirements applicable to their work;
- Ensuring that all workers providing services are English proficient, adequately trained, qualified and permitted, at all times, to perform the work they are assigned to do, including:
  - Managing the records of all workers including apprenticeships.
- Immediately notifying their designated project contact of any incident or near miss, property damage, environmental release and loss of production and then conducting or participating in incident analyses.



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- Completing and tracking corrective actions for audits, inspections and incident analyses, and providing updates to the project.
- Reporting on contractor KPIs identified during Pre-Construction H&S Kick-Off Meetings.

#### 2.4.14 All Personnel

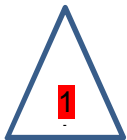
Each individual who works on the NAPG Project has a responsibility to actively assist in creating a safe work environment. All Project personnel shall demonstrate responsibility by working within established boundaries through procedures, training and experience to ensure their own and others' health and safety.

All personnel are responsible for familiarizing themselves with identified hazards, the associated risk, and controls to manage the risk to ALARA. The recommended source of this information is in the JHAs for their respective area of the project.



All personnel on site are accountable to their immediate supervisor, to themselves and to each other for:

- Their own actions and the observance of all site health & safety requirements;
- Participating in and contributing to site H&S activities;
- Demonstrating concern for the health, safety and welfare of other personnel on site.

To meet their accountabilities, all personnel shall:



- Observe all Health and Safety Regulations, as identified under workplace legislation, Critical Risk Activities; Permit to Work and Golden Rules and project specific requirements;
- Attend Vale orientations / inductions, project orientations and their own contractor specific orientation / induction before working on the project;
- Attend all training as specified by the H&S Plan;
- Identify and report to the supervisor any hazardous condition and/or practice and provide suggestions to ideally eliminate hazards or control the risk associated with the hazards;



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- Attend and participate daily Tool Box / Line-Up meetings, weekly H&S meeting, Inspections, Hazard Observations and Interactive Discussions;
- Immediately report all incidents and injuries to their supervisor;
- Wear the required PPE and clothing appropriately, adjusting as required for the task to be undertaken;
- Maintain their work area in a safe and tidy condition;
- Utilize a FLHA or similar personnel risk management tool for all tasks, as a supplement to the formal JHAs, approved method statements, work procedures and permitting where necessary;
- Manage all risk to ALARA when completing all tasks and if this is not possible to report to the immediate supervisor;
- Inspect all equipment prior to use and tag out of service any defective equipment prior to reporting it to your immediate supervisor;
- Co-operate with and constructively participate in the Project H&S Management Program;
- Work within competencies held and in a manner to protect the health and safety of yourself, fellow employees and the general public;
- Proactively contribute to aspects of planning, problem solving, priority setting, training, and improving work practices as opportunities arise. Participating within the Joint Health and Safety Committee framework is encouraged;
- Analyze the work scope (i.e. FLHA and assist with JHAs) to identify and assess H&S hazards and to provide for the development of safe work methods;
- Engage in interactive discussions to develop a high standard of H&S risk management culture;
- Not misuse or damage any equipment; and
- Participate in health monitoring programs as directed.

### 3.0 HAZARD AND RISK MANAGEMENT

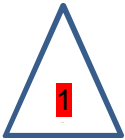
#### 3.1 Intent

NAPG requires all hazards to people, plant, equipment, the environment and the community to be identified, assessed in terms of risk and appropriate control measures

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implemented (primarily utilizing the hierarchy of controls), in accordance with sound risk management principles.

### 3.2 Risk Management





Safety does not mean absence of danger. Instead it is proportional to the robustness of the existing protection barriers.

Risk management philosophy is based on the principle that there is no such thing as zero risk and risk can be managed at various organizational levels and project stages to a level that is "as low as reasonably achievable" (ALARA) and is otherwise determined by comparison with and in consideration of:

- Design specifications;
- Industry best practice;
- Regulatory requirements;
- Codes of practice;
- Recognized standards
- Individual and team experience

Responsibilities for risk assessment and specific accountabilities for risk management are assigned to all levels of management and employees. This is achieved through a number of formalized tiered risk management tools that allows alignment of systems, processes and behaviour with the dynamic changing nature of risk.

A focus must be maintained on risks and leading indicators with the potential for fatal consequence. NAPG recognizes that the conditions and actions that lead to fatalities are not necessarily the same as those that lead to more traditional construction related injuries and occupational illness. The primary concern for all NAPG personnel is the situational awareness for the events and conditions that lead to deviations from the operational discipline to follow Golden Rules and CAR standards.

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### 3.2.1 Project Health and Safety Risk



NAPG requires projects to conduct a series of hazard studies, other specific risk assessments and reviews to identify analyze and manage areas of risk.

At any stage, management or personnel may identify activities that require the application of Hazard Identification, Risk Assessment and Development of Controls (HIRADC) processes; these include, but are not restricted to:

- Recruitment and selection of personnel;
- "Critical" Construction activities (e.g. multi crane lifts);
- Interaction of personnel with technology and Plant and equipment;
- Planned changes of operational status of equipment;
- Working at heights;
- Equipment guarding;
- Equipment Isolation;
- Hazardous material management;
- Lifting and rigging activities;
- Confined Spaces;
- Mobile Equipment;
- Excavations;
- Working on or near water;
- Foreseeable emergencies;
- Climatic and weather extremes;
- Interactions with the natural environment or nearby communities and
- Area specific hazard studies to be undertaken prior to commissioning.

### 3.2.2 Hierarchy of Control

Following hazard identification and risk assessment, remedial measures will be defined for situations where risk is not at ALARA. Control measures or combinations of control

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measures to eliminate the hazard or manage the risk will be followed in the following order of priority:

- Firstly, try to **Eliminate** the hazard;
- **Substitute** a less hazardous material, process or equipment;
- Utilize **Engineering** to design, redesigning, isolate or upgrade equipment or work processes;
- Introduce **Administrative** controls;
- Use appropriate **Personal Protective Equipment**.

### 3.2.3 Health and Safety Risk Register - Opportunity for Improvement (OFI) File



NAPG requires all projects to maintain a health and safety risk register as a subset of the Project Technical Risk Register. It comprises the hazards or hazardous scenarios identified during all hazard studies, risk assessments, incident reports, audits and hazards reported during the life of the project. The register lists potential major hazards to facilitate the recognition and management of these potential issues. Hazards and the associated risk are analyzed on the basis of:

- Frequency of occurrence/exposure (Likelihood);
- Potential severity for the Project (Consequence).

The Health and Safety Risk Register is a living document. It is maintained to ensure that changes are assessed for any potential health & safety risk, and that the appropriate action is taken to ensure existing performance levels are not compromised.

Refer to the NAPG Risk Management Plan; for further information on the Health and Safety risk managements requirements.



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### 3.2.4 Register of Construction Equipment

Projects shall implement and maintain registers of construction equipment (Elevated Work Platforms (EWP), Mobile Equipment, Drill Equipment, Rigging Equipment, Fall Protection and Arresting Equipment ...etc.) to be documented before arrival at site and after major service. The registers must be reviewed and approved by the Contractor Project Manager or Equipment Supervisor. Equipment, tools and materials must be used as designed and inspected by a suitably qualified person.

Contractors are expected to:

- Set up an initial set of registers;
- Complete the registers for each piece of plant, tool and equipment brought onto site;
- Maintain a complete, continuous and comprehensive inspection and service history of the equipment in these registers.
- Ensure at least monthly inspections are done and recorded for all plant, tools and equipment by a competent person.



See Vehicles and Mobile Equipment procedure and General Power Tool Safety procedure.

### 3.3 Risk Assessment Tools

The following tools; have been developed to assist the project team plane for “ALARA”.

#### 3.3.1 Critical Activity Requirements (RACs)



Vale RACs define the standards and requirements for managing fatal risks to all Project and Contractor personnel. Vale has developed the RACs to address situations in projects and operations that have led to fatalities in the past. All NAPG and Contract personnel must comply with the requirements in the Vale RACs. During construction reviews RACs are covered to ensure requirements are met.

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### 3.3.2 Vale Golden Rules

The Vale Golden Rules are linked the RAC standards and must be understood and followed by all personnel involved in a project. See Figure 3-1(Ontario) and Figure 3-2 (Manitoba).

Figure 3-1: Vale Golden Rules-Ontario.

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1. Never work under the influence of **alcohol, drugs and substances** that reduce fitness for work.



2. Never perform **work at height** ( $\geq 1.8\text{m}$ ) without proper training, authorization, and always use a safety harness secured to an appropriate anchor point.



3. Never operate **motor vehicles or mobile equipment** without proper training, authorization and safety devices. Respect the traffic plan.



4. Never perform maintenance or interventions on installations or equipment without confirming that all sources of energy have been blocked, identified and tested to be in a state of **"zero energy"**.



5. Never place yourself under a **suspended load** or enter an isolated area. Only use certified lifting devices.



6. Never work in a **confined space** alone, without training, authorization, an entry permit and appropriate PPE.



7. Never enter into production areas, tailings areas, electrical rooms/ substations or any other **restricted areas** without authorization.



8. Never use improvised or faulty **tools, machines, or equipment** to execute work.



9. Never perform any work without **understanding the risks** and comply with all required controls.



10. Never use **cell phones or any other device** that can cause loss of focus in non-authorized operational areas, stairs and while crossing streets.





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Figure 3-2: Vale Golden Rules-Manitoba

	<b>1.</b> Never work under the influence of <b>alcohol, drugs and substances</b> that reduce fitness for work.
	<b>2.</b> Never perform <b>work at height</b> ( $\geq 1.5\text{m}$ ) without proper training, authorization, and always use a safety harness secured to an appropriate anchor point.
	<b>3.</b> Never operate <b>motor vehicles or mobile equipment</b> without proper training, authorization and safety devices. Respect the traffic plan.
	<b>4.</b> Never perform maintenance or interventions on installations or equipment without confirming that all sources of energy have been blocked, identified and tested to be in a state of " <b>zero energy</b> ".
	<b>5.</b> Never place yourself under a <b>suspended load</b> or enter an isolated area. Only use certified lifting devices.
	<b>6.</b> Never work in a <b>confined space</b> alone, without training, authorization, an entry permit and appropriate PPE.
	<b>7.</b> Never enter into production areas, tailings areas, electrical rooms/substations or any other <b>restricted areas</b> without authorization.
	<b>8.</b> Never use improvised or faulty <b>tools, machines, or equipment</b> to execute work.
	<b>9.</b> Never perform any work without <b>understanding the risks</b> and comply with all required controls.
	<b>10.</b> Never use <b>cell phones or any other device</b> that can cause loss of focus in non-authorized operational areas, stairs and while crossing streets.



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#### 4.0 LEARNING AND COMPETENCY

##### 4.1 Intent

Contractors shall ensure that all their personnel and sub-contractors' personnel are appropriately trained and competent to carry out their work in a safe and skilful manner.

English is the working language for all NAPG projects. In order to ensure clear communication of the H&S Plan and protect the health and wellbeing of personnel, NAPG project personnel should have a working knowledge of the English language.

##### 4.2 Learning

###### 4.2.1 Orientation



Each project must establish appropriate site access training that all project workers must attend before accessing a site. For example Ontario facilities would require General Orientation T1, T2 and T3. Project orientation must include as a minimum the following:

- Regulated mandatory training (e.g. workplace hazardous materials, such as WHMIS, etc.)
- General orientation specific to the project.
- Equipment Isolation (e.g. Vale Zero Energy State in Ontario)
- Vale Golden Rules
- Applicable Critical Risk Activity(CAR) training modules.
- Emergency Procedures

Vale employees joining the project will have their training reviewed for completeness, as required additional training/orientations will be provided.

##### Exceptions:

- **Technical Resource Specialists** – Persons working less than 2 days on site and must be escorted by personnel that have received full site access training.
- **Visitors** – Persons coming to site for a short term visit to review the worksite area. The visitor must be escorted at all times by an authorized, oriented Project

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site escort who is familiar with the Project work status at the time of the visit. (Reference Temporary Site Access procedure, NAPG-SAF-SPI-0034).

#### 4.2.2 Project Orientation

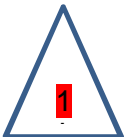
All personnel including contractors and Vale employees must complete a project Site orientation prior to working on the site. The purpose of the orientation is to ensure that all personnel are made aware of and are conversant with project requirements while they are working on site. The site pass documentation will record information in acknowledgment that they have attended the orientation program. The orientation may be composed of a presentation with a facilitator, a short test, and a sign off sheet. When completed, the newly oriented will receive a Project hat sticker as well as an identifier to be placed on the back of their site access card as to when the orientation expires.



Contractor Job Specific Orientation – all personnel shall complete job and area specific orientations as required for the contracted work prior to commencing work. These orientations will be the responsibility of the specific contractors.

#### 4.2.3 Contractor Training Programs

Contractors’ training programs will include coverage of the following where relevant to individual’s duties:

- The Project H&S Management Plans;
- Supervisory skills and obligations (which may be legislated in some jurisdictions e.g. IHSA Basics of Supervision in Ontario)
- Appropriate (MLTSD)modules of Ministry of Labour, Training and Skill Development for mining activities;
- Contractor Safety Plans;
- Contractor site specific orientations;
- Construction PMRAs;
- Purpose of inspections and inspection reports;





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- Purpose of audits and audit reports;
- Fitness for Work;
- Slings and moving loads and using lifting devices;
- Manual handling (ergonomics);
- Working at Height ( must meet Vale requirements or meet the legal requirements of the local jurisdiction
- Fall protection and prevention specific to the contractors equipment and contractor organization’s policies
- Confined space;
- Hot work;
- Pre start checks;
- PPE use and training;
- Shelter in place, fire evacuation, site evacuation and emergency response;
- Isolation, Lockout, Tagout, Test;
- Scaffolding and ladders;
- Hazardous substance handling, storage and use (WHMIS);
- Waste management (overview provided as a part of site orientation—T1 in Ontario).

### 4.3 Competency

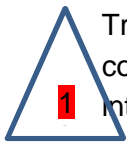
All personnel engaged to carry out work on the project must have the necessary skills and knowledge to be competent to perform their tasks. Each contractor must have a process to manage these requirements for their immediate employees and any sub-contractors they may retain. Contractors and new employees must furnish proof by way of licenses, permits, certificates, or by recognition of prior learning (RPL) or by written certification by a qualified assessor of their competencies as appropriate to their tasks on the project.

At the completion of all training, the trainer shall evaluate the competency of individuals by means of an examination (written, oral or practical) or an assessment of the trained person’s performance during the training. Required Training

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Each projects must develop a training matrix which includes all the required training modules or courses, which roles are required to take them, the training provider and expiry or refresh time. Courses or modules may include, but are not limited to the following:



- Project access orientation
- General orientation
- Site-specific orientation (e.g. Tier I, II, III Orientation in Ontario)
- Contractor site-specific orientation
- Hazardous materials (WHMIS in Ontario)
- Working at Height (from approved provider)
- Power elevated work platforms and mobile equipment
- Equipment Isolation (Lock-out and tag, Zero Energy State)
- Supervisory skills and obligations (IHSA Basics of Supervision in Ontario)
- Confined space
- First Aid/CPR/AED
- Others as required by the scope and nature of the work to be performed (e.g. waste manifesting, PMRA developments, etc.)



Training records must be maintained and retained on site by the Project and contractors in alignment with requirements. Vale will retain records for project integrated team members for the project training modules.

All personnel who have returned to the project after an absence of 3-months or greater shall attend the project induction / orientation prior to returning to work.



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## 5.0 CONTRACTOR H&S ALIGNMENT

### 5.1 Intent

The intent of this section is to set the requirements for the projects and their contractors to ensure effective alignment with zero harm values and goals that are an integral part of the H&S Management System. Contracted services, construction equipment and materials must not cause harm to workers, the public, and the natural environment or to property. Arrangements must also be in place for the health and safety of visitors to operations and projects. The review and assessment of contractor and supplier H&S performance is part of the selection and retention process.

### 5.2 General

Each project shall integrate H&S requirements into the overall process of arranging and managing contracted work.



Contractors' H&S Plans (Manuals) shall incorporate the intent of this H&S Plan with a focus on key hazards and systems, as well as how the plan will be monitored and reviewed during the execution phase.

Each project shall ensure alignment between the project and contractor's zero harm values and goals throughout the course of the project, including pre-construction activities and post-construction activities. Opportunities to ensure alignment include:

- establishing the contracting strategy;
- pre-qualifying contractors;
- evaluating Requests for Proposals (RFP);
- conducting pre-award alignment meetings with contractors;
- kick-off meeting - conducting PMRAs with contractors (post award); and
- mobilization, execution, close-out, and lessons learned.

The extent and level of detail to be considered when implementing the H&S program will be contract specific and will depend on the:

- services being contracted;

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- size and complexity of the job;
- number and experience of the workforce;
- risk and hazards associated with the works; and
- H&S program and record of the contractor;

### 5.3 Suppliers and Contractors



#### 5.3.1 Contract Strategy and Scope of Work

Each project shall use a systematic risk management approach when identifying the contracting strategy and type of contractual agreements to be used to execute the work in a way that minimizes the risk.

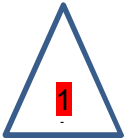
The risk assessment will take into consideration the following factors:

- Scope of work
- Number of contracts;
- Interfaces between the contracts;
- Contractual relationship between Vale, the contractor and other contractors;
- Seriousness of potential injury, or occupational illness consequences;
- Likelihood of any unwanted consequences;
- Complexity of the project as a whole;
- Size and/or value of the project;
- Services being contracted for;
- Number and experience of the work force; and
- H&S program and record of the contractors.

In preparing the scope of work, project-specific H&S issues must be identified, including surveys of any designated substances such as, asbestos, lead and silica.

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### 5.3.2 Requests for Proposals (RFP)





Following Vale guideline for contracting service; GU-G-403E, Requests for Proposals issued to selected proponents must include the following H&S expectations and requirements:

- Project H&S Plans;
- H&S Procedures and Standards;
- Contract General Terms and Condition; and
- Scope of work;

Procurement shall prequalify proponents to confirm they have the necessary expertise, experience and capability to undertake the work and commit to the H&S Plans.

The RFP process should establish the following H&S requirements:

- confirm proponents accept the project's H&S program and requirements;
- thoroughly evaluate the proponents' H&S Plans to ensure the minimum acceptable standards defined in the contract are met;
- evaluate the proponents' ability to complete the work while meeting the Project's H&S objectives; and
- evaluate and compare the project's and the proponent's H&S Plans, specifically:
  - the H&S program questionnaire;
  - previous experience;
  - the H&S policy and program;
  - the injury prevention performance from the last three years, including any previous prosecution;
  - the H&S management systems;
  - the proposed requirements specific to the project; and
  - The proposed H&S management structure.

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As part of the evaluation process, the project must complete a formal H&S program evaluation checklist. The level of detail required in the proponents' H&S plan will depend on the complexity and relative risk of the contract works.

### 5.3.3 Site Visits, Clarifications and Technical Bid review (pre-award Meeting)

All bidders will be invited together to a site visit where project-specific H&S issues may be highlighted.



The project may issue group clarifications if bidders have questions. In addition, the project could meet with potentially successful bidders for a presentation about their bid. H&S issues may be discussed.

As required, each individual bidder will be invited for a Technical Bid Review Meeting during the pre-award evaluation period to:

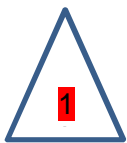
- Formal meeting arranged by Contractors Manager.
- Communicate the Project's H&S commitment and requirements to the proponents,
- Review the bidders' site H&S programs, E1 (H&S performance) and M1 forms (procedures),
- Define performance requirements for the project,
- Meet proposed supervisory personnel,
- Clarify what should be included in the proposal,
- Clarify H&S concerns from the submitted documents,
- Identify number and qualifications of H&S professionals required,
- Minutes of Meeting are issued.

### 5.3.4 Post Award Submissions and Kick-Off

Prior to mobilizing on site, Contractors shall develop and provide a site-specific H&S binder (hard copy) for the Project. At a minimum the site-specific H&S binder must include a copy of:



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- the approved Contractor H&S Management Plan;
- completed PMRAs;
- applicable initial accepted JHA's;
- required insurance certificates;
- the contractor's most recent Workers' Compensation experience report (CAD-7/NEER in Ontario-surface projects or equivalent depending on jurisdiction);
- the contractor's most recent Workers' Compensation clearance certificate or equivalent depending on jurisdiction;
- the contractor's Workplace Injury Summary Report;
- the Registration of Constructors and Employers Engaged in Construction (Form 1000) for Ontario or equivalent for other jurisdictions;
- organizational project chart (this must include site superintendents, health and safety, and field supervisors and must be updated as required);
- the expanded CV or profile of proposed site supervisors and site H&S personnel including any certificates of training to show competency for acceptance;
- training records for mandatory supervisory training for all supervisors, if applicable in the project's jurisdiction; and
- Pre-mobilization kick-off meeting minutes.
- Copies of the weekly progress meeting minutes.



The Project Construction Team will conduct pre-mobilization/kick-off meetings with all contractors to:

- Review Project's commitment to Health and Safety.
- Review strategies to create a safe work, zero harm culture.
- Discuss project goals and objectives.
- Introduce key personnel.
- Identify key roles and responsibilities;
- Discuss any Operations interface areas and the necessary protocols
- Review of the Scope of Work, the geographic layout and work environment.

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- Review known site hazards.
- Review the work schedule.
- Identify high-risk operations and the control measures to be implemented.
- Review of the Project and Contractor H&S plan and requirements, highlighting requirements and responsibilities.
- Develop work methods and appropriate PMRAs.
- Review non-negotiable project requirements.
- Discuss specific legislative requirements.
- Review Project site-wide procedures and programs.

### 5.3.5 Employment Process



The contractor shall establish a clear auditable employment and training process. At a minimum the contractor shall have processes in place to:

- Appropriately screen personnel;
- Control access onto site;
- Orient workers before starting work, including all relevant Vale orientations;
- Manage training records with copies on site.

### 5.3.6 Mobilization, Execution and Close-Out

Prior to mobilizing on site, Contractors shall establish and maintain a qualification/training matrix to ensure their employees have the proper qualifications and have received the required training. Records of qualifications and training must be available to the Project for review and audit, and at must include the following as a minimum:

- Evidence of training specified by the project.
- Evidence of necessary skills competency
- Copy of trade license/MLTSDAESD(MTCU) modules if required

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- Evidence that site rules were reviewed, understood and accepted by the worker, e.g. successful completion of project orientation training.
- Review SDS product sheets.

Prior to mobilization to site, contractors shall ensure their personnel have the following:

- appropriate PPE as required by the NAPG PPE procedure; NAPG- SAF-SPI-0007, and
- quantitative respirator fit test if working at the Ontario Smelter/Refinery complexes and other sites as required.

Any exemptions to the PPE requirements must be documented through the procedure deviation process with a comprehensive risk assessment and required approvals.



The Project and Contractor Project Management Teams shall ensure H&S management plans and programs are accepted, implemented, monitored, and reviewed.

All contractors should expect their performance to be reviewed on an ongoing basis. Upon completion of the contract, project Contracts Manager shall prepare a Contract Completion Lessons Learned Close-out Report (includes H&S performance) and make it available to the NAPG Project Procurement Team.

#### 5.4 Requisitioning

When developing requisitions and specifications for direct equipment and materials, the responsible discipline package engineer for the project shall:

- Assess item for any obvious hazards, including controlled products used;
- Check item has the appropriate safeguards and approval;
- Ensure there are no better alternatives available and advise the appropriate personnel;
- Consider ergonomic factors such as weight, comfort, convenience of handles and controls, noise and vibration, and clarity of instructions and warnings;

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- Compile general inquiries from other users to establish if any problems have been experienced;
- Check designated substance inventories.
- Prepare Equipment Technical Specification
- Complete appropriate design reviews – i.e. Design PHR and Constructability.

### 5.5 Inspection Release

Before issuing plant, equipment or materials for use on the Project, inspectors shall complete the following H&S related checks in addition to the requirements of the Project Quality Manual:



- Attend Factory Acceptance testing
- Ensure Manufactures Installation and Operation Manuals have been completed and submitted;
- Certified drawings, particularly for electrical equipment, and for equipment loads are available (ESA Approved or other applicable agency).
- Ensure SDSs for all WHMIS controlled chemicals are provided.

### 5.6 Commissioning

Commissioning occurs after mechanical completion (by Construction) and involves the activities required to test systems and subsystems. This is followed by the ramp-up phase before handover to production. The commissioning process requirements (PMRA's, JHAs, tagging, etc.) are described in the Inspection and Testing Plan and/or Commissioning Instruction Manual applicable to the project. Also refer to the PMRA procedure and JHA procedure where specific commissioning requirements are described.

Project H&S program covers activities until the end of commissioning. The Vale Operations H&S program is applicable from ramp-up onward.



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## 6.0 MANAGEMENT OF CHANGE / EXEMPTION PROCESSES

A Change is a temporary or permanent modification that may alter in any way the established design, function, process or procedure, or that affects others. An effective management of change process aims to ensure the following:

- Changes are identified and recognized;
- Careful consideration is given to managing the risk associated with any change;
- Due diligence can be shown to have taken place;
- A reduction in the number of unsatisfactory or unnecessary changes;
- All required actions are identified and authorized before change is implemented;
- Involvement of the right people in the change process;
- All statutory requirements are met
- Ensure developed PMRAs and JHAs remain applicable to the modification.

Project employees and contractors shall comply with procedures for the management of change. Revised PMRAs and JHAs may be required. (Reference JHA Procedure and PMRA Procedure)



Variances from H&S procedures and standards may allowed if a contractor can demonstrate improved risk management. These do not follow the same process as management of change.

### 6.1 Exemption to Policies/Standards/Procedures



A Contractor that requires an exemption or variance to any NAPG or project policy, standard, procedure, or guideline shall complete and submit an “Assessment for Exemption Request” along with supporting documentation to Project Management for evaluation. Project Management will reply in a timely manner to the request.

Variances from the requirements of NAPG policies, standards, procedures or guidelines may be allowed **only if**:

- The deviation is clearly identified and documented,

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- A work method and risk assessment are completed,
- Alternate control measures are in place that provide the same or better risk management, and
- Prior approval is obtained by the NAPG HSE Manager and the NAPG Project Director.

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## 7.0 CONSULTATION AND COMMUNICATION

### 7.1 Intent

The intent of consultation and communication is to ensure that all project personnel and when required, Vale operations are aware of their responsibilities, carry them out and are involved in planning under the H&S Plan.

### 7.2 Required Communication and Consultation Forums



The meeting organizer of the project related meetings listed in this section shall produce a record of attendees, matters discussed and action items (including progress). Records must be maintained and distributed appropriately. Distribution may include meeting attendees, each impacted work group, and posted on Project H&S Notice Boards.

#### 7.2.1 Project Joint Health and Safety Committee

The Project Joint Health and Safety Committee (JHSC) is a group representing the health and safety interests of the employee workforce throughout the Project. The organization and obligations of the JHSC may vary depending on applicable legislation and jurisdictions.

The Committee shall act as an advisory body to assist and work constructively with site management. The committee shall meet monthly or at intervals prescribed by regulations to address overall project site health and safety issues, and to review progress on action items and concerns. Any day-to-day health or safety management issues must be addressed immediately through the site management structure.

Project and Contractor management shall ensure that Committee representatives can afford sufficient time to devote to matters related to the Committee's activities. Minutes of JSHC meeting shall be communicated throughout the project site and made available Vale operations if necessary. JHSC should be chaired by the most senior Construction Manager or a designated person. Contractors, represented by their managers and health and safety coordinators, as well as project personnel may be invited to project JHSC meetings that are appropriate to the their specific work area.

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### 7.2.2 Worker Trades Committee

Some jurisdictions, such as Ontario, require Worker Trade Committees (WTCs) when the site reaches greater than 50 workers. NAPG recommends WTCs as a best practice for projects in other jurisdictions. If required, the JHSC shall establish a WTC with members representing workers employed in each of the trades at the workplace. Members of a WTC must be selected by:

- the on-site trade workers the WTC member will represent, or
- by the trade union, if a trade union represents the workers.

### 7.2.3 Daily Line-up Meetings



Contractors must hold daily line-up (ex: tool box meetings) and JHA briefing with the work team before the start of work. The line-up should highlight the planned work, work methods, hazards, and preventative control measures for the associated risks. A daily line-up will be provided to all personnel, including those that will be escorting visitors, working at any location(s) associated with the contract scope. Each worker will sign the day's JHA prior to commencing work – acknowledged they are fit for duty. The individuals will re-sign the JHA at the end of the shift – advising they were not injured during the shift.

### 7.2.4 Weekly Contractor Health & Safety Meetings

All contractors shall hold weekly health & safety meetings with their employees to foster H&S awareness. Copies of minutes and action items arising from such meetings shall be made available for review by project Health & Safety Advisors.

### 7.2.5 Monthly Project Team Health & Safety Meetings

The project shall hold monthly internal H&S meetings to review incidents, relevant hazards, associated risk and applied controls. This meeting is for Project Team employees and chaired by the Project Manager with support from the Project H&S Team. Each meeting shall begin with a risk management share, followed by a review of task-specific hazards present in the field as well as mitigations for such hazards. All

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Project Team employees are encouraged to participate and discuss hazards observed in the field as well as to raise any H&S related concerns they may have.

#### 7.2.6 Weekly H&S Coordinators Meetings

Contractors' H&S coordinators shall hold a weekly meeting chaired by the Project H&S Manager or designate. The topics of discussion may include:



- Review of project High Potential Incidents;
- Review of global High Potential Incidents;
- Sharing of lessons learned/best practices;
- Upcoming scheduled H&S audits and inspections;
- Previous audits and inspection results;
- Strategies to improve prevention of fatalities, injuries and occupational illnesses and to raise risk awareness;
- Mobilization of new contractors on-site and potential risks related to the addition of contractors and their specific tasks;
- Updates to incidents and near misses that occurred during the week, and the status of action completion, and to share lessons learnt; and
- Project/Contractor training initiatives.

#### 7.2.7 Weekly Project Management Meetings

The primary focus of these meetings is overall project progress and issues with the current work in all construction areas, including H&S performance, review incident investigation results and recent audit findings. Meeting records and an action item list are maintained.

#### 7.2.8 Bi-weekly Fatality Prevention Meetings

The HSER Manager may hold a biweekly meeting with the NAPG H&S team and project managers only. The purpose of the meeting is to improve fatality prevention measures throughout NAPG.

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### 7.2.9 Stand Downs

Stand Downs that centre on an issue that requires immediate action may be conducted as required. The topic for the action meeting is managed within a group’s area of responsibility. The details on how to conduct the meetings depends on the nature of the issue to be resolved.

### 7.2.10 Bulletins and Hazard Alerts

Hazard alerts shall be used as the project-wide communication of serious incidents, hazardous activities or situations. Hazard alerts must be posted on all H&S notice boards and distributed electronically where possible. A project may share hazard alerts with Operations or other project teams and vice-versa, if applicable. It is preferred that projects use established local hazard alert systems if available. Greenfield sites may have to develop their own hazard alert system.

### 7.2.11 Field Visits, Inspections and Orders by Regulators



Projects shall implement a local system to report inspections and field visits and any orders to the project site by all regulators. All correspondence to the regulators must be retained as a project record.

### 7.2.12 Daily IM Summary Reports

Daily IM Summary Reports provide a review of incidents and unsafe conditions reported in the previous 24 hours. These reports should be distributed widely within each project. The HSER Manager may select certain notable incidents to be reported more widely, e.g. across NAPG, all mines or operations.

### 7.2.13 Daily Blasting Letters and Local Blasting:

Daily, the Project Mines Technical Group (Ventilation) will generate and distribute blasting/ventilation notification. This document communicates to the underground workers when large production blasts are planned, what position ventilation doors must

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be left in, any post blast instructions and the clearing sequence for the mine. In addition, there may be notifications for local “Blast at Will” events. Projects should note the information on the letter and “Blast at Will” notifications for possible impacts to construction activities and take appropriate precautions.

#### 7.2.14 Safety Notices in Mines:

Electronic Safety Notices are generated by the Mines Technical Group to notify mine development where diamond drill holes may intersect production or development headings in a mine. Notifications are sent out to Vale users via email. It is to make sure we identify and provide all information to protect our workers or equipment from any risk(s) during drilling and blasting.

Safety Notices are required to protect workers, equipment and mine infrastructure for the following hazards:



- To guard all areas from diamond drill holes intersecting the work area, which may cause concussion air blast to other workplaces or to different levels.
- Provide the location(s) of all potential breakthrough in proximity and guard them during drilling cycle.
- Inform workers from potential influx of water.
- Inform workers if possible gas may appear during drilling phase.
- For all remote control drilling situation (drilling into or towards previously blasted areas but unchecked, or cleaning into previously blasted holes).

### 7.3 General Employee Involvement and Internal Responsibility System (IRS)

Individual workers’ involvement and H&S responsibilities under the project’s H&S management system is based on the Internal Responsibility System (IRS) principle of shared employer/employee responsibility to prevent personal injuries, and occupational illnesses.

Individuals are encouraged to be involved through:

- The establishment of open and honest communication between all levels of the organization;

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- The election of employee representatives to the JHSC and WTC;
- The establishment of the Project JHSC committee at the work sites;
- The participation in toolbox, Line-up and other H&S related meetings;
- Participation in Interactive Discussions;
- Communication of the Project H&S Risk Register; and
- Appropriate personnel involvement in the PMRA, JHA, incident reporting and FLHA processes.
- Posters or Notice Boards;
- H&S Bulletins;
- Hazard Alerts;
- Warm room television(s).



Projects must make available copies of all H&S Policy's procedures, guidelines, hazardous material requirements, and operational procedures to all project personnel. Projects may use electronic formats.

#### 7.4 Work Refusal

The employer must provide work refusal training that meets the requirements of local regulations.

If a worker (employee) believes that the work cannot be safely undertaken or that continuance of the work may result in unsafe conditions, the worker must immediately and safely stop the work and report the issue to an appropriate supervisor. The employer must make every reasonable effort to control or stop the cause, or minimize the impact of any unsafe conditions. Should the matter remain unresolved, it will then be addressed between the employee, his/her supervisor, the employee's H&S representative, and the applicable manager. If still unresolved the matter will be referred to the management members of the Project JHSC. In all cases, regulatory requirements must be met, e.g., Ontario OHS Act R.S.O. 1990 s. 43 or equivalent in other jurisdictions.



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## 7.5 No Smoking Policy

All project personnel shall comply with applicable no smoking/no vaping legislation. Vale prohibits smoking within:

- Enclosed workplaces as defined in regulations.
- Any surface facility or underground mine.
- Nine (9) metres of building entrances, windows and ventilation intakes.
- Any company vehicle, including rentals used for company business.

## 7.6 Alcohol and Drug Program

To ensure the health and safety of the individual and others working in the vicinity, all project personnel including contractors and subcontractors shall comply with local Vale Alcohol and Drug Instructions. These may vary depending on jurisdiction.



The program requires alcohol and drug testing in situations where there is reasonable cause (a supervisor directly observes out of character behaviour or other evidence) and post-incident (serious and potentially serious incidents as part of a full investigation). A project may use Operations alcohol and drug testing facilities and contracts where available, but must be pre-arranged. A project may undertake pre-employment testing in jurisdictions where it is allowed. Refer to local Alcohol and Drug standards and procedures for to set project-specific requirements. .

## 7.7 Disciplinary Actions and Zero Tolerance Rules

### 7.7.1 Expectations

All NAPG and project personnel will:

- Treat each other with respect and dignity;
- Care for each other, the environment, community and assets;
- Complete all tasks managing risk to As Low As Reasonably Achievable (ALARA);
- Know and understand what is expected of us, ask for clarification if unsure, and work within the boundaries of training, standards, policies and procedures;

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- Align with the direction of our Project objectives;
- Take ownership for our actions.

To achieve a successful H&S program, the Project expects all project personnel and visitors to cooperate and comply with established rules, regulations, safe work practices, procedures, policies, etc. We all (Vale, Secondees, Contractors, Visitors) share health, and safety responsibilities.

The Project expects that Contractors establish a disciplinary policy that promotes safe behaviour and ensures future compliance of their workers. The contractors should provide for an analysis of the incident to determine the cause and if rules, safe work practices, procedures, regulations, policies, etc. have been violated. The contractor's policy must provide for escalation of disciplinary action relevant to the significance of the event. If an unsafe act or rule violation, etc. is observed then the work must stop, the employee's supervisor must be immediately notified and an analysis of the event conducted to determine the appropriate response and action. All formal disciplinary actions must be documented.



The following are the escalation of actions for all NAPG personnel and are meant as guidance for Contractors. These actions are not required to be sequential; the severity of the offence will determine the response.

#### 7.7.2 Formal verbal warning

The employee's direct supervisor shall be responsible for the verbal warning and inform the worker that his/her actions are in violation of a rule, regulation, safe work practice, procedure, policy, etc. A detailed description of the violation and what is acceptable shall then be explained to the employee. The expectation is that the worker/ employee will make a commitment to work in an acceptable and safe manner. A written record of the verbal warning shall be retained.

#### 7.7.3 Formal written warning

The employee's direct supervisor shall be responsible for the formal written warning. This warning shall be sufficiently detail to permit the employee to understand the

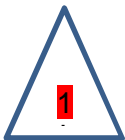
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nature of the violation and what is acceptable practice. The employee shall sign the document to acknowledge the violation and to make a commitment to work in an acceptable and safe manner. The employer shall also retain a copy of the formal written warning

#### 7.7.4 Suspension



If an employee continues to knowingly engage in unsafe work practices, and/or intentionally violates rules, regulations, safe work practices, procedures, policies, etc., or if an employee violates a Golden Rule or Critical Risk Activity then the employee will be subject to permanent suspension from all Vale sites.

#### 7.7.5 Zero Tolerance Rules:



- Vale Golden Rules;
- Drilling into a bootleg;
- Unauthorized scaffold modifications;
- Horseplay or fighting;
- Intentionally damaging Vale or contractor property or equipment;
- Theft;

NOTE: The Project reserves the right to allow or deny people access to a worksite based on any deviation from the operational discipline to follow policies, procedures, regulations or rules.

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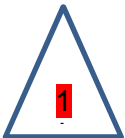
## 8.0 SAFE WORK PROCEDURES

### 8.1 Intent

Documented Safe Work Procedures are developed to prevent harm to people, damage to equipment or impact the surrounding community or environment due to work activities and working environment conditions. NAPG has developed general procedures and individual projects may have to supplement them with site-specific procedures to best serve the needs of the project and Vale.

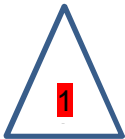
### 8.2 Safe Work Procedures

NAPG procedures are a set of documents that have been prepared to address what are considered as the critical activities for all NAPG managed projects. Contractors' Work Method Statements must meet these standards for all work within their scope. NAPG procedures are considered live documents and therefore subject to periodic review and updating. Each project must provide updates to contractors of any changes to the procedures. Contractors should be aware changes may occur and always seek the most current documentation. Procedures are typically reviewed either annually or more frequently depending on the risk related to the procedure.





Any proposed deviation from documented NAPG procedures must be assessed and approved through the Exemption process. See Section 6

### 8.3 Permits to Work



Project Management shall implement a work permit system for the Project work. These include, but are not limited to:

- Work Release Permit (NAPG-SPI-FRM-0002)
- Isolation, lock out / Tag out Permit (as per local requirements and NAPG-SPI-FRM-0009)
- Openings in Walls and Floor Gratings (NAPG-SAF-FRM-0006)
- Working at Height (NAPG-SAF-FRM-0004)
- Confined space entries (as per local requirements);

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- Hot Work Permits (NAPG-SAF-FRM-0003);
- Excavations and Breakthrough (NAPG-SAF-FRM-0005).
- Power Outage Permit (NAPG-SAF-FRM-0012)
- Rescue Plans (NAPG-SPI-FRM-0001)

A specific Permit to Work (PTW) will not be issued unless the following have been completed:

- Identification of the hazards;
- Isolations have been carried out and checklist completed;
- A JHA for the task has been completed by the work team involved in the task and any other special permits and their requirements have been carried out;
- All those involved in the task have been made aware of the hazards involved.



Every person on the job shall sign on to the PTW when commencing and sign off when the job is completed or suspended. PTWs shall be retained for the duration of the project and discarded after Lessons Learned has been completed. The PTW shall only be valid for the job and conditions specified. Project Management may be required to inform operations personnel about permits they are issuing.

Reference: Permit to Work;NAPG-SAF-SPI-0011, procedure.

#### 8.4 Personal Protection

All personnel on Vale sites, including visitors, shall use the following minimum PPE at all times except in PPE-free areas (designated walkways, offices, and some vehicles):

- Head, foot and eye protection as per NAPG PPE procedure; NAPG-SAF-SPI-0007
- Long trousers;
- Long-sleeved shirts;



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- High visibility vests, coveralls or Jacket – CSA Class 2, Cat 2 minimum or as required by local regulations (e.g. Ontario Reg. 854) in clean condition so that hi-vis features are not obscured;
- Respiratory protection as appropriate to the hazard with appropriate filters as required;
- Underground work will have specific PPE requirements including regulated standards for reflective striping for clothing and hard hats. Projects should check local requirements in addition to the NAPG PPE standard.
- Depending on the nature or location of work activities and the hazards involved the following may be required:
  - Personnel exposed to noise levels exceeding legislated levels for any period of time or when signs indicate hearing protection is required to wear approved hearing protection and double hearing protection where the area is so posted;
  - Other personal protection items specified by legislation, the scope of work or a project representative, such as: approved for task gloves, face shields, leather spats, 5 point or full-body harnesses, aprons or other items;
  - PPE recommended by manufacturers or suppliers of proprietary products or equipment must also be worn;
  - The NAPG PPE standard provides detailed requirements.

## 8.5 Work Site Access

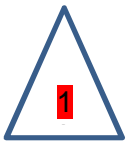
All work sites whether underground or on surface must be appropriately secured at all times to prevent entry by unauthorized persons. The use of “*construction islands*” where the constructor/prime contractor has control of all worksite activities is recommended where possible.

Where practical, signs and barricades shall be placed at all entrances to work sites advising all unauthorized personnel to report to the site office or barricade owner prior to entering the site. Appropriate sign-in/sign-out procedures must be employed at each work site.

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Before entering barricaded work sites or construction islands personnel shall be made aware of the hazards in the area and the control measures for managing the risk associated with the hazards.

Depending on the nature of the work (scope, hazards, level of risk, etc.), persons entering a barricaded work site may be required to be escorted during their time in the work site.



## 8.6 Housekeeping

Good housekeeping is the key to a safe and productive project and shall be maintained at all times. VALE reserves the right to maintain good housekeeping by cleaning up contractor areas as required and back charging for the service.

Contractors shall maintain the following areas clear of all materials and equipment:



- Stairways, access ways, and ladders, especially fire routes.
- Areas in proximity to emergency equipment, such as, fire extinguishers, hoses, eye wash & shower stations and emergency PPE.

Contractors shall clean-up work areas as work progresses and not wait until the end of the shift. All waste must be handles appropriately as follows:

- Provide suitable waste receptacles throughout the work areas.
- Segregate wastes, as required.
- Lower wastes and other materials using containers or install chutes to containers below. Do not throw wastes from elevations.
- Oily rags shall be disposed of in metal cans and not placed with other garbage.

When stripping forms or other materials with nails, the nails shall be bent or pulled by the workers stripping.

Contractors shall ensure materials are well secured especially at elevations to avoid movement during windy conditions.

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Hoses, cables and cords shall be placed in an orderly manner to avoid tripping hazards. Cables shall be protected from mechanical damage, where applicable. Hoses, cords and cables may be suspended above areas where they may be exposed to damage.

## 8.7 Hazardous Materials

The Contractor must provide the project with its policy for the use, transport, handling and storage of fuel and hazardous materials taking into account the legislative requirements (e.g. Transportation of Dangerous Goods, etc.) as well as providing copies of any SDS for review and acceptance prior to deployment on site.

The Contractor must ensure that the hazardous materials and waste products are disposed of in accordance with applicable laws and regulations and any procedures published by the project. A contractor intends to dispose of any material using Vale facilities written authorization must be obtained from Vale. Reference Waste Disposal procedure.



### 8.7.1 Equipment Fuelling

Bulk storage of fuels must be identified in contract documents. Refuelling of equipment must be considered in a PMRA. Mobile refuelling must be used unless the service is not available at the project location.



If mobile fuelling is not possible and bulk fuel tanks are required on site then the fuelling facility must meet the requirements listed below. Underground facilities may have additional or different requirements to be established by the project:

- All applicable regulated or code standards applicable in the project's jurisdiction.
- Double walled tanks that meet current design standards for mobile above-ground fuel tanks. The project manager may approve the use of containment dykes if they meet design standards and have a risk assessment demonstrating better control than double walled tanks.
- A supervisor designated to oversee the facility.
- Tanks and fuelling operations cannot be located:
  - Within a building or less than 4.5 m from a building opening;
  - Close to drainage systems, sumps, sewers or natural watercourses (less than 30 m)
  - Close to a property line (less than 3 m)
  - Close to a source of ignition (less than 3 m, e.g. hot work)
- Impact protection (bollards or concrete barriers).
- Appropriate labels;



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- An appropriate fire extinguisher and spill kit must be provided nearby,
- Operation and spill contingency procedures must be posted nearby.
- Only trained employees may fill the tank or dispense fuel. Contractors must maintain training records.
- Contractors must provide training that complies with local standards (e.g. LFHC/TSSA in Ontario).
- Inspection and maintenance program and records kept per local regulatory or code requirements.
- No storage of fuel on site during periods without fieldwork activity (e.g. evenings and weekends, holiday periods, stand downs, demobilizations etc.)

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**9.0 PROJECT SITE SECURITY AND ACCESS**

Security and site access to NAPG projects must be controlled and documented in a Site Access procedure so that only authorized persons are allowed on a project site and as a deterrent for undesirable activities. For brownfield projects existing Vale systems may be used to manage security and access. Fly in/out locations must consider if facilities are adequate for the workforce or visitors before scheduling the work or allowing access. For the larger project phases with a larger complement of contractors' employees, additional staff and access locations may be required. The Contractors' and subcontractors' personnel must have appropriate prerequisite training and site orientation before being allowed on site as described in Section 4.0 Learning and Competency.

The construction island concept may be adopted to control access to local work sites. Provisions for visitor access and safety must also be provided (sign in/out, escorts, PPE, etc.)

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## 10.0 PERFORMANCE MEASUREMENT AND REPORTING

### 10.1 Intent



Each project must establish appropriate leading and lagging indicators to measure and report on performance, and to analyse and identify trends. Results should be used to review, encourage and demonstrate continual improvement.

### 10.2 Health and Safety Performance Reporting

Contractors shall provide accurate on-site performance data for the time the contractor has personnel including subcontractors on site. Health and safety performance data shall be reported in the Project-approved format, as shown in the form for Weekly Corporate Safety Statistics Summary.

#### 10.2.1 Key Performance Indicators

	KPI	Leading Indicator	Lagging Indicator
Corrective Actions Closed Out by Due Date	X	X	
Fatalities	X		X
High Potential Incident Frequency Rate (HPIFR, based on 1 million hours)	X		
Leadership Interactive Discussions per 100 employees per week	X	X	
Lost Time Incidents (LTI)	X		X
Lost Time Injury Frequency Rate (LTIFR, based on 1 million hours)	X		X
Medical Aid Frequency	X		X
Medical Aid/Modified Duty	X		X
Significant Community Incidents (fatality or reputational risk)	X		
Significant Environmental Incidents (impact external to construction site boundary)	X		
Total Recordable Injury Frequency Rate (TRIFR, based on 1 million hours)	X		X
Environmental Occurrences			X
First Aid Cases		X	
High Potential Incidents			X
Unsafe condition Reports		X	
JHA's Completed		X	

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	KPI	Leading Indicator	Lagging Indicator
Orientations Completed		X	
PMRA's Completed		X	
Property Damage			X
Lost Time Injury Severity Rate			X
Toolbox Meetings		X	
Crew Task Lineup		X	
Worksite Inspections Completed (findings)		X	

The definition and calculation method of each KPI is listed in the Appendix A: Definitions.

### 10.3 Reporting

Formal Project Weekly and Monthly Health and Safety reports shall include the following:



- Significant issues and steps being taken to overcome them;
- Projects performance indicators: Lead/Lag indicators, associated actions taken and status of actions, in terms of completion.

Contractor Performance Summary forms shall be completed for each week and submitted to a designated H&S representative no later than the first workday of the following week.

Monthly Project Performance Summaries shall be completed and submitted to the project controls department no later than the last day of the month. To achieve this contractors must submit their reports 2 days before the end of the month with estimates for hours worked for the last 2 days. Within 3 working days of the following month contractors must finalize all reported incident data and hours worked for the previous month.

### 10.4 H&S Observation, Inspection, and Audit Plan

Project personnel must plan coordinated field level observation, inspection and formal audit activities during all phases of the Project. The minimum schedule and scope is presented in Table 10-1. The frequency may be increased as determined during Project risk assessment processes and individual contract risk assessments.

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#### 10.4.1 Site Based Inspection Processes

All NAPG projects shall carry out and document routine inspections and observations/interactions or walk through surveys to identify hazards in a rapidly changing workplace as indicated in Table 10-1 as a minimum,.

Inspections are generally conducted at two levels:

- Routine inspections, or walk through surveys, carried out regularly enough to identify hazards in a rapidly changing workplace (both informal and formal) but documented; and
- Focused inspections carried out when a specific problem is identified in a general inspection where further investigation, analysis is required, or a worker expresses a concern about a specific problem (formal and documented).



Both routine and focused inspections may lead to a full audit process at the discretion of the Construction Manager.

None of these site based visits relieves contractors or subcontractors from any of their regulatory obligations related to site inspections.

Results of all inspections will be made available to all employees via the scheduled Tool Box Meetings and supplemental postings/ distribution together with results of all remedial/ corrective action taken.

Inspections must be recorded in SAP-IM if it is available.

Continuity of the inspection program and regulatory inspections in particular must be maintained as projects transition from execution to operations/maintenance.

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#### 10.4.2 Weekly H&S Inspections

Weekly H&S Inspections shall be conducted for all areas of all sites. Project H&S field team members shall conduct a weekly H&S Inspection on CARS as well as 2 or 3 routine inspections per week each.

Each contractor supervisor shall conduct a weekly H&S inspection for their work group.

#### 10.4.3 Weekly Joint Supervisors' Inspections

Each Project shall complete planned weekly visits to worksites to carry out observations, interactive discussions and inspection of site condition typically referred to as the Supervisors' Inspection.



The inspection team will be comprised of a Contractor H&S Representative, a Project H&S Representative, a Contractor Construction Superintendent / Supervisor and a Project Construction Superintendent. Depending on the stage of construction on the Project there may be multiples of this group, in which case a schedule will be determined to identify the areas, time and members of the each of the visits.

Findings from the visit must be recorded, filed and distributed to the attendees and others such as the NAPG H&SE Advisor Safety.

Whenever practicable, the people conducting an inspection will address identified deficiencies during the course of the inspection. In all other cases the nominated Manager or Lead from the inspection team will ensure each outstanding deficiency has been assigned, corrective actions determined and completion dates set. At no time are unsafe conditions or actions to be allowed to remain or continue. This may require ceasing project/ contract field level work activities until an appropriate plan and control measures can be put in place.

#### 10.4.4 Construction Management Inspections

Construction Management Walkdown Inspection is comprised of senior members of the management teams associated with the Project. The visit is hosted by the Project Construction Manager and is open to other managers of the Project and Contractor

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organizations associated with the Project. Depending on the stage of construction on the Project there may be too many people available to visit one site, in which case the group will break into smaller groups and select specific areas to visit. Contractor Project Managers are encouraged to select alternate sites to their own so that H&S ideas and processes can be shared. After the site visit the group(s) will return to the Project office to share observations. Minutes will be recorded and distributed to the attendees. Managers are expected to implement identified and agreed to Opportunities for Improvement.



#### 10.4.5 Project Management Planned Inspections

Senior project management representatives shall conduct planned inspections of all Project and Contract sites at minimum on a semi-annual basis. The purpose is to demonstrate visible leadership on health and safety and management due diligence.

#### 10.4.6 Audit Requirements

Audits are formal processes that differ from inspections and observations. Audits are used to collect objective evidence and evaluating it objectively to determine the extent to which requirements are met. Audits should have the following characteristics:

- Systematically planned, e.g. risk-based criteria, schedule, etc. and executed, e.g. opening/closing meetings, interviews, records, observations.
- Independent: the auditor should not be involved in the process being audited. This helps maintain objectivity of the audit.
- Documented: including the audit plan, written protocols, schedule, and evidence collected, conclusions and report.
- Trained auditors: Skills required include collecting evidence objectively, sampling strategy, interviewing, evaluating conformance, writing up findings, etc.
- Audits provide an independent assessment of H&S activities as a means to accelerate continual improvement. Findings must be either strengths, opportunities for improvement or non-conformities. Findings should not be used to assess an individual worker's performance or start disciplinary actions.

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- Although non-conformities may be found only in the area being audited, corrective actions must be applied across all project areas and contractors.
- Evidence must be provided to demonstrate the corrective actions have been implemented and are effective for a finding to be closed out.

Audits will be conducted to assess the overall adherence to the H&S Plan and regulatory requirements (compliance audit) and also to assess the suitability, adequacy and effectiveness of the H&S Plan and activities to meet H&S objectives, management system standards and recognized best practices (management system audit).

#### 10.4.7 H&S Compliance Audits

The intent of project compliance audits is to assess adherence to



- the NAPG Policies, H&S Plan and its subordinate procedures, including applicable RAC requirements.
- Project and contractor H&S management systems requirements and site standards
- relevant regulatory requirements and industry codes of practice
- where applicable, the relevant manufacturer's instructions and operating requirements.

A risk-based approach should be used to set the scope (including elements and topics to be assessed) and schedule of compliance audits. For example, if excavations are an early activity in a project then an audit against excavation standards may be scheduled early in the project schedule and include the excavation contractor.

When planning a compliance audit the following should be considered:

- the previous record of the contractors involved
- the tasks being undertaken.



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- the historical record of incidents and injuries,
- the schedule of work should be reviewed in conjunction with the risk register to determine the high risk processes.

Contractor Health and Safety Advisors / representatives may be invited to participate in the audits as long as they are not auditing their own areas.



The audit team will provide the written formal audit report to the Project Director, Senior Construction Manager, and NAPG HSER Manager within ten days of the completion of the audit.

#### 10.4.8 External Management System Audit



External (3<sup>rd</sup> party—auditors independent of NAPG) audits to verify adherence to H&S objectives and management system standards are required at all work sites at least once in the first 12 months and then at least every two years. System audits shall include verifying conformity with the following requirements:

- NAPG policies and objectives
- NAPG and Vale Corporate Management Standards such as IMS;
- Any other suitable and applicable H&S best practices.

See Table 10-1 for timeline.

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<b>Table 10-1 H&amp;S Observation, Inspection, and Audit Frequency</b>					
Type of Activity	Daily	Weekly	Monthly	Quarterly	Yearly or Other (Timeline indicated)
<b>Interactive Discussion Checklist (s. 10.4.1)</b>	1 – per work package location				
<b>RAC Inspection (one section) (s. 10.4.2)</b>		1 – per work package area			
<b>Contractor Supervisors' Inspection (s.10.4.2)</b>		1- per Supervisor (all)			
<b>Project H&amp;S Inspection (s.10.4.2)</b>		2 - 3 inspections per week –per Project H&S field team member			
<b>Joint Field Level H&amp;S Inspection (10.4.3)</b>		1 –H&S and Construction Team			
<b>Construction Management Walkdown Inspection (s.10.4.4)</b>		1 -Project & Contractors team management			
<b>Joint Health and Safety/ Workers Trade Inspection</b>			1 –Project & Worker Reps. team		
<b>Project H&amp;S Compliance Audit Selected Sections (s.10.4.7)</b>			1 – 4 audit sections per month – H&S Advisor		
<b>H&amp;S Plan/ Procedures (Focus on RAC Standards) Formal Audit</b>				1 Audit Topic (Section) H&S Coord, Team, & Contractor(s)	
<b>Project Management Planned Inspection (s. 10.4.5)</b>					Biannual by senior project management reps.
<b>3<sup>rd</sup> Party Corporate External Audit (s. 10.4.8)</b>					Once in the first 12 months of the project & 1 additional audit every two years (or greater as required).

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## 11.0 DOCUMENT CONTROL

### 11.1 Documented Procedures

Documented procedures ensure compliance with regulatory requirements and to enable communication of the specific requirements to the Project personnel.

All H&S documents shall comply with the NAPG document control procedures.

Document reviews of NAPG H&S Plan and procedures shall be conducted at scheduled intervals to determine the system's continued suitability and effectiveness. The Project will review and adapt as necessary corporate strategies and updates or change to H&S programs or requirements.



### 11.2 Records

All H&S records must be managed and maintained to the requirements of the Project Quality Management Plan.

All Contractors are responsible for ensuring records are current, maintained, and readily available in accordance to the Project's Construction Standards, all Health & Safety Regulations, and the H&S Plan.

Project records will be maintained as a minimum for the following:

- Project induction training records;
- The Project's Joint Health and Safety Committee (JHSC) meeting;
- Project H&S committee coordination meeting;
- Minutes of all meetings with an H&S component;
- Weekly H&S meeting minutes;
- Toolbox meeting minutes;
- Crew Task Lineup
- Permits to Work
- H&S information issued;

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- Audit reports, findings and corrective actions
- JHAs;
- Incident reports;
- H&S issue resolution records;
- Remedial/corrective action register;
- Interactive Discussion cards;
- H&S monitoring results;
- Statutory reporting;
- Project monthly report;
- Training / competency records;
- Project HSE risk register;
- H&S alerts;
- Register High Risk Plant and Activities;
- Work method statement register;
- All lift studies ; and
- Copies of all visits by regulators, orders, and responses will be copied to local operations, if applicable, for inclusion in their records.

All Project records will be issued on the correct Project forms/templates and to the requirements of the Project Quality Management System.

## 12.0 INCIDENT MANAGEMENT

### 12.1 Intent

This section describes the process to identify report and analyse H&S incidents so that immediate and root causes are identified and appropriate corrective actions are developed, completed, logged and communicated.

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## 12.2 Incident Management

NAPG has implemented a procedure for management of incidents, including fatalities, injuries, near misses, unsafe condition, environmental and property damage for the execution phase of all projects. For detailed procedure and requirements, refer to Incident Reporting and Management;NAPG-SAF-SPI-0004.

All incidents must be reported and analyzed to help prevent similar incidents and in some cases to meet regulated reporting requirements.

## 12.3 Incident Reporting



Contractors shall report all incidents involving their personnel immediately to the NAPG Project H&S Team and subsequently investigate incidents to determine causes and implement corrective actions within two weeks in most cases.

All incidents must be reported immediately to the supervisor in charge. The supervisor must ensure first aid is provided for any injuries and then undertake an initial assessment of the incident, determine the potential / actual severity and determine whether the incident scene needs to be “frozen” (e.g. required for critical injuries as defined in the OHSA and Regulations in Ontario). The supervisor will then use the notification process in accordance with the Project incident management procedure to initiate communication and required actions to others. Injuries must be reported by attending a specific location determined by each project, e.g. the injured person would report at a Vale First Aid Station. All reportable injuries must be reported immediately to the Project H&S Lead and Project Manager.

NAPG Projects will use specific documentation(investigation tool kit) to record incidents, this documentation will be attached to a Vale incident record in the SAP Incident Management (SAP IM) system.

The Contractor shall undertake any mandatory reporting to the appropriate authorities in consultation with the project. Should the Contractor not do this, Project management will submit a report.

Further details can be found in Incident Reporting and Management.

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#### 12.4 Incident Investigation / Analysis

The Project H&S Team shall determine and communicate to the contractor and Vale the type of investigation and appoint investigator/s. The Project H&S Team and other NAPG managers have the right to designate a representative to participate in the investigation / analysis. The Project H&S Team will conduct an assessment of the actual and/or potential consequence of the event, near miss or unsafe condition to determine the type of investigation required.

Investigations / analysis must take place as soon as practicable (immediately if possible) after the incident has occurred. All incident investigations are to focus on identifying the root causes of the incident, in particular systemic weaknesses so that appropriate corrective actions and long term preventive measures can be identified and implemented.

It is expected that the analysis of an incident will be completed in a timely fashion – one to two days and implementation of corrective actions within two weeks. The Project H&S team must be informed of the status of the analysis and implementation on a daily basis.



#### 12.5 Incident and Investigation Reports Review

Any incident and the results of the subsequent investigation will be reviewed at the Weekly Project Management team meetings and then will be reviewed at the relevant Contractor Tool Box or weekly Health & Safety meeting. The Project H&S Team may inspect or audit implementation of the corrective actions to ensure they are completed.

#### 12.6 Injury Management

Contractors shall implement their own suitably qualified Return to Work process for the duration of their work on the Project. Workplace injury management including rehabilitation involves suitable duties, when practicable, to ensure the worker's earliest possible return to work, or if return to work is precluded, to maximize the worker's independent functioning.

Injury Management on the Project will meet the requirements of the Project Incident Reporting and Investigation guide – Injury Management and will include:

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- Prevention;
- Immediate Treatment;
- Early Intervention;
- Early Return to Work;
- Consultation.

Where any work related personal injuries resulting in any modified work or restricted work activities, the Project HSE Team and contractor’s management or designate shall ensure a process of injury and claims management is implemented. All employees who are injured or suffering from occupational illness are placed on a rehabilitation program for safe and effective return to work programming.

In addition, contractors shall submit a weekly report to the Project HSE Coordinator on the status of modified or restricted work activities for their staff. This report shall be forwarded to the NAPG HSER Manager, Construction Manager and Project Director. The Project Director with the support of the Project HSE Team will monitor trends in injuries and occupational illness through regular review of the incident records.



Any update to injured person’s injury severity shall be communicated to local reporting office specified by the project and the NAPG HSER Manager.

## 12.7 Critical Incident Stress Management

The Contractor must ensure that any person who is affected by a critical incident on the Project has available:

- Appropriate counselling services;
- Employee assistance program;
- Immediate notification and contact with their family or next of kin;
- Direct access to communications at all times (phones, etc.); and

Any applicable cultural aspects must be considered at all times and all information must be treated with the strictest confidentiality.

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## 12.8 Emergency Management



Each Project must establish and implement an emergency response process which either follows the existing process of the host operational site or follows an independent project process.

A Project Emergency Response must be documented that:

- Describes how the emergency response is initiated;
- Specifies command, control and communication arrangements;
- Identifies the roles and responsibilities of all personnel likely to be at the site of emergency or involved in the response;
- Includes a person nominated as the site Emergency Coordinator;
- Identify emergency equipment available and personnel trained in its use.

The Project is responsible for selecting Emergency Responder for each of the specific work areas. Emergency Responders can be Project personnel, long term contractor personnel who are physically fit and undergo Vale's Emergency Responder Training. Reference: Emergency Preparedness; NAPG-SAF-SPI-0002.



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### 13.0 OCCUPATIONAL HEALTH

#### 13.1 Manual Handling

Contractors will be provided manual handling information to all employees as part of the Project orientation and induction process. This information is intended to heighten the awareness and necessary steps to avoid ergonomic (Musculoskeletal Disorders--MSDs) type injuries. Mechanical lifting aids will be considered as the first option in moving any load. For detailed procedure and requirements, refer to Loading and Unloading Material;NAPG-SAF-SPI-0024..

#### 13.2 WHMIS Controlled Materials



All contractor and project personnel must follow local requirements to handle WHMIS controlled materials (Regulation 860 of the OHS in Ontario). All WHMIS controlled materials brought onto site must be accompanied with a current SDS. The SDSs must be submitted to Project HSE Advisor. The Project shall provide SDSs to Vale operations if applicable, e.g., the project is being executed on an operating site. In the event of a hazardous material exposure incident, injured/exposed personnel shall report to local First Aid. The Project H&S team and designated personnel must have access to Local SDS database system – (e.g. Dolphin).

For more details on the project SDS reference procedure; NAPG-OH-SPI-0001.

#### 13.3 Transportation of Dangerous Goods

Contractors shall ensure any workers that ship, transport or receive dangerous goods are appropriately trained and maintain up-to-date certification. Shipping wastes off-site may also require waste manifest training, e.g. Ontario projects.

If explosives are used, contractors must comply with all explosive regulations, including training. TDG training would be required to receive explosives on surface. Moving explosives underground may require supplemental training, e.g. MTCU 0006 in Ontario.

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### 13.4 Prohibited Products and Designated Substances

Vale prohibits the use of certain products that have been banned or removed from the market. These are listed in Annex 1 Black List (Ref. PGS-003038). Projects shall not design for the use of these products, specify equipment containing these products or use the products in construction. Selected Black List products that may be considered in a project or operational situation include:

- Polychlorinated Biphenyls (PCBs)—transformers, capacitors, ballasts
- Trichlorethane—solvent
- Tetraethyl lead / Tetramethyl lead—Gasoline additive and industrial applications
- Asbestos—insulation, gaskets, fire proofing, braking/clutch systems, fibre cement
- Chlorofluorocarbons (CFCs) / Hydrochlorfluorocarbons (HCFCs)—refrigerants, propellants and solvents as banned by regulations.

Ontario (O.Reg. 490/09) have identified 11 “designated substances” due to occupational exposure concerns. The use or exposure to these substances in the workplace triggers regulatory obligations for employers. The regulation prescribes the maximum amount of the designated substances that workers can be exposed to in a given time period and the ways to both control and assess the substances in the workplace. Other jurisdictions may have similar requirements. NAPG projects shall follow Ontario requirements unless local requirements are more stringent. In addition, construction activities should not create additional exposure for operations workers near work areas. Designated substances most likely to be encountered by NAPG projects, especially in demolition, include:

- Arsenic
- Asbestos
- Isocyanates

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- Lead
- Mercury
- Silica

### 13.5 Respiratory Protection



It is the contractor's responsibility to provide respiratory protection that is appropriate to the hazard and consistent with Vale and Project requirements including respirator fit tests. All specific respiratory protection must adhere to the local regulations. For detailed procedure and requirements, refer to Personal Protective Equipment procedure.

### 13.6 Noise

Noise exposure protection must be provided for all employees, Contractors and visitors. All personnel exposed to a noise hazard shall be advised and provided with the correct hearing protection and information on the exposure standards/times. All personnel shall adhere to the hearing protection requirements as posted. JHAs shall address noise minimization and exposure times/ time weighted averages (TWAE) and the need for single or double hearing protection. The control measures are to be discussed at line-up meetings. Ref. Hearing Conservation, NAPG-OH-SPI-0004.

Employers will have regulatory requirements to monitor noise level, protect workers accordingly, provide signs as required and to provide training to workers. (O.Reg. 381/15 for Ontario or equivalent in other jurisdictions) Contractors shall comply with all employer requirements.

All equipment identified as generating noise above the action level shall have proper signage posted. Wherever possible, noise reduction shall be achieved by control of noise at the equipment source. When control at source is not possible the Hierarchy of Controls shall be used to determine the most effective control measure. Contractors

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shall maintain current noise reports for all mobile and fixed equipment and make them available for review. Any noisy equipment may be rejected for use on site.



### 13.7 Fitness for Work

The ability of personnel employed on the Project to work safely and effectively is critical to their well-being and the well-being of others. The key issue of an individual's fitness for work and their ability to perform designated duties free of impairment of any kind rests with themselves and their employer. Impairment goes beyond illicit drugs and alcohol and includes prescription medications, fatigue, mental and physical health and other factors. See Section 8.6 for guidance on Vale's Alcohol and Drug program. Each project should establish Fitness for Work guidance based on local operational standards, if available, or NAPG standards.

Vale is an advocate for raising Mental health in the workplace. Mental health is a term that describes how we feel, perceive, think, communicate and understand within the context of our community. Mental health refers to either a level of cognitive or emotional well-being or an absence of a mental disorder. Mental Health also means the ability to enjoy life's activities while maintaining a level of balance in the face of life's ups and downs. Contractors shall participate in the Mental health Awareness week. NAPG recommends that contractors should train their supervision in Mental Health First Aid.

### 13.8 Fatigue Management

Fatigue is defined as an impaired physical and mental condition which arises from an individual's exposure to physical and mental exertion and inadequate or disturbed sleep. Contractors must conduct a risk analysis and determine a suitable schedule for personnel who work extended hours on various shifts. The schedule must address hours of work, rest periods and consecutive rest days to minimize fatigue as well as any regulatory requirements as a contributing factor to harm. For detailed procedure and requirements, refer to Fatigue Management Procedure, NAPG-SAF-SPI-0006.

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### 13.9 Personal Hygiene

For the majority of the construction work managing the risk of hazardous materials to employee personal health can be accomplished by ensuring proper hygiene practices are followed by all project personnel. Contractors shall provide education and at minimum, adequate wash facilities so workers can wash their hands and face.

Contractors shall provide appropriate coveralls to minimize potential contamination; these are to be laundered on a regular basis. Employees are to remove outer construction clothing (i.e.: coveralls, jackets, gloves, protective headwear, etc.) prior to entering lunchrooms or meeting room spaces. Ref: NAPG-OH-SPI-0003



### 13.10 Radiation Safety

Each project shall consult the local radiation safety officer if radiation sources may be used in project execution.

#### 13.10.1 Contractor General Requirements

Any contractors using radioactive sources shall submit the following information to the project HSER Manager for pre-approval:

- Scope of Work including location and schedule of work;
- A detailed PMRA and JHA risk assessment and mitigation plan for the work, to include a communication plan used to notify those in the surrounding parts of the project or plant;
- A list of types of sources to be used on site, including minimum safe working distances for the source being used. ;
- Copies of relevant licenses;
- List of authorized personnel/handlers of said materials, including,
  - Training/certification records for authorized personnel;
  - Contact personnel, including alternates, and their phone numbers;

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- SDS Information
- An emergency plan that includes:
  - Key components of the risk mitigation, referred to above;
  - Emergency number for government agencies and contractors contact information; and
  - Retrieval procedure for sources and damaged equipment.

#### 13.10.2 Barricades/Warnings

All areas where radiography is being performed shall be barricaded with rigid barriers per the NAPG Barricading Standard. In addition, signs shall be placed on the barricades no further than 3m (9.84 feet) intervals and at all access/egress points such as doors, stairs, etc. Unless accompanied by a radiographer, access into barricaded areas by unqualified personnel will be prohibited.



Whenever reasonable to do so, radiography shall be done outside normal work hours and/or preferably during break times. When it is necessary to do radiography during regular work hours, or when personnel are present in the work areas, the following shall apply:

- Personnel (spotters/guards) shall be posted at perimeter barricades to decrease the possibility of unauthorized personnel from entering.
- Portable red flashing lights shall be placed at perimeter in addition to signs in areas of poor visibility.

#### 13.10.3 Installation and Storage

Radioactive sources must be stored in accordance with Canadian Standards, and applicable local regulations. As a minimum, storage must be in a locked container that identifies:

- The presence of a radioactive source; and
- Authorized personnel only beyond this point.

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The licensed user shall remove from Vale property any temporary radiation equipment at the end of each shift.

### 13.11 Other Industrial Hygiene Elements

NAPG has issued the following industrial hygiene/occupational health procedures to guide projects:

- Heat stress management
- Working in Adverse Weather Conditions



**END OF DOCUMENT**

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## Appendix A

# DEFINITIONS





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## Definitions

The following terms are defined:



<b>Accountability &amp; Responsibility</b>	<p>Responsibility is the duty to self. Accountability is the duty to someone else. Accountability is the reporting part of responsibility“ It must not only be done” (responsibility) but “be seen to be done” (accountability) There is a responsibility to do the right thing, and being accountable means proving that one has done so to the interested parties .</p>
<b>ALARA</b>	As Low As Reasonably Achievable
<b>Audit</b>	<p>A systematic, independent and documented process for obtaining objective evidence and evaluating it objectively to determine the extent to which the audit criteria (i.e. requirements) are fulfilled. (ISO 19001 s.3.1)</p> <p>For NAPG, an assessment or review exercise would be considered an audit if the following are met:</p> <ul style="list-style-type: none"> <li>• The exercise is systematically planned, e.g. risk-based criteria, schedule, etc. and executed, e.g. opening/closing meetings, interviews, records, observations.</li> <li>• Independent: the auditor should not be involved in the process being audited. This helps maintain objectivity of the audit.</li> <li>• Documented: including the audit plan, schedule, evidence collected, conclusions and report.</li> <li>• Trained auditors: Skills required include collecting evidences objectively, sampling strategy, interviewing, evaluating conformance, writing up findings, etc.</li> </ul>
<b>Basic or Root Cause</b>	<p>The most basic cause (or causes) of an incident that can reasonably be identified that management has control to fix and, when fixed, will prevent (or significantly reduce the likelihood of) the incidents recurrence.</p>
<b>Behavioural Observation</b>	<p>See “Interactive Discussion”. A conversation conducted in the workplace to reinforce or correct H&amp;S behaviours. Also referred to as “Supervisor Behavioural Observation (SBO).</p>

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<b>Client</b>	Vale.
<b>Codes</b>	Rules and standards which have been adopted, by a Government agency or professional regulatory body, as mandatory regulations having the force and effect of law.
<b>Control Copy</b>	An official document that is issued a registered number and location.
<b>Construction Island</b>	A Construction Island is a physical area of responsibility that is under the care custody and control of the NAPG project and that is to be managed by a contractor on behalf of the project for the purpose of completing a scope of work activity by the contractor and or its subs. A permit will be issued to the contractor identifying the boundary and duration of the transfer. Construction islands shall be delineated by physical barriers on all sides as per the contract. These barriers typically include construction fencing, jersey barriers, existing walls, buildings and or natural structure (rock wall) and control all access to the "island".
<b>Constructor/Prime Contractor</b>	<p>The entity having control of a construction site as prescribed by legislation in various jurisdictions and subject to statutory obligations.</p> <p>The entity of "Constructor" only exists for a Construction Project. Depending on the structure of a project Vale or a contractor may be deemed to be the constructor.</p>
<b>Corrective Actions Closed</b>	The number of corrective actions completed.
<b>Critical Activity Requirement (RAC)</b>	A series of standards developed from an analysis of global Vale fatalities. The standards establish minimum expectations for procedural, plant and equipment requirements.
<b>Critical Incident</b>	Any situation faced by an individual that causes him or her to experience unusually strong emotional and/or physical reactions that can interfere with their ability to productively carry on with their everyday lives and which has a detrimental impact on the efficient productive operations of the project. A situation that could adversely affect the project or other areas of the company, i.e. public perception.
<b>Critical Part/ Item</b>	An item or component part of machinery, equipment, material, structure or area that is likely to result in a major loss to people, property, process and/or environment when worn, damaged, abused, misused or improperly

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	applied, etc.
<b>Critical Risk</b>	A risk (see risk) that has the potential, in slightly different circumstances, to cause a fatality. (fatality / injury is only one facet of risk – there is also Environment, Reputation, Occupational Health)
<b>Critical Task</b>	A specific element of work which historically has produced and/or which possesses the potential to produce major loss (people, property, process or environment) either during or as result of the task when not properly performed.
<b>Direct Report</b>	An employee (generally a subordinate) who reports directly to another (e.g. managers who report directly to the GM are the GM's direct reports).
<b>Disability</b>	Any injury or illness, temporary or permanent, which prevents a person from carrying on his or her usual activity.
<b>Document Control</b>	A system to manage the efficient flow and control of information supporting the safety system.
<b>Duration Rate</b>	The average number of workdays lost per lost-time injury over a specified period. Used as a measure of incident severity and an indicator of safety performance.
<b>Employer</b>	As defined in local Occupational Health and Safety statutes and having certain statutory obligations.
<b>Environmental Occurrences</b>	<p>Level 1 Minor Incident: No risk of contamination of sensitive areas. Cleanup using kit available on site.</p> <p>Level 2 Significant Incident: Risk of contamination of sensitive areas. Cleanup: using kit available on site or specialized external resources (excavation, pumping, etc.)</p> <p>Level 3 Major Incident: Contamination affecting sensitive areas. Cleanup: specialized external resources (excavation, pumping, etc.)</p>
<b>Fatality</b>	Work related incident resulting in death.
<b>First Aid Injury</b>	A minor injury requiring only first aid treatment, normally given by someone other than a physician. There is a list of treatments that are considered First Aid, no matter who provided them.

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	<p>Examples of First Aid Treatment Injury</p> <ul style="list-style-type: none"> <li>• Using a non-prescription medication at non-prescription strength (for medications available in both prescription and non-prescription form, a recommendation by a physician or other licensed health care professional to use a non-prescription medication at prescription strength is considered medical treatment for recordkeeping purposes);</li> <li>• Administering tetanus immunizations (other immunizations, such as Hepatitis B vaccine or rabies vaccine, are considered medical treatment);</li> <li>• Cleaning, flushing or soaking wounds on the surface of the skin;</li> <li>• Using wound coverings such as bandages, Band-Aids™, gauze pads, etc.; or using butterfly bandages or Steri-Strips™ (other wound closing devices such as sutures, staples, et cetera, are considered medical treatment);</li> <li>• Using hot or cold therapy;</li> <li>• Using any non-rigid means of support, such as elastic bandages, wraps, non-rigid back belts, etc. (devices with rigid stays or other systems designed to immobilize parts of the body are considered medical treatment for recordkeeping purposes);</li> <li>• Using temporary immobilization devices while transporting an accident victim (e.g., splints, slings, neck collars, back boards, et cetera);</li> <li>• Drilling of a fingernail or toenail to relieve pressure, or draining fluid from a blister;</li> <li>• Using eye patches;</li> <li>• Removing foreign bodies from the eye using only irrigation or a cotton swab;</li> <li>• Removing splinters or foreign material from areas other than the eye by irrigation, tweezers, cotton swabs or other simple means;</li> <li>• Using finger guards;</li> <li>• Using massages (physical therapy or chiropractic treatment are</li> </ul>
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	<p>considered medical treatment for recordkeeping purposes), or</p> <ul style="list-style-type: none"> <li>Drinking fluids for relief of heat stress.</li> </ul>
<b>FLHA</b>	Field Level Hazard Assessment.
<b>Hazard</b>	That which would prevent you from reaching your intended outcome. – Zero Harm. A hazard is usually identified as an energy source that when interacted with in an uncontrolled manner results in harm.
<b>High Potential Unsafe Condition</b>	An Unsafe condition (no actual incident has occurred) that has a high potential for a fatality or significant injury with disability and therefore does not conform to Vale RACs.
<b>High Potential Incident</b>	Any injury regardless of classification that has the potential to be a fatality or a Significant Injury with disability if the circumstances would have been slightly different. For example, a Lost Time incident due to a back soft tissue injury would only be counted as a Lost Time with low potential for a serious injury, whereas a First Aid incident involving a remotely operated machine striking a worker and imparting a small cut would be counted as a First Aid incident with high potential for a Fatality or Significant Injury.
<b>Housekeeping Inspection</b>	An inspection of the physical workplace that mainly looks at the general “order” of things e.g. way items are stored, whether or not emergency exits are blocked, presence of waste or rubbish, presence of slip or trip hazards etc.
<b>HSE</b>	Health, Safety & Environment
<b>HSEC</b>	Health, Safety, Environment & Community.
<b>HSMP</b>	Health & Safety Management Plan is a plan which details how a site health and safety program is to be practically implemented to achieve set goals and objectives. The plan will include details of actions, roles & responsibilities and time-frames for implementation.
<b>HSMS</b>	Health & Safety Management System, a composite of policies and procedures, the components of which interact in an organised way, that ensure given Health & Safety activities are carried out and to achieve specified outcomes. Includes essential elements such as scope, purpose or objectives, responsibilities, procedures, verification/measurement and feed-back.

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<b>Illness (occupational)</b>	A workplace harm classification which is caused by multiple incidents or exposures, or a single incident or exposure, if the gap before the onset of signs and symptoms was one shift or more. Any abnormal condition or disorder of a worker, other than one resulting from an occupational injury, caused by exposure to environmental factors associated with employment.
<b>Immediate Causes</b>	The circumstances which directly contribute to the occurrence of an incident. Frequently referred to as unsafe conditions, or substandard or unsafe acts/practices.
<b>Unsafe condition</b>	An “Unsafe condition” is any uncontrolled hazard, procedural non-conformance, or other behaviour where no incident occurred, (no exchange of energy) but there was a potential to cause injury with disability or fatality, or significant environmental or community impact, if the circumstances had been slightly different.
<b>Incident</b>	An unplanned event that results or has the potential to result in personal injury or harm, damage to property, production losses, environmental damage or other unplanned loss or harm.
<b>Incident Analysis / Investigation</b>	A systematic search and inquiry for factual information on the extent and nature of a specific loss, the related events, the substandard practices and conditions which influenced the events, the basic causes and the management action to prevent or control future occurrences.
<b>Incident Report</b>	A written summary describing the incident, presenting an analysis of causes and suggestions for remedial action, and documenting actions taken as preventative or control measures.
<b>Induction</b>	Induction is the introduction given new employees (or transferees) to make them aware of the job hazards and proper procedures for working effectively and free of harm.
<b>Injury (occupational)</b>	The case is caused by a single incident or exposure, and the time gap between the incident or exposure and the onset of signs and symptoms was less than one shift. Any injury that results from a work incident or from an exposure involving a single incident in the work environment.
<b>Interactive Discussion</b>	A conversation conducted in the workplace to reinforce or correct H&S behaviors. The intent of the conversation is to convey that “We Care” and promote the development of a desired H&S Culture.
<b>Job Hazard</b>	Often called “JEA” or Critical Task Analysis or Job Hazard Analysis (JHA).



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<b>Analysis/Job Environmental Analysis</b>	A systematic analysis of the steps involved in doing a task, the hazards or loss exposures involved and the controls necessary to prevent loss or harm. It is an integral to the development of Safe Work Procedures (SWPs).
<b>Lineup</b>	Process to ensure all project personnel are made aware of workplace related hazards and events before they begin working at any location(s) associated with the project contract.
<b>KBIs</b>	Key Behavioural Indicators, or specific behaviours expected of project personnel, i.e. being involved in specific health & safety activities and demonstrating safe behaviours to others
<b>KPIs</b>	Key Performance Indicators, or specific targets or measures of performance outcomes such as incident frequency and severity rates, audit scores etc.
<b>Lost Time Injury (LTI)</b>	Any occupational (work related) injury, which the employee is not able to return to his/her normal work for his/her next shift (does not include time traveling off site for injury diagnosis).
<b>Lost Time Injury Frequency Rate (LTIFR)</b>	<p>A Lost Time Injury (LTI) is a work-related injury or illness resulting in the employee being unable to attend work on the next calendar day after the day of the injury. If a suitably qualified medical professional advises that the injured person is unable to attend work on the next calendar day after the injury, regardless of the injured person's next shift, a lost time injury is deemed to have occurred.</p> <p>LTIF (OSHA) = <math>\frac{\# \text{ of LTI} \times 200,000 \text{ hrs.}}{\text{Total Hrs. worked}}</math></p> <p>LTIF (NAOSH) = <math>\frac{\# \text{ of LTI} \times 1,000,000}{\text{Total Hrs. worked}}</math></p>
<b>Material Safety Data Sheet (MSDS)</b>	See: "Safety Data Sheet". MSDS have been replaced by SDS as part of transition to Global Harmonization System.
<b>Medical Aid Frequency</b>	<p>= <math>\frac{\# \text{ of Medical Aid injuries} \times 200,000}{\text{Total Hours Worked}}</math></p> <p>= <math>\# \text{ of Medical Aid Injuries} \times 1,000,000</math></p>



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	Total Hours Worked
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<b>Medical Aid Injury</b>	<p>Medical Treatment Guidance Document</p> <p>Examples of Medical Treatment Injury (MTI):</p> <ul style="list-style-type: none"> <li>• suturing of any wound,</li> <li>• treatment of fractures,</li> <li>• treatment of bruises by drainage of blood,</li> <li>• treatment of second and third degree burns.</li> </ul> <p>Medical Treatment Injuries do not include:</p> <ul style="list-style-type: none"> <li>• First Aid Injuries (FAIs);</li> <li>• Visits to physicians or other licensed health care professionals solely for therapy as a preventative measure (e.g. physiotherapy or massage as preventative therapy, tetanus or flu shots);</li> <li>• Visit(s) to a health care provider for the sole purpose of observation, and</li> <li>• Diagnostic procedures (x-rays, cardiogram, electrocardiogram, etc.), including the use of prescription medications solely for diagnostic purposes.</li> </ul>
<b>Near Miss</b>	Any unplanned event (energy released) that did not result in an injury or property damage >\$1000.
<b>NEC</b>	National Electrical Code.
<b>NFPA</b>	National Fire Protection Association.
<b>Occupation</b>	A position title covering all work activities that a person performs while holding that title. Examples: electrician, engineer, and designer.
<b>OSHA</b>	Occupational Safety and Health Act - Ontario  Occupational Safety and Health Administration - USA
<b>OSHE</b>	Occupational Safety , Health & Environment.

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<b>Outcome</b>	Those objectives/measures/indicators/targets etc. that focus on incident “outcomes” or the results of injury or health-related incidents (often termed “reactive”) such as injury or occupational illness (e.g. lost-time injury frequency, severity rate, duration rate etc.).
<b>Permanent Disabling Injury</b>	A work injury which results in permanent disability to the injured employee with little or no likelihood of return to work (e.g. quadriplegic, paraplegic, loss of limb, severe head injury etc.).
<b>Planned General Inspection</b>	A general inspection of the overall workplace that is planned in advance and requires adequate time to accomplish properly. Planned inspections are usually done at an established frequency and by properly trained operating personnel, using a specific checklist.
<b>Pre Mobilization Risk Assessment (PMRA)</b>	Contractor prepared document outlining high consequence events and controls. Presented to operations to determine any interface and site specific conditions and risk. The document is considered live and reviewed every 8 weeks or sooner if required. The document shall be used by the contractor and referenced to create JHA’s by the contractors. AER H&S and construction team shall verify PMRA controls are within the JHA’s for associated risks.
<b>Policy</b>	A statement which guides administration, reflects management’s attitudes and commitment to health and safety, and defines the authority and respective relationships required to accomplish the organisation’s objectives.
<b>Position Description</b>	A written statement describing the activities involved with a particular job or occupation e.g. purpose, major responsibilities, key result areas, accountabilities and functions.
<b>PPE</b>	“Personal Protective Equipment” or equipment used by an individual to minimise exposure and hence reduce the likelihood and severity of injury or harm to health. Generally considered as a last means of control after other (e.g. elimination, substitution, engineering, administrative) measures taken or used in conjunction with such measures.
<b>Preventive</b>	Those objectives/measures/indicators/targets etc. that focus on “processes” or systems to prevent injury or health-related incidents or (often termed “pro-active”) such as the development/ implementation of health and safety management systems (e.g. inspection, communication, incident investigation, training & competency assessment, auditing systems etc.).



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<b>Procedure</b>	An established and defined method of performing specified work in a step-by-step or sequential manner. There are generally “management procedures” that describe systematic management processes and “work procedures” that describe the various steps required to safely undertake a particular task.
<b>Property Damage</b>	An incident resulting in damage to equipment or materials with a specific and measurable cost impact over \$1000.
<b>Restricted Work Injuries (RWI)</b>	Any work related injury or illness where a physician or other licensed health care professional recommends that the employee not perform one or more of the routine functions of his or her job, or not work the full scheduled workday. Restricted work injuries are all injuries that prevent an employee or contractor from performing their routine functions.
<b>Risk</b>	<p>The combination of Likelihood and consequence of something happening that will have an impact on objectives.</p> <p>Note: A risk is often specified in terms of the likelihood (exposure &amp; probability) of an event or circumstance and the consequences that may flow from it.</p>
<b>Risk Assessment</b>	A systematic process of analysing hazards, tasks, workplace conditions, processes or equipment in terms of Likelihood and Consequence. Can be a formal team-based exercise using a formal tool or informal by individuals. Provides the information for prioritizing attention, identifying fatality potential and is integral to a risk management plan.
<b>Risk Management</b>	<p>Risk management is a systematic method of establishing the context, identifying, analyzing, evaluating, treating, monitoring and communicating risks associated with any activity, function or process in a way that will enable organizations to minimize losses and maximize opportunities.</p> <p>Risk Management is firstly, the act of reducing the Likelihood or Consequence or both to reduce overall risk to a level that is as low as reasonably achievable – deemed the acceptable level. Secondly, risk management is about maintaining the risk at the acceptable level through the continual checking and verification the controls that were put in place to reduce likelihood and/or consequence are still effective. Risk management not only contributes to positive health and safety outcomes but also helps to improve productivity, quality, cost control, etc. by identifying problems and correcting them before they occur.</p>



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<b>Risk Management Plan</b>	A systematic plan to identify hazards, assess the associated risk based on likelihood & consequence and implement a control or controls to manage the risk.
<b>Safety Data Sheet (SDS)</b>	<p>In relation to a hazardous substance, means a document that;</p> <ul style="list-style-type: none"> <li>• Describes the identify, chemical and physical properties of the substance;</li> <li>• Provides information on the health hazards associated with the use and handling of the substance; and</li> <li>• Provides information on precautions for the safe use and handling of the substance.</li> </ul>
<b>Senior Management</b>	The Director and Manager levels of the Project
<b>Severity Rate</b>	The number of lost work days (from lost-time injury incidents) per million man-hours worked. Used as a performance indicator.
<b>Significant Community Incident</b>	Incident Fatality or reputational risk.
<b>Significant Environmental Incident</b>	Impact external to Vale site boundary.
<b>Significant Risk</b>	Those risks that have been assessed as being “extreme” or “high” using a process which is based on the Project’s risk ranking matrix

<b>Standard</b>	The defined criterion for effective health and safety performance or accepted behaviours. Health and safety performance standards define who is accountable for performing what work and at what frequency or when.
<b>StepBack 20-20-20</b>	A personnel risk assessment tool to be utilized for daily activities by each worker. Also known as a Field Level Hazard Assessment (FLHA)
<b>Sub-standard Acts</b>	Those act or behaviours of individuals that do not meet established standards. They are frequently referred to as “unsafe acts”.
<b>Sub-standard</b>	Those physical conditions observed in the workplace that do not meet established standards. They are frequently referred to as “unsafe



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<b>Conditions</b>	conditions”.
<b>Supervisor</b>	Is defined in the local Occupational Health and Safety Statutes
<b>System</b>	An established way of carrying out an activity or series of activities. This includes the identification, training and development of individuals responsible for the activity; a clear definition of the activity and how to do it; and a mechanism to ensure that the activity is performed as expected.
<b>Task</b>	A specific work assignment within an occupation consisting of a definite sequence of steps.
<b>Task Analysis</b>	A systematic analysis of the steps involved in doing a task. It is a prerequisite to the development of a JEA, JHA and Standard Work Procedures.
<b>Task Instruction</b>	A formal process for assigning tasks to employees. Usually done at the start of the shift and includes the issuing of written instructions. Should form part of the shift planning process.
<b>Task Observation</b>	A systematic analysis of the steps involved in doing a task at the workplace. It involves observing employees undertake a task and analysing the work to determine compliance with the SWP. Action is then taken if deviations are observed.
<b>Total Recordable Injury Frequency (TRIF)</b>	<p>Total Recordable Injury (TRI) = Number of (Fatalities + Lost Time Injuries + Restricted Work Injuries + Medical Treatment Injuries)</p> <p>TRIF (OSHA) = <math>\frac{\# \text{ of TRI} \times 200,000 \text{ hrs.}}{\text{Total Hrs. worked}}</math></p> <p>TRIF (NAOSH) = <math>\frac{\# \text{ of TRI} \times 1,000,000 \text{ hrs.}}{\text{Total Hrs. worked}}</math></p>
<b>US/CSA</b>	USA and Canadian Standards Association.
<b>Work Method Statement (WMS)</b>	A Work Method Statement or a step-by-step or sequential description of how to proceed in performing a task properly (efficiently - safely-productively).
<b>Work Practice</b>	A set of guidelines for performing a specific work assignment properly (efficiently - safely - productively).

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## Appendix B

### NAPG HSE POLICY

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