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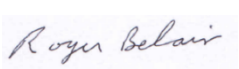
Sustainability Governance System


Guidance Note GN30

Hoisting and Shaft Management

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Contents

1.	INTRODUCTION	4-5
	1.1 Who is this Guidance Note aimed at?	4
	1.2 What is the aim of this Guidance Note?	4
	1.3 What issues does this Guidance Note address?	4
	1.4 How should this Guidance Note be used?	4-5
2.	OVERALL MANAGEMENT APPROACH	5-7
	2.1 Risk register	6
	2.2 Training	6
	2.3 External review	6
	2.4 Competent persons	6-7
3.	SHAFT USE, DESIGN, MAINTENANCE AND INSPECTION	7-
	3.1 Shaft use	7-8
	3.2 Shaft design	8-10
	3.3 Shaft maintenance and inspection	10-13
4.	SAFE OPERATING PROCEDURES (SOP)	13-14
	4.1 Definition of a SOP	13
	4.2 Selection process for SOPs	13
	4.3 SOP Structure	14
	4.4 Management of SOP	14
	4.5 List of SOP's	14
5.	SAFETY SYSTEMS	15-18
6.	TRAINING AND COMPETENCY	18-
	6.1 Train all personnel on safety and SOPs	18
	6.2 Assess their competency	19
	6.3 Retraining	19
	6.4 Internal and external training	19
	6.5 External audits	19
7.	MONITORING AND REVIEW	19-20

1. INTRODUCTION

1.1 Who is this Guidance Note aimed at?

This Guidance Note is aimed at all Vedanta subsidiaries, operations and managed sites with underground mining operations and other business where underground or excavations works may be undertaken, including new acquisitions, and to new and existing employees and contractor employees. This Guidance Note is applicable to the entire operation lifecycle (including exploration and planning, evaluation, operation and closure).

1.2 What is the aim of this Guidance Note?

The aim of this Guidance Note is to outline the company requirements which Vedanta implements in order to ensure that all risks associated with mining operations are eliminated or minimised within an acceptable level.

1.3 What issues does this Guidance Note address?

This Guidance Note presents the framework for the management of hoisting and shaft management required to avoid untoward incidents within Vedanta operations. The focus of the Guidance Note is on the provision of preferred methods and outcomes rather than being prescriptive whilst at the same time representing a practical “how to” guide for all Vedanta operators.

It is however recognised that the different operations are at different levels of “maturity” with regards to the development of systems to manage the risk associated with hoisting and shaft management emergencies underground. With this in mind, the Guidance Note includes two approaches:

- *Prescriptive Approach.* This establishes specific requirements that are deemed mandatory and are indicated by the term ‘**shall**.’
- *Risk Based Approach.* This is less prescriptive and is driven from the site, acknowledging its specific geology, mining methods, equipment, infrastructure and the competency of its personnel.

In reviewing this Guidance Note, the site needs to decide which approach to adopt using competent advisors. Some sites will already have mature systems in place, and it is recommended that a combination of competent internal and external reviewers determines the level at which the site is currently operating. Where a site is deemed mature with competent resources, a risk-based approach is acceptable. Where a site is immature and/or has limited competent resources, the prescriptive approach is to be adopted and Group will require assurance such measures are being implemented.

Those requirements that are associated with ‘**shall**’ statement are mandatory irrespective of site maturity.

1.4 How should this Guidance Note be used?

This Guidance Note is mandatory (as per instructions in Section 1.3 above) and is intended to provide a standard baseline and reflect good practice whilst providing the basis for continual improvement of sustainability issues across the Vedanta business. The need for flexibility at a site is depending upon specific circumstances or regulatory specific requirements is also recognised. This Guidance Note is not designed to be definitive text, nor is it designed to provide prescriptive methods and procedures for undertaking tasks.

In most cases there will also be national and/or local regulatory requirements which address hoisting and shaft management and sites must ensure that these requirements are identified and complied with.

The guidance has been designed to be applicable for all Vedanta operations. Some references are specific to hoisting and shaft management.

The successful implementation of this Guidance Note is expected to require several years of dedicated commitment from all the Vedanta mining sites depending on their existing maturity and controls.

The following provides guidance on how this may be achieved. This is not a mandatory approach, but an equivalent implementation programme must be designed where the guidance is not followed:

- Hoisting and shaft management is the responsibility of the Mine Manager who will drive the implementation protocols and is supported by a top line manager with authority to approve new requirements and who will be accountable for successful implementation of the mine plan.
- Hoisting and shaft management is an important part of the mine plan as poor implementation of the mine plan has the potential to have an adverse effect on the controls associated with the hoist and shaft management and similarly if there are poor practices around hoist and shaft management, there may be an adverse effect on safety and production. Therefore, Hoisting and Shaft Management practices, including the hoisting capacity, maintenance and inspection regimes need to be considered within the development of the mine plan.

The remainder of this Guidance Note is structured as follows:

- Section 2 – Overall Management Approach
- Section 3 – Shaft Use, Design Maintenance Inspection
- Section 4 – Safe Operating Procedures
- Section 5 – Safety Systems
- Section 6 – Training and Competency
- Section 7 – Monitoring & Review

2. OVERALL MANAGEMENT APPROACH

The management of hoists and shafts is a critical aspect of the mine management approach to safety, as mining operations are dependent on shafts for ore/waste transportation, manriding, materials transport and ventilation. Any failure of the shaft or hoisting system can have serious effects on the safety of personnel, production and cost. The shaft and hoisting system require a significant inspection process, and this must be to the highest standard.

Hoisting and shaft management must be managed through control processes, education and training of employees and fit for purpose equipment and technology. This should include:

- Design by ‘competent’ persons
- The mine will have the following positions or similar in place
 - Conveyance Inspector (in place or available)
 - Structural Designer (in place or available)
 - Shaft/Conveyance Engineer (appointed position)
 - Mechanical Supervisor
- Fit for purpose structures and equipment with a peer reviewed Engineering Design
- A risk assessment process which identifies all of the potential risks and implements appropriate control systems
- Appropriate standards, procedures and systems
- Training and authorisation of persons whose work involves operating, maintenance and inspections of hoisting and shaft management systems.
- Regular review of all systems associated with hoisting and shaft management

2.1. Risk Register

A Risk Register shall be set up to identify all risks associated with hoist and shaft management activities, evaluate the likelihood and severity of each risk and determine a control or set of controls to ensure that the risk is removed or minimised.

2.2. Training

An appropriate training programme shall be in place for all mine workers, with specific training for each task that has been outlined within a SOP. Training can be either field based, classroom based or a combination of both. Training shall be carried out by qualified trainers, either internal or external and all training shall be recorded. In some cases, training certificates shall be either presented to the recipient or placed on their file.

2.3. External review

The activities associated with hoist and shaft management shall be reviewed by an external person or group at least once per year to evaluate the level of compliance with the Guidance and Standard. This can be carried out by either an external consultancy group or by a peer review group from within the business entity.

2.4. Competent persons

Competency is a very important element in mining as people are often working alone in potentially hazardous situations. It is therefore very important that 'competent persons' are appointed to key roles.

A Competent Person is somebody that has both the ability and knowledge to recognize a hazard and the authority to correct it.

An Authorized Person is a person assigned by mine management to perform a specific type of duty or duties or to be at a specific location or locations in the mine, who is trained and has demonstrated the ability to perform such duty or duties safely and effectively.

While many people are authorised to carry out a specific task, others may not be authorised to correct a problem when they observe one. Many will report a problem to their supervisor, who shall have the authority to correct it or report it to senior management. However, in some cases a supervisor may not be competent in the specific role to be able to make the correct adjustment, implement a change or stop a process.

It is therefore very important that mine management distinguishes between competent persons and authorised persons to ensure that there are sufficient numbers of both in key positions relating to Hoisting and Shaft Management.

Key persons working in areas directly associated with hoisting and shaft management shall be specifically trained on emergency procedures, so that any breaches in the operation or integrity of the hoist or shaft systems can be managed and alerted in a timely manner.

3. SHAFTS USE, DESIGN, MAINTENANCE AND INSPECTION

3.1. Shaft Use

There are several uses for shafts, which are discussed below.

Ore & Waste transportation

Shafts are used for hoisting of rock (ore and waste) from the mine. Shafts require winder equipment which is normally located in a winder house adjacent to the shaft. Electrical equipment will be located in the winder house and the shaft house.

Hoisting of rock is normally carried out at fixed times during each shift and at these times, the shaft cannot be used for manriding and materials movement.

During rock hoisting, access to the shaft will be prohibited and a system shall be in place to prohibit access.

Manriding

Manriding is carried out in specified cages within the system with controls in place for access and movement of the cage. Only authorised persons can use the signalling system which is used for communication between the cage operator and the hoist operator.

Each cage shall have clearly indicated permitted numbers of persons allowed to travel in the cage.

Materials transportation

Materials are transported by various means using the shaft system. In some cases, materials are transported in the man cage and in other cases larger equipment is transported using a slinging system.

Materials and manriding shall not be carried out at the same time.

A risk assessment should be carried out for all materials being transported outside of the cage and only authorised persons are permitted to carry out such tasks.

Ventilation

Shafts are used for ventilation purposes, with either clean air delivered to the mine or return air being extracted from the mine. Appropriate controls must be in place to control airflow and air quality for return air.

Water reticulation

Shafts are used for the reticulation of water with pipelines connecting lines between different levels and to surface.

Electricity Supply

Shafts are used for the supply of electricity to the underground workings of the mine through a wide variety of suspended electric cable in the shaft.

3.2. Shaft Design

Shaft design including any modifications of shaft infrastructure must be carried out by competent persons.

The safe design of winding systems plays a critical role in eliminating hazards and risks before the winding system is introduced to the mine. Safe design applies to every phase in the winding system life cycle from conception to disposal. This means the hazards listed in this code should be considered and design solutions provided.

In designing the mine winding systems, consideration should be given to:

- The purpose of the winding system and intended use and life (as specified by the OEM)
- The functional specification provided by the mine operator
- Required winding system operations, inspections, tests and maintenance
- Required shaft inspections, tests and maintenance
- Relevant technical standards
- Design risk assessments including:

- Direct input from the mine manager to ensure any site-specific requirements are fully considered
- Winding system site specific risk assessments
- Design operational risk assessments
- Reasonably foreseeable misuse, including the use of the plant in a way not intended by the designer, but which can result from readily predictable human behaviour.
- Ensuring all design issues are adequately addressed, including the following:
 - Ropes, sheaves, attachments, sheaves, drivelines, foundations, conveyances, skips,
 - Use of slope winding systems with people and materials
 - Brakes, callipers and posts (their components and performance)
 - Safety devices
 - Hydraulic design
 - Control system
 - Application loads, power, winder drum, shaft, sheave, gearbox, couplings, foundations, drift rails and guides
 - Guide roller assembly
 - Suspension
 - Inspection of structures, foundations, winder house, headframe, landings, stages, sump
 - Safety devices
 - Rails and rail maintenance issues (for drift winding systems)
 - Relevant safety control devices are considered, with appropriate functional integrity.
- Brake control system
 - Brake wear indication
 - Faulty or stuck valve indication
 - Low hydraulic oil level
 - Low system pressure
 - High temperature alarms including fire alarms
 - Low level drum pit flood alarm
- The Mine Manager shall ensure that suitable permanent, fixed installation lighting is provided at each of the following locations in the shaft:
 - Main shaft platforms,
 - Active shaft landings
 - Loading boxes
 - Stations

The winding system design must be independently verified by a competent person (who was not involved in the production of the design) that the design was produced in accordance with the published technical design standards as specified by the designer.

All workings should have two exit routes, such that an incident will not close off access, with particular attention given to the shaft bottom.

Shaft design shall include specialist studies such as geotechnical and hydrogeology, where appropriate. Shaft design should take into consideration the following:

- Setting the winding limits
- Removal of spillage
- Slinging operations

- Lifting Equipment
- Rope change strategy
- Conveyance changing strategy
- Fires and explosion strategy
- Flood prevention and management
- Emergency response plan
- Other relevant procedures

Based on the construction of the shaft, a SOP shall be developed for each of these strategies, activities or procedures. Any changes to a shaft, irrespective of the magnitude of the change or age of the shaft shall result in every single one of the SOP's as well as the detailed shaft drawings to be updated.

3.3. Shaft Maintenance and Inspection

The inspection system should include but not be limited to the following:

- Regular inspection and non-destructive testing (NDT) of ropes and attachments according to an approved schedule
- Regular inspection and NDT of winder components
- Regular inspection of shaft headgear and shaft bottom to ensure conveyance arresting and detaching mechanisms, infrastructure, and conveyance fittings and accessories operate as required and as legislated
- Regular inspection and maintenance of shaft systems to prevent dislodged objects from falling into the shaft, e.g. services and steelwork
- Regular inspection and NDT of the sheave condition as well as the wear of the "V"
- Regular pipe column thickness measurements.

The following equipment should be inspected daily, for shafts used for manriding and hoisting of rock:

- Ropes e.g. winding ropes, tail or balance ropes or chains
- Connections or attachments to the winder drum, conveyance or trailer
- Safety devices e.g. safety detaching hooks
- Sheave wheels
- Braking systems
- Depth indicators
- External components of the winding equipment and any other safety devices
- Testing of winding plant safety 'trips and limits'
- Safety circuits
- Identify and remove any loose spillage or debris that may be lodged on the conveyance

The management of winding rope maintenance should include the following:

- Ropes should be supplied in accordance with applicable legal requirements
- The condition, assessment and testing of winder ropes should be carried out at least monthly in accordance with relevant local legislation
- Rope cutting for frontends and backends and turning of the rope end for end require particular attention and should be done on an approved schedule
- Spare ropes should be kept for each different rope size and stored in a suitable facility to avoid accidental damage or deterioration by the elements.

- Headgear sheave wheels – the condition and correct operation of sheave wheels should be monitored by inspection. Examination should include, but not be limited to, the following at intervals determined by the risk assessment
- Sheave wheel vibration or wobble
- Rope impulses while the winder is in operation
- Sheave wheels, shrink rings, naves, bearings, pedestals and support steelwork for cracks or other damage – sheave wheels, shafts and bearings shall be examined in accordance with appropriate standards
- Excessive heat at the bearings or leakage of lubricant.

Shaft conveyance inspections and replacement should include, but not be limited to, the following:

- Shaft examination and inspections should be performed weekly
- Conveyance rigging-up procedure and safety standards to be implemented
- Inspection for adequate clearance between conveyance and landing
- Inspection and testing of signalling and communication systems
- Testing and recording of signalling systems interlocked with winder brakes (brakes cannot release if locked)
- Inspection of shaft barrel walls e.g. fissures and movement detection, cracked, deteriorated, damaged
- Inspection and cleaning of any water rings in shaft
- Inspection of shaft steelwork and station steelwork for damage, excessive corrosion and loose or missing fasteners
- Inspection of guide alignment and clearances
- Inspection and testing station gate interlocks with winder
- Warning notice indicating the maximum number of persons permitted to be loaded into the conveyances shall be clearly posted at each bank station or landing
- Warning notice indicating the maximum mass of materials / equipment permitted to be loaded inside or underslung from the conveyance
- All safety devices to be inter-locked with the winder
- Testing of shaft bottom water level alarms and measurements. Inspection and testing of dewatering pumps for automatic and correct operation
- Inspection for, and removal of, loose material or dislodged objects to prevent them falling into the shaft (e.g. services, steelwork, shaft sidewall, lining, rocks)
- Condition inspection of services as:
 1. Water columns; ensure that no excessive movement is evident at the couplings and wall brackets
 2. Air columns
 3. Pipe supports and anchors
 4. Pipe thickness measurements
 5. Penthouse condition, free from damage, debris and corrosion
 6. Aprons, landings and rail mats in good condition
 7. Station screens, brattices and inter-compartmental screens in place and in good condition
 8. Gates must not open into the shaft
 9. Station stopping device interlock with station gates, cage in position and locked bell system. Maintenance procedures for winder brakes, clutches and interlocks should be implemented
 10. Winder brakes should be tested regularly for adequate operation and strength and holding strength
 11. NDT of winder brake mechanicals should be performed at least every six months

12. Clutching and interlocks, where fitted, to be tested
13. Proper records should be kept. Maintenance procedures for conveyance attachments should be implemented
14. Rope attachments should be tested regularly for adequate operation and strength
15. Rope attachments to conveyances should be of the kind that will detach automatically in case of an overwind (humble hook type) and all cages and skips should be fitted with spring loaded catches to at will prevent these conveyances to drop down the shaft once the rope is released (jack catches)
16. NDT of rope attachments should be performed at least every six months
17. Proper records should be kept.
18. No winding operation should be carried out while persons are engaged in inspection or repair within the shaft area.

A daily, and monthly inspection regime shall be put in place. The inspection items shall be identified by each mine based on the type of equipment in use and the inspection regime shall be approved by the Shaft Engineer or equivalent.

A three-monthly Conveyance Inspection shall be carried out by a Conveyance Inspector, to include to include the following:

- Provide an independent assessment of the condition of the conveyance
- Perform slipper plate thickness measurements
- Measure corrosion or wear losses on critical load-bearing components
- Check that all recommendations made in any previous Major Conveyance Inspection Reports are implemented satisfactorily.

A Major Conveyance Inspection shall be carried out by a Conveyance Inspector (to include an NDT Inspector) at intervals of 6 to 36 months, as per local legal requirements of the mine. The functions of a Major Conveyance Inspection are the following:

- Perform a detailed visual inspection of the entire conveyance and assess the structural condition of the conveyance
- Ensure that a Non-Destructive Test (NDT) Inspector appointed by the Mine performs appropriate NDT testing. As a minimum requirement, magnetic particle inspection (MPI), dye penetrant inspection or eddy current inspection, of the critical load-bearing components should be carried out, to ensure there are no cracks. The NDT examinations may also include thickness measurements where corrosion is evident, or ultrasonic inspection
- Examine the conveyance for compliance with the design drawings and assess the implications of any modifications
- Provide recommendations in terms of maintenance for the conveyance, and particularly any urgent maintenance requirements
- Confirm the suitability of the conveyance for ongoing operational usage in the shaft.

All inspections shall be formally recorded, and any issues identified shall be communicated to the Shaft Engineer. A Major Conveyance Inspection Report shall be prepared for every major inspection.

Monthly and three-monthly inspections should include a scoring system that for each component check, with a green, orange and red flag system in place. A red flag shall require immediate closure of the shaft until the problem has been rectified. An orange flag shall indicate a problem that must be rectified in a specified period of time.

4. SAFE OPERATING PROCEDURES (SOP)

Safe operating procedures (SOP) are required for all tasks that are carried out in a mine. This includes those mentioned above and others which need to be identified. A rule of thumb is that a mine should have between thirty and sixty SOPs for mining operations alone, excluding maintenance, technical services and safety. Specific SOPs are required for all tasks associated with Hoisting and Shaft Management. Many of the tasks associated with work around shafts have the potential for fatality due to the potential for falls if personnel are not adequately secured.

4.1. Definition of a SOP

A SOP is a written document that provides step-by-step instructions on how to safely perform a task or activity. A SOP includes elements of hazards and risks associated the health and safety of the people associated with the task.

4.2. Selection process for SOPs

The mine management team shall decide the list of appropriate tasks that require a SOP. Typically, for Hoisting and Shaft Management, all inspections and maintenance operations require individual SOPs for each task or group of tasks. However, each mine will have variations of each task above and will need several SOPs to cover the full requirement. These may be tasks such as slinging of materials below the cage or shaft inspection.

Similar sub-groups can be made for all tasks depending on the department which is managing the specific area of the Hoisting and Shaft Management.

It is essential that all tasks are identified by mining professionals and that input to the SOP is provided by a range of people including master sinkers, mechanical/structural engineers, geotechnical engineers, mining engineers, safety professionals and other stakeholders.

4.3. SOP Structure

A SOP shall contain the following elements

- Scope – outlining the extent of the SOP, from start to finish
- Objective – specifying exactly what task the SOP covers
- Relevant legislation
- General rules – step by step details relevant to completing the task
- Review system – details of SOP owner, and those responsible for reviewing it
- Responsibilities for mining roles
- Emergency response requirements

4.4. Management of SOP

A SOP shall be completed for a task before the task is in standard use in the mine.

When the SOP has been written, it must then be approved by mine or other departmental management.

The recommended process to be followed is:

- Ensure that the mine management and safety team are familiar with the SOP.
- Ensure that the SOP is stored where it can be easily accessed by the mining teams, supervisors and other stakeholders.
- Provide a full brief of the SOP to all mine/maintenance supervisors and other stakeholders.
- Provide a full training program to the required personnel and other users on the details of the SOP. This may require 'on the job' and classroom training and should include a questionnaire to ensure that the SOP is fully understood.

- Review the SOP on a regular basis or when a change management process takes place that changes any of the elements of the SOP.
- Ensure that the SOP is modified and re-briefed to all stakeholders following any changes.
- Record any changes in a controlled system.
- Replace any SOPs which are available for stakeholders or are displayed in the mine or related areas.

High quality development, management and use of a SOP, including training, will ensure that the specific task can be carried out to a high standard.

4.5. List of SOP's

Safe Operating Procedures (SOP) shall be developed for the key activities for hoisting and shaft management and associated tasks including but not limited to:

- Changing of conveyances on a dual winder system from rock to men and vice-versa, including electrical and mechanical changes during such change.
- Hoisting of people and hoisting of rock in incline and vertical shafts.
- Slings of material.
- Slings of abnormal loads.
- Operating single drum AC and Dc winders.
- Operating a double drum winder with one drum un-clutched.
- Lowering conveyances with dynamometer braking on AC winders.
- Lowering conveyances with reverse power on AC winders.
- Operating a multi rope winder.
- Shaft examination hazards, risks, procedures and methods.
- Transporting of explosives.
- Shaft emergencies.
- Shaft inspections and examinations.

5. SAFETY SYSTEMS

The mine management team shall implement a standard safety systems to ensure that the mine and its personnel can operate in a safe and sustainable manner, including some of the following:

- Induction programme for all employees, with specific details relevant to each person's role and area of employment
- Safety Standards, which identify the main safety topics and requirements for the mine. The Safety Standards should be clearly explained during the induction process and should be posted throughout the mining operation. Safety Standards will typically include the following:
 - Work at Height
 - Scaffolding
 - Permit to work
 - Lock Out / Tag Out
 - Confined Space Entry
 - Personal Protective Equipment (PPE)
 - Vehicle & Driving Safety
 - General Electrical Safety Management
 - Lifting and Shifting

- Chemical handling and storage
- Shafts and hoisting
- Training programmes appropriate for each person’s job role. This should include a system for recording the training and the requirement and frequency of re-training.
- A job description for each role, defining the responsibilities of the role, reporting and other detail. Each person should have a copy of their job description.
- Appointment of competent persons whose roles may relate directly to potential intrushes.
- Planned Task Observation (PTO), which is a method of observing a job task being executed by a trained person. A PTO will be developed for each SOP comprising a checklist of items/actions to be checked while the task is being carried out.
- Planned Inspection (PI), which is an Inspection of a workplace to measure compliance with the Safety Standards. A PI measures compliance to Safety Standards and allows for the identification of leading indicators for potentially non-compliant incidents.
- Visible Felt Leadership inspection programme, where managers and supervisors visit the workplace to observe and discuss the habits and behaviours of people at work.
- A training programme such Stop Notice Analyse Prioritize (SNAP), which is a technique that reminds workers to stop work if they think their health and safety is at risk and manage the situation.
- A review process for all of the safety systems, managed by a combination of the mine and safety departments.
- A disciplinary process which is fair, equitable and is clearly briefed to all employees. This should only be used as a last stage management process for persons who are non-compliant on a continuous basis.

The diagram below is a graphical representation of safe working systems that should be in place to allow mine operations to be carried out in a safe and sustainable manner.





Winder Drum Management of water reticulation systems



Mine hoist system

Mine hoist maintenance



Safety systems shall be provided as support to mining and other related operations and to ensure that mining can be carried out in a safe and efficient manner.

For the management of Hoisting and Shaft Management, safety systems should include, but not be limited to the following:

1. Access to specialised Shaft and Conveyance specialists as outlined in section 2 above, when required. This will also provide a full understanding of the operation, mechanical/structural status, ground conditions, water ingress and other relevant information.
2. Competent and trained personnel for all work associated with hoist and shaft work.
3. Winders shall be equipped with appropriate dual fail-safe braking systems, brake clutch interlocks, closed loop electrical control systems, a safety circuit and an emergency brake release and operating system.
4. Shafts shall be equipped with safety systems, overwind prevention/protection systems, man access/exit systems, flood protection systems, fire and smoke detection systems.
5. Shafts shall have continuous conveyance jam monitoring device, independent and interlocked to the winder.
6. Shafts shall be equipped by a fully operational slack rope device for every single winder.
7. Clearly written rules associated with the shaft at every station or landing, with the appropriate controls for people restriction.
8. There shall be maintenance and inspections programmes in place for relevant work. All maintenance and inspections shall be formally recorded.
9. Each mine shall carry an appropriate number of spare parts for critical functioning of the hoist and shaft systems.
10. Where possible and appropriate, alarm and monitoring systems will be in place for all potentially dynamic changes, such as water levels, abnormal shaft movement, etc. This may include sensors, cameras and other instrumentation which can be accessed remotely on devices such as laptops and mobile phones.
11. Guarding, barricades and signage shall be placed in appropriate locations to ensure unauthorised access to high risk areas.
12. Provision of adequate back-up power to ensure that limited manriding can take place in the event of an emergency.
13. External review of any design, installation and monitoring systems associated with the hoist and shaft system.
14. Shafts shall have ventilation systems that prevents accumulation of noxious gases from blasting.
15. The mine shall have a Mine Emergency Response Plan, including a written procedure. This shall include a section on evacuation of persons, securing emergency systems in the event of a power failure, recovery from a mud rush, a fire/smoke incident and accident/damage in the shaft.
16. Training on Emergency Response procedures for all persons who are involved in the management, operation or monitoring of any areas associated with the shaft and hoist system.
17. Communications systems are required to ensure that all personnel working directly in the shaft can communicate with the winder operator.
18. Review of results from any controls in place to measure, control or otherwise manage systems associated with hoist and shaft management.

Appropriate safety systems shall be developed based on the risk assessment.

6. TRAINING AND COMPETENCY

Training and competency are key areas that are essential for the safe management of the Hoist and Shaft Management. The core training requirements include:

6.1. Train all personnel on safety and SOPs

Training of all personnel on the key elements of safety shall start at the induction of a person when starting employment at a mine. Further training must be delivered based on the persons job, experience, expertise and any other relevant factors. Further details on training are discussed in Section 2 – Overall Management Approach.

Typical training programmes will be given for:

- Induction
- Basic skills for a new task (SOP)
- Safety skills such as manual handling, first-aid, etc.
- Ground awareness
- Emergency response
- Fire
- Electrical safety

Training records should be maintained in the persons file including any certification and results of tests/questionnaires.

6.2. Assess their competency

A high level of competency is required for all areas related to the winders and cages and this must be assessed prior to carrying out the related tasks.

6.3. Retraining

Almost training requires that re-training programmes are used as follow-up to ensure that the learnings are embedded, and the standards are maintained.

6.4. Internal and external training

In many cases training can be carried out internally. However, external training should be considered to ensure that safety and operational systems are maintained up to date and to best practice.

6.5. External audits

At regular intervals, external audits shall be used to verify that the learnings from the training and standards are being maintained. External audits can be conducted by either peer groups from within the organisation or by external consultants/auditors. Specific to Prevention of Inrushes, external audits shall be carried out as required through the risk assessment process.

7. MONITORING AND REVIEW

To ensure the effectiveness of controls is maintained at the site, a monitoring and review program shall be implemented that includes inspections, testing and auditing of the systems associated with mining operations. This should cover the effectiveness and limitations of current practices, training and overall mining management systems. As part of the site's validation process, responsibilities and accountabilities should be clearly defined and assigned and may include independent auditing. The findings of the monitoring and review process should be used to:

- Confirm the recommendations of previous reviews were actioned.
- Confirm responses were appropriate for any mining operations incidents or issues that arose.
- Verify compliance with specifications (e.g. inspection, monitoring, quality control).
- Confirm site practices comply with the mine standards as set out.

If significant gaps are identified, this should prompt a review of the risk assessment process. Throughout the risk management process, it is vital to ensure that key stakeholders and subject matter experts are consulted where appropriate.

The SBU Head should be able to demonstrate that hazards associated with mining operations are controlled so far as is practicable, with the risk assessment and management process formally documented in the operation's hazard and risk register.

References

Doc. Ref.	Document name
POL 06	HSE Policy
VSS	Vehicles and driving
VSS	Ground Control
VSS13	Emergency Response and Fire Control
VSS15	Explosives and Blasting
VSS17	Hoisting in Shaft
VSS18	Inflow or Inundation of Liquids
VED/CORP/SUST/MS 6	Competency, Training and Awareness
VED/CORP/SUST/TS 10	Safety Management
GN 19	Permit to Work
VED/CORP/SUST/MS 1	Leadership, Responsibilities and Resources
VED/CORP/SUST/MS 9	Documentation and Record Management
VED/CORP/SUST/MS 11	Incident Reporting and Investigation
	Auditing and Assurance
VED/CORP/SUST/TS 13	Emergency and Crisis Management
VED/CORP/SUST/MS 14	Management Review and Continual Improvement
GN 01	Incident Investigation
GN 07	Risk Assessment
GN 10	PPE
GN 14	Health and Safety Management Systems
VED/CORP/SUST/MS 13	Corrective and Preventive Action Management