

THE MINING (MINE HEALTH, SAFETY AND ENVIRONMENT) REGULATIONS

(Legal Notice of 2026)

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PART I – PRELIMINARY

Citation	1.	IN EXERCISE of the powers conferred by sections 178(2) and 180(2) of the Mining Act (CAP 306) the Cabinet Secretary for Mining makes the following Regulations— Mining (Mine Health, Safety and Environment) Regulations, 2026.
Interpretation	2.	“Act” means the Mining Act (CAP 306); “acid mine” means the condition in a mine where there is a formation of toxic substances and waste as a result of acid mine drainage; “acid mine drainage” means the formation by way of a chemical reaction of surface water including rainwater or shallow subsurface water with rocks containing sulphur-bearing minerals resulting in the movement of highly acidic water rich in heavy metals that can be hazardous; “acid mine water” means water containing acid waste resulting from the oxidation of sulphide-rich minerals; “accident” means an undesired event that exposes to or results in personal injury or property damage; “adit” means a tunnel inclining less than three degrees from the horizontal driven from the surface into higher ground; “approved person” means any person who is approved by the Director of Occupational Safety and Health Services, by certificate in writing, to carry out examinations, and testing of equipment and plant in accordance with the Occupational Safety and Health Act; “artisanal mining” has the meaning as assigned in the Act; “banksman” refers to a worker responsible for controlling the movement of materials within the mine with control over the the equipment entering in and out of the mine shaft; “blaster” shall refer to a worker charged with the duty of detonating explosives within the Operation Area. "blasting" refers to the controlled use of explosives to break rock or other materials;

		blasting supervisor” shall refer to a qualified technical expert supervising Blasting in the Operations Area; “Cabinet Secretary” has the meaning as assigned in the Act; “cage tender” refers to a worker, under supervision of the mine captain, responsible for operating and maintaining shaft cages, overseeing safe movement of workers, equipment, and materials from the surface to the underground workings of a mine” “detonator" means a solid drawn aluminium or copper tube containing a mixture of explosive of Class V used to initiate the explosion of high explosives in blasting operations and includes capped fuse; “Director of Mines” has the meaning as assigned in the Act; “disturbed areas” means a place where activities clearly in preparation for, or during mining, have physically disrupted, covered, compacted, moved or otherwise altered; “effluent” (a) has the meaning as assigned in the Environmental Management and Co-ordination Act (CAP 387) and includes waste from Acid Mine Drainage discharged directly and indirectly into an aquatic environment; and (b) effluent can be categorized as a toxic substance depending on the source; “exploration" means geological surveys conducted on and under the earth's surface for the purpose of identifying in detail the location and quantity of mineral concentration and determining the technical and commercial feasibility of mining thereof through the geological, geochemical and geophysical techniques with incorporation of use of geospatial data and drilling holes to locate mineral deposition;. “exploration area” means the entire or portion of a concession area within a license or permit for prospecting; “explosives” shall refer to the meaning conferred under the Explosives Act, Cap 115.
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		“geotechnical” means the application of the principles of soil and rock mechanics to form a solution for engineering problems; “groundwater” has the meaning as assigned in the Act; “hazardous chemical” means a substance in any form whether by itself or in a mixture or preparation, whether manufactured or derived from nature used in mining including but not limited to mercury, cyanide, sulfuric acid and solvents, as well as dangerous explosives; “hazardous substance” has the meaning as assigned in the Environmental Management and Co-ordination Act (CAP 387); “high wall” means the vertical or near-vertical slopes left behind after the removal of overburden and ore; “HSE” means Health, Safety and Environment; “hydrology” is the scientific study of water in the environment, encompassing its distribution, movement, properties, and behaviour; “hydrogeology” is the branch of geology that deals with the study of groundwater; its occurrence, movement, distribution, and quality within geological formations; “incident” means an unplanned event that adversely affects completion of a task; “Inspector of Mines” has the meaning assigned in the Act; “mine” has the meaning as assigned in the Act; “mine captain” means the person in charge of workings of a mine whether above surface or underground under the direction of the mine manager; “mine-closure” means the process of planning and managing the decommissioning and rehabilitation of a mine; “mine cycle” refers to the series of stages that a mining project goes through from the initial exploration to the final closure ; “mineral dealer” has the meaning as assigned in the Act;
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		“mine manager” means the person appointed by the Mineral Right Holder or Mineral Dealers as such, responsible for the control, management, supervision and direction within the operations area; “mining operation” has the meaning assigned in the Act; “mineral right holder” means the holder in respect of a mineral right, a licence, agreement or permit issued under the Act being; (a) a person to whom a mineral right is granted; or (b) the person to whom a mineral right is transferred or assigned; “mine shift lieutenant” means any person in charge of a shift in any underground workings of a mine acting under the direction of the mine captain; “mine stability” means a state where the mine conditions, workings, the rock mass and the geological structure are determined to be in a state of equilibrium with ability to withstand stress conditions for safe operations within the mine;; “official” means the Superintendent, Mine Captain, Safety Officer, Mine Rescue Squad Leader, Mine Shift Lieutenant and the Mine Manager providing supervision at the operations area on behalf of the mineral rights holder; “operations area” shall refer to an area where prospecting and mining operations are being conducted in accordance with the authorized permit or license. “personal protective equipment” means specialized clothing, equipment, or accessories designed to protect an individual from injury, infection, hazardous substances, or environmental risks, including but not limited to helmets, gloves, eye protection, high-visibility clothing, footwear and respiratory protective devices; “refuge chamber” means an enclosed structure supplied with breathable air and constructed within an underground mine for the purpose of providing emergency refuge for workers;
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		“tailings” has the meaning as assigned in the Act; “tailings storage facility” means a designed structure used to store, collect or consolidate tailings and may include one or more tailings storage features;
Purpose of the Regulations	3.	The purpose of these Regulations is to— (a) provide for the safety, health and welfare of persons employed in mines, and all persons present within the mining operation and the carrying on of exploration, prospecting or mining operations in a safe, proper, sanitary and effectual manner; (b) protect persons outside the operation area against risks to safety and health arising out of, or in connection with, prospecting and operations area; (c) provide for effective monitoring of safety, environmental and health conditions at mines; (d) provide for enforcement of safety, environmental safeguards and health measures at mines; (e) give effect to the right to a safe and healthy environment for mine workers and persons within and around the mining operation and all others likely to be affected by the mining operations; (f) provide for environmental safeguards in the exploration and exploitation of minerals; (g) provide standard guidelines on the mine health and safety; (h) promote a culture of accountability in safeguarding safety and health in the mining operations through the development of policies and guidelines for the mining industry; (i) provide safety standards in the exploration area and the mine area; (j) promote research and cooperation on matters relating to safety, health and environmental safeguards in the mining industry.

Application of the Regulations	4.	These Regulations shall apply to all natural and legal persons conducting prospecting, mining and processing operations including but not limited to— (a) a mineral right holder; (b) mineral dealers; and (c) persons outside the operations area likely to be affected by mining operations.
PART II: MONITORING MINE SAFETY, HEALTH AND ENVIRONMENT REGULATIONS		
Appointment of Mine Manager(s)	5.	(1) No mining operations shall be conducted without a formally appointed qualified Mine Manager. (2) A person shall be eligible for appointment as a Mine Manager at an underground mine if they: (a) hold a Bachelor of Science degree in Mining Engineering, Civil Engineering, or Geology; and (b) have at least: (i) five years of experience in large-scale mines, or (ii) three years of experience in small-scale mines. (3) The Mineral Right Holder shall: (a) in the case of an underground mine, appoint a qualified person with at least three years of technical experience working in an underground mine; and (b) provide the Mine Manager with the necessary information, resources, equipment, experienced and competent personnel, and adequate facilities required to ensure compliance with the provisions of these Regulations; (4) The Director of Mines shall require the Mineral Right Holder to provide proof of the technical competence of the Mine Manager, and if no such sufficient proof is provided, the Director of Mines shall issue directions for the Mineral Right Holder to immediately comply with these Regulations.

Functions of the mine manager.	6.	(1) The Mine Manager shall: (a) take the necessary measures to ensure that the mine and equipment therein are designed, customized, constructed, equipped, commissioned, operated, and regularly serviced for efficient and safe functionality without endangering the health and safety of persons at the mine; (b) comply with and enforce the requirements of these Regulations and any order given by the Director of Mines in the interest of the health and safety of the mine employees and protection of the environment, and ensure that these requirements are observed by all persons within the mining operations area; (c) supervise, direct or instruct all personnel appointed by the Mineral Right Holder as may be necessary to comply with, enforce and observe these Regulations, including but not limited to mine captains, shift lieutenants, cage tender and banksmen; (d) report incidents of breach, injury or accident to the Director of Mines within the period prescribed under regulation 17; (e) ensure that the working hours and blasting operations in the operations area are scheduled to reduce the negative impact on employees and the surrounding communities during detonation and reduce negative impact; (f) keep a register or other sufficient record of all persons employed or engaged in the mining operations area including any third parties present at the mine; (g) install an appropriate control mechanism or system to determine the number of persons in the mine at any given time, and retain a reproducible and accessible record of the same; (h) keep at all times well-serviced and adequate fire safety equipment which shall be accessible and conspicuously marked for use in the event of a fire incident; (i) provide for the safety and proper instruction of the workers and personnel employed at the operations area; (j) at least once in every shift, provide adequate supervision during work hours to ensure safety is assured in every respect; (k) be in charge of all safety at the mine;
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		(l) ensure any third party or visitor who enters the mine, is taken through a health and safety induction and provided with adequate personal protective equipment prior to accessing the operations area; (m) conduct routine safety inspections quarterly and submit report to Director of Mines; (n) ensure safety audits are undertaken annually by an independent qualified mining engineer or certified safety expert in mining operations and the report submitted to Director of Mines; (o) perform any other obligations provided under the Act or these Regulations.
Appointment of a Mine Captain	7.	(1) The Mineral Right Holder shall: (a) appoint a Mine Captain with at least three years of technical and relevant experience in an underground mine, where more than sixty persons are employed in the mine; or (b) appoint a Mine Captain in a mine employing less than sixty persons in an underground mine in any one shift, who shall be a qualified person with at least three years of relevant experience working in an underground mine. (2) The Mineral Right Holder shall maintain adequate documentation on the qualification of the appointed Mine Captain. (3) The Director of Mines may instruct the Mineral Right Holder to dismiss any employee appointed as a Mine Captain who does not meet the required qualification threshold.
Functions of a Mine Captain	8.	The Mine Captain shall ensure that: - 1) Compliance with all applicable safety laws and regulations is maintained, and safety briefings are conducted regularly and kept up to date. 2) Daily operations are supervised, with particular attention to ground support and the monitoring of blasting procedures. 3) Safety inspections are conducted regularly, which shall include the identification of hazards, risk assessments, and the implementation of corrective actions. 4) Emergency response management is done, including leadership of accident response, rescue operations, and emergency drills. 5) Training and awareness programs are conducted to ensure workers are educated on safety procedures and that a safety-conscious work culture is promoted.

		6) The maintenance and safe operation of mining equipment and machinery are ensured. 7) Effective monitoring of ventilation systems and air quality is observed by preventing gas buildup and maintaining a healthy work environment for all personnel. 8) Safety records, incident reports, and compliance documentation are maintained in accordance with relevant laws and regulations. .
Notification of appointed officials	9.	(1) The Mineral Right Holder shall notify the Director of Mines in writing, of officials appointed within fourteen days from the date of appointment thereof. (2) The identification particulars, required relevant experience and technical qualification, shall accompany such notification. (3) The Director of Mines shall keep a register of all such appointments upon notification by the Mineral Right Holder.
Power to make safety guidelines	10.	(1) A Mineral Right Holder shall: (a) develop, implement and maintain safety guidelines for prevention and mitigation of accidents at the operations area provided that such guidelines are consistent with these Regulations and the Act; and (b) ensure that these safety guidelines are translated into a language understood by employees and third parties accessing the site and shall, at the very least, maintain the guidelines in English and Kiswahili language on site. (2) Where a Mineral Right Holder develops safety guidelines under this regulation, the Mine Manager shall cause the safety guidelines to be displayed at a conspicuous place in the mining operations area.
Mineral Right Holder responsibility over mining operations	11.	The Mineral Right Holder shall bear overall liability for the mine operations and for the supervision of the Mine Manager and all activities within the operations area.
Safety induction	12.	The Mine Manager shall ensure that all employees, visitors and third parties accessing the mining operations area are inducted, trained or cautioned in a language that they understand, on the safety risks and requirements at the mining operations area.
Obligations of employees	13.	An employee shall: (a) comply with the risk management plan and practices at the operations area; (b) comply with the instructions given for the health and safety of persons at the operations area;

		(c) use or wear the personal protective equipment in accordance with the information, training or instruction provided by the Mine Manager; (d) inform the Mine Manager in case of any damage to, defect; or need to clean or decontaminate any of the equipment of which the employee becomes aware of; (e) refrain from wilfully or recklessly engaging in activities that might adversely affect the health and safety of others in the operations area; and (f) comply with the duties provided under the Occupational Safety and Health Act (CAP 236A) and any other relevant laws and regulations.
Mine Health and Safety Management System	14.	(1) A Mineral Right Holder and Mineral Dealer shall ensure that: (a) every mine has a health and safety management system that shall incorporate health and safety risk management plans and practices to ensure the health and safety of persons within the operations area; (b) the health and safety management system is implemented and updated at least once every year; and (c) an audit of the health and safety management systems is carried out annually by an independent qualified mining engineer and certified health and safety expert and report submitted to the Director of Mines. (2) When developing the health and safety management system, the Mineral Right Holder and a mineral dealer shall have regard to: (a) the nature, size, complexity, and location of the operations area; and (b) the risks, hazards and corresponding associated effects in the operations area. (3) The Director of Mines shall: (a) review and approve the health and safety management system for a mine before mining operations commence, and shall be at liberty to enter any premises to ascertain incorporation of best mining and mineral processing practices including health and safety concerns; (b) audit the health and safety management systems annually and, may on a need basis arising from any occurrence at the

		mine or for any other reason, undertake an audit of the mining operations with notice; and (c) give written notice to the Mineral Rights Holder to provide immediate access to the operations area or any system installed for inspection to allay a safety hazard or remedy an imminent safety risk.
Components of a mine health and safety management system	15.	(1) The mine health and safety management system shall set out the following: (a) a mine health and safety policy aligned to the requirements of the Act, these Regulations and any other relevant written laws; (b) an environment management policy developed in accordance with the requirements of the Environmental Management and Co-ordination Act (CAP 387); (c) a plan to implement the mine health and safety policy and the environmental management policy with implementation capabilities, resources indicated and support mechanisms necessary to effect the plan; (d) training manuals on safety for employees adequately covering mining operations; (e) a description of the standard work instructions with adequate oversight personnel indicated therein; (f) a brief description of the mining operations at the mine; (g) a risk management plan to secure health and safety safeguards during mining operations including: i. disaster management with an indication of possible risks; ii. occupational health and safety plan; iii. fire contingency and emergency plan; iv. raising alarm and communication strategy; v. emergency response and rescue plan; and vi. evacuation plan; and vii. signage required to be displayed at various conspicuous places.

		(h) a comprehensive management structure which shall: i. designate a Safety officer; ii. designate a risk and compliance officer; iii. identify individuals with technical oversight in the operations area; iv. ensure qualified and competent individuals are appointed to manage mine safety in adequate numbers in proportion to the employees on site; v. define the extent of the authority and duties of persons in that structure; and vi. be reviewed at least once every year and revised where necessary if the mine undergoes significant changes, extensions or conversions and incident or accident. (i) incorporate mechanisms for employees to give feedback on health, safety and environmental concerns in the mining operations area to the Mineral Right Holder; and (j) include procedures for measuring, monitoring, and evaluating the performance of the health and safety management system, and the remedial action to be taken to correct matters that do not conform with the health and safety management system. (2) The Mine Manager shall provide a training manual with clear instructions related to the mine health and safety management system.
Training and instruction of employees	16.	(1) A Mineral Right Holder or a mineral dealer shall ensure that no work is undertaken by a person at the operations area unless the person: (a) has received training on the duties allocated and has adequate supervision to execute the work; (b) has been inducted into the mine's health and safety management system; and (c) has received health and safety training about hazards and risks at the mine and the risk management plan. (2) The Mine Manager shall:

		(a) ensure that work is only assigned to employees with the requisite qualification and competence to perform the tasks assigned to them; (b) ensure that third parties in the operations area receive appropriate instructions regarding health and safety risks including emergency procedures in the event of an emergency; (c) ensure that information on the use of safety equipment, and the emergency response and evacuation plan at the mine is available to all employees on site and shall assign a safety officer to have oversight over safety matters; and (d) ensure that machinery and materials in use has adequate information, instructions and hazard warning signs on usage. (3) The training referred to in this Regulation shall be carried out: (a) on recruitment; (b) after a safety drill on site; (c) upon transfer or change of a job or task; (d) upon introduction of new technology; (e) upon introduction or change in work equipment; (f) on the identification of new risks to the health, safety or environment in the operations area; or (g) on the recommendation of the Cabinet Secretary. (4) The Mine Manager shall keep a record of the: (a) number and identity of persons within the operations area; (b) number of employees and supervisors assigned to a specific task; (c) personal protective equipment provided to the employees; (d) number of hours assigned to an employee for a specific task; and (e) safety equipment on site for evacuation procedures or emergency response. (5) The Mine Manager shall not require or permit any employee to engage in the manual handling or transportation of a load which,
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		by reason of its weight or content, is likely to cause bodily harm or injury. (6) The Director of Mines shall, for the purposes of sub-regulation (1) (a), develop training guidelines, which will guide the training curricula of employees, ensuring alignment with the regulatory requirements and safety standards.
Reporting of accidents at the mine		(1) The Mineral Right Holder shall notify the Director of Mines, in writing, any accident or incident within 24 hours of its occurrence under form MHSE/1. (2) The notification under sub-section 1, shall contain sufficient information to allow the Director of Mines or an authorized officer to take any immediate protective measures to mitigate the consequences of the accident or reduce further damage which details shall include but not be limited to: (a) a description of the nature of the accident; (b) the cause or possible cause of the accident; (c) the time of the occurrence of the accident; (d) a description of the measures taken by the Mine Manager to remedy the accident or stop further loss, injury or damage; (e) number of casualties and fatalities; (f) name and contact details of any person within the operations area as at the time of the accident; and (g) name and contact details of the safety officer or other contact point from whom more information could be obtained. (3) A Mineral Right Holder and Mineral Dealer shall: (a) keep a record of all accidents or incidents that occur in the operations area; (b) install signals, alarm systems or other appropriate communication systems to allow expeditious and effective dissemination of information at the time of incidence or accident occurrence; and (c) develop and implement mitigation measures to prevent similar occurrences recurring.

		(4) A supervisor, employee or any person present at the mine shall notify the Mine Manager immediately upon becoming aware of an accident or incident within the operations area.
Accident investigation	17.	(1) The Mine Manager shall: (a) oversee the conduct of investigations of all accidents or incidents reported at the mine; and (b) compose a team led by the mine captain and the safety officer to assist the Mine Manager with the investigations which shall be termed as the investigation team. (2) The investigations shall begin as soon as possible and, in any case, not later than 24 hours after the occurrence of the accident and shall cover such areas as deemed appropriate by the investigation team. (3) The investigations shall provide a comprehensive report on the number of fatalities, injured or affected persons, the time and location of the accident and/or incident, the statement of any witnesses, statement of the safety breach and observation records. (4) The investigation team shall prepare a detailed report with findings and recommendations to the Mineral Right Holder, who shall implement corrective actions to address the root cause of the accident and establish preventive measures to avoid recurrence, and such report shall be submitted to the Director of Mines within seven days. (5) In case of a fatal accident, the Director of Mines shall constitute an ad hoc committee to investigate the accident and submit a report including on the causes and possible recommendations. (6) In the event an accident results in damage to property, animals and environment, the mine manager shall investigate all accidents or incidents reported at the mine and the mineral right holder and mineral dealer submit a report to the Director of Mines who shall determine and authorize appropriate compensation. (7) A Mineral Right Holder or a mineral dealer who fail to investigate and report on accidents within the operations area commits an offence.
Accident analysis	18.	(1) The Mine Manager shall ensure that: (a) a record of past accidents, violations, safety breaches and findings is retained at the mines; (b) specialized training and psychosocial support after the accident analysis is offered to the affected employees; and (c) research on preventive actions is undertaken to inform remedial action.

		(2) Accident reports shall be required even where no injuries are reported.
Accident follow-up	19.	(1) The Mineral Right Holder shall: (a) review the investigation findings and take appropriate action to prevent recurrence; and (b) comply with the Act, these Regulations and any other relevant law in complying with any additional instructions issued by the committee formulated or Director of Mines to safeguard the operations area.

PART III: SAFETY AND RESCUE AT A MINE

Provision of information, training and instruction	20.	(1) The Mine Manager shall ensure that each employee at the operations area is given adequate information, training, and instruction in relation to the following: a) all hazards associated with the work being carried out by the employee; b) risk control measures relating to the work being carried out, including measures to regulate work conditions and reduce exposure to fatigue, eradicate use of alcohol, drugs and other abused substances while at work; c) the content and implementation of the mine safety management system for the mine; d) the emergency plan for the mine; e) appropriate use of personal protective equipment such as respirators and oxygen equipment (where necessary); and f) first aid training; and g) any other relevant safety training. (2) The Mine Manager shall ensure that: (a) the information, training, and instruction provided under this regulation is relayed in a manner that is easy to understand (b) safety and emergency evacuation drills are conducted to test the efficacy of the safety instructions given to employees; adequate training and instruction is provided to employees and third parties in handling any hazardous chemicals; and (c) training is conducted regularly and at least once a year, taking into account any new safety risks.
Site induction for employees and third parties	21.	The Mine Manager shall: (a) ensure that all employees and third parties undergo a site-specific induction and receive appropriate instructions regarding safety and health risks including emergency procedures at the workplace. (b) ensure that before an employee commences work at the operations area, the employee is furnished with adequate information, training and instruction on the general mining

		operations, safe systems of work, safety procedures and on the tasks assigned; (c) develop and implement safety policies and procedures which shall be explained to the employee or a third party at the time of induction.
Duty of the Mine Manager to train employees on safety	22.	(1) The Mine Manager shall ensure that each employee of the mine is: (a) given adequate information, training and instruction in safety procedures and systems of work and in the tasks required of the employee; (b) assessed before commencing work at the mine to ensure that the employee is physically and mentally stable to perform the tasks required of them and to operate any plant, machinery or equipment the employee will be required to operate; (c) retrained and reassessed whenever systems of work or equipment are introduced; and (d) trained regularly (2) The Mine Manager shall ensure new employees are adequately supervised and coached until they are well knowledgeable of their tasks, processes and have a good understanding of the safety and health management system.
Information for third parties and visitors accessing the operations area	23.	(1) The Mine Manager shall be responsible for the safety of third parties while within the operations area. (2) The orientation for visitors and third parties shall cover the following information: a) the hazards or risks associated with the mining operation to which the visitors and third party will be exposed; b) safety and health precautions required at the mine; c) actions to be taken if an emergency arises when the third party is on site including the designated safety zones; and d) description of safety signs. (3) The third party shall sign a record indicating the time of entry into the operations area with confirmation that the safety requirements have been explained. (4) The third party shall be equipped with adequate and appropriate personal protective equipment. (5) The Mine Manager shall keep a record of all third parties accessing the mine and facilitate issue of a pass at point of entry.

Review of information, training and instruction	24.	The Mine Manager shall ensure safety training and instruction manuals are reviewed and revised annually.
Record of training	25.	The Mine Manager shall keep record of any instruction, training, retraining, assessment, or reassessment given in respect of employees at the operations area.
Duty to provide Personal Protective Equipment	26.	(1) The Mine Manager shall provide personal protective equipment to the employees and third parties at the operations area and shall ensure that the protective equipment is: (a) useful for purpose and of good quality and is: i. suitable having regard to the nature of the work and any hazard associated with the work; and ii. a suitable size and fit and comfortable for the employee who must use or wear it; and (b) serviced to ensure that the equipment is: i. clean and hygienic; and ii. in good functional order. (c) used or worn by the employee, always when required. (2) The Mine Manager shall provide the employee with information, training and instruction in: (a) the proper use of personal protective equipment and equipment; and (b) proper storage and maintenance of personal protective equipment.
Intoxication of an employee	27.	(1) The Mine Manager shall ensure that no employee or third party in a state of intoxication enters the operations area or is permitted to handle any equipment or machinery. (2) The Mine Manager shall ensure that no employee imbibes or possesses any intoxicating substance within the operations area. (3) The Mine Manager shall ensure that appropriate guidelines are developed to ensure adherence to the provisions of this regulation.
Mine Emergency Plan	28.	(1) The Mine Manager shall formulate and inform each employee of the Mine Emergency Plan. (2) The Mine Emergency Plan shall be designed by a qualified expert engaged by the Mine Manager. (3) The Mine Emergency plan shall: (a) specify the identification of blast zones, high risk areas, and the steps to secure the mine's ventilation and communication systems;

		(b) in the event of oil or fuel spill, provide for procedures for the safe containment and removal of spilled materials through containment equipment, including barriers, absorbents, and neutralizers; (c) provide suitable measures of protecting groundwater and surrounding ecosystems from contamination; and (d) provide medical evacuation and first aid procedures. (4) In the event of an emergency at the mine, the Mine Manager shall ensure that the following rank of command is followed in communication: i. superintendent; ii. mine captain; iii. Safety officer; then iv. mine rescue squad leader. (5) The superintendent shall have the direct responsibility for commanding and directing any emergency crisis operation. (6) In the event of the superintendent's absence, the responsibility in (4) shall fall upon the mine captain who shall direct the rescue operation in cooperation with personnel from safety and engineering departments. (7) In the event the emergency situation warrants the use of a mine rescue team, the superintendent shall convey authority, to the mine rescue squad leader or mine captain. (8) The Mine Manager shall ensure that the Mine Emergency Plan is reviewed, updated and tested regularly to capture changes in mine operations and emerging safety concerns.
Emergency preparedness and First Aid	29.	(1) This regulation shall apply to all employees, and third parties involved in or present at the surface and underground mine operations areas. (2) The Mine Manager shall; (a) provide information to all employees on procedures of first aid at the workplace, publish the accessible location of first aid kits and retain information on every person trained on first aid at the workplace; (b) ensure effective emergency procedures are in place to manage and facilitate the transfer of a casualty to an appropriate health facility; (c) appoint and train the custodian of the first aid box on how to administer first aid. (3) The Mine Manager shall ensure there are designated emergency stations at strategic locations, including at the head of the main

		travelling shaft, surface work areas, and within key processing facilities. (4) The emergency station shall be furnished with the following minimum equipment in mining operations for both on the surface and underground: a) respiratory equipment; b) at least two functional stretchers, each provided with at least two woollen blankets; c) two or more fitted first aid boxes, approved by a qualified safety officer, stocked with essential supplies not limited to dressings, bandages, splints, antiseptics, splints, and specific medical supplies based on the hazards identified in the mine; d) emergency water supply; e) Soap; f) two or more portable electric lamps; g) electrical power points; h) an examination couch; i) a table and a chair; j) a blood pressure machine; k) a stethoscope; l) a thermometer; m) a record book; n) a communication system; o) Suitable equipment based on the hazards identified in the mine (chemicals fumes); and p) The number of trained first-aid personnel shall be in proportion to the number of employees in the mine operations as follows; i. For less than 10 employees: At least one trained first-aid person available. ii. For 10-50 employees: At least two trained first-aid persons, with one available at all times during working hours. iii. For 51-100 employees: At least three trained personnel, with one available at all times. iv. For more than 100 employees: The requirement shall increase by one trained person for every additional 100 employees with two trained personnel required to be available at all times.
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		v. for a mining operation employing more than 500 people, there shall be a dedicated first-aid room staffed by a trained nurse and first aid personnel as prescribed for the number of employees. (5) The Mine Manager shall ensure that suitable personal protective equipment is available for use in an emergency in which: - submersion has occurred inside a restricted area; that is not designed for continuous human occupancy and has limited or restricted means of entry or exit or - there is a serious risk of an entrapment occurring while the employee, or third party is in the space.
Fire emergency preparedness	30.	(1) The Mine Manager shall ensure that: - serviced and functional firefighting equipment is provided and maintained at all crusher stations, electrical installations, pump stations, shaft stations, shaft houses, tipples, conveyors, service garages, head frames, portal houses, processing plants or otherwise where a fire hazard may exist; - fire hazard areas are identified by clear and legible warning signs; - functional and serviced fire extinguishers are provided and maintained at each stationary electric or diesel motor, transformer and any switchgear in use; and - fire extinguishers that can give off harmful gas when operated are not allowed below the ground. (2) The Mine Manager shall ensure that the fire extinguishers installed utilise the appropriate extinguishing agents for different fire risks. (3) The Mine Manager shall appoint in writing, an adequate number of fire patrols, with each patrol consisting of not less than two persons for each designated group. (4) A patrol shall pass through and examine at the end of each shift and on non-working shifts, all underground travelling ways which contain timber and other combustible material for prevention or abatement of fire and to provide precaution against fire. (5) The Mine Manager shall ensure that training in firefighting is carried out by a qualified person who shall ensure that: - all persons newly employed at a mine are given instruction in the access and use of firefighting equipment; and - all employees undergo a refresher course at intervals not exceeding two years.

		(6) The Mine Manager shall ensure that a reservoir containing not less than 100,000 litres of water is at all times maintained to supply water at adequate volume and pressure to underground mine workings. (7) The Mine Manager shall ensure that fire hydrants, operated by wheel valves are located: (a) 20 metres on the intake side of conveyor loading and transfer; (b) at main junctions and electrical substations; and (c) along such roadways at intervals not exceeding 100 metres. (8) The Mine Manager shall ensure that no flammable material such as thatch or wood is used as roof coverings on shelters erected over the mouths of shafts or other deep mines. (9) The Mine Manager shall: (a) establish a fire emergency response plan for each mine operations area; (b) ensure that ventilation systems are installed and maintained in the operations areas to prevent the accumulation of flammable gases. (c) ensure the installation of fire suppression systems designed to safely extinguish gas fires without exacerbating the hazard (d) ensure that no inflammable debris or refuse are stored, dumped or allowed to accumulate in an underground mine; (e) ensure that there is a fire station situated within close access to active working areas of the mine; and (f) appoint a qualified person to be responsible for maintaining the appliances used for the detection of flammable or noxious gases and keep at the site the certification of soundness. (g) ensure that employees and third parties are trained on the hazards associated with flammable gases, including gas detection and alarm systems, evacuation procedures for various flammable gas accidents, and use of personal protective equipment and emergency fire suppression tools. (h) Implement measures to detect and control the release of flammable gases including: i. regular monitoring of gas concentrations; ii. installation of adequate ventilation systems; and iii. use of explosion-proof equipment in areas where flammable gases are likely to accumulate
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		(10) The custodian of the appliances for the detection of flammable or noxious gases shall inspect the same to ensure it is in proper working condition before use. (11) A person shall not possess while in an underground mine, a match or apparatus of any kind for creating an open flame or spark except as exits in a flame safety lamp. (12) A person shall not smoke, use open flame lamps, matches or other means of producing heat or fire in fire hazard areas. (13) The provisions of the Occupational Safety and Health Act and other relevant laws shall apply in addition to this regulation in determining the adequacy and functionality of firefighting equipment and maintenance required.
Mine escape and rescue	31.	(1) The Mine Manager shall ensure: (a) adequate means of escape and rescue are provided and maintained to permit persons in the mine to exit promptly and safely in the event of danger; (b) there are written instructions concerning the use of emergency equipment and the actions to be taken in the event of an emergency; and (c) employees at the operations area are trained in the appropriate actions to take in the event of an emergency, and rescue equipment is provided and readily accessible. (2) The Mine Manager shall submit to the Director of Mines when seeking a license, permit or agreement for mining operations, a mine design plan and a rescue emergency plan, which shall be updated at least once annually and followed in the event of an emergency. (3) The Mine Manager shall: (a) ensure that the emergency rescue plan is available for use by the mine rescue team; (b) ensure the emergency rescue plan includes a sketch of the evacuation map, clearly indicating escape routes, emergency access points, and safe assembly areas. (4) The Mine Manager shall ensure that there is at least one person fully trained in mine rescue operations for every ten persons working in a mine. (5) The Mine Manager shall: (a) appoint a qualified person as a trainer for mine rescue team members;

		(b) ensure that all mine rescue team members practice evacuation drills as a team at least once a quarter; (c) ensure appropriate rescue equipment are in place for use in case of an emergency and that the rescue equipment is inspected in accordance with regulatory requirements; (d) ensure that there is mine rescue team personnel available both underground and at the surface at any one time; and (e) appoint a qualified person to be responsible for the custody, inspection and maintenance of the rescue apparatus. (6) A person shall not be considered a qualified member of a mine rescue team unless they: (a) possess a valid first aid certificate, or equivalent which shall be facilitated by the Mine Manager; (b) are considered qualified to act as a mine rescue team members by the person appointed as a trainer. (7) The Mine Manager shall retain the record of the mine rescue teams for inspection by the Director of Mines on a need basis.
Health management	32.	(1) A Mineral Right Holder and minerals dealer shall, in managing risks to health and safety, prepare and implement a health management plan for the mine. (2) The health management plan for a mine shall: (a) identify and consider all health hazards arising from mining operations at the mine that may have an adverse effect on the health or safety of persons at the mine; and (b) provide details of control measures the mine manager shall implement to manage associated risks. (3) In preparing and implementing the health management plan for a mine, the Mine Manager shall have regard to all relevant matters, including but not limited to the following: (a) heat, humidity and contaminants to which a person at the mine may be exposed; (b) noise and chronic exposure to musculoskeletal stressors; (c) Air quality and ventilation; (d) assessment of risk due to identified health hazards; (e) control measures considered and implemented to minimise, so far as is reasonably practicable, the adverse effects of identified health hazards; (f) the establishment and implementation of a monitoring schedule to identify any new health hazard and to assess the effectiveness of controls implemented;

		(g) actions to be taken if monitoring indicates that implemented control measures are not effective; (h) risk-based biological and health monitoring of persons; and (i) actions to be taken if biological or health monitoring indicates adverse effects on persons. (4) The health management plan shall be part of the mine safety management system for the mine.
Duty to provide information on health risks	33.	(1) The Mine Manager shall provide the employee with the following information: (a) any likely adverse effects on the employee's health due to mining operations and tasks assigned at the mine; (b) necessary precautions to be taken by the employee; and (c) other controls in place to prevent or minimise the adverse effects on the employee's health. (2) The information shall be provided at the inception of the engagement clarifying the associated hazards and risks at the mine.
Health monitoring	34.	(1) The Mine Manager shall ensure that health monitoring is carried out on an employee bi-annually for employees exposed to significant health risks due to workplace hazards, such as toxic chemicals, dust, noise, or vibration, that could lead to chronic illness or long-term health complications. The Mineral Right Holder or a mineral dealer shall retain each employee's annual certificate of fitness for health monitoring purposes and notify the Director of Mines of any employees discontinued from working at the mine on account of sudden health effects directly or indirectly related to work-related incidents or environment. (2) The Mine Manager shall ensure that health monitoring is provided where a person is engaged in hazardous work that requires health monitoring before the employee commences that work. (3) A Mine Manager shall ensure that the health monitoring is carried out by a registered medical practitioner with experience in health monitoring. (4) A Mineral Right Holder who engages an employee at the mine shall pay all expenses relating to the health monitoring of the employee. (5) A Mineral Right Holder shall pay the consequential costs for an employee who is negatively affected by mining operations as shall be evidenced by the health monitoring report.

		(6) The health monitoring report shall be documented under form MHSE/3 and submitted to the Director of Mines quarterly. (7) The health monitoring report of an employee at a mine shall include the following: (a) the name and date of birth of the employee; (b) the name and registration number of the registered medical practitioner carrying out or supervising the monitoring; (c) the name and address of: (i) the Mineral Right Holder; and (ii) the person conducting a business or undertaking who commissioned the health monitoring; (d) the date of the health monitoring; (e) an explanation of the results; (f) confirmation of the adverse health effect resulting from exposure to a risk associated to the mining operations where the employee is engaged; (g) any recommendation by the Mine Manager including whether the employee can continue to carry out the type of work that triggered the requirement for health monitoring; and (h) whether medical counselling is required for the employee in relation to the work that triggered the requirement for health monitoring. (8) The registered medical practitioner shall provide two copies of the health monitoring report to the Mineral Right Holder within fourteen days after the health monitoring medical evaluation is conducted. (9) A Mineral Right Holder shall ensure that an employee at the mine is provided with a copy of their health monitoring report within seven days upon receipt of the health monitoring report from the registered medical practitioner. (10) The registered medical practitioner shall submit a copy of the health monitoring report to the Director of Mines within fourteen days after the health monitoring medical evaluation is conducted. (11) A Mineral Right Holder shall ensure that the health monitoring report is kept as a confidential record and retained in accordance with the Data Protection laws.
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Compliance with the Data Protection Act (CAP 411C)	35.	(1) A Mineral Right Holder shall not disclose the health monitoring report of an employee to third parties without written consent of the employee. (2) Where such disclosure is deemed necessary for investigations or research to a third party to avert a health and safety crisis, the Mineral Right Holder shall ensure compliance with the provisions of the Data Protection laws when sharing the information.
Compliance with the Work Injury Benefits Act (CAP 236)	36.	(1) A Mineral Right Holder shall retain adequate insurance cover for employees in compliance with the Mining Act, the Work Injuries Benefits Act and any other relevant laws. (2) The Mine Manager shall ensure that contractors and mine service providers maintain adequate insurance policies for associated risks in the operations area with an insurer licensed in Kenya. (3) Where an employee is injured in the course of performing the employee's duties, compensation to the injured employee shall be in accordance with the provisions of the Work Injury Benefits Act and in compliance with any other relevant laws.
PART IV: GEOTECHNICAL SAFETY		
Geo-technical Investigations Prior to Site Development	37.	(1) A Mineral Right Holder shall ensure that a geotechnical survey is undertaken prior to any site development. (2) The survey under sub regulation (1) above shall include but not be limited to soil and rock properties, regional seismicity, groundwater and rock stress. (3) For underground mines, the survey shall also include local and regional analysis of structural discontinuities, slip surfaces and rock stresses. (4) The Mine Manager shall ensure that all geotechnical risks are registered in the mine risk register and that the geotechnical data is used to develop the Ground Control Management Plan. (5) The ground control management plan shall include but not limited to the following; - The Geotechnical assessment of the mine - Ground support design - Geotechnical hazard management

Geotechnical investigations during Mining	38.	(1) A Mineral Right Holder shall: (a) ensure that there is a detailed analysis of soil and rock properties at the mine site, including but not limited to rock mass strength, load bearing capacity, the safety bearing ratio, formation permeability and the settlement characteristics of the foundation materials. (b) Ensure that for underground mines, an assessment of the rock compressibility is conducted and documented annually or as may from time to time be requested by the Director of Mines or an authorized officer in writing. (c) ensure the assessment of the stability of natural slopes and potential slip surfaces to ensure long-term stability; (d) be required to retain the records prepared in accordance with this regulation and provide them on request to the Director of Mines.
Mine stability	39.	(1) A Mineral Right Holder shall, before carrying out any mining activity, ensure the overall stability of the mine. (2) A Mineral Right Holder shall cause an inspection to be carried out to consider factors such as: (a) the geological structure; (b) the mechanical properties of the rock mass; (c) changes in stress caused by the influence of neighbouring workings; and (d) any other reasonable consideration. (3) The Mine Manager shall ensure that employees at the mine do not work on a bench floor whose width is less than 25% of the height of the high wall. (4) The Mine Manager utilising the undercutting mining technique shall ensure that the stopes are produced in a top - down manner and that adequate rock support structures are in place during block caving. Exhausted stopes shall be lined and filled and backfilled with appropriate material. (5) A Mineral Right Holder shall cause annual inspections to be carried out to consider the conditions outlined in sub-regulation (2) above.

		(6) Inspection under this regulation shall be carried out by a qualified technical expert appointed by the Mine Manager. (7) Upon inspection, the Mineral Right Holder shall provide a report on the mine stability to the Director of Mines. (8) The Director of Mines shall thereafter approve the report and recommend any additional measures to be taken by the Mineral Right Holder within the operations area. (9) The Director of Mines may order for the closure of a mine where the Mineral Right Holder fails to provide a mine stability report or to act on the recommendations provided by the Director of Mines provided that there shall be written notification requiring compliance issued to the Mineral Rights Holder prior.
PART V: MACHINERY, EQUIPMENT AND PLANTS SAFETY		
Pre-caution measures	40.	(1) The Mine Manager shall take reasonably practicable measures to prevent persons from being injured due to machinery failing as a result of- (a) incorrect design; (b) incorrect installation; (c) poor maintenance; (d) incorrect use; or (e) non-compliance with proper operating or safety procedures.
Installation and repair of machinery, equipment and plant	41.	(1) The Mine Manager shall: (a) ensure that mining machines, equipment, and plants, including but not limited to excavators, haul trucks, drilling machines, conveyor belts, crushing and grinding mills, ventilation systems, automobiles, boilers, and power generation plants are operated, serviced regularly, and inspected at least once a year to the highest safety standards; (b) ensure that employees are adequately trained in the operation of machinery and equipment; (c) ensure that the conditions of boilers, automobiles, and other power generation plants are reviewed periodically to ensure they remain compliant with safety standards;

		(d) ensure machine guarding and safety features are maintained; (e) report in writing to the Director of Mines at least fourteen days before using any boiler of pressure exceeding 3.5 kilograms per square centimetre or, with horse-power exceeding 12, or any internal combustion engine, other than that of a motor car or other vehicle used for transport, the rated brake horsepower of which exceeds 12, or such other plant for the generation of power whose brake horsepower of exceeds 12, the nature of the plant, its indicated horse-power or brake hose-power as the case may be; and (f) retain qualified personnel in a mine to have oversight over every such plant. (2) The Mine Manager shall keep a machinery and equipment record book and shall enter therein, the particulars of the plant, all repairs and alterations thereto, together with a description of the materials used and all relevant dates for scheduled maintenance. (3) The Mine Manager shall be responsible for the overall plant supervision and monitoring of safety of plant operations.
Machinery, equipment and plant to be in good condition	42.	(1) The Mine Manager shall: - cause all equipment and machinery, including but not limited to boilers, engines, brakes, ropes, winding gear, and any other mechanical appliances, to be kept in good condition and state of repair; - ensure that maintenance of the equipment and machinery is conducted regularly by a qualified person; - cause an approved person to examine, test and certify at least once in every period of twelve months the entire plant and equipment together with all their components and auxiliary parts .and issue an inspection certificate issued for each piece of machinery and equipment to confirm compliance with safety standards; - ensure the report of the examination shall be issued and signed by the person making the examination within twenty-eight days of the completion of the examination; and - ensure that a comprehensive record of all requisite maintenance records for serviced equipment is maintained

		at the operations area for inspection by the Director of Mines.
Safety precautions	43.	(1) No workman shall enter within the safety guardrail fence surrounding machinery unless authorized by the Mine Manager. (2) Access to the area within the safety guardrail fence surrounding machinery shall be strictly limited to authorized personnel only. (3) Clear signage indicating restricted areas and safety warnings shall be prominently displayed to alert employees of the potential hazards. These signs shall include specific instructions on entry restrictions, emergency procedures, and the requirement for appropriate personal protective equipment. (4) Any employee or person within the mine area who notices anything that poses an imminent danger to others or that is likely to interfere with the proper functionality of the machinery, shall inform the Mine Manager immediately. (5) Workmen engaged near machinery shall not wear loose outer clothing or have and shall keep their hair neat and securely tied. (6) The repairing, adjusting, cleaning, lubricating or maintenance of machinery in motion shall be undertaken only under an approved schedule by trained personnel with due precaution and appropriate safety equipment provided. (7) The repairing, adjusting, cleaning, lubricating or maintenance of machinery in motion shall adhere to a strict lock - out and tag-out procedures to ensure the proper isolation of all energy sources prior to the execution of any tasksThe Mine Manager shall utilise as many as possible automatic devices for oiling machinery whilst in motion as a safety precaution. (8) To provide safety guards on moving machinery and equipment/ operating manuals
Friction clutches or similar contrivances to be provided	44.	(1) The Mine Manager shall ensure that all belt-driven machinery, which requires starting and stopping without affecting the speed of prime movers or other associated equipment, is permanently equipped with an appropriate mechanical device designed for this purpose. (2) The manual placement or removal of driving belts while machinery is in motion is prohibited, except for the routine adjustment of light belts on coned pulleys of machine tools to regulate working speed.

Boilers and air receivers, to be fitted with gauges and safety valves, and tested.	45.	(1) The Mine Manager shall: (a) ensure that all boilers or working receivers connected by pipeline to a source whereby the working pressure of the contained air or gas may be increased to a pressure higher than atmospheric pressure shall be fitted with reliable pressure gauge to display the pressure at all times; and shall also be fitted with a relief or safety valve or such other device capable of preventing undue accumulation of pressure above the safe working limit of the receiver; (b) have every boiler or receiver tested hydraulically to the extent of one and a half times the working pressure on installation (unless such boiler or receiver is new) and subsequently at intervals not exceeding three years; and (c) keep a written record at every testing and signed by the person conducting the test and the mine manager and retained in the machinery record book (if any) which shall be kept by the mine manager. (2) Such records under (1) shall provide full details of the tests conducted, particulars of all repairs noted for action; and subsequent entries on maintenance and repairs undertaken on boilers, receivers and such other machinery which shall be signed by the supervisor and the mine manager. (3) The Mine Manager shall ensure that all compressed air receivers are fitted with an efficient oil drain placed at the lowest point on the receiver, and any accumulation of oil in such receiver to be removed using such oil drain at least once in every eight hours while the receiver is in use.
Pressure tests and tests for leakage	46.	The Mine Manager shall ensure that in testing vessels for leaks or for the ability to withstand pressure, no vessel shall be tested at a pressure of more than 0.35 kilograms per square centimetre above that of the atmosphere except, by means of hydraulic tests.
Supply of pure air for compressor	47.	The Mine Manager shall ensure that the supply of air for air compressors is drawn from a pure and cool source.
Exhaust steam underground	48.	(1) The Mine Manager shall provide instructions to the superintendent or mine captain to ensure that exhaust from any steam-driven machinery or internal combustion engine situated underground is led to the surface before being allowed to escape:

		Provided that, where such exhaust consists of steam only, the Director of Mines may permit such steam to be disposed of underground by either of the following methods: (a) discharge into abandoned workings if the Director of Mines is satisfied that such workings have no connection with the active operation of the mine, and do not serve as regular or emergency exits; or (b) discharge under water provided the point of the outlet of the steam is not less than 45 centimetres below the surface of the water and provided that the temperature of the water is not allowed to exceed 38° C. (2) The Mine Manager shall ensure that no internal combustion engine is employed underground unless the pattern is approved in writing by the Director of Mines, which shall be required to be reasonably flameproof and fitted with a suitable standard type exhaust box with demonstration of sufficient mine at all times to ensure that no concentration of lethal exhaust gases occur.
Electrical machinery and conductors to be protected	49.	The Mine Manager shall ensure that all electrical machinery and all electrical conductors are well placed and protected to avoid accidental contact.
Compliance with Energy Act (CAP 314)	50.	The Mine Manager shall ensure that all electrical machinery, apparatus and conductors installed at the mine comply with the requirements of the Energy Act and relevant regulations made.
Inspection of plant and machinery by Director of Mines	51.	(1) The Director of Mines may, at any time, give notice in writing to a mine manager of an intention to conduct inspection of any plant or machinery at the mine and the mine manager shall be required to grant access to the site, plant or machinery indicated in the inspection notice. (2) The Mine Manager shall comply with the requirements of such notice and ensure that: (a) the boiler, engine or other plant is cold; (b) in the case of a boiler, that the boiler is empty of water, the manhole doors and hand-hole doors are removed, and the mountings taken off and opened out; and (c) in the case of engines, the cylinder heads are taken off, and if required by the written notice, the connecting rod large ends are opened out, the pistons removed, the piston rings taken off the pistons and the valves removed.

		(3) The Mine Manager shall ensure that all plant and machinery indicated in the notice of inspection is ready for inspection and in a reasonably clean condition.
No admittance to works	52.	No unauthorized person shall enter any place where machinery or steam boilers are erected and notice to this effect the Mine Manager shall ensure that adequate signage is posted at all such entrances.
PART VI: EXPLOSIVES AND BLASTING		
Handling of Explosives Underground operations	53. .	(1) The Mine Manager shall ensure that the handling, transport storage and use of explosives in a underground operations area shall be in accordance with the provisions of the Explosives Act and any other laws and regulations on the use of the same. (2) The Mine Manager shall ensure that explosives weighing more than 50 kilograms are not stored underground except with the written permission of the Director of Mines, which permit shall contain the conditions for storage to ensure safety. (3) Explosives weighing less than 50 kilograms may be stored underground provided that: (a) they are stored in properly constructed wooden boxes; (b) they are stored in a dry place, not less than 35 meters from any blasting operations; (c) detonators shall be stored in separate boxes which shall not be placed within two meters of boxes containing explosives; (d) detonators shall not be carried in the same case with other explosives; and (e) The boxes containing the explosives, or the detonators shall be safely kept in a locked store, or receptacles and no other materials shall be placed in the boxes. (4) The Mine Manager shall ensure that no person shall carry or permit to be carried or stored any calcium carbide in an underground mine except in lamps or watertight receptacles.

		(5) There shall be no fire or smoke or naked flame within the vicinity when handling explosives or preparation of charges except for purposes of lighting the fuses. (6) The Mine Manager shall: (a) install controls to ensure that no person removes from the secure storage location any explosive without the written permission of the mine manager; (b) ensure that explosives within the mine area are only used for the authorized function and in full compliance with existing regulations and conditions for use in existence; and (c) be wholly liable for any incidents or accidents arising from the use of explosives within the mine operations area. (d) ensure that the igniter codes for the explosives are equipped with cap fuses. (7) The Mineral Right Holder shall ensure to obtain all the necessary legal authorization for the use, haulage and disposal of any explosive materials in use in the underground operations.
Requirements for a blasting certificate	54.	(1) No person shall conduct or be allowed to conduct any blasting operations in or on a mine at a depth of ten metres or more, measured from the surface along or down a shaft, adit, well or tunnel unless they possess a miner's blasting certificate or a provisional blasting certificate. (2) No person shall be issued with a miner's blasting certificate unless they are holders of a blasting permit issued under the requirements of the Explosives Act CAP 115. (3) A miner's blasting certificate which shall be in the form in the Fourth Schedule, shall be issued by the Director of Mines to any person who proves to his satisfaction that he is competent to take charge of blasting operations; and if a blasting certificate is granted to a person who has less than three months' mining experience underground, an endorsement to that effect shall be made on the blasting certificate and signed by the Director of mines. (4) A miner's blasting certificate, which shall be in the form set out in the Fourth Schedule, shall be issued by the Director of Mine.

		(5) The Director of Mines may impose such conditions and issue guidelines on the scope of a miner's blasting certificate as may be deemed fit which shall be endorsed on the blasting certificate. (6) A miner's blasting certificate shall be issued on payment of an annual fee as may be prescribed. (7) The application for a blasting certificate shall be made to the Director of Mines in the prescribed format who shall, as soon as possible, issue the certificate upon confirmation of the conditions met by the applicant.
Suspension, revocation and validation of blasting certificates	55.	(1) The Director of Mines or his representative may suspend or revoke a blasting certificate if the holder fails to adhere to the set conditions endorsed on the blasting certificate or causes any accident by carelessness, incapacity or inebriety. (2) The holder of the blasting certificate may request a review of the decision by the Director of Mines upon demonstration that the conditions required have since been met or the reasons for refusal have been rectified. (3) A Mine Manager may request validation of a blasting certificate by the Director of Mines to confirm authenticity.
Restriction of underground blasting operations	56.	The Director of Mines or an inspector of mines appointed under the Mining Act may prohibit or restrict the use of explosives in places where there are safety risks, and the underground blasting exercise is likely to endanger life or property.
Blasting Supervision	57.	(1) In the event that a group of workers is so large that one blasting supervisor is unable to conduct the blasting operations alone, such group shall be divided into two or more with each group to be placed under the supervision of an experienced blasting supervisor who holds a blasting certificate. (2) Each group shall consist of not more than twenty workers or as shall be determined by guidelines set by the Director of Mines on Mine Blasting procedures. (3) No person shall act as a blasting supervisor without holding a blasting certificate

Responsibilities of a blasting supervisor	58.	A blasting supervisor shall be responsible for: (a) the safety of every person working in the blasting area; (b) ensuring that every worker under their supervision is acquainted with the requirement to possess a blasting certificate; (c) ensuring that the detonation work they supervise is carried out in conformity with the requirements of these regulations; and (d) the storage of explosives placed in their custody are stored in accordance with the requirements of these regulations.
Blasting supervisor to be the first to enter working place after blasting	59.	Before commencing work, or after blasting, the blasting supervisor shall be the first person to enter the working area, and, until they consider it safe, they shall not allow any workers to enter save for those required to secure the safety of the operation. After blasting, the blasting supervisor shall determine: (a) the levels of oxygen, fumes and dust are at acceptable levels and that there is adequate ventilation at the blast site as required by regulation 123. (b) misfires are identified and handled following regulation 61. (c) Mine scaling down with consideration to loose rock, backbreak or overhangs
Scaling down and examination for misfires before drilling	60.	(1) The Mine Manager shall ensure that before drilling begins, all loose and loosened rock and ground are scaled down from the face and neighbourhood of the working place. (2) The face shall be carefully examined by the blasting supervisor or miner in charge for misfired holes and sockets of holes, and such sockets shall be tightly plugged with plain wooden plugs, driven flush with the surface of the rock. (3) When compressed air is available, all sockets shall be blown out with a blowpipe before being plugged. (4) The blasting supervisor or miner in charge shall immediately plug tightly with a short wooden plug, painted red, every misfired hole discovered if unable to immediately deal with it. (5) A sufficient supply of wooden plugs for the purpose of this regulation shall be kept conveniently with easy access for use.
Misfires	61.	(1) The Mine Manager shall provide oversight to ensure every misfired hole shall be exploded before drilling is recommenced

		within five metres of such misfired hole; and for this purpose, the tamping shall be withdrawn to allow the insertion of a fresh primer cartridge. (2) Whenever compressed air is available, the tamping shall be withdrawn by means of a blowpipe; but when compressed air is not available, the tamping shall be withdrawn by means only of an instrument made of wood, brass or copper. (3) This operation shall only be performed by a competent holder of a blasting certificate. (4) The mine manager shall ensure that no area with a misfire, or a suspected misfire is left without a responsible and qualified person in charge.
Position and direction of holes	62.	(1) The blasting supervisor or miner in charge shall point out to the driller working under their supervision the exact position and direction of the hole to be drilled and ensure the driller does not deviate therefrom. (2) No hole shall be located or directed within fifteen centimetres of any socket or of any other hole which may at any time have been charged with explosive.
Deepening of holes forbidden	63.	The Mine Manager shall ensure to have clear work instructions that ensure that no drill-hole is deepened by an oncoming shift unless the blasting supervisor of the shift finishing work informs the blasting supervisor of the oncoming shift that such hole is unfinished with no explosive and clearly describes its position in a record to be retained at the work site
Equipment to be removed	64.	1) The Mine Manager shall appoint a qualified supervisor to ensure that all drilling is completed, with machines, drill steels and tools removed to a safe distance before any explosives are brought to the working place, provided that air hoses and blow pipes shall not be classed as tools for the purposes of this regulation.
Preparing and firing charges	65.	1) In the preparation of charges, and the firing of such charges by means other than electricity, a blasting supervisor may be assisted by reliable workers who do not possess blasting certificates, with supervision provided that the blasting supervisor shall bear responsibility for all workers assigned as part of his team. 2) Where explosives are to be used and a significant presence of flammable gases is detected beyond the permissible limits, all the firing shall immediately be stopped.

Withdrawal of explosives forbidden	66.	The Mine Manager shall ensure that no explosive is extracted, except by means of compressed air and a blow pipe from a hole that has once been charged.
Attachment of detonator to fuse	67.	The Mine Manager shall ensure adequate supervision to ensure that detonators are attached to the fuse only by means of a properly designed crimping tool or any other instrument as approved by the Director of Mines.
Detonators and fuse attachment to primer	68.	The Mine Manager shall ensure that there is an experienced blasting supervisor at the site to ensure that: (a) where blasting with dynamite or other explosives in a cartridge, the fuse with the attached detonator is inserted in the primer cartridge only shortly before use; and (b) in making up a charge, the fuse with the detonator attached shall, after being inserted in the primer cartridge, be securely fastened to it by means of a string or other suitable material so that the fuse with the detonator cannot be inadvertently withdrawn.
Time for charging holes	69.	The Blasting Supervisor shall ensure that holes are charged only within a reasonable time before blasting and that the insertion of the primer cartridge is delayed until shortly before firing.
Charging stick-forbidden materials	70.	The Blasting Supervisor shall ensure that in charging or in stemming holes for blasting, no iron or steel instrument is used and no explosives is forcibly pressed into a hole of insufficient size.
Tamping	71.	The Blasting Supervisor shall ensure that only sand and soft clay is used as tamping material for charges and explosives.
Charged holes	72.	The Mine Manager shall ensure that: (a) when an explosive charge has been placed in a drill-hole, no further drilling shall be done at the face in which the said hole is situated until the said charge has been exploded; (b) if the blasting certificate holder who has charged a drill-hole with explosive is not able to explode the charge before going off-duty, he shall plug the hole with a wooden plug in the manner prescribed in these regulations and inform the blasting supervisor of the oncoming shift

		of the presence of the said unfired explosive charge with record of the same retained at the site; and (c) all holes that have been charged with explosives shall be fired as soon as reasonably possible.
Warning to be given	73.	(1) The Blasting Supervisor shall ensure that before firing charges, due audible warning shall be given in every direction, and every precaution shall be taken to prevent any activity in the area being undertaken to reduce the risk of injury and damage to property from debris. (2) The Min Blasting Supervisor shall ensure that a distinct siren system is used to alert individuals of upcoming blasting activities. (3) The Blasting Supervisor shall ensure that there are no persons present in an underground mine during blasting activities.
Ignition of fuses	74.	The Blasting Supervisor shall ensure that where more than one charge is to be fired, fuses shall be ignited only by means of a fuse igniter of a type approved by the Director of Mines.
Suspected misfire to be reported and documented	75.	The Blasting Supervisor shall ensure that there are adequate work instructions manual at the site to verify that: (a) if a misfire is suspected at a change of shift, the blasting certificate holder who fired or attempted to fire the charges shall forthwith report such suspected misfire to the mine manager and to the blasting supervisor of the following shift, which record shall be documented and kept at the site; and (b) the responsibility of warning the blasting supervisor of the next shift shall rest with the blasting certificate holder who fired or attempted to fire the shots.
Precautions against removal of explosives	76.	The Mine Manager shall provide oversight to install adequate controls to ensure that persons working in the operations area do not remove any explosives from the mine.
Underground mine workers to report suspected misfires	77.	If any underground mine employee has any reason to believe that a misfired charge or any unexploded blasting material is present at any place in the area of operations, the employee shall have a duty to

and unattended explosives		report the same to the Mine Manager or blasting supervisor as the case may be.
Electric shot firing	78.	The Blasting Supervisor shall ensure that: (a) the charging of holes to be fired electrically, and the firing of such charges, are only performed by a holder of a blasting certificate. (b) no unauthorized person opens or interferes with any magneto-electric machine or other electric shot-firing apparatus. (c) the blasting certificate holder in charge of electric blasting operations is responsible for the observance of the following conditions: i. shot firing cables used conform with the specifications provided in these regulations; provided that a length not exceeding three meters of vulcanized rubber insulated cable of a type approved by the Director of Mines may be attached to the end of each core of the shot-firing cable for the purpose of connecting the cable with the fuse or detonator; ii. they personally connect the cable to the fuse or detonator wires before connecting them to the source of electrical energy; and prevent the cable from coming into contact with any power or lighting cables or apparatus, iii. personally couple the cable to the source of electrical energy; and issue warning before firing charges as required by these regulations; and iv. keep the handle, plug or key of the magneto-electric machine or other apparatus in their custody, and shall not place the same in position until a shot is about to be fired, and thereafter shall remove it as soon as a shot has been fired. (e) In the event of a misfire: i. No person shall approach the misfired hole until sufficient time has passed to ensure safety, but in any case, not less than ten minutes; ii. before approaching, or allowing any other person to approach the shot hole, disconnect the cable and remove the handle, plug or key from the source of electrical energy, and examine the cable and connections for any defect; and

		iii. if the misfire is due to a faulty cable or a faulty connection, fire the shot as soon as practicable after the defect has been remedied, but otherwise, treat the misfire in the manner prescribed in these regulations.
Source of electricity	79.	(1) The Blasting Supervisor shall ensure that the only source of electrical energy to be used for firing charges electrically is an efficient battery or magneto-electric machine or other apparatus of a type approved in writing by the Director of Mines; and constructed in a manner to be operated only by a removable handle, plug or key with the firing circuit made and broken automatically or by means of a push button switch. (2) Such battery, machine or authorized apparatus shall be provided with a shot-firing cable not less than twenty meters in length, which shall consist of two conducting cores covered with insulating material and efficiently protected against mechanical damage by a heavy sheathing of tough rubber, specially designed for rough usage. (3) Electrical energy from lighting or power circuits shall not be used for firing charges.
Loose wires	80.	At any place where rock or other material broken by an electrically fired explosive is being removed, the blasting supervisor or holder of a blasting certificate shall instruct the workers to report the same immediately to them on finding any wires in or under the loose rock; and if any such wires are found, they shall at once trace them to their ends to discover whether a misfire has occurred.
Dust Suppression during blasting	81.	The Blasting Supervisor shall ensure that water blasts or any other appropriate methods are used to suppress dust during blasting. After blasting, sufficient time shall be given for adequate ventilation conditions to resume.
Destruction of Explosives	82.	The Blasting Supervisor shall ensure that the destruction of any explosives is carried out in strict conformity with the provisions of the Explosives Act and the regulations thereunder.
PART VII: TAILINGS HANDLING AND TRANSPORT		
Safe handling	83.	The Mine Manager shall ensure the safe handling and transportation of tailings to the tailings storage facility, taking measures to prevent

		direct contact with hazardous materials or spillage of harmful material during transportation of the tailings.
Tailings Storage Facility (TSF) Design and Construction		
Site selection	84.	The Mineral Right Holder or Dealer's Licence Holder shall identify and select a site for the tailings storage facility based on an approved Environment and Social Impact Assessment (ESIA) and a geotechnical survey approved by the Director of Mines.
Plans for tailings storage facilities	85.	(1) A Mineral Right Holder shall, before the commencement of construction work on a tailings storage facility in the mine, submit to the Director of Mines for approval, the initial design and management plan of the tailings storage facility consisting of: - (a) an engineering design of the tailings storage facility; (b) an operating plan; (c) a monitoring plan; (d) a water management plan; (e) an emergency preparedness plan; and (f) a preliminary closure plan. (2) The Director of Mines shall issue a written decision on the approval or rejection of the design and management plan submitted under sub-regulation (1) within sixty days from the date of submission. (3) The Mineral Right Holder shall ensure that the preliminary closure plan provides adequate safety measures to address safety risks and hazards.
Plans and specifications of Tailings Storage Facility	86.	(1) The Mineral Right Holder shall ensure that the plans and specifications required to be submitted to the Director of Mines shall contain: a) in the case of a proposed tailings storage facility: (i) characterization and description of the tailings to be stored; (ii) a contour plan of the locality and a cross-section and a site plan of the tailings storage facility together with particulars of the strata in or on which each embankment is to be constructed; (iii) plans of the vertical end and mid-section of the embankments showing the position, size and details of all channels; (iv) details and nature of the materials proposed to be used in the construction, and particulars of the method of placing the materials in the formation of the embankments; (v) the safety factor allowed in the strength of the embankments;

		(vi) the estimated capacity of the tailings storage facility; (vii) the average and maximum known rainfall; (viii) the results of geotechnical investigations of the location of the tailings storage facility; and (ix) details of the measures to be adopted to ensure safety in the event of unprecedented rainfall, bursting of the tailings storage facility or the flooding of areas exterior to any natural channel or watercourse by an uncontrolled escape of water and tailings from the tailings storage facility. b) in the case of the tailings storage facility already constructed but intended to be enlarged or altered: - (i) plans, sections, details and particulars of the existing tailings storage facility and the embankments and other details and the information that is required by sub-regulation 1 (a) in connection with the construction of a tailings storage facility; (ii) particulars of any alteration in the capacity of the tailings storage facility; and (iii) an assessment of risks arising from the enlargement of the tailings storage facility. (2) The plan shall be drawn to scale, and all essential measurements shall be plotted on them. (3) The Director of Mines shall approve the plan upon the Mineral Right Holder's fulfilment of the required conditions.
Design Standards	87.	A Mineral Right Holder shall ensure that the design, construction and monitoring of a tailings' storage facility, including the associated containment facilities, is carried out by a qualified mine engineer.
Hazard Classes	88.	(1) A Mineral Right Holder shall ensure that tailings storage facilities comply with the hazard classes as provided in the First Schedule. (2) The Director of Mines may prescribe specific minimum standards for each hazard class. (3) Standards established in sub-regulation (2) shall, in the case of a more hazardous facility, provide: - (a) a higher safety standard; (b) a specific construction method; (c) a higher static safety factor for the embankment; and (d) increased control and inspection. (4) A Mineral Right Holder and Mineral Dealer shall ensure that a tailings storage facility is situated in an area where the failure of the embankment is unlikely to pose a threat to human life and property
Embankments	89.	A Mineral Right Holder and mineral dealer shall ensure that:

		(a) the embankments of tailings storage facilities in hazard class A or B referred to in the First Schedule are constructed by the downstream method; (b) upstream and centre line construction methods are only used for tailings storage facilities in hazard class C referred to in the First Schedule; (c) the area for the construction of an embankment is cleared of vegetation, topsoil and weak ground; (d) there is a stable foundation for the embankment; (e) the material used for the construction of an embankment is resistant to liquefaction; (f) the soil used for the construction of an embankment is suitable for purpose, and placed in layers of not more than thirty centimetres and is compacted; (g) the embankments have a drainage system to control the phreatic surface and seepage; (h) water that has seeped outside the embankment from the tailings storage facility is collected in a sump and is treated and pumped back into the tailings storage facility; (i) the structural requirements of embankments are calculated by a qualified mine engineer; (j) minimum safety factors for static and dynamic load according to a specific calculation method are established; (k) for a hazard class C referred to in the First Schedule facility, a static load safety factor of 1.5 is applied; (l) for a hazard class B referred to in the First Schedule facility, a safety factor of 1.6 is applied; (m) for a hazard class A referred to in the First Schedule facility, a safety factor of 1.7 is applied; (n) the construction of the embankment is supervised by a qualified and competent mine engineer who shall submit reports to the Director of Mines; (o) an embankment provides for a freeboard of not less than one meter to ensure that the impoundment has enough capacity for water inflow during storm events; and (p) an embankment is designed to manage inflow from the plant and heavy rainfall, ensuring sufficient freeboard to prevent overtopping and the development of undesirable phreatic surfaces.
Monitoring of tailings storage facilities	90.	A Mineral Right Holder and mineral dealer shall : (a) ensure that seepage through embankments is monitored at regular intervals in accredited labs, and reports are submitted to a qualified technical expert accredited by the authorised regulatory body for approvals;

		(b) ensure that a qualified technical expert accredited by the authorised regulatory body conducts bi-annual tests of the groundwater surrounding the tailings storage facility to confirm the absence of seepage, with the test results submitted to the Director of Mines; (c) install systems for detection of internal movements, pressure changes, or shifts within embankments or tailings material to be monitored; (d) conduct regular surface-level monitoring to identify external movements, cracks, or deformations ; (e) monitor pore water pressure, lateral and vertical movements, and stress changes in embankments to ensure structural stability; (f) perform routine inspections of embankments, drains, and other structures for signs of cracks, erosion, or seepage, to track physical changes; (g) implement systems for real-time data collection and analysis, establish safety thresholds, and set up early warning mechanisms to prevent failures; (h) regularly review monitoring data, maintain equipment in proper working order, and report findings to relevant authorities to ensure compliance and safety; (i) regularly inspect the tailings storage facility, at least once quarterly, prepare reports on the inspection findings and ensure that the outcomes are verified by the Inspector of Mines; (j) ensure that the inspection in sub-regulation (i) is documented and availed to the Director of Mines upon request, and ensure corrective action is undertaken within seven days after such action is deemed necessary; and (k) install a system to maintain water balance within the tailings storage facility and prevent overflow or seepage that could lead to the contamination of surrounding water bodies or aquifers.
Commissioning and audit of a tailings storage facility	91.	(1) A Mineral Right Holder shall not use a tailings storage facility that is constructed, enlarged or altered under these Regulations without written approval from the Director of Mines upon inspection of the tailings storage facility to confirm the safety of employees and others in the surrounding environment. (2) The Mineral Right Holder shall engage an independent technical expert on an annual basis to conduct a tailings storage facility safety audit and submit the findings to the Director of Mines.
Operation and Maintenance of Tailings Storage Facilities		

Emergency Preparedness	92.	(1) The Mineral Right Holder shall develop a site-specific emergency plan that identifies potential hazards and outlines the mitigation measures and response plans. (2) The Mine Manager shall ensure that employees at the operations area are adequately trained on the emergency response plan.
Community Safety	93.	(1) The Mine Manager shall ensure: - a) establishment of clear barriers, signage, and fencing to restrict unauthorized access to the tailings storage facility; and b) recommendations of the environmental and social impact assessment report as well as the annual environmental audits are implemented. c) the local community is sensitized about the tailings storage facility risks, safety protocols, and emergency evacuation procedures; d) a comprehensive emergency response plan is developed and shared with the community, including evacuation routes, shelter points, and emergency contacts, and conducts regular drills for disaster preparedness; e) compliance with local and international safety regulations, and engagement with the community to gather feedback, address concerns, and incorporate their input into safety and operational practices.
Reprocessed Tailings	94.	A Mineral Right Holder and mineral dealer shall ensure:- i. reprocessed tailings comply with environmental and regulatory standards and obtain regulatory approval for any plan changes ii. During transportation, reprocessed tailings should be securely contained in sealed or covered vehicles, with measures in place to prevent spills, dust emissions, and environmental contamination along designated routes. iii. At the reprocessing site, tailings must be offloaded in lined, contained areas with drainage systems, and managed using dust suppression, leachate controls, and worker safety protocols. All handling must comply with national environmental and occupational safety regulations, ensuring proper tracking, exposure monitoring, and responsible final residue disposal.
Decommissioning of the tailings storage facility	95.	(1) A Mineral Right Holder and a mineral dealer shall be required to notify the Director of Mines in writing of the intent for abandonment at least thirty days before discontinuation of the use of the facility. (2) The discontinuance of a tailings storage facility under sub-regulation (1) shall conform to the preliminary closure and decommissioning plan under these Regulations.

		(3) The Mineral Right Holder and mineral dealer. shall be responsible for any liabilities or perils arising out of the discontinuance or abandonment at the tailings storage facility.
PART VIII: SAFETY OF SURFACE EXCAVATIONS		
Risk Assessment	96.	(1) A Mineral Right Holder shall: (a) ensure that a comprehensive risk assessment is undertaken for all phases of the mine cycle, covering the likelihood and impact of potential risks and hazards among others, and outlining proposed mitigation measures; (b) maintain a risk register, with a risk matrix indicating the magnitude of risk exposure, likelihood of frequency in occurrence and mitigation or preventive measures in place; and (c) ensure the risk register is updated at least once every quarter and is available for inspection at the mine by the Director of Mines on request.
Storm Water	97.	(1) The Mineral Right Holder shall: (a) ensure there is reduced exposure of sediment-generating materials to wind or water; (b) put in place control measures to prevent off-site sediment transport using settlement ponds and silt fences or any other appropriate measures; (c) ensure that storm water drains, ditches, and stream channels are protected against erosion through a combination of adequate dimensions, slope limitation techniques, and the use of riprap and lining; and (d) Maintain the structures in (c) above to ensure that they are operational (storm water).

Surface excavation plans	98.	(1) A Mineral Right Holder shall prepare a mine site plan showing every surface feature within the boundaries of the mine area, including: a) telephone and power transmission lines; b) roads, railways and other transport infrastructure; c) rivers, watercourses, reservoirs, and other water bodies; d) buildings; e) any ecologically sensitive areas, or biodiversity resources; and f) the dimensions of the excavation area; and g) Any other added feature. (2) A Mineral Right Holder shall, at any time as may be required by the Director of Mines, submit the surface plan for inspection. (3) The Director of Mines may request in writing, require such additional details to be incorporated into the surface plan as deemed fit. (4) A Mineral Right Holder shall ensure that, where multiple reefs or mineral deposits are vertically layered, each reef's workings shall be depicted on separate plans. (5) All plans created under this regulation shall be reviewed and updated annually or on need basis.
Mine Design	99.	(1) A Mineral Right Holder shall ensure the preparation of a mine design that: (a) is based on sound geotechnical engineering practices which: (i) take into account the geological make-up of the subsurface ; (ii) assesses the ground stability of the active and proposed workings of the mine; (iii) takes into account previous occurrences of ground instability; (iv) outlines the geometry of existing and proposed excavations; (v) includes a slope stability monitoring program; and (vi) outlines the methods to control water from nearby strata or surrounding bodies of water; (b) considers the health and safety of workers; (c) is prepared under the direction of a technical expert;

		(d) consists of drawings, plans, specifications and procedures; (e) includes a ventilation plan where applicable; (f) includes a blasting design, where required; takes into account all other important factors with regard to the mine design; and (g) outlines an appropriate Mine Emergency plan. (2) A Mineral Right Holder shall ensure that the mine design is reviewed and updated under the direction of the Director of Mines. (3) The Mine Manager shall: (a) post warning signs or erect fences around pits and trenches to prevent safety incidents or accidents; and (b) ensure adequate precautions are published, and implemented, with safety operational protocols well documented, where open pits are excavated or in abandoned underground workings (4) Where the Director of Mines considers that the benches and berms in surface mine workings are unsafe, the Director of Mines shall require the Mine Manager to rectify the same.
Slope stability	100.	(1) The Mineral Right Holder shall ensure that where the surface of the ground is excavated to create an open pit— (a) the excavated material is kept away from the edge of the pit; and (b) the slope formed by excavated material shall not be steeper than the natural angle of repose. (2) The Director of Mines may develop operational guidelines and standards that provide guidance on the angle of slope (45 degrees) and the excavation dimensions to be maintained in any mine for safety. (3) Where, upon inspection, the Director of Mines determines that the operational guidelines and standards at the mine site are inadequate, the Director of Mines shall issue a written notice to the Mineral Right Holder, requiring immediate compliance.
Water use	101.	The Mineral Right Holder and mineral dealer shall develop a sustainable water supply management plan to minimize the impact of mining operations on natural systems by managing water use, conservation aquifers and natural water sources, and minimizing adverse impact on water users.

Smelting and Roasting	102.	The Mine Manager shall ensure that: - (a) operations are at a controlled temperature; and (b) there is the inclusion of an appropriate gas scrubbing system.
Storm water management	103.	(1) A Mineral Right Holder shall ensure that a storm water management plan is prepared. (2) The objectives of the storm water management plan shall be to ensure: (a) protection of life and property from flood hazards; (b) proper planning for potential drought periods in the operations area; (c) prevention of land and watercourse erosion during storm events (d) the protection of water resources from pollution; (e) continuous operation and production throughout different hydrological cycles; (f) the preservation of downstream water quantity and quality; (g) minimization of the adverse impact of mining operations on downstream users; and (h) the preservation of the natural environment and ecosystems. (3) In preparing a storm water management plan, the Mineral Right Holder shall identify and assess possible risks and incorporate a risk management plan to address such risks . (4) A Mineral Right Holder shall ensure that the storm water management plan is reviewed— (a) annually; and (b) aligned to best mine industry practices on the management of storm water drainage. (5) A Mineral Right Holder shall identify and secure areas of the mine that will result in clean stormwater runoff and ensure that runoff from these areas is routed directly to natural sources without containment or contamination. (6) A Mineral Right Holder shall identify all possible sources of contaminated water in a surface mine and ensure that appropriate collection and containment systems have been implemented to prevent water quality deterioration. (7) Notwithstanding the measures taken under sub-regulations (5) and (6), no person shall discharge water into any natural

		watercourse without a license under the Environmental Management and Co-ordination Act (CAP 387) and a permit under the Water Act (Cap 372) and any other relevant laws.
Drainage	104.	(1) The Mineral Right Holder shall ensure that proper surface drainage systems are installed which shall include: (a) diversion ditches or berms to channel surface water away from pits, shafts, and work areas; (b) sumps and pumps to be used as needed to remove water accumulations from active workings; (c) sediment control structures like settling ponds which are required to treat surface drainage; and (d) any other techniques to ensure adequate surface drainage. (2) The Mine Manager shall: (a) provide facilities that are designed for the full hydraulic load, including contributions from upstream catchments and non-mined areas; (b) ensure that the quality of all the discharged water is tested and consistent with the receiving water body use and that they obtain the requisite permits to effect such discharge from the relevant regulator; (c) ensure that water discharges are tested to confirm that they meet established quality criteria for isolation or identification of potential contaminants of concern; (d) ensure that sewerage water is treated before being discharged; (e) ensure that discharges to receiving water shall not cause excessive erosion, sedimentation, or harm to aquatic life; (f) ensure that the process of water recycling and minimizing discharge is prioritized through facility design; (g) ensure that spillways, ditches, and sediment control basins are used to manage surface runoff water; and (h) obtain the requisite permits or licenses from the regulatory authority responsible for the environment prior to discharge of water back into the environment.

Automobiles in the operations area	105.	(1) The Mine Manager shall take reasonable measures to ensure that each vehicle used within the operations area has an unobstructed view in the direction of travel. Provided that, where such measures are not in place, drivers shall be guided by suitable signage or signals provided only by authorized personnel. (2) The Mine Manager shall ensure that: (a) all vehicles used within the mining operations area, as well as their accessories, are customized appropriately and constructed from non-flammable material to minimize the risk of fire; (b) all vehicles are inspected at least once a year; (c) all inspections in (b) are documented; and (d) all self-propelled vehicles requiring regular inspection are inspected in a suitable workshop at the mine site that meets the following criteria: i. is constructed of non-flammable material. ii. is designed with a minimum of two exit points. iii. is equipped with a concrete floor. iv. is kitted with suitable equipment for inspecting vehicles v. has adequate lighting and protected light sources. vi. is equipped with adequate fire safety equipment. vii. is fitted with fire doors (3) The Mine Manager shall prescribe the speed limit of vehicles within the mining operations area to maintain safety and shall display clear signage indicating speed limitation in conspicuous places within the operations area.
Power	106.	(1) The Mine Manager shall ensure that: (a) electrical systems are designed by a qualified person, customized for safety with appropriate materials, possess adequate strength, and are installed and maintained in accordance with approved industry regulations and standards; (b) ground fault, undervoltage, and other protective systems are installed on circuits and equipment; (c) cables are secured, protected from damage, and identified for voltage; (d) lightning arrestors are installed at substation entrances; and

		(e) there are fire-resistant materials used for oil storage and containment systems; (f) all machinery is equipped with fire extinguishers and emergency shutdown systems; (g) regular fire drills are conducted and staff are trained on fire control measures; (h) diesel generators and power distribution equipment are adequately resourced with fuel requirements, ventilation, and fire prevention controls as well as having the relevant licences obtained;. (i) generators are equipped with spill containment measures to prevent oil leakage, and that regular inspections are conducted, proper disposal procedures are followed, and emergency response plans are put in place to ensure compliance with environmental regulations; (j) any live conductor used on service lines in the terminal span of a connection between an overhead line and a building or in a span between one building and another building is insulated conductors; (k) where bare overhead wires are used for the transmission or distribution of electrical energy on the surface, glazed porcelain or glass insulators of the correct type and voltage rating are used; (l) the stay wires, supporting framework and metal poles are bonded to an earthed conductor carried continuously from pole to pole throughout the length of any overhead power line, to prevent danger arising from a broken line conductor or leakage from a line conductor; and (m)a biannual examination of the entire electrical distribution system and equipment is conducted on: i. earth conductivity tests on all earthing systems; and ii. ground resistance tests on all main substations. (2) The Mineral Right Holder and mineral dealer shall ensure that record of routine inspections are maintained and available for audit by the Director of Mines.
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Dust control	107.	(1) A Mineral Right Holder shall install an adequate dust suppression system with exposed soils and other erodible surfaces adequately covered. (2) The Mine Manager shall ensure that the loading, transfer, and discharge of materials is undertaken with a minimum height of fall, shielded from wind and supported by an adequate dust suppression system. (3) The Mine Manager shall install mechanisms as well as technologies to monitor and suppress the dust levels in compliance with the relevant laws.
Noise management	108.	(1) The Mineral Right Holder shall ensure that the noise levels are kept within permissible minimums within the operations area as required by the applicable laws. (2) A Mineral Right Holder shall install appropriate noise suppression technology within the operations area. (3) The Mine Manager shall ensure that: (a) all activities that could cause noise pollution are scheduled for less active work hours, with adequate notice of such activities given to employees within the operations area and others likely to be affected; and (b) adequate safety protective equipment to minimize adverse effects of noise pollution is issued to workers within the area and adequate steps are taken to minimize the hazardous effects of the noise on the surrounding environment.
Loose rocks and berms	109.	(1) The Mine Manager shall ensure that activities at the mine commence after examination of the operations area for stability or signs of hazardous alterations to the structure that may expose employees on site to health and safety risks and in particular; : (i) those near a working face following a blast; (ii) where mining operations had been discontinued for a period of more than seven days; or (iii) where the mine is worked in benches, loose rocks on berms or benches do not accumulate to endanger workers on lower benches.

Waste Rocks	110.	The Mine Manager shall ensure that:- (a) Waste rock is dumped in engineered, stable locations with proper slope design and compaction to prevent landslides or slope failures; (b) Waste rock dumps to be engineered for long-term stability using proper geotechnical assessments, slope design, and drainage systems to prevent structural failure and environmental harm; (c) Measures such as drainage channels, liners, and sediment control systems be installed to manage runoff, prevent acid mine drainage (AMD), and reduce erosion; (d) Ongoing geotechnical inspections, environmental monitoring, and maintenance of waste rock dumps be conducted to ensure long-term structural integrity and environmental compliance; and (e) Access to waste rock dumps is controlled, with regular monitoring and inspections conducted to ensure worker safety and regulatory compliance.
Transport and haulage	111.	(1) The Mineral Right Holder shall ensure that the design and construction of haulage roads: (a) enables safe navigation and operation of mobile equipment authorized to travel on roads within the mine area; and (b) considers the size, speed, loads and operating characteristics of the equipment to be used, and the pit conditions including the effects of weather on the road. (2) The Mine Manager shall ensure that: (a) all haulage equipment such as trucks, locomotives, and conveyors meet safety design standards and are properly maintained; (b) traffic rules including speed limits, warning signals, and right-of-way practices are established and clearly displayed; and (c) roadways and travel ways are kept free of debris and obstructions. (3) The Mine Manager shall ensure that haulage roads at an open pit mine are designed, constructed, and maintained to provide: (a) a travel width:

		(i) that is at least two and a half times the width of the widest haulage vehicle used on the road where dual-lane traffic exists; or (ii) at least twice the width of the widest haulage vehicle used on the road where single-lane traffic exists, and (b) a surface and slope that reduces, as far as is reasonably practicable, the danger of vehicles slipping or skidding. (4) The Mine Manager shall: (a) provide emergency runaway lanes or retardation barriers that are: (i) placed at suitable locations and; (ii) capable of bringing a runaway vehicle to a controlled stop; and (b) maintain and clearly mark the emergency runaway lanes or retardation barriers. (5) Emergency runaway lanes or retardation barriers shall apply where: (a) the grade of the haulage road exceeds ten percent; and (b) a sharp bend in the haulage road creates a risk to the operator of a vehicle falling off that road; or (c) the Director of Mines gives direction for inclusion of the same. (6) Any person travelling to a mine shall use designated access roads to ensure their safety.
Leaching Mining	112.	The Mine Manager shall ensure that: (a) surface heap leach processes are designed and operated under the supervision of a qualified technical expert; (b) the infiltration of toxic leach solutions into the environment shall be prevented through the provision of appropriate liners, such as high-density polyethylene (HDPE) or equivalent materials; (c) the liners are designed to withstand the operational loads and chemical exposure expected during the heap leaching process; (d) the integrity of the liner system is regularly inspected to ensure its effectiveness throughout the operation; and (e) a leak detection system is installed and monitored to identify potential breaches promptly.

Water and sanitation	113.	(1) The Mine Manager shall provide all occupied areas of the mine with an adequate supply of potable water, ensure a retained water source for emergencies, and ensure that drinking water complies with Ministry of Health standards, is accessible to employees, kept clean and sanitary, and dispensed in a manner that maintains sanitary conditions (2) The Mine Manager shall provide adequate separate sanitary facilities for all male and female employees. (3) The Mine Manager shall ensure that the sanitary facilities in the operation area shall: (a) be conveniently located in well-ventilated areas, having regard to the number of employees and are equipped with adequate toilet facilities with privacy; (b) have separate facilities with signage clearly indicated for either gender; and (c) be maintained in hygienic condition and have all waste material removed regularly. (4) No person shall create unsanitary conditions in the mine. (5) The Mine Manager shall: (a) immediately report any health issues arising from poor water sanitation and likely to affect the workers or persons working within the mine operations area or in the surrounding environment to the Director of Mines; and (b) provide a mitigation plan to remedy any health crisis that may arise for containment and shall be required to provide measures to monitor the same with reports sent to the Director of Mines on a weekly basis.
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PART IX: SAFETY OF UNDERGROUND EXCAVATIONS

Inlets, Outlets and Pathways	114.	(1) The Mineral Right Holder shall ensure that the underground mine provides at least two outlets, which may include shafts, or tunnels, meeting the following criteria: (a) each outlet shall afford communication with every vein, lode, reef, ore body, or mineral deposit being worked and provide a separate means of entry and exit from the mine; and (b) separate means of entry and exit shall be provided for any chamber below ground containing machinery, transformers, electrical switch gear, or where batteries are charged.
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		(2) The Mineral Right Holder shall maintain and repair outlets that provide entry and exit pathways. (3) No individual shall enter or leave underground workings except through designated entry or exit points unless authorized by the Mine Manager. (4) The Mineral Right Holder shall ensure that underground mines are designed and developed with clearly identified mine refuge chambers. (5) The Mineral Right Holder shall ensure that workers at the mine are trained on the access points for the mine refuge chamber and that it is: (a) constructed with non-combustible material, with a sealing mechanism to prevent the entry of gas, and is of sufficient size to accommodate all persons working within the mine; (b) with an independent connection to the surface for supply of oxygen and ventilation, effective communication, supply of water, and provision of first aid facilities; and (c) within 15 minutes traveling time from anywhere in the mine for workplaces that are more than 300 metres from a mine portal or shaft station that is used to access the workplace. (6) The Mine Manager shall provide each shaft landing in the mine with two stopping barriers capable of halting a runaway locomotive from entering the shaft. (7) The Mine Manager shall ensure that: (a) vertical and steeply inclined workings are connected to levels by proper ladder ways, separated from rock passes; (b) chains or chain ladders are provided for use in underhand stopes where the face angle exceeds forty degrees from the horizontal; (c) ladder ways are kept accessible at all times and covered during shaft repairs but not locked up; (d) ladders used within the mine are strong, securely fastened, and maintained in proper repair; (e) rungs are kept clear and positioned appropriately for foothold; (f) ladders are not positioned in travelling ways in an overhanging manner; and (g) ropes and ladders are inspected at least once a month and approved by a qualified technical expert to ensure they comply with the relevant laws. (8) The Mine Manager shall ensure that in any underground area of a mine where a locomotive is used:
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		(a) a horizontal clearance of no less than 60 centimetres shall be maintained between the widest part of each vehicle of the train and the side of the passageway; (b) refuge bays shall be strategically positioned at intervals not exceeding 30 meters to provide protection for individuals passing through the area; (c) the clearance space shall be devoid of loose material and fragmented rock; (d) underground roads within the mining operations area are designed and constructed to ensure that the gradient and radius of all road sections shall allow for safe negotiation by vehicles; and (e) it is well lit and there is adequate ventilation.
Tunnel and shaft design	115.	(1) A Mineral Right Holder shall cause to be prepared a mine design that: (a) is based on sound geotechnical engineering practices which: (i) take into account the geological makeup of the sub-surface; (ii) assesses the ground stability of the active and proposed workings of the mine; (iii) takes into account previous occurrences of ground instability; (iv) outlines the geometry of existing and proposed excavations; (v) includes a slope stability monitoring program; and (vi) outlines the methods to be used to control water from nearby strata or surrounding bodies of water; (b) considers the health and safety of workers; (c) is prepared under the direction of a technical expert; (d) consists of drawings, plans, specifications and procedures; (e) includes a ventilation plan; (f) includes a blasting design, where required; and (g) considers other important factors with regard to the mine design. (2) A Mineral Right Holder shall ensure that a mine design is reviewed and updated under the direction of the Director of Mines. (3) A Mineral Right Holder shall: (a) display warning signages and erect fences around pits and trenches to prevent a person from falling inadvertently into the excavated trenches or pits; and

		(b) ensure that adequate precautions are implemented with documented safety operational protocols regarding open pits that are excavated or abandoned underground workings or near active underground operations. (4) Where the Director of Mines considers that the system of the support roof and sides adopted in any underground workings is unsafe, the Director of Mines may require the Mineral Right Holder to alter the design to factor in less distance between the supports for structural stability.
Support systems (Roof stability)	116.	(1) The Mineral Right Holder shall ensure the use of rock bolts, prestressed anchor, prestressed cable and any other appropriate method of reinforcement to promote roof stability in underground mines, where assessed as necessary or as recommended by the Director of Mines. (2) The Mineral Right Holder shall monitor surrounding rock mass including displacement stress and micro-seismicity using sensors and record the data and ensure that it is available for inspection by the Director of Mines. (3) The Mineral Right Holder shall ensure that proper and adequate support is provided to manage the risk of overhanging rocks.
Underground plans	117.	(1) Where a mine includes underground sections, the Mineral Right Holder shall cause to be prepared accurate plans by a qualified technical expert for all underground workings, structures, and other features as recommended by the Director of Mines. (2) The plans to be prepared and maintained pursuant to sub-regulation (1) above shall contain— (a) an underground plan, which shall distinctly illustrate— (i) boundaries of the mineral rights; (ii) locations of shafts, drives, winzes, raises, crosscuts, stopes, safety pillars, stations, and explosive magazines lockers underground; (iii) all intrusive rock features and structural make up; (iv) significant changes in dip of mineral deposits; (v) ventilation system layout; (vi) direction of main air currents, along with the positions of doors, stoppings, crossings, and primary ventilation equipment; (vii) electrical installations layout; and (viii) hoisting system plans. (b) a general underground plan containing the same details as specified in sub-regulation (2)(a) and drawn to scale of the general surface plan in sub-regulation (1); and

		(c) plans to illustrate transverse sections of workings drawn through the shafts, indicating strata dip, reef or mineral deposit dip, and any strata dislocations or intrusive rocks. (3) A Mineral Right Holder shall ensure that, where multiple reefs or mineral deposits are vertically layered, each reef's workings shall be depicted in separate plans. (4) The Mineral Right Holder shall ensure that all plans created under this regulation are reviewed and updated annually and available for inspection by the Director of Mines.
Waste Rock	118.	The Mine Manager Shall ensure that:- (a) Waste rock in underground mines is stored in designated, structurally secure underground chambers to prevent unplanned collapses and ground instability; (b) Proper ground support systems, such as rock bolting, shotcrete, and mesh, are applied in waste storage areas to maintain stability and protect workers; (c) The placement of waste rock is not obstruct ventilation pathways or emergency egress routes within the underground workings; (d) Geotechnical assessments guide the volume, distribution, and configuration of waste rock to prevent pressure build-up and structural weakening; (e) Monitoring systems are installed to detect early signs of subsidence, seismic activity, or deformation in waste rock storage zones; (f) Waste rock is compacted and backfilled in mined-out voids where applicable, to enhance mine stability and reduce surface subsidence; and (g) All personnel involved in waste rock handling are trained in safe dumping practices, hazard recognition, and emergency procedures.
Water and Sanitation	119.	(1) The Mine Manager shall provide all occupied areas of the mine with an adequate supply of potable water, ensure a retained water source for emergencies, and ensure that drinking water complies with Ministry of Health standards, is accessible to employees, kept clean and sanitary, and dispensed in a manner that maintains sanitary conditions. (2) The Mine Manager shall ensure that the sanitary facilities in a mine area shall:

		(a) be conveniently located in well-ventilated areas, having regard to the number of employees in the mine area and shall be equipped with adequate sanitary facilities and provide privacy; (b) have separate approaches with signs clearly indicating for either gender separately; and c. be maintained in hygienic condition and have all waste material removed regularly. (2) No person shall create unsanitary conditions in the mine. (3) The Mine Manager shall: (a) immediately report any health issues arising from poor water sanitation and likely to affect the workers or persons working within the mining operations area or in the surrounding environment to the Director of Mines; and (b) provide a mitigation plan to remedy any health crisis that may arise for containment and shall be required to provide measures to monitor the same with reports to the Director of Mines weekly.
Groundwater management	120.	(1) The Mineral Right Holder shall develop and implement a groundwater management plan for the underground mine. (2) The groundwater management plan shall contain: (a) provisions for monitoring and assessment of groundwater levels and quality within the mine; (b) measures to prevent and minimize groundwater contamination from mining activities; (c) strategies for groundwater extraction, dewatering, and discharge in accordance with environmental regulations; (d) emergency response procedures for addressing groundwater-related incidents; (e) provisions for annual reporting of groundwater data and management activities to the regulatory authority; and (f) the recommendations of the Environmental and Social Impact Assessment .
Lighting within an underground mine	121.	(1) The Mineral Right Holder shall ensure that there is adequate lighting within the operations area. (2) The Mine Manager shall ensure a provision of emergency lighting. (3) The driving zones shall be marked by relevant lights or other marker guides which shall be clearly illuminated at all times.

		(4) No person shall proceed into an underground mine unless they have adequate and appropriate lighting apparatus. (5) The Mine Manager shall ensure that suitable and sufficient permanent lighting is provided and maintained at: (a) each established station, landing or loading place and other similar places in vertical and inclined shafts, winzes and places where man winding is being carried out; (b) each main tip at which a self-propelled vehicle operates and each place where a self-propelled vehicle is maintained; (c) each substation; (d) each main crusher station and conveyor drive unit; and (e) the mining operations area. (6) The Mine Manager shall provide at the surface of the mine where underground work is carried out a separate room to be used as a lamp room; and (7) The Mine Manager shall ensure that all lighting apparatus is regularly serviced and in good working condition.
Electrical power installations	122.	(1) The Mineral Right Holder shall ensure that: (a) electrical systems are designed and customized by a qualified person, made of standard materials, and are installed and maintained according to approved industry regulations and guidelines; (b) ground fault, undervoltage, and other protective systems are installed on circuits and equipment; (c) cables are secured, protected from damage, and identified for voltage; (d) lightning arrestors are installed at substation entrances; and (e) diesel generators and power distribution equipment is adequately resourced with fuel requirements, ventilation, and fire prevention controls. (2) The Mine Manager shall ensure that a biannual examination of the entire electrical distribution system and equipment is conducted on: (a) earth conductivity tests on all earthing systems; and (b) ground resistance tests on all main substations. (3) The Mineral Right Holder shall ensure that records of the routine inspection are maintained and available for inspection by the Director of Mines.

Ventilation Systems	123.	(1) The Mineral Right Holder shall provide a mechanical ventilation system capable of providing adequate and safe air and oxygen flow to all active working areas. (2) The Mine Manager shall ensure that: (a) the ventilation system is designed and operated to filter to remove dust, fumes, vapours and gases to maintain a safe atmosphere and protect the respiratory health of workers and persons within the underground mine; (b) ventilation airflow adheres to thresholds that support the respiratory needs of the workers and others within the underground mine with due consideration to gaseous emissions and the number of workers; (c) ventilation controls like stoppings, overcasts, undercasts and regulators are properly constructed and maintained; (d) air quality is continuously monitored and tested for conformity, with inhaled dust levels kept below permissible exposure limits; (e) there are portable airbags as a ventilation backup system; and (f) an air flow management system at different levels within the underground mine is maintained. (3) For the purposes of sub-regulation (1), ventilation is deemed adequate if it: (a) maintains the oxygen level in the general body of air at not less than nineteen percent by volume; (b) ensures that concentrations of carbon dioxide, carbon monoxide, nitrous fumes, sulphur dioxide, hydrogen sulphide, and methane in the general body of air do not exceed specified limits as may be specified by the Director of Mines and public health guidelines on the same; (c) maintains working conditions free from dangerous contaminants, temperatures and high relative humidity in the general body of air; and (d) considers the respiratory needs of the workers and persons working in the underground mine for sufficiency as against the number of persons in the area. (4) The Mine Manager shall install mechanisms to test and control the speed of air in the underground mine not to fall below:
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		(a) 0.2 m/s in roadways; and (b) 0.1 m/s in large excavations. (5) There shall be continuous monitoring and testing of air quality by the Mine Manager to enable the detection of carbon monoxide in main return airways. (6) Data on the regular tests to determine air quantity, quality, temperature, and dust levels shall be retained by a competent person at specified locations underground as assigned by the Mine Manager. (7) Persons who are likely to be exposed to toxic gas, fumes and dust shall be provided with effective respirators, oxygen supply (where deemed necessary) and adequate protective equipment in areas where dust or toxic gas content exceeds limits recommended for safe human habitation. (8) Diesel units shall only operate in areas with adequate ventilation systems to expel any polluted air. (9) The Mine Manager shall ensure that doors affecting ventilation shall be self-closing, and anyone opening such doors shall ensure immediate closure. (10) The Mine Manager shall ensure that employees within the mine are regularly trained on how to limit exposure to toxic inhaled elements, how to respond to toxic gas leaks and on the use of respiratory protective equipment.
Fires	124.	(1) The Mine Manager shall ensure that suitable firefighting equipment are provided and maintained at all crusher stations, electrical installations, pump stations, shaft stations, shaft houses, tipples, conveyors, service garages, head frames, portal houses, processing plants or otherwise where a fire hazard may exist. (2) Fire hazard areas shall be identified by written and illustrated warning signs. (3) The Mine Manager shall ensure that: (a) there is a fire assembly point at the surface of the underground mine; (b) suitable and well serviced fire extinguishers are provided and maintained for each category of fire risk at each stationary electric or diesel motor, transformer and any switchgear in use; (c) the fire extinguishers are classified for the different fire risks to ensure the correct fire extinguishing agents are used for the various fire classes; and

		(d) fire extinguishers that give off or generate poisonous gas when operated are not allowed below the ground unless appropriate protective respiratory equipment is availed. (4) The Mine Manager shall appoint an adequate number of fire patrols, with each patrol consisting of not less than two trained persons on the task of providing emergency support services in the event of a fire emergency. (5) The assigned patrol shall inspect, at the end of each shift and on non-working shifts, all underground travelling ways which contain timber and other combustible material for prevention or abatement of fire and to provide precaution against fire. (6) The Mine Manager shall ensure that training in firefighting is carried out by a qualified person for— (a) all persons newly employed at a mine on instruction in the use of firefighting equipment; (b) all persons working at the mine with refresher courses in the use of firefighting equipment at intervals not exceeding one year; and (c) a firefighting equipment is equipped with clear labels with written and illustrated instructions on use. (7) The Mine Manager shall ensure that a reservoir containing sufficient water is at all times maintained to supply water at adequate volume and pressure to underground mine workings. (8) The Mine Manager shall ensure that the fire patrol is trained to locate fire emergency supplies and equipment and that fire hydrants, operated by wheel valves are located— (a) 20 meters on the intake side of conveyor loading and transfer; (b) at main junctions and electrical substations; and (c) along such roadways at intervals not exceeding 100 meters. (9) The Mineral Right Holder shall: (a) ensure that there is an accessible fire station at the mine; (b) appoint a qualified person to maintain the appliances used for the detection of flammable or noxious gases; and (c) ensure that the person authorized to use appliances for the detection of flammable or noxious gases regularly inspects the same to ensure it is in proper working condition and fit for use.
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		(10) No person while in an underground mine should be in possession of a match or apparatus of any kind for creating an open flame unless where authorized by the Mine Manager. (11) The Mine Manager shall develop workplace rules to ensure that no person smokes, or uses open flame lamps, matches or other means of producing heat or fire within the operations area.
Communication	125.	(1) The Mine Manager shall ensure that: (a) communication at the surface should have a person monitoring at any time when there are workers underground; and (b) every employee can easily access communication devices.
Automobile movements	126.	(1) The Mine Manager shall ensure that each vehicle used within the mine has an unobstructed view in the direction of travel provided that, where such visibility is not clear, drivers shall be guided by suitable signage provided by authorized personnel. (2) The Mine Manager shall ensure that; (a) all vehicles used underground within the mine, as well as their accessories, are constructed from non-flammable material to minimize the risk of fire; (b) all vehicles used in an underground mine shall be inspected by a qualified inspector at least annually or as may be required by the relevant laws and the records maintained for inspection by the Director of Mines; (c) regular maintenance to all automobiles to ensure that the vehicles are in serviceable conditions; (d) all inspections in (b) shall be documented in the record book for the respective vehicle; and (e) maintenance and inspection of automobiles is carried out in an equipped workshop that meets the following criteria: i. constructed of non-flammable material; ii. provided with a minimum of two means of exit; iii. ventilated with sufficient air currents to filter and render harmless, exhaust gases emitted during engine operation with adequate outlets; iv. equipped with a concrete floor; v. equipped with suitable means for inspecting vehicles from below, adequate lighting, and protected light sources; vi. provided with suitable equipment for extinguishing fires; and vii. fitted with fire doors.

		(3) The Mine Manager shall ensure that vehicles within the underground mine are equipped with: i. functional braking systems; ii. audible warning devices; iii. safe driver operating positions; iv. adequate lighting systems, including headlights and rear lights meeting specified visibility requirements; and v. roll cage fitted in the vehicles. (4) The Mine Manager shall prescribe the speed limit of vehicles within the operations area and shall display clear signages indicating the speed in conspicuous places within the operations area.
Thermal Parameters	127.	(1) The Mine Manager shall ensure that the wet bulb temperature at any working place or traveling way does not exceed 32.5°C except: (a) during temperature-lowering attempts; or (b) during emergency response training. (2) The Mine Manager shall ensure that - (a) employees are accorded sufficient breaks with reduced working time when the wet bulb temperature exceeds 27°C; (b) lightweight, breathable clothing are provided to reduce heat retention; (c) thermal sensors and monitors are used to continuously measure air temperature, humidity, and radiant heat; (d) proper drainage systems are installed to manage hot water flows from geothermal sources; (e) high-temperature areas are insulated, such as those near geothermal vents or heat-generating equipment; (f) reflective materials are used to minimize radiant heat transfer; (g) relative humidity is managed to avoid exacerbating heat stress to 70%; (h) energy-efficient ventilation and cooling systems are used to reduce environmental impact; (i) ventilation pathways are optimised to minimize energy consumption.; (j) natural geothermal systems disruptions avoided; (k) renewable / alternative source of energy for heating or electricity generation is utilized to reduce environmental waste where applicable/ possible; (l) hot wastewater is treated before discharge to prevent thermal pollution in surrounding ecosystems; and

		(m)contamination caused by leaching of underground materials in hot water is monitored. (3) No person shall enter or remain in a place within the mine where the wet bulb temperature control is not met except for the purpose of repairing or exploring such place with adequate support. (4) The Mine Manager shall order an evacuation where the permissible temperature levels are not met or are exceeded. (5) The Mine Manager shall ensure that the evacuation plan provides for: (a) designated safety zones; (b) audible alarms, signals or communication systems within the mine; and (c) clear instructions for orderly evacuation of persons in the underground operations area.
Human capacity	128.	(1) The Mine Manager shall ensure that all persons entering a mine are adequately informed of the risks and dangers present in the operations area. (2) Any person in an underground mine who observes a condition likely to pose danger of any kind shall report the same to the Mine Manager immediately. (3) The Mine Manager shall ensure adherence to the guidelines set by the Director of Mines on procedures for mine working hours which shall include: (a) limit on the number of hours of continuous working hours in an underground mine. (b) limit on the number of workers in an underground mine in a shift. (4) The waiting rooms or bays in an underground mine shall be located in well-ventilated areas, with adequate lighting and necessary facilities; and maintained in hygienic condition taking into account the number of employees in the various parts of the mine. (5) The Mine Manager shall ensure that no person is underground at any given time without supervision or monitoring. (6) The Mine Manager shall ensure that: (a) no employee undertakes work within the mine unless their fitness and health have been assessed as adequate to carry out such work safely; and (b) a regular assessment of each employee's fitness and health is conducted annually or on a shorter period (bi-annually) depending on the circumstances of the mine.
Mine safety records management	129.	(1) The Mine Manager shall keep and maintain a register of employees which shall include: (a) the name and age of every employee in an underground operations area;

		(b) the duties, commencement, and termination of service of each employee; (c) in case of death of any employee, the place and date so far as ascertained and the cause of death; and (d) the medical assessment reports on the health and fitness of every employee to work in an underground operations area. (2) The Mine Manager shall maintain a record of all persons entering an underground operations area at any given time including the entry time and exit time, the tasks undertaken and the section being accessed. (3) The Mine Manager shall maintain accurate plans and records of: (a) the ventilation system; and (b) comprehensive record books documenting vehicle tests and inspections. (4) The Mine Manager shall ensure that records and registers are available for inspection by the Director of Mines.
Emergency Response	130.	The Mine Manager shall ensure that there is an emergency response system in place to facilitate prompt response in case of accidents or incidents at the underground operations area.
Resources Sustainability	131.	To ensure economic efficiency and environmental protection, the Mine Manager shall implement resource-renewable technologies at the mine by: (a) using the technological space of open pits and stopes for the implementation of the processes of physical and chemical geotechnology; (b) using previously opened and underground stopes to reveal substandard reserves; (c) using mineralized mining wastewater as an activator for the dissolution of valuable components; (d) using man-made waste after deep processing for production not associated with the mining sector; and (e) using man-made waste after deep processing in geotechnology with backfilling.
Gas detection and monitoring	132.	(1) The Mine Manager shall ensure continuous monitoring of gases in the operations area using a gas meter or such other suitable device. (2) The Mine Manager shall appoint a qualified person to be responsible for maintaining the appliances used for the detection of flammable or noxious gases. (3) The Mine Manager shall ensure that all appliances for the detection of flammable or noxious gases maintained at the operations area are in good functional condition.

Solution mining	133.	The Mine Manager shall ensure that: a) solution mining processes are designed and operated under the supervision of a qualified technical expert, considering geological and hydrological conditions; b) the injection and recovery of leach solutions are conducted in a manner that prevents migration beyond the designated mining zone; c) the appropriate well casings, cementing, and sealing methods are used to isolate the target mineralization zone and protect surrounding aquifers; d) a comprehensive monitoring system are implemented to track solution movement and detect any unintended seepage or environmental impact; e) regular testing of groundwater quality in surrounding areas to ensure compliance with environmental standards; f) the operations adhere to environmental protection regulations, including proper management of waste streams and recovery solutions; and g) the emergency response plans are developed to address potential leaks, spills, or equipment failures.
Placer and in-situ mining	134.	The Mine Manager shall ensure that:- (a) Water management systems are implemented in placer mining to prevent flooding, erosion, and contamination, including proper diversion and settling areas; (b) Slope stability is ensured in placer mining to prevent cave-ins, with appropriate geotechnical designs for excavation areas; (c) Proper equipment safety training is provided for operators of dredgers, excavators, and other machinery used in placer mining to minimize accidents; (d) Dust control measures are in place, such as water sprays, to prevent respiratory hazards during the excavation and processing of placer materials; (e) There is continuous ground control monitoring to detect subsidence, seismic activity, and water inflows to protect both workers and the environment in in-situ mining; (f) There is water contamination prevention in in-situ mining by careful management of fluids and well-maintained monitoring systems for leaks and spills; and

		(g) Emergency response plans and PPE must be established for both placer and in-situ mining to handle potential accidents and protect workers from hazards.
Dredging	135.	The Mine Manager shall ensure that:- (a) Regular maintenance and inspection of dredging equipment such as dredgers, cranes, and pumps are made to avoid mechanical failures and ensure safe operation; (b) Appropriate personal protective equipment are provided to all workers to safeguard against accidents and hazards; (c) Water safety measures, such as life-saving equipment and personal flotation devices, are provided to prevent drowning risks during operations in water bodies; (d) Electrical safety protocols are followed, ensuring that electrical equipment is properly insulated and maintained to prevent electric shock hazards in wet environments; (e) Environmental protection measures are put in place to control sediment release, monitor water quality, and minimize the impact of dredging on surrounding ecosystems; (f) Ground stability monitoring to prevent subsidence or shifts in the underwater bed that could pose risks to workers or surrounding structures; (g) Protection from hazardous materials such as oils and chemicals found in dredged materials are addressed through proper ventilation, protective clothing, and regular health checks; and (h) Clear communication systems and emergency response plans are in place to ensure rapid action in case of equipment failure, flooding, or environmental accidents.
PART X: ENVIRONMENTAL PROTECTION		
Monitoring of mine-induced ground deformations	136.	(1) A Mineral Right Holder shall, in the exercise of their obligations, ensure that the mine is safe for use by work personnel and any third parties accessing the mine site. (2) The Mine Manager shall prepare an annual report on the status of the mining operations which shall detail: (a) recent blasting activity within the mine operation area; (b) the surface area affected by the blasting and the effect of the blasting;

		(c) appropriate technologies employed to monitor any ground deformation; (d) the stipulated period for the monitoring activities; (e) effects of the blasting and other mining methods; (f) whether the effects are temporary or permanent; and (g) licenses for blasting from relevant authorities. (3) A Mineral Right Holder shall submit the report in sub-regulation (2) to the Director of Mines.
Inspections and reporting prior to mine closure	137.	(1) A Mineral Right Holder shall, prior to the commencement of the mine-closure, ensure that an inspection is conducted on: (a) the water quality and quantity after the mining operations within the site; (b) the existing air quality within the site and the tailings storage facilities; (c) the waste management systems within the mining sites; (d) the ground stability after the use of explosives within the mining sites; (e) the soil quality after the mining operations; (f) management of the tailings storage facilities and methods of preventing air, water and soil pollution by the facilities; and (g) the status of biodiversity in the operations area after the mining activities have taken place (2) The Mine Manager shall cause the inspection report compiled under subsection (1) to be submitted to the Director of Mines. (3) The Director of Mines shall, upon receipt of the inspection report, prepare a report detailing the status of the mine operation area and the findings in sub-regulation (1). (4) The Mineral Right Holder shall; (a) upon completion of the mining activities, provide a detailed assessment indicating whether all infrastructural facilities developed during the mining period have been safely decommissioned in compliance with applicable occupational safety and health standards and environmental regulations.

		(b) ensure that the assessment in (a) includes a proposal for the proper disposal of such facilities for beneficial use, ensuring that all decommissioning activities are conducted in a manner that safeguards the safety and health of employees, the public, and the environment, in accordance with relevant environmental standards and best practices. (2) A Mineral Right Holder shall a year prior to mine closure cause to be conducted and submit to the Director of Mines, a social and environmental audit conducted in compliance with the Environmental Management and Co-ordination Act giving recommendations on the safe closure of the mine. (3) A Mineral Right Holder shall seek authorization from the Director of Mines to close the operations area.
Rehabilitation Licence	138.	1) Following cessation of mining activities, a Mineral Right Holder shall make an application to the Cabinet Secretary for a Rehabilitation Licence to rehabilitate mined out areas and conduct any activities ancillary or incidental thereto. 2) 1) The Cabinet Secretary shall, on receipt of the application, give notice in writing of the pending application for the grant of a Rehabilitation License to— (a) the community; and (b) the relevant county Government. 3) The Cabinet Secretary shall grant the Rehabilitation License within 60 days from receipt of the application, and require the Holder to publish notice of issued Rehabilitation License in a newspaper of wide circulation at the applicant's expense. 4) The Cabinet Secretary shall hear and determine and disputes arising from the grant of the Rehabilitation License. 5) The Rehabilitation Licence shall be issued in the form and substance as per Schedule Eight of these regulations.
Risk assessment during mine-closure	139.	(1) A Mineral Right Holder shall be required to carry out a risk assessment of the operations area prior to the preparation of the mine-closure plan.

		(2) A team of technical experts led by a licensed environmental impact assessment expert shall carry out the risk assessment outlined in sub-regulation (1). (3) The risk assessment shall focus on the risk areas and proposed mitigation measures. (4) A Mineral Right Holder shall submit the risk assessment report to the Director of Mines together with the mine-closure plan.
Mine-closure	140.	(1) A Mineral Right Holder shall, 6 months or longer depending on the type of the mine, prior to the commencement of the mine-closure, apply to the Director of Mines expressing the intention to close the operations area. (2) A Mineral Right Holder shall attach to the application, the approved mine-closure plan submitted when applying for the mining rights license or permit, which shall contain the following: (a) the title of the project; (b) the mine operation area location; (c) the date of submission; (d) environmental and social impact assessment number; (e) the latest environmental audit reference number; (f) mining permit/ mining license number; (g) The stakeholders involved in the mining activities; (h) company name; and (i) contact details including the name, address and contact of the proponents and/or operator. (3) Where the Mineral Right Holder intends to amend the original mine-closure plan, the amendment shall be attached to the original plan submitted to the Director of Mines. (4) A Mineral Right Holder shall, in expressing the intention to close the mine, make a request for the environmental protection bond to be refunded.

		(5) The Director of Mines shall inspect the operations area for conformity to the mine-closure plan and make additional recommendations, if any. (6) Upon review of the approved mine-closure plan, the Director of Mines shall allow the approved mine-closure within a specified period as per the mine-closure plan. (7) The Director of Mines shall grant written authorization to the mineral rights holder to commence the approved mine-closure . (8) A Mineral Right Holder shall close the mine as per the mine-closure plan. (9) The Director of Mines shall, after the approved mine closure, inspect the mine operation area to confirm that the Mineral Right Holder has performed the obligations stated in the approved mine-closure plan. (10) The Director of Mines shall prepare a report on the compliance of the Mineral Right Holder in closing the mine. (11) Where the report to the Director of Mines recommends that the mine closure was carried out as per the approved mine-closure plan, the Director of Mines shall advise the Cabinet Secretary of mining in relation to refund the environmental protection bond to the Mineral Right Holder in line with the regulations on environmental protection bond. (12) The Director of Mines shall grant the Mineral Right Holder six months to remedy any non-compliance noted in the report from the Director of Mines on compliance with the approved mine-closure plan. (13) Where the Mineral Right Holder fails to remedy the non-compliance within the timelines provided for compliance by the Director of Mines, the Mineral Right Holder shall be deemed to have forfeited the environmental protection bond. (14) The Director of Mines shall advise the Cabinet Secretary on the status of compliance with the mine-closure plans. (15) The Cabinet Secretary shall, upon confirmation of compliance by the Director of Mines, release the environmental protection
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		bond to the Mineral Right Holder in part or in full, depending on the level of compliance with the mine-closure plans and the recommendations from the Director of Mines. (16) The forfeiture of the environmental protection bond shall not release the Mineral Right Holder from any legal liabilities arising out of the non-compliance to the approved mine closure plan or to liabilities arising from damages caused to third parties or persons negatively affected by the mining operations.
Disposal of mining machinery and equipment	141.	A Mineral Right Holder shall ensure that the machinery used during the mining activities including obsolete and waste materials from machinery are disposed off in a safe manner as provided for in the mine-closure plan and with regard to the protection of the environment and in compliance with relevant environmental laws and regulations.
Post-mining land utilization	142.	A Mineral Right Holder shall, upon closure of a mine, rehabilitate the operations area as indicated in the approved mine-closure plan.
Post mine-closure audits	143.	(1) The Mineral Right Holder shall conduct post-closure audits annually and shall submit them to the Director of Mines. (2) The post-closure audits shall outline the areas of concern such as: (a) the public safety of the site; (b) the stability of the site under a range of seasonal conditions representative of that climate; (c) ecological system recovery at the site; (d) the state of recovery in comparison to the surrounding area; (e) the aesthetic value of the site; (f) sampling and analysis of applicable parameters; (g) the compatible after-use plan of the site and the potential for improved future land use planning and /or site development; (h) involvement of the project affected persons, the local community and other stakeholders;

		(i) the timescales to meet the required mine-closure standards; (j) the remediation of any contaminated sites; (k) operation and monitoring information or other information that meets a specific purpose; and (l) a history of closure implementation and past developments at the site. (3) A team of technical experts led by a licensed environmental impact assessment expert shall carry out the post-closure audits outlined in sub-regulation (1). (4) The Director of Mines may permit the cessation of the annual post-closure audits if it is determined that the site has met all relevant closure standards and the safety and environment conditions have stabilized to the satisfaction of the Director of mines. (5) The Director may revise the audit cycle if deemed necessary, based on the progress of site recovery and compliance with closure requirements.
PART XI: MINE HEALTH AND SAFETY FOR ARTISANAL MINING		
Drainage	144.	(1) A holder of an artisanal mining permit shall ensure that the artisanal mines have proper and safe surface and underground drainage systems which shall consist of the following: (a) diversion ditches or berms which shall channel surface water away from their work areas; (b) sediment control structures like settling ponds which are required to treat surface drainage; and (c) any other appropriate techniques to ensure adequate surface drainage. (2) A holder of an artisanal mining permit shall ensure that the artisanal mine has a well-structured underground drainage system. consisting of the following: (a) sumps of adequate size which shall be excavated at the lowest point of underground workings; and (b) Adequate measures to prevent underground flooding emergencies.

		(3) A holder of an artisanal mining permit shall ensure that the artisanal mine has mine dewatering systems containing: (a) process water and mine dewatering flows to be contained and not discharged untreated; and (b) specified dewatering volumes and water quality to be monitored and met before any discharge (4) A holder of an artisanal mining permit shall ensure that the artisanal mine has erosion control mechanisms which shall include the following: (a) revegetation of disturbed areas to minimise erosion; (b) check dams, sediment fences and other controls which shall reduce sediment runoff as needed; and (c) drainage from waste rock and tailings piles which shall be properly managed and contained. (5) A holder of an artisanal mining permit shall ensure that all drainage and dewatering systems in the artisanal mine is inspected regularly by: (a) monitoring and assessing water quality sediment loads and impacts to receiving waters; (b) keeping records and documents of inspections, monitoring data, and any remedial actions taken; and (c) producing documents for inspection by the Director of Mines.
Dust pollution control	145.	(1) A holder of an artisanal mining permit shall: (a) provide adequate protective equipment for dust control and associated risks to all the workers and employees within the artisanal mine; (b) ensure there is adequate ventilation and air controls for the free flow of air in the mine; (c) ensure that the respirators and masks provided to the workers and persons within the mines are effective; (d) where necessary, install dust collectors which shall be emptied often to reduce the effects of dust pollution; and

		(e) ensure there is installation of dust and air filters as necessary to filter any toxic gases emitted to the atmosphere. (2) The Director of Mines or a representative shall carry out regular inspections of the operations area under permit annually to ensure that dust control measures are adequate within the artisanal mines and may make recommendations for further improvements to enhance the work and safety conditions of workers and persons at the mine.
Noise pollution control	146.	(1) A holder of an artisanal mining permit shall: (a) provide necessary equipment for noise pollution control such as earplugs; (b) ensure that all areas with significant noise pollution are marked with warning signs and will as much as possible schedule any activities expected to cause hazardous noise to a time when there is less activity on site for minimal adverse effects; and (c) utilize all reasonable mechanisms to reduce noise within the artisanal mines.
Risk of exposure to workplace hazards	147.	(1) A holder of an artisanal mining permit shall inform the persons working within the mines of the risks of exposure to workplace hazards and provide appropriate mitigation measures and personal protective equipment to minimize the risks. (2) All workers and employees within the artisanal mines shall be properly trained and equipped to appropriately respond to workplace hazards. (3) A holder of an artisanal mining permit shall ensure that trainings are held with all workers and employees at least once annually.
Use of personal protective equipment	148.	(1) A holder of an artisanal mining permit shall furnish all workers, employees, and visitors within the artisanal mining operations area with functional personal protective equipment at all times. (2) The employees shall, at all times, wear the personal protective equipment provided by the holder of an artisanal mining permit. (3) The holder of the artisanal mining permit shall supervise the employees to ensure that all persons correctly use personal protective equipment assigned and that disciplinary measures are taken against any person who does not adhere

		(4) The holder of an artisanal mining permit shall ensure that properly maintained first aid equipment is located in an accessible area. (5) The personal protective equipment shall be up to date and serviced regularly as required. (6) Any personal protective equipment that requires disposal shall be disposed of in a manner that is safe and healthy. (7) The Director of Mines may order suspension of an artisanal mining permit if on inspection the employees at the site are not equipped with protective equipment.
Training	149.	(1) The holder of an artisanal mining permit shall ensure that the employees at the artisanal mine undergo training on the health and safety requirements and practices at the artisanal mine site. (2) The holder of an artisanal mining permit shall retain training records. (3) The holder of the artisanal mining permit shall ensure that all the employees and visitors at the operations area undergo induction upon recruitment on the mine operations, health and safety practices. (4) The holder of an artisanal mining permit shall conduct the induction of workers and employees using both written training material, pictorial illustrations and retain visual warning signals and symbols at the mine site.
Risk assessment of potential hazards at the artisanal mining sites	150.	(1) A holder of an artisanal mining permit shall ensure that risk assessments are carried out annually by a qualified professional on the potential hazards at the artisanal mining site. (2) The risk assessment should consider the following parameters : (a) the nature and magnitude of the risk; (b) the likelihood of occurrence and impact; (c) the severity of the potential health and safety consequences; - and (d) preventive and mitigation measures for the risks.
Enforcement of safety requirements	151.	(1) All persons working at the artisanal mining sites shall be required to adhere to the provisions of the Occupational Safety and Health laws and any other applicable laws.

		(2) The Director of Mines shall cause an annual inspection to be conducted at the artisanal mine site.
Accident reporting and investigations procedures at artisanal mines	152.	(1) Where an employee or a worker is injured at the artisanal mining operations area while in the course of execution of duties, the accident or injury as categorized under Regulation 17 shall immediately be reported to the holder of the artisanal mining permit. (2) The holder of an artisanal mining permit shall (a) without delay, report the accident within 24 hours to the Director of Mines under form MHSE/1 and comply with the reporting requirements under the Occupational Safety and Health laws; (b) cause investigations to be conducted and submit a report to a representative of the Director of Mines.; and (c) make all reasonable effort to secure immediate medical assistance and interventions to prevent further loss, bodily injury or harm to workers or persons at the artisanal mine operations area after an accident or incident.
First aid	153.	(1) The holder of an artisanal mining permit shall ensure that there is an artisanal mineral right holder to oversee safety compliance at the artisanal mine. The artisanal mineral right holder shall ensure that emergency response equipment including first aid supplies and kit are kept at an easily accessible location within the mine.
Register of all safety incidents and accidents	154.	(1) A holder of an artisanal mining permit shall keep a register of all incidents and accidents and the particulars of the accidents within the mine. (2) The register of accidents shall contain the nature of the incident or accident, the persons affected by the accidents and the action taken to mitigate the risks associated with the accidents. (3) The register of accidents under sub-regulation (1) shall be made available for inspection by inspectors of mines.
Environmental Conservation	155.	(1) The holder of an Artisanal Mining Permit shall develop and implement an environmental management plan in all phases of the

		mining activity as per the Environment Management and co-ordination Act. (2) The holder of the Artisanal Mining Permit shall train employees on responsible environmental management at the operations area.
Participatory Environmental Monitoring	156.	1) Every artisanal mining co-operative, in consultation with the Director of Mines, shall develop guidelines for its members to ensure compliance with safety, health, and environmental conservation obligations applicable to artisanal mining operations. 2) The guidelines developed under sub-regulation (1) shall include, but are not limited to: (a) Measures for ensuring the safety and health of workers, including the provision and use of personal protective equipment; (b) Procedures for identifying and mitigating risks associated with artisanal mining activities; (c) Strategies for proper waste management and prevention of environmental degradation; (d) Training and capacity-building programs to enhance awareness of safety, health, and environmental conservation practices; (e) Mechanisms for reporting and addressing safety and health incidents, as well as environmental violations; (f) Collaboration with local communities to minimize the impact of mining operations on their well-being and livelihoods; and (g) Measures and strategies to ensure full compliance with these regulations 3) The Director of Mines may issue guidelines for Participatory Environmental Monitoring Committees, which shall apply to all holders of artisanal mining permits. 4) A holder of an artisanal mining permit shall ensure full compliance with any such guidelines issued by the Director of Mines.
PART XII: MANAGEMENT OF MINE WASTE		

Waste geochemical characterization	157.	(1) The Mine Manager shall prepare and implement ore and waste geochemical characterization methods to properly route of any potentially acid-generating materials and for the effective management of acid rock drainage, in accordance with the requirements of the Environmental Management and Coordination Act. (2) The waste geochemical characterization methods in sub-regulation shall include: (a) conducting a comprehensive series of accelerated leaching tests beginning at the feasibility study stage, in compliance with the Environmental Management and Coordination Act. and relevant waste management guidelines to assess the potential for acid rock drainage and metals leaching; (b) conducting ongoing, detailed acid rock drainage, metals leaching testing, and mapping, with decreasing block sizes as any formation is transferred from long-term to medium-term and short-term mining plans. (c) implementing acid rock drainage and metals leaching preventive actions by ensuring the following: i. Limiting the exposure of potentially acid-generating materials by phasing of development and construction as well as covering, and segregating runoff water for treatment; ii. Implementing water management techniques including diverting clean runoff away from the potentially acid-generating materials and segregating “dirty” runoff from the materials for treatment as well as grading the material pile; and iii. Removing pit water promptly. (d) controlled placement of the potentially acid-generating material by ensuring either of the following are observed: i. Submerging and flooding of potentially acid-generating materials in an oxygen-free environment that is below water cover; ii. Isolating potentially acid-generating materials above the water table with an impermeable cover; or iii. Blending of potentially acid-generating materials with non-potentially acid-generating materials.
Waste treatment	158.	(1) The Mineral Right Holder shall ensure that: (a) waste, hazardous substances and radioactive waste are handled, managed, treated, and disposed of in accordance

		with the Environmental Management and Coordination Act and any other relevant written law to avoid endangering life and the environment; (b) waste treatment and the management of radioactive waste shall be carried out in compliance with the applicable provisions of the Nuclear Regulatory Act, 2022; (c) (2) The Director of Mines in consultation with other relevant Regulatory Authorities on the subject matter shall determine the guidelines for disposal of radioactive waste in operation areas. (3) Waste treatment shall include any activity to reduce the volume, toxicity, or adverse environmental impact of waste, hazardous substances, hazardous chemicals and radioactive waste before disposal or release. (4) Any person who applies for a licence to undertake waste disposal under Regulation 168 or to operate a disposal site or plant shall: (a) undertake all necessary precautions to prevent hazardous escape or release from posing an imminent danger to public health and the environment; and (b) implement a waste disposal system within the guidelines provided by the law applicable to the specific waste to mitigate any potential risks associated.
Disposal sites or plants for hazardous chemicals	159.	(1) The designation of disposal sites or plants specifically allocated for the treatment and disposal of waste, hazardous substances and chemicals, and radioactive waste originating from operations area shall require written approval by the Director of Mines in consultation with the Director General of the National Environment Management Authority. (2) Any person intending to establish a waste management plant for waste, hazardous substances and chemicals, and radioactive waste shall submit a waste management plan to the Director of Mines, including: (a) an outline of the processes generating waste, a description of the waste generated, and a description of the environment into which the waste will be discharged or disposed of, including the baseline radiological characteristics.

		(b) a description of the proposed system for waste management, including the facilities and procedures involved in the handling, transportation, treatment, storage, or disposal of hazardous chemicals and radioactive waste. (c) an indication of the number of personnel required to operate the plant and the specific training requirements for the safe handling of operations; (d) Potential risks associated with the operation of the waste management plant, control measures to prevent escape and mitigate risk and the number of lives likely to be affected at the proposed site in the event of an accident or incident. (3) The Mineral Right Holder shall bear overall responsibility and liability for the waste management and shall appoint a qualified manager of the disposal site or plant to provide oversight for implementing precautionary measures and ensuring that the design of the waste management facility enables the safe containment and management of hazardous chemicals. (4) The Mine Manager shall provide secondary containment to restrict the movement of hazardous waste into water bodies by use of among others, sumps, holding areas and impermeable liners, double-walled or thick-walled pipelines at critical locations such as large stream crossings and installing shutoff valves to minimize spill volumes and to isolate flow in critical areas.
Methods of treatment of hazardous chemicals	160.	(1) The Mine Manager shall ensure that any active site within the operations area generating or using hazardous chemicals shall: (a) adhere to the emission standards and air quality standards specified by the Environmental Management and Co-ordination Act; and (b) dispose of waste, hazardous substances and chemicals based on the relevant safety and health guidelines issued by relevant authorities and the specific characteristics of the hazardous chemicals. (2) Waste, hazardous substances and chemicals originating from operations area shall be treated in line with regulations issued by the Cabinet Secretary for the time being responsible for environmental matters;

		(a) controlled incineration processes carried out in facilities compliant with relevant environmental regulations and standards and with a permit from the Director of Mines; (b) biological treatment such as composting or microbial degradation, under conditions ensuring effective and safe disposal; and (c) waste-to-energy technologies, to convert waste material to energy sources as approved and permitted by the Director of Mines and in adherence to environmental sustainability principles and in compliance to applicable regulations. (3) The treatment method of hazardous wastes from mining operations shall be done according to different classifications of waste based on its level of radioactivity and potential hazards in line with the relevant regulations.
General non-hazardous waste	161.	(1) The Mine Manager shall: (a) adhere to emission standards and air quality standards specified by the Environmental Management and Coordination Act and the guidelines issued by the Director of Mines; and (b) dispose of non-hazardous waste with regard to preventing harm to human life and the environment. (2) The Mine Manager shall ensure that the treatment method of non-hazardous waste from mining operations is classified and disposed of accordingly based on the level of potential hazards.
Hazardous waste	162.	(1) The Mine Manager shall adopt among others, the following practices for the management of hazardous waste: (a) hazardous waste, including waste oils and chemicals, spent packaging materials and containers, shall be managed as described in the Environmental Management and Coordination Act and the relevant regulations thereunder, The Occupational Safety and Health Act and the regulations thereunder and any other relevant written law; (b) hazardous waste shall be handled and transferred by a qualified person licensed by the regulatory agency on National Environmental Management to ensure that; i) the collection and transportation of the waste is conducted in a manner that does not cause scattering, contamination, leakage of the waste; and ii) the vehicle and equipment used for the transportation of waste is in a state that does not cause the scattering of, or

		flowing out of waste or emission of noxious smells from such waste. (c) the operator of hazardous waste at a mine shall obtain an Environmental Impact Assessment License from the National Environmental Regulatory Agency before operating such a facility; (d) combustion of waste oils shall be undertaken as a supplementary fuel in power generation facilities and in accordance with emissions guidelines applicable to combustion sources; and (e) hazardous materials shall be handled, stored, and transported to avoid leaks, spills or other types of accidental releases into soils, surface water, and groundwater resources. (2) The Mine Manager shall ensure that hazardous waste from mine operations shall be stored in one of three locations: (a) an approved area within a mining facility; (b) a waste storage facility operated by a mining company for collection of their own hazardous wastes; or (c) at a waste transfer station operated by an independent company as a third-party waste receiver. (3) The Mine Manager shall adopt the following safety and health practices and environmental protection standards for hazardous waste storage facility: (a) select a storage site that minimizes the potential for environmental concerns; (b) establish operating procedures, maintenance practices, and inspection programs to maintain the integrity of the primary containment system and any associated equipment such as valves, fittings, piping, or pumps; (c) establish operating practices to prevent the buildup of static electricity during the transfer of flammable liquids; (d) store materials in a manner that ensures: i. materials do not generate extreme heat or pressure or cause a fire or explosion; ii. materials do not produce uncontrolled fumes or gases that pose a risk of fire or explosion; iii. materials do not compromise the structural integrity of the storage facility, and iv. incompatible materials are segregated to prevent contact even in the event of a possible release.
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		(4) The Mine Manager shall ensure that hazardous waste is stored in a safe and secure manner that ensures; (a) drainage is controlled to prevent spills or leaks from leaving the site and to prevent run-off from entering the site; (b) wastes are segregated by chemical compatibility to ensure safety of the public, employees and facility; (c) hazardous wastes are stored in a secure area with controlled access. Only persons authorized to enter and trained in waste handling procedures shall have access to the storage site; (d) regular inspections of stored hazardous wastes are performed and recorded. Containers are placed so that each container can be inspected for signs of leaks or deterioration; (e) leaking or deteriorated containers shall be immediately removed and their contents transferred to a sound container; (f) a record of the type and amount of waste in storage shall be maintained; (g) hazardous waste containers shall not be allowed to fill up with water when stored outdoors, drums frequently accumulating water from rainfall shall be stored upright, outside, with proper sealing. Empty containers shall need to be stored on their side to prevent water from entering; (h) a comprehensive groundwater monitoring program shall also be implemented; (i) storage sites shall have emergency response equipment and material appropriate for the hazardous waste stored on site; and (j) hazardous waste storage sites shall meet all local by-law and zoning requirements with adherence to county governments requirements. (5) The Mine Manager shall ensure that storage spaces are located so that they meet the following criteria: (a) readily accessible for firefighting and other emergency procedures; (b) not located in a floodplain, unless appropriate alternative secondary containment measures are incorporated into the design and installation;
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		(c) chosen so as to minimize the risk of environmental damage, including any threats to the integrity of the storage facility, the quality of soils, surface water, and groundwater, and the health of humans, animals, and plants during the construction, operation, and closure of the storage area/facility; (d) not located within 100m of the normal high-water mark of a body of water, permanent stream, or water well used for domestic purposes; (e) a response plan, which shall be maintained on-site at all times, shall describe appropriate measures to follow in the event of any emergency such as a fluid spill, tank fire or any other hazard; and (f) employees shall be trained in respect to normal and emergency situations. (6) The Mine Manager shall apply the following mitigation measures to minimize the risk associated with accidental spills from storage tanks: (a) providing secondary containment to restrict movement into receiving water bodies such as sumps, holding areas, and impermeable liners; (b) constructing pipelines with double-walled or thick-walled sections at critical locations such as large stream crossings; (c) installing shutoff valves to minimize spill volumes and to isolate flow in critical areas; and (d) detailed guidance for hazardous materials management including spill prevention and control planning for the handling, storage, and transport of materials such as fuels and chemicals.
Radioactive waste	163.	(1) The Mineral Right Holder shall ensure that all radioactive waste generated from mining operations, are managed in accordance with the Environmental Management and Coordination Act and any other relevant written law to ensure protection of public health, safety, and the environment (2) The Mineral Right Holder shall ensure that radioactive waste is handled, stored, transported, treated, and disposed of using appropriate containment systems and controls such as perimeter fencing, restricted zones, and signage to prevent unauthorized entry or human exposure.

		(3) The Director of Mines shall ensure that; (a) all radioactive waste management plans and activities at mining sites are approved and follows the requirements of the National Environment Management Authority. (b) the Mineral Right Holder appoints a qualified Radiation Waste Management Officer who is responsible for ensuring compliance with all radioactive waste regulations and for overseeing the safe handling, storage, treatment, and disposal of radioactive materials. (4) The Mineral Right Holder shall submit a detailed Radioactive Waste Management Plan to the Director of Mines for approval, which shall include: (a) A full inventory and classification of radioactive waste types; (b) Waste generation sources and estimated quantities over the life of the mine; (c) Handling, transportation, and storage procedures; (d) Waste treatment and volume reduction technologies, if applicable; (e) Final disposal methods, including long-term isolation and post-closure monitoring plans; (f) Emergency response and radiation protection measures.
Storage and Disposal of Radioactive waste	164.	(1) The Mineral Right Holder shall ensure that: (a) temporary and long-term storage of radioactive mining waste is conducted in secure, purpose-built facilities that meet radiation shielding and environmental protection standards. (b) radioactive waste disposal methods include the following, as appropriate and approved by the relevant regulatory authorities: (i) Engineered tailings impoundments constructed with multi-layer liners and protective covers to contain radioactive materials and prevent environmental contamination; (ii) Subsurface disposal or encapsulation of radioactive waste in stable geological formations that provide long-term isolation from the biosphere; (iii) Water-covered disposal of reactive tailings in order to prevent oxidation, acid generation, and radon gas release.

		(c) all radioactive waste storage and disposal sites are designed and maintained to prevent groundwater contamination, surface erosion, and the release of radon emissions.
Monitoring and security of Radioactive waste	165.	The Mineral Right Holder shall ensure that: (a) continuous monitoring systems are installed and maintained at all radioactive waste storage and disposal facilities, including but not limited to radiation sensors, groundwater quality monitoring stations, and structural integrity assessment mechanisms. (b) access to all radioactive waste facilities is strictly controlled through the implementation of clearly marked hazard zones, physical barriers such as fencing, and continuous (24/7) surveillance or other approved security protocols to prevent unauthorized entry or tampering.
Cyanide	166.	(1) The Mineral Right Holder shall ensure that the use of cyanide is consistent with the principles and standards of practice of the International Cyanide Management Code and existing laws and regulations on the same. (2) The Mineral Right Holder shall ensure that the principles and standards of the Cyanide Code are adhered to in all aspects of cyanide use, including its sourcing, transport, handling, storage, use, facilities decommissioning, employee safety, emergency response, training, and public consultation and disclosure. (3) The Mineral Right Holder shall maintain emergency supplies at the operations area to address accidental cyanide contact and ensure that its handling is controlled and supervised by trained personnel. (4) The Mineral Right Holder shall ensure that where cyanide is used, a sufficient supply of effective cyanide poisoning antidote shall be kept in a conspicuous and accessible location, stored in a box clearly labeled with directions for use on the lid.
Storage of effluents	167.	(1) The Mineral Right Holder shall ensure that: (a) there is an appropriate, secure and controlled storage facility at the mine and effluents are only discharged into a sewerage system in compliance with the relevant provisions of the Environmental Management and Coordination Act and guidelines issued by the Director of Mines; (b) mine storage facilities for liquid, solid, and airborne effluents are designed, constructed, and maintained to prevent leaks,

		spills, or emissions that may pose a risk to human health or the environment; (c) no water catchment area or dam or such other facility is constructed for the purpose of conserving water, or any cyanide plant, is constructed without a permit from the relevant authorities and written approval from the Director of Mines; (d) any slime dam near any building, public road or railway is constructed in a manner that does not endanger the public safety of any person or cause damage to property; (e) storage facilities are equipped with adequate containment systems, such as berms, liners, or secondary containment structures, to prevent the escape of effluents in the event of leaks or spills; (f) storage containers and tanks used for effluent storage are made of materials compatible with the nature of the effluent to prevent corrosion, degradation, or contamination of the stored contents; and (g) effluent storage facilities are clearly labelled with appropriate signage indicating the nature of the stored effluents, potential hazards, emergency contact information, and safety precautions.
Licensing requirements for a Disposal Site	168.	(1) Any person who wishes to operate a disposal site or plant for hazardous chemicals and radioactive wastes within the mine operations area shall make a formal written application for a licence to the Director of Mines. (2) Any person who, at the commencement of these Regulations, owns or operates a waste disposal site or plant, or generates hazardous chemicals and radioactive waste, shall apply to the Director of Mines for a licence, at least six months after the commencement of these Regulations. (3) A holder of a licence to operate a disposal site or plant for hazardous chemicals and radioactive waste shall not commence operations unless the licence holder has submitted to the Director of Mines a layout of the disposal infrastructure and met all conditions stipulated for the license to issue.

Precautionary measures at disposal sites	169.	(1) A holder of a licence for the purpose of treatment and disposal of hazardous chemicals and radioactive waste in the mine operations area shall: (a) take precautionary measures to ensure that the environment within the disposal plant or site does not expose employees or others within the mine to environmental hazards or health risks; (b) implement adequate measures to mitigate any potential risks associated with the treatment and disposal of hazardous chemicals and radioactive waste; (c) maintain a risk register documenting the magnitude of exposure of each risk, preventive measures and mitigation measures for containment; (d) prominently display danger signs at all entry points and strategic locations that are clearly visible and indicate the potential hazards associated with the site's operations; (e) implement and maintain adequate emergency measures to address unforeseen incidents, accidents, or emergencies that may arise during operations and keep a written record of any such occurrences; (f) provide any record requested by the Director of Mines; and (g) grant access for inspection by the Director of Mines for compliance with the set requirements and guidelines.
Compliance monitoring and management	170.	(1) The Mineral Right Holder shall be responsible for compliance with the Regulations under this part. (2) The Director of Mines shall provide oversight in monitoring compliance. (3) The Mineral Right Holder shall ensure that designated safety zones are clearly marked around the mining facilities and that employees are provided with orientation on these safety zones. (4) The safety zone in (3) shall be a perimeter marking of the operations area within which access is restricted to authorized personnel only. (5) If the Director of Mines has reason to believe that any activity at the disposal plant or site constitutes a danger or may endanger the health or safety of employees or the public, or the surrounding environment, the Director of Mines shall order immediate evacuation and closure of the mine.

		(6) Where there has been evacuation and mine closure in accordance with sub – regulation (5), Director of Mines shall provide a written justification for the evacuation to the Mineral Right Holder.
PART XIII: ACID MINE DRAINAGE MANAGEMENT		
Prevention of acid mine drainage	171.	(1) Effluent from a mining operation shall be considered to be acid mine drainage if the discharge:- (a) has a pH of less than 4; (b) has an acidity level of more than 400 mEq/l; and (c) has a sulphate level of more than 16,000 mg/l (2) Where the discharge of acid mine water is likely to occur from mining activity, the Mineral Right Holder shall make an application to the Director of Mines indicating the measures put in place to prevent acid mine drainage. (3) Where the Director of Mines determines that the discharge of acid mine water is likely to occur from mining activity, the Director of Mines shall require the Mineral right holder to submit an acid mine drainage prevention and mitigation plan as part of the Environmental Management Plan. (4) The Director of Mines shall review the proposed Environmental Management Plan and grant approval if satisfied that the mitigation measures are adequate. (5) The Director of Mines may order immediate closure of the mine if acid mine drainage poses an imminent danger to employees, the environment, and others likely to be affected or exposed to the risk. (6) A Mineral Right Holder shall: (a) implement primary prevention measures of acid mines to minimize the potential for acid mine drainage forming, by preventing the oxidation of sulphide from a mine operation; and (b) be wholly liable for any exposure emanating from acid mine drainage and shall bear legal liabilities for any damages, bodily harm or injury attributable to acid mine drainage effects.
The responsibilities of the Mineral Right Holder in relation to	172.	(1) A Mineral Right Holder shall implement appropriate acid mine drainage prevention and mitigation techniques, as outlined in the Environmental Management Plan, to prevent acid-generating processes and install mitigation measures in case an acid mine

acid mine drainage prevention		drainage occurs to prevent pollution or adverse effects on the health and wellbeing of persons at the mine and surrounding environment. (2) A Mineral Right Holder shall: (a) be responsible for any environmental liability, pollution or ecological degradation, adverse health and safety effects caused by the acid mine drainage and wholly bear the cost of reparation (b) rehabilitate any water resources that may have been damaged or degraded because of acid mine drainage. (c) be responsible for any remedial and restoration measures required as a result of environmental damage. (d) immediately report any acid mine drainage occurrence in writing to the Director of Mines, in form MHSE/4. (e) conduct adequate environmental and social impact assessment to assess the potential risk of acid mine drainage at the mine. (f) develop best management practices at the mine site and train personnel on the storage, tailing and disposal of acid generating waste products. (g) implement a complaint and feedback mechanism for community members and employees impacted by acid mine drainage to channel their complaints. (h) put in place adequate safeguards and an emergency response plan to minimize or counter effects of an acid mine drainage on the environment and the health of affected persons at the mine site. (i) immediately inform the Director of Mines, in writing, of any imminent closure of the mining operations as a result of acid mine drainage. (3) The notice of closure, under these Regulations, shall be accompanied by a reclamation and closure plan for the rehabilitation of the mining operations. This plan shall include provisions for preventing the recurrence of acid mine drainage upon the closure of the mine and the measures to ensure the long-term sustainability of the reclaimed land.
Neutralization and deoxygenation	173.	(1) A Mineral Right Holder and mineral dealer shall implement: (a) neutralization methods of the acid mine drainage; and

		(b) deoxygenation methods to prevent exposure of mine materials to oxygen to prevent the generation and formation of sulphuric acid. (2) A Mineral Right Holder and mineral dealer may implement the following neutralization and deoxygenation methods: (a) adding lime or other alkaline materials; (b) non-acid producing tailings to neutralize the acid; (c) using pH Buffers; (d) soil removal; (e) direct treatment of the contaminated water; (f) filling in abandoned mines with appropriate materials (g) bacteria control; and (h) Any other appropriate methods as may be recommended by a qualified technical expert.
Primary prevention methods	174.	A Mineral Right Holder and mineral dealer shall implement these primary prevention methods of acid-generating processes, in addition to neutralization and deoxygenation, to reduce the natural oxidation of sulphide minerals contained in mining wastes: (a) minimize the penetration of air and water through the mineral waste pile using a cover, either wet (water) or dry (soil), placed over the waste pile; (b) device waste management methods that segregate waste containing acid forming ores or rocks from water sources and oxygen sources within the mine, this entails methods such as sorting of ores, and selective mining methods; (c) develop water management strategies that prevent and minimize risk of water infiltrating into the mine or where mine wastes are stored; and (d) where the threat of acid mine drainage exists, a monitoring program shall be established by the Mineral Right Holder to identify and classify the waste types and facilitate the early

		detection of any acid mine drainage and ongoing effectiveness of any acid drainage management program.
Secondary control and prevention methods of acid mine drainage	175.	(1) A Mineral Right Holder shall implement secondary prevention measures of acid mine drainage where acid mine drainage has been generated, to minimize the adverse impact of the acid mine drainage, on the environment, and health and safety of any person. These measures shall include but are not limited to: (a) passive treatment of acid mine drainage using passive technologies such as the construction of wetlands, construction of anoxic limestone drains, construction of vertical flow wetlands; (b) construction of open limestone channels containing limestone or other alkaline material aimed at neutralizing the acid mine drainage; (c) where acid mine drainage occurs after reclamation, the Mineral Right Holder shall develop a water treatment system with an inflow ditch, treatment chemical and discharge point; (d) develop control measures where an acid mine drainage exists by adding neutralizing chemicals directly to the acidic water exiting the acid-producing rock at the mine; (e) biological treatment methods through the application of bacterial sulphate reduction to remove metals and sulphate from acid mine drainage; (f) use of organic wastes such as straw and hay, sawdust, peat, spent mushroom compost and whey to act as the electron donors for the sulphate-reducers in the treatment of acid mine drainage; (g) filtration of acid mine drainage using sand filters, activated carbon, diatomaceous earth, cellulose, anthracite coal, and other types of membranes (h) Any other method as may be prescribed by the Director of Mines (2) A Mineral Right Holder shall use the following methods to dispose of acid mine water in an environmentally responsible manner: (a) storing and evaporating the acidic water;

		(b) separating the acidic water from other mine water and treating it separately; (c) diluting prior to discharge; (d) electrocoagulation methods which bind contaminants and particles in acid mine wastewater; and (e) implementing processes that treat water contaminated by acid mine drainage, using methods like ion exchange and osmosis.
Acid mine drainage prevention measures	176.	(1) A Mineral Right Holder and mineral dealer shall ensure that mines where acid mine drainage migration is likely to occur shall be situated at a distance as recommended by the Director of Mines, from dams, boreholes, streams and rivers subject to the following factors: (a) an environmental and social impact assessment licence granted under the Environmental Management and Coordination Act and licence granted under the provisions of the Act; (b) buffer zones between the mining activity and the water body as provided in the licence issued under the Act; (c) hydrological considerations such as the flow of the river, and stream and if the area is prone to floods; (d) the geology of the area; (e) the risk mitigation plan provided by the Mineral Right Holder; and (f) any other conditions set by the Director of Mines. (2) A Mineral Right Holder shall ensure that the environmental management plan is assessed and reviewed under the direction of a qualified person as prescribed by the Director of Mines: (a) annually; and (b) before any modification is made to the mine design that may significantly lead to acid mine drainage migration from the mine.
Design of mine surfaces to prevent	177.	(1) A Mineral Right Holder shall ensure that mines are designed in a manner that the slope does not allow free flow of acid mine drainage to reduce acid mine migration.

acid mine drainage migration		(2) A Mineral Right Holder shall cause to be prepared a mine design that: (a) takes into account the geology of the underlying surface rock and soil after conducting a geotechnical assessment; (b) assesses the ground stability of the active and proposed workings of the mine; (c) takes into account previous occurrences of ground instability; (d) outlines the geometry of existing and proposed excavations; (e) includes a slope stability monitoring program; (f) takes into account slope stabilization techniques such as the use of terraces to reduce erosion and surface runoff; (g) includes surface water diversion channels and containment structures that can redirect runoff away from potentially acid-generating materials in the mine; and (h) outlines the methods to be used to control water from nearby strata or surrounding bodies of water.
Emergency and safety measures in relation to acid mine drainage	178.	(1) A Mineral Right Holder shall have emergency and safety measures in place to mitigate the risks of the acid mine drainage to the environment and the health and safety of the mine workers and the community. (2) The Mine Manager shall as part of the emergency preparedness: (i) maintain in good working conditions, first aid supplies necessary for responding to acid mine drainage accidents; (ii) develop an acid mine drainage emergency response plan with the roles and responsibilities of an operation emergency personnel or response team; (iii) put in place procedures aimed at assessing the extent of the acid mine drainage migration and assessing the severity of the damage caused, by testing the waters affected by the acid migration and continuous monitoring of the water quality;

		(iv) put in place measures that would divert the flow of any acid mine drainage, such as diversion channels to divert the contaminated water to a pond or containment facility away from water bodies such as dams, rivers, streams and boreholes; (v) implement methods that can be used to neutralize the acidity of the acid mine drainage before the acid mine drainage reaches water bodies; (vi) create temporary treatment facilities equipped with equipment and materials for neutralizing and treating acid mine drainage in the mines; and (vii) notify the communities around within a reasonable time of any acid mine drainage contamination of the water bodies nearby. (3) The Mine Manager shall train the supervisors, mine captains and mine rescue team on how to respond to an acid mine drainage incident or accident.
Management and collection of effluent	179.	(1) A Mineral Right Holder shall not discharge effluent into an aquatic environment. (2) A Mineral Right Holder shall only discharge treated effluent arising from acid mine drainage into a sewerage system upon obtaining the relevant licence for discharge from the National Environmental Management Authority and in accordance with the guidelines that may be set by the Director of Mines for the same. (3) A Mineral Right Holder shall install an appropriate plant for the collection of effluent from acid mine drainage generated during a mining operation. (4) A Mineral Right Holder shall ensure that the collection plant shall be located at a suitable distance, as recommended in the approved Environmental and Social Impact Assessment, from an aquatic body to avoid contamination of surface and groundwater. (5) The polluter pay principle shall apply in the management and collection of effluent from acid mine drainage.

Treatment of effluent from acid mine drainage	180.	(1) A Mineral Right Holder shall implement appropriate measures to treat effluent arising from acid mine drainage. (2) A Mineral Right Holder shall have an obligation to secure collecting, testing, and disposing of solid and liquid waste samples by a competent and certified laboratory and retain documentation of the tests done. (3) A Mineral Right Holder shall put in place remediation measures for acid mine drainage effluent before the effluent is discharged into the environment as approved in the effluent discharge plan to be approved by the Director of Mines
PART XIV: OFFENCES		
Offences relating to certificates and approvals issued under these Regulations	181.	A person who contravenes a provision of these Regulations on the exercise of rights or obligations under certificate or approvals obtained under these Regulations commits an offence and is liable on conviction to the penalty prescribed under section 207 of the Mining Act (CAP 306).
Offences relating to environmental standards	182.	A person who contravenes the environmental standards during a mining activity, prescribed under these Regulations commits an offence and shall be liable upon conviction to the penalty prescribed under section 140(c) of the Environmental Management and Co-ordination Act (CAP 387).
Offences relating to management of hazardous wastes, acid wastes, materials, chemicals and radioactive substances	183.	(1) A person who fails to provide mitigation measures to manage hazardous wastes from a mining activity, acid waste material from a mining activity, or chemical and radioactive substances commits an offence and shall be liable upon conviction to the penalty prescribed under sections 141(g) and 142 (1) (c) of the Environmental Management and Co-ordination Act (CAP 387). (2) A person who uses toxic and hazardous industrial chemicals or materials at a mine for purposes other than those prescribed and, in a manner, likely to cause adverse effects to human health and the environment, commits an offence and is liable upon conviction to the penalty as provided under section 141 (g) Environmental Management and Co-ordination Act (CAP 387) and any other relevant statutes

Offences relating to pollution and environmental degradation caused by a mining operation	184.	A person who is responsible for any environmental damage, pollution or ecological degradation as a result of his or her reconnaissance , prospecting, mining operations and mineral processing, and fails to modify, remedy, control or stop any action, activity or process which causes pollution or environmental degradation commits an offence and shall be liable upon conviction to the penalty prescribed under sections 142(1)(c) and 144 of the Environmental Management and Co-ordination Act (CAP 387).
Offences relating to health, safety and environmental inspection of mines	185.	A person who hinders or obstructs the Director of Mines or their representative in the exercise of their duties under these Regulations or fails to comply with a lawful order or requirement made by an inspector of mines or refuses an inspector of mines to access the mine area commits an offence and shall be liable upon conviction to the penalty prescribed under section 205(2) of the Mining Act (CAP 306).
Offences relating to safety of mine infrastructure	186.	A person who does not comply with the mine infrastructure safety measures under these Regulations commits an offence and shall be liable upon conviction to the general penalty prescribed under section 215 of the Mining Act (CAP 306).
Offences relating to storage facilities at mines	187.	A person who does not comply with the prescribed mine storage facilities measures as prescribed under these Regulations commits an offence and shall be liable upon conviction to the general penalty prescribed under section 215 of the Mining Act (CAP 306).
Offences relating to provision of health and safety safeguards for mine employees and consequence of causing death or bodily harm	188.	(1) A person who fails to provide safeguards in respect of the health and safety of the mine employees as provided in these Regulations commits an offence and shall be liable upon conviction to the general penalty prescribed under section 109 (1) of the Occupational Safety and Health Act (CAP 236A). (2) A person who occasions death or bodily injury, to a worker or third party within a mine having contravened provisions of these regulations shall, without prejudice to any other penalty, be liable to a fine not exceeding one million shillings or, to imprisonment for a term not exceeding twelve months; which fine may be applied for the benefit of the injured person or his family as prescribed in section 111 of the Occupational Safety and Health Act.
General penalty	189.	A person who commits an offence under these Regulations for which no penalty is expressly provided, is liable upon conviction to the

		general penalty prescribed under section 215 of the Mining Act (CAP 306).
PART XV: APPLICABLE LAWS		
Effects of existing laws	190.	Any written law by the national and county governments relating to the mine health, safety and environmental management shall apply to these Regulations including but not limited to. (a) Mining Act (CAP 306); (b) Environmental Management and Coordination Act (CAP 387); (c) Nuclear Regulatory Act (CAP 243); (d) Environment and Land Court Act (CAP 8D); (e) Occupational Safety and Health Act (CAP 236A); (f) Mental Health Act (CAP 248); (g) Explosives Act (CAP 115); (h) Energy Act (CAP 314); (i) Engineers Act (CAP 530); (j) Engineering Technology Act (CAP 530A); (k) Public Health Act (CAP 242); (l) Water Act (CAP 372); (m) Data Protection Act (CAP 411C); and (n) Work Injury Benefits Act (CAP 236).
Revocation	191.	The Mining (Safety) Regulations (L.N. 275/1969) are revoked.

SCHEDULES (FORMS)

FIRST SCHEDULE

A. HAZARD CLASSES r. 89

Hazard class	Affected persons	Environmental/material damage
C	0	Moderate
B	1 to 20	Serious
A	21 to 50	very serious
Not allowed	above 50	

B. HAZARD AND RISK SYMBOLS

Pictogram	Meaning
	Acid / Corrosive
	Chemical storage area May contain asbestos Compressed air hazard
	Poison
	Biological hazard
	Be aware of vehicles
 Health Hazard	Health hazard
	Gear Entanglement Hazard
	Crush zone Keep clear when the engine is running

	Forklifts in use
	Unstable explosive. Explosive; mass explosion hazard. Explosive; severe projection hazard. Explosive; fire, blast or projection hazard. May mass explode in fire.
	Falling rocks
	Old mines may contain radon, radioactive material and other hazards
	Caution – High Voltage
	Heavy Equipment in Operation
	Men at work symbol
	Flammable material
	Either open shafts or manholes

C. PERSONAL PROTECTIVE EQUIPMENT SYMBOLS

Pictogram (PPE's)	Meaning
	Dust mask must be worn in this area
	Foot protection must be worn in this area
	High-visibility clothing or a vest must be worn in this area
	Hearing protection must be worn in this area
	Eye protection must be worn in this area
	Protective clothing must be worn in this area
	Hand protection must be worn in this area

	Head protection must be worn in this area/ This is a hard hat area. Safety helmets must be worn
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SECOND SCHEDULE

LIST OF HAZARDOUS CHARACTERISTICS BASED ON THE UN CODE CHARACTERISTICS CLASS

UN CLASS	CODE	CHARACTERISTICS
1	HI	Explosive An explosive substance or waste is a solid or liquid substance or waste (or mixture of substances or wastes) which is in itself capable by chemical reaction or producing gas at such a temperature and pressure and at such a speed as to cause damage to the surroundings.
3	H3	Flammable Liquids The word “flammable” has the same meaning as “inflammable”. Flammable liquids are liquids, or mixtures of liquids, or liquids containing solids in solution or suspension (for example paints, varnishes, lacquers and others but not including substances or wastes otherwise classified on account of their dangerous characteristics) that give off a flammable vapour at temperatures of not more than 60.5°C, closed-cup test, or not more than 65.6°C open-cup test (since the results of open-cup tests and closed-up tests are not strictly comparable and even individual results by the same tests are often variable, regulations varying from the above figures to make allowance for such difference would be within the spirit of this definition).
4.1	H4.1	Flammable Solids Solids or waste solids, other than those classed as explosives, which under conditions encountered in transport are readily combustible, or may cause or contribute to fire through friction.

4.2	H4.2	Substances or wastes liable to spontaneous combustion Substance or wastes which are liable to spontaneous heating under normal conditions encountered in transport or to heating up on tract with air, and being then liable to catch fire.
4.3	H4.3	Substances or wastes which, in contact with water emit flammable gases; substances or wastes which, by interaction with water, are liable to become spontaneously flammable or give off flammable gases in dangerous quantities.
5.1	H5.1	Oxidizing Substances or wastes which, while in themselves not necessarily combustible, may generally, by yielding oxygen, cause or contribute to the combustion of other materials.

THIRD SCHEDULE
INCIDENT/ACCIDENT REPORTING FORM

FORM 1

FORM /MHSE/1

(To be completed in duplicate)

INCIDENT AND ACCIDENT REPORTING FORM

Incident/Accident description.....

Mineral Right No. / Mineral dealer
No.....

Mineral Right Holder's Name/ Mineral dealer
No.....

Address.....

The incident/accident occurred on.....20..... to.....20.....

Time of incident.....

Accident location (locality, subcounty and county)

Nature of accident/incident (fatal, non-fatal, environmental or other):
.....

Brief description of the accident/incident:
.....
.....
.....
.....

Probable cause of the accident/incident:
.....
.....
.....
.....

The risks posed by the accident/incident:
.....
.....
.....
.....

The mitigation measures put in place:

.....
.....
.....
.....
.....
.....

Name of the person reporting.....

Title

Signature.....

Date.....

FOR OFFICIAL USE ONLY

Report received
by.....on.....
.....20.....

Remarks:

.....
.....
.....
.....
.....
.....

Title

Signature.....

Date.....

For the Director of Mines
State Department of Mining

FOURTH SCHEDULE

FORM 2

SN /MHSE/2/

MINER'S BLASTING CERTIFICATE

(Regulation 54 (3))

This is to certify that Mr./Mrs./Msof holder of a blasting permit no..... is qualified to conduct blasting operations in an underground mine.

This Certificate is valid until.....

County.....

Date.....

.....

Signature of the holder

Remarks:

.....
.....
.....
.....
.....
.....

Inspector of Mines.....

Date of Issue.....

Official Stamp

FOURTH SCHEDULE

PROVISIONAL BLASTING CERTIFICATE

Valid for One Month

I HEREBY CERTIFY that I have examined Mr./Mrs./Miss./Ms.....of this mine, and I am satisfied that he is competent to conduct blasting operations.

This certificate is granted in pursuance of the powers conferred upon me by regulation 54(3) of the Mining (Safety) Regulations.

Date.....

Manager

.....

Mine.....

Signature of holder

FIFTH SCHEDULE

MINIMUM INFORMATION TO BE CONTAINED IN AN INCIDENT/ACCIDENT INVESTIGATION REPORT

(Regulations 17(4))

- i. Incident/accident ref no:
- ii. Mineral Right Holder/Mineral Dealer (Licensee)
- iii. Licensee's responsible person (Name, Contact and ID number)
- iv. Date and time of incident.
- v. Date of notification and investigation:
- vi. Detailed accident location (include GPS coordinates)
- vii. Names of person(s) affected:
- viii. Occurrence Book (OB) No. (where applicable) and the police station reported.
- ix. Nature of accident/incident (Fatal, Non-fatal, Environmental)
- x. Names and details of the accident investigation team.
- xi. Names, details and contacts of witnesses and persons interviewed.
- xii. Detailed description of accident (Prior events, Accident event, Events after).
- xiii. Cause of accident and findings
- xiv. Risks posed by the accident.
- xv. Immediate remedial action taken.
- xvi. Proposed corrections and corrective actions to be undertaken.
- xvii. Impact rating tool (to describe the severity of the accident)
- xviii. Photos of the accident scene.

SIXTH SCHEDULE

FORM 3

FORM /MHSE/3

HEALTH MONITORING REPORT

(Regulation 35 (7))

To be completed in Triplicate

The purpose of this form is to assist a Mineral Right Holder in meeting their obligation to give copies of relevant health monitoring reports to the Director of Mines.

1. NATURE OF THE WORK

The work for which the health monitoring report was required was (tick where appropriate):

Hazardous chemical work—work using, handling, generating or storing hazardous chemicals.

Asbestos work—licensed asbestos removal work, ongoing asbestos removal work or asbestos related work.

Lead risk work—work carried out in a lead process that is likely to cause blood lead levels to exceed specified limits.

Any other work that could be hazardous

2. REGISTERED MEDICAL PRACTITIONER

Medical Registration Number/License Number

Registered business address

Street no.....

Street name.....

City.....

Postal address

Contact details for more information

First name:

Surname;

Position

Telephone

Mobile

Email

Fax

3. WORKPLACE WHERE THE WORK IS/WAS BEING CARRIED OUT

Registered business or company name/ Individual name-----

Nature of Operations

Address

Street name

City

Postal address

Mineral Right Holder/Dealer
License Number.

4. WORKER'S DETAILS

Mr Mrs Miss Ms

First name

Surname

Position

Telephone

Email

Include consent from the worker (data protection reasons)

5. DETAILS OF THE HEALTH MONITORING REPORT

Date of the report / /

The report contains (tick as appropriate)

Advice that tests results indicate that the worker may have contracted a disease, injury or illness as a result of carrying out the work

Recommendation/s that the licensee takes remedial measures

Recommendation/s regarding whether the worker can continue to carry out the work

Test results that indicate the worker has reached or exceeded the relevant blood lead level for that person under

Attach a copy of the Health Monitoring Report:

Tick to confirm the Health Monitoring Report is attached.

6. PERSON COMPLETING THIS FORM

Mr Mrs Miss Ms

First name

Surname

Position

Telephone

Mobile

Email

Position

7. DECLARATION

I,hereby declare:

- i. I have authority from to complete and submit this form
- ii. The information in this notification is true and correct to the best of my knowledge

Signature

Date /

SEVENTH SCHEDULE

ACID MINE DRAINAGE REPORTING FORM

FORM 4

FORM /MHSE/4

(To be completed in duplicate)

ACID MINE DRAINAGE INCIDENT REPORTING FORM

(Regulation 164 (2) (d))

Incident/Accident description.....

Mineral	Right	Holder/Mineral	Dealer	No.
---------	-------	----------------	--------	-----

.....

Mineral	Right	Holder's/	Mineral
Dealer's Name.....			

Address.....

The incident/accident occurred on.....20..... to.....20.....

Time of incident.....

Accident location (locality, subcounty and county)

Co-ordinates.....

Acid levels tested.....

Nature of accident/incident (fatal, non-fatal, environmental or other):

.....

Brief description of the accident/incident:

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Probable cause of the incident:

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Impact/possible impact of the incident:

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The mitigation measures put in place:

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Name of the person reporting.....

Title

Signature.....

Date.....

FOR OFFICIAL USE ONLY

Report
by.....on.....20..... received

Remarks:

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.....

Title

Signature.....

Date.....

For the Director of Mines

State Department of Mining

EIGHTH SCHEDULE

REHABILITATION LICENCE



REPUBLIC OF KENYA

MINISTRY OF MINING, BLUE ECONOMY AND MARITIME AFFAIRS

STATE DEPARTMENT FOR MINING

Rehabilitation Licence

Rehabilitation Licence Registration No. _____

Term of licence: _____ years

Term commences: the _____ day of _____ year _____

Term ends on: the _____ day of _____ year _____

1. Subject to the conditions set out in the Mining Act (Cap. 306), in the regulations made under the Act and in this rehabilitation licence,

Name: _____

(Hereinafter referred to as the "holder") whose registered office in Kenya is at

Address: _____

City: _____ County: _____ Postal Code: _____

Country: _____

is by this licence granted the exclusive right to Rehabilitate all that area specified in Annex 1 of this licence.

DATED THIS _____ DAY OF _____ YEAR _____

Cabinet Secretary (name)

(signature)

In the presence of:
Director of Mines (name)

(signature)

Holder/Authorised Representative (name)

(signature)

In the presence of:
Witness (name)

(signature)

2. Obligations of the holder under the licence

(1) The holder of a rehabilitation licence shall—

Subject	Particulars
Purpose	Explicitly state the rehabilitation, reclamation, decommissioning and other activities to be undertaken.
Term	The rehabilitation licence shall be for a term of not less than five years, subject to renewal for additional five-year terms until rehabilitation activities are complete.
Holder Rights	The Holder must be granted the exclusive right to access and use the licensed area to carry out rehabilitation of land and decommissioning of infrastructure and carry out any activities ancillary or incidental to, or required for the purposes of, carrying out these activities. For the avoidance of doubt, the Holder is not authorized to undertake any other activities.
Holder Obligations	The Holder shall shall: (a) submit quarterly reports to the Cabinet Secretary detailing its activities for the relevant quarter; (b) strictly undertake only the rehabilitation-related activities identified in this License; (c) comply with the conditions of this Licence and any directions issued by the Cabinet Secretary in relation to the rehabilitation activities permitted under this Rehabilitation Licence; (d) not engage in drilling or other subsurface exploration techniques;

Transfer and assignment	The Holder shall not transfer or assign this Rehabilitation Licence or any part thereof without the written consent of the Cabinet Secretary, which consent shall not be unreasonably withheld.
Relinquishment of rehabilitated areas	Upon assessment by the relevant environmental body that an area has been fully rehabilitated, the Holder shall be allowed to relinquish the land.
Rehabilitation Activities	The Holder must submit a plan of rehabilitation activities to the Cabinet Secretary in accordance with the international best practice standards and guidelines and as may be prescribed by domestic regulations.

ACCOMPANYING ANNEXES

Annex 1: Map of Rehabilitation area

Annex 2: Approved Rehabilitation programme