BARRICK

High Risk Scope of Work Form

Document Reference:	Revision Number	Original Issue Date	Review Date
BGC-CORP-FORM-004	0	January 20, 2025	January 18,2030

Project Name:	**FIRE SUPPRESSION SYSTEM ON 37 X CAT 3512B DIESEL GENERATORS**
Site Location:	**Platform 3 / Diesel Generators Banks and Diesel GCS Restaurant Generators**
Risk Rating of SOW: **(Based on Pre-Job Risk Assessment)**	☒ **High** ☐ **Very High** *(Check one)*

Stakeholders	Name	Signature	Date
Requestor	Jean-Paul Ilunga		31 July 2026
Technical Representative	Milor Lomba / Pascal hakizimana		2026/07/31
Health and Safety Manager	Duncan McLaren		2026/07/31
Environmental Manager *If applicable*	Jerry Zozo		2026/07/31
Community Relations Manager *If applicable*	Click or tap here to enter text.		2026/07/31
Department Manager	Nathan Madu		2026/07/31
Contract Specialist	Yves Asoma		2026/07/31

1. PROJECT OVERVIEW

Outline the specific deliverables, objectives and boundaries of the project

Kibali Gold Mine operates a diesel power station comprising **thirty-Six (36) Caterpillar 3512B diesel generator sets, and one (1) of Engineering service GCS Restaurant Station; (37) Generators in Total** installed within a naturally ventilated generator hall. To enhance asset protection and improve personnel safety, the Employer intends to install an **automatic local application fire suppression system** on each generator set. The existing generator hall is already protected by a fixed high-pressure water fire suppression system; however, this project is intended to provide **dedicated fire detection and suppression at each individual generator**. The Contractor shall be responsible for the **engineering (where required), supply, delivery, installation, integration, testing, commissioning, and handover** of a complete and fully operational fire suppression system for all 37 generators. The works shall include all mechanical, electrical, control, and interface components necessary to ensure reliable automatic operation and seamless integration with the existing generator control and fire alarm systems.

2. GENERAL DESCRIPTION OF WORK

2.1. DELIVERABLES (KPI'S)

Deliverable	Description	Expected Date
Deliverable 01	**1. Engineering and Design Package (system design, drawings, calculations, datasheets, installation methodology, project schedule, HSE documentation, and material submittals)**	Before Execution
Deliverable 02	**2. Supply and Delivery of Equipment (all fire suppression systems, detection devices, cylinders, piping, nozzles, brackets, control panels, interface modules, cables, consumables, and spare parts)**	Before Execution
Deliverable 03	**3. Installation of Fire Suppression Systems on all 37 CAT 3512B generators, including mechanical, electrical, and control system installation**	During Execution
Deliverable 04	**4. Testing and Commissioning including pressure testing, functional testing, cause-and-effect verification, interface testing with generator controls and fire alarm system, and performance acceptance testing**	After Installation
Deliverable 05	**5. Training and Handover including operator training, maintenance training, operation manuals, maintenance manuals, and recommended spare parts list**	After Commissioning
Deliverable 06	**6. Final Documentation and Project Close-out including as-built drawings, test certificates, commissioning reports, inspection records, warranties, manufacturer certificates, and final acceptance dossier**	After Commissioning

2.2. PROJECT LOCATION

Provide an address and describe the specific location of the scope of work.

Kibali Power Plant / Diesel Generators Banks
Kibali Engineering Service / GCS Restaurant Diesel Generator

2.3. EQUIPMENT AND TOOLS REQUIRED

List all equipment and tools required to perform the Job.

Items supplied by Contractor

- Complete automatic fire suppression systems for all 37 CAT 3512B generators.
- Suppression agent cylinders/tanks and extinguishing agent.
- Detection system (linear heat detection cable and/or approved fire detectors).
- Control panels, releasing panels, interface modules, relays, and associated hardware.
- All discharge pipework, tubing, fittings, flexible hoses, manifolds, and nozzles.
- Mounting brackets, supports, clamps, anchors, and fabricated steelwork.
- Electrical cables, conduits, cable trays, glands, junction boxes, and termination accessories.
- Fuel shut-off interface components and engine shutdown interface hardware (where required).
- Interface equipment for connection to the existing fire alarm system and Power Management System (PMS).
- Fasteners, labels, identification tags, warning signage, and nameplates.
- Installation tools, lifting equipment, temporary access equipment (scaffolding/MEWPs), and test equipment.
- Pressure testing equipment, commissioning equipment, and calibration instruments.
- Consumables required for installation (sealants, fittings, cable ties, fixings, etc.).
- Spare parts and special tools specified in the contract.
- Operation and Maintenance Manuals.
- As-built drawings, engineering documentation, test certificates, commissioning reports, and training materials.
- Training of Client operations and maintenance personnel.

Items supplied by Barrick
• Safe access to the power station and work areas. • Access permits and site induction in accordance with mine procedures. • Approved work permits (through the Client's permit system). • Scheduled generator outages and equipment isolation (LOTOTO) to enable safe installation and commissioning. • Existing generator drawings, available electrical schematics, and fire system documentation (where available). • Connection points to the existing power supply, fire alarm system, and Power Management System (PMS). • Temporary electrical power supply for installation activities (where available). • Existing communication/network infrastructure required for system integration (where applicable). • Client representatives to witness inspections, testing, and commissioning. • Acceptance of completed works following successful testing and commissioning.

2.4. INSURANCE AND WARRANTY REQUIREMENTS
Provide list of applicable insurances or warranties. **Requirements to be identified by the Contract Specialist**
Click or tap here to enter text.

2.5. PROJECT RISK IDENTIFICATION
All project risks shall be identified within the Pre-Bid Risk Assessment taking into consideration all safety, environmental and community risks. Please attach the Pre-Bid Risk assessment to this document.

3. HEALTH AND SAFETY REQUIREMENTS

The Contractor shall apply all requirements established in Barrick's Health and Safety standards, as well as policies and procedures. The Contractor must consider all the requirements to prepare and submit a specific health and safety plan for the project using Barrick's Safe Work Plan form (please attach).

3.1. SPECIFIC SAFETY REQUIREMENTS

List the specific safety requirements associated with the job/work and all applicable procedures.

- **Permit to Work (PTW):** No work shall commence without an approved Permit to Work issued by the Employer.
- **Lock-Out/Tag-Out/Try-Out (LOTOTO):** All generators, electrical circuits and associated systems shall be positively isolated, locked and verified as de-energized before work begins.
- **Working at Height:** Any work above 1.8 m shall be performed using approved access equipment and fall protection in accordance with the mine's Working at Height Procedure.
- **Electrical Safety:** Electrical installation, testing and commissioning shall only be performed by competent and authorized personnel using calibrated test equipment.
- **Hot Work:** Cutting, grinding, welding or drilling activities that may generate sparks shall only be undertaken under an approved Hot Work Permit with suitable fire prevention measures in place.
- **Lifting Operations:** All lifting activities shall be carried out using certified lifting equipment, approved lifting plans (where applicable), and competent lifting personnel.
- **Pressurized Systems:** Installation, charging and pressure testing of suppression cylinders and piping shall follow the manufacturer's procedures. Personnel shall remain clear of pressurized components during testing.
- **Stored Energy:** Appropriate precautions shall be taken to control hydraulic, pneumatic, mechanical and spring-loaded stored energy before commencing work.
- **Fire Protection:** Suitable portable fire extinguishers shall be available at all work locations. Existing fire protection systems shall not be impaired without written authorization from the Employer.
- **Housekeeping:** Work areas shall be maintained in a clean and orderly condition at all times. Waste materials and combustible materials shall be removed regularly.
- **Barricading and Signage:** Work areas shall be adequately barricaded and clearly identified to prevent unauthorized access.
- **Personal Protective Equipment (PPE):** As a minimum, personnel shall wear safety helmet, safety glasses, flame-resistant clothing, gloves, steel-toe safety boots and hearing protection where required. Additional PPE shall be provided based on the task-specific risk assessment.
- **Emergency Preparedness:** The Contractor shall establish emergency response procedures for fire, accidental discharge of suppression systems, injury and evacuation, and ensure all personnel are familiar with these procedures.
- **Risk Assessments:** Task-specific Job Safety Analyses (JSA) or Hazard Identification and Risk Assessments (HIRA) shall be completed and approved before commencing each work activity.
- **Competency:** All personnel shall be trained, medically fit, and competent for the tasks they perform. Evidence of competency shall be provided upon request.
- **System Integration and Commissioning:** Functional testing and commissioning shall be conducted in coordination with the Employer to prevent unintended generator shutdowns, false fire alarms or accidental suppression system discharge.

3.2. HEALTH AND SAFETY PROCEDURES

List all applicable Health and Safety operational procedures.

The Contractor shall develop, implement, and comply with the following Health and Safety operational procedures throughout the duration of the contract:

1. **Site Induction**
   - All personnel shall complete the Employer's site induction and comply with all mine HSE requirements before commencing work.
2. **Permit to Work (PTW)**
   - All work shall be performed under an approved Permit to Work, including Electrical Isolation (LOTOTO), Hot Work, Working at Height, and Lifting Permits, where applicable.
3. **Pre-Task Risk Assessment**
   - A task-specific Job Safety Analysis (JSA) or Hazard Identification and Risk Assessment (HIRA) shall be completed and communicated to all personnel before work begins.
4. **Daily Pre-Start Meetings**
   - Daily toolbox talks shall be conducted to review the planned work, hazards, controls, weather conditions, and lessons learned from previous activities.
5. **Isolation and Verification**
   - All electrical, mechanical, hydraulic, pneumatic, and stored energy sources shall be isolated, locked out, tagged, and verified before work commences.
6. **Working at Height Procedure**
   - Personnel working at height shall use approved access equipment, inspected fall protection systems, and comply with the mine's Working at Height Procedure.
7. **Lifting Operations**
   - Lifting activities shall be performed using certified lifting equipment, competent operators, and approved lifting plans where required.
8. **Hot Work Procedure**
   - Welding, cutting, grinding, and any spark-producing activities shall be conducted under an approved Hot Work Permit with suitable fire prevention and fire watch arrangements.
9. **Electrical Safety Procedure**
   - Electrical installation, testing, and commissioning shall be performed only by competent personnel using calibrated instruments and approved test procedures.
10. **Housekeeping**
    - Work areas shall be maintained in a clean and orderly condition. Waste materials, packaging, and scrap shall be removed regularly to eliminate trip and fire hazards.
11. **Emergency Response**
    - The Contractor shall ensure all personnel understand emergency alarms, evacuation routes, assembly points, and reporting procedures. Emergency equipment shall remain accessible at all times.
12. **Incident Reporting**
    - All injuries, near misses, unsafe conditions, property damage, and environmental incidents shall be reported immediately to the Employer and investigated by the Contractor.

13. **Inspection and Supervision**
    - The Contractor shall conduct routine workplace inspections and provide competent supervision to ensure compliance with HSE requirements throughout the project.
14. **Commissioning and Functional Testing**
    - Commissioning activities shall be undertaken in accordance with an approved commissioning procedure and coordinated with the Employer to prevent accidental system discharge, nuisance alarms, or unintended generator shutdowns.
15. **Project Close-Out**
    - Before demobilization, the Contractor shall remove all temporary equipment, reinstate affected work areas, dispose of waste in accordance with site requirements, and complete a final HSE inspection with the Employer.

4. ENVIRONMENTAL REQUIREMENTS

The Contractor shall apply all the requirements established in Barrick's Environmental Guidelines for Contractors, comply with Barrick's Environmental Policy, and meet all other applicable environmental requirements, procedures or standards to present the specific environmental management plan for the project if applicable.

4.1. ENVIRONMENTAL SPECIFIC REQUIREMENTS

List the specific Environmental requirements associated with the job/work and all applicable procedures.

The Contractor shall comply with the Kibali Environmental Management System (EMS), applicable environmental legislation, and the following minimum requirements:

1. **Waste Management**
    - Collect, segregate and dispose of all waste in accordance with the mine's waste management procedures.
    - Remove all packaging materials, scrap metal, cable off-cuts, empty containers, and other construction waste from the work area daily.
2. **Hazardous Materials**
    - Store and handle fire suppression agents, oils, lubricants, adhesives, sealants, paints, and cleaning chemicals in accordance with the manufacturer's Safety Data Sheets (SDS).
    - Prevent leaks and uncontrolled releases to the environment.
3. **Spill Prevention and Response**
    - Spill kits shall be available wherever fuels, oils, hydraulic fluids, or chemicals are handled.
    - All spills shall be contained immediately, reported to the Employer, and cleaned up using approved methods.
4. **Protection of Existing Equipment**
    - Prevent contamination or damage to existing generators, electrical equipment, control panels, cable trenches, drainage systems, and the existing building fire suppression system.

5. **Dust Control**
    - Minimize dust generation during drilling, cutting, or surface preparation by using suitable dust extraction or suppression methods.
6. **Noise Control**
    - Limit noisy activities where practicable and comply with site working hour restrictions where applicable.
    - Ensure power tools and equipment are maintained to minimize excessive noise.
    - Use ear protection devices ou plugs when the diesel generators are working.
7. **Air Emissions**
    - Avoid unnecessary engine idling of construction vehicles and equipment.
    - Ensure all equipment is properly maintained to minimize exhaust emissions.
8. **Chemical Storage**
    - Chemicals and suppression agents shall be stored in designated areas with secondary containment where required.
    - Containers shall be clearly labelled and kept closed when not in use.
9. **Water Protection**
    - Prevent chemicals, oils, drilling residues, or construction waste from entering stormwater drains, sumps, or natural watercourses.
    - No contaminated water shall be discharged without the Employer's approval.
10. **Site Housekeeping**
    - Maintain clean work areas throughout the project.
    - Remove all temporary materials, waste, and unused equipment upon completion of the works.
11. **Environmental Incident Reporting**
    - Any environmental incident, spill, pollution event, or damage to the environment shall be reported immediately to the Employer and investigated by the Contractor.
12. **Environmental Restoration**
    - Upon completion of the works, the Contractor shall restore all affected work areas to their original condition and remove all temporary facilities and materials.

4.2. ENVIRONMENTAL PROCEDURES

List all applicable Environmental operational procedures.

The Contractor shall establish, implement, and comply with the following environmental operational procedures throughout the duration of the contract:

1. **Environmental Induction**
   - All personnel shall attend the Employer's environmental induction and comply with the mine's Environmental Management System (EMS) requirements before commencing work.
2. **Environmental Risk Assessment**
   - An Environmental Aspect and Impact Assessment (EAIA), or equivalent, shall be completed before commencement of the works and updated as required when work activities change.
3. **Waste Management Procedure**
   - Waste shall be segregated at source into designated waste streams (e.g., scrap metal, general waste, hazardous waste, recyclable materials).
   - Waste shall be disposed of only at approved waste collection or disposal facilities provided or approved by the Employer.
4. **Hazardous Substance Management**
   - All hazardous substances shall be clearly labelled, accompanied by current Safety Data Sheets (SDS), and stored in designated areas with appropriate secondary containment.
5. **Spill Prevention and Response**
   - Spill kits shall be available wherever fuels, oils, hydraulic fluids, suppression agents, or chemicals are stored or used.
   - All spills shall be contained, cleaned up immediately, and reported to the Employer in accordance with the mine's incident reporting procedure.
6. **Dust and Air Quality Control**
   - Drilling, cutting, and grinding activities shall be controlled to minimise dust emissions through suitable engineering controls or work practices.
7. **Noise Management**
   - Noisy work shall be planned to minimise disturbance to operations.
   - Equipment shall be maintained in good condition to reduce excessive noise emissions.
8. **Housekeeping Procedure**
   - Work areas shall be maintained in a clean and orderly condition at all times.
   - Waste, packaging, surplus materials, and debris shall be removed regularly to prevent environmental contamination.
9. **Protection of Existing Infrastructure**
   - Existing drainage systems, cable trenches, fire protection systems, generators, electrical equipment, and surrounding facilities shall be protected from damage or contamination during the works.
10. **Environmental Incident Reporting**

- Environmental incidents, spills, leaks, or pollution events shall be reported immediately to the Employer.
- Corrective actions shall be implemented and documented.

11. **Commissioning Controls**

- Functional testing and commissioning shall be planned to prevent unnecessary discharge of fire suppression agents or contamination of the surrounding environment.
- Any testing involving suppression agents shall require prior approval from the Employer.

12. **Site Restoration and Demobilisation**

- Upon completion of the works, the Contractor shall remove all temporary materials, equipment, waste, and barriers, and restore the work area to a clean and safe condition acceptable to the Employer.

5. SOCIAL REQUIREMENTS

For the development of this project, the Contractor must apply all the social requirements established in Barrick's social performance policy, with the objective to support the company's social commitment to sustainable development.

5.1. SOCIAL SPECIFIC REQUIREMENTS

List the specific social requirements associated with the job/work and all applicable procedures.

N/A

5.2. SOCIAL PROCEDURES
List all applicable Social operational *procedures.*
N/A

6. CERTIFICATIONS AND COMPETENCIES

Mark an X in the box next to all applicable certifications and competencies.

COMPETENCE	Applies	COMPETENCE	Applies
Fall From Heights	☒	Fire (Hot Work)	☒
Confined Space	☒	Hazardous Substances	☒
Stored Energy (LOTOTO)	☒	Excavations and Penetration (trenching)	☐
Lifting	☒	Working with High Voltage Lines	☐
Hazards Recognition/ Risk Assessment	☒	Mobile Equipment	☐
Blasting and Explosives	☐	Other:	☐

Other Applicable Competencies/Certifications
Click or tap here to enter text.

7. SOW MANAGEMENT

The following documents must be attached when submitting this form to the Contract Specialist:

- ☒ Pre-Bid Risk Assessment
- ☒ Reference Documents: Images, documents, drawings
- ☐ **Other:** Click or tap here to enter text.

8. APPENDIX

Documents:
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Images/drawings:
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PRE-BID RISK ASSESSMENT FORM

Document Reference:	Revision Number	Original Issue Date	Review Date
BGC-CORP-FORM-002	0	January 20, 2025	January 18, 2030

Project Name: (Reference SOW)	**FIRE SUPPRESSION ON 37 X CAT 3512B DIESEL GENERATORS**
Project Description:	**INSTALLATION, COMMISSIONING OF INDIVIDUAL FIRE SUPPRESSION SYSTEM ON 37 X CAT 3512B DIESEL GENERATORS**

Tasks	Hazards	Controls
Mobilization to site	Vehicle accidents, unauthorized access	Approved transport plan, competent drivers, site induction, compliance with mine traffic rules
Delivery and offloading of equipment	Falling loads, crush injuries, struck-by objects	Certified lifting equipment, lifting plan, competent operators, exclusion zones, tag lines, PPE
Storage of materials	Material damage, trip hazards, fire risk	Designated storage area, good housekeeping, secure storage, SDS available for hazardous materials
Site inspection and verification	Slips, trips, contact with operating equipment	Obtain work permit, accompany client representative, maintain safe access, wear mandatory PPE
Isolation of generator prior to work	Electrical shock, unexpected engine start, stored energy	Approved Lock-Out/Tag-Out/Try-Out (LOTOTO), isolation verification, permit to work, zero-energy confirmation
Installation of mounting brackets and supports	Hand injuries, falling objects, cuts	Use correct tools, inspect hand tools, wear gloves and eye protection, establish exclusion zone
Drilling, cutting and grinding	Flying particles, noise, dust, fire	Hot Work Permit where applicable, fire watch, fire extinguishers, eye/face protection, hearing protection, dust control
Working at height (installation of pipework/nozzles)	Falls from height, dropped objects	Approved work-at-height procedure, inspected scaffolds or MEWP, full-body harness where required, tool lanyards

Installation of piping and nozzles	Pinch points, manual handling injuries	Use proper lifting techniques, mechanical lifting aids, correct installation tools, follow manufacturer instructions
Installation of suppression cylinders/agent tanks	Heavy lifting, pressurized cylinders, cylinder damage	Mechanical lifting equipment, secure cylinders upright. protect valves, trained personnel only
Installation of detection cable and electrical wiring	Electrical shock, cable damage	LOTOTO, insulated tools, qualified electricians, cable management, testing before energization
Integration with generator control system	Electrical hazards, inadvertent generator shutdown	Approved switching procedure, coordination with client, competent technicians, authorized access only
Functional testing and commissioning	Unexpected discharge, equipment movement, electrical hazards	Approved commissioning plan, emergency stop available, client representative present, communication with control room
Complete working on the generator	Noise	Ears plugs, making sure that the two adjacent generators are not in use.
Housekeeping during installation	Slips, trips, fire hazards	Remove waste daily, maintain clean work area, proper cable routing, safe storage of tools and materials
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Click or tap here to enter text.	Click or tap here to enter text.	Click or tap here to enter text.

Select all the Fatal Risks present:

☑ Stored Energy	☑ Falling from Heights	☑ Lifting	☐ Blasting and Explosives	☑ Hazardous Substances and Chemicals
☑ Confined Spaces	☐ Mobile Equipment	☐ Fall of Ground	☑ Rotating Equipment	☐ Fire

Control Effectiveness:	Fully Effective

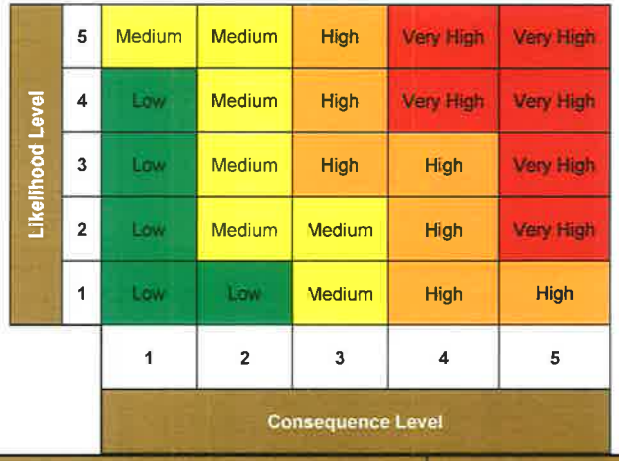
Additional actions needed before job start:	Site Specific RA, SJWS
Identified Risk Level:	☐ Low ☐ Medium ☒ High ☐ Very High

Responsible	Name	Signature	Date
Technical Representative	Milor Basila / Pascal hakizimana		2026/07/31
Safety Representative	JAMES KAHUMA		2026/07/31

Appendix

Risk Ranking matrix:
Compares likelihood of the risk with the consequence level based on the consequence criteria.

*This matrix will be used to evaluate the significance of the risk and its priority for attention.



Likelihood criteria:
Likelihood levels will be chosen from the table below based on the probability that the expected impact selected in from the consequence criteria will be experienced.

Level	Probability
5 Almost Certain	>90%
4 Likely	50% - 90%
3 Possible	>25% - <50%
2 Unlikely	10% - 25%
1 Very Unlikely	<10%

Consequence Criteria:
Consequence levels will be chosen from the table below based on the expected impact on Barrick, choosing the worst case of the consequence types that are pertinent. This should reflect the assessment of the existing controls and their effectiveness.

Level	Financial (Operating cash flow)	Shareholder Value (NPV/ Market cap)	Health and Safety	Environment	Society (Community, NGO, Government, Media)	Legal
5	>$250m	>$1b	Multiple fatalities or significant loss of quality of life to multiple people.	Severe regional impact resulting in permanent long-term impact to the environment. Immediately reportable to Government or State	Significant loss of trust by affected, national and/ or government threatening the continued viability of the operation. International and national government, NGO and media condemnation. Systemic pattern of gross human rights violations affecting multiple people.	Prolonged litigation likely. Potential jail terms and/or high fines for executives and directors. Potential very high fines for the company.
4	>$100m<$250m	>$500m<$1b	Single fatality or critical injury with a permanent negative impact to quality of life for one person	Significant impact with medium to long-term impairment and residual ecosystem effects. Regulatory agency mandated remediation and/ or monitoring over a long-term period to determine extent of adverse environmental impact. Immediately reportable to Government or State.	Community unrest and/or protest requiring intervention and substantial management attention. National and/or regional media coverage over several days and/or NGO condemnation. Individual gross human rights violation or systemic negative human rights impacts.	Prosecution of individuals and/or significant fines for individuals and/or the company.
3	>$20m<$100m	>$50m<$500m	Serious injury to one or more persons resulting in temporary negative impact to quality of life. (RDI & LTI)	Moderate impact resulting in medium – term impacts to the environment. Remediation completed in compliance with regulations over a medium-term period without any anticipated residual adverse environmental impacts. Potentially reportable to State or government, but not immediately.	Persistent community grievances, complaints, unrest or protests. National and/ or regional media coverage and/ or NGO scrutiny. Systemic or severe individual negative impacts on human rights.	Significant legislation or permit non-compliance or litigation likely resulting in settlement costs and/or fines.
2	>$1m<$20m	>$10m<$50m	Reversible injury to one person, (no lost time to work performance) but requiring medical treatment. (MTI)	Localized, minor impact within the current or planned disturbance area (or isolated offsite impacts.) Limited remediation, and/ or controls required to meet regulatory standards. Potentially reportable to State or Government but not immediately	Persistent complaints and grievances, unrest or protests. Local Media coverage. Isolated negative impacts on human rights	Legislation or permit non-compliance or litigation likely resulting in need for legal engagement.
1	<$1m	<$10m	Minor injury not affecting work performance and requiring only a single first aid treatment.	Environmental incident with an area already distributed by operations, with short-term impacts. Remediation carried out as part of routine processes. Not reportable to the government.	Minor complaints and grievances from local communities. No impact on human rights.	Minor non-compliance with legislation or permits.

Control Effectiveness: A relative assessment of the degree of modification that is currently present and effective compared with that which is reasonably achievable for a particular risk.

Descriptor	Guide
Fully Effective	Controls are as good as realistically possible, both well-designed and implemented as well as they can be.
Substantially Effective	Controls are generally well-designed and well implemented but some improvement is possible in their design or implementation.
Partially Effective	Controls are well-designed but are not implemented that well. OR While the implementation is diligent, it is clear that better controls could be devised.
Largely Ineffective	There are significant gaps in the design or in the effective implementation of controls – much more could be done.
Totally Ineffective	Virtually no credible controls relative to what could be done.

Fatal Risk	Critical Controls
Stored Energy	De-energize: Identify sources of energy and ensure they are zero-state
	LOTOTO: Remember to always lock out – tag out – try out
	Guards, Barriers, and Barricades: Ensure they are in position and effective
	Lock-out Device: Use the appropriate lock out device to isolate the energy source
	Personal Lock and Tag: Have your OWN lock and tag, with unique key
Falling from Heights	Rescue Plan: Ensure a rescue plan is in place before starting work above 1.8m.
	Fall Equipment: Inspect and wear the correct fall-restraint or arrest equipment when working above 1.8m.
	Tie Off: Stay 100% tied off at all times on approved anchor points.
	Elevated Platforms: Only work from certified elevated platforms.
	Barriers: Ensure barriers are in place to precent people or objects from falling over edge; ensure exclusion zones are demarcated.
Lifting	Lift Plan: Determine how the lift will be carried out with input from all persons involved.
	Equipment and Rigging: Ensure all lifting equipment is inspected, certified, and load is secured and controlled.
	Calculate and Confirm: Analyze the weight of the load and all associated equipment parameters.
	Drop Zone: Erect barricades and exclusion zones to restrict access to the area under a suspended load or within a drop zone.
	Communication: Positive communication from a single person to operator.
Blasting & Explosives	Communication: Scheduled and effective blast notification to all site personnel.
	Blast Design: Compliance with the approved drill and blast design.
	Transport Equipment: Safely transport explosives using approved, certified, and maintained explosives-transport equipment.
	Exclusion Zones: Establish and restrict access of personnel and equipment to blast exclusion zones with barricades.
	Access Control: Lock out – tag out on stinger and blast tag boards, to ensure all individuals are accounted for.
Hazardous Substances and Chemicals	PPE: Wear correct hazardous-materials PPE in line with Safety Data Sheet (SDS)
	Access: Restrict access to authorized personnel only
	Emergency Response: Containment: and exposure measures must be on hand and working according to SDS guidance
	Detection and Alarm Systems: Correct detection devices and alarms are in place and fully functional.
	Handling and Transfer: Protection protocols are in place when handling and transferring chemicals based on SDS.
Confined Space	Rescue Plan: Formulate a rescue plan and ensure that a spotter is in place at all times.
	Permit: Ensure you have a signed and complete permit to access entry point.
	Energy Isolation: All possible energy sources have been identified and controlled per lock out – tag out – try out (LOTOTO)
	Access Control: Work area to be demarcated and access control to be managed by a spotter at all entry points.
	Atmosphere: Test and confirm atmosphere is life-sustaining and continue monitoring.

Mobile Equipment	Pre-Use Inspection: Confirm functionality of braking, steering, and safety devices.
	Parking: Follow safe, secure, and stable parking practices in designated parking areas.
	Traffic Management Plan: Adhere to road designs, rules, signage, and segregation of equipment and pedestrians.
	Berms and Windrows: Ensure that berms and windrows are installed to standard and maintained.
	Communication: Ensure positive communication is maintained at all times.
	Mobile Devices: Do not use phones, smart watches, or tablets when driving.
Fall of Ground	Workplace Inspection: Inspected, properly scaled down, and made safe.
	Geotechnical Inspection: Ensure that inspections are completed, and workplaces are continuously monitored.
	Ground Control Management Plan: Ensure that the plan is implemented and communicated.
	Barricading and Exclusion Zones: Ensure exclusion zones have been identified and maintained.
	Water Management: Establish a water management plan.
Rotating Equipment	Guards, Barriers, and Barricades: Ensure these are effective, in place, and maintained.
	Safety Devices: Ensure safety devices and interlocks have been tested and are in working condition.
	Energy Isolation: All possible energy sources have been identified and controlled per lock out – tag out – try out (LOTOTO)_
Fire	Combustible Materials Storage: Store combustible/flammable materials separately and safely.
	Ventilation: Ensure adequate ventilation in working areas and that systems are functioning and maintained.
	Fire Detection, Alarm, and Suppression: Ensure fixed and mobile equipment has functional fire detection and suppression system.
	Evacuation Plan: Be prepared and know your emergency plan, egress, refuse chamber, self-rescuer, and muster point.
	Hot Work Permit: Obtain a permit and implement the associated controls before starting work.

BOQ – FIRE SUPPRESSION SYSTEM ON 37 X CAT 3512B DIESEL GENERATORS

Item No	Description of work	Unit	Qty	Unit Rat	Total
1	INSTALLATION OF FIRE SUPPRESSION SYSTEM ON 37 X CAT 3512B DIESEL GENERATORS.	KIT	37		