HEALTH AND SAFETY PLAN (HSP)

RWANDA UNIVERSAL ENERGY ACCESS PROGRAM(RUEAP)
ENERGY ACCESS AND QUALITY IMPROVEMENT PROJECT(EAQIP)

SUB-PROJECT: PLANT DESIGN, SUPPLY AND COMMISSIONING OF RWANDA ENERGY ACCESS AND QUALITY IMPROVEMENT(EAQIP) IN MUSANZE AND RUBAVU DISTRICTS

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EXECUTIVE SUMMARY

Rwanda through EDCL and with funds from development partners led by the World Bank is implementing the EAQIP, a project that focuses on the construction of LV and MV lines and providing energy access to users through connections in Musanze and Rubavu Districts. The construction works involves working with live electrical equipment, circuit isolation, working at heights, lifting and hoisting of equipment, as well as the transportation of major plant items, such as power transformers. Workers can also face health risks through management and use of hazardous materials such as sulfur hexafluoride (SF6), chromated copper arsenate (CCA), and other wood treatments and pesticides for vegetation management, which may also create environmental risks. To provide a workable model to the site in striving to achieve the goal of zero lost time due to injury/accident, EDCL proposes to achieve this by incorporating the safety requirements in all the company procedures and by maintaining a safety culture in the day-to-day work life of the employees, hence this HSP.

This HSP explores in detail possible health and safety issues, determines hazard assessment procedures, proposes appropriate mitigation measures, and assigns responsibilities as well as the management and monitoring plan. In carrying out this assignment, EDCL leaned on health and safety regulations in Rwanda with a particular emphasis given to its Article 77: General health and safety conditions in the workplace and article 79 which emphasizes the importance of personal protective equipment. Furthermore, the HSP has followed the application of the World Bank Environmental and Social Framework, EHSGs, ESS2 on labor and working conditions, ESS3 on Resource Efficiency and Pollution Prevention and Management as well as ESS4 on Community Health and Safety all of them defining requirements for the protection of workers and communities in the project area.
Practically, the HSP has proposed a list of checklists and monitoring formats for daily monitoring and evaluation of compliance by the construction team. Reporting requirements, emergency preparedness, and response plans as well as incident notification and assessment procedures were proposed. A list of PPEs to be availed at all project sites was proposed for reference and compliance. The HSP details traffic management procedures, waste management procedures, and communication procedures among project workers. To enhance employees' knowledge and responsibilities in health and safety practices, training and toolbox talks will be provided. Pieces of training will focus on hazard and risk assessment, the use of PPEs, housekeeping, the use of first aid, site rules, and communication hierarchy. In terms of workers' grievance resolution, a grievance resolution committee composed of the Health and Safety Officer as well as elected workers' representatives was proposed.
The authority to enforce the implementation of this HSP lies with EDCL through the project manager, site supervisor, health, and safety officer, and the EAQIP safeguards team and senior management at large.

List of Acronyms

EAQIP: Energy Access and Quality Improvement Project
EDCL: Energy Development Corporation Limited
ESF: Environmental and Social Framework
EUCL: Energy Utility Corporation Limited
HSP: Health and Safety Plan
LV: Low Voltage
MSDS: Material Safety Datasheet
MV: Medium Voltage
NST1: National Strategy for Transformation
PPE: Personnel Protective Equipment
QHSE: Quality, Health, and Safety Engineer
HSO: Health and Safety Officer

1. INTRODUCTION

Electricity power production in Rwanda has increased and stabilized since the severe power shortages of 1994; however, the total capacity remains very low at 238.36 MW with reliance on domestic generation including hydropower (47%), methane gas (13%), imported diesel thermal generation (26%), Peat (7%), solar (5%), biomass (0.03%) and import (2%) (LCPDP, 2020). Therefore, in line with the high energy demand, the Rwandan electricity infrastructure needs to be upgraded. Electricity transmission and distribution all have to be increased. To this effect, one of the objectives of the First National Transformation Strategy (NST1) is to scale up electricity generation and improve quality, affordability, and reliability to contribute to Rwanda's Vision 2050 medium and long-term goals and to promote Rwanda's achievement of the Sustainable Development Goals (SDGs) especially poverty reduction, gender empowerment, and sustainable growth. To achieve the said objectives, in line with the Government of Rwanda (GoR)'s stated ambitious target of achieving universal access to electricity by 2024, the Government of Rwanda through Energy Development Corporation Limited (EDCL) has developed the Energy Access and Quality Improvement Project (EAQIP) to enhance the electricity supply in Musanze and Rubavu districts in accordance with the Laws of Rwanda and the World Bank guidelines with respect to Environmental and Social Framework (ESF).

1.1. General

This health and safety plan is prepared for works related to component 1, specifically for investments construction of Medium and Low Voltage (M, LV) lines, installing distribution transformers and prepayment meters on the different households and productive users in Musanze and Rubavu District with the aim to increase grid connections of households in those Districts. It will be followed and complied with by all project workers including casual laborers, site engineers, and the project manager. Its oversight will be monitored on a daily basis by a designated health and safety officer. To ensure its compliance, EDCL will provide the required PPEs and will provide the necessary training to all workers. The HSP will be available on-site through the health and safety officer. Daily monitoring and inspections will be conducted and daily tool box talks will be provided to all workers every morning to provide health and safety guidelines relevant to the specific activities to be carried out that day.

1.2. Project Policy Statement/Workplace Health, Safety, and Environment Policy

By preparing this HSP plan EDCL intends to ensure that all parties involved in the implementation of this project:

- Promote a safe working environment that is free from recognized hazards to workers, the environment, and the public. Commit resources to detect hazards and ensure hazard correction.

- Achieve an incident-free project by advocating the belief that all incidents are preventable.
- Verify that safety policies and procedures are in place to assure worker and public health and safety as well as to promote natural capital.
- Ensure waste management and clearness of the environment.
- Increase employee involvement with project safety to improve the quality of safety and health. This includes brainstorming, inspecting, detecting, and correcting, from project startup to project completion.
- Ensure that all employees have the knowledge, awareness, and training to accomplish the tasks safely.
- Implement emergency response plans and procedures. Provide effective project communication plans and equipment.
- comply with all statutory environmental obligations in Rwanda together with all other applicable statutory provisions and codes of practice.
- Promote efficient and sustainable use of natural resources;
- promote environmental, health, and safety awareness throughout the organization;
- Maintain a safe and healthy working environment for our employees, with adequate facilities appropriate to the nature of the business activities; and

1.3. References

In carrying out this assignment, the safeguards team took into consideration the nature of the proposed project development as well as the Environmental, Health and Safety, and waste management regulations of Rwanda giving more focus on chapter 5 of the national labor law of 2018 which is dedicated to Occupational Health and Safety, especially in Article 77: General health and safety conditions in the workplace and article 79 which emphasizes on the importance of personal protective equipment while performing a certain type of activities under which most of the works to be performed under the construction of Medium Voltage and Low Voltage lines in Musanze and Rubavu Districts under EAQIP. Furthermore, the EHSP has followed the application of the World Bank Environmental and Social Framework, EHSGs, its 8 Environmental and Social Standards relevant to EAQIP in general, with particular attention paid to ESS2 on labor and working conditions; ESS3 on Resource Efficiency and Pollution Prevention and Management as well as ESS4 on Community Health and Safety all of them defining requirements for the protection of workers and communities in the project area.

2. SITE INFORMATION AND SCOPE OF WORK

2.1. General Description

Musanze and Rubavu Electrification Project which is covered under this HSP consists of Plant Design, Supply, and Installation of Low Voltage and Medium Voltage Lines and Service Connections in 26 administrative Sectors of the Musanze and Rubavu Districts in Northern and Western Provinces of Rwanda respectively with 215.161 km of MV Line and 1238.792 of LV.

2.2. Site Information

Musanze site: Musanze is Rwanda's most mountainous district, containing the largest part of the Volcanoes National Park. Five of the eight volcanoes of the Virunga chain (Karisimbi, Bisoke, Sabyinyo, Gahinga, and Muhabura) are within the district boundaries. It is also in this Musanze District that most of Rwanda's Mountain Gorillas are found, making it the most popular tourist destination in the country. The climatic relief from Meteo Rwanda shows that the region experiences heavy rainfall with an average of 1420/year, with March, April, and May having the highest rainfall. Musanze is characterized by cold and breezy days that are followed by cooler nights, making it a common feature for the residents to be clad in heavy sweaters. However, the rainy season is intense in this sector throughout the year. April and May normally have the heaviest rains, whereas October and November have a much more moderate rainy period.

Rubavu site: The periphery of Rubavu District is dominated by the Volcanoes National Park in the north and Gishwati Forest in the south. Its altitude is 1,470 m and it has an equatorial climate with an average altitude. The average temperature ranges from 15 ° C on the vertices, where night-time temperatures can drop to 6 ° C up to 20 ° C at the borders of Lake Kivu. Rainfall in Rubavu District varies between 1200 mm and 1500 mm per year well distributed throughout the year except for the period of the long dry season which extends from June to mid-September. Rubavu has an average maximum temperature of 25°C and an average minimum temperature of 15°C. The hottest month is observed in May. The climatic relief of Rubavu as shown by data from Meteo Rwanda shows that the region experiences heavy rainfall amounting to over 1200mm/yr. March, April, and October have the highest rainfall.

2.2.1.. Scope of Work

The project consists of Plant Design, Supply, and Installation of Low Voltage and Medium Voltage Lines and Service Connections in 26 administrative Sectors of Musanze and Rubavu Districts in Northern and Western Provinces of Rwanda respectively with 215.161 km of MV Line and 1238.792 of LV.

2.3. Description of activities to be done under the project

2.3.1 Mobilization/Demobilization

The project is expected to have only one temporally storage site for material and machinery parking as it will be implemented by EDCL in-house teams. The selection of the location was

based on the availability of adequate land for establishing the storage site, including parking areas for machinery, stores and easy access to working sites, and an appropriate distance from the community to minimize health and safety risks to them. For Musanze and Rubavu, the main site is in Kabatwa sector, Myuga cell, and Myuga village. The preparation of the site involved minor civil works which included the construction of offices and sanitation facilities as it was already a used site. Sourcing and transportation of construction materials and other equipment (cross arms, cables, stubs, transformers, wires, aggregates, stones, sand, bricks, cement, etc.) will be done by trucks from the main store directly to different sites where they will be immediately used.

2.3.2 Site Preparation

There will be provision of access to sites which consists of clearing and maintenance of all main access roads to the line routes. The length of the access road is the distance between the edges of public roads to the lines. The activity of clearing the right-of-way consists of felling any vegetation so as to avail space where to place construction materials along the entire length of distribution lines. Site preparation involves physical works that may harm the workers if precautions are not taken. These works include among others excavation and transport of some materials. Manpower will be used to clear the project sites and trenches excavation and trucks and other machinery will be used to transport materials and personnel to the project sites.

2.3.3 Equipment Decontamination

All personnel, clothing, equipment, and samples leaving the contaminated area of a site (generally referred to as the Exclusion Zone) must be decontaminated to remove any harmful chemicals or infectious organisms that may have adhered to them. Decontamination methods either (1) physically remove contaminants, (2) inactivate contaminants by chemical detoxification or disinfection/sterilization, or (3) remove contaminants by a combination of both physical and chemical means. Various decontamination methods are listed in Table 1.

Physical Removal

In many cases, gross contamination can be removed by physical means involving dislodging/displacement, rinsing, wiping off, and evaporation. Physical methods involving high pressure and/or heat should be used only as necessary and with caution since they can spread contamination and cause burns. Contaminants that can be removed by physical means can be categorized as follows:

- Loose contaminants: Dust and vapors that cling to equipment and workers or become trapped in small openings, such as the weave of the clothing fabrics, can be removed with water or a liquid rinse. Removal of electrostatically attached materials can be enhanced by

coating the clothing or equipment with anti-static solutions. These are available commercially as wash additives or anti-static sprays.

- Adhering contaminants: Some contaminants adhere by forces other than electrostatic attraction. Adhesive qualities vary greatly with the specific contaminants and the temperature. For example, contaminants such as glues, cement, resins, and muds have much greater adhesive properties than elemental mercury and consequently, are difficult to remove by physical means. Physical removal methods for gross contaminants include scraping, brushing, and wiping. Removal of adhesive contaminants can be enhanced through certain methods such as solidifying, freezing (e.g., using dry ice or ice water), adsorption or absorption (e.g., with powdered lime or kitty litter), or melting.
- Volatile liquids: Volatile liquid contaminants can be removed from protective clothing or equipment by evaporation followed by a water rinse. Evaporation of volatile liquids can be enhanced by using steam jets. With any evaporation or vaporization process, care must be taken to prevent worker inhalation of the vaporized chemicals.

2.3.4 Site Restoration

Under this project and due to the nature of the works, site rehabilitation does not wait for the completion of all civil works. Since these are linear projects requiring minor civil works (erection of MV lines and erection of transformers), the sites shall be rehabilitated especially gradually where excavation will have taken place to erect poles for the mentioned overhead lines. The rehabilitation will start immediately after pole erection as the excavated soil will be used on-site for back refilling. Any remaining construction material such as electrical equipment like cables shall be collected and taken back to the main store for future use. After completion of construction works, an final site inspection and cleaning will be done before being handled over to the community

2.3.5 Additional Work Operations

For any additional uncaptured work which shall occur under this specific sub-project, the developed ESMP shall be used alongside other national instruments related to health and safety.

3. HAZARD ASSESSMENT (SAFETY)

A hazard is any source of potential damage, harm, or adverse health effects on something or someone. Risk is the chance or probability that a person will be harmed or experience an adverse health effect if exposed to a hazard. It may also apply to situations with property or equipment loss, or harmful effects on the environment.

3.1. Physical Hazards

There is a range of physical hazards related to the construction of electrical lines. These include but are not limited to: slips, trips, falls, etc. EDCL will put in place prevention measures appropriate to each type of work that might trigger these hazards. Details are discussed in the next subsections.

3.1.1. Slips, Trips, Falls, and Protruding Objects

EDCL will manage hazards associated with slips, trips, and falls. Workers will be trained to avoid slips, trips, and falls and will be aware that the main factors contributing to slip, trip, or fall accidents are:

- Failure to maintain three-point contact behavior
- Eyes not on path behavior
- Unsuitable footwear
- Environmental factors – wind, rain, spray
- Contamination – oil, paint, grease
- Obstacles and obstructions
- Poor housekeeping and maintenance

The most common type of injury at worksites is to people's hands and fingers. To reduce these injuries, EDCL recommends:

- Avoidance of pinch points behavior
- Keep eye on the task
- Use the correct PPE for hands
- Be more aware of potential hazards to hands
- Look out for colleagues and warn of unseen danger
- Use good practice with the right tools

3.1.2 Housekeeping

Good housekeeping practices will be maintained on all work sites. Before leaving for the day, the personnel will ensure that all equipment is secured, trash and debris are removed from the site, and adequate safety indications are installed to avoid harm to members of the public. The Lineman must conduct a final walk-through of the job site before leaving to inspect for any tripping, foot penetration, or fire hazards. All personnel's eating and sanitary facilities will be always maintained in a clean and sanitary condition. The employer will provide the necessary resources to accomplish this, including adequate washing and sanitary facilities. Segregated trash cans for biodegradable and nonbiodegradable will be available at construction sites to be used by the construction teams.

3.1.3 Manual Lifting

- All manual handling tasks must be assessed in one of two ways. If the task is basic and assessed as low risk, then a Basic Assessment Report should be completed. If the task is complex or of a higher perceived risk, then a Detailed Assessment Report should be completed. These reports are designed to enable the thorough and efficient assessment of any manual handling operation.
- Basic Assessment Reports allow the assessment of the following:
    - Lifting Operations
    - Carrying Operations

Manual handling work instructions:

- Think before handling/lifting: Keep the load close to the waist,
- Adopt a stable position.
- Ensure a good hold on the load.
- Moderate flexion (slight bending): Keep the load close to the waist
- Avoid twisting the back and leaning: Keep the head up when handling.
- Move smoothly.
- Don't lift or handle more than can be easily managed.
- Put down then adjust/Lift in teams
- Wearing appropriate PPE (safety shoes or over boots, safety gloves if necessary, sork cloths and high visibility jacket, respiratory protection equipment etc)

3.1.4 Utilities

The EDCL is expected to encounter other utilities such as electric power from taping points, etc., telephone services, cable and internet, and water. All of them shall be kept safe during the sub-project construction in order to allow the users to continue their operations. In this regard, EDCL will identify existing utility infrastructures that exist in each location and will collaborate with all utility providers to ensure a smooth implementation of this project.

3.1.5. Electrical hazards

Workers must report any damaged electrical equipment to the site engineer. It will be removed from service and either repaired or replaced and subsequently inspected and tested as required

Power supplied to the site must only come from Energy Utility Corporation Limited (EUCL). An existing switchboard permanently installed at the premises.

- Switchboards and distribution boards used on site must:
    - be of robust construction and materials capable of withstanding damage from the weather and other environmental and site influences.
    - be securely attached to a post, pole, wall, or other structure unless it is of a stable freestanding design able to withstand external forces likely to be present
    - incorporate suitable support and protection for flexible cords and cables and prevent mechanical strain to the cable connections inside the board.
    - always protect all live parts
    - be individually distinguished by numbers, letters, or a combination of both (where multiple boards are present).
- Flexible cords used on construction sites must be rated heavy-duty.

➢ To avoid confusion with individual earthling conductors, green-sheathed flexible power cords must not be used on-site.

➢ Flexible cords must be either protected by a suitable enclosure or barrier (flexible or rigid conduit) or located where they are not subjected to mechanical damage, damage by liquids, or high temperature (elevated on stands or hung from nonconductive support brackets).

- We will maintain an in-service inspection and test regime for all portable electrical leads, tools, and earth leakage devices.
- We will ensure that after the equipment has been inspected and tested, it will be fitted with a durable, non-reusable, non-metallic tag. The tag will include the name of the person or company who performed the test and the test and re-test date.
- Records of all inspections, tests, repairs, and faults related to all electrical equipment will be recorded in a testing and tagging register.
- Residual Current Devices (RDC) and portable equipment must be inspected, tested, and tagged every 3 months.
- Workers must conduct an RCD push button test after connection to a socket and before connection to equipment at least once a day.

3.1.6 Drilling Operations

Serious injuries can occur while using high-speed twist drills in any type of machine. Observe the following:

- Eye protection should be worn whenever using a drill.
- Wear gloves.
- Never hold small work by hand, always use a clamp.
- Never remove material that has become jammed whilst the drill is in motion

3.1.7. Working On or Near the Water

Under this sub-project, the nearest water body is lake Kivu and river Sebeya. however, there are no construction activities planned near either the lake or the river. This project is only limited to distribution and access lines. The tapping points will be on the already existing transformers within beneficiaries sectors with no need to cross water bodies. As part of continuous awareness, the construction teams will be made aware of the following:

- Compact the soil immediately after removal of the topsoil.
- Avoid concrete works close to water courses.
- Machinery and equipment working near water courses should be properly serviced to avoid oil spilling.
- Petrochemicals and other hazardous liquids should be stored in contained areas, surrounded by concrete containment.
- Any spills on open roads should be cleaned-up within 24 hours.

3.1.8 Dust and noise Control

Since this project is related to the construction of LV and MV lines, the generation of noise and dust is very minimal. Nevertheless, the following will apply if need be:

- Dampen down dusty area.
- Maintain normal working hours adjacent to residential areas.
- Ensure that machinery is in good working order
- Speed limits shall be set for vehicles to slow down to minimize dust emissions and noise

3.1.9 Spill Prevention

All personnel responding to spills must have appropriate training and wear PPE appropriate for the situation. If a hazardous material spill occurs, properly trained and equipped site personnel should locate the source of the spill and determine the hazard to the health and safety of site workers and the public. Attempt to stop or reduce the flow if it can be done without risk to personnel. Isolate the spill area and do not allow entry by unauthorized personnel. De-energize sources of ignition within at least 100 feet of the spill, including vehicle engines. Should a spill be of the nature or extent that it cannot be safely contained or poses an imminent threat to human health or the environment, an emergency clean-up contractor will be called out as soon as possible. The clean-up contractor is Agruni Rwanda both in Musanze and Rubavu sites. Spill containment measures listed below are examples of responses to spills.

- Right or rotate containers to stop the flow of liquids. This step may be accomplished as soon as the spill or leak occurs, providing it is safe to do so.
- Sorbent pads, booms, or adjacent soil may be used to dike or berm materials, subject to flow, and to solidify liquids.
- Sorbent pads, soil, or booms, if used, shall be placed in appropriate containers after use, pending disposal; and
- Contaminated tools and equipment shall be collected for subsequent cleaning or disposal.

3.1.10 Noise Exposure Monitoring

Earmuffs or earplugs must be used where there is loud or high-frequency noise
Particularly. To avoid disturbance to local communities, any work that might involve noise beyond 85Db will be carried out during day hours and the local community will be properly informed at least 2 days in advance.

3.1.11. Working at heights and falls from heights

Working at height remains one of the biggest causes of fatalities and major injuries. Personal protective equipment against falls from a height must be worn by workers exposed to a fall from a height of 2 meters or more.
The Work at Height Regulations requires employers to ensure that:

- All work at height is properly planned and organized
- A risk assessment is carried out for all work conducted at height.
- Appropriate work equipment is selected and used
- People working at a height are competent
- Equipment used for work at height is properly inspected and maintained.

EDCL will manage the risks associated with falls from heights by:

- providing a fall prevention device such as secure fencing, edge protection, working platforms, and/or covers
- Making reflective bands barriers, guard against unauthorized access

- Make sure, that all personnel have been equipped with appropriate safety equipment and understand the need to use it. Make sure that personnel working at height are trained in safe methods of working at height
- The following PPE should be worn every time:
    - Safety helmet with chin strap
    - Safety shoes
    - Overall
    - Reflector jacket
    - Protective gloves
    - Belt tool-bags
    - Full body safety harness with shock absorber and 2 lanyards
- Toolbox talks will be done and attended by all workers at the site. The record will be kept.
- Drinking water in sufficient quantity will be provided
- A list of emergency contact will be available
- safety aid kit (First aid kit) and a trained aider will be available
- Proper order on the worksite will be maintained
- Workers will be trained in emergency procedures for fall arrest systems
- Work will be stopped when there are bad weather conditions
- Lifting equipment, as well as its accessories such as sling wire, nylon sling, shackles, chain blocks crane hook, and latch, will be inspected before use.
- Regularly checking safe working conditions is obtained before work
- It is forbidden to work in superposition if there is a risk of falling off various objects.

A risk assessment will be undertaken and appropriate control measures implemented to manage the risk of injuries from falling objects.

3.1.12. Traffic Control

- **Vehicle safety**

All vehicles working on construction sites will comply with the mandatory technical inspection. For the big trucks that transport construction materials, the technical inspection is done every 6 months while for small vehicles that are used for the transportation of the staff and workers, it is done once a year. The health and safety officer as well as the construction site engineer will check the availability of an updated technical control before allowing the vehicles to start work on site. They will record the expiration dates to remind the vehicle owners and/or drivers when the time for the next inspection is approaching.

- **Traffic Management**

Traffic on construction sites can be a major cause of harm to workers and others on construction sites. EDCL has a duty to ensure the safety of people around vehicles and mobile installations on construction sites.
When there are joint activities on the site, EDCL will have to work/communicate with these other companies working on the site to manage the risks related to traffic on the site.
EDCL will compile and review weekly/monthly forecasts throughout the site work. The monthly look ahead will show all contracted work and will be used to coordinate all upcoming deliveries to ensure no waiting. The MV lines, LV lines, and service connection site security guard will maintain a delivery notification list and will refuse any unannounced or unreported deliveries. The induction of the site will include the procedure of delivery and access/exit to the site. On their arrival at the site, all delivery drivers will also receive instructions, detailing the access and exit procedures, which will also be posted at the entrance to the site.
Signage, traffic management, material storage diversions and all temporary structures needed to complete the public road improvements will be agreed upon with the authorities of the Districts concerned (Rubavu and Musanze)
EDCL will Endeavor to undertake the work with the least possible disruption to public traffic within the limits of best practices and the safety of construction personnel. The work will be designed to allow partial closures under temporary traffic lights and reduced speed limits where safe and practical. No full closure with unforeseen deviations.

3.2 Biological Hazards

If any biological hazards such as COVID-19 are suspected at the site, workers in the area will immediately notify the health and safety officer and other site personnel. The site manager will immediately contact health authorities for professional guidance. The biosolids received at the site may contain wastewater treatment sludge which could contain bacteria and other organisms. Health authorities will be contacted for professional guidance as well.

The management and conservation of biological diversity in the project areas will be considered during the project implementation where necessary by implementing this HSMP and its monitoring.

3.3.Ultraviolet Hazards

Radiation exposure can lead to potential discomfort, injury, or serious illness to workers. Prevention and control strategies include:

- Places of work involving occupational and/or natural exposure to ionizing radiation should be established and operated in accordance with recognized international safety standards and guidelines [74]. The acceptable effective dose limits appear in Table below.

Exposure to non-ionizing radiation (including static magnetic fields; sub-radio frequency magnetic fields; static electric fields; radio frequency and microwave radiation; light and near-infrared radiation; and ultraviolet radiation) should be controlled to internationally recommended limits[75].

Table: Acceptable Effective Dose Limits for Workplace Radiological Hazards

Exposure	Workers (min.19 years of	Apprentices and students
Five consecutive year of average	20 mSv/year	
Single year exposure	50 mSv/year	6 mSv/year
Equivalent dose to the lens of the eye	150 mSv/year	50 mSv/year
Equivalent dose to the extremities (hands, feet) or	500 mSv/year	150 mSv/year

74 International Basic Safety Standard for protection against Ionizing Radiation and for the Safety of Radiation Sources and its three interrelated Safety Guides.

IAEA. http://www-ns.iaea.org/standards/documents/default.asp?sub=160

75 For example ACGIH (2005) and the International Commission for Non-Ionizing Radiation (ICNIRP).

In the case of both ionizing and non-ionizing radiation, the preferred method for controlling exposure is shielding and limiting the radiation source. Personal protective equipment is

supplemental only or for emergency use. Personal protective equipment for near-infrared, visible, and ultraviolet range radiation can include appropriate sunblock creams, with or without appropriate screening clothing.

3.4. Chemical Hazards

All chemicals and other hazardous materials produced in the work area must be collected for proper disposal. The EDCL will work with locally approved waste collection companies (Agruni Rwanda) for a regular collection of waste and recycling whenever possible. These wastes will be taken to approved municipal waste disposal plants (Rubavu District landfill in the Gisenyi sector and Cyuve landfill for Musanze District). A log sheet is required for all materials placed in a container. The pre-numbered log sheet identifies the material name, quantity, solvent, and approximate concentration (if applicable) of each material added to the container. EDCL will also engage REMA for guidelines and the current best practice in this area.

3.6. Weather Hazards

Workers performing activities during rainy seasons may encounter cold temperatures and downpours with strong winds, making activities in the field difficult. EDCL will ensure that adequate rain protection wear including footwear, is available to workers as required under these conditions. The site health and safety officer will assess the weather conditions and recommend activities to be halted if he/she sees the need.

3.7. Other Hazards

Properly labeled containers will be picked up by the professional waste management companies mentioned above. Hazardous waste: Includes used batteries, cables, fire-fighting foam, adhesives, general chemicals, acids, oily rags, absorbents, solvents, contaminated soils, insulation, paint sludge, used oil, electrical components, etc. When any hazardous substance is procured, used, stored, or disposed of, Material Safety Data Sheet (MSDS) for the substance shall be available at the worksite. Hazardous waste needs to be disposed of according to recommendations of the material safety data sheet or as per local regulations.

3.8. Task-Specific SH& Procedures

Types of Wastes and their Alternative Disposal procedures and Destinations

Waste	**Hazardous waste**	**Destination**	**Frequency of evacuation**
Soils and grass from clearing	No	Will be reused for landscaping	NA
Soils & stones contaminated Dangerous substances such as fuel, engine oil, and lubricants	Yes	Temporarily disposed of them to the designated area at the campsite and then evacuated to the Rubavu District landfill in the Gisenyi sector and Cyuve landfill in Musanze District.	Weekly
Soils & stones not contaminated with dangerous substances	No	Reused for backfilling and landscaping where Possible	NA
Mixed construction & clearing waste containing dangerous substances	Yes	Temporarily dispose of them to the designated area at the campsite then or evacuated them to the identified local disposal site.	Weekly
Mixed construction &clearing Waste not containing dangerous substances	No	Reused for backfilling and landscaping where Possible and excess transported to approved dumping sites by the Engineer	NA
Aggregate /concrete/masonry if any,	No	Reused as the hard core where possible and the excess stockpiled in suitable locations approved by the Engineer	NA
Timber	No	Reuse suitable timber and wood for general use on the Site	NA

Metals	Yes	Temporarily disposed of them in the designated area at the campsite then later given to an authorized person for recycling. It will be Agruni Rwanda for Rubavu District and COPED for Musanze District.	Before the project closes as part of general site cleaning
Campsite (office solid waste)	NO	Temporarily disposed of them to the designated area at the campsite and then evacuated to the identified local disposal site.	Weekly
Paper/cardboard	No	Dispose to the local disposal or disposed of at a licensed landfill facility (no recyclables).	Weekly
Plastics including plastic Packaging	No	Temporarily disposed them to the designated area at the campsite then r evacuated to the identified local disposal site.	Weekly
Cables	No	Temporarily disposed of them to the designated area at the campsite and then evacuated to the identified local disposal site.	One at project completion
Insulation materials	No	Temporarily disposed of them to the designated area at the campsite and then evacuated to the identified local disposal site.	One at project completion
Food waste	No	Temporarily disposed of them to the designated area at the campsite and then evacuated to the identified local disposal site.	Twice a week
Empty drums and containers of bitumen and lubricants	Yes	Temporarily disposed of them to the designated area at the campsite then r evacuated to the identified local disposal site.	Weekly
Plastic, glass, and aluminum cans	Yes	The recyclable material is collected weekly by a licensed contractor and transported to a licensed recycling facility for sorting. Printer cartridges are collected for recycling by the supplier at the time of delivery of new	Weekly

		supplies	
Fuel, oil, grease, and lubricants from spills.	Yes	Any spills have been avoided before preventing water pollution. In any case of a spill, release into a temporary pit far away from the site (away from the river) before being transported to the authorized landfill.	As soon as it happens

4.ENVIRONMENT, HEALTHY & SAFETY(EH&S) REQUIRMENTS (SAFETY)

4.1 HAZWOPER/ Hazardous Waste Operations and Emergency Response Qualifications

Scheduled work is anticipated to be conducted during daylight hours. If site activities are to occur during non-traditional hours (i.e., night-time), auxiliary lighting requirements as outlined in the HAZWOPER standard shall be provided.

4.2 Site-Specific Safety Training

All personnel entering the camp/storage site to perform work for the first time within the project site are required to undergo a Site Induction. In the first induction week of training, the EDCL site engineer invites employees to participate. Before starting work at the site, it will be a toolbox meeting for all workers going forward. For new employees progressively recruited, they will get induction sessions from the HS officer. This induction includes the following:

- The expectations outlined in this Health and Safety Management Plan, including all policies and procedures
- The Code of Conduct
- The emergency musters point
- The site rules
- The facilities
- Any site-specific hazards
- High-risk construction work activities
- Personal protective equipment is required to enter the site
- First aid
- Communication hierarchy

4.2.1 Competent Person Training Requirements

Site personnel, including subcontractors and visitors conducting work in controlled areas of the Site, must have completed the appropriate training as required. Further site-specific training will be conducted by the health and safety officer before the initiation of project activities. This training will include, but will not necessarily be limited to, emergency procedures, site control, personnel responsibilities, and the provisions of this health and safety plan.

General site workers (such as equipment operators, general laborers, and supervisory personnel) engaged in hazardous substance removal or other activities that could expose them to hazardous substances must have completed an initial Hazardous Waste Operations and Emergency Response (HAZWOPER) training course. In addition, each employee must have attended an eight-hour annual HAZWOPER refresher training course within the past 12 months if their initial 40-hour HAZWOPER training course was completed more than 12 months prior.

4.3 Tailgate Meetings

A daily morning briefing to cover safety procedures and contingency plans in the event of an emergency is to be included with a discussion of the day's activities. These daily meetings will be recorded on Daily Tailgate Safety Meeting Forms. A debriefing to cover the activities is to be held upon completion of the work

4.4 Hazard Communication

Successful communication between field teams and contact with personnel in the support zone is essential. Visual, voice, and phone communications must be always maintained.

4.5. Hazardous, Solid, Or Municipal Waste

Hazardous waste (including bitumen, oils, additives, grease, diesel, paints, etc) will be stored in appropriately labeled drums or similar sealed containers, and be placed in approved storage sites surrounded by concrete containment to avoid leaks to the environment. Specifically, the following procedure will be followed:

- Store all hazardous wastes appropriately in bunded areas away from water courses or provide absorbent and containment material (e.g., absorbent matting) where hazardous materials are used and stored, and personnel trained in the correct use. Make sure all containers, drums, and tanks that are used for storage are in good condition and are labeled with the expiry date. Any container, drum, or tank that is dented, cracked, or rusted might eventually leak. Check for leakage regularly to identify potential problems before they occur.
- Store hazardous materials above floodplain level. Drums will safely be transported to an approved chemical waste depot; Return the emptied container of hazardous material (e.g. bitumen drums, gas cylinders, etc) back to the supplier. However, if they are not empty before their return, they must be labeled with the name of the material they contained or the content and information on the supplier.
- Any spills should be cleaned up within 24 hours

4.6 General Safety Rules

4.6.1. Site access precautions

Project information will be disseminated to affected parties (e.g., local authorities, businesses, affected households, etc.) through community meetings before construction commencement.

A contact address will be provided to the community. Community concerns and requested information are to be monitored as the project progresses. Inquiries must be responded to by telephone and written correspondence in a timely and accurate manner.

Residents /community verifiers must be informed about construction and work schedules, interruption of services, traffic detour routes and provisional bus routes, and demolition operations, as appropriate. Technical documents and drawings will be provided to local authorities, especially the sketch of construction areas and the CESMP of the construction site.

Notification boards shall be erected at all construction sites providing information about the project, as well as contact information about the site managers, environmental staff, health and safety staff, telephone numbers, and other contact information so that affected people could have a channel to voice their concerns and suggestions

4.6.2. Housekeeping

Housekeeping is an essential safety requirement for all safe work environments. An untidy work area can cause accidents, and inefficiencies, and creates fire and other hazards. Employees should

use the trash bins provided and not leave rubbish on the ground or throw materials or equipment of any kind down from elevated work areas. Protruding nails must be pulled out or hammered over. Coil “draw wire” up after use. Wire or cabling should not be left around work areas, as it may cause someone to trip and sustain a serious injury. All employees are responsible for keeping their workplace and amenities clean and tidy. Food scraps drink bottles, empty cartons or cans must be placed in the bin. Appropriately bins will be placed throughout the site to encourage this behavior.

4.6.3 Smoking, Eating, or Drinking

Eating, drinking, and smoking will only be permitted in designated areas and at the proper time when work is not going ahead to prevent toxic waste to encroach on the food.

Organic waste includes food waste, wastewater, and other organic wastes like grass, and leaves food waste generated should be transported to approved municipal landfill by waste collection companies. It will be Agruni Rwanda in Rubavu District and COPED in Musanze. Wastewater water will only be generated at the campsite/store through normal routine activities like washing hands, cleaning the dishes, etc. They will be discharged through the sanitary facilities on site.

4.6.4 Personal Hygiene

The EDCL shall:

- Train all construction workers in basic sanitation and health care issues and safety matters, and on the specific hazards of their work
- Provide HIV awareness programming, including COVID-19, STI (sexually transmitted infections), and HIV information, education, and communication for all workers regularly
- Install portable sanitary facilities (mobile toilets, hand washing stations) throughout construction sites
- Carry out short training sessions on best hygiene practices to be mandatorily attended by all workers.
- Place display boards at strategic locations within the project area containing messages on best hygienic practices.

4.6.5 Buddy System

There will be no activities conducted onsite without sufficient backup personnel to permit the operation of a buddy system. The buddy system is a method of organizing employees into work groups, in such a manner that each employee of the work group is designated to be observed by at least one other employee in the work group. Both employees shall be in visible or verbal communication with each other always and shall be equipped with the personal protective equipment required to assist the buddy in case of an emergency. At a minimum, two persons must be always together on a given site.

4.8. Stop Work Authority

Everyone involved in the project and work activities will have the responsibility and authority to ensure that all personnel at the site always comply with safe operation resulting in zero accidents. At the project site, everyone is authorized to stop work that does not comply with a safe operation.

The employer guarantees that there will be no repercussions to the persons who stop the work for any HSE-given reason

4.9 Client-Specific Safety Requirements

EDCL is compliant with national legislation as well as World Bank health and safety guidelines.

5. EXPOSURE MONITORING PROCEDURES (HEALTH)

5.1. Contaminant Exposure Hazards

5.2 Real-Time Exposure Measurement

Monitoring shall be performed within the work area on-site to detect the presence and relative levels of toxic substances. The data collected throughout monitoring shall be used to determine the appropriate levels of PPE. The below table specifies the real-time monitoring equipment which will be used for this project**.**

Table. Monitoring Parameters and Equipment

INSTRUMENT	MANUFACTURER/MODEL*	SUBSTANCES DETECTED
Photo Ionization Detector (PID)	RAE Systems mini-RAE Photovac Microtip HNu Model Hnu (min. 10.2 eV bulb)	Petroleum hydrocarbons Organic Solvents
Flame Ionization Detector (FID)	Foxboro	Petroleum hydrocarbons Organic Solvents
Combustible Gas Indicator (CGI) May be combined with individual or multi-gas detectors.	TBD	Explosivity
Individual Gas Detectors	TBD	Oxygen (O2) Carbon Monoxide (CO) Hydrogen Sulfide (H2S) Cyanide Gases (CN-)
Particulate Monitor	MIE Model PDM-3 mini-RAM	Aerosols, mist, dust, and fumes
Colorimetric Detector Tubes	Sensidyne Draeger	Benzene 0.5–10 ppm

5.3 Health and Safety Action Levels

An action level is a point at which increased protection is required due to the concentration of contaminants in the work area or other environmental conditions. The concentration level (above background level) and the ability of the PPE to protect against that specific contaminant determine each action level. The action levels are based on concentrations in the breathing zone. If ambient levels are measured which exceed the action levels in areas accessible to unprotected personnel, necessary control measures (barricades, warning signs, mitigating actions, etc.) must be

implemented before commencing activities at the specific work area. Personnel should also be able to upgrade or downgrade their level of protection with the concurrence of the health and safety officer or site engineer. Reasons to upgrade are:

- The known or suspected presence of dermal hazards.
- Occurrence or likely occurrence of gas, vapor, or dust emission.
- Change in work tasks that will increase the exposure or potential exposure to hazardous materials
- Reasons to downgrade:
- New information indicates that the situation is less hazardous than was originally suspected.
- Change in site conditions that decrease the potential hazard.
- Change in work tasks that will reduce exposure to hazardous materials

5.4 Heat and Cold Stress

Each site will have operating first aid kits and emergency procedures for heat and/or cold stress. Project personnel, especially front-line supervisors, will be trained on the warning signs/symptoms of early heat or cold-related disorders and will be instructed on the clothing and work methods best suited to avoid heat and/or cold stress. Strict work times will be developed to reduce the possibility of heat or cold-related disorders, if necessary

6. ENVIRONMENTAL PROGRAMS (ENVIRONMENT)

6.1 Environmental Compliance and Management

In terms of environmental compliance and management, the project will comply with the approved Environmental and Social Management Plan (ESMP) that was developed for Musanze and Rubavu sub-projects.

6.1.1 Hazardous Waste Management

Hazardous waste management will follow procedures described in Chapters 3, 4, and 5 as appropriate.

7. PERSONAL PROTECTIVE EQUIPMENT

7.1 Personal Protective Equipment

The planning and assessment of work activities will take account of any hazards and where practicable, the risk from these hazards will be eliminated or reduced. A residual risk may remain, but we can often reduce this further by wearing appropriate PPE. It is EDCL's policy to ensure that suitable PPE is available to everybody and always used in work activities.

EDCL will provide personal protective equipment (PPE) to workers at the workplace. All workers carrying out work on the site are required to wear appropriate protective footwear and clothing. All workers must be competent in the use of the PPE and the EDCL will do a risk assessment to show why the PPE was chosen as a control measure. Full compliance with safety, and well-proven working procedures should prevent accidents and consequential injuries. PPE is a secondary, personal line of defense but may not protect if workers fail to behave safely.

At a minimum, each worker and visitors have to wear:

- Hard hat
- Safety shoes or over boots
- Safety gloves if necessary
- Work clothes and High visibility jacket.

Additional PPE must be used when required and may include:

- Hearing protection
- Fall protection harnesses/lanyards
- Respiratory protection equipment
- Burning goggles
- Task appropriate gloves
- Welding hood

Workers must follow all instructions to wear and use PPE and take reasonable care of PPE

7.2.PPE Doffing and Donning (UTILIZATION) Information

Workers will be instructed the following:

- Before putting on the PPE, perform hand hygiene.

-Use alcohol hand rub or gel or soap and water.

-Make sure you are hydrated and are not wearing any jewelry, bracelets, watches, or stoned rings

7.3 Decontamination

7.3.1 General Requirements

Disposal is the critical last step in handling PPE. EDCL will train the workers to ensure that they are aware of how to remove and discard PPE without causing contamination to themselves, garbage collectors, or the environment. PPE may have an expiration date, while other PPE requires careful inspection read the PPE manufacturer's directives and be diligent about the disposal of PPE

that will no longer provide protection. For those who can't read or don't understand the language in which the instructions are, the health and safety officer will translate.

Proper use of PPE should be part of the recurrent training programs for employees

7.3.2 Decontamination Equipment

Most PPEs to be used on-site can don't require special decontamination equipment. Most are washable items that can be cleaned with soap and water before disposal as regular garbage. However, since these are not biodegradable, they will be disposed of in appropriately labeled bins before being taken to approved municipal landfills by professional waste management companies previously mentioned.

7.3.3 Personal/Equipment Decontamination

EDCL will ensure that the following PPE decontamination procedures are followed:

- Cleaning and maintenance instructions from the PPE manufacturer must be followed or reusable PPE. Never reuse any type of disposable (one-time use) PPE equipment, because you can be exposed to residues remaining on the PPE from the previous use, or to product moving through damaged or deteriorated PPE during reuse. Note that reusable or limited-use PPE must be discarded if not cleaned and maintained properly because there is a significant risk of pesticide exposure. For example, pesticide exposure can occur from residues remaining from the previous use, damaged seals in the respirator, small holes or tears in gloves or clothing, or degradation of the chemical-resistant PPE.
- Remove PPE as soon as you complete the tasks where you were exposed to the pesticide. Wash disposable OR reusable gloves with soap and water, and then remove other PPE while still wearing the gloves. Then wash the gloves again with soap and water before removing them. Clean reusable PPE according to the PPE instructions, without causing contamination to yourself. Washing gloves prior to removal avoids contamination, shown at right.
- Wash regular work clothes that have been exposed to pesticides as soon as possible to ensure maximum pesticide residue removal. Wash them separately from other laundry using detergent and hot water. Using an outdoor clothesline rather than a dryer may help break down any remaining pesticide residues. If no PPE is required on the pesticide label, it is still wise to wash clothes promptly.

8. PROJECT HEALTH AND SAFETY ORGANIZATION

8.1. Project Manager Responsibilities

In the context of this project, the project manager oversees and coordinates all activities under his.hr assigned sub-project includes ensuring that all protocols and procedures for health and safety are followed. He regularly ensures that proper training is planned and executed and as well as the continuous availability of PPEs.

8.2 Site Supervisor

The site supervisor or site engineer is responsible for day-to-day performance on site. He/she ensures that plans and tasks are executed according to approved project schedules. In terms of health and safety, the site supervisor is responsible for daily toolbox talks, briefing on the type and nature of daily activities, and appropriate behavior and PPEs. He/She is responsible for ensuring a healthy and safe working environment for all workers. Furthermore, he/she is the ultimate communication channel between the construction team, local authorities as well as local communities.

8.2.1 Responsibilities

The site supervisor has the following overall responsibilities:

- Participates in the elaboration and update of the management plan
- Ensures the implementation of the management plan
- Follows up the implementation of awareness and training campaigns
- Participates in complaint analysis and management
- Assists in compliance reviews, general risk assessments, and other safety assessments to support Health, Safety, and Environmental management
- Encourages safe working practices,
- Observes work methods on site and correct obvious hazards immediately,
- Can stop work in case of unsafe method.
- Provides technical assistance to establish work safe methods,
- Ensures the availability of PPE and encourages the wear of all required safety equipment

8.2.2 Authority

The site supervisor has the authority to put in motion the stop-work procedures if he/she deems it necessary. They have the ultimate responsibility to ensure that all guidelines, procedures, and requirements are followed to the letter by everyone working on the project.

8.2.3 Qualifications

The site supervisor must have at least a bachelor's degree in electrical engineering, with 5 years of experience in supervising the construction of electrical lines. He/She must have undergone various health and safety training related to the electrical line construction field.

8.3 Site Safety Officer

8.3.1 Responsibilities

- Provide initial emergency workplace first aid following level of training.
- The completion of records for all injuries, treatments, and incidents including near misses.
- Arranging prompt and appropriate external referral where the injury or illness is outside their competency.
- The maintenance of first aid kits. Advising the site engineer on what supplies have been used and what needs to be ordered.
- Conducting safety briefings and daily toolbox talks
- Providing induction training to new workers
- Provide continuous training to all workers
- Conducting health and safety awareness for the workers and local communities
- Making a follow-up on vehicles to ensure that their technical inspection as well as insurance are updated.

8.3.2 Authority

The health and safety officer has the authority to stop work whenever it is suspected or clear that the conditions to perform safely are not met. He/She has the authority to refuse access to the site and to dismiss a worker who has refused to comply with health and safety compliance.

8.3.3 Qualifications

The health and safety officer shall have a relevant degree such as environmental health or occupational safety and health with a minimum of 2 years of working experience or have a professional certificate with 5 years of working experience.

8.4 Employees

8.4.1 Employee Responsibilities

All employees have the responsibility to comply with all health and safety guidelines provided by the health and safety officer as well as the site engineer and advise their line managers of any hazards and risks.

8.4.2 Employee Authority

The health and safety authority of each employee assigned to the site includes the following:

- The right to refuse to work and/or stop work authority when the employee feels that the work is unsafe or where specified safety precautions are not adequate or fully understood.
- The right to refuse to work on any site or operation where the safety procedures specified in this HSP, or other safety policies are not being followed.
- The right to contact the health and safety officer or site supervisor at any time to discuss potential concerns.

8.5 Safety Professional

Apart from the health and safety officer, there are no other health professionals permanently assigned on-site. Additional health professionals can come on specific occasions to either support

in providing some training or when called for an emergency. In all these circumstances, they will follow the visitors' requirements in section 8.7.

8.6 Subcontractors

A subcontractor is responsible and will be held accountable, for the safety of their sub-contractors and workforce and for ensuring that all equipment, materials, tools, and procedures remain in safety compliance at the job site

8.7 Visitors

Visitor will:

- Observes and respect the communicated safety rules,
- Makes sure that the work site tour is to be done in safe conditions,
- Preserves the PPE and properly uses,
- Preserves the safety conditions,
- Be active in risks identification and assessment,
- Reports any risks found to whoever controls the work on site

9. SITE CONTROL

9.1 General

Workplace hazards arise because of the activities performed, equipment used, and the physical and environmental conditions of the workplace. The factors that create hazards can best be controlled by managers and employees onsite, therefore EDCL will ensure training is provided to all employees and managers to ensure they have adequate skills and knowledge of the hazard.

9.2. Controlled Work Areas

9.2.1 Exclusion Zone

Contact with overhead or underground electric lines can have deadly consequences. Exclusion zones are the minimum safe distance from live power lines to reduce the risk of an electric shock. Working near power lines can be fatal. Touching them or straying into the exclusion zone around them can result in a serious electric shock.

Develop a safe system of work before you start

EDCL will ensure, where reasonably practical, that no one comes within an unsafe distance of an overhead or underground power line. If maintaining a safe distance is not reasonably practical, we will assess the risk associated with the proposed work, implement control measures consistent with the risk assessment, and contact and consult with the local essential service provided.

Work is not permitted within an unsecured distance of overhead power lines. EDCL will ask for and obtain written authorization from the electrical supply authority to work within the “no-go” (exclusion zone). When using plant or equipment within 3 to 6.4 meters of overhead power lines ensure to have a safety observer.

9.2.2 Contamination Reduction Zone

Many hazardous waste activity worksites are temporary and are established at remote locations with limited sanitation facilities. Decontamination is conducted either in the contamination reduction zone or the radiological buffer zone, whereas sanitation functions are performed either in the support zone or outside the boundaries of the hazardous waste activities worksite after decontamination has been completed.

The contamination reduction zone (CRZ) surrounds the exclusion zone. In a sense, this is a buffer zone between the exclusion zone and the support zone. In the CRZ, there is a narrow path provided where decontamination is carried out and the path is called the decon line. By restricting the decon path, we localize the spread of contamination. All decontamination operations are carried out near or along the path, and closer to the end of the path, leading to the "support zone. The CRZ is a rest area for workers and serves as the staging area for emergency response equipment. Typically, the CRZ is where decontamination of personnel and equipment is carried out.

9.2.3 Support Zone

The Support Zone is an uncontaminated zone where administrative and other support functions, such as first aid, equipment supply, emergency information, etc., are located. The Support Zone shall have minimal potential for significant exposure to contaminants (i.e., background levels). Employees will establish a Support Zone (if necessary) at the site before the commencement of site activities. The Support Zone would also serve as the entry point for controlling site access.

9.3 Site Access Documentation

Units shall establish a process for creating, distributing, controlling, and managing documents and records. For the control of documented information, the unit shall address the following activities, as applicable:

- distribution, access, retrieval, and use.
- storage and preservation, including preservation of legibility.
- control of changes (e.g., version control).
- retention and disposition.

The documents and records shall comply with legal requirements relating to data protection, medical confidentiality, and document retention. Records subject to regulatory inspection should be segregated from other plant records. All records should be retained at least for five years; where prolonged retention is necessary; this is specified in each standard.

9.4 Site Security

The project team will, so far as reasonably practicable that the workplace is secured from unauthorized access, having regard to the risks arising from unauthorized access, the likelihood of unauthorized access occurring and the extent to which it cannot be prevented, and the hazards that need to be isolated.

At all times when work is being carried out, it is the responsibility of all workers to ensure that the site is secured each time they leave the site and at the end of the day when work ceases.

Only persons conducting work activities have discussed the content or received a copy of this HSP

10. EMERGENCY RESPONSE PLANNING

10.1 Emergency Action Plan

10.1.1. Emergency Coordinator

The Project site emergency muster point will be in the area outside the main gate for the office and store. Dependent on the project activity location and due to the vast size of the site, additional muster points may be allocated or established in differing locations.

10.1.2. Site-Specific Emergency Procedures

In the event of a fire or similar emergency evacuation, EDCL requires that on-site personnel:

- Stop work immediately and the workplace is vacated if in imminent danger.
- Assist anyone in the workplace that may not be familiar with the evacuation procedures.
- Call emergency services on 912 from a mobile phone. Other emergency numbers are on display in the site office.
- Notify authorities as soon as reasonably practical.
- Assemble in the nominated assembly points until you receive further instructions from the client or emergency services personnel.
- Notify Project site security as soon as practicable and give details of the event and the location where an emergency has taken place.

10.1.3. Spill Containment Procedure

Work activities may involve the use of hazardous materials (i.e., fuels, solvents) or work involving drums or other containers.

The following procedures will be used to prevent or contain spills:

- All hazardous materials will be stored in appropriate containers
- Tops/lids will be placed back on containers after use. Containers of hazardous materials will be stored appropriately away from moving equipment. At least one spill response kit, including an appropriate empty container, materials to allow for booming or diking the area to minimize the size of the spill, and appropriate clean-up material (i.e. speedy dry) shall be available at each work site (more as needed).
- All hazardous commodities in use (i.e., fuels) shall be properly labeled.
- Containers shall only be lifted using equipment specifically manufactured for that purpose.

10.1.4. Safety Accident/Incident Reporting

All workplace-related accidents where an employee, sub-contractor, or visitor is injured must be reported immediately to the relevant line manager and project manager and an accident/incident report form must be completed within 24 hours of the accident. Forms should be submitted to the Project Manager who will subsequently pass them on to the safeguards team. Employees are required to report 'near misses' when an incident occurs. This is when a serious accident could have occurred had it not been for intervention. Employees must report potentially dangerous situations in the workplace. Incidents should be reported using the accident/incident report form located on the network and should be sent to the project safeguards team.

10.1.5. Environmental Spill/Release Reporting

Any substantial spill that will require the intervention of a cleanup company will be reported to complementing authorities such Rwanda Environment Management Authority for further follow-up and expert advice. The report preliminary report will be submitted within 24 hours. An in-depth report will be compiled within a week. For smaller and easily containable spills such as vehicle oil leakages will be reported in the monthly project report.

12.2. Daily Safety Inspections

Safety inspections will be made continuously by the site manager or appointed HSE representative to identify any situation that could result in possible hazardous conditions before the start of work and as needed throughout the work.

Where a safety representative finds evidence of a situation that could result in possibly dangerous conditions, exposed employees will be removed from the dangerous area until the necessary precautions have been taken to ensure their safety.

10.1.6. Fire emergency procedure

Fire is a great destructive natural force. It can destroy vital stores, equipment, accommodation, and amenities. The majority of Fires, which are affected properties, are due to carelessness, ignorance, arson, lack of discipline, and failure to observe statutory and general regulations.

Any hot works performed on-site (welding, grinding, etc.) requires a permit for hot work. All hot works must be performed by a qualified and experienced person.

Hot Work Control Measures to Keep Workers Safe are:

- avoid hot work where possible
- prepare a permit to work
- hot work must be carried out by qualified personnel.
- cutting and/or welding equipment must be thoroughly inspected and found to be in good repair, free of damage or defects.
- make sure the hot work area is free from all forms of fuel.
- clear the area where hot work will be carried out.
- carry out hot work in a designated or prepared area.
- monitor gas or vapor in the area being used for hot work.
- appropriate PPE must be used whenever hot work is conducted (adequate PPE must be provided; flame retardant face shield, coveralls, safety boots, approved hot work gloves, etc. PPE must be well worn; fully buttoned jumpsuit.)
- a portable fire extinguisher must be located such that it is immediately available to the work and is fully charged and ready for use.
- emergency contact and mobile phone with airtime must be available and accessible to the person(s) conducting the cutting/welding operation
- if the work is carried out at height, a good working platform must be installed, a safety harness must be provided and an adequate anchor point if necessary
- whenever possible, avoid hot work from a ladder.

10.2. First Aid

Depending on the location of the work, the requirement of a first aid provision is necessary. EDCL has provided the construction teams with first aid kits where staff is required to work in remote stations. First aid kits are available in company-owned vehicles or other locations as determined by the project site circumstances.

11. DISCIPLINARY MEASURES AND GENERAL CODE OF CONDUCT

11.1. Disciplinary Measures

Disciplinary action will be taken against persons that deliberately infringe on the requirements of this plan, the site safety, and site rules or are in breach of other legislative requirements.

Disciplinary actions may include

- A verbal warning, then
- Written notification and then
- Complete removal /suspension from the project.

For a serious breach of safety, a person or persons may be immediately dismissed and removed from the site or reported to other organs like RNP, ISANGE One Stop Center, or Local Government Officials.

11.2. Sexual harassments

The employer will work with the local community to get information and solve problems related to behaviors of workers out of site; work with the existing neighboring communities of the site work, such as community policing, INCUTI Z'UMURYANGO, and so on. That will help in advising the workers and changing their behavior. Any harassment shall not be tolerated and immediate dismissal shall be applied and the case reported to competent authorities

11.3. Gender Aspects

EDCL will consider the gender aspect in the implementation of the project in compliance with the project Gender Action Plan (GAP) where at least 10% of the workers are required to be female.

11.4. Health and Safety Grievance Mechanism

A workers' grievance committee was established and communicated to the workers. Grievances related to health and safety are handled through the workers' grievance redress committees as described in the project labor management procedures.

- Employees can discretely transmit their grievances to their respective supervisors, the Project Manager, or the health and safety officer.
- A suggestion/grievance box will be installed on the workplace/ Material stock and only the project manager will keep the key.
- The telephone numbers of the Project manager, Environmental and Social Safeguard, and site supervisor will also be displayed on the worksite and accessible at any time.
- Simple forms will be available from the HS site officer on which employees will be encouraged to express themselves without disclosing their identity.

All grievances regardless of how they were filed, will be conveyed to the workers' grievance committees for assessment and resolution.

12. AUDITS AND INSPECTIONS

The goal of undertaking Audits and Inspections on the Project is to recognize positive behaviors and work practices, identify areas in need of improvement, and assess how tasks are being undertaken as well as the environment in which they are being performed. The interactive presence with site personnel and the information captured helps assist with creating a safe working culture

12.1. Walk, Observe and Communicate (WOC)

A WOC is a structured program of workplace observations to initiate discussions based on specific or general issues.

The purpose of WOC is to:

- Coach, motivate, and facilitate positive behaviors and approaches to work.
- Identify and correct issues and hazards in the work area including unsafe acts and conditions.
- Prevent injury, damage, and lost production by developing a culture of commitment to resolving their underlying causes in the workplace.
- Reinforce and raise standards 'the standard we achieve is the standard we walk past.
- Eliminate injuries, damage, and waste.

WOC sessions are not policing exercises. Their success is based on an open and honest discussion of the issues. The focus must be on identifying causes not attributing blame.

Where continued non-compliance is observed disciplinary action must be implemented following Site policy but separate from the WOC process.

Management shall undertake WOCs on their work are as to ensure the above-mentioned purposes are conducted. Completed WOCs shall be forwarded to the HS Manager for review and record management.

12.3. Targeted Inspections

In addition to the Weekly Safety Inspections, specific Targeted Inspections shall be undertaken on the Project. Targeted Inspections include the following:

- Office and Amenities
- First Aid and Facilities
- Housekeeping, Access, and Egress
- Fall Prevention
- Lifting Equipment
- Cranes
- Scaffolding
- Electrical Equipment
- Mobile Plant
- Employee Conduct
- Permit to Work
- Hazardous Substances
- Welding/Hot Work
- Excavations

- Confined Space Entry
- Electrical Isolations
- Driving Safety
- Earthmoving Activities

All actions raised during the inspection shall be documented and tracked until completion.

13. PERSONNEL ACKNOWLEDGEMENT

The following is A personal acknowledgment form for all people that will be required to comply to this HSP and have been trained on health and safety.

By signing below, the undersigned acknowledges that he/she has read and reviewed the EDCL Health and Safety Plan for the E. **Energy Access and Quality Improvement Project (EAQIP)/specific activity e.g.** construction of Medium and Low Voltage (M, LV) lines.
The undersigned also acknowledges that he/she has been instructed in the contents of this document and understands the information pertaining to the specified work and will comply with the provisions contained therein.

Names	Signature	Organization	Date

Annexes

Annex 1: Incident Report Format

To be completed by implementing agency/contractor staff within 24 hours of incident/accident

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Incident date: ……. Incident Time: ……

Incident's place (District, Sector, Cell, Village:
…….
Injured/dead person name:
……
…….
Address:
……
……
Phone number:
……
…….
Male/Female: ……..Date of Birth

Incident category:

Category 1: "Minor or negligible, no one was injured"

Category 2: Moderate, injuries with short term impairement

Category 3: Critical/ major, susceptible to lead to serious illness or death

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Details of incident:

……
……
……
……
……
……
Who was injured person?:
……
……
Injury type:
……
……
Does injury require hospital/Physician?. Yes: ……No:
…….
Hospital name:
……
……
Address:
……
……

Hospital phone number:
……
…….
Injured person/party signature/ date:
……/…….

Important notes / instructions

……
……
……
……

Prepared by: ……, Signature:
……..Date and time: …….

Approved by: …….., Signature: ……,
Date and time: …….

Annex 2: Occupational health and safety inspection checklist

Contractor/Developer Name:		Date:	
Location:		No of Employees:	
Conducted By:			
S – Satisfactory	**NS – Not Satisfactory**	**NA – Not Applicable**	

#	ITEMS	S	NS	NA	NOTES/ ACTION TAKEN
1	**HEALTH AND SAFETY POLICIES, PLANS AND PROCEDURES**				
1.1	Is Health and Safety Policy /Plan developed and available?				
1.2	Is Health and Safety Policy /Plan communicated to the staff?				
1.3	Are Health and Safety Policy/ plan enforced				
1.4	Are Health and safety procedures in place (Incident reporting & investigation, first aid, fire emergencies ….)				
2	**FIRE AND EMERGENCIES**				
2.1	Are there emergency procedures e.g. for evacuating the site in case of fire, or for rescue from a confined space?				
2.2	Do people on site know what the procedures are?				

2.3	Is there means of raising the alarm, and does it work?				
2.4	Is there a way to contact the emergency services from site?				
2.5	Are there adequate escape routes and are these kept clear?				
2.6	Are suitable fire extinguishers provided and checked regularly?				
2.7	Are workers trained to use fire extinguishers?				
2.8	Are smoking and other ignition sources banned in areas where gases or flammable liquids are stored or used?				
2.9	Are gas cylinders, associated hoses and equipment properly maintained and in good condition?				
2.10	Fire evacuation plan is posted?				
2.11	Workers know the plan: Ask a worker				
2.12	Is flammable and combustible waste removed regularly and stored in suitable bins or skips?				
2.13	Does emergency assembly point known by each employee and clearly marked				
3	**HYGIENE, SANITATION AND ENVIRONMENT**				
3.1	Are workers protected from air cool drafts or excessive heat				
3.2	Are lighting levels in work areas adequate: Observation				
3.3	Signs are posted when floors are wet (e.g., when floors are washed, spills)				
3.4	Aisles are marked, clear and unobstructed				
3.5	Stairs are kept clear and unobstructed				
3.6	Are all work areas clean, sanitary and orderly?				
3.7	Are work surfaces kept dry or appropriate means taken to assure the surfaces are slip- resistant				
3.8	Are all toilets and washing facilities clean and sanitary and free from bad smell? Existence of water and soap				
3.9	Are hazardous substances separated with non-hazardous substances during collection process				

3.10	Are floors clean and free from oil or grease				
4	**ACCESS ON SITE**				
4.1	Can everyone get to their place of work safely and work there safely?				
4.2	Are access routes in good condition and clearly signposted?				
4.3	Are holes protected with clearly marked and fixed covers to prevent falls?				
4.4	Is the site tidy, and are materials stored safely?				
4.5	Are temporary structures stable, adequately braced and not overloaded?				
4.6	Is lighting adequate, especially when work is being carried on after dark outside or inside buildings?				
5	**WORK AT HEIGHT**				
5.1	Is there appropriate protection to stop people or materials falling?				
5.2	Is there appropriate measures to prevent construction materials from falling from the top?				
5.3	Have you taken precautions to stop people falling through fragile materials *e.g.* by providing barriers, covers or working platforms?				
5.4	Are people kept away from the area below high-height work? If this is not possible, have additional precautions been taken to stop debris falling onto them?				
6	**PERSONAL PROTECTIVE EQUIPMENT**				
6.1	PPE is available and worn when required: observation				
6.2	Training in PPE use and care: Ask worker				
6.3	Is all personal protective equipment maintained in a sanitary condition and ready for use				

6.4	All staff are trained and sensitized on the need to use and usage of protective equipment available to him/her				
6.5	Have workers had information and training on the noise so they know what the risks are from noise on site, and what they need to do to avoid those risks?				
7	**INCIDENT REPORTING, RECORDING AND INVESTIGATION**				
7.1	Are all accidents and incidents reported?				
7.2	All incidents reported immediately using relevant incident report forms				
7.3	The immediate supervisor investigates the cause of the incident, and complete Accident/Incident Report Form or Near Miss Form				
8	**SAFETY TOOLS, MACHINERY AND EQUIPMENT**				
8.1	Is equipment, safety tools and machinery kept clean				
8.2	Are operators properly trained				
8.3	Are noise levels of machines controlled				
8.4	Are machinery fumes, exhaust and wastes controlled				
8.5	Guarding and safety devices in place				
8.6	Start/Stop switches clearly marked and easy to reach				
8.7	Safe operating procedures available				
8.8	Manufacturers' manuals available for all tools and machinery				
8.9	Are all dangerous parts guarded, e.g. gears, chains drives, projecting engine shafts?				
8.10	Are guards secured and in good repair?				
9	**FIRST AID EMERGENCIES**				
9.1	Is the first aid kit accessible and clearly labeled				
9.2	Is the first aid kit adequate and complete				
9.3	Is the first aid kit clean and dry				
9.4	Are emergency phone numbers displayed				

9.5	Do workers know where to go and who to call for first aid assistance				
9.6	Do workers know where to find personal protective equipment				
9.7	Do workers know how to use personal protective equipment				
9.8	Do workers receive adequate first aid related training				
10	**HAZARDOUS SUBSTANCES MANAGEMENT**				
10.1	Hazardous substances policies and procedures available				
10.2	Hazardous substances are properly labeled, stored and disposed of				
10.3	A material safety data sheet (MSDS) for each product used is available for worker's reference and included in the hazardous substances register				
10.4	Have you identified all harmful substances and materials, such as asbestos, lead, solvents, paints, cement and dust?				
10.5	Have you identified and put into place precautions to prevent or control exposure to hazardous substances, by: i) doing the work in a different way, to remove the risk entirely. ii) using a less hazardous material; or iii) using tools fitted with dust extraction?				
10.6	Have you checked whether a licensed contractor is needed to deal with asbestos on site? (Most work with asbestos requires a license, although you can do some very limited work with material which contains asbestos without one.)				
10.7	Have workers had information and training so they know what the risks are from the hazardous substances used and produced on site, and what they need to do to avoid the risks?				
10.8	Have you arranged health surveillance for people using certain hazardous substances (e.g. lead)?				

11	**DISEASE PREVENTION, SURVEILLANCE AND EMPLOYEE WELFARE**				
11.1	Does contractor/ EDCL organize a medical check- up for the employees				
11.2	Does contractor/ EDCL organize vaccination for specific diseases: Hepatitis B,				
11.3	Does contractor/ EDCL provide fitness facilities (sports) for their employees				
11.4	Does contractor/ EDCL provide health insurance coverage to help accessing medical benefits for affected employees: Precise				
11.5	Does contractor/ EDCL provide refreshment facilities (water, milk,) for their employees				
11.6	Existence of awareness program of workers: hygiene and sanitation, communicable and non- communicable diseases like HIV/AIDS, malaria, hypertension, diabetes,.. …				
11.7	Does tobacco and alcohol prohibited at workplace				
12	**OTHER HEALTH AND SAFETY REQUIREMENTS**				
12.1	Did Contractor /developer appointed a health and safety officer at the site?				
12.2	Does contractor/ developer perform prior and periodic risk assessment?				
12.3	Does a contractor/ developer perform inspection and keep all the records findings				
12.4	Does contractor /developer report monthly injuries statistics by using provided template?				
12.5	Does Contractor / developer organize training of his/ her staff on health, safety and welfare issue?				
12.6	Does contractor/developer record and report any accident/ incident as soon as practicable (within 24 hours)				

	after its occurrence to the health and safety personnel?				
12.7	Does contractor/ developer provide health and safety briefs/ toolbox talks with all staff under supervision every day before departure to worksites?				
12.8	The existence of infirmary with a trained nurse and ambulance service always available at the site				
12.9	Site is kept clean, free from effluvia arising from any drain or other places				
12.10	Contractor's employees have valid insurance for occupational accidents/injuries and medical insurance				
12.11	Provision of adequate and suitable washroom clean in orderly condition				
12.12	Place reserved for taking meals, if available at site, is maintained in perfect state of cleanliness and such place shall meet the satisfactory standards of comfort and hygiene.				