



Rwanda Electricity Sector Strengthening Project (RESSP)

**ENVIRONMENTAL HEALTH AND SAFETY PLAN (EHSP) FOR THE
CONSTRUCTION AND REHABILITATION OF 11 SUBSTATIONS/CABINS
IN KIGALI CITY**

Final report

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LIST OF ABBREVIATIONS	
ACCRONYM	DEFINITION
EA	Environmental Assessment
EARP	Electricity Access Rollout Program
EDCL	Energy Development Corporation Limited
EHSP	Environmental Social Health and Safety Plan
ESIA	Environmental and Social Impact Assessment
EHS	Health and Safety Environment
EUCL	Energy Utility Corporation Limited
EHSMS	Environmental, Health, Safety Management System
ESCP	Environmental & Safety Compliance Program
GoR	Government of Rwanda
HAZCOM	Hazards Communication
IFC	International Finance Corporation
MININFRA	Ministry of Infrastructure
NCDs	Non-Communicable Diseases
OHSA	Occupational Health and Safety Administration
OPs	Operational Policies
PPE	Personal Protective Equipment
PS	Performance Standard
RESSP	Electricity Sector Strengthening Project
RDB	Rwanda Development Board
REMA	Rwanda Environment Management Authority
REG	Rwanda Energy Group
SWEAP	Safe Worker and Environmental Awareness Program
WB	World Bank
WBG	World Bank Group
WMP	Waste Management Plan

I. ENVIRONMENTAL HEALTH AND SAFETY PLANS (EHS).

1.0 PROJECT OVERVIEW

The Government of Rwanda (GoR), in its effort to sustain economic growth, has increased and stabilized the power production and distribution, hence reducing power shortages. The Government of Rwanda (GoR) also exercises a strong leadership role in donor coordination and has begun to work with donors on a clearer division of labor by identifying areas of individual donor comparative advantage. In connection with the mentioned strategy, the Government of Rwanda through Electricity Access Rollout Programme (EARP) and Rwanda Electricity Strengthening Project (RESSP) under Rwanda Energy Group (REG) has embarked on a country-wide electricity distribution to realize the primary EDPRS target. A number of development partners so far committed to support the program including; World Bank IDA, World Bank, African Development Bank, BADEA, OFID, Saudi Funds, Netherlands, Japan, and others.

Due to the fast load growth and development of new infrastructures like building in Kigali City, the existing City electrical network has grown out of supply capacity. There is also no facility for remote switching of these substations, as they have manually operated linked switches, some without fuse. This causes longer down times before power can be restored.

The World Bank as a main donor founded the RESSP with the objective of increasing Access to Electricity Sector with an aim to improve the performance of the electricity sector institution. On the project, it is proposed to upgrade the 15KV Network in Kigali (Supply overhead lines and underground cables, rehabilitation, construction and upgrade of new or existing substations). However, those activities request an Environment, Social Impact Assessment (ESIA), where born this site specific ESMP for the component of construction, rehabilitation and upgrading of 11 substations of Kigali central network and proposed competent mitigation measures appropriate before project implementation. Actually, the project in on phase of construction of 11 Substation/Cabins around Kigali City. Some are finished, others are ongoing and others are not constructed but the preparation of construction sites are planned.

Various development partners so far committed to support the program including World Bank, World Bank IDA, World Bank GEF/ESMAP CEIF, BADEA, OFID, Saudi Funds, Netherlands, Japan, and others.

This Environmental and Social Management Plan has been reviewed by the surveyor company (SABA Engineering) through the consultant in order to fulfill the requirements of the World Bank while at the same time it satisfies the host government (Rwanda) regulations regarding Environmental Assessment and Management (EA&M) as stipulated in the Organic Law that established the Rwanda Environment Management Authority (REMA).

EHSP for construction, rehabilitation and upgrading of 11 Substation in Kigali Central Network_ - NR Electric Co. Ltd

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1.1 PROJECT DESCRIPTION

The project description consist of the following components and capacities (Table one):

Table 1: Project components and Capacity

Components	Capacity
Procurement and Installation Work 1. 15kv substations (upgrade 11cabins and SCADA) (a) 20 MVA 15 KV/400 Transformers (b) 15kV switchgear (c) Control and supervisory facilities	 2 units 11 set 11 set
Procurement Work 2. Communication and protection Equipment of the Project 3. Spare Parts for the Equipment of the Project	 1 lot 1 lot

Construction Work	
4. Foundation for the Equipment of the Project	1 lot
5. Building of the Project substations (some will be built others upgrade and others will not change)	11 buildings

The project is concerned with the following and existing substations/cabins to be rehabilitated and upgraded: NAHV, MAGASIN CENTRAL, REMERA1, NYARUTARAMA 1, BELLE VIE, CAISSE HYPOTEQUAIRE, MINISTERE, BOULEVARD CENTRAL, MATERNITE (CHUK) AND PONTS ET CHAUSSEES,

1.2 PROJECT LOCATION

The Project area is located in **Gasabo, Nyarugenge, and Kicukiro** Districts of Kigali City. The following specific sectors and cells are covering present project components:

Table 2: Project Administrative location in Kigali City.

Sectors	Cells
Remera	Nyarutarama
	Nyabisindu
Gikondo	Kinunga
Nyarugenge	Kiyovu
Kimihurura	Rugando
	Kamukina
	Kimihurura
Muhima	Ubumwe
	Rugenge
	Amahoro

Kacyiru	Kamatamu
	Kibaza

1.3 EHS PLAN OBJECTIVES

The objectives of this Project Specific Environmental, Health and Safety Plan are as follows:

- Promote a safe work environment 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. Encourage consultants and contractors selected to work on this project to share and promote that same belief.
- 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 environment.
- Enlist 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, consultants, and contractors have the knowledge, awareness, and training to accomplish the task ahead
- Implement emergency response plans and procedures. Provide effective project communication plans and equipment.

CHAP 2. LEGISLATIVE AND POLICY FRAMEWORK

2.1 Constitution of the Republic of Rwanda

In consideration of the Constitution of the Republic of Rwanda of June 4, 2003 as amended to date, article 49 states that every citizen is entitled to a healthy and satisfying environment. Every person has the duty to protect, safeguard and promote the environment. The state shall protect the environment. The law determines the modalities for protecting, safeguarding and promoting the environment.

2.2 Rwanda Vision 2020

The vision 2020 of Rwanda gives strategic actions and inter alia institutes the principle of precaution to mitigate the negative effects caused to the environment by the socio-economic activities, to institute the —polluter pays principle as well as preventive and penal measures to ensure the safeguard of the environment and to require the environmental impact study of any development project.

2.3 National Environmental Policy (NEP)

The overall objective of the Environmental Policy is the improvement of man's wellbeing, the judicious utilization of natural resources and the protection and rational management of ecosystems for a sustainable and fair development.

The Policy seeks to achieve this through the following objectives:

- i. To improve the health and the quality of life for every citizen and promote sustainable socio-economic development through a rational management and utilization of resources and environment;
- ii. To integrate environmental aspects into all the development policies, planning and in all activities carried out at the national, provincial and local level, with the full participation of the population;
- iii. To conserve, preserve and restore ecosystems and maintain ecological and systems functioning, which are life supports, particularly the conservation of national biological diversity;
- iv. Optimum utilization of resources and attain a sustainable level of consumption of resources;
- v. To create awareness among the public to understand and appreciate the relationship between environment and development;
- vi. To ensure the participation of individuals and the community in the activities for the improvement of environment with special attention to women and the youth and
- vii. To ensure the meeting of the basic needs of today's population and those of future generations.

2.4 Environment health policy

The environment health policy intends to prioritize environmental health and ensure effective delivery of Environmental Health services in a coordinated manner by promoting Environment Health Education, Capacity building at various levels and intersectoral collaboration. It promoted a legal and regulatory framework that support voluntary compliance and facilitates policy implementation by the various actors.

2.5 National Environmental Law

The Organic Law n° 04/2005 of 08/04/2005 determining modalities of protection, conservation and promotion of environment in Rwanda regulates the Environmental impact Assessments. In its article 67: Every project shall be subjected to environmental impact assessment, before obtaining authorization for its implementation. This applies to programmes and policies that may affect the environment. Article 68 specifies the main points that an Environmental Impact Assessment must include. Article 69 stipulates that the environmental impact assessment shall be examined and

approved by the Rwanda Environmental Management Authority or any other person given a written authorization by the Authority.

The environment impact assessment shall be carried out at the expense of the promoter. Article 70 states that an order of the Minister having environment in his attributions establishes the list of projects for which the public administration shall not warrant any authorization without an Environmental Impact Assessment describing direct and indirect consequences of the project to the environment.

2.6 Law N° 18/2007 of 19/04/2007 relating to expropriation in the public interest

The law defines the activities or projects that can be classified as public interest and process and requirements for expropriation activities as well as the cost for goods and other infrastructure to be expropriated. The law provides a window for appeal for somebody who is not satisfied by the cost of compensation.

2.7 Environmental Impact Assessment Regulations, 2006

REMA has now developed the EIA regulations which provide a guide and requirements for EIA in Rwanda. According to these new regulations, Article 1 makes it mandatory for all the projects listed under schedule I to be subjected to a full scale EIA.

The Article further states that no environmental authorization shall be granted by the Authority for any project in Schedule I to these Regulations if no environmental impact assessment has been submitted to the Authority in accordance with the provisions of these Regulations. The Article states that any project listed under Impact Level III of Schedule I to these Regulations shall require a full environmental impact assessment by preparation of an environmental impact report, unless the Authority refuses permission.

2.8 Ministerial order N° 003/2008 of 15/08/2008 relating to the requirements and procedure for Environmental Impact Assessment

Article 1 stipulates that Environmental Impact study is a systematic way of identifying environmental, social and economic impacts of a project before a decision of its acceptance is made. In article 3, the developer submits an official application which includes a project brief of the proposed project to the authority. Article 4 specifies that within thirty (30) calendar days after receipt of the project brief and after its analysis, the Authority shall submit the Terms of reference to the developer for the Environmental impact study.

3.0 RESPONSIBILITIES

3.1 Health and Safety Team

NR Electric Safety team is to work with the larger project team, and our partnering s/contractors and consultants, to identify and minimize safety risks throughout the project. This will be accomplished by ensuring the proper systems and procedures are in place in advance of construction and that, during construction, project personnel are following safe work practices as determined by applicable National and Company rules and regulations and job safety analyses (JSAs). The Project Safety team will draw upon expertise as required from NR Electric Safety team, NR Electric's construction & operations departments, Contractor's operations and safety personnel, and OSH consultation services.

The Project Safety team's main areas of responsibility include:

- Arranging for NR Electric 's Employee Safety Training as needed
- Ensuring Safety Awareness presentations are administered for all Project personnel
- Identifying and acquiring Personal Protective Equipment (PPE) for NR Electric's employees
- Reviewing of Contractor Safety Programs
- Inspecting and auditing Contractor field operations for compliance with safe operating procedures. Reporting deficiencies to Construction Manager
- Ensuring project personnel comply with the project Fire Plan
- Reviewing Site Security requirements and implementing necessary protocols
- Ensuring adequate Communications are in place
- Monitoring and reporting on NR Electric, Project Safety Metrics
- Ensuring Incident Notification, Investigation, & Reporting is effective
- Providing Safety & Training Records
- Coordinating Emergency & Disaster Response Procedures
- Ensuring Company Safety Compliance Requirements are met in accordance with the Environmental & Safety Compliance Program (ESCP). ESCP provides the framework for effective compliance programs in order to protect NR Electric's employees and the environment in general. This includes initial and annual training as well as training upon transfer to a new department or job description.
- Regularly attending and participating in employer's daily safety/tailboard meetings.

3.2 Project Base (Base)

Project Base is located in the NR Electric's Kigali Head office. Its responsibilities include:

- Monitoring construction field activities
- Providing and/or coordinating emergency response

- Making required notifications and formally document events
- Perform routine training in various emergency scenarios

3.3 EHS Sub-contractor or Permanent EHS Manager

A Subcontractor or Permanent EHS Manager to be retained as an owner's agent in support of the project's environmental, Health, safety and construction management requirements. His responsibilities with respect to safety include the following:

- Provide safety expertise and support as requested by NR Electric Co. Ltd.
- Review Contractor safety submittals.
- Provide field safety advisors as requested to augment the efforts of NR Electric's safety team.
- Immediately report all incidents, unsafe work practices, security breaches or and third party complaints/concerns to NR Electric.

3.4 Project Manager

NR Electric Project Manager has been assigned to lead specific areas of the Project, the site overhead and underground segment installations, at all substations construction and Relocation and upgrade. The Project Manager has the following general responsibilities with respect to safety:

- Monitor construction and installations of the entire project, including safety performances.
- Establish and maintain safe and secure site facilities for use by NR Electric and EHS Manager/subcontractor.
- Assure all contractual requirements, including safety & health obligations and daily
- Reporting, have been met by each Contractor and sub-Contractor on the Project.
- Act on any safety related issues brought forward for resolution by the safety team,
- Report any Contractor safety deficiencies and associated corrective action plans to the NR ELECTRIC Project Director.
- Ensure that the Contractor is taking adequate security precautions to protect the Project from risk related to associate environmental, health and safety and non compliance concerns.

3.5 Contract Administrator

The Contract Administrator will:

- Always be alert to site safety issues.
- Consult with Contractor's foreman regarding any safety concerns.
- Not hesitate to request assistance from the Safety Team on issues that are not resolved to his/her satisfaction.

The Contract Administrator is also responsible to:

- Verify that the Contractor has provided equipment and material necessary to prevent starting any fire

- Control spread of fires if started, and provide assistance for extinguishing fires started as a result of transmission line construction activities.
- Report any security concerns to the project security team for investigation and resolution.

CHAP 4. CONTRACTORS AND SUBCONTRACTORS

At a minimum, every subcontractor shall implement and maintain an effective Injury and Illness Prevention Program (IIPP) in accordance with this EHSP, NR Electric rules of the General Industry Safety Orders. The following elements are required in the IIPP:

- Management commitment/assignment of responsibilities;
- Safety communications system with employees;
- System for assuring employee compliance with safe work practices;
- Regularly scheduled inspections/evaluation system;
- Accident investigation;
- Procedures for correcting unsafe/ unhealthy conditions;
- Safety and health training and instruction; and
- Recordkeeping and documentation.

Every Subcontractor shall adopt a written Code of Safety Practices which relates to the employer's operations.

Every Contractor shall provide a Heat Illness Prevention Program (HIPP) in accordance with OSH provisions.

Periodic meetings of supervisory employees shall be held under the direction of management for the discussion of safety problems and accidents that have occurred. Supervisory employees shall conduct safety meetings with their crews at least every 12 working days (2weeks) to emphasize safety. Squad leaders shall conduct —toolboxl or —tailgatel meetings with their crews each day prior to commencing work.

The follow closely meeting will typically cover a job task Job Safety Analysis(JSA) and ensure that all Squad members are aware of potential hazards associated with the work to be performed and safety measures to mitigate those hazards.

4.0 COMMUNICATIONS

Health and Safety is absolutely critical for the employees working on this substations construction and Rehabilitation Project .Effective communications are necessary to ensure everyone's safety.

CHAP 5: COMPLIANCE WITH SAFE WORK PRACTICES

5.0 Project Safety Orientation

Compliance begins with awareness and training. All project personnel must attend the Safe Worker and Environmental Awareness Program (SWEAP) orientation. Wild land Fire training will be provided as part of this orientation. The SWEAP training roster is maintained by the EHS Manager/Subcontractor. Hardhat stickers shall be affixed to each worker's hardhat showing they have completed this orientation.

Key elements of the SWEAP orientation are included in a SWEAP Visitor Form to be reviewed and signed by personnel making short term, non-construction related visits to the project right of way.

5.1 Employee Safety Training

Every NR Electric employees must complete all trainings designated as part of the annual Environmental and Safety Compliance Program (ESCP).

All ESCP training is monitored on the Employee Training Matrix and entered into the MIS/MyInfo training Module. Some training is identified for NR Electric employees based on specific OSH requirements, such as fall from height, squishiness, hand shocks, Heat Illness Prevention, Fire safety, site cleanness and wastes handling and First Aid, etc.

Depending on the specific job hazards anticipated for each employee, various training is assigned. Training records are documented by a sign-in sheet and entered into the training Module for NR Electric employees.

For ease of tracking, a training matrix is maintained showing all required —Rll and Completed —Cll classes. The training matrix is frequently updated with the most current version available on the Project SharePoint site.

5.2. Hazard Communication Program (HAZ-COM)

The Haz-com program provides employees with information and training on hazardous substances in the workplace. This Hazard Communication Program does not apply to employees who use consumer products except when consumer products are used in a duration and frequency of exposure greater than normal consumers' experience.

5.3. Contractor Safety Training

S/contractors are responsible for documenting and maintaining all training records and safety meetings for their employees and making them available to NR Electric upon request.

5.4 Fire Safety

The Project direction is located in central part of the capital City, Kigali .As substations Construction and Rehabilitation project, A Fire Prevention Plan has been developed and will be implemented on the project. The Major Projects Fire Responsible, who reports to the Major Projects Safety Lead, will be responsible for overseeing compliance with suggested approached and mitigation measures.

All project employees will follow the approved Fire Prevention diagram and all Fire Emergencies will be coordinated with the prime construction Contractor's Engineer.

Fire safety and prevention measures will be taken to reduce the risk of fire ignition on the project.

These measures include, but are not limited to:

- ✚ Training of all project personnel on wild land fire safety and
- ✚ prevention Fire circuits and fire reporting
- ✚ Fire suppression tools & equipment requirement for work in high risk fire areas
- ✚ Implementing work restrictions during high or extreme fire conditions

Fire control Equipments will be maintained in all project vehicles and specific fire boxes as noted above or in fireboxes to be maintained at remote work locations or as an alternative to tools carried in vehicles at accessible work locations. Equipment maintained in fire boxes will include the following (per Electric Standard Practices):

- Fire extinguishers in all cars and trucks and all over the sites
- 1 - Round point shovels 46ll for each employee on site
- 2 – McLeod fire tools
- During —Elevatedll fire extreme conditions a public fire prevention department shall be contacted as emergency as possible.

CHAP 6 GENERAL CONSTRUCTION SAFETY

6.0 Job Briefing

The Contractor shall have an all-hands safety briefing at the start of each work day wherever employees congregate. This should include all personnel at the site including subcontractors, environmental monitors, and owner's representatives. In addition, the Contractor shall ensure that prior to starting any construction activity the foreman or employee in charge will call the crew and

any other on-site personnel together for a —follow closely‖ or —Job Briefing.‖ Each worker should understand:

- The purpose of the job.
- What he/she is to do?
- What the other members of the crew are to do.
- The intended manner of carrying out the job.
- Any environmental considerations identified and any measures to be taken to address them as per the EMP in place.
- Potential safety hazards or trouble spots anticipated.
- How the employee in charge is proposing to overcome such problems.
- Evacuation procedures for weather, fire, other emergencies.

The employee in charge, will encourage questions, comments and suggestions by the crewmembers.

The briefing will continue until all crew members understand the job at hand.

If, during the course of the work, changes in procedure become necessary, all crewmembers will be called together so that the change can be properly explained and any questions are answered. If, during the course of the work new crewmembers or visitors show up to the jobsite, they will not enter the construction zone until first meeting with the foreman or his designee and receiving a full hatchback describing the work and hazards of the job.

6.1. Qualified and authorized to do work

Only those qualified and authorized to do the work will be allowed to perform any function on the Project.

• Competent Person

One who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees and who has authorization to take prompt corrective measures to eliminate problems.

• Qualified Person

One who, by possession of a recognized degree, license, certificate or professional standing, or who by extensive knowledge, training and experience, has successfully demonstrated the ability to solve or resolve problems relating to the subject matter, the work or the project.

• Authorized Person

A person approved or assigned by the employer to perform a specific type of duty or duties, or to be at a specific location or locations at the job site. All personnel operating vehicles or equipment must have the proper license or permit to operate it.

6.2 Job Safety Analysis or Job Hazard Assessment

A Job Safety Analysis or Job Hazard Assessment (JSA or JHA), is required for all construction activities. The results of the analysis will be shared at tailgate/hatchback meetings with all employees involved in that work.

6.3 Personal Protective Equipment (PPE)

All PPE will be furnished as needed by the workers' employer. Workers shall be familiar with the hazards of the job and wear PPE furnished to provide protection from hazards which can not be engineered out of the work or otherwise mitigated through administrative measures. All personnel on any construction site must wear high visibility clothing or safety vest. PPE is the last defense in providing for a worker's safety. PPE must be appropriate for the work at hand and worn properly by the worker involved. Project Managers, Field Safety Advisors, and Contract Administrators will monitor use of appropriate PPE on job sites and request Company/Contractor (NR ELECTRIC Co. Ltd) leadership to enforce the usual respective safety rules.

6.4 Awareness of Natural Hazards

There are several natural hazards in the vicinity of the project sites, including rough terrains, remote worksites, and residential hazards, several species of rattlesnakes, stinging or biting insects, ticks, and poisons from chemicals.

6.5 Prevention of Heat Illness

Heat illness is a potentially dangerous problem for those working outdoors during hot weather.

All NR Electric employees will abide by the Heat Illness Prevention Plan provided as, which includes Heat Illness Training, Drinking Water Requirements, Shade Requirements, and Heat Illness Emergency Procedures. All sub/contractors will have a Heat Illness Prevention Plan and will administer it per applicable National and donor OSH Rules and Regulations.

6.6. Fall Protection

Prior to starting operations that require fall protection, a competent person will provide a fall protection diagram. The fall protection diagram include, but not be limited to, the following: Name of qualified person in charge of the operation, description of work operation, list of fall exposures, description of fall protection methods used to eliminate the fall exposures, and training and enforcement methods used to ensure employee compliance with the diagram arrangement.

6.7 Rigging

Many types of cranes, hoists, and rigging devices are used for lifting and moving materials. Competent person(s)/responsible engineer must ensure all equipment is properly inspected and all workers are properly trained for the specific planned tasks.

CHAP 7 CONSTRUCTION SAFETY--OVERHEAD WORKS

There are many hazards associated with overhead construction works. Beneath are some of the areas of greatest concern with overhead construction, which require constant vigilance in adhering to all safety procedures. Just because a function or activity is not specifically addressed below does not mean it can't also be dangerous if all safety precautions are not taken. Always be aware of the hazards associated with any activity you are working around, follow all safety rules, and wear all required PPE as specified in this section or otherwise required. Always refer to the employer's (EUCL/RESSP) safety plan for specific hazard mitigation for the types of work being performed.

7.0 Foundation Construction

Employees entering drilled pier holes, or other similar deep and confined footing excavations, shall wear a harness with a lifeline securely attached to it in accordance with all NR Electric standards. The lifeline shall be separate from any line used to handle materials, and shall be individually attended at all times while the employee wearing the lifeline is in the excavation.

Proper fall protection shall be worn by employees working on the surface around the pier holes. Safety Manager shall prepare and submit a detailed Fall Protection Plan to NR ELECTRIC Management for review and enforcement. Jobsite personnel will verify that excavations, protection of excavations, and disposal of excavated material are being performed accordingly. Holes must be checked after digging for cave-ins, providing proper cover for personal protection for unattended holes, and setting of forms prior to pouring of concrete.

When soil material is too hard to excavate with auger or a loose boulder is encountered, it may require the use of explosives or other means. The Contract Administrator in collaboration with safety Manager will be responsible to check the permits to make sure blasting is allowed and that the Sub/Contractor's personnel are qualified for the type of work required. Blasting shall be in accordance with the project permits and or local, state and federal jurisdictions, if applicable.

7.1 Induced Voltage

Induced voltage and current in a de-energized substations and transmission lines in the vicinity of sites, caused by other high voltage lines can be created by electric-field and magnetic-field induction. These voltages and currents present a serious work hazard for line-crew personnel. Proper

understanding and identification of the associated hazards are necessary to safely performed-energized related works.

7.2 Grounding

Personal Protective Grounding (PPG) provides protection against an induced voltage from parallel and/or adjacent lines as well as accidental re-energizing of lines or cables from unknown sources.

Protective Grounds shall be placed at such locations and arranged in such a manner as to prevent each employee from being exposed to hazardous differences in Substation electrical potential.

There shall be a minimum of one ground on the conductors or equipment being worked on. NR Electric is responsible if its grounding chart for it to be respected. Multiple crews working on the same circuit shall provide their own work site Personal Protective Grounds.

CHAP 8 CONSTRUCTION SAFETY--UNDERGROUND WORKS

There are many hazards associated with underground construction works. Below are some of the areas of greatest concern with underground infrastructures, which require constant vigilance in adhering to all safety procedures. Just because a function or activity is not specifically addressed below does not mean it can't also be dangerous if all safety precautions are not taken.

Always be aware of the hazards associated with any activity you are working around, follow all safety rules, and wear all required PPE. Always refer to the employer's safety arrangement for specific hazard mitigation for the types of work being performed.

8.0 Trenching & shoring

Trenches in soft or unstable soil, 5 feet or more in depth, must be sloped, shored or otherwise supported by means of sufficient strength to protect persons working in them. Trenches in hard or compact soil, 5 feet in depth and 8 feet or more in length, shall be shored or the trench sides above the 5 foot level sloped to be not steeper than one foot vertical to each 1/2 foot horizontal.

Proper fall protection per National and Public rules and regulations shall be installed and employed around trench and vault excavations.

A stairway, ladder, ramp or other safe means of egress shall be located in trench excavations that are 4 feet or more in depth so as to require no more than 25 feet of lateral travel for employees. Employees shall be protected from excavated or other materials or equipment that could pose a hazard by falling or rolling into excavations. Protection shall be provided by placing and keeping such materials or equipment at least 2 feet from the edge of excavations, or by the use of retaining

devices that are sufficient to prevent materials or equipment from falling or rolling into excavations, or by a combination of both if necessary.

8.1 Traffic Safety

Employees exposed to construction and public vehicular traffic shall work within safety zones properly identified and coned off in accordance with approved traffic plans. Workers shall be provided with and shall wear warning vests or other suitable garments marked with high visibility reflective material.

CHAP 9 CONSTRUCTION SAFETY—SUBSTATIONS/CABINS

There are many hazards associated with electric substations construction. Below are some of the greatest concern, which require constant vigilance in adhering to all safety procedures. Just because a function or activity is not specifically addressed below does not mean it can't also be dangerous if all safety precautions are not taken.

Always be aware of the hazards associated with any activity you are working around, follow all safety rules, and wear all required PPE. Always refer to the employer's safety diagram for specific hazard mitigation for the types of work being performed.

9.0 Site work

Mobile earth-moving equipment used for road construction or site development, including, but not limited to, bulldozers, motor graders, scrapers, loaders, skid steer loaders, compaction equipment, backhoes, end dumps, side dumps, and dump trucks, shall have all factory installed and/or OSH(Occupational Safety and Health) required safety devices and alarms.

Operators and all other employees working on the ground, exposed to mobile earth-moving equipment/machinery, shall be trained in the safe work procedures pertaining to mobile earth-moving equipment and in the recognition of unsafe or hazardous conditions.

Each employee working on the ground who is exposed to mobile earth-moving equipment shall be provided with and required to wear a high-visibility warning vest or other high-visibility garments. For work during hours of darkness or low light conditions, this protective equipment must be made of or marked with retro-reflective material.

9.1 Construction Yards

A single point-of-contact yard manager needs to be in charge of each yard to manage placement of equipment and materials, to resolve issues relating to compliance, parking, etc. The final site plan must be communicated to all subcontractors (if any) working on the site and any changes must be approved by the designated site manager.

The yard manager will oversee move-in of all subcontractors to ensure plans are carried out. When laying out a yard, the following critical activities must be considered:

- Security related to all points of ingress/egress (way in/way out)
- Office space and delineated parking,
- Material and equipment enactment areas,
- Fuel and other hazardous material storage.
- Structure assembly areas, etc.

CHAP 10. SCHEDULED INSPECTIONS/EVALUATIONS

10.0 Environmental, Health& Safety Compliance Program (EHSCP)

Bi-annual facility inspections will be conducted by Safety Team personnel and documented in internal information Management System (IMS). These facility inspections along with employee safety training will be used to demonstrate compliance with the EHSCP.

10 1. Environmental & Safety Audits

In addition to routine inspections, the Internal Auditing may be requested to perform an Environmental & Safety Audit of the project. All personnel and contractors will cooperate with the audit team assigned.

CHAP 11. INCIDENT INVESTIGATIONS

11.1 Company personnel

All NR Electric employees are responsible for reporting every safety related incident, including serious injury, vehicle incident, property damage, minor injury or close call, to their Supervisor immediately after said occurrence. The employee's immediate supervisor is responsible for gathering the necessary information from the employee(s) involved and performing an incident investigation in accordance with Safety Rules, Incident and Injury Reporting.

11.2 Contractor personnel

Sub/Contractors and Consultants will immediately notify NR Electric SS Construction Manager or other primary contact, by the most effective means, of all safety incidents including near misses,

vehicle incidents, first-aids, OSH recordable, hospitalization, property damage, or any serious incident resulting in death. A written summary of the incident will be submitted to the Principle Construction Manager with a copy to the Safety Manager within full 2 days and a complete incident investigation report will be submitted within 20 calendar days of the incident.

Sub/Contractor/Consultant shall cooperate with NR Electric and the client (EUCL/REG) responsible Governmental Entities with respect to their independent investigations of the incident.

CHAP 12. EMERGENCIES

The frequency and severity of emergency situations can be dramatically reduced through training, safety awareness, and daily safety briefings.

However, if an emergency does occur, quick and decisive action is required since delays in minutes can create or escalate life threatening situations. In an emergency situation, NR Electric personnel involved must be prepared to respond immediately.

12.1 Emergency Action and Fire Prevention arrangement

Required Emergency Action and Fire Prevention Plans, emergency phone numbers and procedures, and hospital locations are included in this section to ensure rapid, effective response to an emergency. Each facility at the site for NR Electric will have a written Emergency Action and Fire Prevention Plan specific for that facility.

These plans will be posted at each site, and NR Electric personnel will be trained on the procedures within .Emergency Action/Fire Prevention Plans (EA/FPP) are in place to facilitate a coordinated response in the event of a workplace emergency. These plans describe the roles and responsibilities of the Facility Responsible Official, Supervisors, Employees, and Emergency Response Teams (ERT) during workplace emergencies.

The plans include, but are not limited to: *communication strategies; evacuation routes; procedure for accounting for all employees; rescue and medical duties (for those assigned to perform).*

CAUTION!DO NOT UNDER ESTIMATE THE ABILITY OF A FIRE TO QUICKLY SPREAD TO AN UNMANAGEABLE SIZE.

12.2 Incident Action Plan

An Incident Action Plan was developed to establish processes and provide a general plan to help effectively manage moderate to large scale incidents that may occur during the Project. Principles of the Incident Command System (ICS) will be used to manage each incident and help bring structure to what can often be a disordered event lacking organization and communication.

12.3 Evacuation Procedures at work sites

Preparation for potential evacuation is important due to the concerns regarding the environmental hazards associated with the remote locations on Project.

An Evacuation Route Map has been developed to show safe exit routes and assembly location (Available for all site workers and guests and will be posted at visible mode).

NOTE:

This plan is to work in conjunction with our Company general Emergency Action Plan.

12.4 Evacuation

In the event of fire or other site emergency, the following evacuation procedures should be followed in tracking personnel leaving in the work site:

- At each work site the designated Point of Contact (POC) will verify the current head count and notify Base.
- Base will notify Fire Dispatch and Emergency Responders of personnel locations, head count, rally points and headings to assist in evacuation operations.
- Radios and GPS tracking units will be monitored at Project Base. Updated information will be relayed to the Project Base as needed.
- Upon arrival at rallying points, all personnel to be evacuated will be required to check out with Base before leaving.

12.5 Heavy Rain

When possible, avoid entering the project right of way during or within 24 hours following a rain event—greater than a half inch of rain. However, in the event that vehicles have already entered the right of way prior to a rain event occurring and an emergency situation arises, serious consideration must be made to traveling on access roads due to the slick conditions.

12.6 Earthquake & Landslides

Local evacuation vehicle may be the safest method of evacuation if available. If an evacuation by hiking and vehicle pick up is necessary, Project Base will make an assessment of the roads to be traveled by vehicle for safety before personnel attempt to hike to an extraction point. If roads are blocked or deemed unsafe for travel, Emergency Services will be notified immediately.

12.7 Responsibilities of All Field & Monitoring Personnel

Among their responsibilities include but not limited to:

- Assess situations and determine the action to take to ensure your safety.

- If evacuations are required, prioritize evacuations of field personnel by proximity to the immediate danger.
- Plan extraction site locations (rally points) for evacuation.
- Coordinate evacuation personnel and vehicles
- Maintain contact with Base to coordinate efforts.
- Verify head-count at each work site with radio or cell phone.
- Assign recovery location and personnel to verify head-count. Project Base will maintain a daily work site and head-count list of all NR Electric and sub-contractors/consultants on-site personnel.

12.8 Emergency contact information

All NR ELECTRIC employees must ensure their emergency contact data in their basic info/contacts handbook or MyInfo is accurate.

Contract employees working under NR ELECTRIC supervision must fill out and keep current at all times, an Emergency Contact Card. This will be kept on file at Base. All sub/Contractors and Consultants must ensure they have current emergency contact information for all their employees.

Table 3: Key Personnel and bilateral institutions

Emergency Coordinators (ECs) / Key Personnel and bilateral institutions		
Names	Title	Workstation
EUCL/EARP	Client Representative /Focal point	KIGALI CITYTOWER Building Six floor
UWERA RUTAGARAMA	Project Manager	Acting project manager
BUGINGO Aphrodis	Site Supervisor	Senior Engineer
BUGINGO Aphrodis	Emergency Coordinator (EC)	Senior Engineer
-	Secondary/Alternate EC	-
EUCCL	Organization /	N/A

UWIMANA Francine	Site Safety Officer	Field Officer
UWIMANA Francine	Incident Reporting/Corporate Safety Administrator	Field Officer
LOCAL BILATERAL INTERVENTION AGENCIES		
SERVICE	DIRECT CONTACTS/Toll free line	
1 Police Department	Police Emergency : 112	
2 Fire Department	111	
3 First Aid Services	Trained one/Nearest Health facility	
4 Ambulance Service	912 / 0788 622 524	
5 Breakdown Service	Police Emergency : 112/999	
6 Gender based violence	3512	
7 Abuse by an officer	3511	
8 Traffic Accidents	113	

12.9 Waste Control and Hazardous Spill

Contractor shall provide equipment and material to prevent spill of any hazardous or non hazardous materials, control any waste generated during construction, and cleanup of all hazardous waste spills generated by the vehicles, equipment, or construction activities. All spills and releases shall be reported to agencies in accordance with the Project. Hazardous Spill and Waste Control Plans.

(In case of an emergency, call base immediately at (To be inserted)

CHAP 13 SAFETY EQUIPMENT

13.1 Personal Protective Equipment (PPE)

Personal protective equipment (PPE) is provided by NR Electric Company and is issued to employees to protect them from hazards that cannot be effectively engineered out of the work or administratively controlled. PPE will be issued through the Construction and rehabilitation of substations Project; Safety team or through NR Electrics as needed.

Some PPE is required for every employee who works in and/or visits the field, while additional IPPE is required only on a situational basis. Optional PPE is recommended but not required for employees who may encounter hazards where a specific requirement has not been established or when an individual has sensitivities to environmental conditions he/she may encounter. All PPE, required and optional, is to ensure the safety of employees from jobsite/worksites hazards. A list of required and optional PPE is provided below for all field employees:

Table 4: Personal Protective Equipment (PPE)

Required Personal Protective Equipment	Pieces
Hard hat meeting	10
Helmets	20
Belts	25
Safety glasses	-
Hi Visibility Safety vests meeting	30
Safety Toed Work boots with ankle support	50
Ear plugs (when conditions warrant)	-
Safety goggles (when conditions warrant)	30
Optional PPE and Safety Items*	
Back pack (for storing small PPE items)	5
Sun visor	-
Snake chaps	10
Sunscreen (highly recommended)	-
Small flash light	20
Mylar blanket (space blanket)	-

****Optional PPE is highly recommended based on conditions encountered***

13.2 Office Safety Equipment

Field offices shall be equipped with First Aid Kits, Fire Extinguishers, an Automated External Defibrillator (AED), and additional PPE and first aid supplies for restocking and employee checkout. All first aid kits shall be supplied and fully stocked per Company requirements in accordance with National construction (Basic construction Instructions for protection of Disasters; RHA, 2012 and OSH requirements).

CHAP 14 PROJECT SECURITY

Secure worksites are important to the safety of all project personnel. Appropriate measures must be taken to account for material and to prevent theft and vandalism.

CHAP 15 : RECORDS & DOCUMENT MANAGEMENT

All records, documents, reports, and inspections including and/or pertaining to NR Electric employees or NR Electric contract employees, will be kept at the headquarters location with a copy to the site help desk. Some records, such as incident investigations and ESCP inspections, may also be found archived within the NRElectric Safety Information Management System (SSIMS) but a physical copy will be kept at the NR ELECTRIC Headquarters location. Project documentation will also be maintained on the Project Allocate Point Place.

15.1 Daily Reports

Field Safety Mentors, along with Contract Administrators and other field personnel, will Observe Sub/Contractor activities and document observations daily. Any unsafe conditions, effects of weather, job hazards, crew actions, etc. shall be recorded. Any violations of safety rules, regulations, suggestions, warnings, and instructions to the Contractor regarding unsafe conditions and any corrective action taken by the Sub/Contractor regarding unsafe conditions shall be recorded. Serious violations and incidents shall be reported immediately to the Project Team Base and then to NR Electric Project Safety Manager and assigned Construction Manager.

15.2 Safety Meetings and Training

All safety meetings conducted or administered by any NR Electric personnel shall be documented at a minimum by a sign-in sheet. Sign-in sheets will note the date, time, location, topic, and every participant shall print and sign their name to show attendance.

15.3 Injury and Illness Prevention

The purpose of this agenda is to outline the seven essential elements of NR Electric's Injury and Illness Prevention Program (IIPP):

- | | |
|-------|---|
| (I) | Authority And Responsibility |
| (II) | Promoting Compliance With Safe And Healthy Work Practices |
| (III) | Communicating With Employees in A Readily Understandable Form |
| (IV) | Identifying And Evaluating Work Hazards |
| (V) | Investigating Occupational Injuries And Illnesses |
| (VI) | Correcting Unsafe Of Unhealthy Conditions, Work |
| (VII) | Practices And Procedures in A Timely Manner |

(VIII) Training And Instructions

NOTE: *The requirements of this program apply to NR ELECTRIC& employees, and are effective on the date of issue.*

Incident: Any work related injury, illness, damage, or near let pass

15.4 Injury information data sheet

The Principal Contractor (NR Electric) shall report monthly injury statistics to the Client (EUCL/EARP/RESSP) or his agent in the following manner:

Table 5: Injury information data sheet

No	Article	Quantity	Brief info/Action taken
1	Number of total injured	2	Small injury
2	Number of Medical Injured	0	
3	Number of lost time injured	0	
4	Number of first aid injured	0	
5	Number of motor vehicle accidents	0	
6	Number of occupational diseases	0	
7	Number of property damage incidents	0	
8	Number of environmental incidents	0	
9	Number of public incidents	0	
10	Number of near let passes	0	
11	Number of electrical contacts	0	

CHAP 16. CONSTRUCTION WASTE MANAGEMENT PLAN

The purpose of the waste Management Plan is to describe the principles procedures and management of the waste generated by the Company. On the site, the waste are generally piece of woods, pallets, timber, raw material of construction etc

CHAP 17. PLAN IDENTIFICATION

Table 6: Template of Construction waste Management Plan

Agent/Institution	Addresses	Additional info.
Company Name:	NR Electric	
Contact Person:	MANIRAKIZA Placide	
Project Location:	Kigali Down Town 3 rd Floor No F3-21	
Contractor:	NR Electric	
Contact Person:	MANIRAKIZA Placide	
Recycling Coordinators:	n/a	
Architect:	MANIRAKIZA Placide	
Contact Person:	0788986594	
Designated Recycling Coordinators:	n/a	

CHAP 18: SUB PROJECT DESCRIPTION

i. Waste Management Goals:

- This project will recycle or salvage for reuse a minimum of **XX%** by weight of the waste generated on-site.
- Waste reduction will be achieved through building design, and reuse and recycling efforts will be maintained throughout the construction process.

ii. Waste Prevention Planning:

- Compliance with Solid Waste District's (SWD) mandatory recycling requirements for businesses. The SWD mandatory recyclables include:
 - newspaper
 - corrugated cardboard
 - white and colored office paper
 - plastic and glass bottles and jars
 - metal cans

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- Compliance with SWD and available District/ site or chantier Landfill, e.g.: disposal of tires, appliances, yard waste, mandatory recyclables, hazardous waste, batteries, fluorescent tubes, and large metal items.
- Project Construction Documents – Requirements for waste management which will be included in all work. The General Contractor(NR Electric) will contractually require all subcontractors to comply with the SWD mandatory recycling requirements. A copy of this Construction Waste Management Plan will accompany all Subcontractor Agreements and require subcontractor participation.
- The Construction Waste Reduction Plan shall be implemented and executed as follows and as on the chart:
 - Salvageable materials will be diverted from disposal where feasible.
 - There will be a designated area on the construction site reserved for a row of dumpsters each specifically labeled for respective materials to be received.
 - Before proceeding with any removal of construction materials from the construction site, Recycling Coordinators will inspect containers for compliance with SWD requirements.
 - Wood cutting will occur in centralized locations to maximize reuse and make collection easier.
 - Hazardous waste will be managed by a licensed hazardous waste vendor/Wholesalers

iii. Communication & Education Plan:

- The Overall Contractor will conduct an on-site pre-construction meeting with subcontractors. Attendance will be required for the subcontractor's key field personnel. The purpose of the meeting is to reinforce to subcontractor's key field employees the commitments made by their companies with regard to the project goals and requirements.
- Waste prevention and recycling activities will be discussed at the beginning of each weekly subcontractor coordination meeting to reinforce project goals and communicate progress to date.
- As each new subcontractor comes on site, the recycling coordinators will present him/her with a copy of the Waste Management Plan and provide a tour of the recycling areas.
- The subcontractor will be expected to make sure all their crews comply with the Waste Management Plan.
- All recycling containers will be clearly labeled. Containers shall be located in close proximity to the building(s) under construction in which recyclables/salvageable materials will be placed.
- Lists of acceptable/unacceptable materials will be posted throughout the site.
- All subcontractors will be informed in writing of the importance of non-contamination with other materials or trash.
- Recycling coordinators shall inspect the containers on a weekly basis to insure that no contamination is occurring and precautions shall also be taken to deter any contamination by the public.

iv. Motivation Plan:

- The project team will develop and publish a project mission statement that can be distributed to the subcontractors, attached to subcontracts, and posted at the jobsite.
- The General Contractor(NR Electric)shall conduct a pre-award meeting for subcontractors. Subcontractors under consideration will be required to attend the meeting to review project goals and requirements with the project team. Attendance will be a prerequisite for award of subcontracts. A sign-off will be required by subcontractors attending the meeting that the project goals are understood. This document will be an attachment to every subcontract. Copies of the attachment will be posted prominently at the jobsite.

v. Evaluation Plan:

- The Overall Contractor (NR Electric) will develop, update, and post at the jobsite a graph indicating the progress to date for achieving the project's waste recycling goal of XX% by weight of the total project waste stream.

Vi. Expected Project Waste, Disposal, and Handling:

The following charts identify waste materials expected on this project, their disposal method, and handling procedures:

Table 7: Expected Project Waste, Disposal, and Handling:

Material	Quantity	Disposal Method	Handling Procedure
Land clearing debris		Keep separate for reuse and or wood sale	Keep separated in designated areas on site.
Clean dimensional wood and palette wood		Keep separate for reuse by on-site construction or by site employees for either heating stoves or reuse in home projects. Recycle at: SSs Drop Off Center; Cost = No charge	Keep separated in designated areas on site. Place in —Clean Woodll container.
Plywood, OSB, particle board		Reuse, landfill	Keep separated in designated areas on site. Place in

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Material	Quantity	Disposal Method	Handling Procedure
			—garbage container.
Painted or treated wood		Reuse, landfill	Keep separated in designated areas on site. Place in —garbage container.
Concrete		Recycle	Keep separated in designated areas on site
Concrete Masonry Units		Keep separate for re-use by on-site construction or by site employees	Keep separated in designated areas on site
Metals		Recycle at: SSs drop-Off Center	Keep separated in designated areas on site. Place in —Metals container.
Gypsum drywall (unpainted)		Recycle with supplier:	Keep scraps separate for recycling – stack on pallets in provided on site. All scrap drywall will be taken back by contractor to drywall supplier
Paint		Reuse or recycle at Environmental Depot; Cost = \$0.21/lb latex, \$0.37/lb oil	Keep separated in designated areas on site
Insulation		Reuse, landfill	
Flooring		Reuse, landfill	
Carpet and pad		Reuse or recycle with carpet manufacturer	
Glass		Glass Bottles: Recycle at: local recyclers	Keep separated in designated areas on site. Place in —Glass/Plastic bottles/Metal Cans/Mixed Paper/Cardboard container

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Material	Quantity	Disposal Method	Handling Procedure
Plastics		Plastic Bottles: Recycle at: CSWD local recyclers Plastic bags/scraps: Reuse, landfill	Keep separated in designated areas on site. Place in —Glass/Plastic bottles/Metal Cans/Mixed Paper/Cardboard container
Beverage		Recycle at: SWD Recycling Facility (MRF)	Keep separated in designated areas on site. Place in —Glass/Plastic bottles/Metal Cans/Mixed Paper/Cardboard container
Cardboard		Recycle at: SWD Recycling Facility (DRF)	Keep separated in designated areas on site. Place in —Glass/Plastic bottles/Metal Cans/Mixed Paper/Cardboard container
Paper and newsprint		Recycle at: SWD Recycling Facility (DRF)	Keep separated in designated areas on site. Place in —Glass/Plastic bottles/Metal Cans/Mixed Paper/Cardboard container
TOTAL			

SWD District solid waste, DRF: District Recycling Facility

viii. **Waste Disposal:** Contractor:

Contact:

- **Name of landfill for disposal of non-recyclable waste:**
 - Transfer Stations:
 - Landfills (ultimate disposal location):
- **Landfill tipping fee:** \$XX / ton
- **Estimate of waste for landfill disposal:**

ix. **Recycling Calculation:**

If all construction waste was disposed in landfill: XX lbs = XX tons x \$XX/ton = \$XX

With recycling: TOTAL = \$XX

CHAP 19. SITE SPECIFIC PROJECT RELATED SAFETY PLANS

19.1 SAFETY SIGNS, SIGNALS, POSTERS AND BARRICADES

Before work begins in the vicinity of vehicular or pedestrian traffic that may endanger employees, warning signs and/or flags or other traffic control devices shall be placed conspicuously to alert and channel approaching traffic. Where further protection is needed, barriers shall be utilized. At night, warning lights shall be prominently displayed, and excavated areas shall be enclosed with protective barricades.

Safety —Barricade|| means an obstruction to deter the passage of persons or vehicles while Safety —Signs|| are the warning of hazard, temporarily or permanently affixed or placed, at locations where hazards exist.

Safety —Signals|| are moving signs, provided by workers, such as flagmen, or by devices, such as flashing lights, to warn of possible or existing hazards while —Tags|| are temporary signs, usually attached to a piece of equipment or part of a structure, to warn of existing or immediate hazards.

As the current project's works exposes energized or moving parts that are normally protected, different kinds of signs(as described below) shall be displayed and barricades erected, as necessary, to warn both internal and external personnel in the project site areas. These include:

Danger signs: Danger signs will be used only where an immediate hazard exists.

Caution signs: Caution signs will be used only to warn against potential hazards or to caution against unsafe practices.

Exit and Entrance signs: Exit and Entrance signs, when required, will be lettered in legible red and blue letters respectively, not less than 6 inches high, on a white field and the principal stroke of the letters shall be at least three-fourths inch in width.

Safety instruction signs: Safety instruction signs, when used, shall be white with green upper panel with white letters to convey the principal message. Any additional wording on the sign shall be black letters on the white background.

Directional signs: Directional signs, other than automotive traffic signs will be white with a black panel and white directional symbol. Any additional wording on the sign shall be black letters on the white background.

Traffic signs: Construction site areas will be posted with legible traffic signs at points of hazard

The following are site specific proposed and related signs, signals and posters:





19.2 WORKPLACE HEALTH HYGIENE MEASURES

For workplace environment need to be hygienic and safe for employees and visitors, even those which are not involved in the production and handling of food and personal products. Implementing a workplace hygiene plan is an effective way to ensure that all employees follow the same standards. Below are some key areas NR workplace hygiene procedure will address:

1. Personal hygiene.

Personal hygiene refers to the cleanliness, appearance and habits of employees, which can occasionally be a sensitive issue for managers and business owners. An official rule helps to ease any awkwardness by establishing precisely what is expected from employees.

Criteria including showering, using odor perfumes, grooming facial hair and hair-washing. Hand washing and the use of hand sanitizers also has great importance as a protection against the spread of illnesses.

2. Work area cleanliness.

Workplace hygiene policies will also make provision for each employee to clean and maintain their own workstation or work areas. The hygiene rule could include regular cleaning of surfaces with disinfectant to reduce the risk of bacterial contamination. Guidelines will typically also include keeping the area tidy and free of clutter

3. Restroom or sanitary facilities.

The workplace hygiene guidelines and requirements shall provide restrooms for all employees to be equipped with running water, hand soap, toilet paper and hand drying towels or equipment. This is to ensure that workers have the opportunity to practice personal hygiene after using the facilities. All employees are required to maintain the facilities themselves, however, the workplace hygiene guidance will include posted details such as the timetable of frequency of cleaning and the type of products to use for cleaning the ground, toilet bowls and basins.

4. Clean potable or drinking water

Clean water will be provided to all NR site to be used by employees for drinking purposes. The requirement of recipients to be used for servicing of water will be mandatory and the same will also be available to sites and employees should keep them clean at all the times and be disposed at very clean table for easy and safe use to ensure a healthier working environment.

19.3 DRUG AND ALCOHOL STRATEGY

Goals

This Strategy shows:

- our commitment to health and safety in this workplace, and reducing the risks to the health and safety of all workers, contractors and visitors
- our commitment to complying with the requirements of the *Rwanda Occupational Health and Safety Act* and the *Rwanda OSH Policy* especially those for drugs and alcohol
- how we will deal with drugs and alcohol use and/or their effects in the workplace.

This policy applies to everyone at NR electric Co.

Definition

Drug and alcohol use can affect a person's ability to work safely. It creates a risk to workers and work health and safety.

Responsibilities

No one must drink alcohol or use drugs at this workplace.

The SHE manager/supervisor at all our workplace must, if they have reasonable grounds for believing that you are incapable of safely performing your duties or may be a risk to others due to the effects of drugs or alcohol, arrange for you to be removed safely from the workplace.

Each person must ensure that they are not, by the consumption of drugs or alcohol, in such a condition as to endanger their own safety or that of others at our workplace sites.

This includes not coming to work if, after drinking or using drugs in your social time, your ability to work safely is still impaired. If you come to work, you must report to your supervisor, who may assign you other duties or arrange for you to be removed safely from the workplace.

Managing drugs and alcohol

NR will identify and investigate all workplace factors that may influence someone to turn to drugs or alcohol, and use the hazard management process to eliminate drug or alcohol use or control the risks from them.

NR will consult with workers, work health and safety representatives and/or the work health and safety committee on this issue.

Disciplinary action

If anyone is found to breach this policy, management will be automatically suspended, and finally, dismissed.

Social events

Responsible social events will be not allowed in our workplace sites and employees will be performing these events elsewhere, once will be planned as a shared event with all employees, an appropriate venue will be arrange outside the workplace site.

Information and support

NR will provide regular training and information about the effects of drug and alcohol use on personal and work health and safety, and on the components of this policy.

NR Management, Signed

19.4 DISCIPLINARY ACTIONS FOR NON-COMPLIANT EMPLOYEES

a. Prohibited conduct

At NR sites, employees are prohibited from making threats or engaging in violent activities. This list of behaviors, provides examples of conduct that is prohibited hereto.

- Causing physical injury to another person.
- Making threats of any kind.
- Aggressive, hostile or violent behavior, such as intimidation of others; attempts to instill fear in others; or subjecting others to emotional distress.
- Other behavior which suggests a propensity toward violence, which may include belligerent speech, excessive arguing or swearing, sabotage or threats of sabotage of Project property, or a demonstrated pattern of refusing to follow NR policies and procedures.
- Intentionally damaging Company property or property of another employee or member of the public.
- Possession of a weapon while on project property or while on project business, with the exceptions indicated in the weapons policy.
- Committing acts motivated by, or related to, sexual harassment or domestic

violence. *b. Sanctions*

Workers will be informed on how serious NR management team is about health and safety in all workplace sites and is their mandate to know that breaching the company policies on health and safety will come with consequences

NR sanctions to disciplinary actions include:

- Warnings
- Suspensions and,
- Discharges

19.5 SAFETY HAND AND POWER OPERATED TOOLS MEASURES

Before working with hand and power tools, the consultation of PPEs and job hazard assessment for the job you will be conducting to determine if additional PPEs will be needed.

All employees shall be trained in the proper use of tools prior to using hand and power tools and other hand-held equipment. General training is to be provided by NR EHS Manager through on-site training. The specific training in relation with this project will be containing:

- Recognition of the hazards associated with different types of tools and the safety precautions necessary for use especially electrical, mechanical and construction industries;
- The PPE required during use; and
- The proper use of hand and power tools and other hand-held equipments.

The Training records will be maintained by NR EHS Manager and the maintenance and repair records will be well documented and kept by the Unit.

19.6 PAINTING SAFETY PRECAUTIONS

Painting can be dangerous if one is careless. Many paints are highly flammable, others are poisonous, and some are both flammable and poisonous. To increase your chances of remaining alive and healthy, observe the following precautions:

- Keep paint off your skin as much as possible.
- Wash your hands, arms, and face with soap and warm water before eating.
- Do not put your fingers, food, or cigarettes in your mouth if they are contaminated with paint.
- Be sure you have adequate ventilation, and wear an approved paint/spray respirator whenever there is reason to believe the ventilation is inadequate in the place you are painting.
- At the first sign of dizziness, leave the space and get to fresh air.
- Do not smoke, use an open flame, or use spark-producing tools in the vicinity of painting operations. Use only explosion-proof lights near painting operations.
- Do not wear nylon or plastic clothing or covering. These materials generate static electricity, which may spark and ignite paint vapors.
- Do not carry matches or cigarette lighters or wear steel buckles or metal shoe plates. Too often one forgets and strikes a match or lights a cigarette lighter in areas filled with explosive vapors.
- Also, steel buttons, buckles, and tabs can strike sparks that are invisible to your eyes but are capable of igniting paint vapors.
- When pouring solvents, make sure the containers are touching each other to prevent sparks. Never paint during electrical storms.
- Keep food and drink away from areas being painted.

19.7 SAFETY PRECAUTIONS IN CONFINED SPACES

A confined space is defined as being largely enclosed but not necessarily entirely, with examples including tunnels, pipes, storage tanks, silos, sub-cellars and open ditches. Common risks of severe

injury meanwhile typically occur from hazardous substances or conditions within or connected to the space such as a lack of oxygen. Here are precautions to be taken once operating in a confined space:

Most people typically dislike working within confining spaces so the initial impulse may be to simply jump in and quickly get it out of the way. This kind of leap in the dark leaves the person(s) in question is opened to extreme and potentially lethal dangers.

For NR Engineering ltd, before workers enter a confined space the following precautions should be carefully considered and put in place before work is allowed to commence inside:

- **Avoid entry if practically possible:** It's that simple, if the job can reasonably be done externally or remotely then it should be. As reflected in the hierarchy of controls elimination should be the first course of action considered before actual entry.
- **Carry out a risk assessment of the space:** Determining what hazards are present and the threat severity they pose is essential to the safety of workers within the space. If you don't know about it, you can't protect against it.
- **Get a work permit for the space:** A confined space entry permit must be in place prior to work commencing and needs to be signed off on by all involved; namely the issuing authority, performing authority and the workers due to carry out the task in question.
- **Safe access and escape arrangements:** The most obvious example of this would be a fixed ladder arrangement with means of emergency escape also being ready as required – e.g. an emergency winch rescue device for retrieval of operatives via a safety harness in the event of an accident or other dangerous development.
- **Monitoring the atmosphere within the space:** Checks need to be made with a four-way gas detection monitoring device for the presence of toxic gases such as Carbon Monoxide (CO), Hydrogen Sulphide or combustibles hazards such as high oxygen levels.
- **Providing appropriate breathing apparatus:** Dependent upon the results of atmospheric monitoring and whether entry is still viable workers may require a self-contained breathing apparatus to protect them from toxic gases.
- **Setup lighting arrangements:** Adequate temporary lighting arrangements must be made in order for the operatives to not only have clear vision while working but to avoid any prominent physical hazards within the space.
- **Providing appropriate safe tools and equipment:** These must be safe to use within the space's conditions, accounting for risks such as electrocution with power tools in water or sparks which may ignite flammable gases.
- **Space ventilation:** This will most likely be a fan assisted system implemented inside the confined space to maintain airflow and keep temperatures down to safe levels.
- **Capable operatives:** Considering if you or your operatives are in suitable physical condition and appropriately trained for the work is a fairly straightforward though easily overlooked point. If there is concern that the physical condition of a worker may endanger an operation or the

conditions within a space may aggravate a health complaint, then they should not enter to begin with.

- **Edge protection:** Hazards aren't necessarily limited to operatives entering the space; having high visibility fixed barriers, flashing lights, signage and/or traffic cones positioned around entries such as manholes may be necessary to warn others of a fall.
- **An emergency rescue team:** Hopefully you won't need it, but regardless an emergency response rescue team must be kept on standby to be ready in the event of an incident. There should be a team member in place on top of or just outside the entry point, a clear method of communication (e.g. radio), mechanical aids such as an emergency winch/tripod attached to an operative's safety harness and sign in/out logs for commencement and completion of work.

This may seem like a lot of preparation to be kept in mind for a potentially small job but its importance cannot be overstated. The severity of these precautions reflects those of the risks and probable hazards inherent in these spaces.

Make no mistake, a confined space can just as easily become a tomb for the careless, take the correct health & safety precautions though and a mild brush with claustrophobia should be the worst of your worries.

19.8 NOISE EXPOSURE CONTROL MEASURES

For the current project, it is expected noise effects during welding and electro-mechanical assembling and installations and the factors to be considered by NR Electric include:

- the scale of the noise problem and its impact on the business (including workers)
- cost and effort required to reduce noise exposure
- effectiveness of planned control measures
- the number of individuals who would benefit from those control measures.

An essential outcome of noise risk assessment is identifying and prioritizing measures to control the risks. Employers can use the findings of the risk assessment to formalize an action plan for controlling noise. The key actions will include:

- prioritizing and tackling the immediate risks
- identifying possible methods that can be used to control noise
- assessing the reduction levels that can be achieved by introducing cumulative controls
- assigning responsibilities
- monitoring controls and performance.

To reducing noise exposure, the best way will be by controlling the noise at source through the following hierarchy of noise control (by most to least order of effectiveness):

□ **Elimination (Physically remove the hazard)**

Elimination is a process that eradicates the noise source – it is the most effective way to prevent risks to workers and should always be considered when introducing a new work process, selecting new work equipment and designing the layout of the workstations. Examples of noise elimination will include

- avoiding the use of noisy processes or machinery,
- elimination of impacts between hard objects or surfaces,
- outsourcing the noisy work processes and
- moving the noisy operations away from other work activities.

□ **Substitution (Replace the hazard)**

Substitution is a process of replacing noisy machinery or equipment with quieter alternatives. When elimination is not possible, substitution of the noisy machinery or equipment for quieter ones may be the next-best alternative to protect workers from exposure to noise.

NR should always consider alternative equipment and work processes which would make the job less noisy. It's also important to keep up-to-date with the applicable standards and industry good practice. Performing a task differently can also protect the workers from noise exposure – for example, the use of welded instead of riveted construction in fabrications and the use of hydraulic processes to bend material produces less noise than hammering.

□ **Engineering controls (Isolate workers from the hazard)**

Engineering controls are all about making changes to processes, machinery or equipment so that the workers are exposed to less noise. For example, using screens, barriers, enclosures and absorbent materials help to reduce workers' noise exposure.

Some engineering measures that may be considered include:

- separating the noisy area from other workspaces by a sound-reducing partition
- enclosure of noisy machinery with sound-absorbing material (effect may be limited unless total enclosure is achieved)
- avoiding metal-to-metal contact by using plastic bumpers
- using absorbent lining on surfaces to cushion the fall or impact of objects

- fitting sound-absorbing materials to hard reflective surfaces
- using conveyor belts rather than rollers
- using acoustical silencers in intake and exhaust systems
- using rubber mounts to isolate vibrating noise source to separate it from the surface it's mounted to
- maintaining optimum speed of machinery or its particular components
- repairing and replacing loose rotating parts, worn bearings and gears
- using sound-absorbing material on walls, ceiling and floors to reduce the noise level due to reverberation
- undertaking regular maintenance on equipment (very effective in reducing noise emission if carried out regularly).

☐ **Administrative controls (Change the way workers are operating)**

Administrative controls are the way work is organized to reduce either the number of workers who are exposed or the length of time they are exposed to noise. Administrative controls should be used when it is not possible to reduce noise exposure through elimination, substitution or engineering noise control measures.

Some administrative measures include:

- identifying hearing protection zones and clearly sign-posting noisy areas
- increasing the distance between noise sources and workers – the further away the noise source is, the less harmful its effect on workers will be
- organizing schedules so that noisy tasks are performed when as few people as possible are present
- minimizing the number of individuals working in a noisy area – keeping individuals out of the area if their job does not require them to be there
- limiting the time workers spend in noisy areas by job design and job rotation
- providing rest breaks in areas away from a noisy work environment
- providing sufficient information, instructions and training to the workers for the proper use of work equipment.

☐ **Personal protective equipment (Keep workers with PPEs)**

Personal protective equipment protects the users from any adverse effects on hearing caused by exposure to high levels of noise. It is the last option in the hierarchy of control and should

be used as a last resort after all efforts to eliminate or reduce the noise levels have been exhausted through technical and organizational means.

All hearing protection must be capable of reducing the noise exposure to the safe exposure levels and should be made available for workers to use. It is important to make sure that the hearing protection chosen to protect the workers is suitable for individuals' working environment and compatible with other personal protective equipment being used, for example hard hats, dust masks, eye protection etc. It is good practice to offer different types of protectors so that workers can choose ones which suit them better.

It's important to remember that if the protection provided (attenuation) by hearing protection is too high, communication becomes difficult and individuals can end up working in isolation.

19.9 HIV/AIDS AND NON-COMMUNICABLE DISEASES AWARENESS PLAN AT NR WORKPLACE SITES

❖ HIV/AIDS AWARENESS PLAN AT NR WORKPLACE SITES

NR is committed to address HIV in its workplace policies and plans to promote good health — either directly or through other general policies and initiatives. These programs can be also be cost-effective and can save part of NR capital. By educating our employees now, we will potentially reduce the financial impact, legal implications, work disruptions and other effects that HIV can have on company commercial status when it is not prepared.



Benefits of an HIV awareness plan

Workplace policies and programs benefits include:

- Facilitates an inclusive and supportive work environment for employees living with HIV
- Reduces employee fear, work disruption, and customer concern
- Demonstrates company's corporate social responsibility, leadership, and commitment to our employees and communities
- Complies with National disability and antidiscrimination requirements as mandated in national related laws and policies and state and local statutes.



Comprehensive plan fundamentals

National OSH law and Act protect the rights of employees with disabilities or other health conditions, including HIV. Comprehensive HIV workplace policies should include the following elements:

- Complies with Rwanda Occupational Safety and Health Administration's (OSHA) Law guidelines, and the OSH Act.
- Integrates hiring, promotion, transfer, reasonable accommodation, and dismissal plans with regard to employees HIV
- Provides information about benefit programs available to employees and family members with HIV and meets the standards of the OSH Act
- Promotes HIV prevention and understanding through employee education
- Instructs sites and SHE managers and supervisors on how to address HIV and related workplace discrimination
- Sets the standard of behavior and communication about HIV expected of staff
- Informs staff on where to go for assistance and additional information as orientation arrangements

NR will perform the above fundamentals through the EHS Manager as part of employees protection plan against any kind of new infestation and allow workers aware of the nature and effects of the HIV pandemic.


Objectives of the program


The program is aiming to:

- Decrease the rate of new HIV infections at the construction site, within project employees/workers industry and in the envioning communities
- Ensure appropriate management of construction workers affected and infected by HIV/AID
- Advocate and Facilitate orientation and access to Voluntary Counseling and Testing (VCT)
- Activist and Facilitate access to Sexually Transmitted Infection (STI) treatment
- Capacitate the industry with the necessary knowledge on treatment, self-care and wellness as HIV infected
- Lessen the stigma and discrimination attached to construction workers suffering from HIV/AIDS
- Hearten safe working environments on construction sites
- Position the industry to respond to the risks of direct and indirect costs incurred as a result of the disease
- Aim to reduce HIV/AIDS infection in the communities in which the industry works

- Check and Monitor, evaluate and review the Strategy continuously to ensure relevancy and effectiveness

HIV/AIDS Prevention vs. preparedness

 **HIV prevention.** A two-pronged approach to be adopted to reduce the risk of HIV infection among project staff, partner institutions and target groups: (i) information, education and communication (IC); and (ii) measures designed to reduce vulnerability to HIV infection

 **Preparedness.** Measures taken in advance to develop operational capabilities that will facilitate a rapid response to the crisis could include: (i) projecting future epidemic impact in a project area; (ii) planning for the future impact of HIV/AIDS; (iii) building the capacity of governments, NGOs and communities to deal with current impact, and project and plan for future impact; (iv) preparing operational response action plans; and (v) earmarking funds.

Through appropriate trainings and information availability at the site and vicinities, NR Electric declare its commitments and contribution to adverse different causes and tentative of HIV/AIDS spreading and diffusion which may occur from project workers as group inclusion in the existing communities.

NON-COMMUNICABLE DISEASES AWARENESS PLAN AT NR WORKPLACE SITES

NR recognize that it is imperative that every workplace, big or small, provides health promotion and preventive initiative; because it is the workplace where a person spends a good and big part of their time when they are active and this can provide a good platform to inculcate healthy habits among them.

Also, expenditure in healthcare for the employees leads to reduction in sick absenteeism and also their moral remains high which in turn leads to high productivity. So it should be seen as an investment, and not as an expenditure. Most of the Organizations provide insurance to their employees and spends lot of money on curing diseases after they have developed. Rather, a preventive ecosystem needs to be created by which they should encourage employees to undergo preventive assessments so that the amount of money spent on serious diseases can be saved.

➤ NR Holistic approach of non-communicable diseases (NCDs) management in the occupational setting is strengthened with both employer and employee education and participation, targeting several approaches including risk management and advocating healthy lifestyles as part of a healthy workplace program.

➤ With this in mind, occupational health services (OHS) among others, will provide screening and management of NCDs at various points of service – particularly at entry and at periodic intervals for specific jobs as well as walk-in clinics and referrals from other specialties. These clinical

activities will complement other essential OHS activities such as workplace surveillance, workplace health advice and promotion, as well as workmen's compensation issues.



Thus, a holistic approach to management of workers' health status, workplace environment as well as policy change will be implemented by encouraging workers to visit clinical services aiming to know their health status through check-ups and where possible be included in employment requirements

CONCLUSIONS AND RECOMMENDATION



CONCLUSION

This site specific Environmental, Health and Safety plan have been developed in Relation to the construction, rehabilitation and upgrading of eleven Substations in Kigali central network and is a living file and will be reviewed time to time to fulfill with complexity of proposed projects, projects areas, project's needs upon certain work conditions. The Plan will guide all NR Electric staff, subcontractors, employees and all other stakeholders to obey with environment, social health and safety requirements. Hence more, the Plan will be implemented in acquiescence with other plans developed for the project including the design plans and a site specific Environmental and Social Management plan.



TACTICAL RECOMMENDATIONS

Based on the nature of the current project activities and the developed plan and its key facts and aspects to be respected and to be followed prior to enabling site safe, we recommend that all key actors in relation with the project bring a smooth climate for a better plan performance and ensure safety of our all workers and enhance productivity to all project beneficiaries corridor, we emphasize this key recommendations:

1. Contractors and suppliers should be encouraged to look away to minimize the amount of waste generated at the sites.
2. Supply clean water drinking and movable latrines with hygiene facilities to the sites must be enforce
3. Contract should put the first aid to the side for emergency injuries.
4. EUCL and his stakeholders should implement this EHSMP collectively at the sites.

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APPENDICES

APPENDICE 1: Health and Safety Reporting File contents

1. Risk Assessments (hazard identification)
2. Health & Safety Policy
3. Health and Safety Plans
4. Health & Safety Specifications
5. List of Safe Work Procedures (and where it is available)
6. In the case of modifications, the revised SHE Specifications and Risk Assessments
7. Appointments
8. Organogram indicating the relationships in terms of the 16.2 and person identified as the client if it is not the same person
9. List of Contractors / Mandatory's
10. Training Records on:
 - a. General Induction
 - b. Site / job specific induction based on the risk assessments outcomes / results
 - c. Job specific based on task specific requirements (specialist training).
11. Medical Examination Records
12. Inspection Results Records.

APPENDIX 2: Hazard and Risks Assessment Arrangement

Activity	Hazard (How It Happened)	Risk(What Happened)	Scoring (Low/ Medium/ High)	Control Measures	Accountable Person/Agent

APPENDIX 3: Waste Management and Recycling Operations

RECYCLING OPERATIONS

Action ***	Who	When
<input type="checkbox"/> Choose bins/collection methods	_____	_____
<input type="checkbox"/> Order bins - oversee deliver	_____	_____
<input type="checkbox"/> Site bins/collection sites for optimum convenience	_____	_____
Sort or process wood	_____	_____
Sort or process metal	_____	_____
Sort or process cardboard	_____	_____
Sort or process drywall	_____	_____
<input type="checkbox"/> Sort or process <u>CSWD mandatory items</u> (material)	_____	_____
Sort or process (material)	_____	_____
<input type="checkbox"/> Schedule material pickups/drop-offs	_____	_____
<input type="checkbox"/> Protect Materials from Contamination	_____	_____
<input type="checkbox"/> Document material pickups/drop-offs	_____	_____

*** Depending on the service option chosen, these may be the responsibility of either the field personnel, the hauler, a full-service recycling contractor, or the subcontractors.

COMMUNICATION PLAN - Except for mandatory items (*), check other items intended to be used.

Action	Who	When	Completed
Complete Construction Waste Mgmt. Plan*	_____	_____	_____
	_____	_____	_____

EHSP for construction, rehabilitation and upgrading of 11 Substation in Kigali Central Network_ - NR Electric Co. Ltd

- ☐ Hold Orientation/Kick-off Meeting* _____
☐
- ☐ Update & Progress in Weekly Job-Site Meetings* _____
☐
- ☐ Encourage Just-In-Time Deliveries _____
☐
- ☐ Post Targeted Materials (Signage) _____
☐
- ☐ Distribute Tip Sheets for Job-Site Personnel _____
☐
- ☐ Post Goals/Progress (Signage) _____ ☐
 _____ ☐

MOTIVATION PLAN - Except for mandatory items (*), check other items intended to be used.

Action	Who	When	Completed
<input type="checkbox"/> Use formal agreements committing Subs to program	_____		<input type="checkbox"/>
<input type="checkbox"/> Require Mis-Sorters to Re-Sort Bin	_____		
<input type="checkbox"/> Provide Stickers, T-Shirts, or Hats	_____		
<input type="checkbox"/> Public Recognition of Participating Subs	_____		
<input type="checkbox"/> Letters of Recognition	_____		<input type="checkbox"/>
<input type="checkbox"/> Awards	_____		<input type="checkbox"/>
	_____	<input type="checkbox"/>	

***EHSP for construction, rehabilitation and upgrading of 11
Substation in Kigali Central Network_ - NR Electric Co. Ltd***

EVALUATION PLAN - Except for mandatory items (*), check other items intended to be used.

Action	Who Completed	When
Perform Short Form Waste Audit 		
Perform Full Waste Audit 		
<input type="checkbox"/> Perform Mid-Course Assessment <input type="checkbox"/>		
Perform Monthly Cost and Materials Tracking* 		
Perform Final Evaluation* 		
_____ 	_____	