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Electrical Safety

Purpose:

To set out a procedure to establish the procedures to ensure safety from electrical risks (electrical hazards can cause burns, shocks and electrocution).

Hazard Mapping / Assessment:

Electric risk during installation and maintenance activities on site, from electrical installations in the warehouse and kiosks;

Incident Categorisation (may be Classification/ levels):

Burns, shocks and electrocution;

General Operating Procedures and Best Practices:

Workers may get exposed to safety hazards from contact with live power lines during on-site work. The prevention and control measures associated with live power lines/cables includes:

- Only trained and certified workers shall be allowed to install, maintain, or repair electrical equipment.
- Deactivate and properly ground live power cables before work is performed on, or in close proximity to the lines.
- Ensure that live-wire work is conducted by trained workers with strict adherence to specific safety and insulation standards. Qualified or trained employees working on transmission or distribution systems shall:

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1. Distinguish live parts from other parts of the electrical system.
2. Determine the voltage of live parts.
3. Understand the minimum approach distances outlined for specific live line voltages.
4. Ensure proper use of special safety equipment and procedures when working near, or on, exposed energized parts of an electrical system.

- Workers shall not approach an exposed, energized or conductive part even if properly trained unless:
  1. The worker is properly insulated from the energized part with gloves or other approved insulation;
  2. The energized part is properly insulated from the worker and any other conductive object; or
  3. The worker is properly isolated and insulated from any other conductive object (live-line work);
- Strict procedures for de-energizing and checking of electrical equipment shall be in place before any maintenance work is conducted. If de-energizing is not possible, electrical installations should be moved or insulated to minimize the hazardous effects;

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- In order to protect workers from electric shock in case of a faulted circuit to conductive equipment, all non-current carrying conductive components must be bonded together with a conductor of sufficient size. The impedance of the complete ground-fault circuit (phase conductor and bonding conductor) should be low enough to ensure sufficient flow of ground-fault current for fast operation of the proper circuit protective devices, and to minimize the potential for stray ground currents on solidly grounded systems. § Assume that all overhead wires are energized at lethal voltages. Never assume that a wire is safe to touch even if it is down or appears to be insulated.

- Never touch a fallen overhead power line. Call the electric utility company to report fallen electrical lines. § Stay at least 10 feet (3 meters) away from overhead wires during on-site activities. If working at heights or handling long objects, survey the area before starting work for the presence of overhead wires. § Never operate electrical equipment while you are standing in water. § If working in damp locations, inspect electric cords and equipment to ensure that they are in good condition and free of defects, and use a ground-fault circuit interrupter (GFCI).

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Use, Storage of Tools and Records maintenance:

Records to be maintained at site offices, Submitted to the Client in duplicate PPEs and Tools associated with the procedures to be stored at Site Offices

Safety Precautions:

Avoid working during rains, 'Use of signs, barriers (e.g. locks on doors, use of gates, use of steel posts surrounding transmission towers, particularly in urban areas), and education / public outreach to prevent public contact with potentially dangerous equipment;

- Grounding conducting objects (e.g. fences or other metallic structures) installed near power lines, to prevent shock
- Detection and Prevention mechanism in place; Other precautions are mentioned above;

Emergency Preparedness and Response (including PPE/First aid):

Employees who work directly with electricity should Use the personal protective equipment required for the jobs they perform.
This equipment may include rubber insulating gloves, hoods, sleeves, matting, blankets, line hose, and industrial protective helmets designed to reduce electric shock hazard. All help reduce the risk of electrical accidents.

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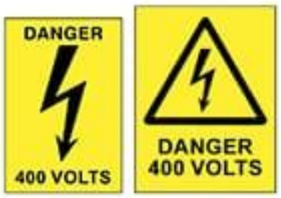
Signage systems and symbols or coding:

Buddy system for working at heights; Signage for public during the installation and maintenance plan;

 Voltage warning labels	 Electrical voltage symbol	 Danger of death from electricity warning	 Switch off when not in use
 Electric shock warning	 High voltage warning	 Overhead cables warning	 Live wires warning
 Buried cables warning	 Mains voltage warning	 Danger do not enter sign	 Warning to isolate before removing cover

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Usage monitoring procedures (or protocol for replacement / refurbishment):

Audit for faulty cables and electrical equipment; Conducting detailed identification and marking of all buried electrical wiring prior to any excavation work;

Site management:

HOUSEKEEPING STANDARDS

A. General Housekeeping: Each Contractor shall clean all areas of site and structure (exterior and interior) involved in its respective contract work immediately before final inspection;
B. Prevention and control measures as above;
   - Marking all energized electrical devices and lines with warning signs ·Locking out (de-charging and leaving open with a controlled locking device) and tagging-out (warning sign placed on the lock) devices during service or maintenance

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- Checking all electrical cords, cables, and hand power tools for frayed or exposed cords and following manufacturer recommendations for maximum permitted operating voltage of the portable hand tools
- Double insulating / grounding all electrical equipment used in environments that are, or may become, wet; using equipment with ground fault interrupter (GFI) protected circuits
- Protecting power cords and extension cords against damage from traffic by shielding or suspending above traffic areas
- Appropriate labelling of service rooms housing high voltage equipment (‘electrical hazard’) and where entry is controlled or prohibited (see also Section 3 on Planning, Siting, and Design);
- Establishing “No Approach” zones around or under high voltage power lines
- Rubber tired construction or other vehicles that come into direct contact with, or arcing between, high voltage wires may need to be taken out of service for periods of 48 hours and have the tires replaced to prevent catastrophic tire and wheel assembly failure, potentially causing serious injury or death;
- Conducting detailed identification and marking of all buried electrical wiring prior to any excavation work